NOTICE OF PROJECT CHANGE

3521-3529 Washington Street

Submitted to:

Boston Redevelopment Authority
One City Hall Square
Boston, Massachusetts 02201

Prepared by:

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

Submitted by:

SSG Development II, LLC
651 Washington Street, Suite 200
Brookline, Massachusetts 02446

New Boston Ventures, LLC
540 Tremont Street, Suite 8
Boston, Massachusetts 02116

In Association With:

BL Companies
Studio 3.0
Goulston & Storrs
Exclusive Real Estate Co.
Howard/Stein-Hudson Associates, Inc.
Kyle Zick Landscape Architecture, Inc.

August 25, 2014

Epsilon
ASSOCIATES INC.

NOTICE OF PROJECT CHANGE

3521-3529 Washington Street

Submitted to:

Boston Redevelopment Authority
One City Hall Square
Boston, Massachusetts 02201

Prepared by:

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

Submitted by:

SSG Development II, LLC
651 Washington Street, Suite 200
Brookline, Massachusetts 02446

New Boston Ventures, LLC
540 Tremont Street, Suite 8
Boston, Massachusetts 02116

In Association With:

BL Companies
Studio 3.0
Goulston & Storrs
Exclusive Real Estate
Howard/Stein-Hudson Associates, Inc.
Kyle Zick Landscape Architecture, Inc.

August 25, 2014

Table of Contents

Table of Contents

Table of Contents (continued)

Table of Contents (continued)

List of Appendices

List of Figures

List of Tables

Chapter 1.0

General Information / Project Description

1.0 GENERAL INFORMATION / PROJECT DESCRIPTION

1.1 Introduction

The 3521-3529 Washington Street project is proposed by SSG Development II, LLC and New Boston Ventures, LLC (the "Proponent")[1]. The site is located in the Jamaica Plain neighborhood of Boston, southwest of the intersection of Washington and McBride streets and adjacent to the Massachusetts Bay Transportation Authority's (MBTA) Orange Line right-of-way (the "Site"). The existing site includes warehouse buildings, some vacant and some occupied by a used car dealership, as well as hardscape. This underutilized site will be transformed by the proposed mixed-use development that will create new, attractive housing to expand the existing Burnett Street residential area, new commercial activity, including a new retail space that will bring pedestrian activity to the corner of Washington and McBride streets, as well as a significant new open space. The Project includes the construction of three buildings in total: a residential building, a mixed-use building with ground floor retail and residential space above, and a self-storage building (together, the "NPC Project"). These buildings will be enveloped by new landscaping around and through the Site, further improving the visual appeal of the area. A new open space will be located between the self-storage building and the residential building on Burnett Street, including a community garden, patio area, covered bike parking and connections to the Future Southwest Corridor Extension Bike Trail. The NPC Project will provide a number of public benefits, including, but not limited to, new residences, tax revenues, a community room, improved streetscapes, and environmental cleanup.

1.2 Project History

An Expanded Project Notification Form (PNF) was submitted to the Boston Redevelopment Authority (BRA) on August 22, 2011. The review of the PNF was put on hold as the Proponent determined a course of action regarding the environmental clean-up of the Site.

1.3 Project

1.3.1 Previously Proposed Project

The development described in the Expanded PNF included the construction of the five buildings: three residential buildings, a retail building, and a self-storage building (the "previously proposed project").

[1] The Proponent has changed since the PNF, which was SSG Development, LLC and New Boston Ventures, LLC.

The residential portion of the previously proposed project was located on the southern portion of the Site between the MBTA right-of-way and Burnett Street. South of the self-storage building was a surface parking lot with six spaces for residents of the two triplexes, which were south of the surface lot. The triplexes included one unit per floor. South of the triplexes was a three-story residential building with approximately 36 units and a partially below-grade parking garage with approximately 36 spaces beneath the building. Access and egress for the garage was from both the north and south sides of the building.

The self-storage building, located on the northwestern portion of the Site, was four stories tall with a small five story portion at the main entrance on McBride Street. The majority of the space included circulation and the storage areas, while an approximately 1,200 sf office for leasing and the sale of related materials (such as boxes, tape, etc.) was located on the first floor. There were approximately 1,233 storage units. A loading dock was located on the north side of the building.

The two-story retail building was located at the corner of Washington and McBride streets on the northeastern portion of the Site. On the north side of the building, an outdoor seating area was proposed.

Between the self-storage and retail buildings was a surface parking lot with approximately 73 spaces. Access and egress to the parking lot was from McBride Street and Burnett Street.

1.3.2 Project Changes

As shown in Table 1-1, the NPC Project program is the same as the previously proposed project, except for changes to the residential area on Burnett Street, parking and the retail building. The NPC Project includes three buildings: self-storage building, mixed-use building, and Burnett Street residential building. The changes, in response to comments from the community, include:

- The two triplex buildings are no longer proposed, and have been replaced by an expanded new open space and new community garden;
- The approximately 36-unit residential building, referred herein as the "Burnett Street residential building", has been expanded to include eight additional units and has increased in height by one story;
- The self-storage building (referred herein as the "self-storage building") has been moved closer to McBride Street, and the loading area has been moved to the center of the building, accessed from the surface parking lot, rather than fronting on McBride Street;

- The two-story retail building is now proposed to be a larger, five-story mixed-use building (referred herein as the "mixed-use building") with ground floor retail and approximately 88 residential units on the floors above, with access to a below-grade parking lot on the southern side of the building accessed from the surface parking lot; and loading accessed on both Washington Street and the surface parking area;

- A parking garage has been included below the mixed-use building; and

- The surface commercial parking lot has been reduced from approximately 73 spaces to approximately 50 spaces.

Table 1-1 Project Program Comparison

Project Element	PNF Program Approximate Dimension	Current NPC Program Approximate Dimension
Burnett Street Residential		
Burnett Building		
Gross Floor Area	42,600 sf / 36 units	53,750 sf / 44 units
Height	51 feet / 3 stories above one level parking deck	56 feet / 4 stories
Triplex Buildings		
Gross Floor Area	7,400 sf / 6 units	N/A
Height	41 feet / 3 stories	N/A
Total Residential Use	**50,000 sf / 42 units**	**53,750 sf / 44 units**
Self-storage Building		
Storage, accessory office, and retail Gross Floor Area	130,000 sf	**132,500 sf**
Height	47 feet / 4 stories	47 feet / 4 stories
Mixed-use Building		
Retail	28,000 sf	25,200 gsf
Residential	N/A	101,600 sf / 88 units
Height	29 feet / 2 stories	69 feet / 5 stories
Total Gross Floor Area	**28,000 sf**	**126,800 sf**
Total Project	**208,000 sf**	**313,050 sf**
Parking Spaces		
Burnett Building Garage	36 spaces	36 spaces
Retail/Residential Garage	N/A	80 spaces
Residential Surface	6 spaces	N/A
Commercial Surface	73 spaces	50 spaces
Total	**115 spaces**	**166 spaces**

Figures showing the Project Site, Site plans and Project images are located at the end of this chapter. Figure 1-1 is an aerial locus of the Project Site. Figure 1-2 shows the previous Site plan. Figure 1-3 shows the currently proposed Site plan. Figures 1-4 to 1-10 show current elevations, sections and perspectives of the NPC Project. Appendix A includes floor plans. The Project has been designed with accessibility in mind. The Accessibility Checklist is included in Appendix B.

1.4 Public Benefits

The NPC Project will have a number of community benefits, from improving an underused, unattractive Site, to providing tax revenue to the City of Boston. The NPC Project's public benefits include:

- The residential portion of the NPC Project will encompass 44 new homebuyer residences on Burnett Street and 88 homebuyer or rental residences in the mixed-use building that will help transform a parcel dominated by an unsightly metal warehouse into an attractive, welcoming and lively streetscape. With a variety of unit sizes and a mix of families and empty nesters, the development will help revitalize this area of Washington Street in Jamaica Plain, enhancing the neighborhood's residential character and generating new nearby residents to support local businesses.

- Eighteen new affordable residences will be created for first-time homebuying or renting families that will help meet the neighborhood demand for affordable housing.

- The NPC Project will include two of the few new residential buildings in this area of Jamaica Plain to feature an elevator (as requested in meetings with the neighborhood), specifically designed to create new housing opportunities for the area's growing elderly population to both downsize and remain in the neighborhood.

- New landscaping, including street trees and grass areas that act as buffers between the improved sidewalks and the Site, will improve the streetscape along Washington, McBride and Burnett streets.

- A new, approximately 0.44-acre landscaped open space between the self-storage building and Burnett Street residential building will add to the attractiveness of the streetscape, as well as provide an open space for the tenants of the residential building. This space is also proposed to include a community garden, patio meeting area, covered bicycle parking and connections to the Future Southwest Corridor Extension Bike Trail.

- The new ground floor retail space will bring life to the sidewalks and the Site, which is currently underused and unwelcoming.
- In addition to generating new local consumers for area businesses, the NPC Project will add revenues of approximately $700,000 in new property taxes annually to the City of Boston.
- The NPC Project will create approximately 80 full-time jobs.
- $100,000 commitment to the future expansion of the Southwest Corridor Park Bike Path.
- A room within the Project available for community use.
- It is estimated that the NPC Project will create approximately 350 construction jobs over the course of the development.
- The Proponent is in discussions to include space for a Zipcar and electric car charging stations.
- The self-storage building is an energy efficient and inherently sustainable building type that uses little energy, has very limited traffic, and is an ideal revenue-generating buffer between the residential neighborhood and the commercial zone of Washington Street.
- The redevelopment will fund the soils and groundwater environmental contaminant remediation per Massachusetts Department of Environmental Protection (MassDEP) regulations (MassDEP Release Tracking Number (RTN) 3-30389).

1.5 Legal Information

1.5.1 Legal Judgments Adverse to the Proposed Project

Since filing the PNF in 2011, the Proponent has learned that tax title proceedings for the Project Site have been initiated. The Proponent is working with the current owner of the Project Site to ensure that this issue is resolved prior to the Proponent's acquisition of the Project Site. The Proponent is not aware of any other legal judgments or legal actions pending with respect to the Project or the Project Site.

1.5.2 History of Tax Arrears

Neither SSG Development II, LLC nor New Boston Ventures, LLC is in tax arrears on any property owned within the City of Boston.

1.5.3 Site Control / Nature of Public Easements

An affiliate of SSG Development II, LLC has entered into an agreement with Burnett Realty Co., Inc. to acquire the Project Site. The agreement permits the Proponent to seek public approvals for the Project. Based on the title report and survey for the Project Site, the following public easements affect the Project Site:

Based on the title report and survey for the Site, the following public easements affect the Site:

1. Rights in common with others regarding the use of Burnett Street as set forth in a deed dated July 9, 1915 recorded with the Suffolk County Registry of Deeds (the "Registry") in Book 3891, Page 601;

2. Taking for the widening of Burnett Street as set forth in an instrument dated January 8, 1976 recorded with the Registry in Book 8859, Page 398; and

3. An 1898 taking by the City of Boston described in an instrument recorded with the Registry in Book 2508, Page 475 affects a strip of land on the northeast corner of the Site along the MBTA Southwest Corridor right-of-way. The easement prohibits construction of structures in the easement area without express permission, but allows the owner to use the surface of the land. The Proponent has been informed that the sewer line to which the easement relates was relocated during Southwest Corridor construction, and the Proponent has approached the Boston Water and Sewer Commission about abandoning the easement. The NPC Project as proposed can be built without locating any permanent improvements in the easement area.

The Site is currently a single lot, and the Proponent plans to construct the NPC Project as a comprehensively planned and coordinated endeavor. In order to facilitate separate ownership and financing of each NPC Project component, the Proponent plans to subdivide the property so that each building in the NPC Project and its supporting facilities is located on a separate lot, with cross-easements as necessary.

The Site was formerly an industrial use, and an area near the MBTA right-of-way has evidence of the past release of oil or hazardous materials in excess of state standards. This condition will be addressed appropriately as part of the Project through a combination of testing, remediation and/or deed restrictions. The Project will also fund the soils and groundwater environmental remediation per Massachusetts Department of Environmental Protection (MassDEP) regulations (MassDEP Release Tracking Number (RTN) 3-30389).

1.5.4 Zoning

1.5.4.1 Zoning Districts and Subdistricts

The entire Site is located within the Local Industrial Subdistrict ("LI Subdistrict") of the Jamaica Plain Neighborhood District governed by Article 55 of the City of Boston Zoning Code (the "Code"). An approximately 20 – 30 foot strip of the Property along the westerly lot line abutting the MBTA right-of-way is also located within the Southwest Corridor Greenbelt Protection Overlay District. The Project has been designed generally to comply with the requirements of the Code, although certain zoning relief described below will be required from the Board of Appeal.

1.5.4.2 Use Regulations

As described in more detail above, the NPC Project is anticipated to include (a) a self-storage building consisting of approximately 132,500 sf, (b) a mixed-use building consisting of approximately 126,800 sf, including approximately 101,600 sf on floors two through five devoted to residential uses (approximately 88 residential units) and approximately 25,200 sf on the ground floor devoted to retail, restaurant and service uses, (c) a residential building (the Burnett Street residential building) consisting of approximately 53,750 sf (approximately 44 residential units), and (d) approximately 166 off-street parking spaces serving the NPC Project, 36 of which will be located in a parking garage underneath the Burnett Street residential building, 80 of which will be located in a parking garage underneath the mixed-use building, and 50 of which will be surface parking spaces located partially on the same lot as the self-storage building and partially on the same lot as the mixed-use building.

The self-storage building constitutes a "Warehousing" use under the Code, which is a permitted use in the LI Subdistrict. "Local Retail Business"[2] and many service uses are permitted in the LI Subdistrict as-of-right. Some uses anticipated for the NPC Project, such as health clubs and take-out restaurants, are conditional uses in the LI Subdistrict and will require a conditional use permit from the Board of Appeal. The residential uses proposed for the mixed-use building and Burnett Street residential building are currently not allowed in the LI Subdistrict, so a use variance from the Board of Appeal will be required for such uses, as well as for parking accessory thereto. The 50 surface parking spaces located partially on the self-storage building lot and partially on the mixed-use building lot may be

[2] "Local Retail Business" is broadly defined in the Code as "a store primarily serving the local retail business needs of the residents of the neighborhood, but not constituting an adult bookstore or adult entertainment business, including, but not limited to, store retailing or renting one or more of the following: food, baked goods, groceries, drugs, videos, computer software, tobacco products, clothing, dry goods, books, flowers, paint, hardware, and minor household appliances, but not including a bakery or liquor store."

shared, which would result in an ancillary parking use on each lot. Ancillary parking is a conditional use in the LI Subdistrict, so a conditional use permit will be required for any such shared parking arrangement.

Additionally, a conditional use permit may be required for any component of the NPC Project greater than 5,000 sf located on the portion of the Site located in the Southwest Corridor Greenbelt Protection Overlay District.

1.5.4.3 Dimensional Regulations

The LI Subdistrict has a maximum building height of 35 feet, a maximum floor area ratio ("FAR") of 1.0, a minimum usable open space per dwelling unit requirement of 50 square feet, and a minimum rear yard requirement of 20 feet. According to the Code, a 10 foot setback is also required from the portion of the southerly lot line of the Burnett Street residential building lot that abuts the residential lot located within the adjacent Three-Family Residential (3F-5000) Subdistrict. There are no other dimensional requirements in the LI Subdistrict. It is anticipated that the self-storage building, the mixed-use building, and the Burnett Street residential building will be separately owned and located on three separate lots. Therefore, each NPC Project component has been evaluated separately for zoning purposes. The dimensional requirements will be finalized once the final lot separation is determined.

The self-storage building is expected to have a building height of approximately 61 feet, an FAR of approximately 2.09 (based on an expected lot size of approximately 63,320 sf), and a rear yard that is expected to be greater than 20 feet. The mixed-use building is expected to have a building height of approximately 68 feet, an FAR of approximately 2.08 (based on an expected lot size of approximately 61,101 sf), more than 50 sf of usable open space per residential unit, and a rear yard that is expected to be greater than 20 feet. The Burnett Street residential building is expected to have a building height of approximately 50 feet, an FAR of approximately 2.31 (based on an expected lot size of approximately 23,293 sf), more than 50 sf of usable open space per residential unit, a setback of more than 10 feet along the portion of the Burnett Street residential building lot that abuts the residential lot located in the adjacent 3F-5000 residential district, and a rear yard that is expected to be less than 20 feet.

Note that the estimated combined FAR for the entire Site is expected to be approximately 2.12.

Accordingly, each component will require variances from the foregoing dimensional requirements of the Code.

1.5.4.4 Parking and Loading Requirements

Off-street parking and loading requirements will be determined by the BRA during Article 80 Large Project Review.

1.6 Regulatory Controls and Permits

Table 1-2 lists the anticipated permits and approvals from governmental agencies which are presently expected to be required for the NPC Project. It is possible that not all of these permits or actions will be required, or that additional state or local permits or actions may be required.

Table 1-2 Anticipated Permits and Approvals

Agency	Approval
City of Boston	
Boston Redevelopment Authority	Article 80B Large Project Review; Cooperation Agreement; Affordable Housing Agreement; other applicable Article 80 agreements
Boston Zoning Board of Appeal	Zoning Relief
Boston Civic Design Commission	Schematic Design Review
Boston Landmarks Commission	Article 85 Review (Determination of No Significance)
Boston Water and Sewer Commission	Site Plan Review; General Service Application; Construction Site Dewatering; Water and Sewer Connection Permits
Public Improvement Commission	Specific Repairs; Street or Sidewalk Repairs; Street Occupancy or Opening Permit
Boston Transportation Department	Construction Management Plan; Transportation Access Plan Agreement
Boston Public Works Department	Curb Cut Permit(s)
Boston Parks and Recreation Department	Approval of work within 100 feet of Park or Parkway and within the Greenbelt Protection Overlay District
Boston Committee on Licenses	Flammable Storage License; Parking Garage License
Boston Inspectional Services Department	Demolition; Other Construction-Related Permits; Site Cleanliness Permit; Building Permit; Certificates of Occupancy
Boston Fire Department	Approval of Fire Safety Equipment

1.7 Schedule

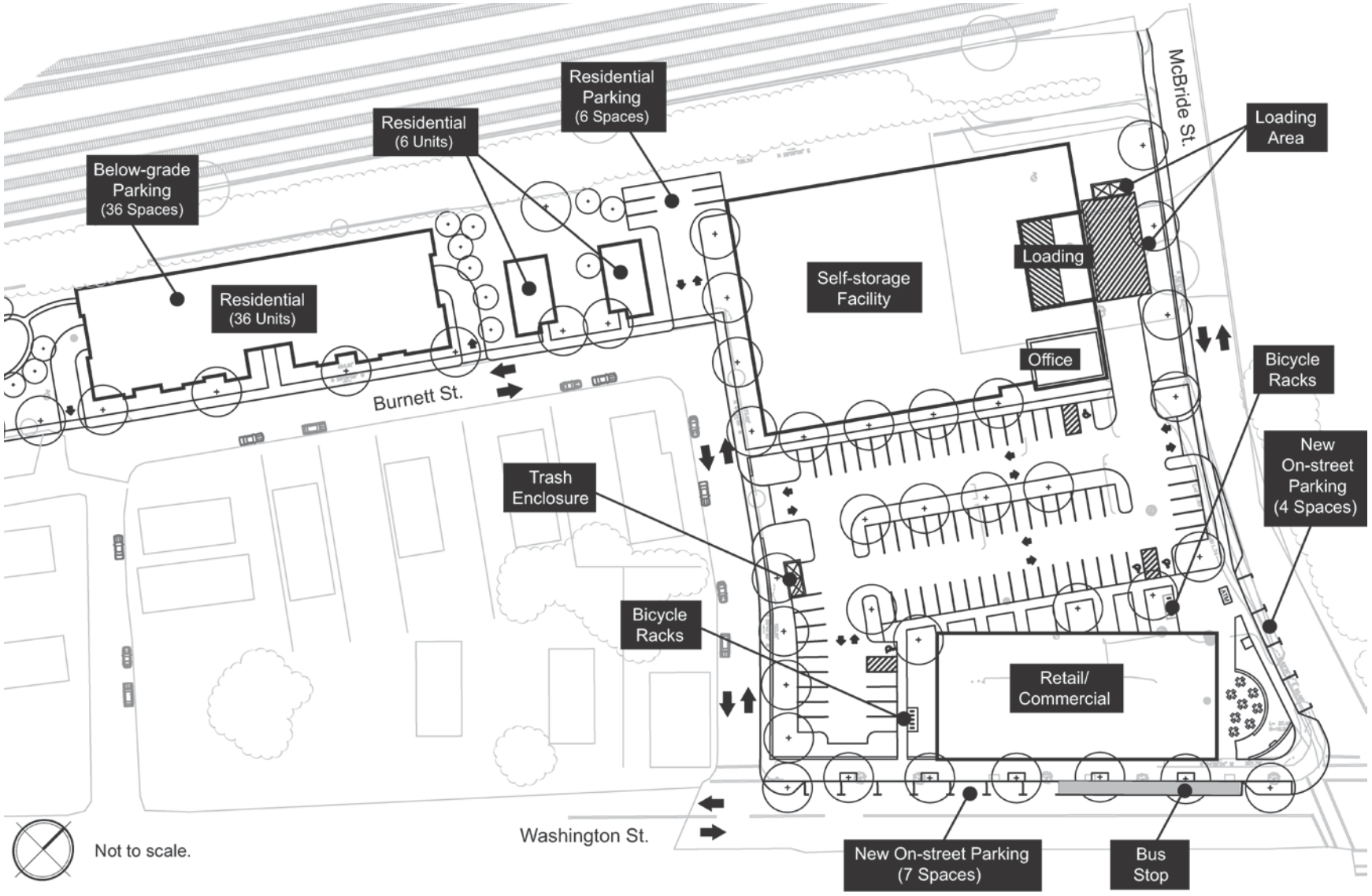
Commencement of the NPC Project is anticipated in the first quarter of 2015. Construction will occur over approximately 24 months.

G:\Projects2\MA\Boston\3132\aerial.mxd

3521-3529 Washington Street Boston, MA

Epsilon Associates Inc.

Figure 1-1
Aerial Locus



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 1-2
Previous Site Plan

3521-3529 Washington Street NPC Boston, Massachusetts

kzla

Figure 1-3

Proposed Site Plan

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 1-4

Residential Building North and South Elevations

1 EXTERIOR ELEVATION - WEST

EXTERIOR ELEVATION - NORTH - MCBRIDE STREET

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 1-5

Mixed-use West and North Elevations

1 EXTERIOR ELEVATION - EAST - WASHINGTON STREET

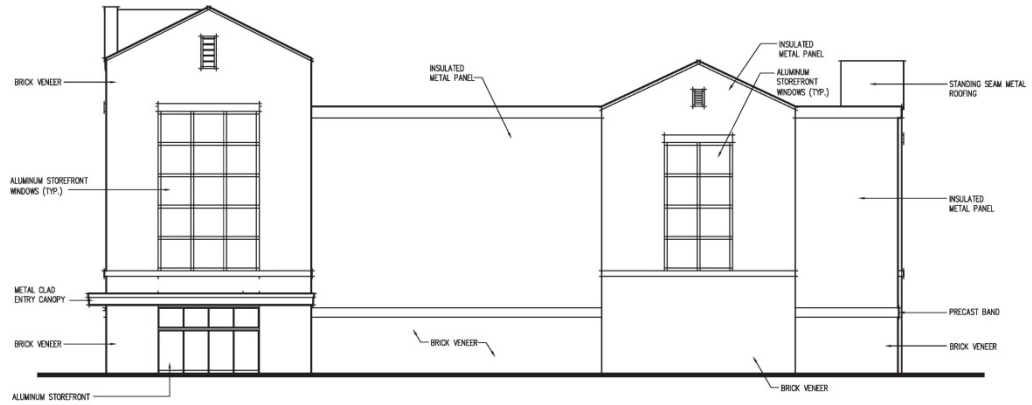
2 EXTERIOR ELEVATION - SOUTH

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 1-6

Mixed-use East and South Elevations

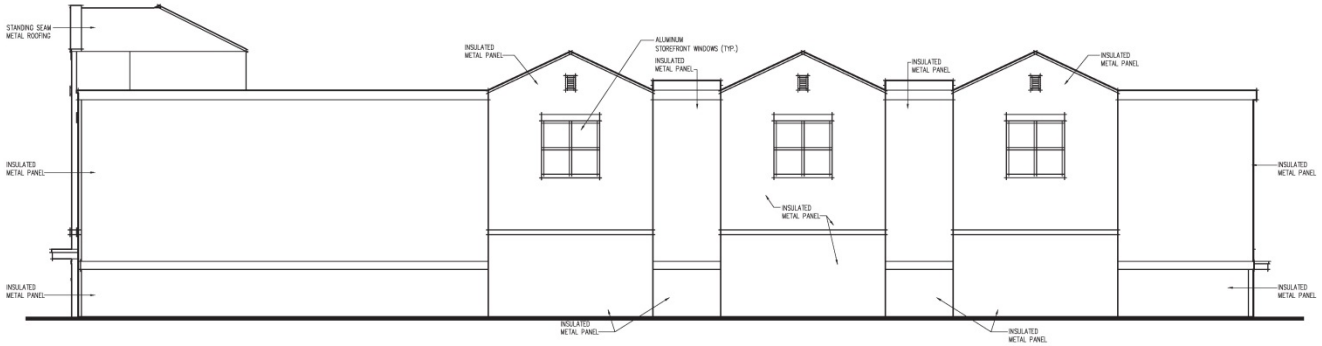
EAST ELEVATION



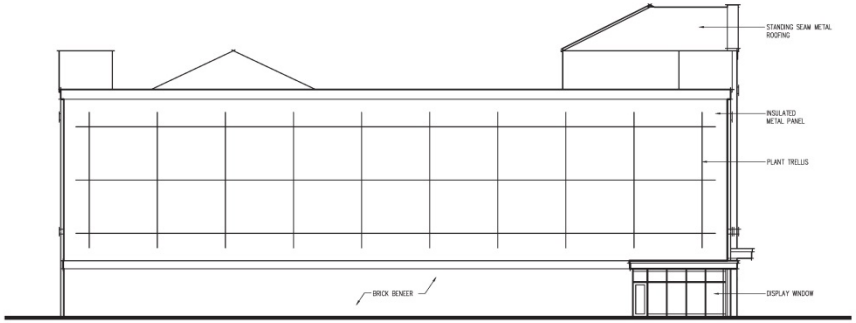
NORTH ELEVATION

Figure 1-7

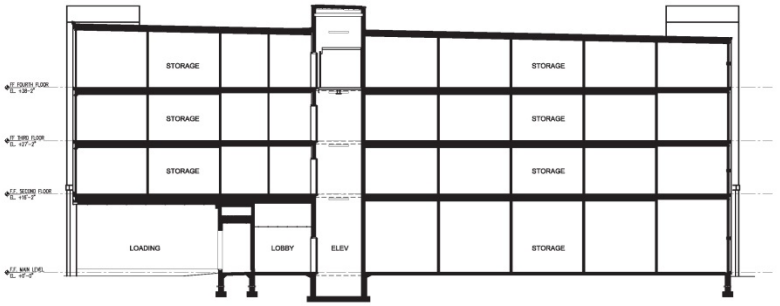
Self Storage East and North Elevations



WEST ELEVATION



SOUTH ELEVATION



SECTION

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 1-8

Self Storage West and South Elevations and Section

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 1-9

Mixed-use and Self Storage Buildings Perspectives

Figure 1-10

Burnett Street Residential Building Perspective

Chapter 2.0

Transportation Component

2.0 TRANSPORTATION COMPONENT

2.1 Introduction

2.1.1 Purpose of the Transportation Component

Howard/Stein-Hudson Associates, Inc. (HSH) has conducted an evaluation of the transportation impacts of the proposed mixed-use development to be located at 3521-3529 Washington Street in the Jamaica Plain neighborhood of Boston. This transportation study adheres to the Boston Transportation Department (BTD) *Transportation Access Plan Guidelines* and the BRA Article 80 development review process. The study includes an evaluation of existing conditions, future conditions with and without the NPC Project, projected parking demand, loading operations, transit services, and pedestrian/bicycle activity.

2.1.1.1 Previous Transportation Analyses

The PNF for the previously proposed project (dated August 22, 2011) contained a comprehensive transportation analysis prepared by HSH. At that time, the previously proposed project consisted of the construction of a new approximately 130,000 sf self-storage building; approximately 28,000 sf of commercial space including 14,000 sf of ground floor retail space and 14,000 sf of commercial space (e.g. health club, medical office, etc.) on the second level; and approximately 42 residential units comprised of two triplex buildings and a primary building. The residential units were to be located on the southern portion of the Site adjacent to Burnett Street and the non-residential buildings to be located on the southwest quadrant of the Washington Street/McBride Street/Rossmore Road intersection. Approximately 115 parking spaces were to be provided on-site. Access to the non-residential buildings was to be provided by way of a driveway along the southerly side of McBride Street and a driveway along the northerly side of Burnett Street. Access to the residences was to be provided by driveways along the westerly side of Burnett Street.

The transportation analysis documented the existing traffic and pedestrian volumes, transit services, and parking regulations. The analysis included trip generation estimates for the previously proposed project and an evaluation of traffic operations for the Existing conditions; No Build conditions, including new traffic resulting from general background growth and any identified nearby development projects; and Build conditions, including the specific travel demand forecasts for the previously proposed project. Based on the transportation analysis presented in the PNF, operations at the study area intersections were shown to be acceptable under all scenarios and did not require any additional mitigation to offset the previously proposed project's impacts. The proposed mitigation outlined in the PNF included transportation demand management (TDM) measures such as appointing a transportation coordinator for the Project, providing secure bicycle storage spaces on-site, and exploring the feasibility of providing a car sharing service on the Site.

2.1.1.2 Notice of Project Change

The Proponent is submitting this NPC to redevelop the Site to include the construction of a new approximately 132,500 sf self-storage building; approximately 25,200 sf of commercial space; and 132 residential units. The Site is located at 3521-3529 Washington Street in Jamaica Plain and is bounded by McBride Street to the north; Burnett Street to the south and east; Washington Street to the east; and the Southwest Corridor and the Massachusetts Bay Transportation Authority (MBTA) Orange and Needham Commuter Rail lines to the west as shown in Figure 2-1. The Site is located adjacent to MBTA bus route 42 and approximately one-third of a mile north of Forest Hills Station, which provides access to the MBTA Orange Line and Commuter Rail.

Similar to the previously proposed project, the commercial space will be located on the southwest quadrant of the Washington Street/McBride Street/Rossmore Road intersection. The residential units will be split between the building located in the southern portion of the Site along Burnett Street (approximately 44 units) and above the commercial space (approximately 88 units).

Approximately 166 parking spaces and 132 secure bicycle storage spaces will also be provided on the Site. A total of approximately 36 parking spaces will be provided for the residential units in the southern portion of the Site, and will be located in a partially below-grade garage below the residences. Parking will be provided in the northern portion of the site in an approximately 50-space surface lot that will serve the commercial uses on the Site, and a below-grade garage that will serve both the residential uses (approximately 68 spaces) and commercial uses (approximately 12 spaces). The parking ratio is consistent with the proposed goals for residential developments within the Jamaica Plain neighborhood. On-site, secure storage will be provided for approximately 132 bicycles (one per unit) and will be located in the garages. The Proponent will also work with a car sharing service to determine the feasibility of providing on-site car sharing vehicles. Three electric vehicle charging stations will also be located on the site.

Vehicular access to the primary residential building along Burnett Street will be provided by a one-way enter-only driveway along the north side of the building and a one-way exit-only driveway along the south side of the building. Access to the surface lot and garage that will serve the commercial and mixed-use buildings on the southwest quadrant of the Washington Street/McBride Street/Rossmore Road intersection will be provided by a single driveway along McBride Street, approximately 250 feet west of Washington Street. The previously proposed driveway along the northerly side of Burnett Street has been removed as part of the NPC Project.

Primary pedestrian access for the residential units in the southern portion of the Site will be provided along Burnett Street. Pedestrian access for the northern portion of the Site will be provided off of Washington Street and McBride Street, with additional access provided off the surface parking lot and through the garage.

Loading, deliveries, and trash pick-up for the residential building on the southern portion of the Site will take place along Burnett Street. For the northern portion of the Site, these activities will take place on-site in the surface parking lot. The NPC Project is designed to minimize impacts to the public parking, sidewalks, and adjacent roadways.

An updated transportation analysis is provided in this chapter that incorporates updated data and information including new traffic, pedestrian, and bicycle counts at one additional intersection at the request of the BTD; updated trip generation estimates; an update of the public transportation facilities; and proposed TDM measures that are consistent with the current City of Boston guidelines.

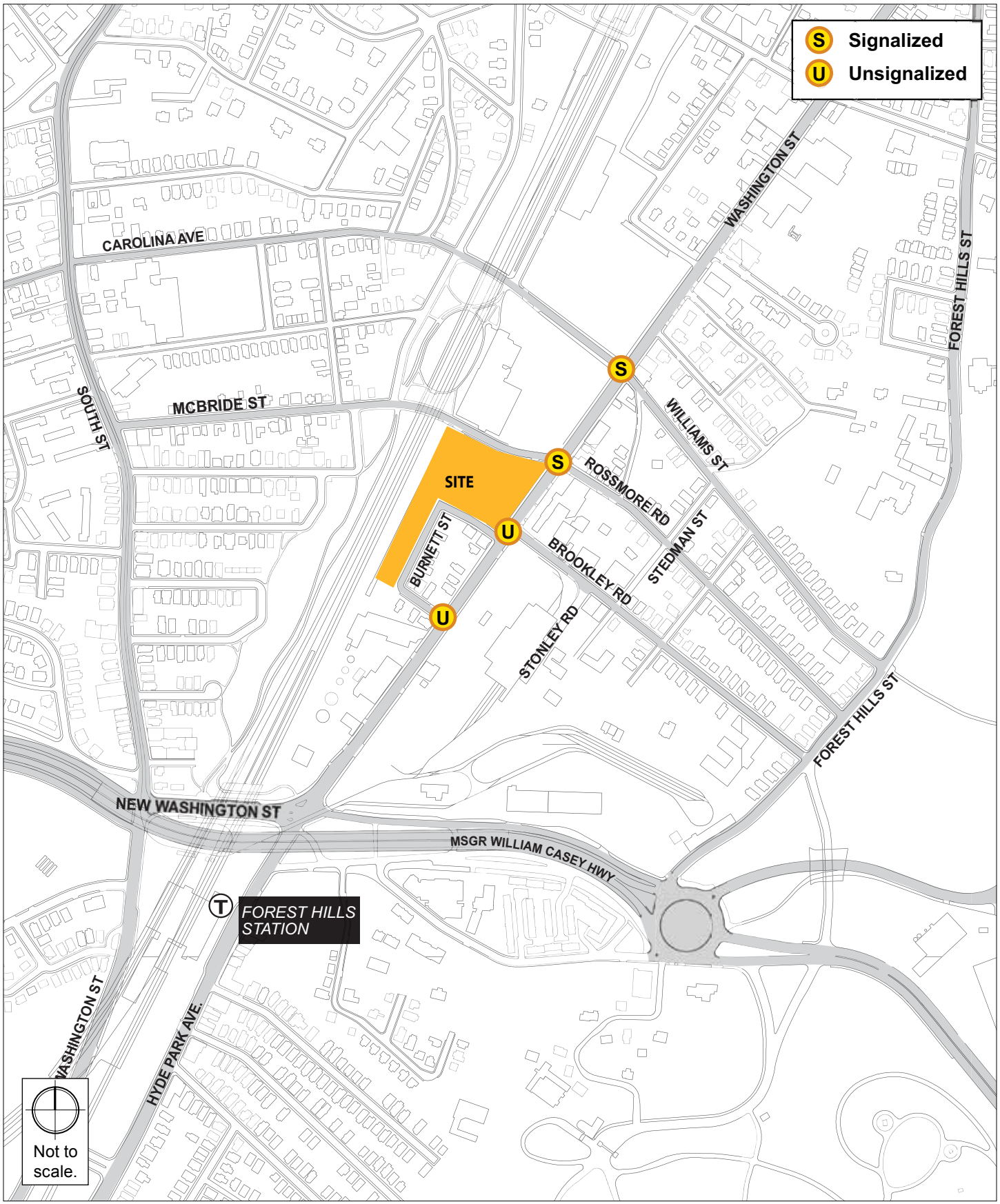
The NPC Project is expected to have negligible impact on the transportation facilities in the area. The signalized intersections within the study area are expected to operate at an overall LOS D or better during the a.m. and p.m. peak hours upon the full build-out of the NPC Project. When compared to the previously proposed project, the NPC Project generally has little impact upon operations at the intersections in the vicinity of the Site. This chapter documents the overall impact of the NPC Project and provides a comparison to the previously proposed project, where applicable.

The building programs for the previously proposed project and the NPC Project are shown and compared in Table 2-1.

Table 2-1 Building Program Comparison

Program Description	Previously Proposed Project	NPC Project	Change
Residential	42 units	132 units	+90 units
Commercial	28,000 sf	25,200 sf	-2,800 sf
Self-storage Facility	130,000 sf	132,500 sf	2,500 sf
Parking Spaces	115	166	+51
Secure/Covered Bicycle Storage Spaces	n/a	132	n/a

As shown in Table 2-1, the NPC Project will not change the square footage of the self-storage facility. When compared to the previously proposed project, the NPC Project will provide an additional approximately 90 residential units, a reduction of approximately 2,800 sf in the commercial space, an increase of approximately 2,500 sf of self-storage space, 51 additional parking spaces, and additional secure bicycle storage.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-1
Study Area Intersections

2.1.2 Study Area

The study area is generally consistent with the transportation evaluation included in the 2011 PNF with the addition of Washington Street/Williams Street and consists of the following five intersections, also shown on Figure 2-1:

- Washington Street/Williams Street (signalized);
- Washington Street/McBride Street/Rossmore Road (signalized);
- Washington Street/Brookley Road (unsignalized);
- Washington Street/Burnett Street (North) (unsignalized); and
- Washington Street/Burnett Street (South) (unsignalized).

2.1.3 Study Methodology

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

The Existing conditions analysis includes an inventory of the existing (2014) transportation conditions such as traffic characteristics, parking and curb usage, transit, pedestrian circulation, bicycle facilities, loading, and Site conditions. Existing counts for vehicles, bicycles, and pedestrians were collected on March 24, 2011 at the study intersections that were analyzed in the 2011 PNF. Additional counts were collected at the intersection of Washington Street/Williams Street on February 26, 2014. To represent 2014 traffic volume conditions, an adjustment to the traffic data was necessary to account for traffic growth since 2011; therefore a background traffic growth rate of 0.5 percent per year was applied to the 2011 counts. A more detailed discussion of the background traffic growth rate is provided later in this chapter. The traffic counts form the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the NPC Project. Long-term impacts are evaluated for the year 2019, based on a five-year horizon from the year of the filing of this traffic study. Expected roadway, parking, transit, pedestrian, bicycle accommodation, and loading capabilities and deficiencies are identified. This section includes the following scenarios:

- The 2019 No Build conditions scenario includes both general background traffic growth and traffic growth associated with specific developments and transportation improvements that are planned in the vicinity of the Site.

- The 2019 Build conditions scenario includes NPC Project-generated traffic volume estimates added to the traffic volumes developed as part of the 2019 No Build conditions scenario.

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

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

2.2 Existing Conditions

2.2.1 Existing Roadway Conditions

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

Washington Street

- Is adjacent to the east side of the Site.
- Is classified as an urban principal arterial roadway.
- Runs in a north-south direction through downtown Boston, South End, Roxbury and Jamaica Plain.
- Is a two-way roadway with a single travel lane in each direction and parking provided along both sides in the vicinity of the Site.
- Parking is generally permitted along both sides of Washington Street north and south of the Site. Parking is prohibited along both sides of Washington Street immediately adjacent to the Site.
- Sidewalks are provided along both sides of Washington Street.

Williams Street

- Is located north of the Site.
- Is classified as a local roadway.
- Runs in an east-west direction between Everett Street to the west and Forest Hills Street to the east.

- Is a two-way roadway with a single travel lane in each direction.
- Parking is permitted along both sides of Williams Street, east of Washington Street and prohibited along Williams Street, west of Washington Street.
- Sidewalks are provided along both sides of Williams Street.

Rossmore Road

- Is located north of the Site.
- Is classified as a local roadway.
- Runs one-way westbound from Forest Hills Street to Washington Street with a single travel lane and parking is provided along both sides in the vicinity of the Site.
- Sidewalks are provided along both sides of Rossmore Road.

McBride Street

- Is adjacent to the north side of the Site.
- Is classified as an urban minor arterial roadway.
- Runs in an east-west direction between Washington Street to the east and South Street to the west.
- Is a two-way roadway with a single travel lane in each direction.
- Parking is prohibited along both sides of McBride Street in the vicinity of the Site.
- Sidewalks are provided along both sides of McBride Street.

Brookley Road

- Is located east of the Site.
- Is classified as a local roadway.
- Runs in an east-west direction between Washington Street to the west and Forest Hills Street to the east.
- Is a two-way roadway with a single travel lane in each direction.
- Parking is prohibited along both sides of the roadway in the vicinity of the Site.
- Sidewalks are provided along both sides of Brookley Road.

Burnett Street

- Is adjacent to the east and south side of the Site.
- Is classified as a local roadway.
- Is a two-way roadway with a single travel lane in each direction.
- Parking is permitted along both sides of Burnett Street.
- Sidewalks are provided along both sides of Burnett Street.

2.2.2 Existing Intersection Conditions

Existing conditions at each of the study area intersections are described below.

Washington Street/Williams Street

- Is a four-legged, signalized intersection under BTD jurisdiction.
- The Washington Street northbound and southbound approaches consist of single travel lanes.
- The Williams Street eastbound approach consists of single travel lane that accommodates left-turn, through, and right-turn movements.
- Williams Street is one-way eastbound, departing the intersection.
- An MBTA bus stop is provided along Washington Street southbound, south of Williams Street.
- Crosswalks are provided across all legs of the intersection.
- Sidewalks are provided along both sides of all approaches.

Washington Street/Rossmore Road/McBride Street

- Is a four-legged, signalized intersection under BTD jurisdiction.
- The Washington Street northbound approach consists of a shared left-turn/through lane, however field observation indicate that the approach generally operates as two lanes during times of congestion as an exclusive left-turn lane and a through lane.
- The Washington Street southbound approach consists of a shared through/right-turn lane.
- The McBride Street eastbound approach consists of a shared left-turn/right-turn lane.

- The Rossmore Road westbound approach consists of a shared left-turn/ through/right-turn lane.
- Crosswalks are provided across all legs of the intersection.
- Sidewalks are provided along both sides of all approaches.

Washington Street/Brookley Road/Burnett Street (north)

- Is an offset, four-legged, unsignalized intersection under BTD jurisdiction.
- The Washington Street northbound and southbound approaches consist of single travel lanes.
- The Brookley Street westbound approach is offset to the north and consists of a single travel lane under STOP control.
- The Burnett Street (north) eastbound approach is offset to the south and consists of a single travel lane under STOP control.
- MBTA bus stops are located along the Washington Street northbound and southbound approaches.
- A crosswalk is provided across the Burnett Street leg of the intersection.
- Sidewalks are provided along both sides of all approaches.

Washington Street/Burnett Street (south)

- Is a three-legged unsignalized intersection under BTD jurisdiction.
- The Washington Street northbound and southbound approaches consist of single travel lanes.
- The Burnett Street (south) eastbound approach consists of a single lane under STOP control.
- A crosswalk is provided across the Burnett Street leg.
- Sidewalks are provided along both sides of all approaches.

2.2.3 Existing Traffic Conditions

Traffic movement data was collected on Tuesday, May 24, 2011 at the intersections analyzed in the PNF and on Wednesday, February 26, 2014 at the intersection of Washington Street/Williams Street. Manual turning movement counts (TMCs) and vehicle

classification counts were conducted during the weekday a.m. and p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively) for the study area intersections.

To represent 2014 traffic volume conditions, an adjustment to the traffic data was necessary to account for traffic growth since 2011; therefore a background traffic growth rate of 0.5 percent per year was applied to the 2011 counts. A more detailed discussion of the background traffic growth rate is provided later in this chapter.

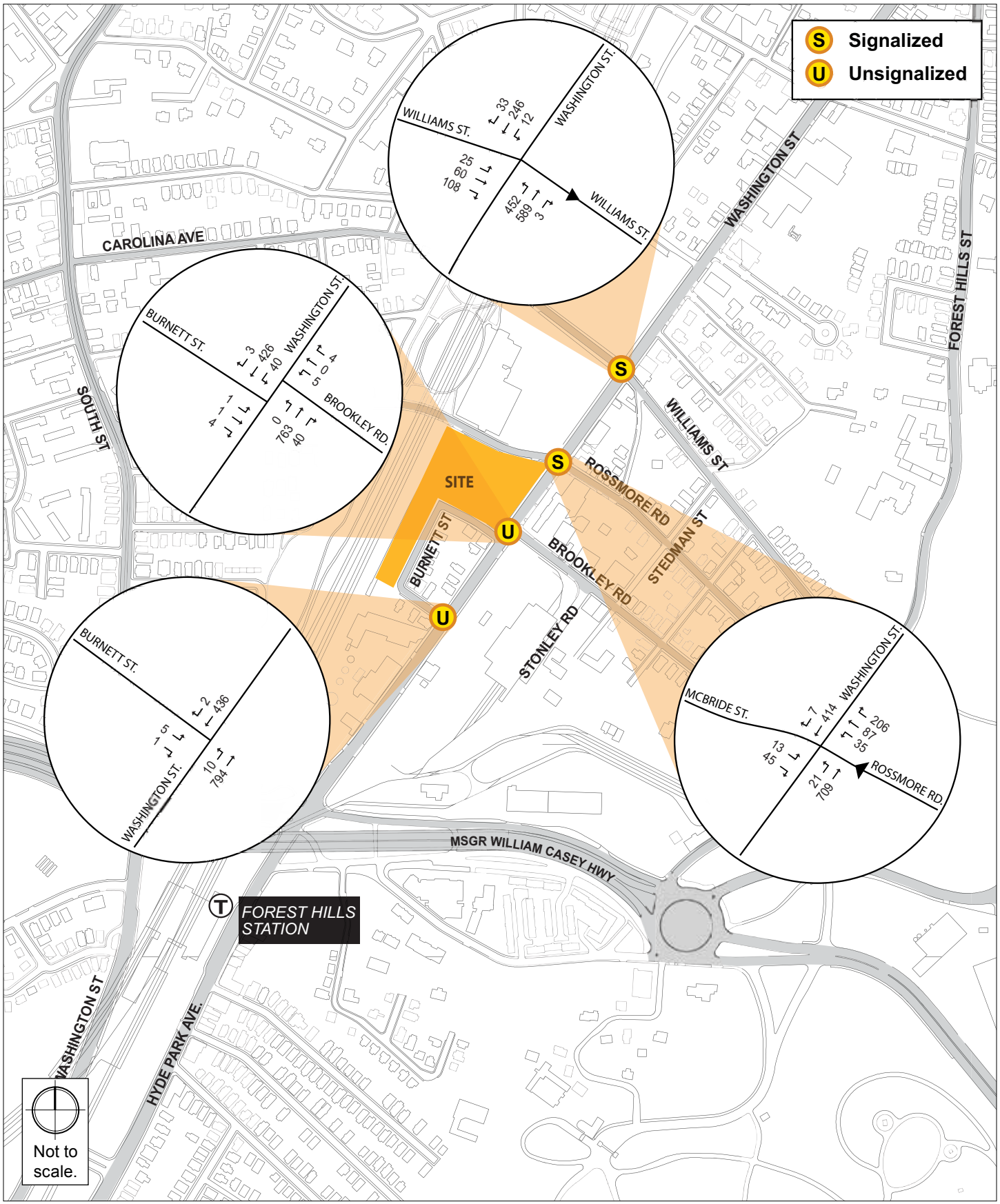
The vehicle classification counts included car, truck, pedestrian, and bicycle movements. Based on the TMCs, the peak hours of vehicular traffic throughout the study area are generally 7:45 – 8:45 a.m. and 4:45 – 5:45 p.m. The detailed traffic counts are provided in Appendix C.

2.2.3.1 Seasonal Adjustment

In order to account for seasonal variation in traffic volumes throughout the year, data provided by MassDOT were reviewed. Typically, nearby continuous traffic count stations are used to determine monthly fluctuations in traffic volumes. The most recent (2011) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the May 2011 and February 2014 TMCs. The 2011 seasonal adjustment factor for February and May for roadways similar to the study area is 1.01 and 0.91, respectively, which indicates that average month traffic volumes are approximately one percent higher than typical February traffic volumes, and nine percent lower than typical May traffic volumes. To account for the seasonal variation of the traffic volumes throughout the year, the February counts were adjusted upwards by one percent to reflect average month conditions. May traffic volumes were not adjusted downward. The 2014 Existing weekday a.m. and p.m. peak hour traffic volumes are shown in Figure 2-2 and Figure 2-3, respectively.

2.2.4 Existing Traffic Operations

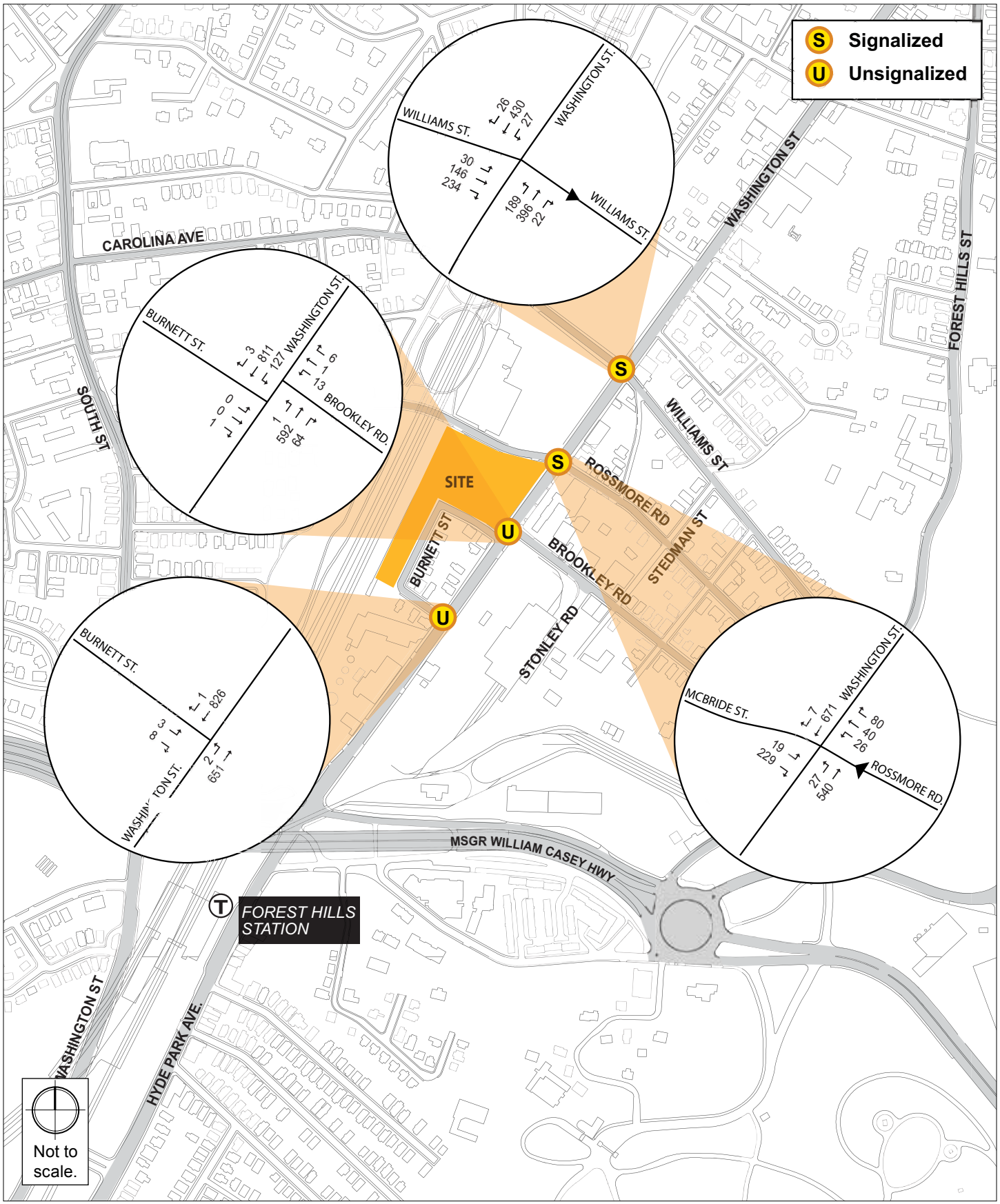
The criterion for evaluating traffic operations is level of service (LOS), which is determined by assessing average delay experienced by vehicles at intersections and along intersection approaches. Trafficware's Synchro (version 6) software package was used to calculate average delay and associated LOS at the study area intersections. This software is based on the traffic operational analysis methodology of the Transportation Research Board's 2000 Highway Capacity Manual (HCM). Field observations were performed by HSH to collect intersection geometry such as number of turning lanes, lane length, and lane width that were then incorporated into the operations analysis.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-2
Existing Conditions (2014) Turning Movement Volumes, a.m. Peak Hour



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-3
Existing Conditions (2014) Turning Movement Volumes, p.m. Peak Hour

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. Table 2-2 displays the intersection LOS criteria. LOS A indicates the most favorable condition, with minimum traffic delay, while LOS F represents the worst (unacceptable) condition, with significant traffic delay. LOS D or better is typically considered acceptable in an urban area. However, LOS E or F is often typical for a stop controlled minor street that intersects a major roadway.

Table 2-2 Intersection Level of Service Criteria

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

Source: 2000 Highway Capacity Manual, Transportation Research Board

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

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

The 50th percentile queue length, measured in feet, represents the maximum queue length during a cycle of the traffic signal with typical (or median) entering traffic volumes.

The 95th percentile queue length, measured in feet, represents the farthest extent of the vehicle queue (to the last stopped vehicle) upstream from the stop line during five percent of all signal cycles. The 95th percentile queue will not be seen during each cycle. The queue would be this long only five percent of the time and would typically not occur during off-peak hours. Since volumes fluctuate throughout the hour, the 95th percentile queue represents what can be considered a "worst case" scenario. Queues at the intersection are generally below the 95th percentile queue throughout the course of the peak hour. It is also unlikely that the 95th percentile queues for each approach to the intersection will occur simultaneously.

Table 2-3 and Table 2-4 present the 2014 Existing conditions operational analysis for the study area intersections during the a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix C.

Table 2-3 Existing Conditions (2014) Level of Service, a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
Washington Street/McBride Street/Rossmore Road	**C**	**28.7**	**-**	**-**	**-**
McBride Street EB Left/Right	C	30.1	0.25	37	59
Rossmore Road WB Left/Thru/Right	D	54.4	0.91	168	252
Washington Street NB Left*	B	12.7	0.08	4	25
Washington Street NB Thru	C	24.0	0.78	270	#786
Washington Street SB Thru/Right	B	17.0	0.52	184	m#417
Washington Street/Williams Street	**D**	**41.3**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	D	51.7	0.82	129	161
Washington Street NB Left	E	79.4	>1.00	~225	m#580
Washington Street NB Thru/Right	B	19.5	0.68	220	#539
Washington Street SB Left	C	28.4	0.23	3	m10
Washington Street SB Thru/Right	B	17.8	0.42	80	m191
Unsignalized Intersections					
Washington Street/Burnett Street (north)/Brookley Road	-	-	-	-	-
Burnett Street EB Left/Thru/Right	C	18.7	0.03	-	2
Brookley Road WB Left/Thru/Right	D	29.0	0.07	-	6
Washington Street NB Left/Thru/Right	A	0.0	0.00	-	0
Washington Street SB Left/Thru/Right	A	1.6	0.06	-	5
Washington Street/Burnett Street (south)	-	-	-	-	-
Burnett Street EB Left/Right	D	29.1	0.10	-	8
Washington Street NB Left/Thru	A	0.3	0.01	-	1
Washington Street SB Thru/Right	A	0.0	0.28	-	0

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.
~ = Volume exceeds capacity; queue is theoretically infinite. Queue shown is maximum after two cycles.
m = Volume for 95th percentile queue is metered by upstream signal.
* The Washington Street northbound left movement was analyzed as a separate turn lane to reflect actual operations at the intersection.

Table 2-4 Existing Conditions (2014) Level of Service, p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
Washington Street at McBride Street/Rossmore Road	**C**	**26.5**	**-**	**-**	**-**
McBride Street EB Left/Right	E	62.0	0.85	164	230
Rossmore Road WB Left/Thru/Right	C	24.1	0.49	57	100
Washington Street NB Left*	B	20.0	0.24	6	42
Washington Street NB Thru	B	16.2	0.58	156	#519
Washington Street SB Thru/Right	C	22.2	0.71	292	m#520
Washington Street at Williams Street	**F**	**>80.0**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	F	>80.0	>1.00	~429	#551
Washington Street NB Left	D	45.8	0.79	99	m#239
Washington Street NB Thru/Right	C	28.8	0.58	251	m408
Washington Street SB Left	F	>80.0	0.83	32	m#52
Washington Street SB Thru/Right	D	43.8	0.79	344	m#507
Unsignalized Intersections					
Washington Street at Burnett Street/Brookley Road	-	-	-	-	-
Burnett Street EB Left/Thru/Right	C	19.6	0.02	-	1
Brookley Road WB Left/Thru/Right	F	>50.0	0.74	-	68
Washington Street NB Left/Thru/Right	A	0.1	0.00	-	0
Washington Street SB Left/Thru/Right	A	4.1	0.16		14
Washington Street at Burnett Street	-	-	-	-	-
Burnett Street EB Left/Right	D	34.7	0.12	-	10
Washington Street NB Left/Thru	A	0.1	0.00	-	0
Washington Street SB Thru/Right	A	0.0	0.51	-	0

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.
~ = Volume exceeds capacity; queue is theoretically infinite. Queue shown is maximum after two cycles.
m = Volume for 95th percentile queue is metered by upstream signal.
* The Washington Street northbound left movement was analyzed as a separate turn lane to reflect actual operations at the intersection.

As shown in Table 2-3 and Table 2-4, the signalized intersections in the study area currently operate at an overall LOS D or better during the a.m. peak hour. During the p.m. peak hour, the intersection of Washington Street/Williams Street operates at an overall LOS F, mostly due to the Williams Street eastbound and Washington Street southbound approaches. Based on the level of traffic at this intersection, operations could improve with an optimal traffic signal timing and coordination plan. The longest queues at the study area intersections occur along Washington Street during both time periods and along Williams Street during the p.m. peak hour.

The movements at the unsignalized intersections in the study area currently operate at LOS D or better during the a.m. peak hour. During the p.m. peak hour, the Brookley Road westbound movements operate at LOS F. This is common for low volume side streets that intersect higher volume arterial roadways such as Washington Street due to the limited number of available gaps in the traffic stream. Actual operations at the intersection of

Washington Street/Burnett Street/Brookley Road are metered by the traffic signal at the intersection of Washington Street/McBride Street/Rossmore Road to the north, which provides sufficient available gaps for vehicles exiting Brookley Road on to Washington Street.

Based on the Existing conditions traffic operations analysis, the study area intersections generally have adequate capacity to process the existing levels of traffic. The traffic signal at the intersection of Washington Street/Williams Street should be provided an optimal traffic signal timing and coordination plan to provide more efficient traffic flow at that location.

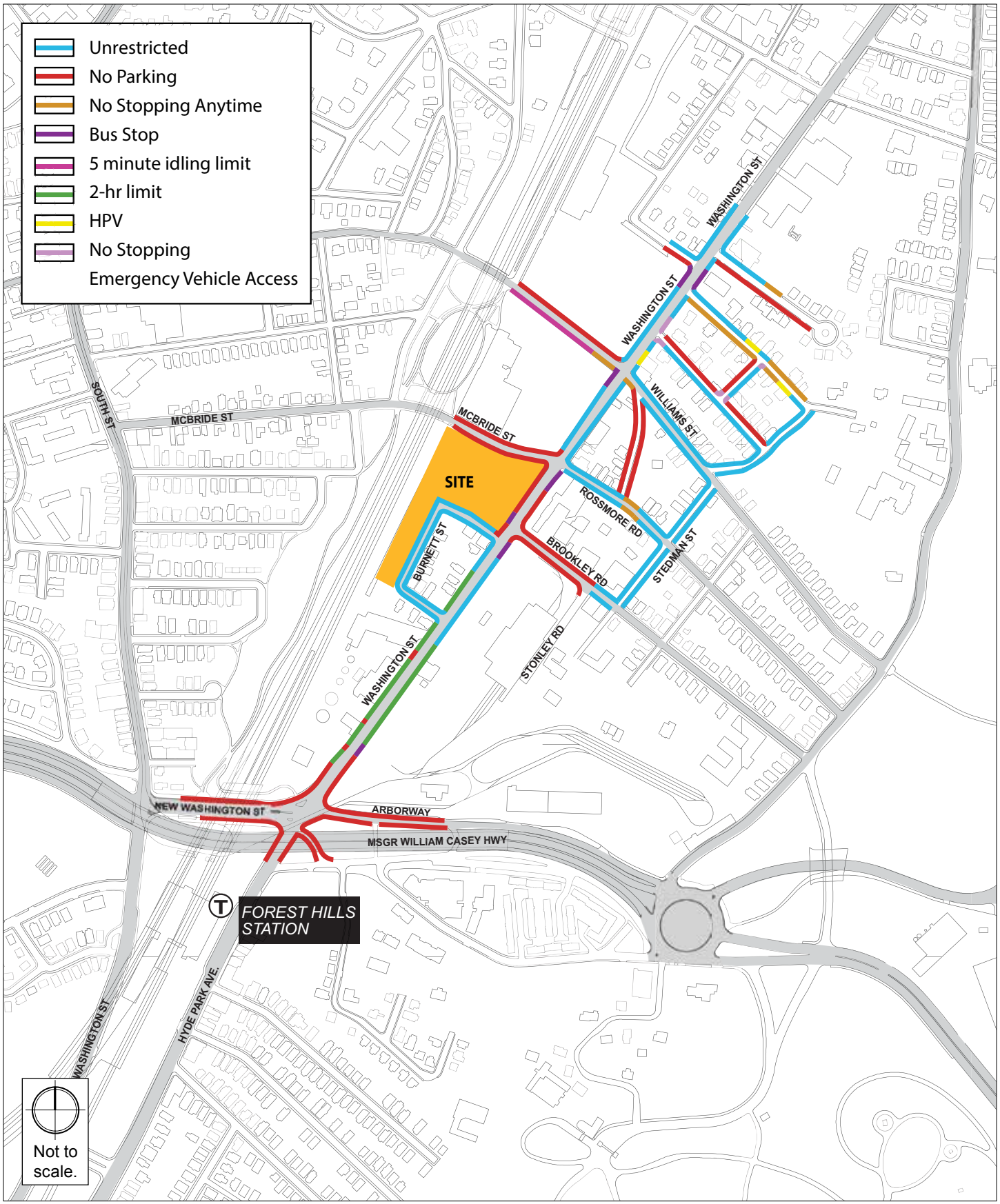
2.2.5 Existing Parking and Curb Usage

Figure 2-4 illustrates the on-street parking regulations in the vicinity of the study area. Curb usage in the vicinity of the Site includes unrestricted parking, two-hour parking, and restricted parking including MBTA bus stops. Parking is prohibited along McBride Street between Washington Street and the Southwest Corridor Park. Parking on Washington Street consists of a mix of unrestricted and two-hour parking south of Brookley Road. Parking is restricted along Washington Street between Brookley Road and McBride Street/Rossmore Road. North of Rossmore Road, parking is unrestricted along Washington Street. Parking is prohibited along Williams Street, west of Washington Street and is unrestricted along Williams Street, east of Washington Street.

South of the Site, the Forest Hills MBTA Station contains 206 publicly accessible parking spaces available at a rate of $6 per day. The station also contains 32 bicycle parking spaces.

2.2.6 Existing Public Transportation

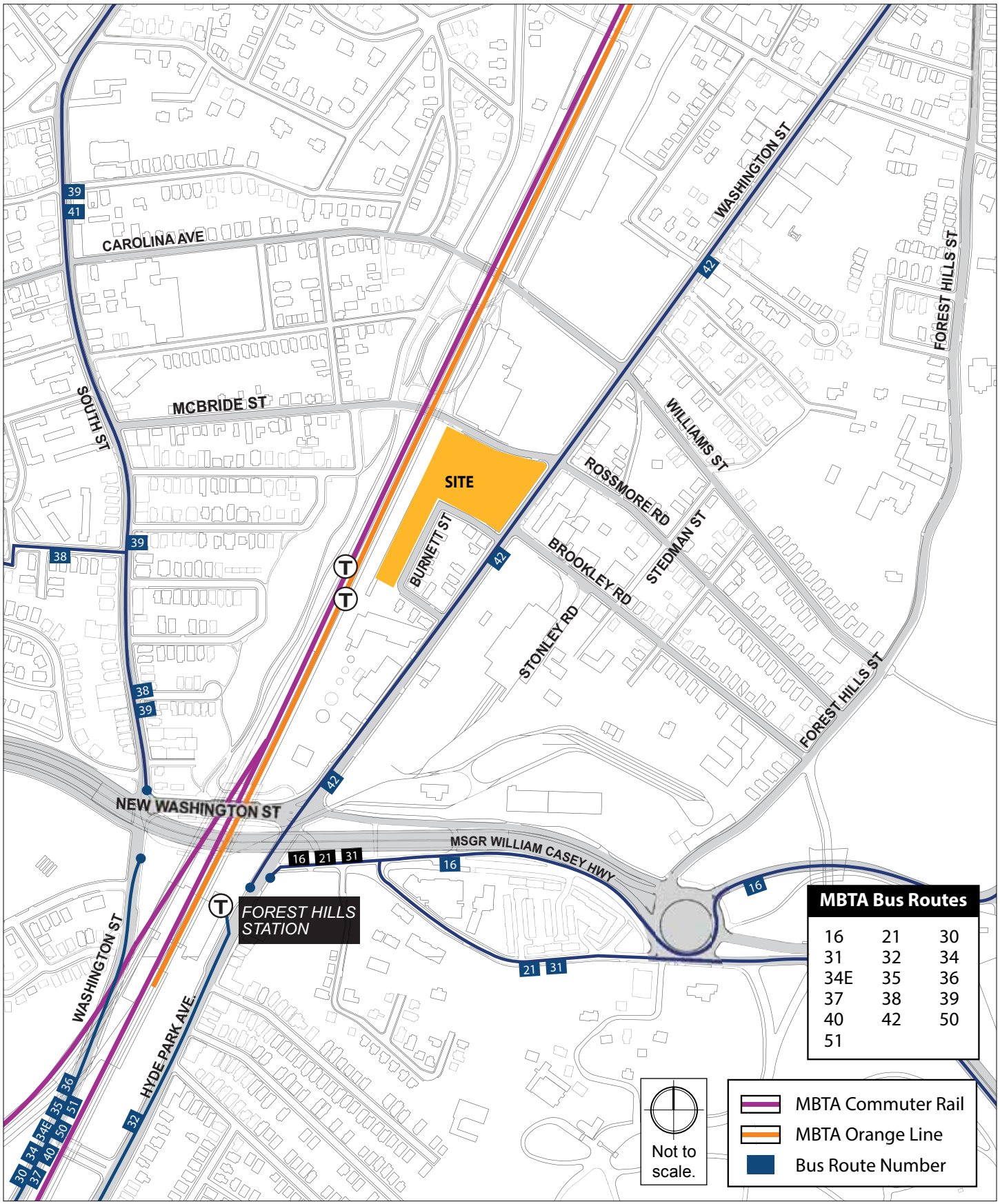
The Site is ideally situated by public transportation and is approximately a quarter mile north of the Forest Hills MBTA Station, which provides bus, rapid transit, and commuter rail service. The MBTA public transportation services are shown in Figure 2-5 and summarized in Table 2-5.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-4
On Street Parking Regulations



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-5
Public Transportation Facilities

Table 2-5 MBTA Transit Services

Line/ Route #	Description
Rapid Transit Routes	
Orange Line	Forest Hills – Oak Grove
Local Bus Routes	
16	Forest Hills Sta. – Andrew Sta. or UMass via Columbia Rd.
21	Ashmont Sta. – Forest Hills Sta. via Morton St.
30	Mattapan Sta. – Forest Hills Sta. via Cummins Hwy. and Roslindale Sq.
31	Mattapan Sta. – Forest Hills Sta. via Morton St.
32	Wolcott Sq. or Cleary Sq. – Forest Hills Sta. via Hyde Park Ave.
34	Walpole Ctr. or Dedham Line – Forest Hills Sta. via Washington St.
34E	Walpole Ctr. or Dedham Line – Forest Hills Sta. via Washington St.
35	Dedham Mall/Stimson St. – Forest Hills Sta. via Belgrade Ave.
36	Charles River Loop or V.A. Hospital – Forest Hills Sta. via Belgrade Ave. and Centre St.
37	Baker & Vermont Sts. – Forest Hills Sta. via Belgrade Ave. and Centre St.
38	Wren St. – Forest Hills Sta. via Centre St. and South St.
39	Forest Hills Sta. – Back Bay Sta. via Huntington Ave.
40	Georgetowne – Forest Hills Sta. via Washington St. and West Boundary Rd.
42	Forest Hills Sta. – Dudley or Ruggles Sta. via Washington St.
50	Cleary Sq. – Forest Hills Sta. via Roslindale Sq.
51	Cleveland Circle – Forest Hills Sta. via Hancock Village
Commuter Rail Routes	
Needham	Needham – South Station

The MBTA Orange Line subway provides service from Forest Hills Station in Jamaica Plain through downtown Boston to Oak Grove Station in Malden, Massachusetts. The Orange Line provides inbound and outbound service approximately every five minutes Monday through Friday and every ten minutes on Saturday and Sunday. The most recent published passenger count data indicates that the Orange Line serves approximately 141,000 passengers per day[1].

The primary MBTA bus route serving the Site is the #42 bus, which provides service between Forest Hills Station and Dudley/Ruggles Stations via Washington Street. The buses operate on 15-minute headways in the a.m. and p.m. peak periods and on 30-minute headways during off-peak periods.

[1] *Ridership and Service Statistics (13th Edition)*; Central Transportation Planning Staff; Boston, MA; 2010.

The Needham MBTA commuter rail line stops at Forest Hills Station. This train provides access between Needham Heights and South Station in downtown Boston. On a weekday, the Needham Line has 16 inbound trains that run between 6:37 a.m. and 10:35 p.m. and 14 outbound trains that run between 7:16 a.m. and 10:43 p.m. that stop at Forest Hills Station. There is no weekend commuter rail service at Forest Hills Station.

2.2.7 Existing Pedestrian Conditions

Pedestrian counts were conducted with the TMCs at the study area intersections to determine the level of pedestrian activity in the vicinity of the Site. The 2014 existing a.m. and p.m. peak-hour pedestrian volumes appear in Figure 2-6. Detailed pedestrian count data is provided in Appendix C.

As shown on Figure 2-6, pedestrian activity in the vicinity of the Site is relatively light, with the highest occurrence of pedestrians along the westerly side of Washington Street and across Washington Street at the intersection with Williams Street.

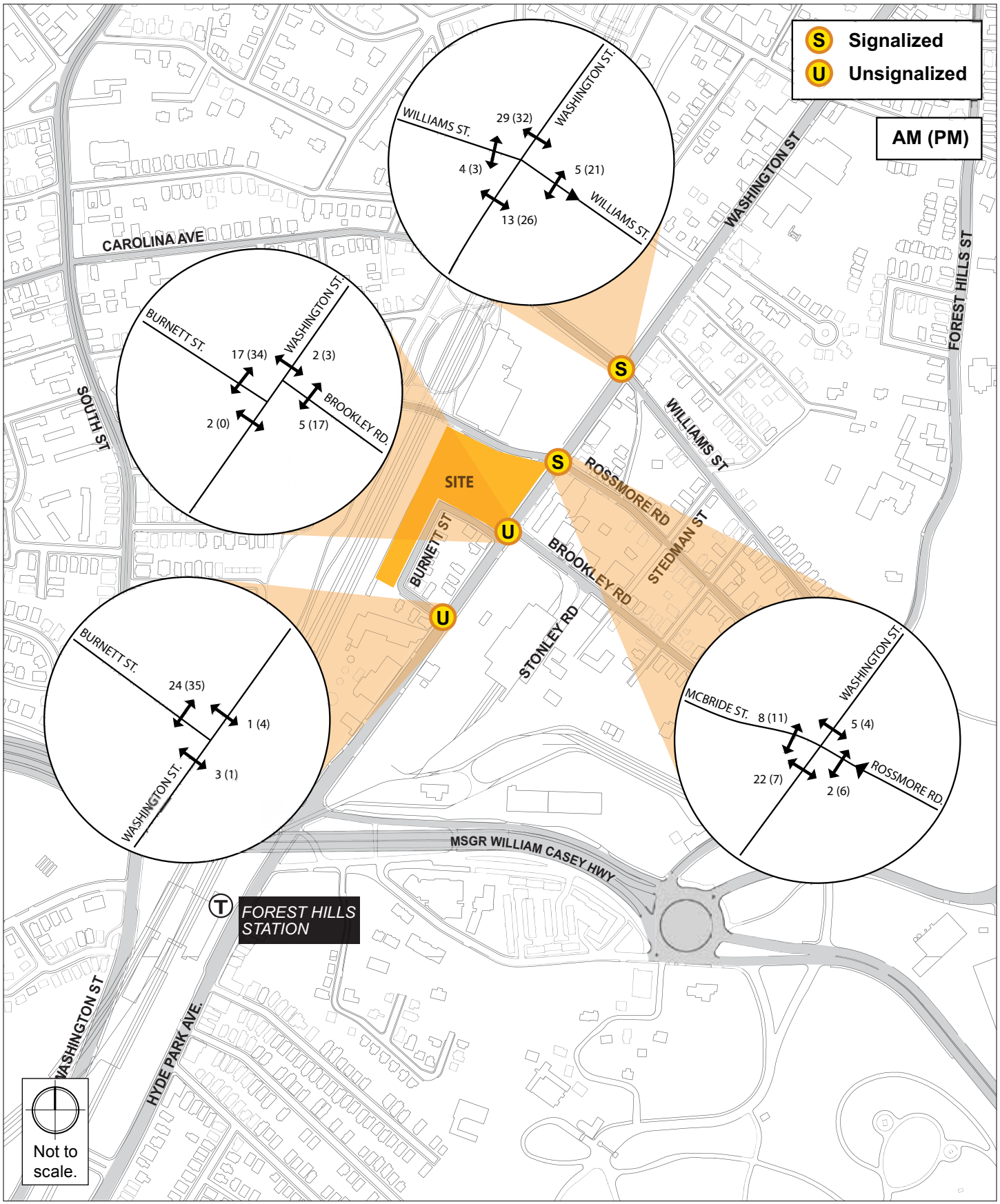
Sidewalks in the NPC Project area are in good condition and supply adequate capacity. A Site visit noted that in certain areas of the sidewalks along McBride Street and Burnett Street, tree roots and overgrown vegetation have created cracks and an uneven surface. In addition, the presence of utility poles, street lights, and overgrown vegetation greatly reduce the effective width of the sidewalk adjacent to the Site. Handicapped-accessible ramps and crosswalks are provided at most study area intersections.

2.2.8 Existing Bicycle Facilities

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Site is conveniently located proximate to the Southwest Corridor Park, which provides approximately 4.7 miles of biking, walking, and jogging paths between Forest Hills and Back Bay.

The roadways adjacent to the Site currently have no designated bicycle lanes or markings. In the vicinity of the study area, Washington Street is designated as an advanced-level bike route suitable for experienced and traffic confident cyclists on the 2010-2011 Boston Bikes Map. The Southwest Corridor Path, McBride Street and Rossmore Road are all designated as beginner-level bike routes suitable for all types of cyclists including newer cyclists, cyclists with limited on-road experience, and/or children.

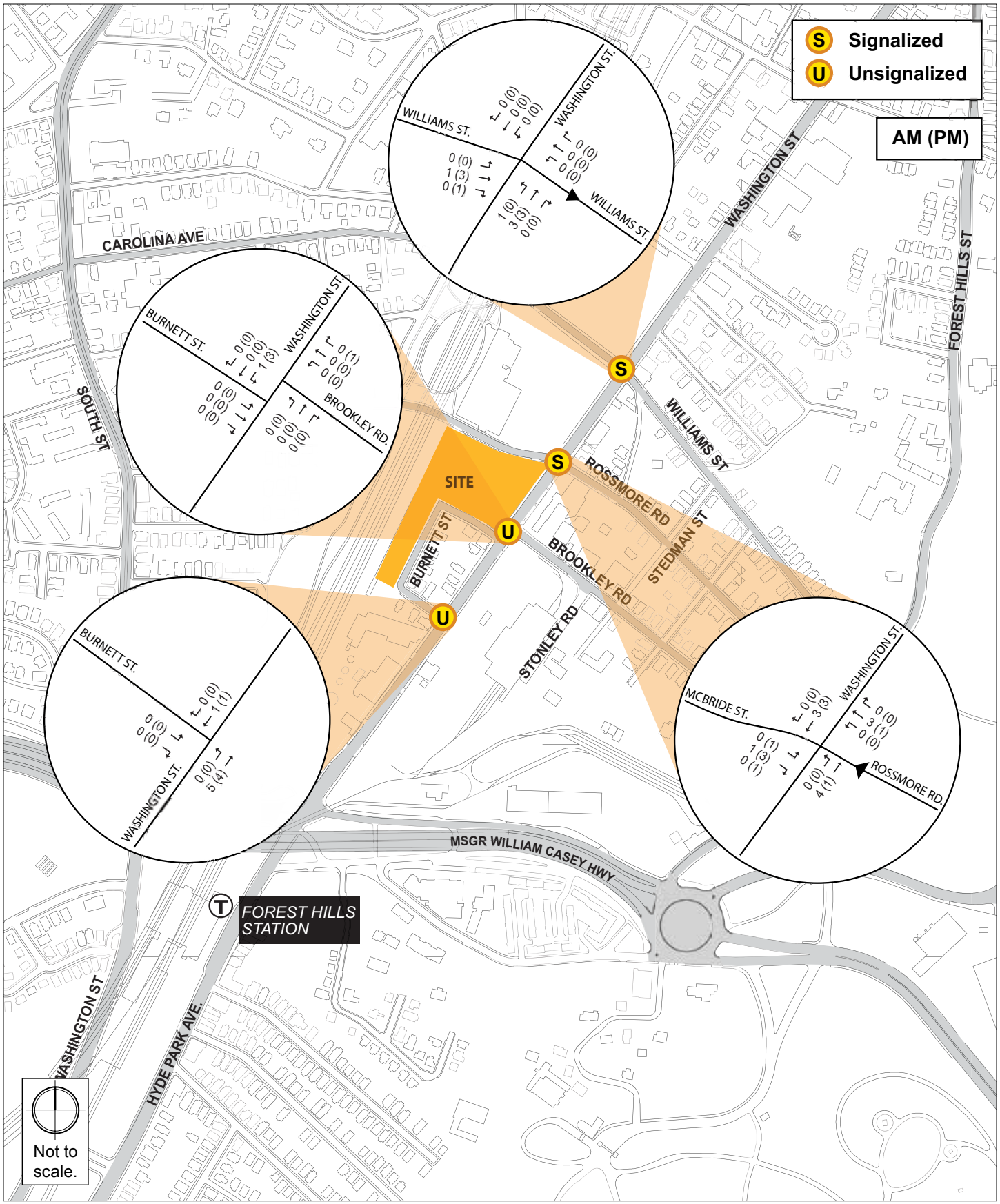
The 2014 existing a.m. and p.m. peak-hour bicycle turning movement counts appear in Figure 2-7. Detailed bicycle counts are provided in Appendix C.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-6
Existing Pedestrian (2014) Volumes, a.m. and p.m. Peak Hour



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-7
Existing Bicycle (2014) Volumes, a.m. and p.m. Peak Hour

2.2.9 Car Sharing Services

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

The nearby Zipcar service provides an important transportation option and reduces the need for private vehicle ownership. As shown on Figure 2-8 and summarized in Table 2-6, Zipcar has five locations in the vicinity of the NPC Project with a combined total of 14 vehicles within the study area.

Table 2-6 Shared Car Summary

Location	Number of Vehicles
Washington Street/Arborway	7
Forest Hills MBTA Station	3
JP Monument	2
John A. Andrew Street	1
Washington St./Woodside Ave.	1
Total	**14**

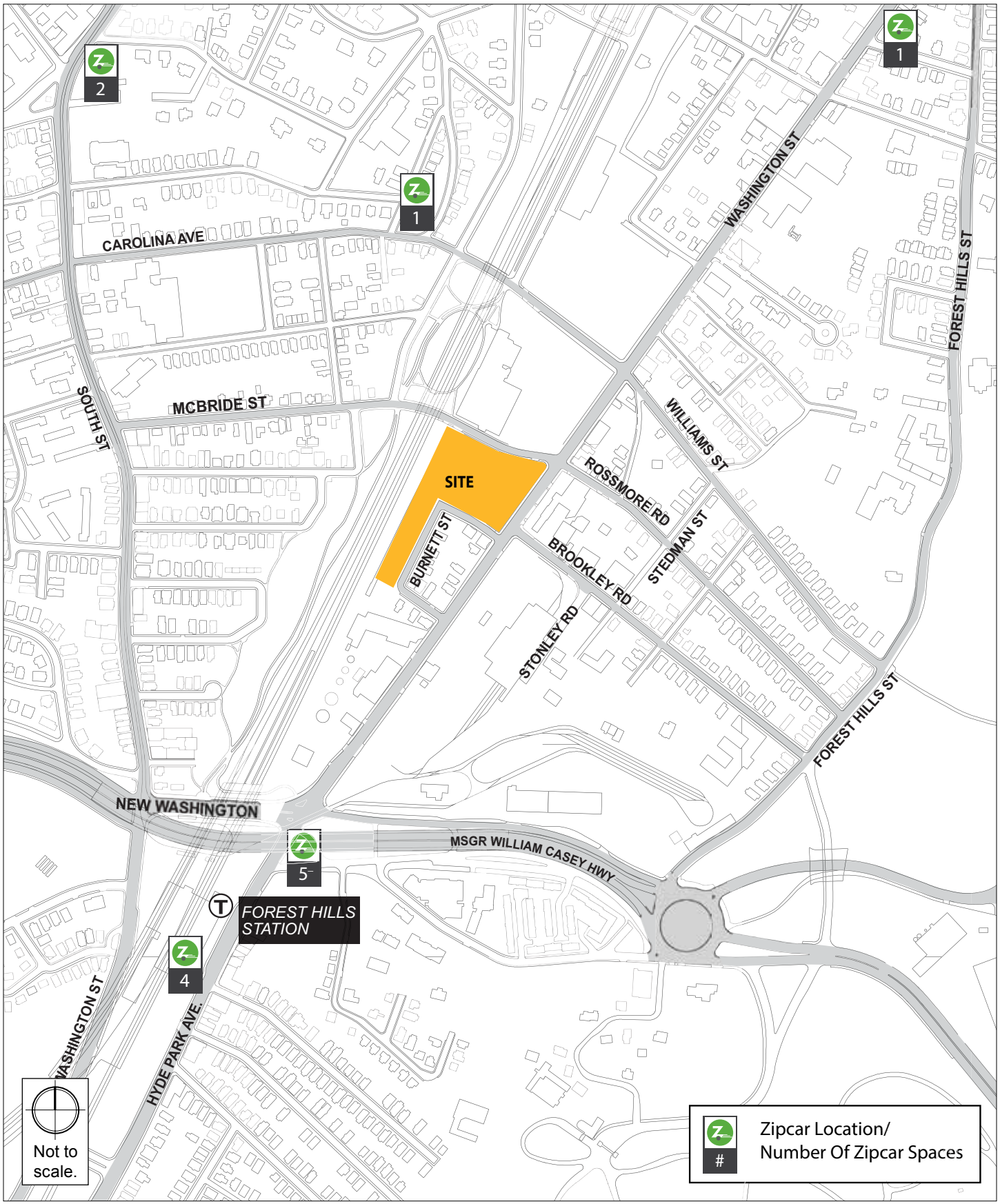
2.3 Future Conditions

For transportation impact analyses, it is standard practice to evaluate two future conditions: No Build conditions (without the proposed project) and Build conditions (with the proposed project). In accordance with BTD guidelines, these conditions are projected to a future date five years from the current year. For the evaluation of the NPC Project, 2019 was selected as the horizon year for the future conditions analyses.

This section presents a description of the 2019 future conditions scenarios and includes an evaluation of the transportation facilities under the No Build and Build conditions.

2.3.1 No Build Conditions

The No Build condition reflects a future scenario that incorporates any anticipated traffic volume changes independent of the NPC Project, and any planned infrastructure improvements that will affect travel patterns throughout the study area. Infrastructure improvements include roadway, public transportation, pedestrian and bicycle improvements. Traffic volume changes are based on two factors: an annual growth rate and growth associated with specific developments near the NPC Project.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-8
Car Sharing Services

2.3.1.1 Background Traffic Growth

The methodology to account for future traffic growth, independent of the NPC Project, consists of two parts. The first part of the methodology accounts for general background traffic growth that may be affected by changes in demographics, automobile usage, and automobile ownership. Based on a review of recent and historic traffic data collected for nearby projects and to account for any additional unforeseen traffic growth, a one-half percent per year annual traffic growth rate was used to develop the future conditions traffic volumes.

The second part of the methodology identifies any specific planned developments that are expected to affect traffic patterns throughout the study area within the future analysis time horizon. Based on a review of the most recent information provided by the BRA, the following projects are located proximate to the Site:

- **The Commons at Forest Hills Station.** This proposed project is located along Washington Street immediately south of the Site, and includes the demolition of existing buildings and the construction of three new buildings with approximately 280 residential apartment units, 4,155 sf of retail/restaurant space, 185 parking spaces and secure storage for approximately 225 bicycles. Traffic volumes for this project were taken into account at all of the study area intersections.

- **154-160 Green Street Mixed-use Project.** This proposed mixed-use building consists of 13 units, retail space, and a 16-space underground parking garage. Additionally, five short-term on-street parking spaces will be created by the realignment of the sidewalk along Green Street. Traffic volumes for this project were assumed to be part of the general background traffic growth rate and were not added to the study area intersections.

- **Jamaica Park Condominium.** This proposed development consists of 29 free standing condominium units to be located on Brookley Road, adjacent to the Forest Hills Street intersection. Traffic volumes for this project were assumed to be part of the general background traffic growth rate and were not added to the study area intersections.

- **Forest Hills Parcel V&W.** This proposed commercial development consists of approximately 44,330 sf including 58 off-street parking spaces and related site improvements on the MBTA's Parcels V and W in the Forest Hills area of Jamaica Plain. Traffic volumes for this project were assumed to be part of the general background traffic growth rate and were not added to the study area intersections.

The one-half percent per year annual growth rate was applied to the 2014 Existing conditions traffic volumes, then the traffic volumes associated with the background development projects were added to develop the 2019 No Build conditions traffic volumes.

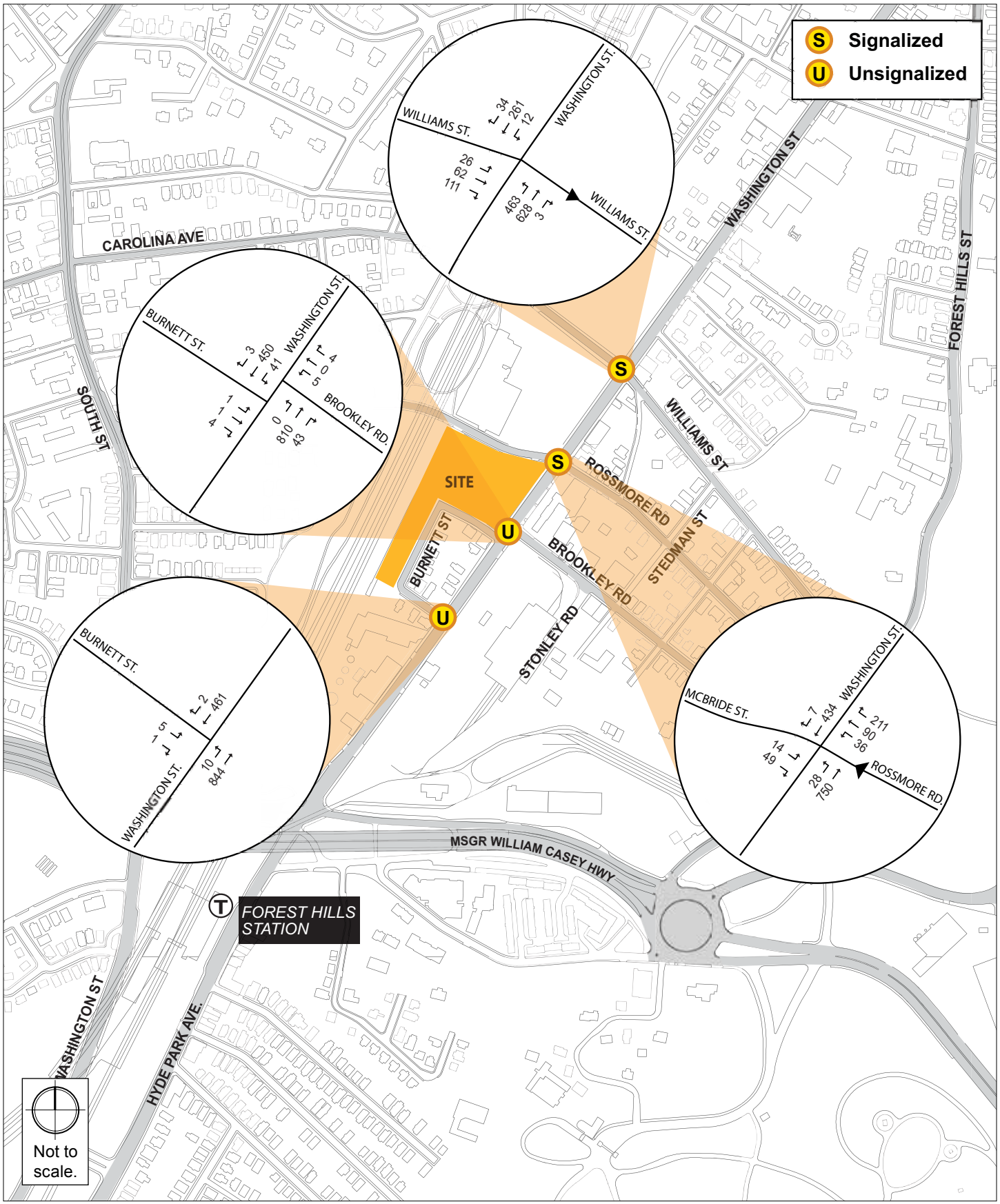
The 2019 No Build a.m. and p.m. peak hour traffic volumes are shown on Figure 2-9 and Figure 2-10, respectively.

2.3.1.2 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted to determine if there are any nearby projects in the vicinity of the study area. Based on this review, the following projects were identified within the study area.

Casey Arborway Project. This project will replace the existing structurally deficient Casey Overpass with a new at-grade boulevard. The intersections of Washington Street at Arborway and South Street at Arborway will be reconstructed as at-grade, signalized intersections. Left-turns from the Arborway to Washington Street and South Street will be accommodated by two new u-turns that will be located east of Washington Street (for Arborway eastbound left-turns) and west of South Street (for Arborway westbound left-turns). A separate bus lane will be provided for the MBTA buses for the Arborway westbound left-turn movement to Washington Street southbound. The Casey Arborway Project will also improve the multi-use path connections between the Southwest Corridor Park and the adjacent transportation facilities (i.e. Washington Street, South Street, and the Forest Hills MBTA Station). This project is expected to commence between spring 2014 and fall 2016.

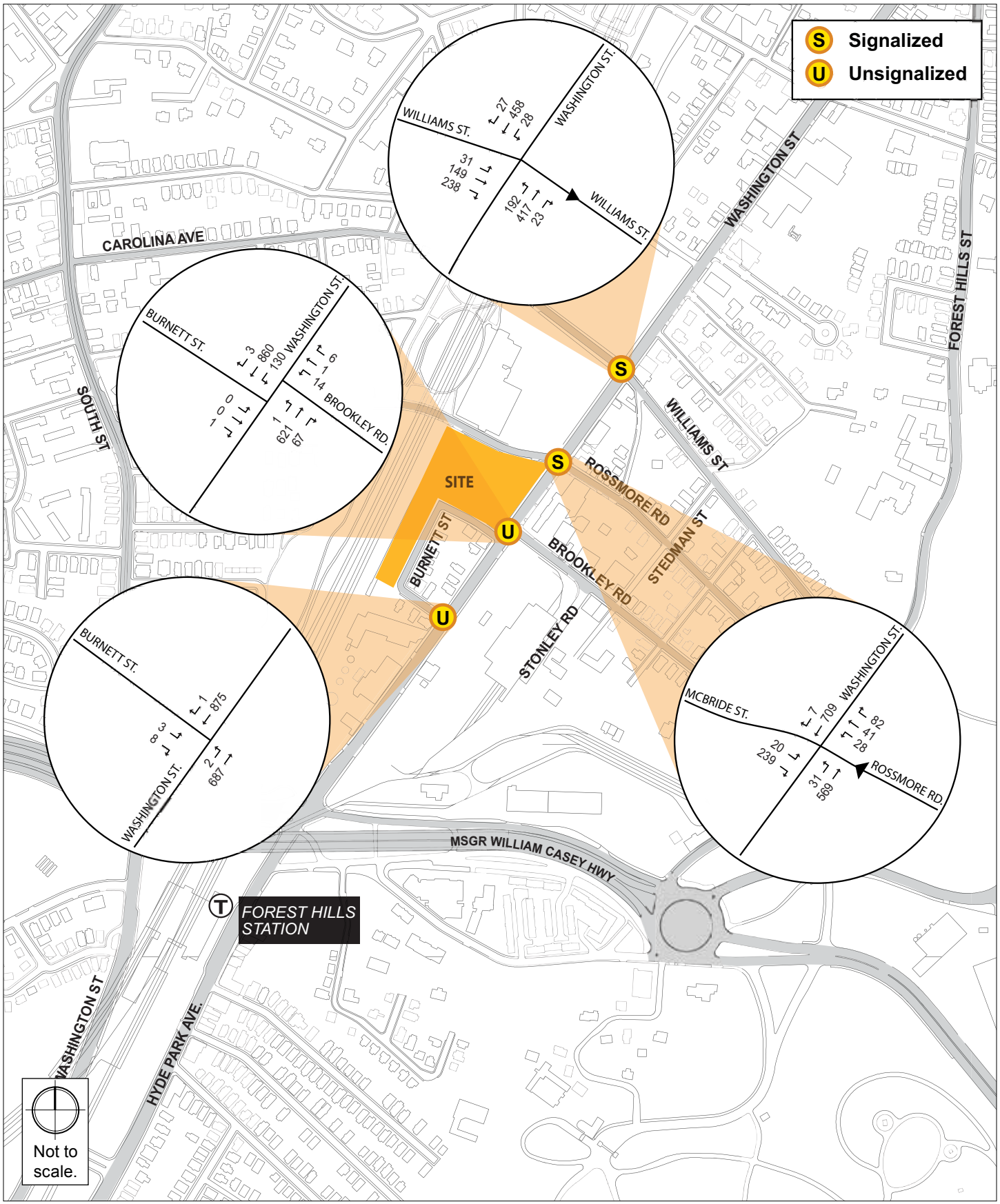
The Commons at Forest Hills Station Roadway and Intersection Improvements. The proponent of this project is committed to the redesign of the Washington Street cross section between Burnett Street (south) and the Casey Arborway. This cross section will include the addition of bicycle lanes and improved pavement markings. The proponent of this project is also committed to the installation of a left-turn along the northbound approach at the Washington Street/McBride Street/Rossmore Road intersection. The installation of this left-turn lane will also require timing and coordination adjustments at the intersection. These improvements were assumed to be in place for the future conditions analysis.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-9
No Build Conditions (2019) Turning Movement Volumes, a.m. Peak Hour



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-10
No Build Conditions (2019) Turning Movement Volumes, p.m. Peak Hour

2.3.1.3 No Build Conditions Traffic Operations

The 2019 No Build conditions scenario analysis uses the same methodology as the 2014 Existing conditions scenario analysis. The No Build analysis includes the geometric and traffic signal timing/coordination improvements at the intersection of Washington Street/McBride Street/Rossmore Road proposed as part of the Commons at Forest Hills Station project as previously described.

Table 2-7 and Table 2-8 present the 2019 No Build conditions operations analysis for the a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix C.

Table 2-7 No Build Conditions (2019) Level of Service Summary, a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
Washington Street/McBride Street/Rossmore Road	**C**	**34.1**	**-**	**-**	**-**
McBride Street EB Left/Right	C	32.7	0.24	35	73
Rossmore Road WB Left/Thru/Right	E	68.0	0.96	184	#364
Washington Street NB Left	A	9.7	0.09	6	26
Washington Street NB Thru	C	33.1	0.87	353	#818
Washington Street SB Thru/Right	B	11.6	0.53	30	m297
Washington Street/Williams Street	**C**	**30.7**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	D	48.3	0.79	98	165
Washington Street NB Left	E	61.6	>1.00	~179	m#510
Washington Street NB Thru/Right	B	14.0	0.69	199	m525
Washington Street SB Left	A	9.8	0.18	0	m3
Washington Street SB Thru/Right	A	6.3	0.40	51	m72
Unsignalized Intersections					
Washington Street/Burnett Street (north)/Brookley Road	-	-	-	-	-
Burnett Street EB Left/Thru/Right	C	20.4	0.03	-	2
Brookley Road WB Left/Thru/Right	D	33.3	0.07	-	6
Washington Street NB Left/Thru/Right	A	0.0	0.00	-	0
Washington Street SB Left/Thru/Right	A	1.7	0.06		5
Washington Street/Burnett Street (south)	-	-	-	-	-
Burnett Street EB Left/Right	D	32.4	0.05	-	4
Washington Street NB Left/Thru	A	0.3	0.01	-	1
Washington Street SB Thru/Right	A	0.0	0.30	-	0

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.
~ = Volume exceeds capacity; queue is theoretically infinite. Queue shown is maximum after two cycles.
m = Volume for 95th percentile queue is metered by upstream signal.
Gray shading indicates a decrease to LOS E or LOS F when compared to the 2014 Existing Conditions.

Table 2-8 No Build Conditions (2019) Level of Service Summary, p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
Washington Street/McBride Street/Rossmore Road	**C**	**25.3**	**-**	**-**	**-**
McBride Street EB Left/Right	E	67.6	0.90	169	#300
Rossmore Road WB Left/Thru/Right	C	25.6	0.49	55	118
Washington Street NB Left	B	17.5	0.26	8	43
Washington Street NB Thru	B	16.8	0.64	206	#543
Washington Street SB Thru/Right	B	17.1	0.80	173	m#669
Washington Street/Williams Street	**D**	**39.9**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	F	>80.0	>1.00	~267	#473
Washington Street NB Left	D	36.8	0.82	51	m#133
Washington Street NB Thru/Right	B	13.4	0.59	122	m155
Washington Street SB Left	D	47.4	0.52	7	m#27
Washington Street SB Thru/Right	C	29.5	0.81	171	m#503
Unsignalized Intersections					
Washington Street/Burnett Street (north)/Brookley Road	-	-	-	-	-
Burnett Street EB Left/Thru/Right	C	24.0	0.01	-	0
Brookley Road WB Left/Thru/Right	F	>50.0	>1.00	-	78
Washington Street NB Left/Thru/Right	A	0.1	0.00	-	0
Washington Street SB Left/Thru/Right	A	4.6	0.17	-	15
Washington Street/Burnett Street (south)	-	-	-	-	-
Burnett Street EB Left/Right	F	>50.0	0.13	-	11
Washington Street NB Left/Thru	A	0.1	0.00	-	0
Washington Street SB Thru/Right	A	0.0	0.55	-	0

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

As shown in Table 2-7 and Table 2-8, the signalized intersections in the study area are expected to operate at overall LOS C during the a.m. peak hour and overall LOS D or better during the p.m. peak hour. The longest vehicular queues will continue to occur along Washington Street during the peak hours. The analysis shows improved operations at the intersection of Washington Street/Williams Street during the p.m. peak hour due to the retiming and coordination of the signal to the south at the intersection of Washington Street/McBride Street/Rossmore Road. However, the Williams Street eastbound approach will continue to operate at LOS F without additional signal timing improvements.

The Burnett Street (south) eastbound approach to Washington Street is expected to decrease to LOS F under the No Build conditions during the p.m. peak hour. As previously stated, this is common for low volume side streets that intersect higher volume arterial roadways such as Washington Street.

2.3.2 Build Conditions

As previously summarized, the NPC Project will consist of three building containing approximately 132 residential units, approximately 25,200 sf of commercial space, an approximately 132,500 sf self-storage building and approximately 166 parking spaces. Secure storage for approximately 132 bicycles will also be provided on the Site. As previously stated, the previously proposed project consisted of 42 residential units, approximately 28,000 sf of retail/commercial space, and an approximately 130,000 sf self-storage building with 115 parking spaces.

2.3.2.1 Site Access and Circulation

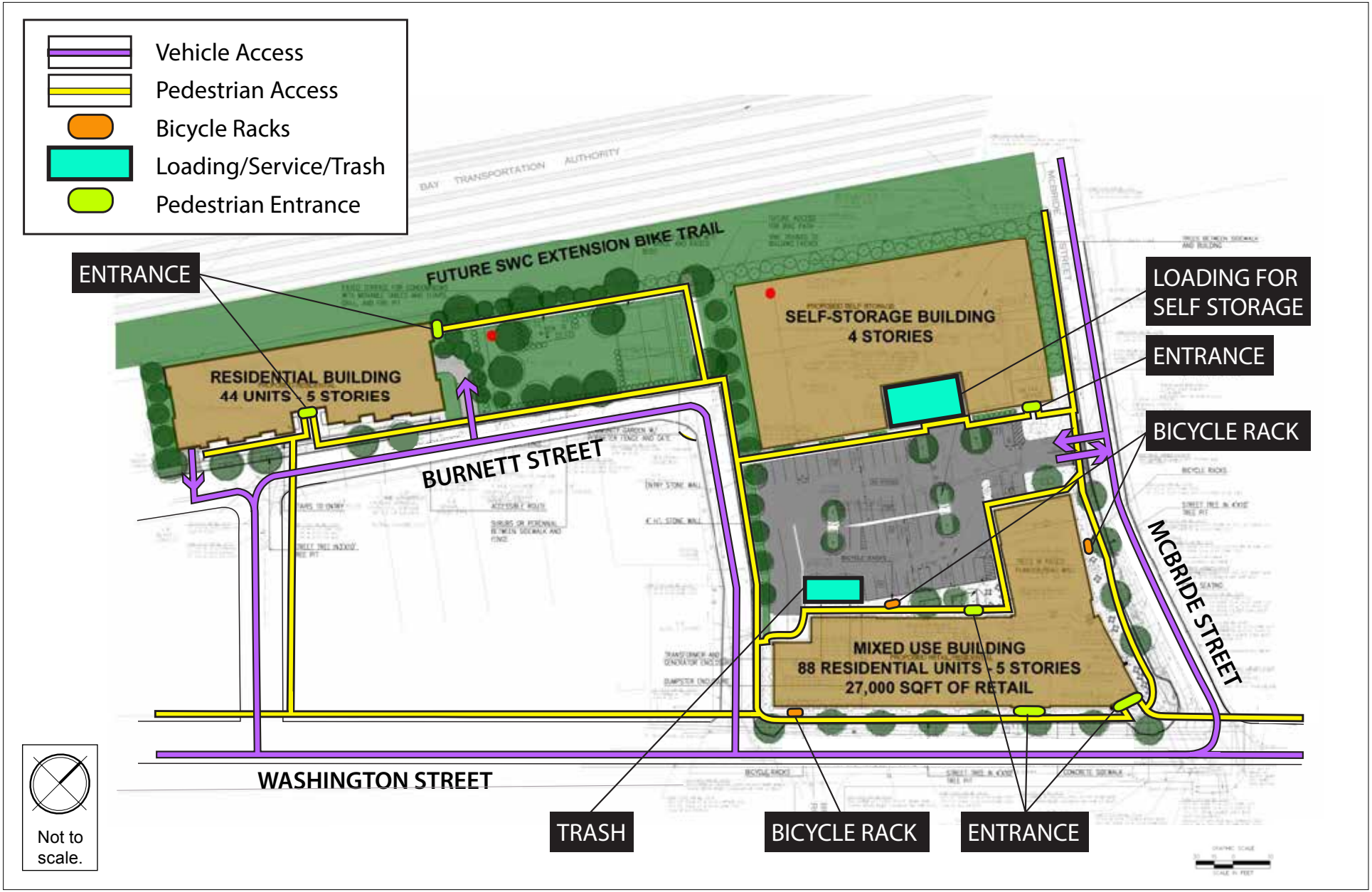
As shown in the Site plan in Figure 2-11, vehicular access/egress to the Burnett Street residential building will be provided by a one-way enter-only driveway along the north side of the building and a one-way exit-only driveway along the south side of the building. Access to the surface lot and garage that will serve the commercial and mixed-use buildings on the southwest quadrant of the Washington Street/McBride Street/Rossmore Road intersection will be provided by a single driveway along McBride Street, approximately 250 west of Washington Street. The previously proposed driveway along the northerly side of Burnett Street has been removed as part of the NPC Project.

Primary pedestrian access for the residential units in the southern portion of the Site will be provided along Burnett Street. Pedestrian access for the northern portion of the Site will be provided off of Washington Street and McBride Street, with additional access provided off the surface parking lot and through the garage.

Loading, deliveries, and trash pick-up for the residential buildings on the southern portion of the Site will take place along Burnett Street. For the northern portion of the Site, these activities will take place on-site in the surface parking lot. The NPC Project is designed to minimize impacts to the public parking, sidewalks, and adjacent roadways.

2.3.2.2 Trip Generation Methodology

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



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-11
Site Access Plan

To estimate the number of trips expected to be generated by the NPC Project, data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*[2] were used. ITE provides data to estimate the total number of unadjusted vehicular trips associated with the NPC Project. In an urban setting well-served by transit, adjustments are necessary to account for other travel mode shares such as walking, bicycling, and transit.

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

Residential Uses: LUC 220 – Apartment. The apartment land use is defined as rental dwellings located within the same building with at least three other dwelling units. Trip generation estimates are based on average vehicle rates per unit. Although the NPC Project is anticipated to include condominium units, the apartment LUC has slightly higher trip generation rates than the LUC for condominium units, and was selected to present a more conservative analysis.

Commercial Use: LUC 820 – Shopping Center. The shopping center land use is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. Trip generation estimates are based on average vehicle rates per 1,000 sf.

Self-storage Facility: LUC 151 Mini-Warehouse. The mini-warehouse land use includes buildings in which a number of storage units or vaults are rented for the storage of goods. Trip generation estimates are based on average vehicle rates per 1,000 sf.

2.3.2.3 Mode Share

The BTD publishes vehicle, transit, and walking/bicycling mode split rates for different areas of Boston. The Site is located within BTD's designated Area 6. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[3]. The vehicle occupancy rates and the BTD mode split rates were updated for the Project to reflect the most recent data. The BTD's travel mode share data for Area 6 are shown in Table 2-9.

---

[2] *Trip Generation Manual*, 9th Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.

[3] *Summary of Travel Trends: 2009 National Household Survey*; FHWA; Washington, D.C.; June 2011.

Table 2-9 Travel Mode Shares

Land Use	Direction	Walk/ Bicycle Share	Transit Share	Auto Share	Vehicle Occupancy Rate
Daily					
Apartments	In	14%	25%	62%	1.13
	Out	14%	25%	62%	1.13
Commercial	In	16%	23%	61%	1.78
	Out	16%	23%	61%	1.78
Mini Warehouse	In	16%	23%	61%	1.78
	Out	16%	23%	61%	1.78
a.m. Peak Hour					
Apartments	In	18%	26%	56%	1.13
	Out	12%	44%	44%	1.13
Commercial	In	20%	26%	54%	1.78
	Out	13%	42%	45%	1.78
Mini Warehouse	In	20%	26%	54%	1.78
	Out	13%	42%	45%	1.78
p.m. Peak Hour					
Apartments	In	12%	44%	44%	1.13
	Out	18%	26%	56%	1.13
Commercial	In	13%	42%	45%	1.78
	Out	20%	26%	54%	1.78
Mini Warehouse	In	13%	42%	45%	1.78
	Out	20%	26%	54%	1.78

2.3.2.4 Trip Generation

The mode share percentages shown in Table 2-9 were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates. The trip generation for the NPC Project by mode is shown in Table 2-10. The detailed trip generation information is provided in Appendix C.

Table 2-10 NPC Project Trip Generation

Land Use		Walk/ Bicycle Trips	Transit Trips	Vehicle Trips
Daily				
Apartments[1]	In	73	130	285
132 units	Out	73	130	285
Commercial[2]	In	152	219	326
25,200 sf	Out	152	219	326
Mini Warehouse[3]	In	46	67	99
131,200 sf	Out	46	67	99

Table 2-10 NPC Project Trip Generation (Continued)

Land Use		Walk/ Bicycle Trips	Transit Trips	Vehicle Trips
a.m. Peak Hour				
Apartments[1] *132 units*	In Out	3 7	4 27	8 24
Commercial[2] *25,200 sf*	In Out	5 2	7 7	8 4
Mini Warehouse[3] *131,200 sf*	In Out	4 2	5 6	6 3
p.m. Peak Hour				
Apartments[1] *132 units*	In Out	8 6	29 9	26 18
Commercial[2] *25,200 sf*	In Out	10 17	34 22	20 26
Mini Warehouse[3] *131,200 sf*	In Out	4 6	13 8	8 9

1 Based on ITE LUC 220 – Apartments for 132 units.
2 Based on ITE LUC 820 – Shopping Center for 25,200 sf.
3 Based on ITE LUC 151 – Mini-Warehouse for 131,200 sf.

2.3.2.5 Vehicle Trip Generation

To develop the overall trip generation characteristics, the adjusted vehicular trips associated with the NPC Project were estimated. The NPC Project-generated new vehicle trips are summarized in Table 2-11, with the detailed trip generation information provided in Appendix C.

Table 2-11 NPC Project Vehicle Trip Generation

Time Period	Direction	Previously Proposed Project[1]	Project[2]	Change
Daily	In	417	710	+293
	Out	417	710	+293
	Total	**834**	**1,420**	**+586**
a.m. Peak Hour	In	14	22	+8
	Out	14	31	+17
	Total	**28**	**53**	**+25**
p.m. Peak Hour	In	34	54	+20
	Out	34	53	+19
	Total	**68**	**107**	**+39**

1 As presented in the 2011 PNF.
2 Based on ITE LUC 220 – Apartments for 132 units (ITE Trip Generation, 9th Edition)
ITE LUC 151 – Self-storage facility for 130,000 sf (ITE Trip Generation, 9th Edition)
ITE LUC 820 – Shopping Center for 27,000 sf (ITE Trip Generation, 9th Edition)

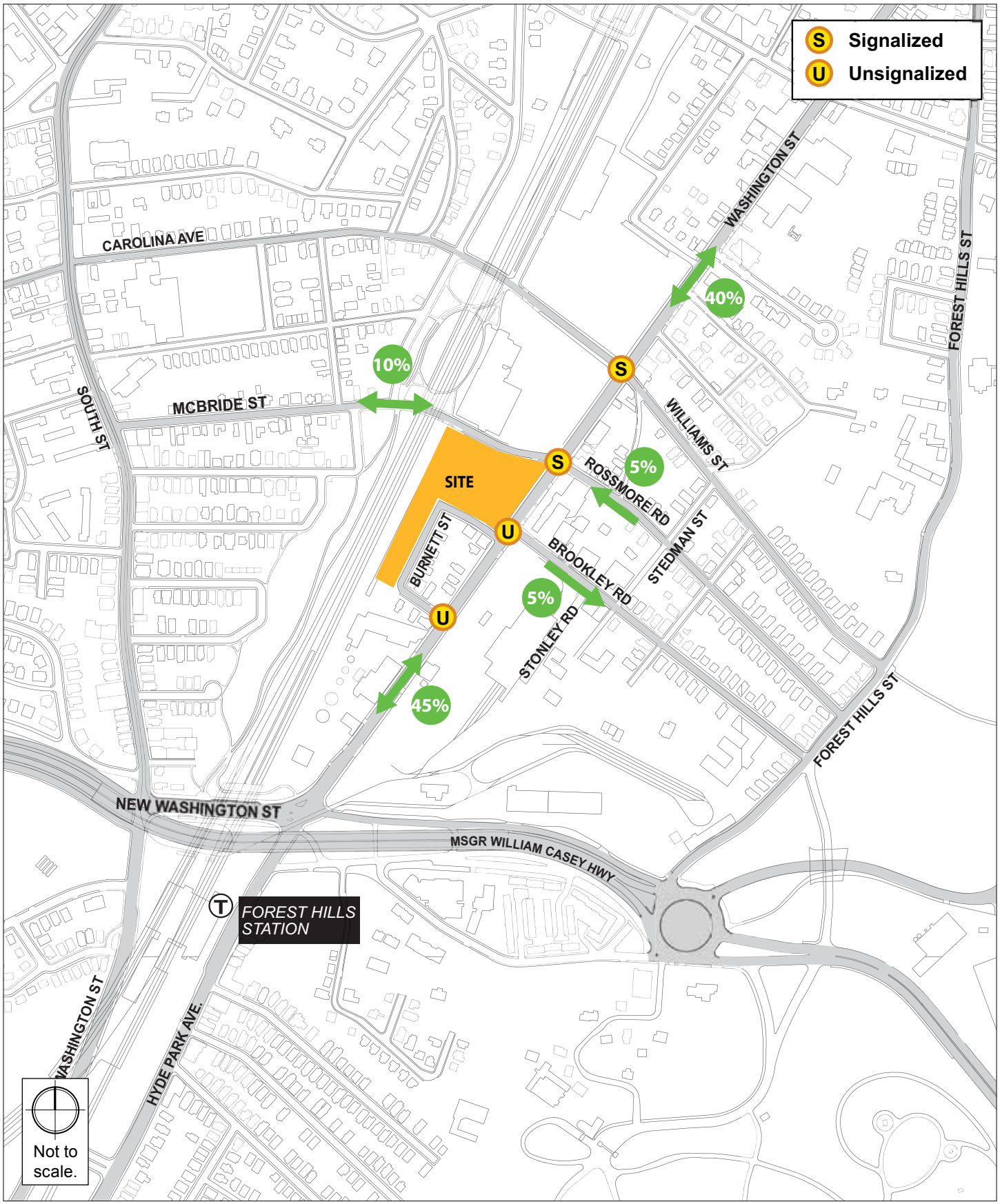
As shown in Table 2-11, the NPC Project is expected to generate approximately 1,420 new daily vehicle trips (710 entering and 710 exiting), with 53 new vehicle trips (22 entering and 31 exiting) during the a.m. peak hour and 107 new vehicle trips (54 entering and 53 exiting) during the p.m. peak hour.

When compared to the previously proposed project, the NPC Project is expected to generate 586 additional vehicle trips on a daily basis, with 25 additional trips during the a.m. peak hour and 39 additional trips during the p.m. peak hour. These trip generation estimates also incorporate updated trip generation from ITE and updated mode share splits from BTD.

2.3.2.6 Trip Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Site. Trip distribution patterns for the NPC Project were based on BTD's origin-destination data for Area 6, and are consistent with what was used in the 2011 PNF. The trip distribution patterns for the NPC Project are illustrated in Figure 2-12.

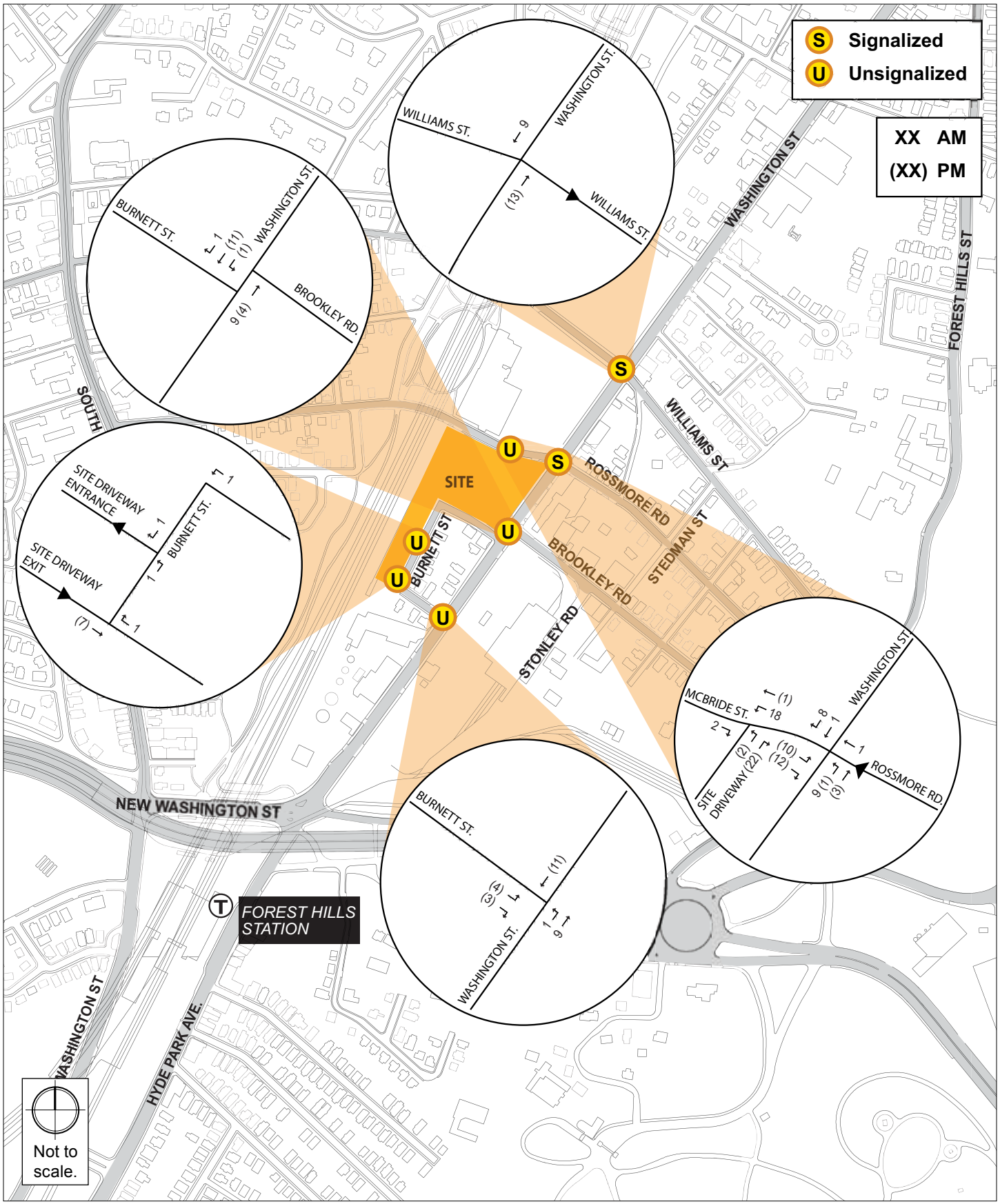
The NPC Project-generated vehicle trips were assigned to the study area roadway network based on the trip distribution patterns shown in Figure 2-12, and are shown in Figure 2-13 and Figure 2-14 for the a.m. and p.m. peak hours, respectively. The NPC Project-generated trips were added to the 2019 No Build conditions traffic volumes to develop the 2019 Build conditions peak hour traffic volume networks and are shown in Figure 2-15 and Figure 2-16 for the a.m. and p.m. peak hours, respectively.



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

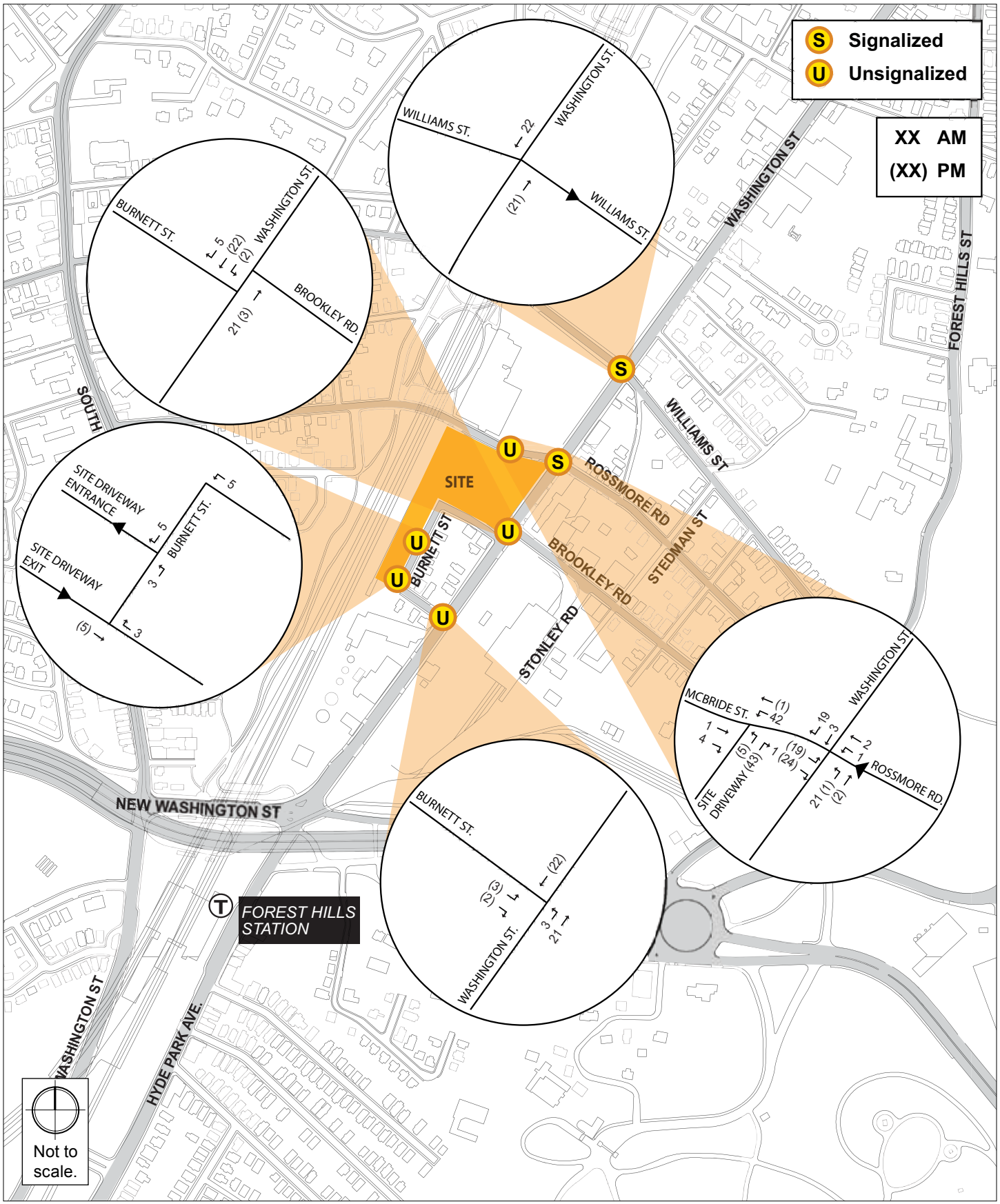
Figure 2-12
Vehicle Trip Distribution



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

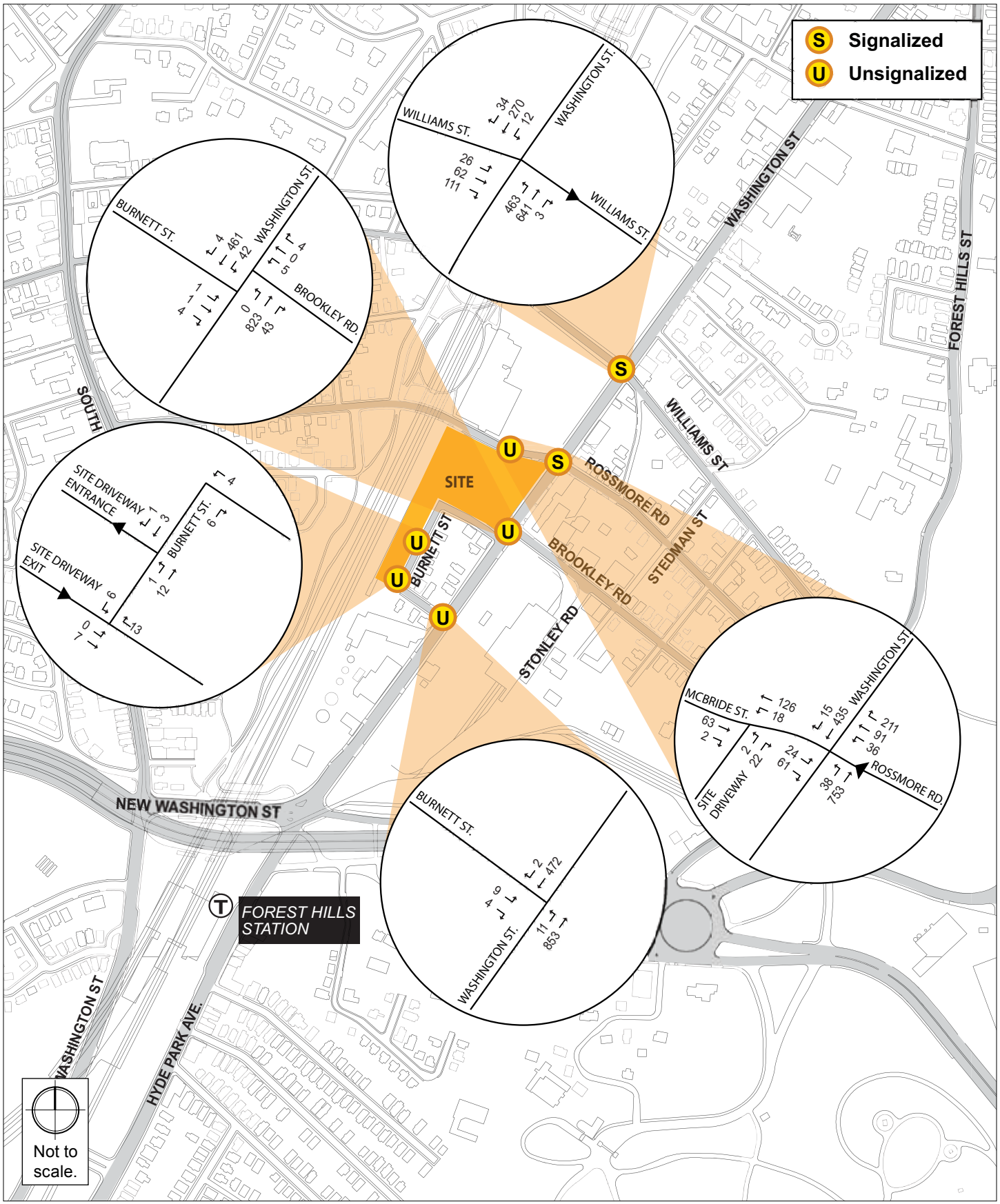
Figure 2-13
Project Generated Trips, a.m. Peak Hour



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

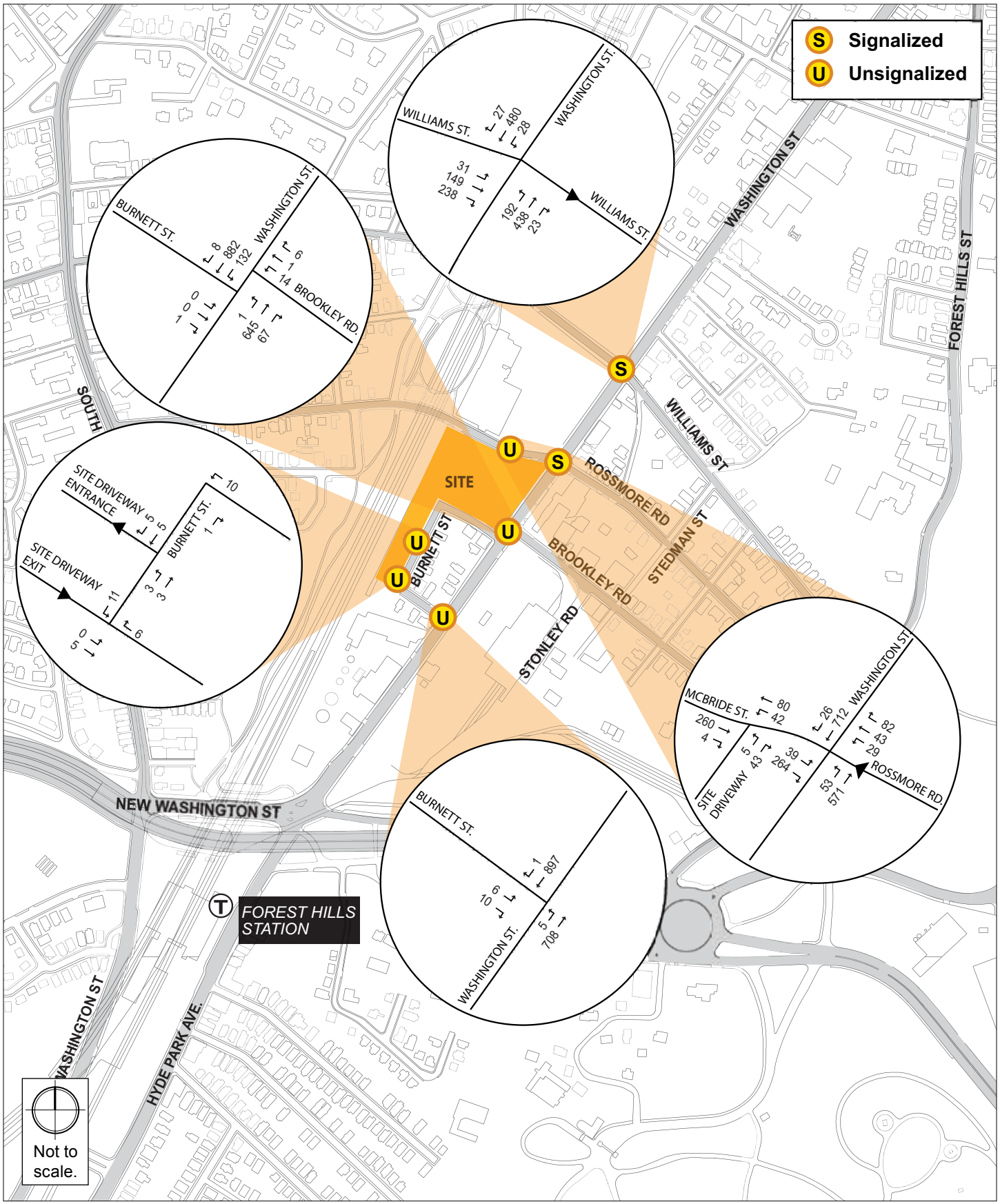
Figure 2-14
Project Generated Trips, p.m. Peak Hour



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-15
Build Conditions (2019) Turning Movement Volumes, a.m. Peak Hour



3521-3529 Washington Street NPC Boston, Massachusetts

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Figure 2-16
Build Conditions (2019) Turning Movement Volumes, p.m. Peak Hour

2.3.2.7 Build Conditions Traffic Operations

The 2019 Build condition scenario analysis uses the same methodology as the 2014 Existing and 2019 No Build conditions scenario analyses. The results of the 2019 Build condition traffic analysis at study area intersections are presented in Table 2-12 and Table 2-13 for the a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix C.

Table 2-12 Build Conditions (2019) Level of Service Summary, a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
Washington Street/McBride Street/Rossmore Road	**C**	**34.5**	**-**	**-**	**-**
McBride Street EB Left/Right	C	33.6	0.28	42	84
Rossmore Road WB Left/Thru/Right	E	68.4	0.96	185	#364
Washington Street NB Left	B	10.1	0.12	8	34
Washington Street NB Thru	C	34.2	0.87	357	#822
Washington Street SB Thru/Right	B	11.7	0.55	30	m302
Washington Street/Williams Street	**C**	**32.2**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	D	48.3	0.79	96	164
Washington Street NB Left	E	66.9	>1.00	~184	m#510
Washington Street NB Thru/Right	B	14.5	0.70	207	m535
Washington Street SB Left	A	9.7	0.18	0	m3
Washington Street SB Thru/Right	A	6.3	0.41	52	m74
Unsignalized Intersections					
Washington Street/Burnett Street (north)/Brookley Road	-	-	-	-	-
Burnett Street EB Left/Thru/Right	C	21.2	0.03	-	2
Brookley Road WB Left/Thru/Right	E	35.0	0.08	-	6
Washington Street NB Left/Thru/Right	A	0.0	0.00	-	0
Washington Street SB Left/Thru/Right	A	1.7	0.06	-	5
Washington Street/Burnett Street (south)	-	-	-	-	-
Burnett Street EB Left/Right	D	31.0	0.09	-	8
Washington Street NB Left/Thru	A	0.3	0.01	-	1
Washington Street SB Thru/Right	A	0.0	0.30	-	0
Burnett Street/Residential Driveway Entrance	-	-	-	-	-
Burnett Street NB Left/Thru	A	0.6	0.00	-	0
Burnett Street SB Thru/Right	A	0.0	0.00	-	0
Burnett Street/Residential Driveway Exit	-	-	-	-	-
Site Driveway 1 Exit EB Left/Thru	A	8.4	0.01	-	1
Burnett Street WB Right	A	0.0	0.01	-	0
Burnett Street SB Left	A	0.0	0.00	-	0
McBride Street/Site Driveway	-	-	-	-	-
McBride Street EB Thru/Right	A	0.0	0.04	-	0
McBride Street WB Left/Thru	A	1.0	0.01	-	1
Site Driveway 2 NB Left/Right	A	8.8	0.03	-	2

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after two cycles.
~ = Volume exceeds capacity; queue is theoretically infinite. Queue shown is maximum after two cycles.
m = Volume for 95th percentile queue is metered by upstream signal.
Gray shading indicates a decrease to LOS E or LOS F when compared to the 2019 No Build conditions.

Table 2-13 Build Conditions (2019) Level of Service Summary, p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
Washington Street/McBride Street/Rossmore Road	**C**	**31.4**	**-**	**-**	**-**
McBride Street EB Left/Right	E	78.5	0.96	206	#376
Rossmore Road WB Left/Thru/Right	C	26.0	0.48	59	125
Washington Street NB Left	D	37.0	0.54	17	#102
Washington Street NB Thru	B	18.2	0.67	212	#547
Washington Street SB Thru/Right	C	23.0	0.85	172	m#678
Washington Street/Williams Street	**D**	**43.0**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	F	>80.0	>1.00	~267	#473
Washington Street NB Left	D	45.2	0.87	56	m#140
Washington Street NB Thru/Right	B	14.0	0.62	135	m168
Washington Street SB Left	D	47.9	0.52	7	m#27
Washington Street SB Thru/Right	C	33.7	0.85	237	m#539
Unsignalized Intersections					
Washington Street/Burnett Street (west)/Brookley Road	-	-	-	-	-
Burnett Street EB Left/Thru/Right	D	27.0	0.01	-	0
Brookley Road WB Left/Thru/Right	F	>50.0	>1.00	-	73
Washington Street NB Left/Thru/Right	A	0.1	0.00	-	0
Washington Street SB Left/Thru/Right	A	4.9	0.17	-	16
Washington Street/Burnett Street (south)	-	-	-	-	-
Burnett Street EB Left/Right	F	>50.0	0.34	-	30
Washington Street NB Left/Thru	A	0.4	0.01	-	1
Washington Street SB Thru/Right	A	0.0	0.17	-	0
Burnett Street/Residential Driveway Entrance	-	-	-	-	-
Burnett Street NB Left/Thru	A	3.6	0.00	-	0
Burnett Street SB Thru/Right	A	0.0	0.01	-	0
Burnett Street/Residential Driveway Exit	-	-	-	-	-
Site Driveway 1 Exit EB Left/Thru	A	8.4	0.01	-	0
Burnett Street WB Right	A	0.0	0.00	-	0
Burnett Street SB Left	A	0.0	0.01	-	0
McBride Street/Site Driveway	-	-	-	-	-
McBride Street EB Thru/Right	A	0.0	0.17	-	0
McBride Street WB Left/Thru	A	2.9	0.04	-	3
Site Driveway 2 NB Left/Right	B	10.3	0.07	-	6

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

As shown in Table 2-12 and Table 2-13, the signalized intersections in the study area are expected to continue to operate at overall LOS C during the a.m. peak hour and overall LOS D or better during the p.m. peak hour. The Williams Street eastbound approach to Washington Street will continue to operate at LOS F during the p.m. peak hour. Queues at the intersection will continue to be the longest along Washington Street during the peak

hours under the 2019 Build conditions scenario. The analysis presented for the previously proposed project showed that the intersection of Washington Street/Rossmore Road/McBride Street was expected to operate at LOS D during the a.m. peak hour and LOS C during the p.m. peak hour. The intersection of Washington Street/Williams Street was not analyzed as part of the transportation study prepared for the previously approved project. The traffic operations at for the NPC Project are generally consistent with the analysis conducted for the previously proposed project.

The Brookley Road westbound approach to Washington Street is expected to decrease to LOS E under the Build conditions during the a.m. peak hour, although this is caused by an increase in delay of only 1.7 seconds. The Site driveways are expected to operate at LOS B or better during both the a.m. and p.m. peak hours with minimal queuing and delay.

Based on the traffic operations analysis, traffic signal timing adjustments may be needed at the intersection of Washington Street/Williams Street to provide more efficient operations and to reduce the overall queuing and delay experienced at the intersection. These measures are needed, independent of the NPC Project.

2.3.2.8 Parking

Approximately 166 parking spaces and 132 secure bicycle storage spaces will be provided on the Site. A total of approximately 36 parking spaces will be provided for the residential units in the southern portion of the Site and will be located in a partially below-grade garage. Parking will be provided in the northern portion of the Site in an approximately 50-space surface lot that will serve the commercial uses on the Site, and a below-grade garage that will serve both the residential uses (approximately 68 spaces) and commercial uses (approximately 12 spaces). The parking ratio is consistent with the proposed goals for residential developments within the Jamaica Plain neighborhood. On-site, secure storage will be provided for approximately 132 bicycles (one per unit) and will be located in the garages. The Proponent will also work with a car sharing service to determine the feasibility of providing on-site car-sharing vehicles. Three electric vehicle charging stations will also be located on the Site. Table 2-14 presents the NPC Project's parking supply in comparison to the previously proposed project.

Table 2-14 Proposed Parking Supply

Land Use	Previously Proposed Project	NPC Project	Change
Residential – Primary Building	36	36	+0
Residential – Surface	6	0	-6
Residential – Mixed-Use Garage	0	68	+68
Residential Total	**42**	**104**	**+62**
Commercial Uses – Surface [1]	74	50	-24
Commercial Uses – Mixed-Use Garage	0	12	+12
Commercial Uses Total	**73**	**62**	**-12**
Project Total	***115***	***166***	***+51***

1 These include spaces for the proposed self-storage and retail uses.

As shown in Table 2-14, the NPC Project will provide an additional 51 parking spaces when compared with the previously proposed project. The total number of parking spaces dedicated to the residential uses will increase by approximately 62 spaces, while the number of parking spaces dedicated to the commercial uses on the Site will decrease by a total of 12 spaces.

2.3.2.9 Public Transportation

As previously discussed, the Site is situated to take advantage of the MBTA bus route 42 that travels along Washington Street in front of the Site and the MBTA Orange Line stations located proximate to the NPC Project. Based on the transit mode shares presented earlier, the future transit trips associated with the NPC Project were estimated and are summarized in Table 2-15.

Table 2-15 NPC Project Transit Trips

Time Period	Direction	Previously Proposed Project[1]	NPC Project[2]	Change
Daily	In	175	416	+241
	Out	175	416	+241
	Total	**350**	**832**	**+482**
a.m. Peak Hour	In	8	16	+8
	Out	19	40	+21
	Total	**27**	**56**	**+29**
p.m. Peak Hour	In	41	76	+35
	Out	17	39	+22
	Total	**58**	**115**	**+57**

1 As presented in the 2011 PNF.
2 Based on ITE LUC 220 – Apartments for 132 units (ITE Trip Generation, 9th Edition)
ITE LUC 151 – Self-storage facility for 131,200 sf (ITE Trip Generation, 9th Edition)
ITE LUC 820 – Shopping Center for 25,200 sf (ITE Trip Generation, 9th Edition)

As shown in Table 2-15, the NPC Project is expected to generate an estimated 832 new transit trips on a daily basis. Approximately 56 new transit trips (16 alighting and 40 boarding) will occur during the a.m. peak hour and 115 new transit trips (76 alighting and 39 boarding) will occur during the p.m. peak hour. The majority of these transit trips will be accommodated by MBTA bus route 42 providing service between Forest Hills station and Dudley/Ruggles station, along with the MBTA Forest Hills and Green Street Stations on the Orange Line.

When compared to the previously proposed project, the NPC Project is expected to generate 482 additional transit trips on a daily basis, with 29 additional trips during the a.m. peak hour and 57 additional trips during the p.m. peak hour. The NPC Project is expected to have minimal impact on the public transportation facilities in the vicinity of the Site.

2.3.2.10 Pedestrians

Based on the walk mode shares presented earlier, the future walk trips associated with the NPC Project were estimated and are summarized in Table 2-16.

Table 2-16 NPC Project Pedestrian Trips

Time Period	Direction	Previously Proposed Project[1]	NPC Project[2]	Change
Daily	In	287	271	-16
	Out	287	271	-16
	Total	**574**	**542**	**-32**
a.m. Peak Hour	In	12	12	0
	Out	10	11	+1
	Total	**22**	**23**	**+1**
p.m. Peak Hour	In	27	22	-5
	Out	30	29	-1
	Total	**57**	**51**	**-6**

1 As presented in the 2011 PNF.
2 Based on ITE LUC 220 – Apartments for 132 units (ITE Trip Generation, 9th Edition)
ITE LUC 151 – Self-storage facility for 131,200 sf (ITE Trip Generation, 9th Edition)
ITE LUC 820 – Shopping Center for 25,200 sf (ITE Trip Generation, 9th Edition)

As shown in Table 2-16, the NPC Project will generate an estimated 542 new pedestrian trips and an additional 832 new transit trips that will require a walk to or from the Site. This results in an additional 1,374 new pedestrian trips per day. Approximately 23 new pedestrian trips will occur during the a.m. peak hour and 51 new pedestrian trips will occur during the p.m. peak hour, in addition to the transit trips that will also require a walk to or from the Site. The pedestrian facilities surrounding the Site have adequate capacity to accommodate the pedestrian trips generated by the NPC Project.

When compared to the previously proposed project, the NPC Project is expected to generate 32 fewer walk/bicycle trips on a daily basis, with 1 additional walk/bicycle trip during the a.m. and 6 fewer walk/bicycle trips during p.m. peak hours. As previously stated, updated trip generation rates and mode share splits were used in this NPC.

2.3.2.11 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements (TAPAs) to provide secure covered bicycle parking for residents and employees and short-term bicycle racks for visitors. The NPC Project will provide approximately 132 covered and secure bicycle storage spaces on-site in the garages. Additional storage will be provided by outdoor bicycle racks accessible to visitors to the Site in accordance with BTD guidelines.

All bicycle racks, signs, and parking areas will conform to BTD guidelines and will be located in safe and secure locations. The Proponent will work with BTD to identify the most appropriate quantity and location for bicycle racks on the Site as part of the TAPA process.

2.3.2.12 Loading and Service Activity

Loading, deliveries, and trash pick-up for the residential building on the southern portion of the Site will take place along Burnett Street. For the northern portion of the Site, these activities will take place on-site in the surface parking lot. The NPC Project is designed to minimize impacts to the public parking, sidewalks, and adjacent roadways.

Delivery trips were estimated based on data provided in the Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study Area report[4]. Deliveries to the Site will be limited to SU-36 trucks and smaller delivery vehicles. The data indicates that residential units primarily generate delivery trips related to small packages and prepared food. Based on the CTPS report, residential uses generate approximately 0.01 light truck trips per 1,000 sf of gross floor area and 0.001 medium/heavy truck trips per 1,000 sf of gross floor area. Retail uses generate approximately 0.15 light truck trips per 1,000 sf of gross floor area and 0.02 medium/heavy truck trips per 1,000 sf of gross floor area, which results in approximately six deliveries per day for the NPC Project between the residential and retail uses. It is anticipated that the majority of these deliveries will occur between 7:00 a.m. and 1:00 p.m. These numbers do not include trash truck trips. The low number of anticipated deliveries will have minimal impact on the vehicular operations along McBride Street, Burnett Street and Washington Street. All move-in/move-out activity can occur at the loading area on surface parking lot for the northern portion of the Site without impacting the public sidewalk, parking, or roadway. Move-in/move-out activity for the southern portion of the Site will take place along Burnett Street.

---

[4] *Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study Area*; Central Transportation Planning Staff (CTPS); September 1993.

2.4 Transportation Mitigation Measures

The Proponent will work with the City of Boston to create a Project that efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use. As part of the NPC Project, the Proponent will bring all abutting sidewalks to the City of Boston standards in accordance with the Boston Complete Streets design guidelines. This will include the reconstruction and widening of the sidewalks where possible, the installation of new, accessible ramps, improvements to street lighting where necessary, planting of street trees, and providing bicycle storage racks surrounding the Site, where appropriate.

In addition to the reconstruction and upgrade of the sidewalks, the NPC Project will also create new on-street parking along McBride Street and Washington Street. The Proponent will provide four new on-street parking spaces along McBride Street and seven new on-street parking spaces along Washington Street that will support the new ground-floor retail uses. The existing adjacent bus stop along Washington Street southbound will be retained and upgraded as part of these improvements.

The Proponent will also implement an optimal traffic signal timing and coordination plan at the intersection of Washington Street/Williams Street to provide more efficient traffic flow and to reduce the vehicular queuing and delay experienced at the intersection. Table 2-17 presents the traffic analysis at the signalized intersections with the implementation of an optimal traffic signal timing and coordination plan. Since the improvements include an optimal coordination plan, the intersection of Washington Street/McBride Street/Rossmore Road was also included in the analysis.

Table 2-17 Build with Mitigation Conditions (2019) Level of Service Summary

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
a.m. Peak Hour					
Washington Street/McBride Street/Rossmore Road	**C**	**32.1**	**-**	**-**	**-**
McBride Street EB Left/Right	C	33.6	0.28	42	84
Rossmore Road WB Left/Thru/Right	E	67.2	0.96	185	#364
Washington Street NB Left	B	10.1	0.12	8	34
Washington Street NB Thru	C	28.9	0.87	357	#822
Washington Street SB Thru/Right	B	12.9	0.55	93	m291
Washington Street/Williams Street	**C**	**25.0**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	E	66.2	0.88	103	#230
Washington Street NB Left	C	27.3	0.86	175	m210
Washington Street NB Thru/Right	B	10.1	0.69	175	m148
Washington Street SB Left	C	25.8	0.19	2	m7
Washington Street SB Thru/Right	C	25.4	0.61	90	m#201
p.m. Peak Hour					
Washington Street/McBride Street/Rossmore Road	**C**	**32.4**	**-**	**-**	**-**
McBride Street EB Left/Right	E	78.5	0.96	206	#376
Rossmore Road WB Left/Thru/Right	C	26.0	0.48	59	125
Washington Street NB Left	D	37.0	0.54	17	#102
Washington Street NB Thru	B	18.2	0.67	212	#547
Washington Street SB Thru/Right	C	25.5	0.85	173	m#653
Washington Street/Williams Street	**D**	**43.4**	**-**	**-**	**-**
Williams Street EB Left/Thru/Right	E	73.4	0.98	254	#462
Washington Street NB Left	D	53.8	0.90	69	m#151
Washington Street NB Thru/Right	B	15.1	0.63	141	m183
Washington Street SB Left	D	49.2	0.51	7	m#29
Washington Street SB Thru/Right	D	40.2	0.89	376	m#558

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

As shown in Table 2-17, the study area intersections will continue to operate at overall LOS C during the a.m. peak hour and at overall LOS D or better during the p.m. peak hour. The Williams Street eastbound approach to Washington Street will improve to LOS E during the p.m. peak hour with an optimal traffic signal timing and coordination plan.

The Proponent is responsible for preparation of the TAPA, a formal legal agreement between the Proponent and the BTD. The TAPA formalizes the findings of the transportation study, mitigation commitments, elements of access and physical design, travel demand management measures, and any other responsibilities that are agreed to by both the Proponent and the BTD. The proposed measures listed above and any additional transportation improvements to be undertaken as part of this NPC Project will be defined and documented in the TAPA.

The Proponent will also produce a Construction Management Plan (CMP) for review and approval by BTD. The CMP will detail the schedule, staging, parking, delivery, and other

associated impacts of the construction of the NPC Project. See Section 2.6 for additional information related to the CMP.

2.5 Transportation Demand Management

The Proponent is committed to implementing TDM measures to minimize automobile usage and NPC Project related traffic impacts. TDM will be facilitated by the nature of the NPC Project and its proximity to numerous public transit alternatives.

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

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

The TDM measures for the NPC Project may include, but are not limited to, the following:

- **Orientation Packets**: The Proponent will provide orientation packets to new residents and tenants containing information on available transportation choices, including transit routes/schedules and nearby vehicle sharing locations. On-site management will work with residents and tenants as they move in to help facilitate transportation for new arrivals.

- **Bicycle Accommodation**: The Proponent will provide bicycle storage in secure, sheltered areas for residents. Subject to necessary approvals, public use bicycle racks for visitors will be placed near building entrances.

- **Transportation Coordinator**: The Proponent will designate a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries, and will work with residents as they move in to raise awareness of public transportation, bicycling, and walking opportunities.

- **Project Web Site**: The web site will include transportation-related information for residents, workers, and visitors.

- **Electric Vehicle Charging Stations**: The Proponent will provide a total of three electric vehicle charging stations on the Site.

- **Priority Parking Spaces**: The Proponent will provide priority parking spaces for hybrid and electric vehicles on the Site.

- **Vehicle Sharing Program**: The Proponent will explore the feasibility of providing a car sharing service on the Site.

2.6 Evaluation of Short-term Construction Impacts

Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in a CMP to be filed with BTD in accordance with the City's transportation maintenance plan requirements. The CMP will also address the need for pedestrian detours, lane closures, and/or parking restrictions, if necessary to accommodate a safe and secure work zone.

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

- Construction workers will be encouraged to use public transportation and/or carpool;
- A subsidy for MBTA passes will be considered for full-time construction workers; and
- Secure spaces will be provided on-site for workers' supplies and tools so they do not need to be brought to the job site each day.

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

Chapter 3.0

Environmental Review Component

3.0 ENVIRONMENTAL REVIEW COMPONENT

3.1 Wind

The NPC Project buildings are similar in height to surrounding existing and proposed buildings, and no building is proposed to be significantly taller than surrounding buildings. As a result, the NPC Project is not anticipated to create pedestrian level wind conditions that are unsuitable for the proposed uses around the site.

3.2 Shadow

3.2.1 Introduction and Methodology

A shadow impact analysis was conducted to investigate shadow impacts from the NPC Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal and autumnal equinoxes (March 21 and September 21), summer solstice (June 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 vernal/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 NPC Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the Site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the NPC Project are provided in Figures 3-1 to 3-11 at the end of this section.

The analysis shows that the NPC Project's impacts will generally be limited to the immediately surrounding streets and sidewalks. New shadow on nearby open spaces will be limited to portions of nearby open spaces and during only portions of the day and year. These new shadows will occur on portions of Southwest Corridor Park during the morning noontime periods of December 21, portions of the English High School athletic field during afternoons and evenings of March 21 and September 21, and on portions of the future Southwest Corridor Extension Bike Trail during morning and noontime periods throughout the year.

3.2.2 Vernal and Autumnal Equinoxes (March 21 and September 21)

Given the heights of the proposed buildings, the shadow impacts on March 21 and September 21 will be similar, and therefore are combined for this analysis.

At 9:00 a.m. during the vernal and autumnal equinoxes, new shadow from the NPC Project will be cast to the northwest across the MBTA tracks, the future Southwest Corridor Extension Bike Trail and the NPC Project's surface parking lot. New shadow will be cast onto a small portion of Burnett Street south of the NPC Project's parking lot. No new shadow will be cast onto nearby bus stops or other public open spaces.

At 12:00 p.m., new shadow will be cast to the north onto a portion of the future Southwest Corridor Extension Bike Trail, portions of McBride Street and its sidewalks, and the site's parking lot. No new shadow will be cast onto nearby bus stops or other public open spaces.

At 3:00 p.m., new shadow will be cast to the northeast onto portions of McBride Street and its sidewalks, as well as the NPC Project's parking lot and open space. No new shadow will be cast onto nearby bus stops or public open spaces.

At 6:00 p.m., new shadow will be cast to the east onto McBride Street and its sidewalks, a portion of Washington Street and its sidewalks, a portion of Burnett Street and its sidewalks, as well as the NPC Project site itself. New shadow will be cast onto the southern portion of the English High School athletic field. The existing bus stops will be under existing shadow. No new shadow will be cast onto nearby bus stops or other public open spaces.

3.2.3 Summer Solstice (June 21)

At 9:00 a.m. during the summer solstice, new shadow from the NPC Project will be cast to the west across the MBTA tracks, the future Southwest Corridor Extension Bike Trail and the Project's surface parking lot. New shadow will be cast onto a small portion of Burnett Street south of the Project's parking lot. No new shadow will be cast onto nearby bus stops or other public open spaces.

At 12:00 p.m., new shadow will be cast to the northwest and will be limited to small portions of the future Southwest Corridor Extension Bike Trail, the southern sidewalk along McBride Street, and portions of the Site. No new shadow will be cast onto nearby bus stops or public open spaces.

At 3:00 p.m., new shadow will be cast to the northeast onto portions of McBride Street and its southern sidewalk, the western sidewalk of Washington Street, and the western sidewalk of Burnett Street. New shadow will also be cast onto the two bus stops along the western side of Washington Street. No new shadow will be cast onto nearby public open spaces.

At 6:00 p.m., new shadow will be cast to the east onto portions of McBride Street and its southern sidewalk, Burnett Street and its sidewalks, and Washington Street and its sidewalks. New shadow will be cast onto the bus stop on the southeastern corner of Washington and McBride Streets. New shadow will also be cast onto the NPC Project's parking lot. No new shadow will be cast onto nearby public open spaces.

3.2.4 Winter Solstice (December 21)

The winter solstice creates the least favorable conditions for sunlight in New England. The sun angle during the winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m., new shadow will be cast to the northwest onto the MBTA tracks, McBride Street and its sidewalks, the future Southwest Corridor Extension Bike Trail, the Southwest Corridor Park across from the MBTA tracks, and a small portion of the English High School athletic field. New shadow will also be cast onto the NPC Project's parking lot. No new shadow will be cast onto nearby bus stops.

At 12:00 p.m., new shadow will be cast to the north onto McBride Street and its sidewalks, the MBTA tracks, the future Southwest Corridor Extension Bike Trail, a small portion of Southwest Corridor Park across McBride Street and the MBTA tracks, and a portion of the English High School athletic field. New shadow will also be cast onto a portion of the NPC Project's open space and parking lot. No new shadow will be cast onto nearby bus stops.

At 3:00 p.m., new shadow will be cast to the northeast across McBride Street and its sidewalks, Burnett Street and its sidewalks, and a portion of Washington Street and its western sidewalk. New shadow will also be cast onto the NPC Project's open space and surface parking lot, as well as a portion of the English High School athletic field. The bus stops adjacent to the site will be under existing shadow. No new shadow will be cast onto nearby bus stops or other public open spaces.

3.2.5 Conclusions

The shadow impact analysis looked at net new shadow created by the NPC Project during eleven time periods. New shadow will generally be limited to the immediately surrounding area, especially adjacent streets and sidewalks. New shadow on portions of nearby open spaces will occur during the morning and noontime periods on the Southwest Corridor Park and future Southwest Corridor Extension Bike Trail, and during the afternoon and evenings on the English High School athletic field.

3.3 Daylight

The NPC Project buildings are similar in height to surrounding existing and proposed buildings, and there is significant space between the buildings. Due to these proposed conditions, impacts to daylight are anticipated to be minimal.

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-1

Shadow Study: March 21/September 21, 9 AM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-2

Shadow Study: March 21/September 21, 12 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-3

Shadow Study: March 21/September 21, 3 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-4

Shadow Study: March 21/September 21, 6 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-5

Shadow Study: June 21, 9 AM

3521-3529 Washington Street NPC Boston, Massachusetts

BL Companies
Architecture Engineering Environmental Land Surveying
www.blcompanies.com

Figure 3-6

Shadow Study: June 21, 12 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-7

Shadow Study: June 21, 3 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3-8

Shadow Study: June 21, 6 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3.2-9

Shadow Study: December 21, 9 AM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3.2-10

Shadow Study: December 21, 12 PM

3521-3529 Washington Street NPC Boston, Massachusetts

Figure 3.2-11

Shadow Study: December 21, 3 PM

3.4 Solid and Hazardous Waste

3.4.1 Hazardous Waste

3.4.1.1 Site History and Compliance with Massachusetts Contingency Plan

The Site is an industrial site with a history of manufacturing activities dating back into the 1800s; the site was used as a manufacturing facility by Kinney Manufacturing (who merged with New York Air Brake), Blue Coal Corporation, Linen Thread Company and Boston Thread Works. Upon conducting "Phase I and II" Investigations as part of environmental due diligence work, contaminates were found in the soil and groundwater at levels exceeding Massachusetts Department of Environmental Protection (MassDEP) Reportable Concentrations at the western portion of the Site. In addition to fuel oil, kerosene and motor oil, there were also chlorinated solvents found. As required by law, the owner of record notified the MassDEP. Additional testing is currently being performed in order to determine the scope of the clean-up.

The Site is listed as a MassDEP "Disposal Site" under Release Tracking Number (RTN) 3-30389. At the present time, the Site is classified as a "Tier II" site being managed by a Licensed Site Professional (LSP) hired by the current property owner, and is undergoing additional comprehensive assessment testing as part of a "Phase II" program required under the Massachusetts Contingency Plan (MCP). The LSP that originally reported the Site in 2011 is preparing the Phase II report for submittal to MassDEP. As a part of the NPC Project, the existing buildings will be demolished and the contamination will be mitigated so that it is safe for the NPC Project.

3.4.1.2 Existing Hazardous Building Materials

The existing buildings at the Site will be demolished to allow for the construction of the NPC Project. Prior to demolition, an asbestos and hazardous material evaluation will be conducted. If hazardous materials are present, a Massachusetts licensed abatement contractor will be retained to remove and legally dispose of such materials.

3.4.2 Operational Solid and Hazardous Waste Generation

The NPC Project will generate solid waste typical of residential, retail and office uses. Based on a generation rate of four pounds per bedroom per day and 5.5 tons per year per 1,000 sf of retail/commercial space, solid waste generated by the NPC Project will be approximately 348 tons per year. The solid waste generated from the self-storage building is anticipated to be minimal.

Solid waste will include wastepaper, cardboard, glass, bottles, food waste, and other waste typical of residential, retail and office uses. The residential buildings will include areas for trash collection and recycling collection. The self-storage facility will include a trash area adjacent to the building on the southwestern side of the parking lot. A trash area will be

included on the southern side of the mixed-use building adjacent to the parking garage ramp. Recycling areas will be included with the trash areas for each building.

With the exception of "household hazardous wastes" typical of these uses (e.g., cleaning fluids), hazardous wastes will not be generated.

3.5 Geotechnical/Groundwater Impacts

3.5.1 Subsurface Conditions

Northeast Geotechnical, Inc. analyzed the soil conditions of the Site. The general subsurface profile is generally consistent throughout the Site and typically consists of urban fill material up to approximately nine feet thick overlying a natural glacial outwash sand deposit approximately three to eight feet thick. Buried natural topsoil and subsoil layers were occasionally found between the fill and the natural sand.

The urban fill is typically very loose to medium dense based on the Standard Penetration testing. The fill typically consists primarily of sand and silt mixed with debris including ash, slag, glass, asphalt, wood, brick and concrete.

The natural outwash sand is generally a medium dense to dense fine to coarse sand with variable silt and gravel content.

The outwash sand is typically underlain by an approximately seven to nine foot thick natural stratified sand and silt deposit that transitions into a natural clay and silt deposit approximately 24 to 44 feet thick. A relatively thick natural glacial till deposit is below the clay and silt.

The natural stratified sand and silt is consistently in a very loose to loose condition and typically varies from fine sand with little silt to silt with trace fine sand.

The natural clay and silt typically varies in consistency from very soft to stiff, and from silty clay to clayey silt.

The natural glacial till is generally medium dense to dense and typically consists of sand, silt and gravel of varying proportions.

Groundwater is generally encountered between approximately 8.5 to 10 feet below existing ground surface. Groundwater levels will fluctuate due to variations in temperature, precipitation and other factors. Therefore, groundwater levels at any time could be different than those reported herein. Long-term groundwater impacts are not anticipated since permanent dewatering is not expected to be required. Short-term, localized construction dewatering for some underground utility installations may be required. Significant off-site groundwater impacts from the potential short-term, localized dewatering efforts are not anticipated. The Site is not located in the Groundwater Conservation Overlay District.

3.5.2 Foundation Methodology

It is anticipated that the proposed buildings will be constructed using shallow spread footings with slabs-on-grade. Where there is insufficient room to safely slope excavations, lateral earth support will be required. Once the final building locations and loads have been established along with the proposed finish slab elevations and site grading, additional test borings and possibly test pits may be performed to gather additional subsurface information across the Site. Foundation and slab design and construction will be finalized at that time. Impacts from foundation construction will be limited because deep excavations are not anticipated for foundation construction and blasting is not expected.

3.6 Construction Impacts

3.6.1 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 NPC Project. Construction methodologies, which ensure public safety and protect nearby residences, 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.

Periodic meetings will also be held with neighborhood representatives to describe the ongoing work and to discuss measures that will be taken to minimize impacts on the community. The NPC Project superintendent will contact abutters and close neighbors on a regular basis during the work.

During the construction phase of the NPC 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 a person whose sole responsibility it is to respond to the questions/comments/complaints of the residents of the neighborhoods.

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

3.6.2 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 occasionally occupy pedestrian walkways and parking lanes on the surrounding streets. As the design of the NPC 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 and, if required, the suspension of the use of certain sidewalks during the most hazardous periods of overhead work activity during the construction of the superstructure, 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.

3.6.3 Construction Schedule

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. 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.

3.6.4 Construction Staging/Access

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

Although specific construction and staging details for have not been finalized, the Proponent and its construction management consultant 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.

3.6.5 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 Stony Brook Conduit" plaques will be installed at storm drains that are replaced or installed as part of the NPC Project.

3.6.6 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 350 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 jobs agreement 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.

3.6.7 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 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.

3.6.8 Construction Air Quality

Short-term air quality impacts from fugitive dust may be expected during excavation and the early phases of construction. Plans for controlling fugitive dust during excavation and construction include mechanical street sweeping, wetting portions of the site during periods

of high wind, and careful removal of debris by covered trucks. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts, pursuant to this Article 80 approval. These measures are expected to include:

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

3.6.9 Construction Noise

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

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.

3.6.10 Construction Vibration

All means and methods for performing work at the site will be evaluated for potential vibration impacts on adjoining property, utilities, and adjacent existing structures. Acceptable vibration criteria will be established prior to construction, and vibration will be monitored, if required, during construction to ensure compliance with the agreed-upon standard.

3.6.11 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. Construction will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.

3.6.12 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.

3.7 Sustainable Design

The Proponent is committed to developing buildings that are sustainably designed, energy efficient, environmentally conscious and healthy for residents, staff of the commercial properties and the public. Under Article 37 of the Boston Zoning Code, projects that are subject to Article 80B, Large Project Review, are required to be Leadership in Energy and Environmental Design (LEED) certifiable. The PNF included LEED checklists and discussions for the proposed buildings. As the retail building has evolved into a larger mixed-use building, a new checklist and narrative has been prepared and is included

below. The LEED information for the other buildings is also included below. The LEED checklists are included in Appendix D. The credits that the buildings may achieve may change as the design evolves.

3.7.1 Burnett Street Residential Building

The residential portion of the Project is anticipated to meet the Certifiable Certification threshold with 47 credit points targeted.

Sustainable Sites

The building site is in a dense urban neighborhood close to several public transportation options.

SS Prerequisite 1 Construction Activity Pollution Prevention: The Construction Manager will submit and implement an Erosion and Sedimentation Control (ESC) Plan for construction activities related to the demolition of existing conditions and the construction of the new buildings. The ESC Plan will conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Boston.

SS Credit 1 Site Selection: The building site is located on a previously developed urban site in Boston Proper.

SS Credit 2 Development Density and Community Connectivity: The building site is located in the Jamaica Plain neighborhood of Boston bordering on the Dorchester/Roxbury neighborhood. The surrounding community is replete with housing, restaurants, shops, grocery stores, educational and religious institutions, performance venues and other community amenities. In addition, the Jamaica Plain Public Library is a short walk away.

SS Credit 3 Brownfield Redevelopment: The building site will be classified as a brownfield site and will be assessed for hazardous materials.

SS Credit 4.1 Alternative Transportation, Public Transportation Access: The Forest Hills Orange line MBTA subway station and Needham Line are located approximately 0.3 miles from the building site. There is a bus stop outside the subway station that functions as a hub/transfer station for several bus routes, many of which pass directly by or in close proximity to the building site. Other MBTA stations in close proximity include the 42 bus line just 0.1 mile from the building site.

SS Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms: The building will have covered storage facilities for securing 44 bicycles (one per unit), in excess of the LEED requirement and consistent with BTD guidelines.

SS Credit 4.3 Alternate Transportation, Low-Emitting and Fuel-Efficient Vehicles: The building's parking garage will have 5% of the total parking capacity dedicated to preferred parking for Low-Emitting & Fuel-Efficient Vehicles.

SS Credit 4.4 Alternate Transportation, Parking Capacity: The building will have a designated carpool drop-off area.

SS Credit 5.2 Site Development, Maximize Open Space: The building site is located in an urban area and will promote biodiversity by providing a vegetated roof area on the building. In line with SS Credit 2: Development Density & Community Connectivity, a minimum of 25% of the open space will be dedicated to vegetated open spaces.

SS Credit 6.1 Stormwater Design, Quantity Control: The building will implement a stormwater management plan. The site will also exceed the predevelopment peak discharge rate and quantity for the one and two year 24-hour design storms.

SS Credit 6.2 Stormwater Design, Quality Control: The building will implement a stormwater management plan to ensure that the site captures and treats the stormwater runoff from 90% of the average annual rainfall.

SS Credit 7.2 Heat Island Effect, Roof: The roof of the building will be a light colored roofing system with a minimum SRI value of 78 to reflect sunlight and reduce heat gain, and a portion of the roof will be vegetated.

SS Credit 8 Light Pollution Reduction: The residential design will reduce the input power of all non-emergency luminaires that are in the direct line of sight to any opening in the building by 50% between 11:00 p.m. and 5:00 a.m. via sensors. The sensors will also have a manual override for after hours in case needed. The exterior lighting falls under the LZ2: Low bracket; the building design will adhere to all guidelines necessary for the LZ2 low criteria.

Water Efficiency

The residential design will specify low flow and high efficiency plumbing fixtures to achieve Water Efficiency.

WE Prerequisite 1 Water Use Reduction, 20% Reduction: Through the specification of low flow and high efficiency plumbing fixtures, the residential design will implement water use reduction strategies that use, at a minimum, 20% less potable water than the water use baseline calculated for the buildings (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirement.

WE Credits 1 Water Efficient Landscaping, Reduce by 50%: The development will reduce water consumption for irrigation by 50% to attribute towards the plant species, density and microclimate factor.

WE Credit 3 Water Use Reduction: Specified fixtures will include high efficiency toilets and urinals, low flow lavatory faucets and ultra low flow shower heads. The design will target an overall water savings of 35% from the calculated baseline.

Energy and Atmosphere

The building systems will be designed to optimize energy performance and will not use refrigerants that are harmful to the environment. The owner will engage a Commissioning Agent to confirm the building systems are installed and function as intended and designed.

EA Prerequisite 1 Fundamental Commissioning of the Building Energy Systems: A third party Commissioning Agent (CxA) will be engaged by the owner for purposes of providing basic commissioning services for the building energy related systems including heating, ventilation, air condition, and refrigeration (HVAC & R), lighting and domestic hot water systems. The CxA will verify the building systems are installed, calibrated and performing to the building owner's requirements.

EA Prerequisite 2 Minimum Energy Performance: The building performance rating will demonstrate a minimum of a 20% improvement compared to the baseline building performance calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007. A whole building energy simulation will demonstrate the projected energy savings for the buildings.

EA Prerequisite 3 Fundamental Refrigerant Management: The specifications for refrigerants used in the building HVAC & R systems will not permit the use of CFC-based refrigerants.

EA Credit 1 Optimize Energy Performance: The proposed building systems will target a performance level of a minimum of 22% improvement over a baseline building performance rating. The team will develop a whole building energy model to demonstrate the expected performance rating of the designed building systems.

Materials and Resources

Throughout the construction phase of the building, the contractor will endeavor to divert construction and demolition waste from area landfills and procure materials that have recycled content and/or are manufactured locally.

MR Prerequisite 1 Storage and Collection of Recyclables: Storage of collected recyclables will be accommodated throughout the building.

MR Credit 2 Construction Waste Management: The construction manager will develop and implement a Construction Waste Management plan that will divert a minimum of 50% of the construction waste and demolition debris from area landfills.

MR Credits 4 Recycled Content 10%: The building design will require materials to include pre- and or post-consumer recycled content. During construction, materials submittals will include a document indicating the percentage of both pre and post-consumer recycled content. The construction manager will track the recycled content for each material with a goal to achieve 10% recycled-content materials based on overall materials costs.

MR Credit 5 Regional Materials: The building will use materials that are extracted, harvested, recovered and manufactured within a 500-mile radius of the job site. The construction manager will track the source location for each material with a target to achieve 10% regional materials based on overall costs.

Indoor Environmental Quality

The air quality will be monitored during the construction phase and likely prior to occupancy. Low emitting materials will be used throughout the construction to maintain and improve air quality. The occupants of the building will be able to maintain a comfortable environment through access to thermal and lighting controls.

IEQ Prerequisite 1 Minimum IAQ Performance: The mechanical systems will be designed to meet or exceed the requirements of ASHRAE Standard 61.1-2007 sections 4 through 7 and/or applicable building codes.

IEQ Prerequisite 2 Environmental Tobacco Smoke (ETS) Control: The building will be non-smoking environments.

IEQ Credit 4.1 Low-Emitting Materials- Adhesives & Sealants: The design will employ adhesive and sealants that meet the low Volatile Organic Compounds (VOC) criteria.

IEQ Credit 4.2 Low-Emitting Materials- Paints & Coating: The buildings will include requirements for paints and coating to meet the low VOC criteria.

IEQ Credit 4.3 Low-Emitting Materials, Flooring System: The building will include a hard surface flooring material that will be FloorScore certified and use carpet systems that will comply with the Carpet Institute of Green Label Program.

IEQ Credit 6.1 Controllability of Systems, Lighting: The design will provide individual lighting controls for regularly occupied spaces. The controls may include vacancy/occupancy sensors and day light dimming controls. The lighting system will be designed to include regular vacancy/occupancy spaces.

IEQ Credit 6.2 Controllability of Systems, Thermal Comfort: The design will provide individual programmable temperature controls to all occupied spaces in the building.

IEQ Credit 8.1 Daylight & Views, Daylight for 75% of the spaces: The building will be designed such that regularly occupied spaces of the building is provided with ample vision glasses to achieve daylight for 75% of the areas.

Innovation & Design Processes

The team has identified several possible ID credits which are listed below (limited to five ID credits total).

ID Credit 1 Exemplary Performance for SSc4.1: The building site is located on several bus routes with a frequency of service resulting in over 200 transit rides per day.

Regional Priority Credits

Regional Priority Credits (RPC) are established LEED credits designated by the USGBC to have priority for a particular area of the country. When a project team achieves one of the designated RPCs, an additional credit is awarded to the project. RPCs applicable to the Boston area include: SSc3, SSc6.1, and EAc2. This design team anticipates three RPCs: SSc3 Brownfield Redevelopment and SSc6.1- Stormwater Design, Quantity Control.

3.7.2 Mixed-use Building

The mixed-use building has a goal of Silver Level with 55 credit points. However, credits are still being considered to determine if appropriate, italicized below.

Sustainable Sites

The site is in a dense urban neighborhood close to several public transportation options.

SS Prerequisite 1 Construction Activity Pollution Prevention: The Construction Manager will submit and implement an ESC Plan for construction activities related to the demolition of existing conditions and the construction of the new building specific to this building. The ESC Plan will conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Boston.

SS Credit 1 Site Selection: The site is located on a previously developed urban site in Boston Proper.

SS Credit 2 Development Density and Community Connectivity: The site is in the Jamaica Plain neighborhood of Boston. The surrounding community is replete with housing, restaurants, shops, grocery stores, educational and religious institutions, performance venues and other community amenities. In addition, the McBride/Boynton Streets Community Garden is a short walk away.

SS Credit 3 Brownfield Redevelopment: The site will be classified as a brownfield site and will be assessed for hazardous materials.

SS Credit 4.1 Alternative Transportation, Public Transportation Access: The MBTA Orange Line's Green Street Station is located approximately 0.4 miles from the mixed-use building. There are several bus routes which pass directly by or in close proximity to the mixed-use building. Other MBTA stations in close proximity include the Forest Hills Station (0.4 miles), and the Centre Street @ Eliot Street Station (0.4 miles).

SS Credit 4.2 Alternative Transportation – Bicycle Storage and Changing Rooms: The building will include secure bicycle storage for the residential portion of the building, and bicycle racks for the commercial portion. The Proponent is studying the incorporation of showers for employees of the site.

SS Credit 4.3 Low Emitting Fuel Efficient Vehicles: 5% of the total parking will be designated for preferred parking for low emitting and fuel efficient vehicles.

SS Credit 4.4 Alternate Transportation Parking Capacity: 5% of the total parking will be designated for preferred parking for carpools or vanpools.

SS Credit 6.1 Stormwater Design – Quantity Control: Since this site is currently primarily impervious, this credit will require a reduction in storm water outflows which may be difficult to achieve. The design team will consider this credit during the detailed site design process.

SS Credit 6.2 Stormwater Design, Quality Control: The stormwater runoff will be treated prior to release into the municipal storm sewer system.

SS Credit 7.2 Heat Island Effect, Roof: The building will include a high-albedo roof membrane with a minimum SRI of 78 for low sloped roofs, covering a minimum of 75% of the roof area.

SS Credit 8 Light Pollution Reduction: For the interior, all non-emergency lighting will be closed or reduced by 50% between 11:00 p.m. and 5:00 a.m. For the exteriors, the building will not exceed 80% (50% building/features) of lighting power densities per IESNA 90.1-2004. The building will be defined per IESNA RP-33: LZ2.

Water Efficiency

The building design will specify low flow and high efficiency plumbing fixtures to achieve Water Efficiency.

WE Prerequisite 1 Water Use Reduction, 20% Reduction: Through the specification of low flow and high efficiency plumbing fixtures, the building design will implement water use reduction strategies that use, at a minimum, 20% less water than the water use baseline

calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements.

WE Credit 1 Water Efficient Landscaping: The landscape plan for this site includes groundcovers, shrubs, and trees native and adapted to the local ecosystem. The site will not have a permanent irrigation system.

WE Credit 3 Water Use Reduction: Specified fixtures will include high efficiency toilets and urinals, low flow lavatory faucets and ultra low flow shower heads. The goal is an overall water savings of 30% above the calculated baseline.

Energy and Atmosphere

The building systems will be designed to optimize energy performance and will not use refrigerants that are harmful to the environment. The owner will engage a Commissioning Agent to confirm the building systems are installed and function as intended and designed.

EA Prerequisite 1 Fundamental Commissioning of the Building Energy Systems: A third party CxA will be engaged by the owner for purposes of providing basic commissioning services for the building energy related systems including HVAC & R, lighting and domestic hot water systems. The CxA will verify the building systems are installed, calibrated and performing to the building owner's requirements.

EA Prerequisite 2 Minimum Energy Performance: The building performance rating will demonstrate a minimum of a 20% improvement compared to the baseline building performance calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007, with a target of a 26% improvement. A whole building energy simulation will demonstrate the projected energy savings for the building.

EA Prerequisite 3 Fundamental Refrigerant Management: The specifications for refrigerants used in the building HVAC & R systems will not permit the use of CFC based refrigerants.

EA Credit 1 Optimize Energy Performance: The proposed building systems will meet a performance level of a minimum of 20% improvement over a baseline building performance rating. The team will develop a whole building energy model to demonstrate the expected performance rating of the designed building systems. *An additional 6%-8% reduction of energy consumption will be considered if they can be achieved without resorting to extraordinary measures.*

EA Credit 2: On-site Renewable Energy: A solar PV panel system to be installed on the building roof capable of producing 5% of the building energy use will be reviewed.

EA Credit 3: Enhanced Commissioning: Enhanced Commissioning will be considered.

Credit 5: Measurement and Verification: Option 2 of the Measurement and Verification which includes energy measure isolation for a one year period and a corrective plan if savings are not achieved will be considered.

Materials and Resources

Throughout the construction phase of the building, the contractor will endeavor to divert construction and demolition waste from area landfills and procure materials that have recycled content and/or are manufactured locally.

MR Prerequisite 1 Storage and Collection of Recyclables: Easily-accessible storage of collected recyclables will be provided for the entire building.

MR Credits 2 Construction Waste Management: The construction manager will develop and implement a Construction Waste Management plan. The construction manager will endeavor to divert as much demolition debris and construction waste from area landfills as possible with a goal of achieving 75% diversion.

MR Credits 4 Recycled Content 10% (post-consumer & ½ pre-consumer): The building specifications will require materials to include pre- and or postconsumer recycled content. During construction, materials submittals will include a document indicating the percentage of both pre- and post-consumer recycled content. The construction manager will track the recycled content for each material with a target to achieve 20% recycled-content materials based on overall materials costs.

MR Credit 5 Regional Materials, 10% Extracted, Processed and Manufactured Regionally: The building specifications will indicate which materials are to be extracted, harvested, recovered and manufactured within a 500-mile radius of the job site. The construction manager will track the source location for each material with a target to achieve 10% regional materials based on overall materials costs.

Indoor Environmental Quality

The air quality will be monitored during the construction phase of the building and likely prior to occupancy. Low emitting materials will be used throughout construction to maintain and improve air quality. The building occupants will be able to maintain a comfortable environment through access to thermal and lighting controls.

IEQ Prerequisite 1 Minimum IAQ Performance: The building mechanical systems are designed to meet or exceed the requirements of ASHRAE Standard 61.1-2007 sections 4 through 7 and/or applicable building codes.

IEQ Prerequisite 2 Environmental Tobacco Smoke (ETS) Control: The building will be a non-smoking environment.

IEQ Credit 1 Outdoor Air Delivery Monitoring: The building will incorporate permanent CO_2 sensors and measuring devices to provide feedback on the performance of the HVAC system. Devices will be programmed to generate an alarm when the conditions vary by 10% from a set point.

IEQ Credits 4.1 Low-Emitting Materials, Adhesives & Sealants: The specifications will include requirements for adhesives and sealants to meet the low VOC criteria.

IEQ Credits 4.2 Low-Emitting Materials, Paints and Coatings: The specifications will include requirements for paints and coatings to meet the low VOC criteria.

IEQ Credits 4.3 Low-Emitting Materials, Flooring Systems: The specifications will include requirements for hard surface flooring materials to be FloorScore certified and carpet systems will comply with the Carpet Institute Green label program.

IEQ Credit 4.4 Low Emitting Materials, Composite Wood and Agrifiber Products: The Proponent will endeavor to use composite wood and Agrifiber products that contain no added urea-formaldehyde.

IEQ Credit 5 Indoor Chemical and Pollutant Source Control: The Proponent will minimize and control the entry of pollutants into the building and contain chemical use areas.

Innovation & Design Process

The team has identified several possible ID credits which are listed below (limited to five ID credits total).

ID Credit 1.1 Exemplary Performance for SSc4.1: The site is located on several bus routes with a frequency of service resulting in over 200 transit rides per day.

ID Credit 1.2 Exemplary Performance for MRc2.2 Construction Waste Management: Due to the high volume of demolition debris, there is a high likelihood the construction manager could divert 95% of the construction waste by weight from area landfills.

ID Credit 1.3 Green Housekeeping: Building Facilities/Maintenance will implement a cleaning program that uses 'green' cleaning products.

ID Credit 1.4 Low Mercury lighting: Building Facilities/Maintenance will establish a lighting purchasing plan to limit the levels of mercury containing lamps purchased for the building.

ID Credit 2 LEED Accredited Professional (required ID credit for LEED certification): A LEED AP will provide administrative services to oversee the LEED credit documentation process.

Regional Priority Credits

The development is anticipated to achieve two RPCs: SSc3 Brownfield Redevelopment and SSc7.2- Heat Island Effect Roof.

3.7.3 Self-storage Building

The self-storage building has a goal of Silver Level with 54 credit points. However, credits are still being considered to determine if appropriate, and are italicized below.

Sustainable Sites

The self-storage site is in a dense urban neighborhood close to several public transportation options.

SS Prerequisite 1 Construction Activity Pollution Prevention: The Construction Manager will submit and implement an ESC Plan for construction activities related to the demolition of existing conditions and the construction of the new building. The ESC Plan will conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Boston.

SS Credit 1 Site Selection: The self-storage site is located on a previously developed urban site in Boston Proper.

SS Credit 2 Development Density and Community Connectivity: The self-storage site is in the Jamaica Plain neighborhood of Boston. The surrounding community is replete with housing, restaurants, shops, grocery stores, educational and religious institutions, performance venues and other community amenities.

SS Credit 3 Brownfield Redevelopment: The self-storage site will be classified as a brownfield site and will be assessed for hazardous materials.

SS Credit 4.1 Alternative Transportation, Public Transportation Access: The MBTA Orange Line's Green Street Station is located approximately 0.4 miles from the self-storage-site. There are several bus routes which pass directly by or in close proximity to the self-storage site. Other MBTA stations in close proximity include the Forest Hills Station (0.4 miles), and the Centre Street @ Eliot Street Station (0.4 miles).

SS Credit 4.3 Low Emitting Fuel Efficient Vehicles: 5% of the total parking will be designated for preferred parking for low emitting fuel efficient vehicles.

SS Credit 4.4 Alternate Transportation Parking Capacity: 5% of the total parking will be designated for preferred parking for carpools or vanpools.

SS Credit 6.1 Stormwater Design, Quantity Control: Since this site is currently primarily impervious, this credit will require a reduction in storm water outflows which may be difficult to achieve. The design team will consider this credit during the detailed site design process.

SS Credit 6.2 Stormwater Design, Quality Control: The stormwater will be treated prior to release into the municipal storm sewer system.

SS Credit 7.2 Heat Island Effect, Roof: The self-storage building will include a high-albedo roof membrane with an SRI of 78 minimum for low sloped roofs, covering a minimum of 75% of the roof area.

SS Credit 8 Light Pollution Reduction: For the interior, all non-emergency lighting will be closed or reduced by 50% between 11:00 p.m. and 5:00 a.m. For the exteriors, the self-storage building will not exceed 80% (50% building/features) of lighting power densities per IESNA 90.1-2004. The self-storage building will be defined per IESNA RP-33: LZ2.

Water Efficiency

The building design will specify low flow and high efficiency plumbing fixtures to achieve Water Efficiency.

WE Prerequisite 1 Water Use Reduction, 20% Reduction: Through the specification of low flow and high efficiency plumbing fixtures, the building will implement water use reduction strategies that use, at a minimum, 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements.

WE Credits 1 Water Efficient Landscaping: The landscape plan for this site includes groundcovers, shrubs, and trees native and adapted to the local ecosystem. The site will not have a permanent irrigation system.

WE Credit 3 Water Use Reduction: Specified fixtures will include high efficiency toilets and urinals, low flow lavatory faucets and ultra low flow showerheads. The design will target an overall water savings of 30% above the calculated baseline.

Energy and Atmosphere

The building systems will be designed to optimize energy performance and will not use refrigerants that are harmful to the environment. The owner will engage a Commissioning Agent to confirm the building systems are installed and function as intended and designed.

EA Prerequisite 1 Fundamental Commissioning of the Building Energy Systems: A third party CxA will be engaged by the owner for purposes of providing basic commissioning services for the building energy related systems including heating, ventilation, air

conditioning, and refrigeration (HVAC & R), lighting and domestic hot water systems. The CxA will verify the building systems are installed, calibrated and performing to the building owner's requirements.

EA Prerequisite 2 Minimum Energy Performance: The building performance rating will demonstrate a minimum of a 20% improvement compared to the baseline building performance calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007. A whole building energy simulation will demonstrate the projected energy savings for the building.

EA Prerequisite 3 Fundamental Refrigerant Management: The specifications for refrigerants used in the building HVAC & R systems will not permit the use of CFC based refrigerants.

EA Credit 1 Optimize Energy Performance: The proposed building systems will target a performance level of a minimum of 20% improvement over a baseline building performance rating. The team will develop a whole building energy model to demonstrate the expected performance rating of the designed building systems. *An additional 6%-8% reduction of energy consumption will be considered if they can be achieved without resorting to extraordinary measures.*

EA Credit 2 On-Site Renewable Energy: A solar PV panel system to be installed on the building roof capable of producing 5% of the building energy use will be reviewed.

EA Credit 3 Enhanced Commissioning: Enhanced Commissioning will be considered.

Credit 5 Measurement and Verification: Option 2 of the Measurement and Verification which includes energy measure isolation for a one year period and a corrective plan if savings are not achieved will be considered.

Materials and Resources

Throughout the construction phase of the self-storage building, the contractor will endeavor to divert construction and demolition waste from area landfills and procure materials that have recycled content and/or are manufactured locally.

MR Prerequisite 1 Storage and Collection of Recyclables: Easily-accessible storage of collected recyclables will be provided for the entire building.

MR Credits 2 Construction Waste Management: The construction manager will develop and implement a Construction Waste Management plan. The construction manager will endeavor to divert as much demolition debris and construction waste from area landfills as possible with a goal of achieving 75% diversion.

MR Credits 4 Recycled Content 10% (post-consumer & ½ pre-consumer): The building specifications will require materials to include pre- and or post-consumer recycled content.

During construction, materials submittals will include a document indicating the percentage of both pre- and post-consumer recycled content. The construction manager will track the recycled content for each material with a goal to achieve 20% recycled-content materials based on overall materials costs.

MR Credit 5 Regional Materials, 10% Extracted, Processed and Manufactured Regionally: The specifications for the building will indicate which materials are to be extracted, harvested, recovered and manufactured within a 500 mile radius of the job site. The construction manager will track the source location for each material with a target to achieve 10% regional materials based on overall materials costs.

Indoor Environmental Quality

The air quality will be monitored during the construction phase of the building and likely prior to occupancy. Low emitting materials will be used throughout construction to maintain and improve air quality. The building occupants will be able to maintain a comfortable environment through access to thermal and lighting controls.

IEQ Prerequisite 1 Minimum IAQ Performance: The building mechanical systems are designed to meet or exceed the requirements of ASHRAE Standard 61.1-2007 sections 4 through 7 and/or applicable building codes.

IEQ Prerequisite 2 Environmental Tobacco Smoke (ETS) Control: The building will be a non-smoking environment.

IEQ Credit 1 Outdoor Air Delivery Monitoring: The building will incorporate permanent CO_2 sensors and measuring devices to provide feedback on the performance of the HVAC system. Devices will be programmed to generate an alarm when the conditions vary by 10% from a set point.

IEQ Credits 4.1 Low-Emitting Materials, Adhesives & Sealants: The specifications will include requirements for adhesives and sealants to meet the low VOC criteria.

IEQ Credits 4.2 Low-Emitting Materials, Paints and Coatings: The specifications will include requirements for paints and coatings to meet the low VOC criteria.

IEQ Credits 4.3 Low-Emitting Materials, Flooring Systems: The specifications will include requirements for hard surface flooring materials to be FloorScore certified and carpet systems will comply with the Carpet Institute Green label program.

IEQ Credit 4.4 Low Emitting Materials, Composite Wood and Agrifiber Products: The Proponent will endeavor to use composite wood and Agrifiber products that contain no added urea-formaldehyde.

IEQ Credit 5 Indoor Chemical and Pollutant Source Control: The building design will be designed to minimize and control the entry of pollutants into the building and to contain chemical use areas.

Innovation & Design Processes

The team has identified several possible ID credits which are listed below (limited to five ID credits total).

ID Credit 1.1 Exemplary Performance for SSc4.1: The site is located on several bus routes with a frequency of service resulting in over 200 transit rides per day.

ID Credit 1.2 Exemplary Performance for MRc2.2 Construction Waste Management: Due to the high volume of demolition debris, there is a high likelihood the CM could divert 95% of the construction waste by weight from area landfills.

ID Credit 1.3 Green Housekeeping: Building Facilities/Maintenance will implement a cleaning program that uses 'green' cleaning products.

ID Credit 1.4 Low Mercury lighting: Building Facilities/Maintenance will establish a lighting purchasing plan to limit the levels of mercury containing lamps purchased for the building.

ID Credit 2 LEED Accredited Professional (required ID credit for LEED certification): A LEED AP will provide administrative services to oversee the LEED credit documentation process.

Regional Priority Credits

The development is anticipated to achieve two RPCs: SSc3 Brownfield Redevelopment and SSc7.2- Heat Island Effect Roof.

3.7.4 Renewable Energy

The installation of Solar Panels is being researched and considered for use on the self-storage Building and mixed-use building. An estimated 197 kW solar PV array could potentially be installed on the self-storage building's roof, and an estimated 98 kW solar PV array could potentially be installed on the mixed-use building's roof. The feasibility of solar PV will be studied as the design progresses.

3.8 Climate Change Resilience

Projects subject to Article 80, Large Project Review are required to complete the Climate Change Preparedness Checklist. Climate change conditions considered include sea level rise, 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 proposed buildings is anticipated to be approximately 50 years. Therefore, the Proponent planned for climate change conditions projected at a 50 year time span. Copies of the completed checklists for the three buildings are included in Appendix E. Given the preliminary level of design, the responses are also preliminary and may be updated as the NPC Project design progresses.

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 NPC Project design will incorporate a number of measures to minimize the impact of high temperature events, including:

- Installing operable windows where possible;
- Using Energy Recovery Ventilation to reduce cooling loads;
- Specifying h high albedo roof tops to minimize the heat island effect and use of a green roof; and
- Planting new trees and landscaping, including an approximately 0.44-acre open space.

Energy modeling for the NPC Project has not yet been completed; however, as indicated on the LEED Checklist, the Proponent will strive to reduce the NPC Project's overall energy demand and greenhouse gas emissions that contribute to global warming. In addition to high performance building envelopes and efficient mechanical equipment, the Proponent is studying the incorporation of solar photovoltaic (PV) arrays on the self-storage and mixed-use buildings, as described above. The feasibility of solar PV will be studied as the design progresses. The NPC Project's proposed TDM program described in Section 2.5 will also help to lessen fossil fuel consumption.

---

[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.

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. These measures include:

- Decreasing stormwater runoff from the two-year 24-hour design storm; and
- Replacing an existing, mostly impervious Site with new landscaping, including an approximately 0.44-acre open space.

Drought Conditions

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 NPC Project's susceptibility to drought conditions, the landscape design is anticipated to incorporate native and adaptive plant materials and minimize the need for irrigation. Low-flow fixtures will be chosen for water conservation qualities, conserving potable water supplies.

Sea Level Rise

Due to the NPC Project's location, sea level rise is not anticipated to be a relevant issue of concern.

3.9 Historic and Archaeological Resources

As discussed in the PNF, given the distance from the Site to the State and National Register listed districts and properties included in the Massachusetts Historical Commission's *Inventory of Historic and Archaeological Assets of the Commonwealth*, as identified in the PNF, it is unlikely that there will be any impacts to historic resources.

As noted above in Section 3.2, new shadow will generally be limited to the immediately surrounding area, mainly adjacent streets and sidewalks. Despite the recent changes to the NPC Project's design it is unlikely that any new shadows will extend to the historic districts and properties in the area.

The NPC Project will utilize a mix of building materials consistent with the neighborhood. The Burnett Street residential building will be wood framed with clapboard exterior siding and double hung windows, consistent with the design elements of the nearby residential neighborhood.

As noted in the PNF, the Site consists of a previously developed urban parcel. Due to previous development activities and disturbances, it is unlikely that the Site contains significant archaeological resources.

3.10 Urban Design

The design of the NPC Project is generally consistent with the description in the PNF, except for the revised program for the corner of Washington and McBride Streets, the elimination of the triplex buildings, and the expansion of the open space on Burnett Street. At the corner of Washington and McBride Streets, the building has evolved from a two-story retail building to a five-story mixed-use building with ground floor retail and residential units above. The building is now proposed as an "L" shaped, extending from Burnett Street to the corner, and along McBride Street to the entrance to the parking lot. The self-storage building has been moved closer to McBride Street, continuing this new streetwall created by the revised mixed-use building. As mentioned, the triplex buildings have been eliminated and replaced by open space, while the Burnett Street residential building has increased by one level and includes eight additional units.

The design of the building places the more contemporary portion on the corner, complementing the design of the self-storage building and English High School located across McBride Street from the Site. Moving south along Washington Street, the design of the upper levels of the mixed-use building change to sloped roofs, and finally to a four-story building that complements the nearby residential buildings on Burnett Street.

The commercial parking lot has been reduced from 73 spaces to 50 spaces. On the southern side of the parking lot is the trash loading area for the mixed-use building, and access to the below-grade garage. A trash area is also located adjacent to the self-storage building. Loading for the self-storage building has been moved from the area between the building and McBride Street to the center of the building, accessed from the parking lot. The commercial parking lot no longer allows access to/from Burnett Street; however, pedestrian access from Burnett Street will be along the self-storage building.

Broader, better landscaped sidewalks and green spaces will improve transitions between commercial and residential uses. The Site layout also emphasizes this transition, with the more commercial areas on McBride Street and Washington Street and the solely residential building on Burnett Street. Between these two areas is an expanded, approximately 0.44 acre open space that is proposed to include space for the residential building, as well as a community garden and pedestrian pathways from the street to the future Southwest Corridor Extension Bike Path on the west side of the Site.

The Burnett Street residential building has also been moved south on the Site, complementing the proposed residential development proposed at 3593-3615 Washington Street (referred to as The Commons at Forest Hills Station).

3.11 Infrastructure

3.11.1 Sewage System

3.11.1.1 Existing Conditions

Currently, the Boston Water and Sewer Commission (BWSC) has a 10-inch metal sanitary sewer pipe in Burnett Street that flows downhill into Washington Street, and a 12-inch vitrified clay sanitary sewer pipe (VCP) in McBride Street that flows downhill and combines with the effluent from Burnett Street in Washington Street. The BWSC lines connect to the Massachusetts Water Resource Authority (MWRA) system and ultimately discharge into the Deer Island Treatment Facility. The proposed self-storage building would likely discharge into the 12-inch VCP in McBride Street, the proposed mixed-use building would likely discharge into the 10-inch metal pipe in Washington Street, and the Burnett residential building would likely discharge into the 10-inch metal pipe in Burnett Street.

3.11.1.2 Proposed Sewage Generation

The Project's sewage generation rates were estimated using Massachusetts State Environmental Code (Title 5) at 310 CMR 15.203. This reference lists typical generation values for the sources listed in Table 3-1. As described in the PNF, the previously proposed project was estimated to generate approximately 9,615 gallons per day (gpd) of wastewater. Other wastewater generation includes the cooling systems of each building. As shown in Table 3-1, the NPC Project will generate approximately 27,075 gpd of wastewater, an increase of approximately 17,460 gpd from the previously proposed project.

Table 3-1 Sewage Generation

Use	Units	Sewage Generation Rate	Total gpd
Storage Building	5 full and part-time employee positions	15 gpd/person	75
Retail	25,200 sf	50 gpd/1,000 sf	1,260
Residential	234 bedrooms	110 gpd/bedroom	25,740
Total			**27,075**

3.11.1.3 System Connections

The construction of all connections will be performed so as to minimize any effects on adjacent streets and to ensure that adequate facilities are available to service the site and surrounding area during construction. It should be noted that these sewer flows will be kept separate from all storm drain service connections. All appropriate permits and approvals will be obtained prior to construction.

3.11.2 Water Supply System

3.11.2.1 Existing Conditions

An eight-inch diameter ductile iron pipe (DIP) water main runs within Burnett Street immediately adjacent to the proposed residential buildings. A 12-inch DIP water main runs within McBride Street and connects to the 12-inch DIP water main within Washington Street.

There are five fire hydrants adjacent to the site. Two hydrants are located on McBride Street, one hydrant is located on Washington Street, and two hydrants are located on Burnett Street. There is one yard hydrant located on-site that will be removed during construction. There are no capacity issues anticipated for serving the NPC Project with water from the city system.

3.11.2.2 Proposed Water System

The NPC Project's water demand estimates for domestic sources are based on the NPC Project's estimated sewage generation. A conservative factor of 1.1 is applied to the average daily wastewater flows. This factor accounts for consumption and other miscellaneous losses. Therefore, it is estimated that the NPC Project will consume approximately 29,782 gpd of domestic water, an increase of approximately 19,205 gpd from the previously proposed project. The water will be supplied by the BWSC.

3.11.3 Stormwater System

3.11.3.1 Existing Conditions

Currently, the site is occupied by two masonry and metal buildings, a bituminous concrete parking area and driveways, chain link fencing, utility connections for the buildings, and a stormwater collection system. The site stormwater runoff enters catch basins via sheet flow or from roof leader connections from existing buildings and is discharged into McBride and Washington Streets untreated. There are no water quality methods in-place currently to treat the stormwater runoff. The site is also predominately impervious area with street trees located in gravel beds adjacent to the buildings.

3.11.3.2 Proposed Stormwater System

The BWSC and the Massachusetts Department of Environmental Protection (MassDEP) are attempting to separate stormwater and wastewater over time to prevent flooding of the system resulting in periodic overflows of combined sewer and stormwater into receiving waters.

The Proponent will work with these two agencies to help with the separation of stormwater and wastewater.

The existing site is mostly paved parking area and building coverage. The development of the NPC Project will result in a substantial decrease in impervious surface area, including the development of an approximately 0.44-acre landscaped open space. The decrease in impervious area will result in a longer time of concentration and a lower peak runoff rate from the site. It should be noted that the NPC Project is not located within the City of Boston's Groundwater Conservation Overlay District.

The water quality of the stormwater discharge will also be improved as a result of the proposed development. Per the BWSC Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains, August 1998, a particle separator will be installed on the new stormwater collection system to treat runoff before being discharged to a BWSC catch basin. The drainage system on the site will be separated from the sewer system as required by the City of Boston. All storm drains within the site will have plaques that state: "Don't Dump – Drains to Stony Brook Conduit."

3.11.4 Water Quality and Stormwater Management

The Project will not affect the water quality of nearby water bodies. Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and BWSC storm drain systems. During construction, existing catch basins will be protected with filter fabric, hay bales and/or crushed stone, to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until all areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All necessary dewatering will be conducted in accordance with a MWRA and BWSC discharge permit currently being prepared. Once construction is complete, the NPC Project will be in compliance with all local and state stormwater management policies as described in the PNF.

3.11.5 Mitigation Measures

The first one-inch of stormwater runoff volume will be treated via a proposed particle separator before discharging into an existing BWSC catch basin at the intersection of Burnett Street and Washington Street.

3.11.6 Coordination with the Boston Water and Sewer Commission

Proposed connections to the BWSC's water, sanitary sewer, and storm drain system will be designed in conformance with the BWSC's design standards, Sewer Use and Water Distribution System Regulations, and Requirements for Site Plans. The Proponent will submit a General Service Application and a site plan for review and approval prior to construction. The site plan will indicate the existing and proposed water mains, sanitary sewers, storm sewers, telephone, gas, electric, steam, and cable television. The plan will include the disconnections of the existing services as well as the proposed connections.

3.11.7 Energy Requirements and Service

3.11.7.1 Existing and Proposed Electric Service

NSTAR provides electric service to the City of Boston. The site is currently served with overhead electric wires connecting to utility poles adjacent to the property. There are overhead electric lines in Burnett and McBride Streets and underground electric wires in Washington Street. Electric power design for new service will be coordinated with NSTAR as the design of each phase progresses and electric consumption is determined.

3.11.7.2 Gas Service

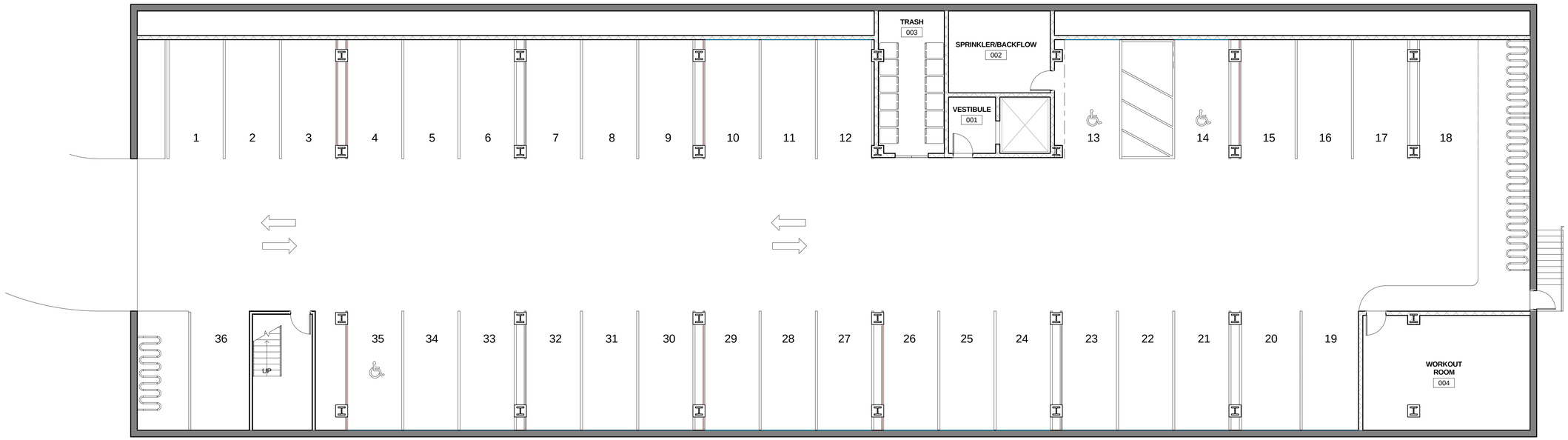
National Grid provides natural gas service in the area. It is anticipated that new gas services will be provided to each of the proposed buildings from the services in the adjacent streets.

3.11.7.3 Telephone System

Verizon New England and Comcast provide telephone and cable services in the area. There are underground telephone and cable service lines in the adjacent streets. New telephone and cable lines will be constructed underground to the proposed buildings. The provider of these services will be determined prior to construction.

Appendix A

Floor Plans



1 GARAGE LEVEL PLAN
1/8" = 1'-0"

2 LEVEL 1 FLOOR PLAN
1/8" = 1'-0"

TRUE

\\vsfhost\Volumes\Public\S3.0\1404_Burnett Street\drawings\Architectural\Revit\1404_Burnett 7/9/2014 8:09:38 PM\1404_Burnett Street.rvt jss

ARCHITECT

studio 3.0

30 Union Park Street
Suite 506
Boston, MA 02118
617.650.2652 Tel

PROJECT NAME

Burnett Street Condominiums

Burnett Street
Jamaica Plain, MA

CLIENT

New Boston Ventures

540 Tremont Street
Boston, MA 02116

PROJECT TEAM

REVISIONS

1
2
3
4
5
DATE

DRAWING TITLE

Garage Level & Level 1 Floor Plan

DRAWING INFORMATION

July 11, 2014
DATE OF ISSUE

Design Development
DESCRIPTION

1/8" = 1'-0"
SCALE

jss
DRAWN BY

1404.00
PROJECT #

1404_Burnett Street.rvt
FILE NAME

DRAWING NUMBER

A101

1 LEVEL 2 FLOOR PLAN
1/8" = 1'-0"

2 LEVEL 3 FLOOR PLAN
1/8" = 1'-0"

TRUE

\\gs9host\Volumes\Public\S3.0\1404_Burnett Street\drawings\Architectural\Revit\1404_Burnett 7/9/2014 8:08:40 PM jss

ARCHITECT

studio 3.0

30 Union Park Street
Suite 506
Boston, MA 02118
617.650.2652 Tel

PROJECT NAME

Burnett Street Condominiums

Burnett Street
Jamaica Plain, MA

CLIENT

New Boston Ventures

540 Tremont Street
Boston, MA 02116

PROJECT TEAM

REVISIONS

1
2
3
4
5
DATE

DRAWING TITLE

Level 2 & Level 3 Floor Plans

DRAWING INFORMATION

July 11, 2014
DATE OF ISSUE

Design Development
DESCRIPTION

1/8" = 1'-0"
SCALE

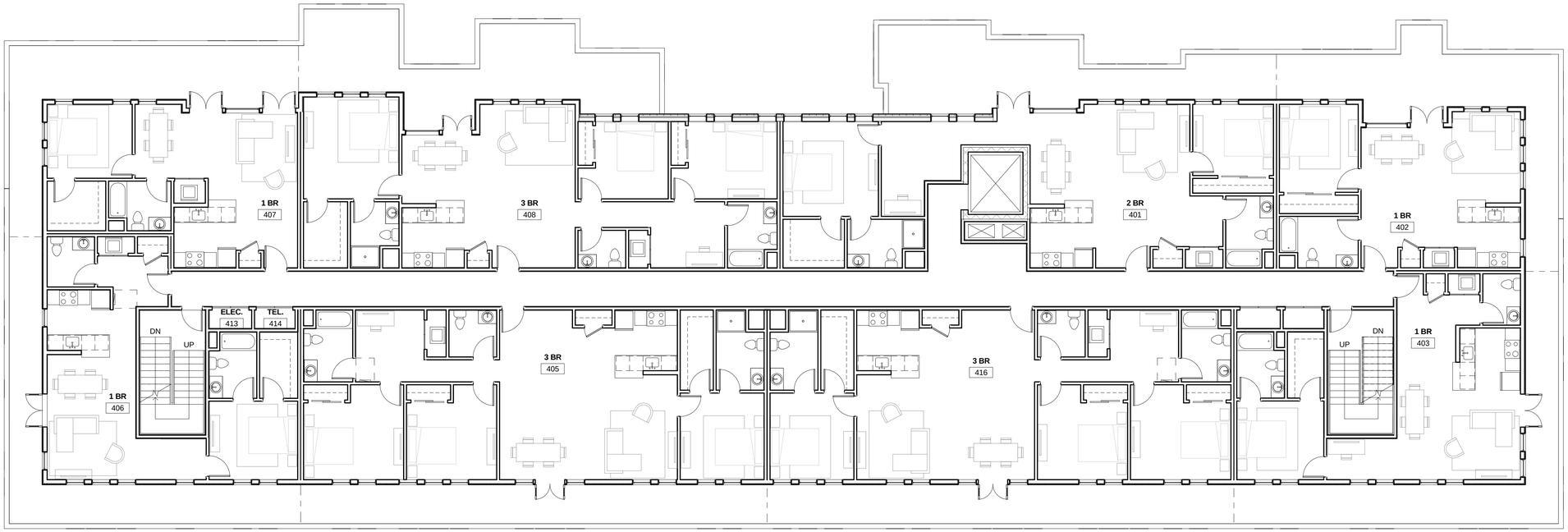
jss
DRAWN BY

1404.00
PROJECT #

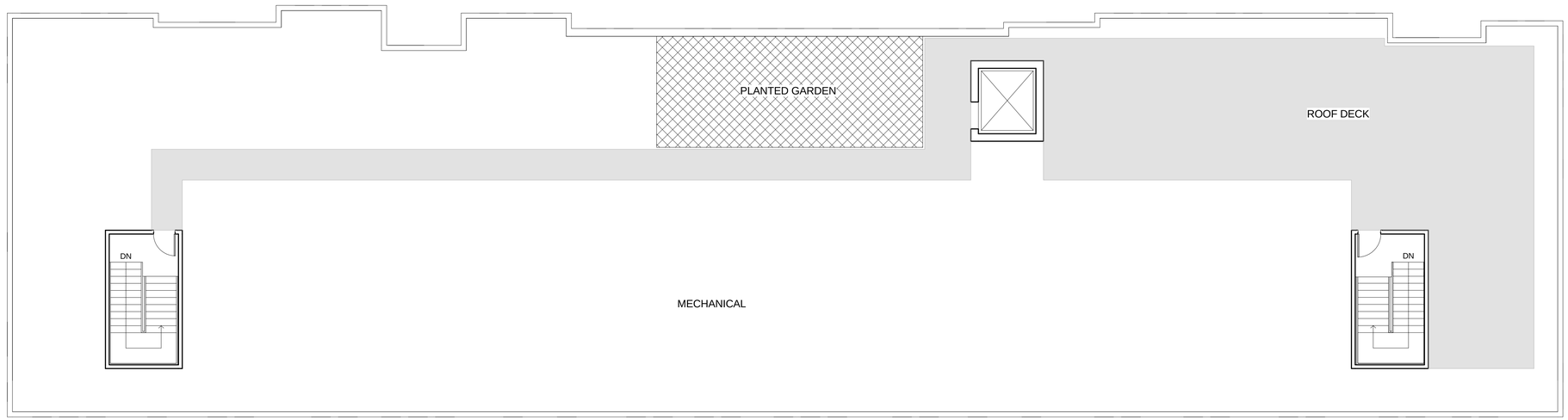
1404_Burnett Street.rvt
FILE NAME

DRAWING NUMBER

A102



1 LEVEL 4 PLAN
1/8" = 1'-0"



2 ROOF PLAN
1/8" = 1'-0"

TRUE

\\rsfHost\Volumes\Public\S3.0\1404_Burnett Street\drawings\Architectural\Revit\1404_Burnett 7/9/2014 8:08:41 PM.rvt Author

ARCHITECT

studio 3.0

30 Union Park Street
Suite 506
Boston, MA 02118
617.650.2652 Tel

PROJECT NAME

Burnett Street Condominiums

Burnett Street
Jamaica Plain, MA

CLIENT

New Boston Ventures

540 Tremont Street
Boston, MA 02116

PROJECT TEAM

REVISIONS

1
2
3
4
5
DATE

DRAWING TITLE

Level 4 & Roof Plan

DRAWING INFORMATION

July 11, 2014
DATE OF ISSUE

Design Development
DESCRIPTION

1/8" = 1'-0"
SCALE

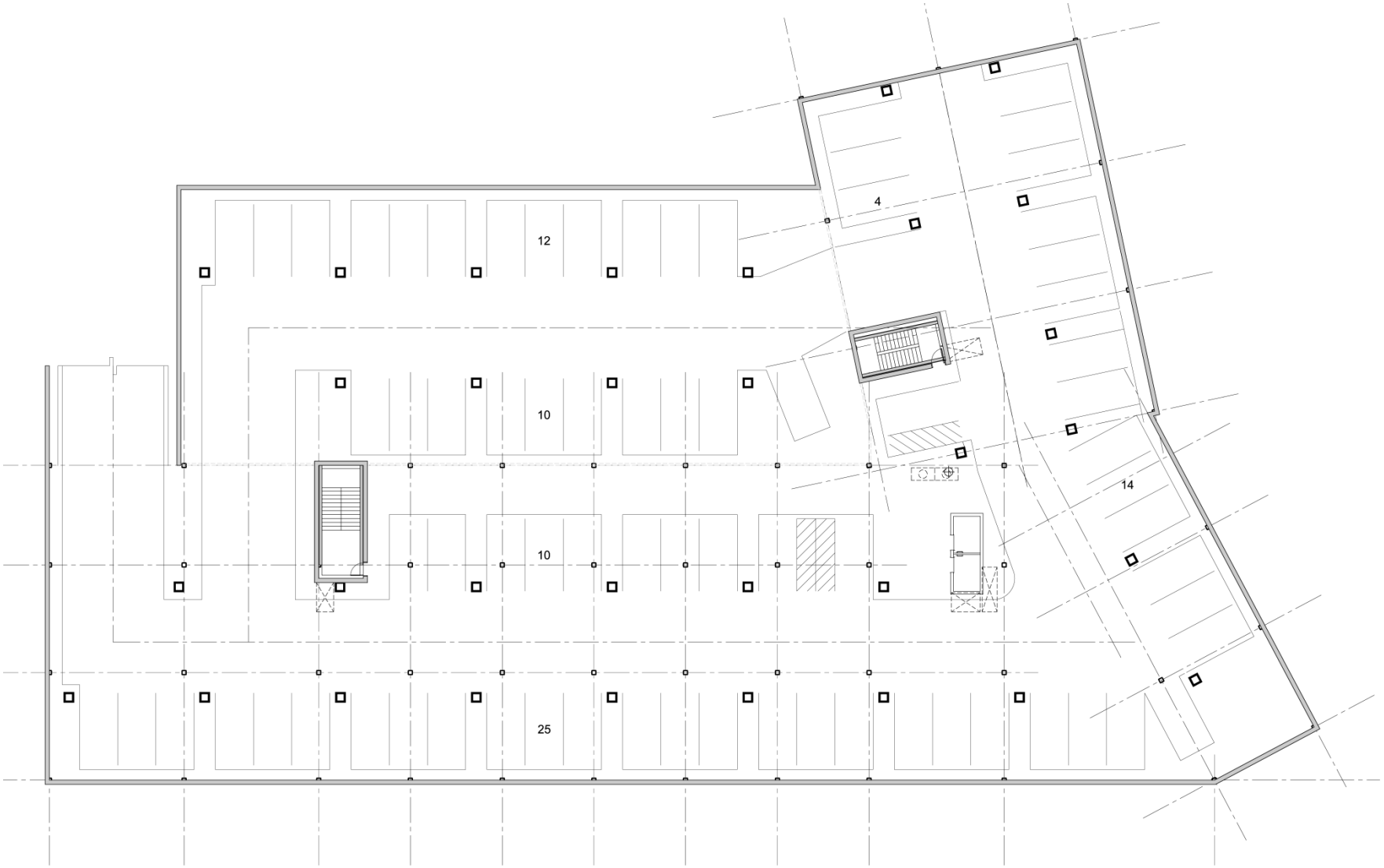
Author
DRAWN BY

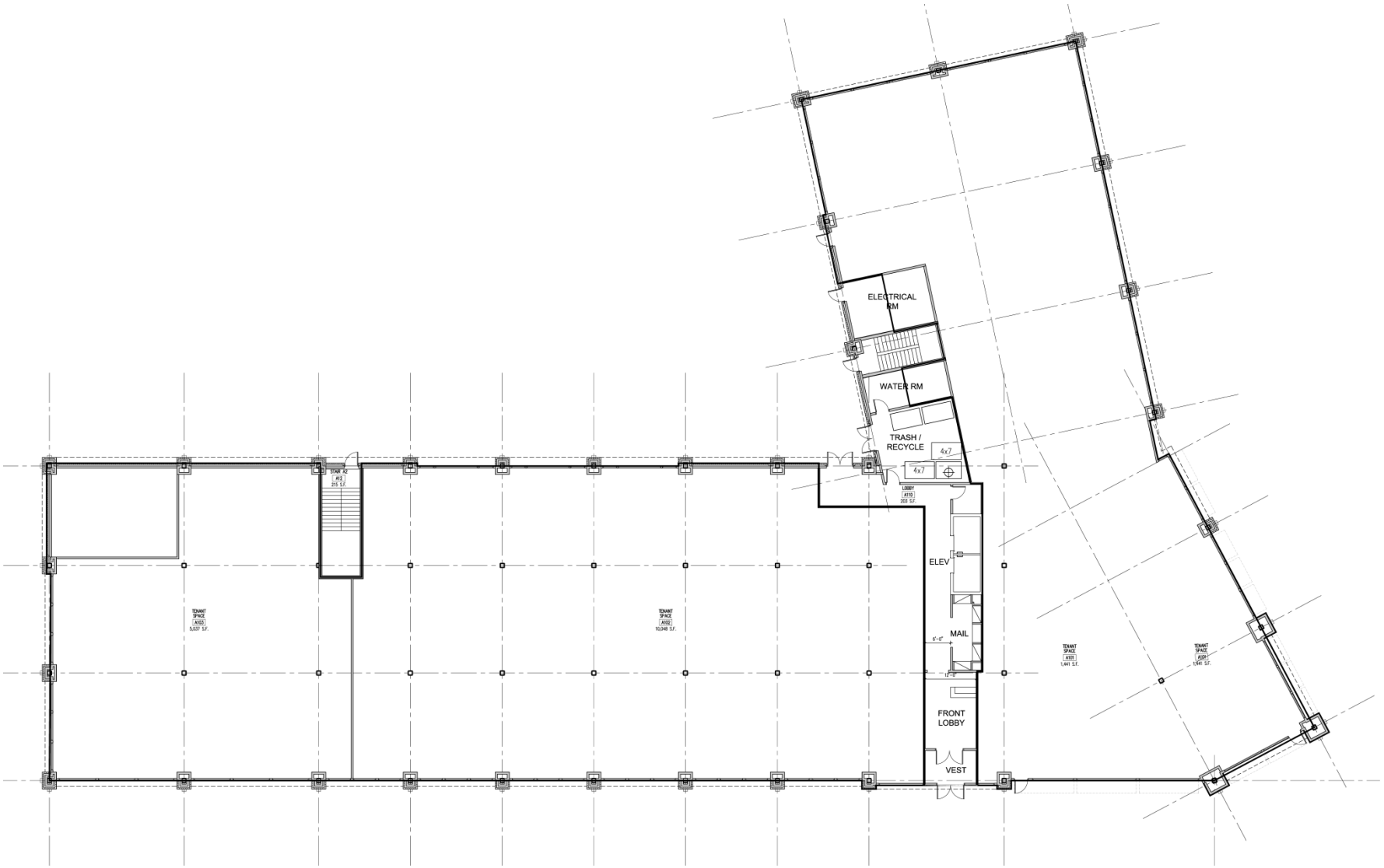
1404.00
PROJECT #

1404_Burnett Street.rvt
FILE NAME

DRAWING NUMBER

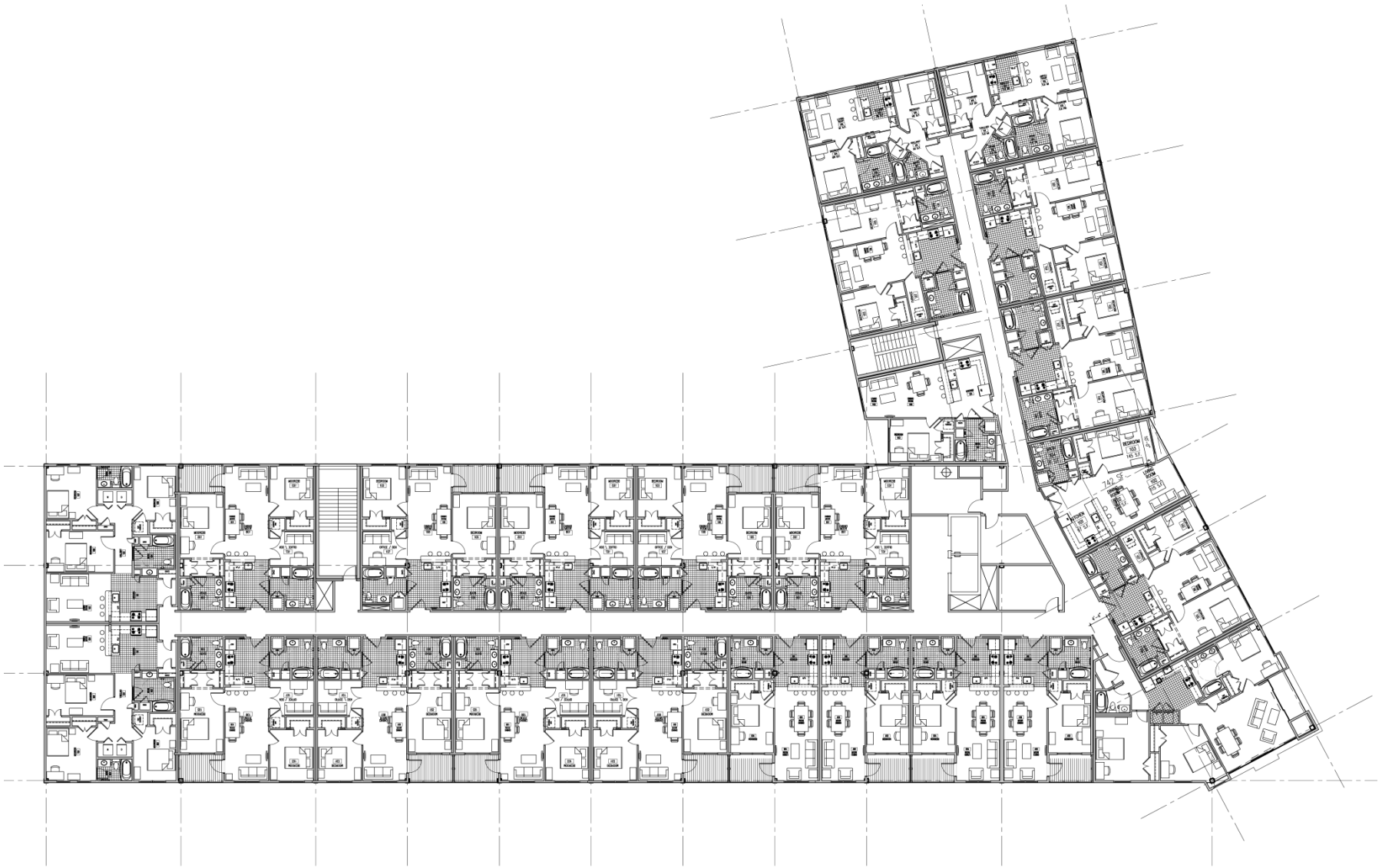
A103


4
12
10
10
14
25



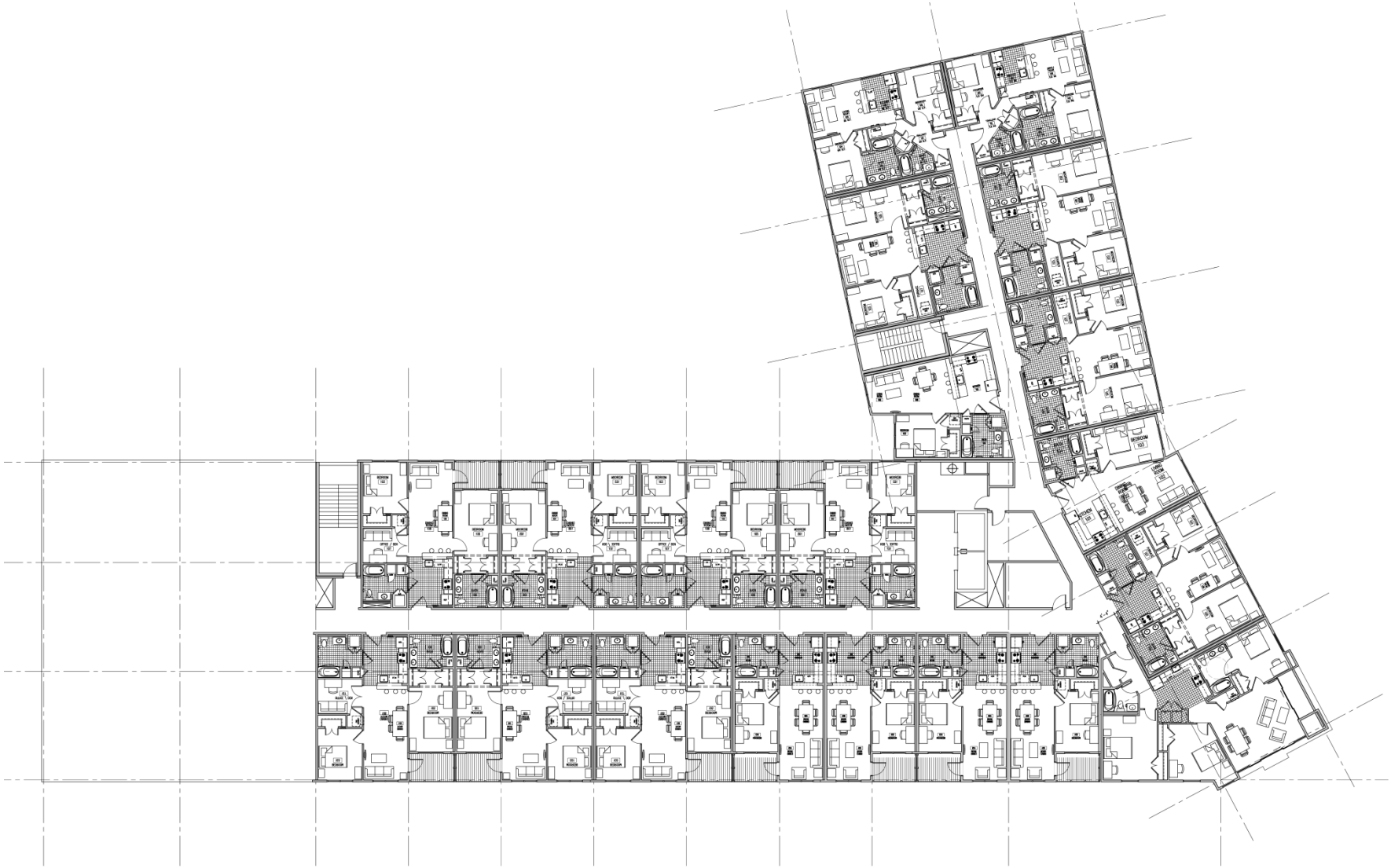
3521-3529 Washington Street NPC Boston, Massachusetts

Mixed-use Floor Plan- Main Level



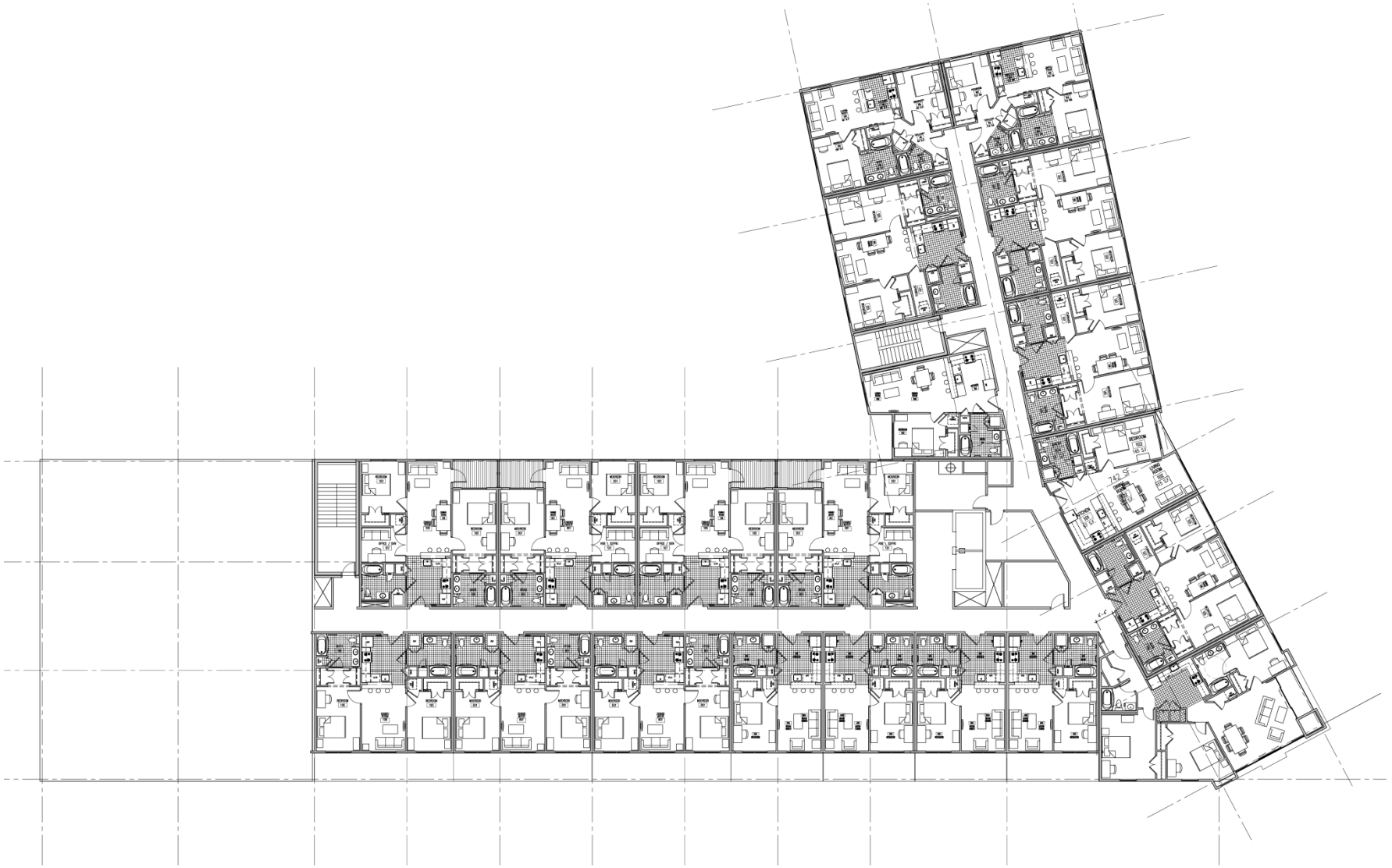
3521-3529 Washington Street NPC Boston, Massachusetts

Mixed-use Floor Plan- Levels 2-3



3521-3529 Washington Street NPC Boston, Massachusetts

Mixed-use Floor Plan- Level 4

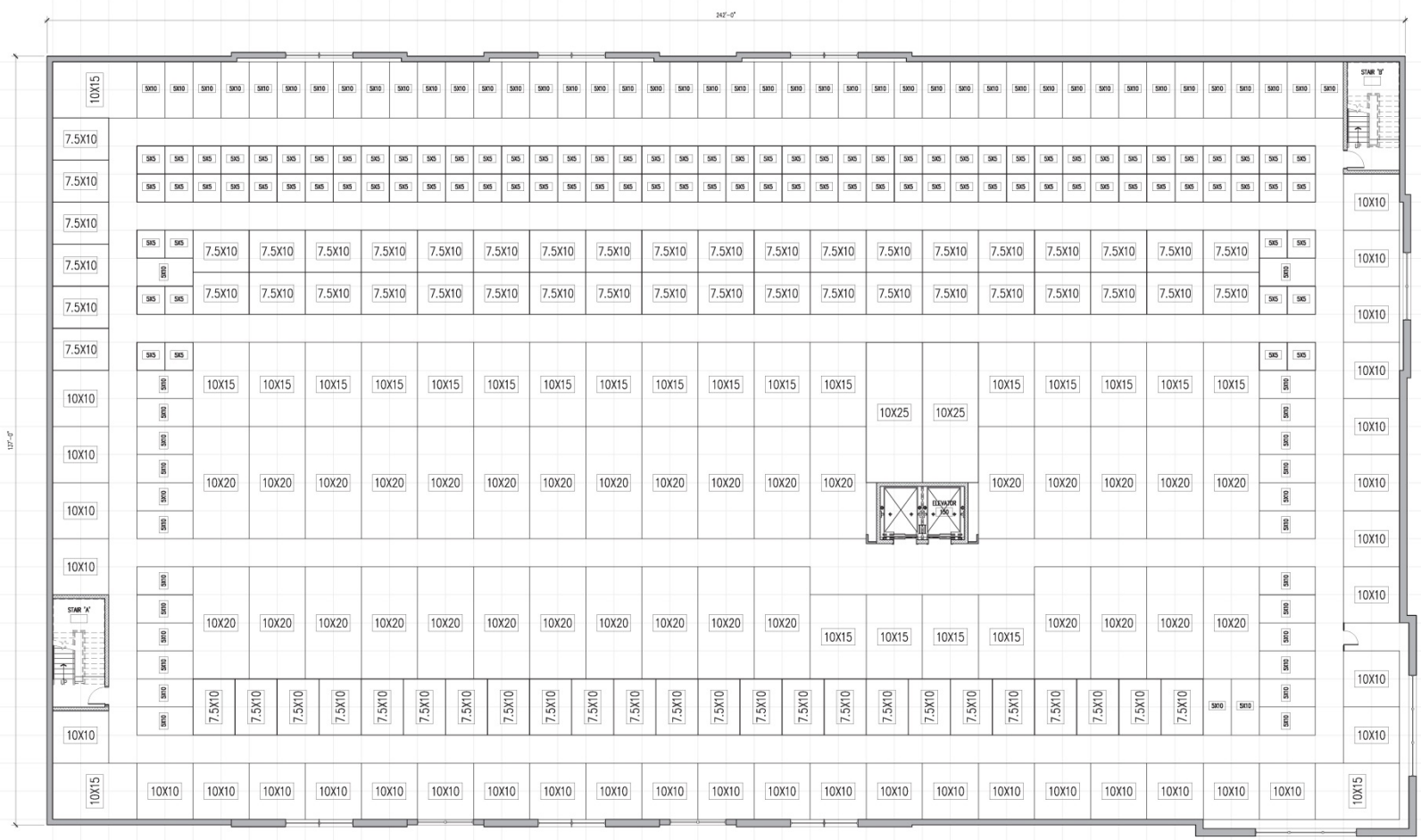


3521-3529 Washington Street NPC Boston, Massachusetts

Mixed-use Floor Plan- Level 5

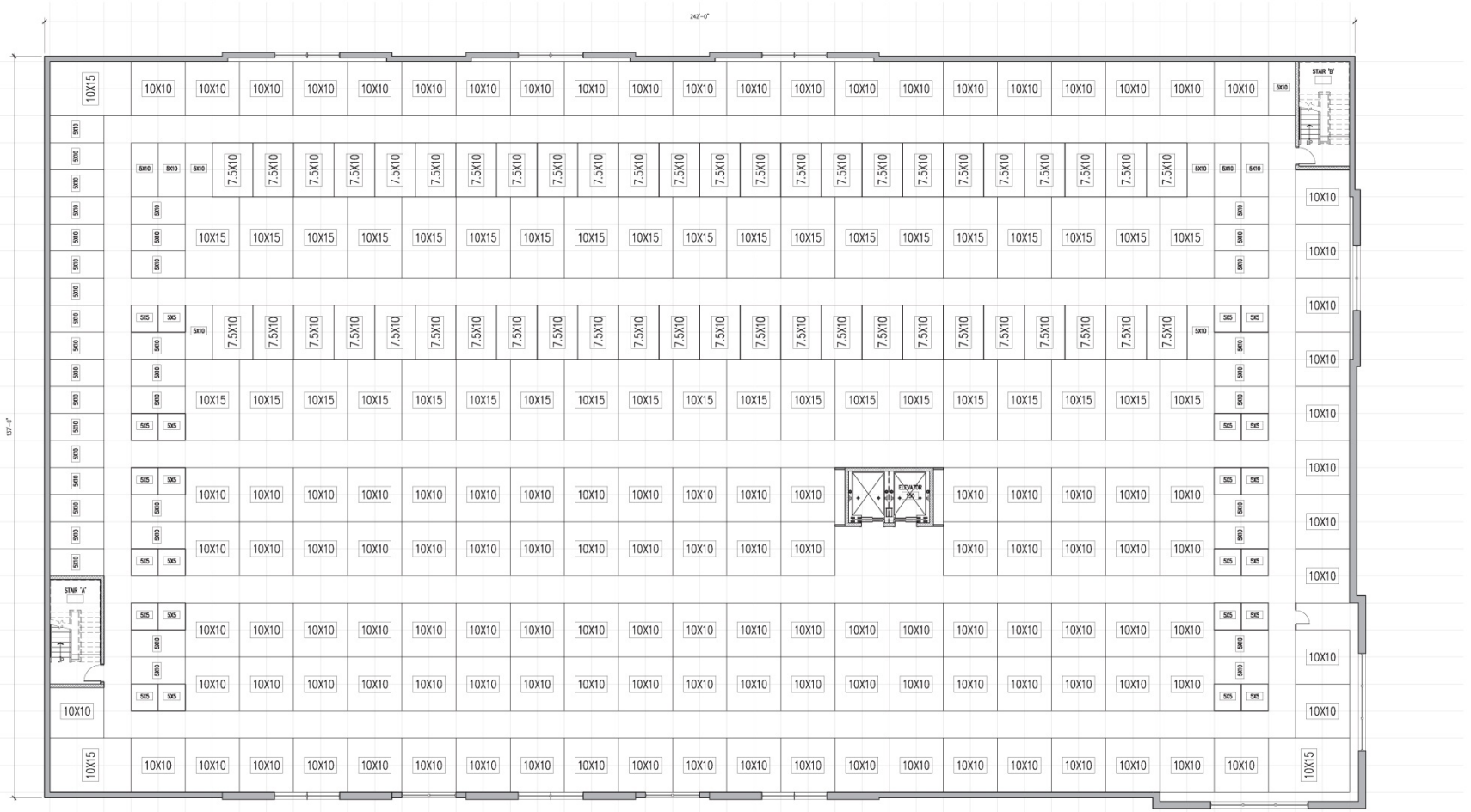
3521-3529 Washington Street NPC Boston, Massachusetts

Self-storage Floor Plan- Main Level



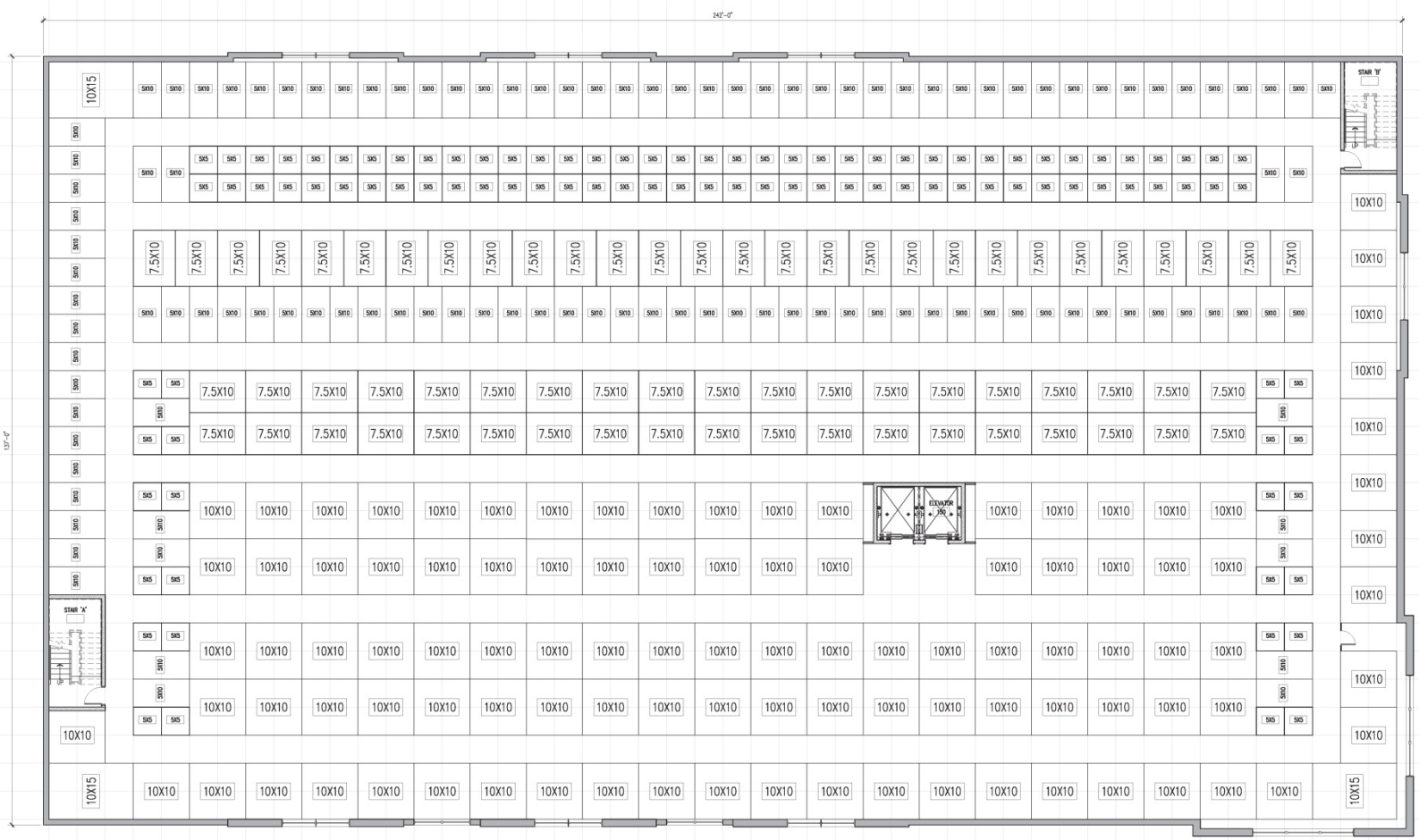
3521-3529 Washington Street NPC Boston, Massachusetts

Self-storage Floor Plan- Second Level



3521-3529 Washington Street NPC Boston, Massachusetts

Self-storage Floor Plan- Third Level



3521-3529 Washington Street NPC Boston, Massachusetts

Self-storage Floor Plan- Fourth Level

Appendix B

Accessibility Checklist

Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
    a. http://www.mbta.com/about_the_mbta/accessibility/

Article 80 | ACCESSIBILTY CHECKLIST

Project Information

Project Name:	3521-3529 Washington Street
Project Address Primary:	3521-3529 Washington Street
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	David Williams, SSG Development II, LLC, DWilliams@ssgdevelopment.com, (617) 938-6478

Team Description

Owner / Developer:	SSG Development II, LLC and New Boston Ventures
Architect:	BL Companies (Mixed-use and Self-storage buildings), Studio3.0 (Residential building)
Engineer (building systems):	BL Companies (Mixed-use and Self-storage buildings), BLW Engineers (Residential building)
Sustainability / LEED:	BL Companies (Mixed-use and Self-storage buildings), Studio3.0 (Residential building)
Permitting:	Epsilon Associates
Construction Management:	SSG Development II, LLC

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	**Residential - Multi-unit, Four +**	Institutional	Education
Commercial	Office	**Retail**	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	**Storage, Utility and Other**
First Floor Uses (List)	*Lobbies, Self-storage, Loading, Retail*		

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	**Steel Frame**	Concrete

Describe the building?

Site Area:	*147,715 SF*	Building Area:	*312,800 SF*
Building Height:	*Max of 69 Ft.*	Number of Stories:	*Max of 5 Flrs.*
First Floor Elevation:	*29-32 Elev.*	Are there below grade spaces:	**Yes** / *No*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	Adjacent to the site to the east and south (bounded by Burnett Street and Washington Street) is a residential neighborhood made of mostly of multifamily buildings. To the north is English High School. South of the site is a new residential development. East of Washington Street is a commercial area and an MBTA bus facility. West of the MBTA right-of-way is a large residential neighborhood, as well as Southwest Corridor Park which extends from Forest Hills

	to Ruggles Station and beyond.
List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	Orange Line, Needham Commuter Rail, Bus Routes 16, 21, 30, 31, 32, 34, 34E, 35, 36, 37, 38, 39, 40, 42, 50, 51
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	English High School, Mission Hill School, Margarita Muniz Academy, Laurel Ridge Rehab and Nursing, South Street Housing
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	No. Scagnoli-Nihill Athletic Complex, Jamaica Plain Community Center English High, Boston Police District E-13 Jamaica Plain, Jamaica Plain Library, West Roxbury Municipal Court, Jamaica Plain Regional Office

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	Concrete, fair to poor condition
Are the sidewalks and pedestrian ramps existing-to-remain? **If yes,** have the sidewalks and pedestrian ramps been verified as compliant? **If yes,** please provide surveyors report.	No
Is the development site within a historic district? **If yes,** please identify.	No

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	Neighborhood connector
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	Self-storage: McBride St: 18' average, Frontage: 10', Pedestrian: 8' Mixed-use: McBride St.: 18.6' average, Frontage: 6.8', Pedestrian: 6', Greenscape: 4.8'; Washington St.: 17' average, Frontage: 6.4', Pedestrian: 6', Greenscape: 4.8'; Burnett St.: 14'-8" average, Frontage 8', Pedestrian 6' Burnett Residential: 6'
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	Concrete, will be on both City and Boston and Private property
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the City of Boston Public Improvement Commission?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No

If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	166
What is the total number of accessible spaces provided at the development site?	9
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	No
Where is accessible visitor parking located?	In surface parking lot and mixed-use garage
Has a drop-off area been identified? If yes, will it be accessible?	No
Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	See attached preliminary figures at end of checklist based on the current conceptual level of design

Article 80 | ACCESSIBILTY CHECKLIST

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	See attached preliminary figures at end of checklist based on the current conceptual level of design
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	All entries are flush condition
Are the accessible entrance and the standard entrance integrated?	Yes
If no above, what is the reason?	
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	Yes. See attached preliminary figure for the mixed-use building based on the current conceptual design. The design of the outdoor space for the Burnett Residential building has yet to be designed, but will be fully accessible.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?	132
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	For the Burnett Residential building, units will be ownership and 6 will be affordable. The ownership structure and mix for the Mixed-use building has not been determined.
How many accessible units are being proposed?	Mixed-use: 10% or 9 adaptable units are proposed Burnett Residential: All units will be accessible as defined by building code / Fair Housing requirements

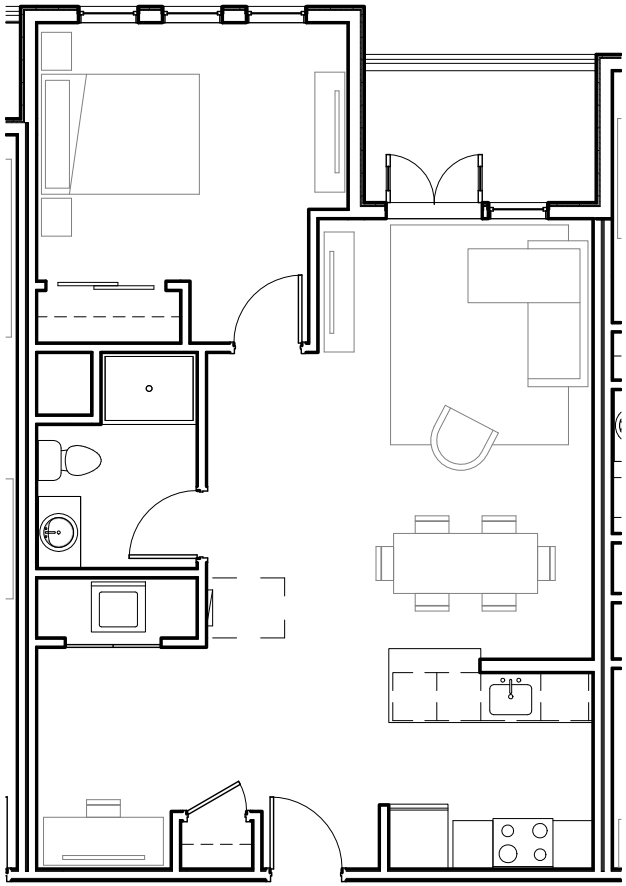
Article 80 | ACCESSIBILTY CHECKLIST

Please provide plan and diagram of the accessible units.	See attached preliminary figures at end of checklist based on the current conceptual level of design
How many accessible units will also be affordable? If none, please describe reason.	Mixed-use: to be determined; Burnett Residential: 6
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. **If yes,** please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No
Did the Advisory Board vote to support this project? **If no,** what recommendations did the Advisory Board give to make this project more accessible?	

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities



ARCHITECT

studio 3.ø

30 Union Park Street
Suite 506
Boston, MA 02118
617.650.2652 Tel

CLIENT

New Boston Ventures

PROJECT NAME

Burnett Street Condominiums

DRAWING

Typical Accessible Unit

June 26, 2014
DATE OF ISSUE

Design Development
DESCRIPTION

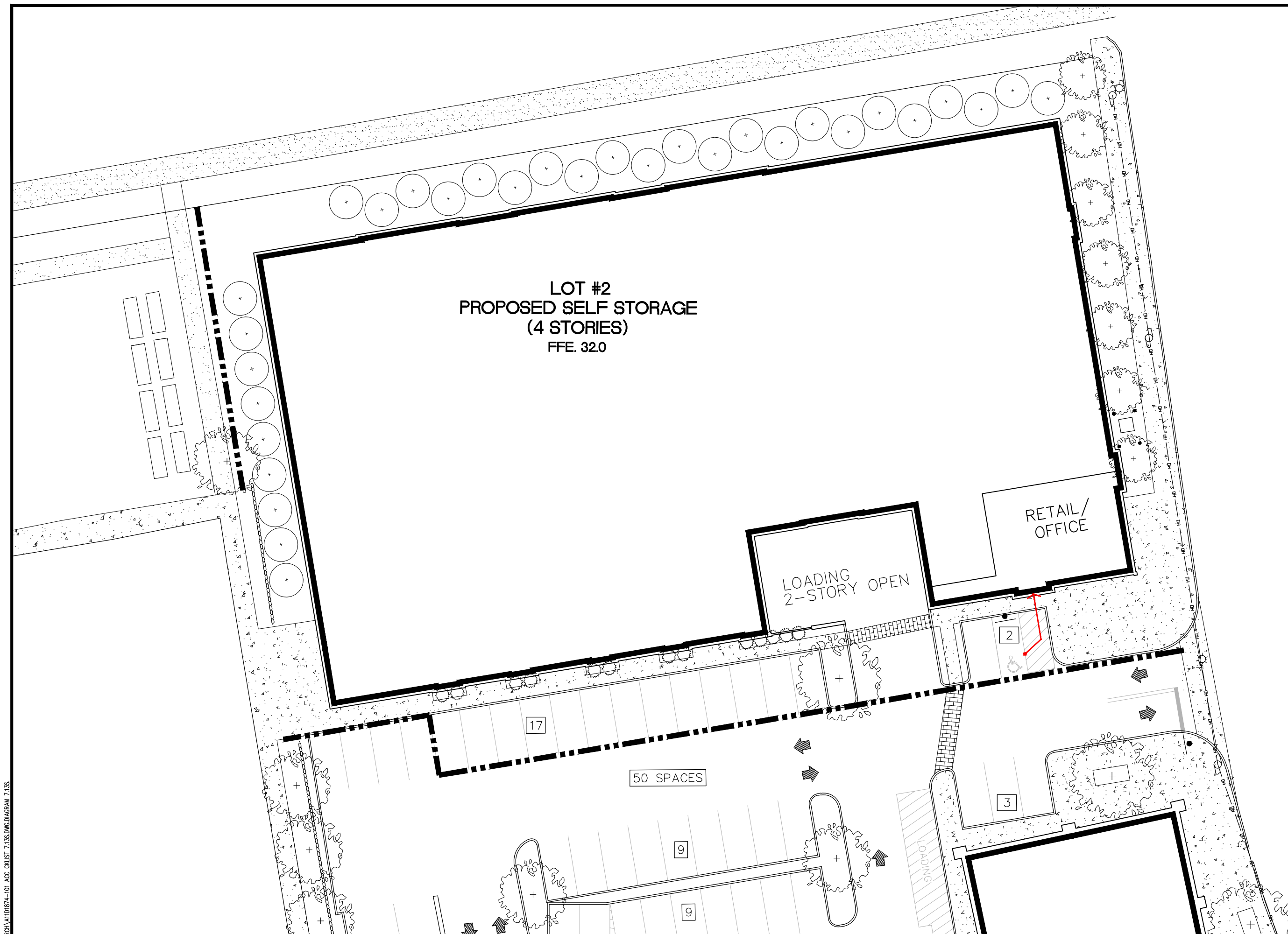
1/8" = 1'-0"
SCALE

JSS
DRAWN BY

1404.00
PROJECT #

Burnett Street.rvt
FILE NAME

DRAWING NUMBER



ACCESSIBLE CHECKLIST

diagram

7.13S

Accessible route to development entry
20'

FLOOR PLAN - MAIN LEVEL

July 01, 2014

JAMAICA PLAIN - PROPOSED SELF STORAGE Washington Street, Boston, Massachusetts

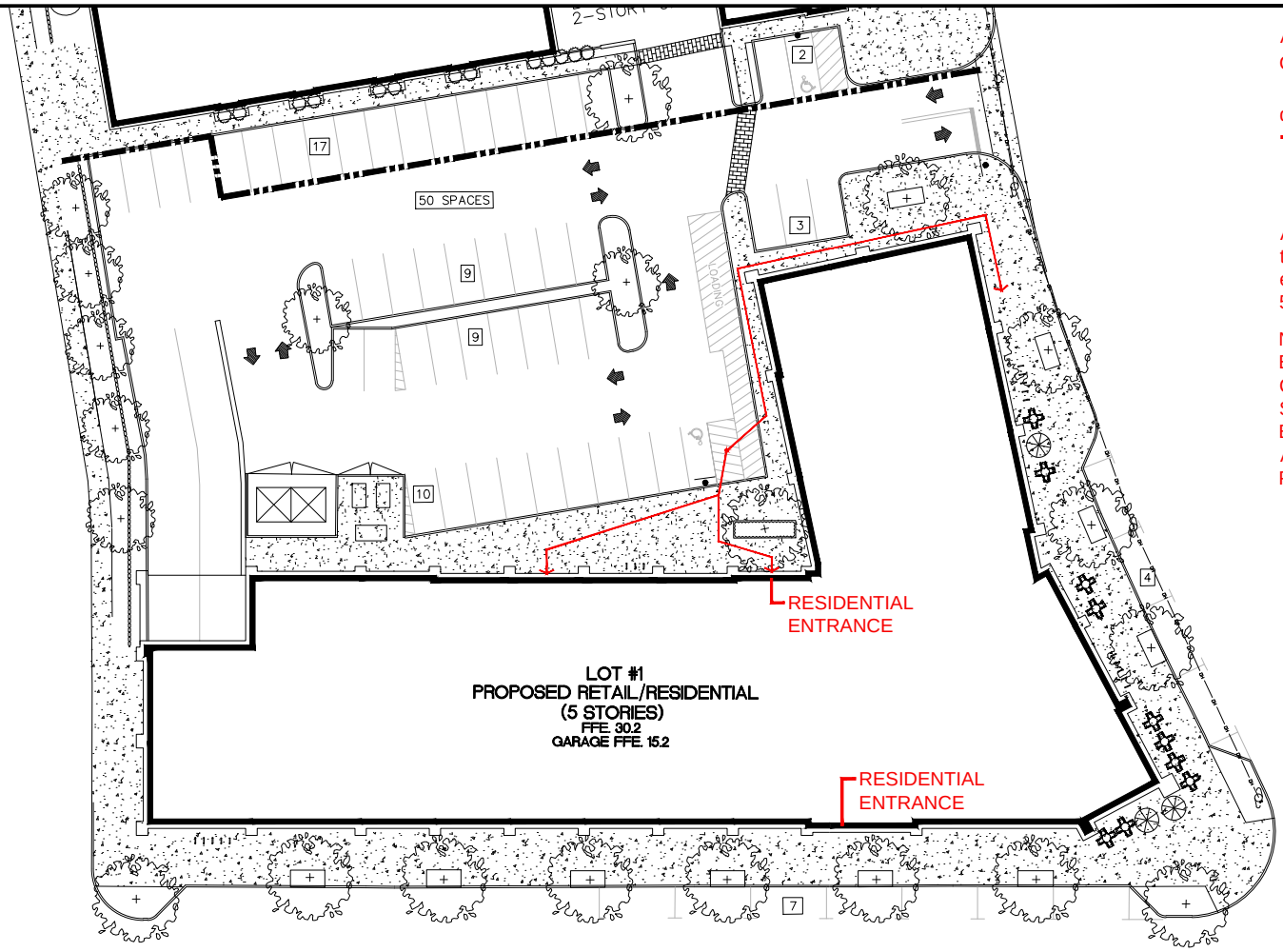
0 4 8 16 32

SSG DEVELOPMENT & CONSTRUCTION

BL Companies — Architecture, Engineering, Environmental, Land Surveying

BL PROJECT 11D1874-B

www.blcompanies.com



ACCESSIBLE CHECKLIST

diagram

7.13R

Accessible route to development entry
50' - 150'

NOTE:
ENTRANCES TO COMMERCIAL SPACE TBD. TO BE DISTRIBUTED AT BUILDING PERIMETER.

FLOOR PLAN - MAIN LEVEL

July 01, 2014

JAMAICA PLAIN - PROPOSED RETAIL & OFFICE
Burnett Street & Washington Street, Boston, Massachusetts

0 4 8 16 32

BL PROJECT 11D1874-B

SSG DEVELOPMENT & CONSTRUCTION

BL Companies Architecture Engineering Environmental Land Surveying

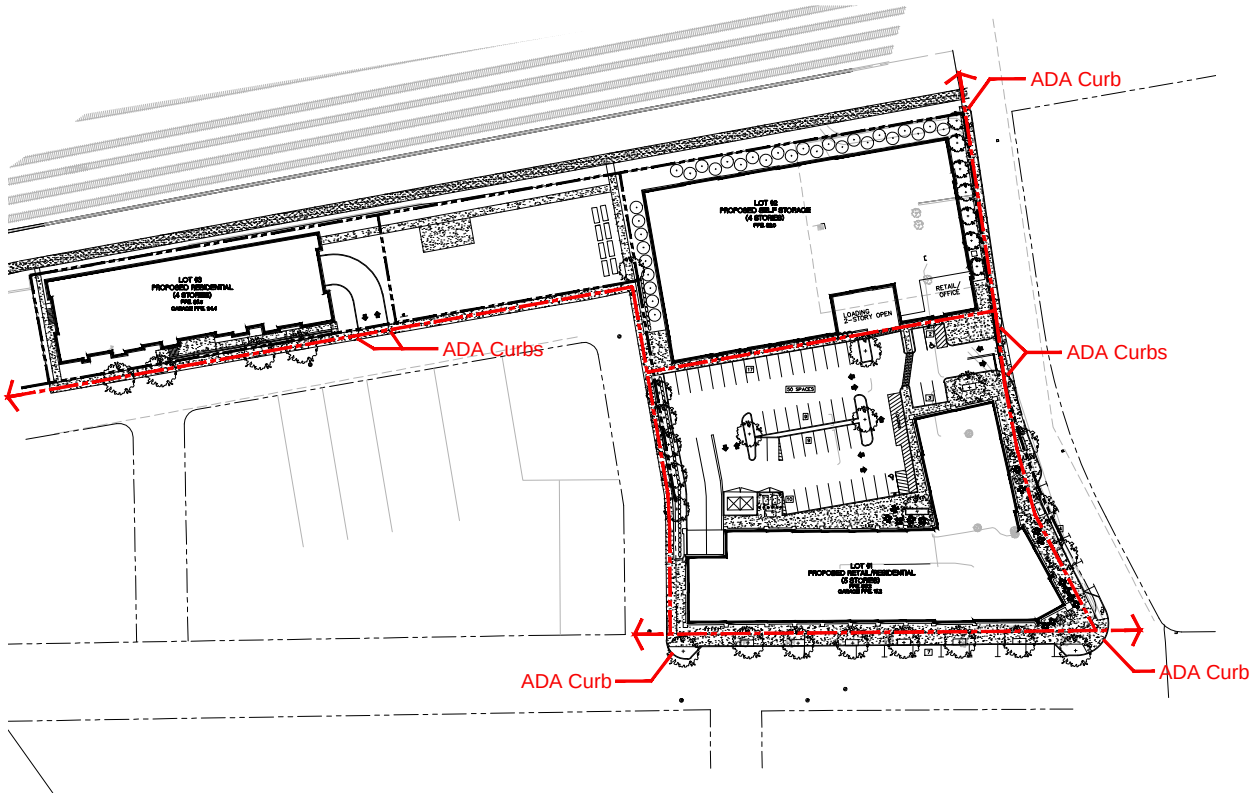
www.blcompanies.com

ACCESSIBLE CHECKLIST

diagram

8.1

Accessible route connections thru the site



SITE PLAN

JAMAICA PLAIN - PROPOSED PROJECT Burnett, Washington & McBride Street, Boston, Massachusetts

July 01, 2014

0 15' 30' 60' 120'

BL PROJECT 1101874-B

SSG DEVELOPMENT & CONSTRUCTION

BL Companies Architecture Engineering Environmental Land Surveying

www.blcompanies.com

ACCESSIBLE CHECKLIST

diagram

8.5

Accessible route to Outdoor Courtyard on 4th Floor
159'

FLOOR PLAN - LEVEL 4

JAMAICA PLAIN - PROPOSED RETAIL & OFFICE
Burnett Street & Washington Street, Boston, Massachusetts

July 01, 2014

0 4 8 16 32

BL PROJECT 11D1874-B

SSG DEVELOPMENT & CONSTRUCTION

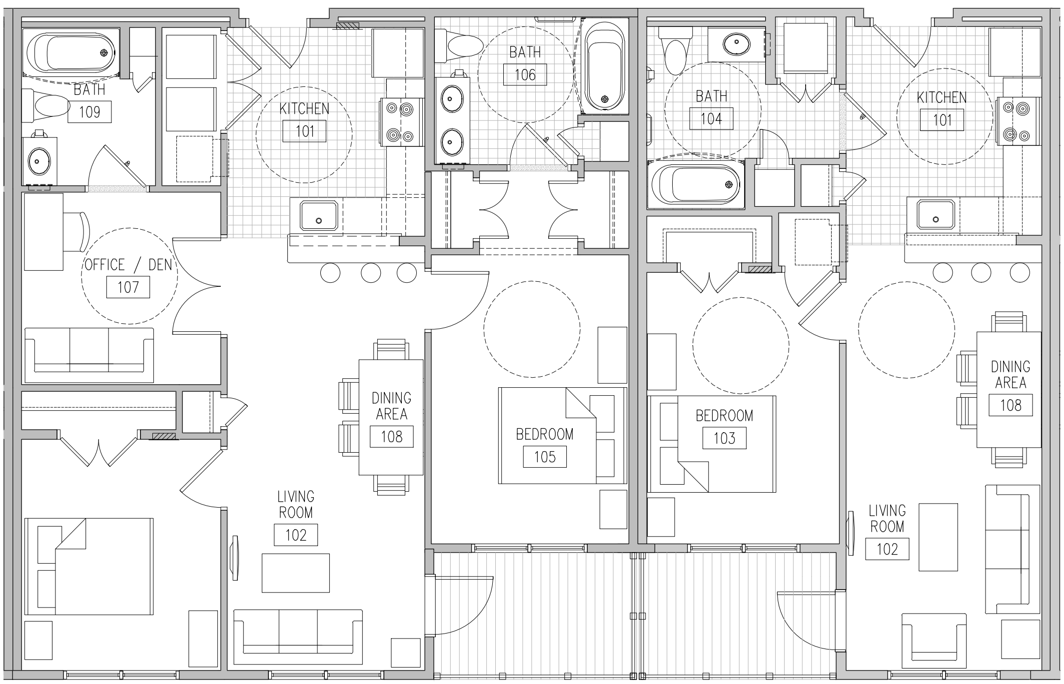
BL Companies Architecture Engineering Environmental Land Surveying

www.blcompanies.com

ACCESSIBLE CHECKLIST

diagram
9.4

Typical Adaptable Unit



TYPICAL
2 BEDROOM UNIT

TYPICAL
1 BEDROOM UNIT

FLOOR PLAN - TYPICAL UNIT

July 01, 2014

JAMAICA PLAIN - PROPOSED RETAIL & OFFICE
Burnett Street & Washington Street, Boston, Massachusetts

SSG DEVELOPMENT & CONSTRUCTION

0 4 8 16 32

BL PROJECT 11D1874-B

BL Companies
Architecture
Engineering
Environmental
Land Surveying

www.blcompanies.com

Appendix C

Transportation

Available Upon Request

Appendix D

LEED Checklists

LEED 2009 for New Construction and Major Renovations

Project Checklist

Burnett Street Residential Building

Sustainable Sites — Possible Points: 26

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

Water Efficiency — Possible Points: 10

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

Energy and Atmosphere — Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
6	4	9	Credit 1	Optimize Energy Performance	1 to 19
		7	Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
		2	Credit 4	Enhanced Refrigerant Management	2
	1	2	Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

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

Materials and Resources, Continued

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

Indoor Environmental Quality — Possible Points: 15

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

Innovation and Design Process — Possible Points: 6

Y	?	N			
1			Credit 1.1	Innovation in Design: Exemplary Performance SSc4.1	1
		1	Credit 1.2	Innovation in Design:	1
		1	Credit 1.3	Innovation in Design:	1
		1	Credit 1.4	Innovation in Design:	1
		1	Credit 1.5	Innovation in Design:	1
	1		Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

Y	?	N			
1			Credit 1.1	Regional Priority: SSc3	1
1			Credit 1.2	Regional Priority: SSc6.1	1
		1	Credit 1.3	Regional Priority:	1
		1	Credit 1.4	Regional Priority:	1

Y	?	N			
47	15	48	**Total**		Possible Points: 110

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

LEED 2009 for New Construction and Major Renovations

Project Checklist

Jamaica Plains Mixed-use 11D1874

Date: July 16, 2014

Y	?	N			
21	2	3	**Sustainable Sites**	Possible Points:	**26**
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
1			Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
	1		Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
		1	Credit 5.1	Site Development—Protect or Restore Habitat	1
		1	Credit 5.2	Site Development—Maximize Open Space	1
	1		Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
		1	Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1

6		4	**Water Efficiency**	Possible Points:	**10**
Y			Prereq 1	Water Use Reduction—20% Reduction	
4			Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
2		2	Credit 3	Water Use Reduction	2 to 4

10	7	18	**Energy and Atmosphere**	Possible Points:	**35**
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
5	4	10	Credit 1	Optimize Energy Performance	1 to 19
	3	4	Credit 2	On-Site Renewable Energy	1 to 7
2			Credit 3	Enhanced Commissioning	2
		2	Credit 4	Enhanced Refrigerant Management	2
3			Credit 5	Measurement and Verification	3
		2	Credit 6	Green Power	2

4		10	**Materials and Resources**	Possible Points:	**14**
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2

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

6		9	**Indoor Environmental Quality**	Possible Points:	**15**
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
		1	Credit 3.1	Construction IAQ Management Plan—During Construction	1
		1	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
		1	Credit 6.1	Controllability of Systems—Lighting	1
		1	Credit 6.2	Controllability of Systems—Thermal Comfort	1
		1	Credit 7.1	Thermal Comfort—Design	1
		1	Credit 7.2	Thermal Comfort—Verification	1
		1	Credit 8.1	Daylight and Views—Daylight	1
		1	Credit 8.2	Daylight and Views—Views	1

6			**Innovation and Design Process**	Possible Points:	**6**
1			Credit 1.1	Innovation in Design: (SS4.1 Over 200 Transit rides per day)	1
1			Credit 1.2	Innovation in Design: MRc2.2 Construction Waste Management 95%	1
1			Credit 1.3	Innovation in Design: Green Housekeeping	1
1			Credit 1.4	Innovation in Design: Low Mercury lighting	1
1			Credit 1.5	Innovation in Design: Pilot Credit 78	1
1			Credit 2	LEED Accredited Professional	1

2		2	**Regional Priority Credits**	Possible Points:	**4**
1			Credit 1.1	Regional Priority: (SSc3 Brownfield Development)	1
1			Credit 1.2	Regional Priority: (SSc7.2 Heat Island Effect-Roof)	1
		1	Credit 1.3	Regional Priority: Specific Credit	1
		1	Credit 1.4	Regional Priority: Specific Credit	1

55	9	46	**Total**	Possible Points:	**110**

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

LEED 2009 for New Construction and Major Renovations

Project Checklist

Jamaica Plains Self-storage 11D1874

Date: July 16, 2014

Sustainable Sites — Possible Points: 26

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

Water Efficiency — Possible Points: 10

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

Energy and Atmosphere — Possible Points: 35

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

Materials and Resources — Possible Points: 14

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

Materials and Resources, Continued

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

Indoor Environmental Quality — Possible Points: 15

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

Innovation and Design Process — Possible Points: 6

Y	?	N			
1			Credit 1.1	Innovation in Design: (SS4.1 Over 200 Transit rides per day)	1
1			Credit 1.2	Innovation in Design: MRc2.2 Construction Waste Management 95%	1
1			Credit 1.3	Innovation in Design: Green Housekeeping	1
1			Credit 1.4	Innovation in Design: Low Mercury lighting	1
		1	Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

Y	?	N			
1			Credit 1.1	Regional Priority: (SSc3 Brownfield Development)	1
1			Credit 1.2	Regional Priority: (SSc7.2 Heat Island Effect-Roof)	1
		1	Credit 1.3	Regional Priority: Specific Credit	1
		1	Credit 1.4	Regional Priority: Specific Credit	1

Total — Possible Points: 110

54	8	48	Total

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

Appendix E

Climate Change Checklists

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:	**3521-3529 Washington Street (Burnett Street Residential)**
Project Address Primary:	**3521-3529 Washington Street**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**David Williams, SSG Development II, LLC, DWilliams@ssgdevelopment.com, (617) 938-6478**

A.2 - Team Description

Owner / Developer:	**SSG Development II, LLC and New Boston Ventures LLC**
Architect:	**Studio 3.0**
Engineer (building systems):	**BLW Engineers, Inc.**
Sustainability / LEED:	
Permitting:	**Epsilon Associates, Inc.**
Construction Management:	
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:	Residential
List the First Floor Uses:	*Residential Lobby, Parking*

What is the principal Construction Type – select most appropriate type?

☑ Wood Frame	☐ Masonry	☐ Steel Frame	☐ Concrete

Describe the building?

Site Area:	*147,715 SF*[1]	Building Area:	*53,750 SF*
Building Height:	*49 Ft.*	Number of Stories:	*5 Flrs.*
First Floor Elevation (reference Boston City Base):	*29 Elev.*	Are there below grade spaces/levels, if yes how many:	*No / Number of Levels*

[1] Square footage of entire site.

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	☑ New Construction	☐ Core & Shell	☐ Healthcare	☐ Schools
	☐ Retail	☐ Homes Midrise	☐ Homes	☐ Other
Select LEED Outcome:	☑ Certified	☐ Silver	☐ Gold	☐ Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	*Yes* / **No**	Certified:	*Yes* / **No**

A.6 - Building Energy-

What are the base and peak operating energy loads for the building?

Electric:	*568 (kW)*	Heating:	*1.02 (MMBtu/hr)*
What is the planned building Energy Use Intensity:	*6.06 (kWh/SF)*	Cooling:	*92 (Tons/hr)*

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*402 (kW)*	Heating:	*(MMBtu/hr)*
		Cooling:	*(Tons/hr)*

What is nature and source of your back-up / emergency generators?

Electrical Generation:	*75 (kW)*		Fuel Source:	*Diesel*
System Type and Number of Units:	☑ Combustion Engine	☐ Gas Turbine	☐ Combine Heat and Power	*(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

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

95 Deg.	*5 Days*	*6 Events / 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.	*4 Inches*	*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?

130 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:	*25%*
How is performance determined:	Prescriptive Path

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?

Roof:	*R = 30*	Walls / Curtain Wall Assembly:	*R = 19*
Foundation:	*R = 15*	Basement / Slab:	*R =10*
Windows:	*R = / U =0.4*	Doors:	*R = / U =0.7*

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

☐ 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:			

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:	*2 Days*

If Yes, is building "Islandable?	
If Yes, describe strategies:	The generator will provide some power for the building for 2 days.

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 Envelope
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:	The site includes an approximately 19,400 sf open space with landscaping and community garden.			

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?

	Yes / **No**

Describe site conditions?

Site Elevation – Low/High Points:	*29/29 Boston City Base Elev.(Ft.)*
Building Proximity to Water:	*14,900 Ft.*

Is the site or building located in any of the following?

Coastal Zone:	Yes / **No**	Velocity Zone:	Yes / **No**
Flood Zone:	Yes / **No**	Area Prone to Flooding:	Yes / **No**

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	Yes / **No**	Future floodplain delineation updates:	Yes / **No**

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

~2,100 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

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:	**3521-3529 Washington Street (Mixed-use Building)**
Project Address Primary:	**3521-3529 Washington Street**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**David Williams, SSG Development II, LLC, DWilliams@ssgdevelopment.com, (617) 938-6478**

A.2 - Team Description

Owner / Developer:	**SSG Development II, LLC and New Boston Ventures LLC**
Architect:	**BL Companies**
Engineer (building systems):	**BL Companies**
Sustainability / LEED:	**BL Companies**
Permitting:	**Epsilon Associates, Inc.**
Construction Management:	
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:	Residential
List the First Floor Uses:	*Retail, Residential Lobby*

What is the principal Construction Type – select most appropriate type?

☑ Wood Frame	☐ Masonry	☐ Steel Frame	☐ Concrete

Describe the building?

Site Area:	*147,715 SF*[1]	Building Area:	*126,800 SF*
Building Height:	*60 Ft.*	Number of Stories:	*5 Flrs.*
First Floor Elevation (reference Boston City Base):	*30 Elev.*	Are there below grade spaces/levels, if yes how many:	*1 Number of Levels*

[1] Square footage of entire site.

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	☑ New Construction	☐ Core & Shell	☐ Healthcare	☐ Schools
	☐ Retail	☐ Homes Midrise	☐ Homes	☐ Other
Select LEED Outcome:	☑ Certified	☐ Silver	☐ Gold	☐ Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	*Yes / No*	Certified:	*Yes / No*

A.6 - Building Energy-

What are the base and peak operating energy loads for the building?

Electric:	*109 kW*	Heating:	*837.4 MMBtu/hr*
What is the planned building Energy Use Intensity:	*70 kBtu/SF*	Cooling:	*97.6 Tons/hr*

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*N/A*	Heating:	*N/A*
		Cooling:	*N/A*

What is nature and source of your back-up / emergency generators? **(for elevators only)**

Electrical Generation:	*60 kVA*		Fuel Source:	*Natural Gas*
System Type and Number of Units:	☑ Combustion Engine	☐ Gas Turbine	☐ Combine Heat and Power	*(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.

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

95 Deg.	*5 Days*	*6 Events / 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.	*4 Inches*	*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?

130 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%*	**Targeting 26%**
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:	Building envelope thermal resistance and high quality glazing			

What are the insulation (R) values for building envelop elements?

Roof:	*R = 25*	Walls / Curtain Wall Assembly:	*R = 13, Walls first floor R=13.66, Upper floors R=18.58*
Foundation:	*R = 15*	Basement / Slab:	*R =10*
Windows:	*R = / U =0.35*	Doors:	*R = / U =0.7*

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:	Solar PV is being studied for the roof.			

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 Envelope
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?

	Yes / **No**

Describe site conditions?

Site Elevation – Low/High Points:	*29/29 Boston City Base Elev.(Ft.)*
Building Proximity to Water:	*14,900 Ft.*

Is the site or building located in any of the following?

Coastal Zone:	Yes / **No**	Velocity Zone:	Yes / **No**
Flood Zone:	Yes / **No**	Area Prone to Flooding:	Yes / **No**

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	Yes / **No**	Future floodplain delineation updates:	Yes / **No**

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

~2,100 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:	*3 Ft.*	Frequency of storms:	*0.25 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

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:	**3521-3529 Washington Street (Self-storage Building)**
Project Address Primary:	**3521-3529 Washington Street**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**David Williams, SSG Development II, LLC, DWilliams@ssgdevelopment.com, (617) 938-6478**

A.2 - Team Description

Owner / Developer:	**SSG Development II, LLC and New Boston Ventures LLC**
Architect:	**BL Companies**
Engineer (building systems):	**BL Companies**
Sustainability / LEED:	**BL Companies**
Permitting:	**Epsilon Associates, Inc.**
Construction Management:	
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:	Self-storage
List the First Floor Uses:	*Office/Retail, Self-storage*

What is the principal Construction Type – select most appropriate type?

☐ Wood Frame	☐ Masonry	☑ Steel Frame	☐ Concrete

Describe the building?

Site Area:	*147,715 SF*[1]	Building Area:	*132,500 SF*
Building Height:	*47 Ft.*	Number of Stories:	*4 Flrs.*
First Floor Elevation (reference Boston City Base):	*32 Elev.*	Are there below grade spaces/levels, if yes how many:	*No* / *Number of Levels*

[1] Square footage of entire site.

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	☑ New Construction	☐ Core & Shell	☐ Healthcare	☐ Schools
	☐ Retail	☐ Homes Midrise	☐ Homes	☐ Other
Select LEED Outcome:	☑ Certified	☐ Silver	☐ Gold	☐ Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	*Yes / No*	Certified:	*Yes / No*

A.6 - Building Energy-

What are the base and peak operating energy loads for the building?

Electric:	*35 kW*	Heating:	*863 MMBtu/hr*
What is the planned building Energy Use Intensity:	*11 kBtu/sf*	Cooling:	*60 Tons/hr*

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*N/A*	Heating:	*N/A*
		Cooling:	*N/A*

What is nature and source of your back-up / emergency generators?

Electrical Generation:	*N/A*		Fuel Source:	*N/A*
System Type and Number of Units:	☐ Combustion Engine	☐ Gas Turbine	☐ Combine Heat and Power	*(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?

95 Deg.	*5 Days*	*6 Events / 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.	*4 Inches*	*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?

130 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%* **Targeting 26%**
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?

Roof:	*R = 25*	Walls / Curtain Wall Assembly:	*R = 20.35*
Foundation:	*R = 25*	Basement / Slab:	*R =N/A*
Windows:	*R = / U 0.4=*	Doors:	*R = / U 0.7=*

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

	☐ 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:	Solar PV is being studied for the roof.			

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 Envelope
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?

	Yes / **No**

Describe site conditions?

Site Elevation – Low/High Points:	*29/29 Boston City Base Elev.(Ft.)*
Building Proximity to Water:	*14,900 Ft.*

Is the site or building located in any of the following?

Coastal Zone:	Yes / **No**	Velocity Zone:	Yes / **No**
Flood Zone:	Yes / **No**	Area Prone to Flooding:	Yes / **No**

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	Yes / **No**	Future floodplain delineation updates:	Yes / **No**

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

~2,100 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:	*3 Ft.*	Frequency of storms:	*0.25 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