Project Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

CHARLESTOWN BATTALION ARMORY

CHARLESTOWN, MASSACHUSETTS APRIL 2, 2014

Submitted to:

BOSTON REDEVELOPMENT AUTHORITY
One City Hall Square
Boston, MA 02201

Submitted by:

C-TOWN VENTURES, LLC

Prepared by:

NORTHEAST STRATEGY AND COMMUNICATIONS GROUP
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In Association with:

NESHAMKIN FRENCH ARCHITECTS, INC.
HOWARD/STEIN-HUDSON

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1.0 PROJECT SUMMARY

1.1 Project Identification

Project Name:	Charlestown Battalion Armory
Location:	The Project site is located at 374-398 Bunker Hill Street in the Charlestown Neighborhood of the City of Boston.
Proponent:	C-Town Ventures, LLC 275 Mishawam Road Woburn, MA 01801 (781) 389-9476 Mr. Patrick Keohane
Architects:	Neshamkin French Architects, Inc. 5 Monument Square Charlestown, MA 02129 (617) 242-7422 Mr. Jack French, AIA Ms. Abbey Bourque
Permitting Consultants:	North East Strategy And Communications Group 1049 Adams Street Dorchester, MA 02124 617 653 0838 Mr. Thomas Maistros, AIA Ms. Marjorie Decker
Transportation and Parking Consultants:	Howard/Stein-Hudson, Inc. 38 Chauncey Street, 9th Fl. Boston, MA 02111 Mr. Michael A. Santos, P.E., PTOE
Legal Counsel:	Morrissey Sweeney LLC 261 Main Street Charlestown, MA 02129 Atty. Patrick J. Sweeney
Landscape Architect:	CBA Landscape Architects, LLC. 212 Elm Street Somerville, MA 02144 (617) 623-7509 Ms. Clara Bachelor
Mechanical, Plumbing & Fire Protection Engineer:	Norian/Siani Engineers, Inc. 43 Bradford Street Concord, MA 01742 (781) 398-2250 Mr. Sergio Siani, P.E.

Site/Civil Engineer:	Vineyard Engineering & Environmental Services, Inc 400 Cummings Park #4800 Woburn, MA 01801 (781) 933-3330 Mr. Steve Fleming
Geotechnical Engineers	Geotechnical Services, Inc. 55 North Stark Highway Weare, NH 03281 (603) 529-7766 Mr. Harry Weatherbee, P.E.
General Contractor:	Bond Brothers Construction 145 Spring Street Everett, NH 02149 (617) 387-3400 Mr. Francis Hayes

1.2 Project Description

1.2.1 Project Site

The Charlestown Battalion Armory (the "Project") is located in the Charlestown Neighborhood of Boston at 374-398 Bunker Hill Street mid block between Baldwin and Auburn Street on a 46,662 square foot sloped site. The site is occupied by the former Massachusetts Army National Guard Armory, which was originally built in 1907. It has been vacant since 2010 when the Boston Public Library transferred the property to the City's Department of Neighborhood Development. The Site has one curb-cut on Bunker Hill Street.

The Armory is in a residential area bounded by primarily three story wood framed residences to the north and east and west. In general, the existing structure is consistent in scale with the residential buildings that front Bunker Hill thanks to the two-story façade with the larger volume of the drill hall set back and under a pitched roof.

Figure 1-1 Context Plan

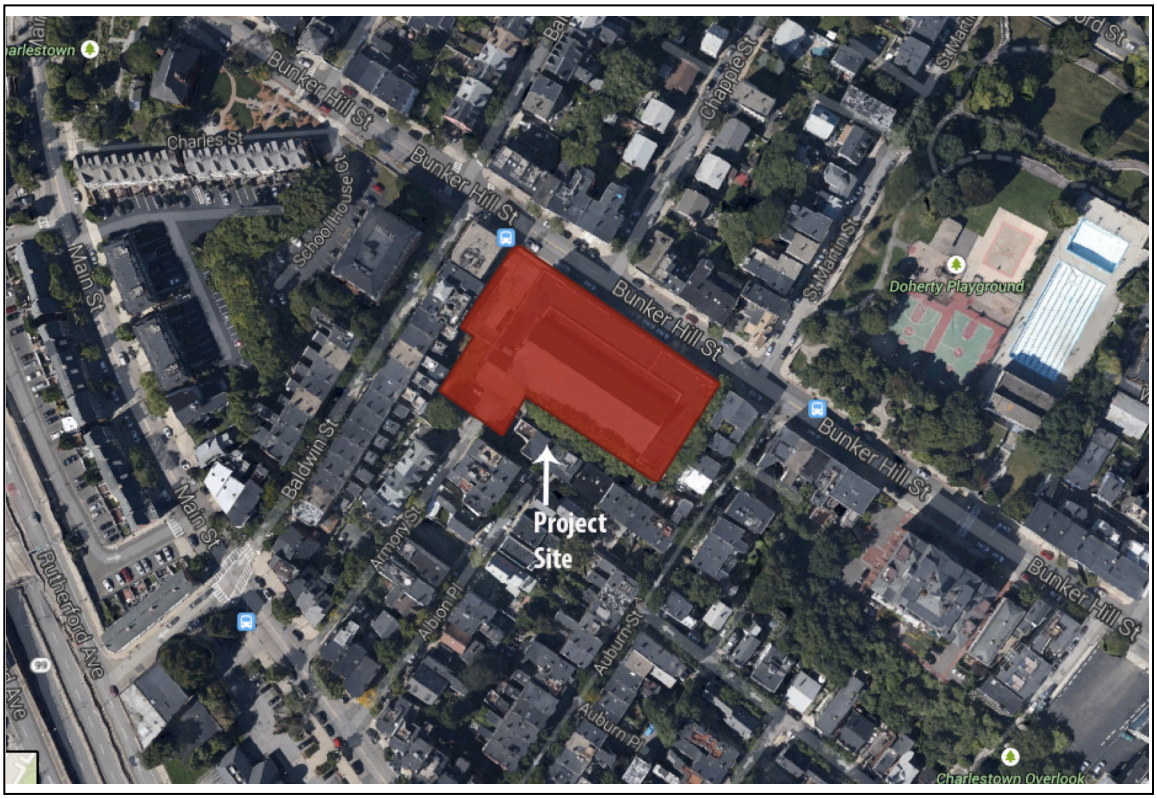


Figure 1-2 Locus Map

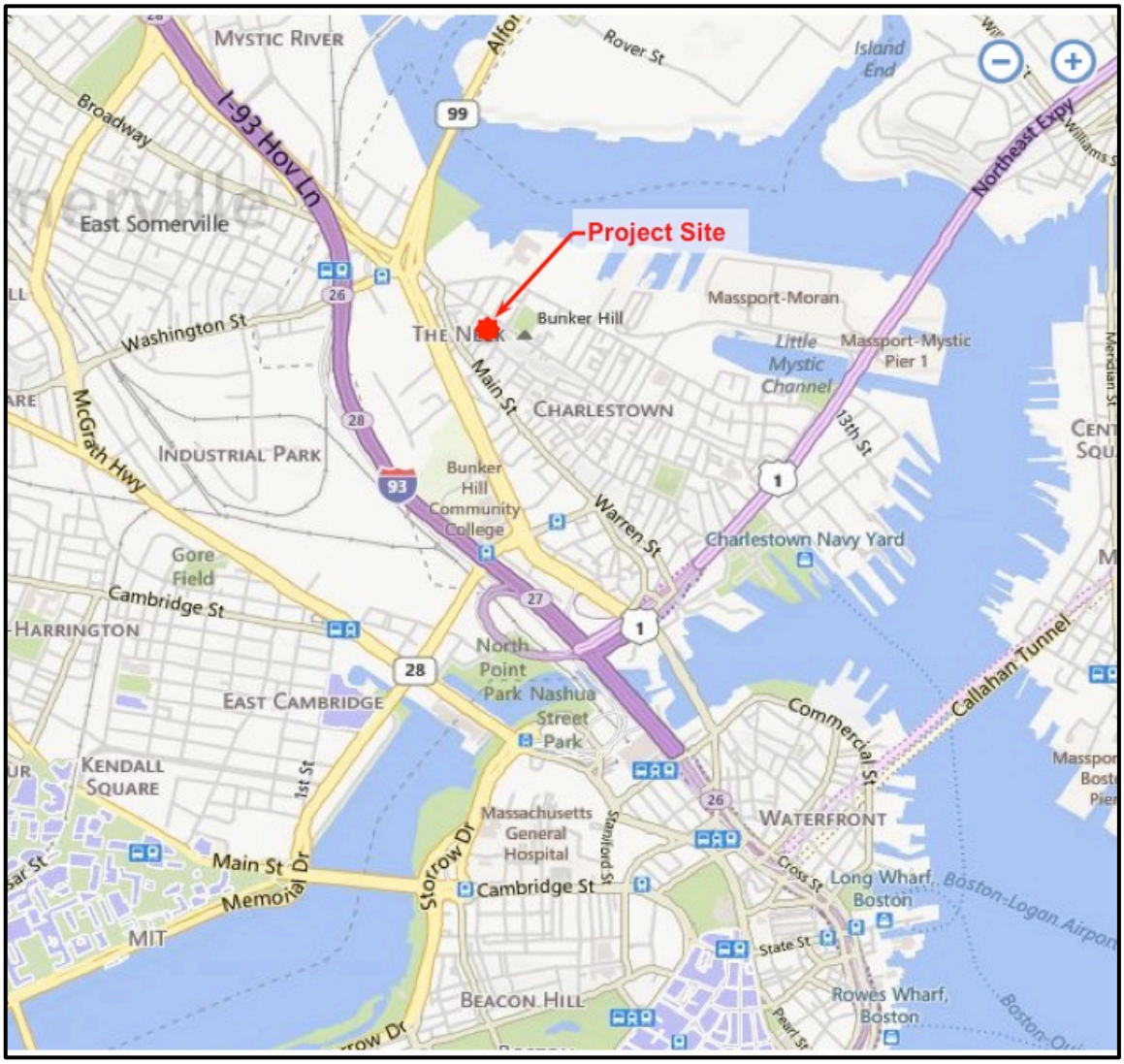
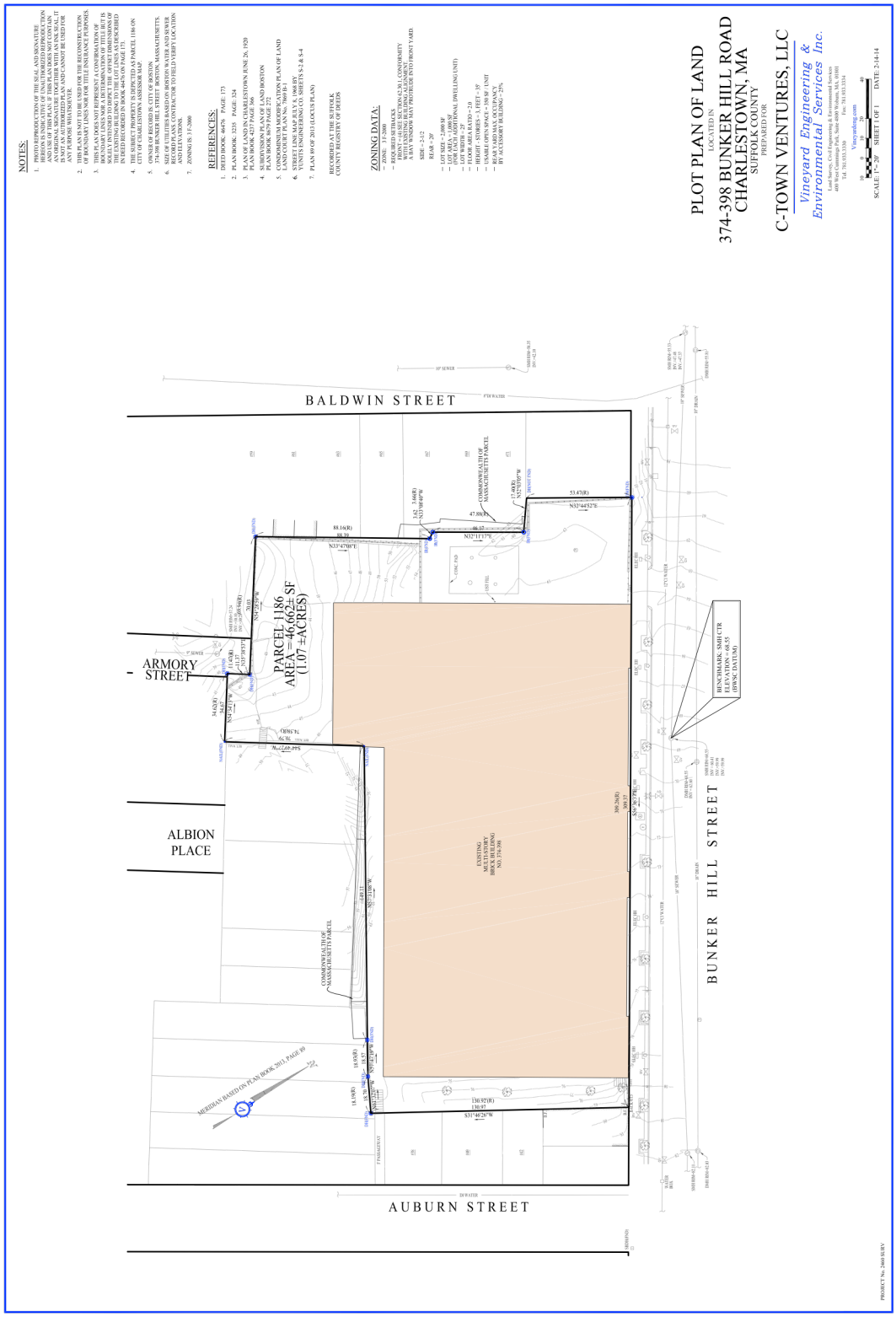


Figure 1-3 Survey Plan



1.2.2 Proposed Development/Program

The Development Team proposes to revitalize this aging structure with a sensitive program of historic restoration and an innovative interior design theme for 42 new Charlestown residential condominiums. Following the design suggestions of the community, the Team will create new housing and parking by inserting five levels within the envelope of the existing structure (including a sub-level for parking). The new site design will create a park-like setting for the building while providing use and service easements to the abutting properties.

Housing opportunities within the design include traditional two and three-bedroom flats, novel loft-type live/work units and upper level duplex designs featuring tremendous downtown Boston and Mystic River views.

Seventy-eight (78) on site parking spaces will be provided - 76 in a basement level garage providing approximately two spaces per unit (market rate units only) and two visitor spaces at the Bunker Hill Street entrance. All parking for the Development will be accessed from a single existing commercial curb cut at Bunker Hill Street.

In the aggregate, the building will provide up to 71,919 square feet of residential condominium use. All loading activity will take place on the street with move in traffic requiring permits from BTD. Trash compactors will be located inside the building and accessed via the ramp to the parking level.

Table 1-1 Approximate Project Dimensions

Project Element	Dimension
Project Site	46,662 SF
Residential Space	42 units/71,919 SF
Parking – at grade	2 spaces
Parking – below grade (Garage)	76 spaces
Open Space	17,438 SF - 415 SF/Unit (including balconies)
Building Height	53.9 feet (existing)

1.2.3 Public Review

Because the Project will exceed 50,000 square feet of gross floor area, it is subject to Large Project Review under Article 80B of the Boston Zoning Code (the "Code"). This Expanded PNF is being prepared to initiate that review and the Proponent expects that it will provide adequate impact assessment for the Article 80 process and will facilitate a comprehensive public process including review with the neighborhood organizations and yet to be scheduled meetings with a newly designated Impact Advisor Group (IAG).

The Proponent is committed to a full community participation process to insure the proposed project addresses any concerns of the reviewing agencies, the immediate abutters and the Charlestown Neighborhood at large. To that end a series of meetings have been held to communicate the intended plans and solicit input. These include but are not limited to:

- June 20, 2013 – DND Public meeting to present proposals of RFP finalists to community. Meeting was held at the Schrafft's Building, Charlestown.
- September 11, 2013 – DND Public Meeting to solicit feedback on finalists' presentations.
- October 23, 2013 – Charlestown Neighborhood Council Meeting at the Schrafft's Building, Charlestown. The designated development team presented a project overview and held a discussion to address neighborhood concerns and review DND, BRA and Zoning Board of Appeal Review and Approval Processes.
- Development Team met with all immediate abutters to the Armory to solicit support, consider impacts and develop mitigation plans.
- The Proponent met with the BRA staff to get comments prior to submission of this PNF.

1.2.4 Public Benefits

The Project provides a number of public benefits to the City of Boston. Working with the Department of Neighborhood development, the Project redevelops an abandoned community structure into a use consistent with the adjacent residential neighborhood. The reuse of this vacant, deteriorating structure will result in the removal of blight. It will also preserve a historically important building.

In addition, the Project will contribute to the continued revitalization of the Bunker Hill/Middlesex area of Charlestown enhancing the urban design and architectural character of the streets and neighborhood. The housing use will compliment the neighborhood's residential character and will further energize and enliven the area. The inclusion of two parking spaces per unit will insure the existing limited supply of on-street parking will not be taxed.

1.2.4.1 Sustainable Design/ Green Building

The Project will be certifiable under the U.S. Green Council's Leadership in Energy and Environmental Design (LEED) system.

1.2.4.2 New Property Tax Revenue

The Project will generate approximately $267,000 in annual property taxes.

1.2.4.3 Affordable Housing

The Project will provide five affordable units in accordance with the City's Inclusionary Housing Policies.

1.2.4.4 Linkage

The Project is under the 100,000 square foot threshold so no contributions will be required to the Jobs and Housing Linkage programs.

1.2.4.5 Additional Benefits

- The community benefits by having a once-proud building and its grounds restored to their former status. The Team pledges to make the building a good neighbor.
- The Project will create approximately 150 construction jobs and will comply with the City of Boston standards for Boston resident and minority hiring.
- Site landscaping will be designed with the specific input of each abutter, including lighting and plant material choices. Neighborhood will meet directly with Clara Batchelor, CBA /LA
- The project will restore existing buildings and grounds allowing abutters to talk directly with Design Team Engineers to resolve drainage, grading and retaining wall design issues.
- Indoor parking scheme will minimize physical impact on on-street resources and visual impacts from abutters.
- Period lighting on site will be shielded from abutters
- Appropriate fencing/landscaped buffer will be provided between Armory and abutters
- Abutters will be provided convenient access to rear yards
- A wide range of housing types will be created including five (5) affordable units.
- Larger issues such as creating an pathway through the site for Armory Street and Auburn Square will be explored, along with potential community parking improvements
- Museum/Exhibit space will be provided in Atrium and will include a memorial/ exhibit space to attest to the former military use of the building.

1.3 Consistency with Zoning

The subject property has a street address of 374-398 Bunker Hill Street, Charlestown and is comprised of a land area of approximately 46,662 square feet. The City of Boston Assessor's Office identifies it as Parcel 020-11-86000.

The zoning for the property is included in Article 62 of the Boston Zoning Code (the Charlestown Neighborhood District) and is located within a 3F-2000 sub-district (a three family residential sub-district requiring a minimum lot area of 2,000 square feet). The property is bounded on all sides by single and multi-family residential homes.

The residential use proposed is in conformance with the residential zoning use for the area and the current use of adjoining and abutting parcels, however the proposed number of units exceeds the maximum number permitted within this sub-district. As a result the proposed use requires a zoning variance with respect to Article 62, Section 10 (multi-family dwelling; more than 3 units forbidden use). Other variances necessary to the proposed use relate to Article 62, Section 11 (height excessive) Article 62, Section 11 (insufficient open space), Article 62, Section 25 (roof structure), Article 62, Section 29 (off-street parking insufficient), and Article 62, Section 29 (off-street parking design and maneuverability insufficient).

On December 27, 2013, the Commissioner for Boston Inspectional Services Department denied the application for Building Permit filed by C-Town Ventures, LLC citing the above referenced provisions of the Zoning Code as reasons for his denial. Thereafter on January 23, 2014, C-Town Ventures, LLC filed an Appeal with the Boston Zoning Board of Appeal seeking variances with respect to the foregoing sections of the Zoning Code. It is anticipated that requested relief, which is minimal, will be granted.

Following the anticipated vote of the Zoning Board of Appeals and the passage of the requisite appeal period, the property will be in conformance with all necessary zoning.

The Proponent will seek approval of the Project through the Article 80 Development Review Process - Large Project Review. If approved, the Project will seek variances for dimensional and parking requirements.

1.4 Legal Information

1.4.1 Legal Judgments Adverse to the Proposed Project

C-Town Ventures, LLC knows of no judgments, which are adverse to the proposed project.

C-Town Ventures, LLC is aware of minimal encroachments upon the property, none of which interfere with the past, current or proposed use of the Property. Such encroachments do not result in any claim upon the property.

As noted in the Request for Proposals for the subject property there are adjoining land strips along the boundary of the property that were not conveyed to Boston Public Library when the Commonwealth disposed of the property. The C-Town Ventures proposal is not dependent on ownership of these strips. Nonetheless C-Town Ventures is working to clear title to these small areas.

1.4.2 History of Tax Arrears on Property

C-Town Ventures LLC knows of no tax arrearages with respect to the property as the same has been owned either by the Commonwealth of Massachusetts or the City of Boston.

1.4.3 Evidence of Site Control (DND)/Nature of Public Easements

C-Town Ventures LLC has been designated by the City of Boston to redevelop the Charlestown Armory site and will enter into a land disposition agreement pending successful completion of the City of Boston Development Review Process.

The tentative designation approval triggered a finite period for C-Town Ventures to work cooperatively with the Department of Neighborhood Development to finalize the design, apply for permits and secure funding. Upon successful completion of the review process, the Public Facilities Commission will vote to convey the property to the developer, at which point DND will close the sale of the property, and the developer will begin construction.

The site immediately abuts Bunker Hill Street with an entrance through a driveway off Bunker Hill Street. There are no public easements known to C-Town Ventures, LLC at the present time.

1.5 Public Agencies

Table 1-2 below presents a list of state and local agencies from which permits or other actions are expected to be required:

Table 1-2 Anticipated Permits and Approvals

Agency Name	Permit / Approval
STATE	
Massachusetts Water Resources Authority	Sewer Use Discharge Permit
LOCAL	
City of Boston Department of Neighborhood Development	Land Disposition Agreement
Boston Civic Design Commission	Determination to Review
Boston Redevelopment Authority	80B Large Project Review; Zoning variance recommendations
Boston Water and Sewer Commission	Sewer Use Discharge Permit; Site Plan Approval; Sewer Extension/ Connection Permit; Stormwater Connection
City of Boston Inspectional Services Department	Building and Occupancy Permits
Boston Public Improvement Commission	Street and Sidewalk Occupation Permits; Specific Repair Plan
Boston Board of Appeals	Variance Approvals
Boston Parks and Recreation Commission	Review and Approval
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan

1.6 Schedule

Construction is expected to begin in July 2014 and will be completed for occupancy in 14 months (August 2015).

1.7 Project Design

1.7.1 Design Objectives

Originally built as a noble public building in Georgian Revival style, the Charlestown Armory stood as a sentinel of community pride, participation and patriotism. Now, lying underutilized, the Armory and its surrounding landscape is

an overgrown and musty shadow of its former glory, an unwelcome visitor on the street. The Development Team proposes to revitalize this aging structure with a sensitive program of historic restoration and innovative interior design to restore it to its former status.

The primary objective of the Project is to create a new housing resource for the Charlestown community reinvigorating this section of Bunker Hill Avenue. The renovation plan will preserve the exterior massing and details of a building that has been an important feature in the neighborhood. The interior, including the structural system, will be gutted and four new floors sensitively inserted to create residential lofts. An interior atrium feature will allow the layout to take full advantage of building's depth while the roof peak is utilized for interesting two story duplexes.

By preserving the existing building exterior, the Project will be continue to reinforce the existing streetwall of Bunker Hill Avenue and the new residential use will remove the blight associated with the abandoned structure. The result will be a new residential development that will contribute to the life and vitality of the Charlestown Neighborhood.

1.7.2 Design Exhibits

The proponent retained Nashamkin French Architects (NFA) to design a residential project that would conform to the design objectives issued by the Department of Neighborhood Development in their RFP and to the Boston Redevelopment Authority's Development Review Process and as established in the Charlestown Neighborhood Plan. These objectives are described further in the Urban Design Component.

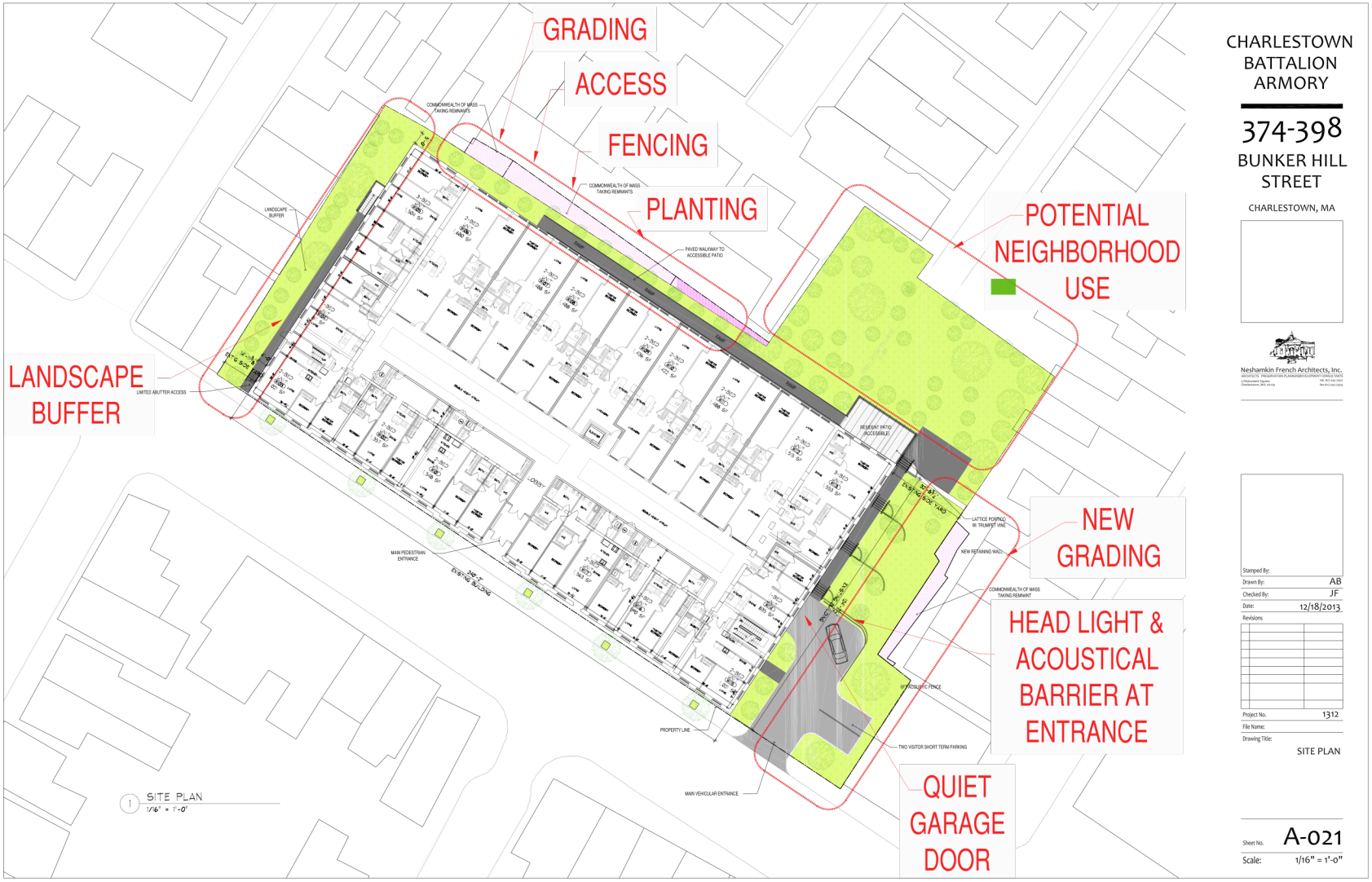
NFA has prepared the following graphic materials including context photos and architectural plans, elevations and illustrations to further describe the proposed scope of improvements.

Existing Condition – View of North Elevation from Bunker Hill Street

Existing Condition – View of North Elevation From Bunker Hill Street

Existing Context – View of Existing Residence on North side of Bunker Hill Street

Existing Context – View of back elevation of Baldwin Street Residences



CHARLESTOWN BATTALION ARMORY

374-398 BUNKER HILL STREET

CHARLESTOWN, MA

Neshamkin French Architects, Inc.

Stamped By:	
Drawn By:	AB
Checked By:	JF
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Revisions	
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Sheet No.	A-021
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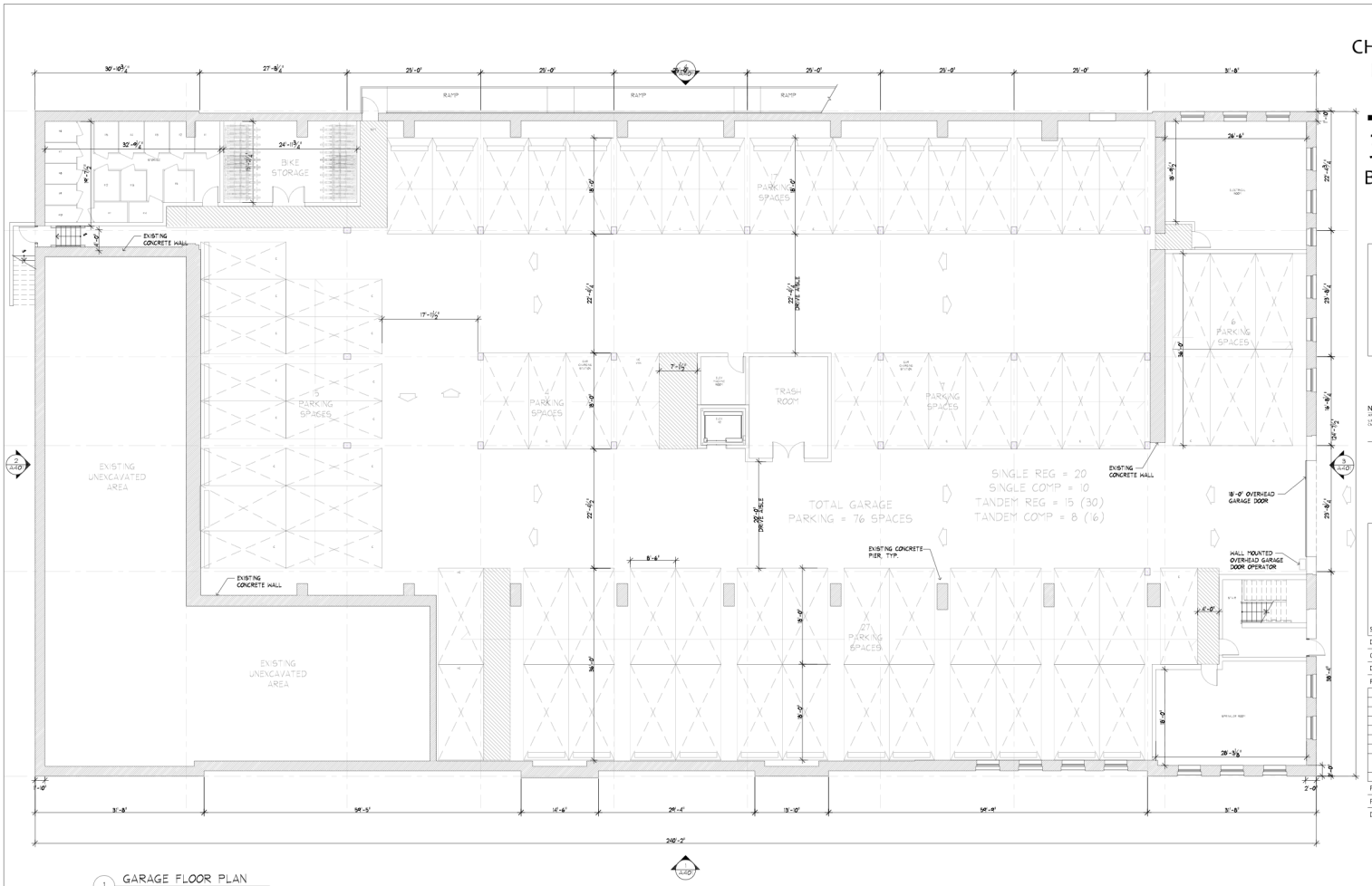

1 GARAGE FLOOR PLAN
1/8" = 1'-0"

CHARLESTOWN BATTALION ARMORY

374-398 BUNKER HILL STREET

CHARLESTOWN, MA

Neshamkin French Architects, Inc.
ARCHITECTS PRESERVATION PLANNERS INTERIOR DESIGNERS
1 Monument Square
Charlestown, MA 02129
TEL 617.242.2433
FAX 617.242.2434

Stamped By:
Drawn By: AB
Checked By: JF
Date: 12/18/2013
Revisions

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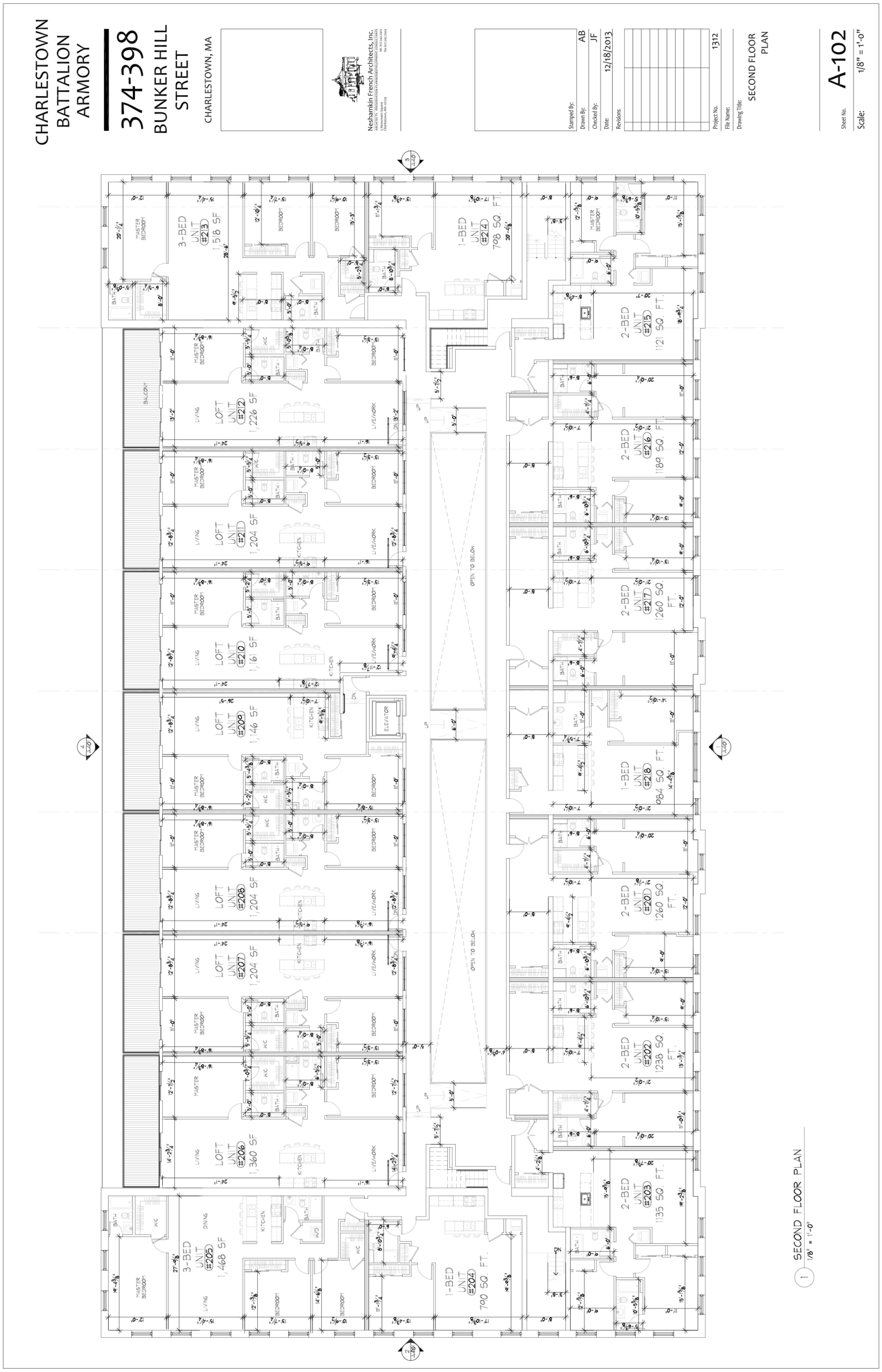
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374-398
BUNKER HILL STREET
CHARLESTOWN, MA
Neshamkin French Architects, Inc.
Stamped By:
Drawn By: AB
Checked By: JF
Date: 12/18/2013
Revisions
Project No. 1312
File Name:
Drawing Title:
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Sheet No.
A-102
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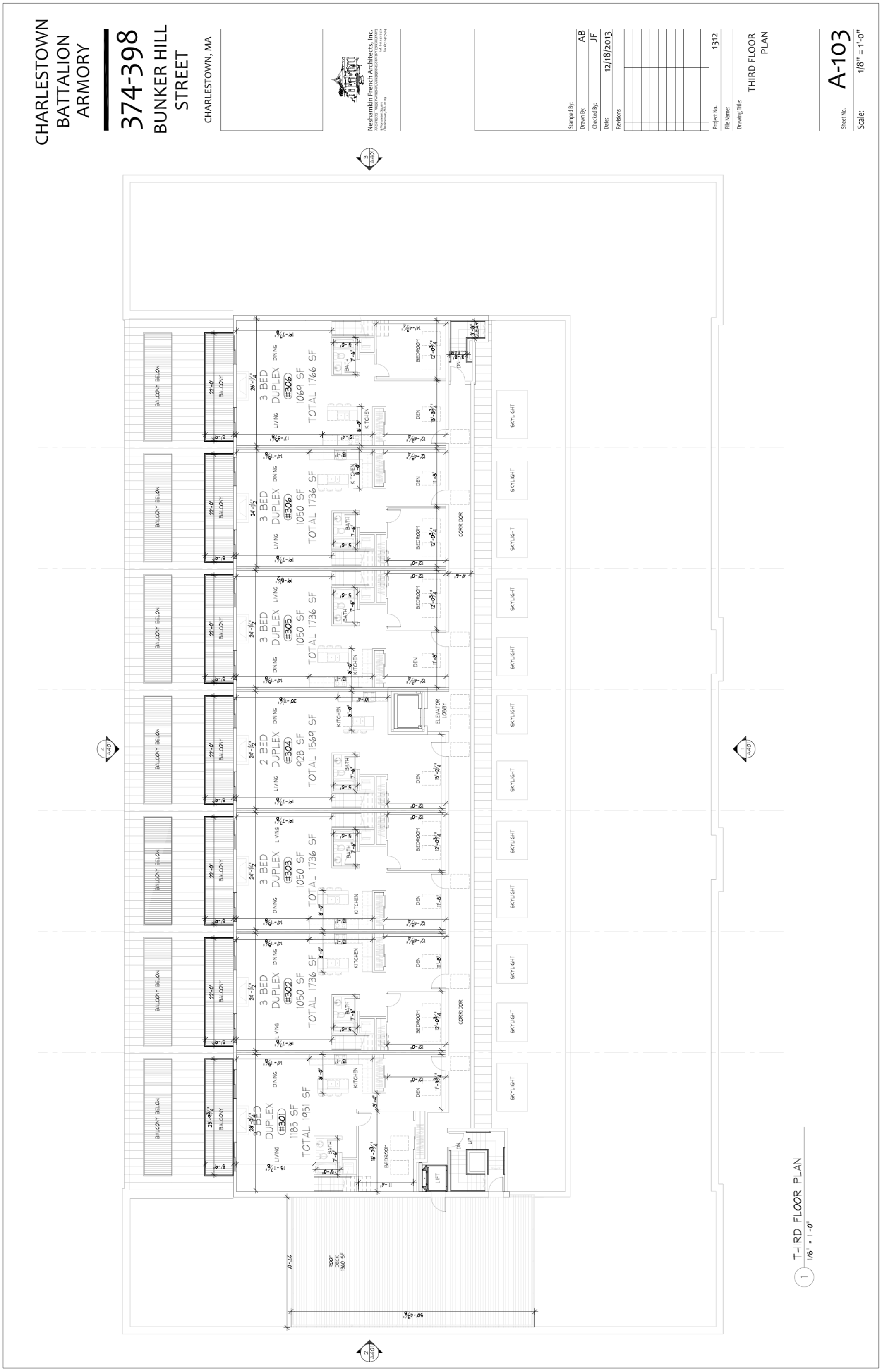
SECOND FLOOR PLAN
1/8" = 1'-0"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374-398
BUNKER HILL STREET
CHARLESTOWN, MA
Neshamkin French Architects, Inc.
Stamped By:
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Date: 12/18/2013
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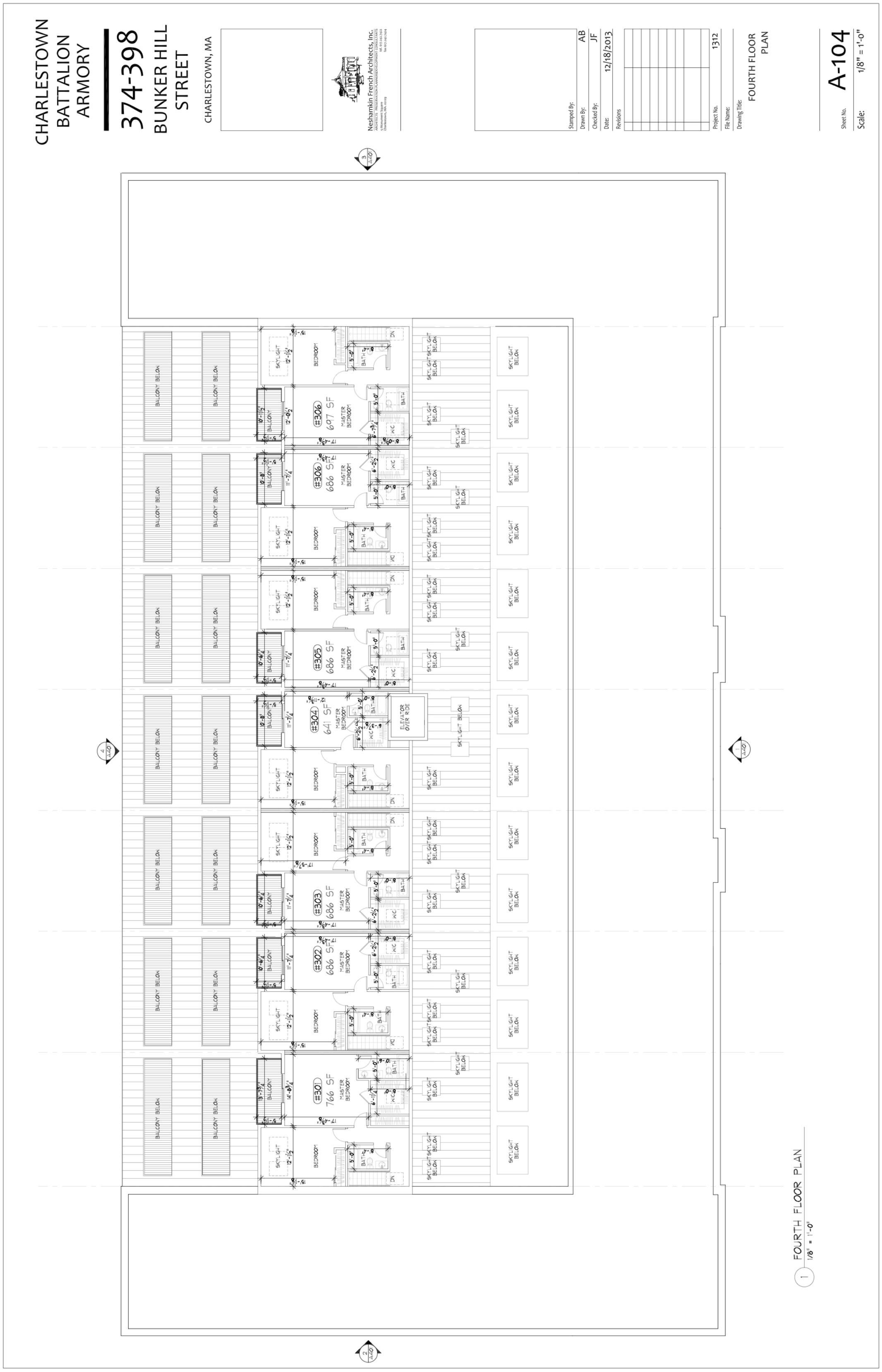
THIRD FLOOR PLAN
1/8" = 1'-0"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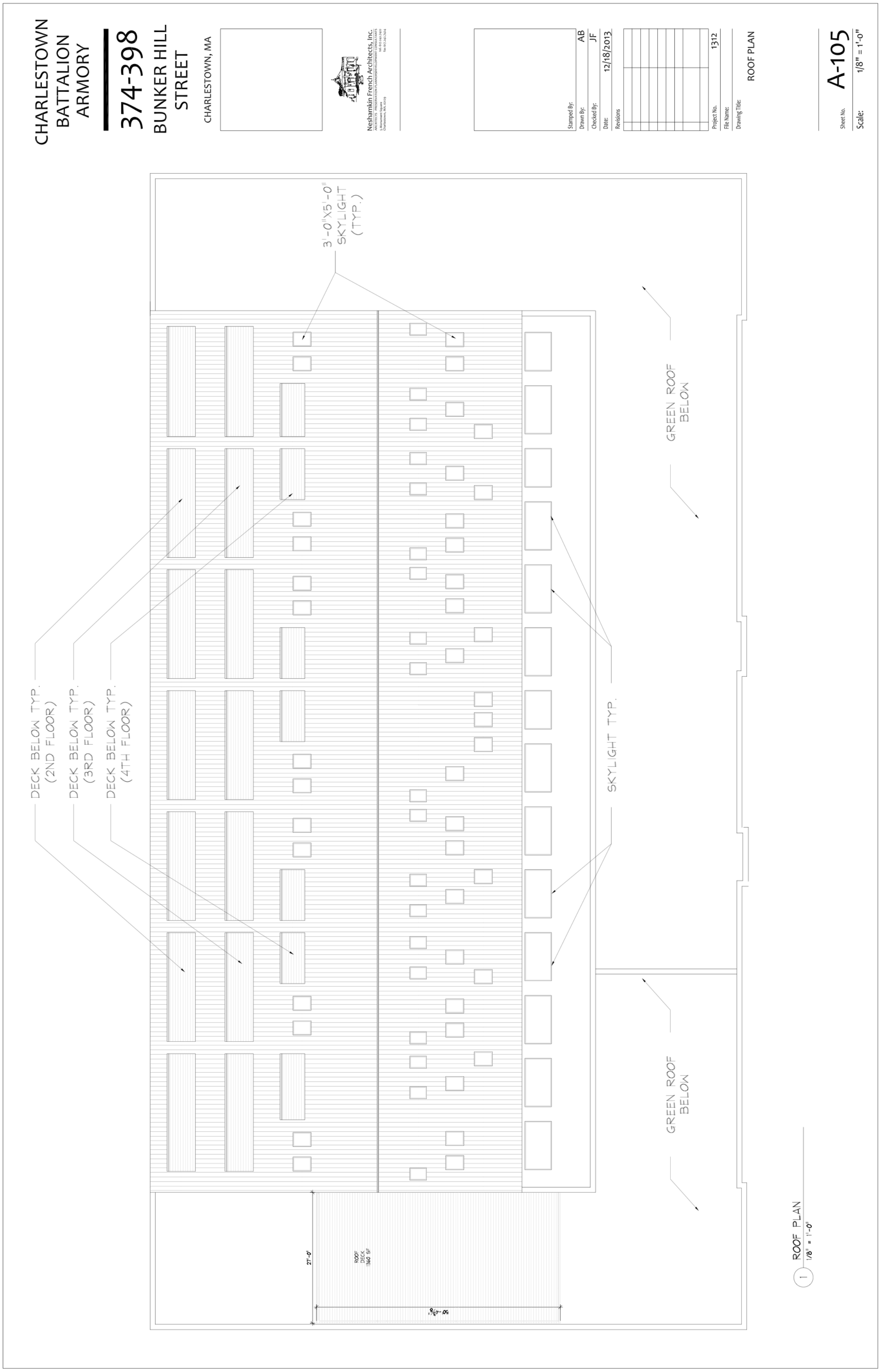
FOURTH FLOOR PLAN
1/8" = 1'-0"


CHARLESTOWN
BATTALION
ARMORY
374-398
BUNKER HILL
STREET
CHARLESTOWN, MA
Neshamkin French Architects, Inc.
Stamped By:
Drawn By: AB
Checked By: JF
Date: 12/18/2013
Revisions
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Sheet No. A-105
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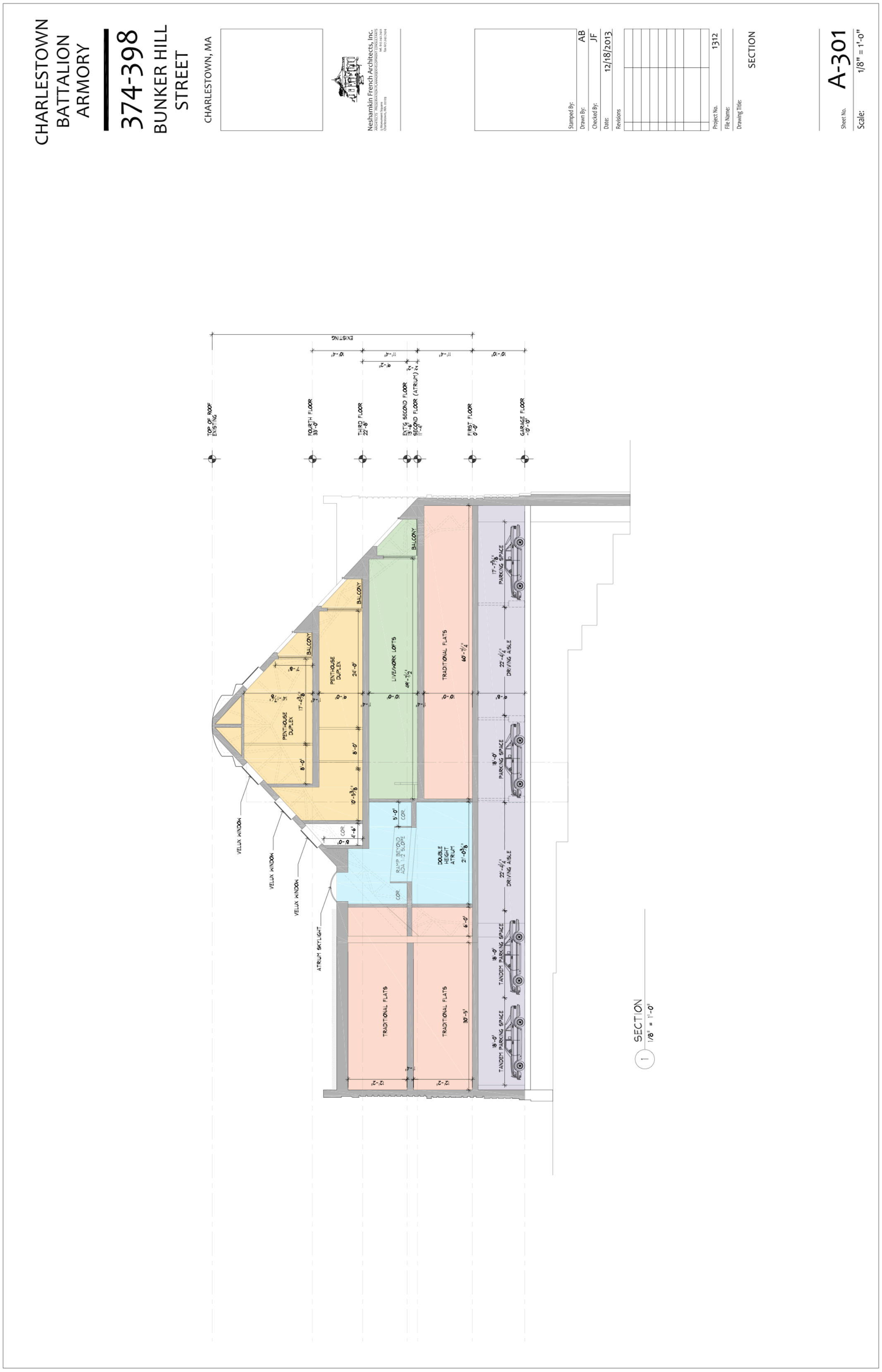
3'-0"X5'-0"
SKYLIGHT
(TYP.)
GREEN ROOF
BELOW
DECK BELOW TYP.
(2ND FLOOR)
DECK BELOW TYP.
(3RD FLOOR)
DECK BELOW TYP.
(4TH FLOOR)
SKYLIGHT TYP.
GREEN ROOF
BELOW
1
ROOF PLAN
1/8" = 1'-0"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374-398
BUNKER HILL STREET
CHARLESTOWN, MA
Neshamkin French Architects, Inc.
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Drawn By: AB
Checked By: JF
Date: 12/18/2013
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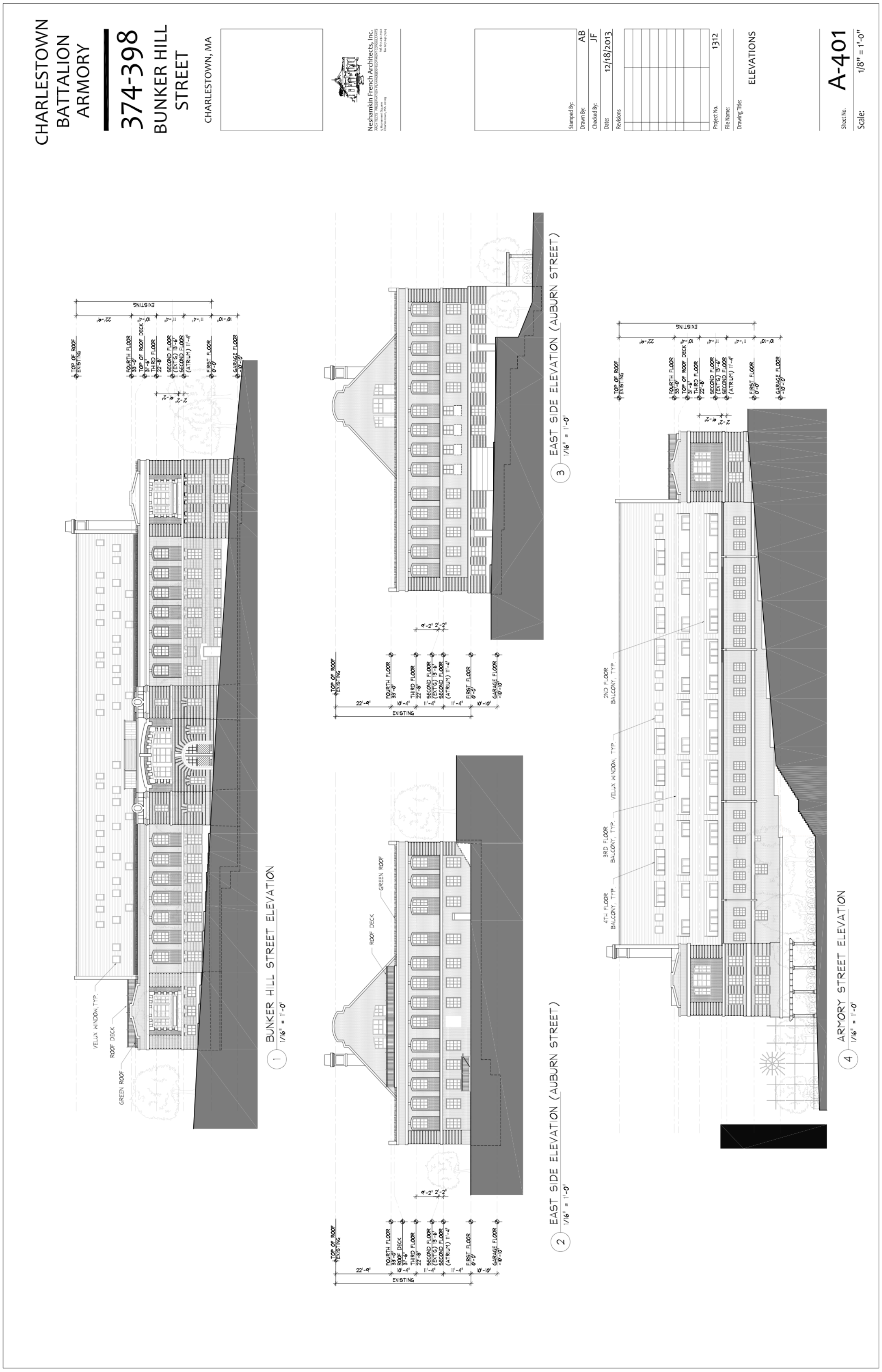
TOP OF ROOF EXISTING
FOURTH FLOOR
THIRD FLOOR
FIRST FLOOR
GARAGE FLOOR
EXISTING
PENTHOUSE DUPLEX
PENTHOUSE DUPLEX
BALCONY
LIVE/WORK LOFTS
TRADITIONAL FLATS
TRADITIONAL FLATS
TRADITIONAL FLATS
DOUBLE HEIGHT ATRIUM
PARKING SPACE
DRIVING AISLE
PARKING SPACE
DRIVING AISLE
TANDEM PARKING SPACE
TANDEM PARKING SPACE
VELUX WINDOW
VELUX WINDOW
VELUX WINDOW
ATRIUM SKYLIGHT



CHARLESTOWN
BATTALION
ARMORY
374-398
BUNKER HILL
STREET
CHARLESTOWN, MA
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Drawn By: AB
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Revisions
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2 EAST SIDE ELEVATION (AUBURN STREET)
3 EAST SIDE ELEVATION (AUBURN STREET)
4 ARMORY STREET ELEVATION

2.0 ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

Article 80 of the Code specifies that the BRA may require a Scoping Determination that defines studies to be prepared by the Proponent to determine the direct or indirect impact to the environment reasonably attributable to a proposed project. The development review components include transportation, environmental protection, urban design, historic resources, and infrastructure systems. Where potential for direct or indirect impacts exist, design measures are required to mitigate the impacts, to the extent economically feasible. The following is an assessment of the potential impacts that could be attributed to the Project and proposed mitigation measures.

2.1 Transportation

Howard/Stein-Hudson Associates, Inc. (HSH) has conducted an evaluation of the transportation impacts of the proposed residential development to be located at 374-398 Bunker Hill Street in Charlestown. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Redevelopment Authority's (BRA) Article 80 development review process. This study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, loading operations, transit services, and pedestrian activity.

2.1.1 Project Description

The Project site is located at 374-398 Bunker Hill Street in Charlestown and is bounded by Bunker Hill Street to the north and residential properties to the east, west, and south as shown in Figure 2-1. The Project site is located between Baldwin Street and Auburn Street and is situated approximately a half-mile from Sullivan Square Station, which serves the Massachusetts Bay Transportation Authority (MBTA) Orange Line and several MBTA bus routes, providing convenient access to multiple transit opportunities. The proximity to Sullivan Square Station and local MBTA bus routes will provide residents of the Project with an alternative non-vehicular mode of transportation that will reduce the vehicular traffic related impacts of the Project.

The site currently contains a vacant two-story brick building with additional atrium space that was previously used as a book depository for the City of Boston library system. Existing parking is provided on the site and is accessed via a curb cut on the western side of the building. The Project will renovate the existing building and will include approximately 42 residential units and 78 parking spaces (76 spaces in a basement level garage and 2 additional spaces located along the exterior of building that will be used for visitor parking). On-site, secure

storage will be provided for approximately 42 bicycles and will be located in the garage.

Vehicular access to the site will be provided by a single driveway that uses the existing curb cut along Bunker Hill Street, approximately 100 feet east of Baldwin Street. Primary pedestrian access to the site will be provided by a main entrance along Bunker Hill Street near the center of the building, with secondary access provided through the garage and along both the easterly and westerly sides of the building. Loading, deliveries, and trash pick-up will take place in front of the building along Bunker Hill Street.

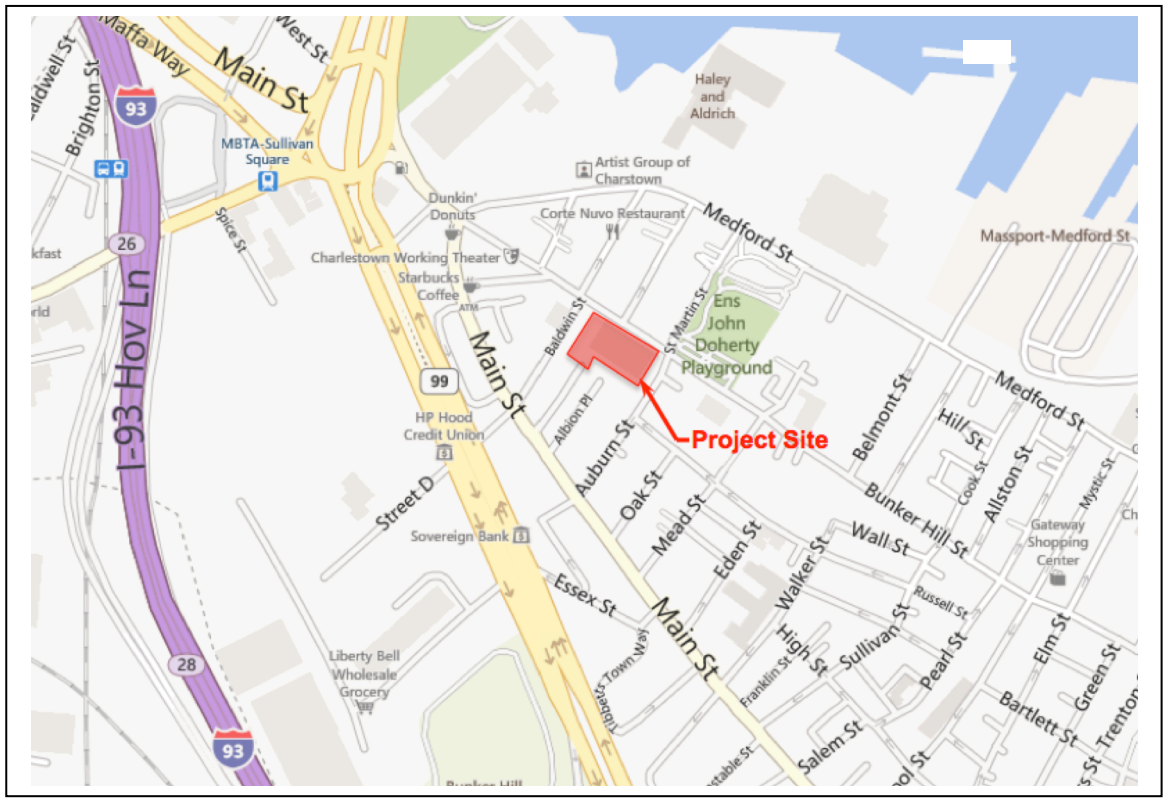
2.1.2 Transportation System

2.1.2.1 Study Area

The study area consists of the following two intersections, also shown on Fig. 2-2:

- Bunker Hill Street/Baldwin Street and
- Bunker Hill Street/Main Street/Medford Street.

Figure 2-1 Project Site



2.1.2.2 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 in February 2014 at the study area intersections. The traffic counts form the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. 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 facilities 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 Project site.

- The 2019 Build conditions scenario includes 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 Project-related impacts and to address any traffic, pedestrian, bicycle, transit, safety, or construction related issues that are necessary to accommodate the Project.

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

Figure 2-2 Study Area Intersections

Howard/Stein-Hudson Associates, Inc.

2.1.3 Existing Conditions

2.1.3.1 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:

Bunker Hill Street

- Is adjacent to the north side of the Project site.
- Is classified as an urban principal arterial roadway.
- Runs in a northwest-southeast direction between Medford Street/Main Street to the northwest and Lowney Way to the southeast.
- Is a two-way roadway with a single travel lane in each direction with parking allowed along both sides in the vicinity of the Project site.
- Sidewalks are provided along both sides of Bunker Hill Street.

Main Street

- Is located south of the Project site.
- Is classified as an urban principal arterial roadway.
- Runs in a northwest-southeast direction between Bunker Hill Street/Medford Street to the northwest and Green Street/Austin Street to the southeast.
- Is a two-way roadway with a single travel lane in each direction with parking allowed along both sides in the vicinity of the Project site.
- Exclusive bicycle lanes are provided along both sides of Main Street, south of Bunker Hill Street.
- Sidewalks are provided along both sides of Main Street.

Medford Street

- Is located north of the Project site.
- Is classified as an urban principal arterial roadway.
- Runs in a northwest-southeast direction between Main Street/Bunker Hill Street to the west and Chelsea Street to the east.
- Is a two-way roadway with a single travel lane in each direction and parking provided along both sides in the vicinity of the Project site.
- Sidewalks are provided along both sides of Medford Street.

Baldwin Street

- Is located to the west of the Project site.
- Is classified as a local road.
- Runs in a north-south direction between Medford Street to the north and Main Street to the south.
- Is a one-way roadway in the northbound direction north of Bunker Hill Street and a one-way roadway in the southbound direction

south of Bunker Hill Street with a single travel lane and parking along both sides.

- Parking is provided along both sides of the roadway.
- Sidewalks are provided along both sides of Baldwin Street.

2.1.3.2 Existing Intersection Conditions

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

Bunker Hill Street/Main Street/Medford Street

- Is a four-legged, unsignalized intersection under BTD jurisdiction.
- The Main Street northbound approach consists of a single travel lane under STOP control that accommodates left-turn, through, and right-turn movements. A raised concrete median is provided to separate the directions of travel along this approach. An exclusive bicycle lane is also provided along this approach.
- The Medford Street southbound approach consists of a single travel lane under STOP control that accommodates left-turn, through, and right-turn movements. A raised concrete island is provided to separate the directions of travel along this approach.
- The Main Street eastbound approach consists of a single travel lane that accommodates left-turn, through, and right-turn movements. A double-yellow centerline is provided to separate the directions of travel along this approach.
- The Bunker Hill Street westbound approach consists of a single travel lane that accommodates left-turn, through, and right-turn movements. A double-yellow centerline is provided to separate the directions of travel along this approach.
- Parking is allowed on both sides of the Medford Street approach to the intersection.
- MBTA bus stops are provided along both sides of Main Street, south of the intersection and along both sides of Bunker Hill Street, east of the intersection.
- Crosswalks are provided across all legs of the intersection.
- Sidewalks are provided along both sides of all approaches.

Bunker Hill Street/Baldwin Street

- Is a four-legged, unsignalized intersection under BTD jurisdiction.
- The Bunker Hill Street eastbound and westbound approaches consist of single travel lanes. The directions of travel along the Bunker Hill approaches are separated by a double yellow centerline.
- Parking is allowed on both sides of Bunker Hill Street.
- Baldwin Street is one-way departing the intersection in both directions and consists of a single travel lane with parking allowed on both sides.
- Crosswalks are provided across all legs of the intersection.
- Sidewalks are provided along both sides of all approaches.

2.1.3.3 Existing Traffic Conditions

Traffic movement data was collected at the study area intersections on Wednesday February 12, 2014. 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.

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 7:45 – 8:45 a.m. and 4:45 – 5:45 p.m. The detailed traffic counts are provided in the Appendix.

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 February 2014 TMCs. The 2011 seasonal adjustment factor for February for roadways similar to the study area is 1.01, which indicates that average month traffic volumes are approximately one percent higher than typical February traffic volumes. The traffic counts were adjusted upward by one percent to reflect average month conditions. The 2014 Existing weekday a.m. and p.m. peak hour traffic volumes are shown in **Figure 2-3** and **Figure 2-4**, respectively.

Figure 2-3 Existing Conditions (2013) Turning Movement Volumes, a.m. Peak Hour (7:45 – 8:45 a.m.)

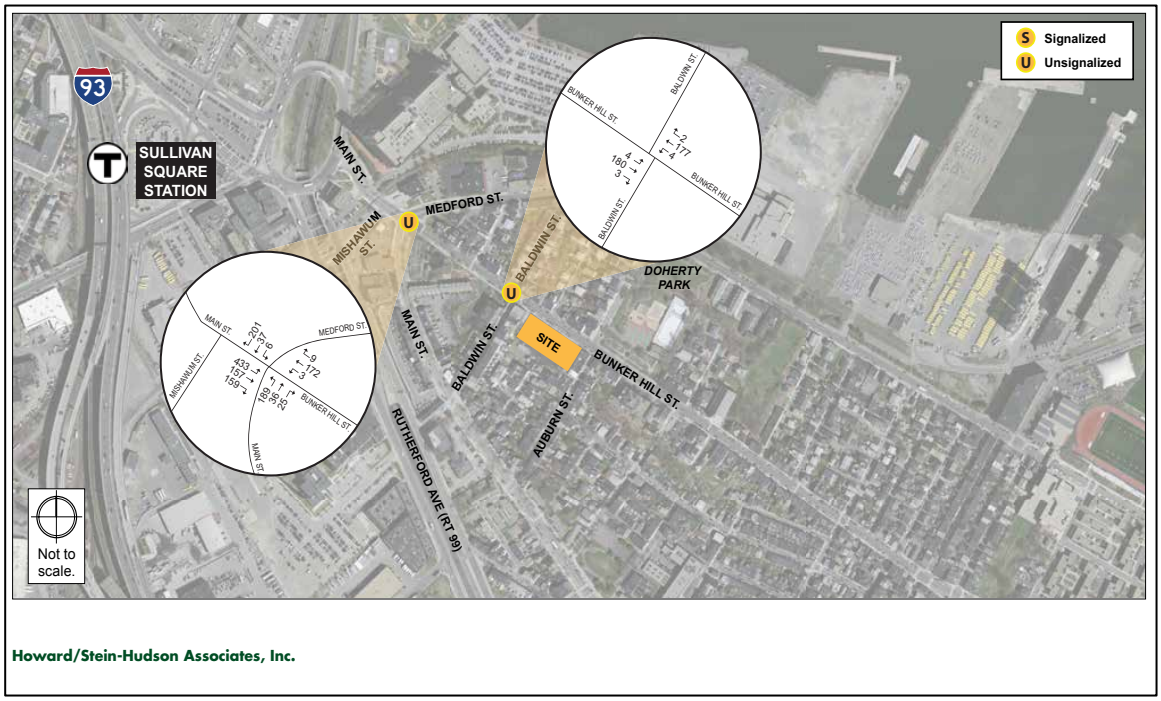


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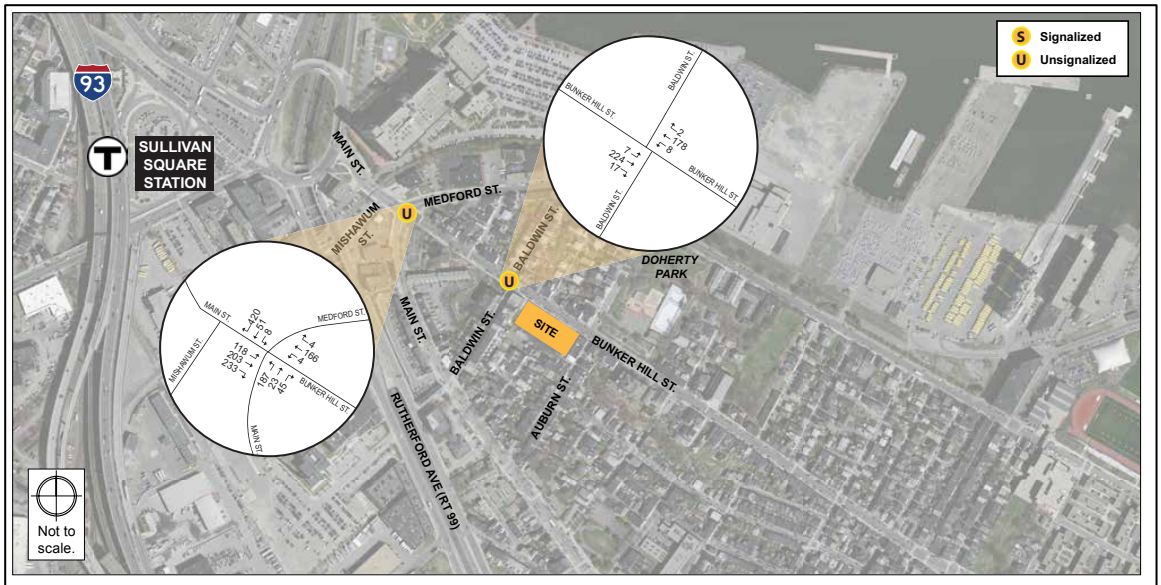
Figure 2-4 Existing Conditions (2013) Turning Movement Volumes, p.m. Peak Hour (4:45 – 5:45 p.m.)



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2.1.3.4 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.

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. **Table 2-1** 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 2-1 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 2-2 presents the 2014 Existing Conditions Operational Analysis for the study area intersections during the a.m. and p.m. peak hours. The detailed analysis sheets are provided in the Appendix.

As shown in **Table 2-2**, the side street movements at the intersection of Bunker Hill Street/Main Street/Medford Street currently operate at LOS F with moderate to extensive queuing along both approaches during both the a.m. and p.m. peak hours. The HCM analysis for unsignalized intersections assumes more conservative parameters than what is typically experienced in an urban environment, such as the critical gap[1] and may report results that are worse than actual operating conditions. Field observations indicate that the Synchro analysis shown in **Table 2-2** may overstate the delay and queues along the STOP controlled approaches at the intersection. The field observations also indicate that during periods of congestion, the major street movements will occasionally yield to the side street movements to allow vehicles to enter the intersection.

The movements at the intersection of Bunker Hill Street/Baldwin Street currently operate at LOS A during both the a.m. and p.m. peak hours with minimal queuing.

[1] The critical gap is the minimum length of time interval in the major street traffic stream that allows intersection entry for one minor street vehicle.

Table 2-2 Existing Conditions (2014), Capacity Analysis Summary

Intersection	LOS	Delay (seconds)	V/C Ratio	95th Percentile Queue Length (ft)
a.m. Peak Hour				
Bunker Hill Street/Main Street/Medford Street				
Main Street EB left/thru/right	A	7.3	0.38	45
Bunker Hill Street WB left/thru/right	A	0.2	0.00	0
Main Street NB left/thru/right	F	>50.0	>1.00	*
Medford Street SB left/thru/right	F	>50.0	>1.00	462
Bunker Hill Street/Baldwin Street				
Bunker Hill Street EB left/thru/right	A	0.3	0.01	0
Bunker Hill Street WB left/thru/right	A	0.3	0.01	0
p.m. Peak Hour				
Bunker Hill Street/Main Street/Medford Street				
Main Street EB left/thru/right	A	2.7	0.10	9
Bunker Hill Street WB left/thru/right	A	0.4	0.01	1
Main Street NB left/thru/right	F	>50.0	>1.00	*
Medford Street SB left/thru/right	F	>50.0	0.97	325
Bunker Hill Street/Baldwin Street				
Bunker Hill Street EB left/thru/right	A	0.4	0.01	1
Bunker Hill Street WB left/thru/right	A	0.7	0.01	1

- The v/c ratio is outside the acceptable limits for Synchro to calculate the 95th percentile queue.

2.1.3.5 Existing Parking and Curb Usage

On-street parking surrounding the Project site generally consists of resident parking and two-hour parking. Bunker Hill Street, adjacent to the site, is currently signed as Charlestown resident parking between the hours of 8:00 a.m. and 8:00 p.m. and unrestricted for the remainder of the day. West of the site, Bunker Hill Street is signed as two-hour parking between the hours of 8:00 a.m. and 6:00 p.m. and unrestricted for the remainder of the day. The existing parking occupancy for the on-street parking spaces in the vicinity of the Project site is generally is generally very high based on field observations. The high occupancy rate of the on-street parking spaces in the vicinity of the Project site indicates that additional off-street parking spaces will be necessary to accommodate new residential developments in the area. The on-street parking regulations within the study area are shown on **Figure 2-5**.

2.1.3.6 Existing Public Transportation

The Project site is ideally situated to take advantage of several public transportation opportunities and is located about a half-mile from Sullivan Square Station, which provides access to the MBTA Orange Line and MBTA bus routes. MBTA bus routes 92 and 93 also travel in the vicinity of the site through the intersection of Bunker Hill Street/Main Street/Medford Street, with bus stops located at the intersection. **Table 2-3** describes each public transportation route located in the vicinity of the Project site, with a map of the nearby public transportation services shown in **Figure 2-6**.

Table 2-3 Public Transportation Services

MBTA Transit Service	Description	Peak-Hour Headway (minutes)
Orange Line	Oak Grove – Forest Hills	6 minutes
Bus Route 86	Sullivan Sq. Station – Reservoir Station (Cleveland Circle)	~15 minutes
Bus Route 89	Clarendon Hill/Davis Sq. – Sullivan Sq. Station	~18 minutes
Bus Route 90	Davis Sq. – Wellington Station	~40 minutes
Bus Route 91	Sullivan Sq. Station – Central Sq. (Cambridge)	~25 minutes
Bus Route 92	Assembly Sq. Mall – Downtown via Sullivan Sq. Station	~15 minutes
Bus Route 93	Sullivan Sq. Station – Downtown	7 minutes
Bus Route 95	West Medford – Sullivan Sq. Station	20 minutes
Bus Route 101	Malden Center Station – Sullivan Sq. Station	6 minutes
Bus Route 104	Malden Center Station – Sullivan Sq. Station	~15 minutes
Bus Route 105	Malden Center Station – Sullivan Sq. Station	~30 minutes
Bus Route 109	Linden Sq. – Sullivan Sq. Station	~15 minutes
Bus Route CT2	Sullivan Sq. Station – Ruggles Station	20 minutes

Figure 2-5 On-street Parking in the Study Area

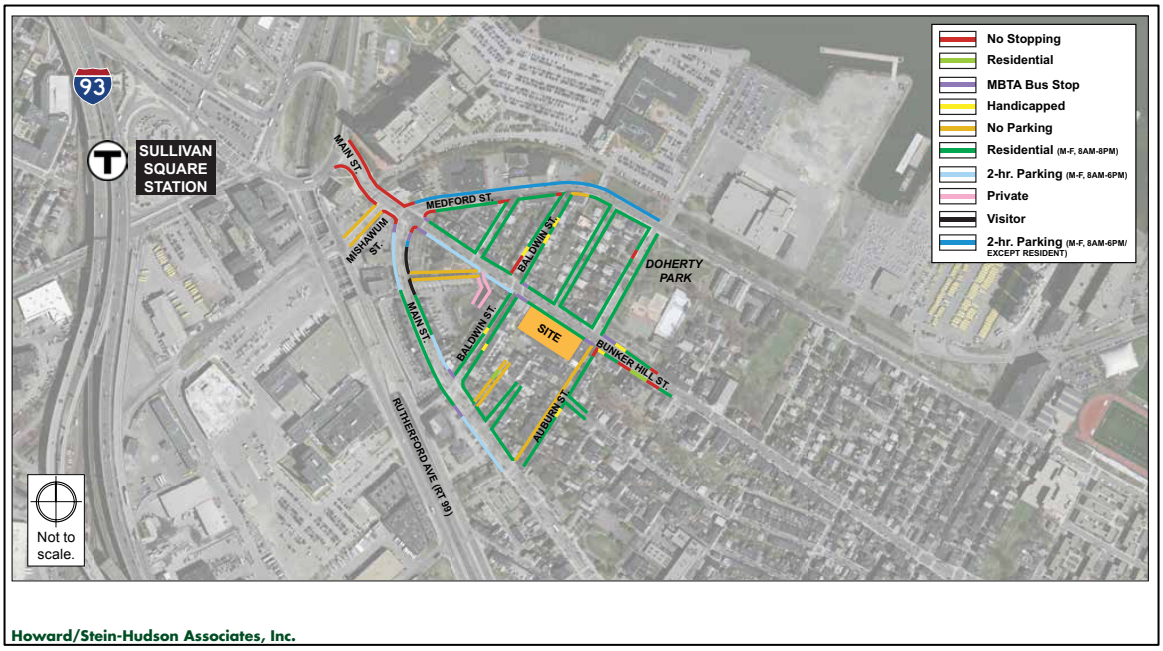

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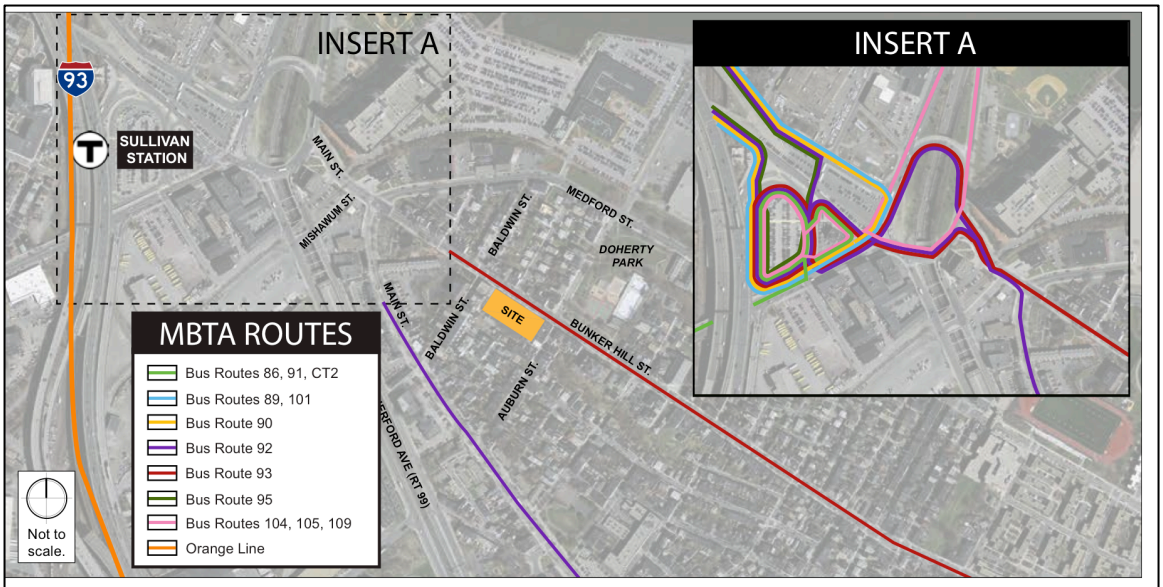
Figure 2-6 Public Transportation in the Study Area



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2.1.3.7 Existing Pedestrian Conditions

The Project site is located adjacent to Bunker Hill Street in Charlestown. Sidewalks are provided along all streets within the study area and crosswalks are provided at the study area intersections. The sidewalks along Bunker Hill Street supply adequate capacity for the existing level of pedestrian activity, being approximately 8 to 10 feet in width, and are generally in good condition. A signalized crosswalk is also located across Bunker Hill Street, southeast of the site, which provides access to Doherty Park. Bunker Hill Street provides the primary pedestrian route between the Project site and Sullivan Square Station, traversing the rotary at Sullivan Square, which is a difficult maneuver for pedestrians, especially during the peak periods of traffic and during the evening hours.

To estimate the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs at the study area intersections and are presented in **Figure 2-7**. As shown on **Figure 2-7**, the heaviest pedestrian movements are along Bunker Hill Street.

2.1.3.8 Existing Bicycle Facilities

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is located along Bunker Hill Street and in proximity to Main Street and Medford Street in Charlestown. Bicycle lanes are provided along both sides of Main Street, south of Bunker Hill Street. The Charlestown Waterfront Bike Path is also located east of the Project site in Charlestown and is a multi-use path that travels along the Charlestown waterfront. Along with the Charlestown Waterfront Bike Path, the following roadways within the study area are designated bicycle routes on the City of Boston's "Bike Routes of Boston" map:

- **Main Street** is designated as an intermediate route suitable for riders with some on-road experience. Exclusive bicycle lanes are also provided along Main Street.

- **Medford Street** is designated as a beginner route suitable for all types of bicyclists.

Bicycle counts were conducted concurrent with the vehicular TMCs and are presented in **Figure 2-8**. As shown in **Figure 2-8**, bicycle volumes are generally light around the Project site. The counts were conducted in February and the overall level of bicycle activity is most likely higher during other parts of the year.

Figure 2-7 Existing Conditions (2014) Pedestrian Volumes, a.m. and p.m. Peak Hours

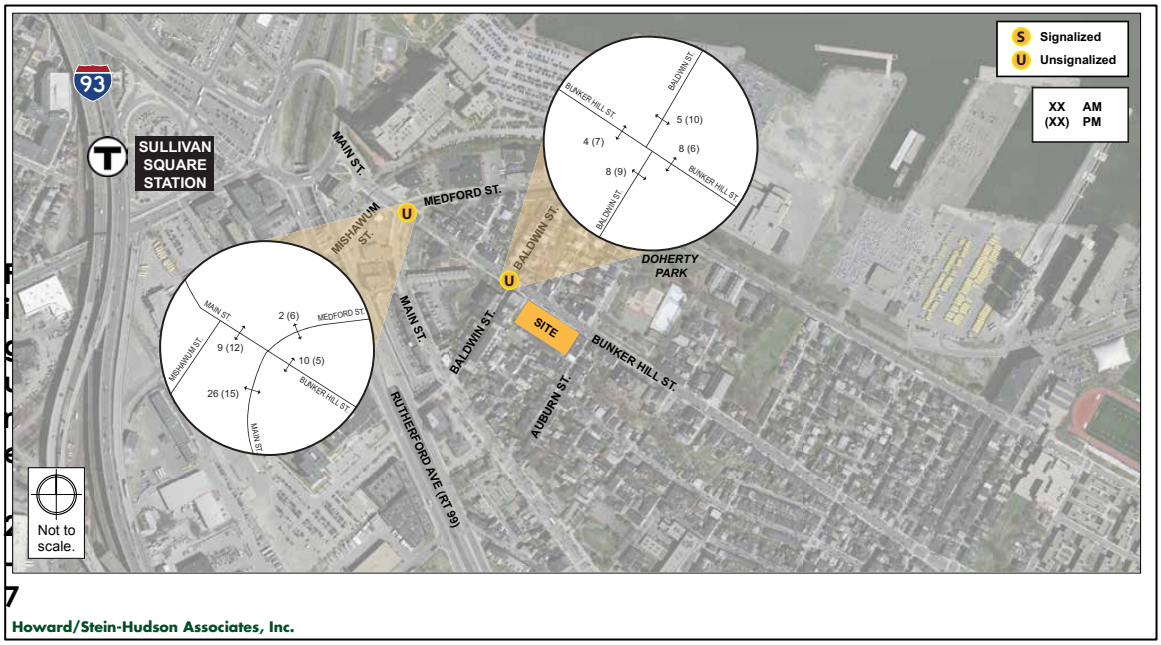
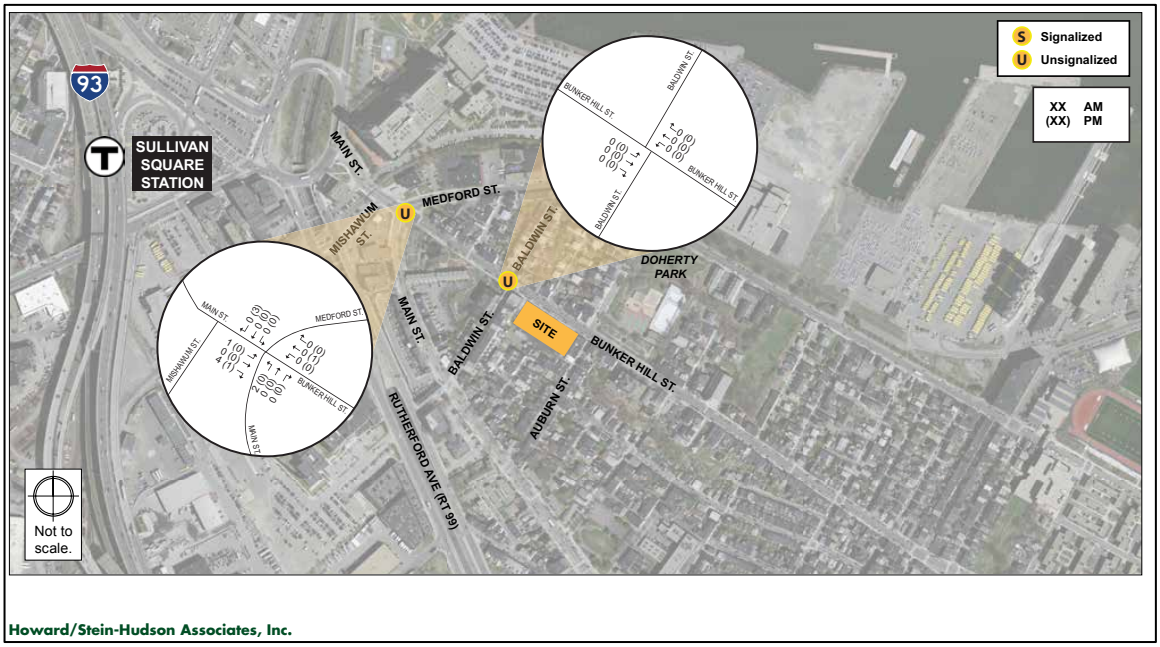


Figure 2-8 Existing Conditions (2014) Bicycle Volumes, a.m. and p.m. Peak Hours



2.1.3.9 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. There is currently one car sharing location with a total of one vehicle in proximity to the Project located at the Hood Office Park, west of the site.

2.1.4 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 this 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.

2.1.4.1 No Build Conditions

The No Build conditions reflect a future scenario that incorporates any anticipated traffic volume changes independent of the 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 Project.

2.1.4.1.1 Background Traffic Growth

The methodology to account for future traffic growth, independent of the 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-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. The following proposed projects are located in the vicinity of the study area:

- **Hood Business Park** – This development consists of the construction of a 143,000 sf office building within the Hood Business Park located at 480 Rutherford Avenue, southwest of the Project site. This project has been reviewed and approved by the BRA.

- **Bridgeview Center** – This development consists of the construction of 60 affordable rental apartment units and 10,000 sf of space for office-related uses located at 400 Rutherford Avenue, southwest of the Project site. This project has been reviewed and approved by the BRA.

- **Sullivan Square Disposition Study** – The BRA and the Metropolitan Area Planning Council (MAPC) are currently in the process of developing a land use vision for newly created parcels located in and around Sullivan Square. The newly created parcels will be created by the reconfiguration of Rutherford Avenue and Sullivan Square. While there are currently no specific proposals for development, it is envisioned that the parcels in and around Sullivan Square will contain a mix of residential, retail, restaurant, and office uses.

The projects listed above are not expected to have any significant vehicular traffic impacts at the study area intersections within the next five years. Traffic volumes associated with the projects were assumed to be accounted for in the general background growth rate.

The one-percent per year annual growth rate was applied to the 2014 Existing conditions traffic volumes 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.

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

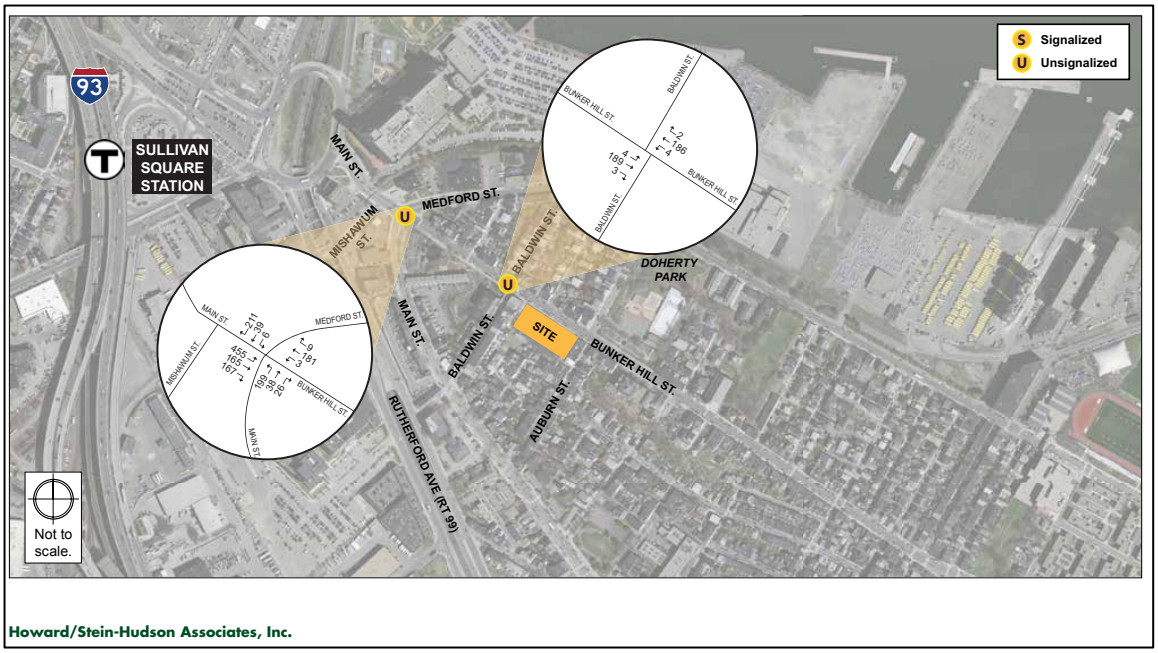
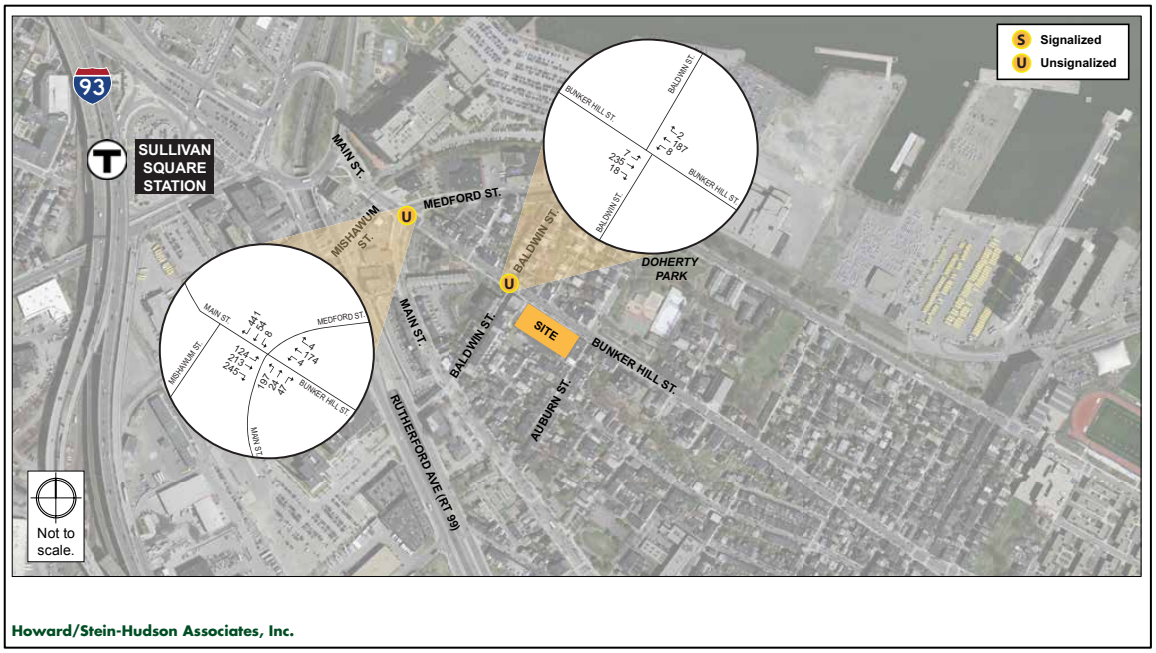


Figure 2-10 No Build Conditions (2019) Turning Movement Volumes, p.m. Peak Hour



2.1.4.1.2 Proposed Infrastructure Improvements

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

Rutherford Avenue/Sullivan Square Design Project

The BTD is currently in the process of preparing a roadway design for the Rutherford Avenue Corridor and for Sullivan Square. The design focuses on developing a pedestrian friendly environment with safe crossings and better access to parks and Orange Line stations; routing regional traffic away from the corridor and creating neighborhood scale streets; providing links to the regional bicycle network; creating parcels for development and open space; and developing a phased implementation plan. This project is also considering the elimination of the Rutherford Avenue underpass that currently exists under Sullivan Square.

2.1.4.1.3 No Build Conditions Traffic Operations

The 2019 No Build conditions scenario analysis uses the same methodology as the 2014 Existing conditions scenario analysis. **Table 2-4** presents the 2019 No Build conditions operations analysis for the a.m. and p.m. peak hours. The detailed analysis sheets are provided in the Appendix.

As shown in **Table 2-4**, the side street movements at the intersection of Bunker Hill Street/Main Street/Medford Street will continue to operate poorly with moderate to extensive queuing along both approaches during both the a.m. and p.m. peak hours. As previously discussed, the field observations indicate that this intersection operates better than the analysis indicates, but still experiences congestion during the peak periods.

The movements at the intersection of Bunker Hill Street/Baldwin Street will continue to operate at LOS A during both the a.m. and p.m. peak hours.

Table 2-4 No Build Conditions (2019), Capacity Analysis Summary

Intersection	LOS	Delay (seconds)	V/C Ratio	95th Percentile Queue Length (ft)
a.m. Peak Hour				
Bunker Hill Street/Main Street/Medford Street				
Main Street EB left/thru/right	A	7.1	0.37	43
Bunker Hill Street WB left/thru/right	A	0.2	0.00	0
Main Street NB left/thru/right	F	>50.0	>1.00	*
Medford Street SB left/thru/right	F	>50.0	1.04	271
Bunker Hill Street/Baldwin Street				
Bunker Hill Street EB left/thru/right	A	0.2	0.00	0
Bunker Hill Street WB left/thru/right	A	0.2	0.00	0
p.m. Peak Hour				
Bunker Hill Street/Main Street/Medford Street				
Main Street EB left/thru/right	A	2.6	0.10	9
Bunker Hill Street WB left/thru/right	A	0.2	0.00	1
Main Street NB left/thru/right	F	>50.0	>1.00	*
Medford Street SB left/thru/right	D	34.3	0.85	233
Bunker Hill Street/Baldwin Street				
Bunker Hill Street EB left/thru/right	A	0.3	0.01	0
Bunker Hill Street WB left/thru/right	A	0.4	0.01	1

* The v/c ratio is outside the acceptable limits for Synchro to calculate the 95th percentile queue.

2.1.4.2 Build Conditions

As previously summarized, the Project will renovate the existing building at 374-398 Bunker Hill Street and will consist of approximately 42 residential apartment units. A total of approximately 78 parking spaces will be provided on-site (76 in a basement level garage and 2 additional spaces located along the exterior of the building that will be used for visitor parking). On-site, secure storage will be provided for approximately 42 bicycles will be located in the garage.

2.1.4.2.1 Site Access and Circulation

As shown in the Project site plan in **Figure 2-11**, access will be provided to a parking garage by a single driveway located along Bunker Hill Street, approximately 100 feet east of Baldwin Street.

Loading and service, including trash, recycling, and deliveries will be minimal and will take place in front of the building along Bunker Hill Street.

Primary pedestrian access to the residential component will be provided by an entrance along Bunker Hill Street near the center of the building, with secondary access provided through the garage and along both the easterly and westerly sides of the building.

Figure 2-11 Project Site Plan

2.1.4.2.2 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.

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

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

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. The Apartment land use code was selected because it has slightly higher trip generation rates than the other similar residential land uses provided in the *Trip Generation Manual* and presents a more conservative scenario.

2.1.4.2.3 Mode Share

The BTD publishes vehicle, transit, and walking/bicycling mode split rates for different areas of Boston. The Project site is located within BTD's designated Area 11, which encompasses the entirety of Charlestown. The mode splits for the Project site may vary from the overall mode splits for Area 11 due to the proximity of public transportation opportunities. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[3]. The BTD's travel mode share data for Area 11 are shown in **Table 2-5**.

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[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 2-5 Travel Mode Shares

Land Use	Direction	Walk/ Bicycle Share	Transit Share	Auto Share	Vehicle Occupancy Rate
Daily					
Residential	In	35%	19%	46%	1.13
	Out	35%	19%	46%	1.13
a.m. Peak Hour					
Residential	In	42%	23%	35%	1.13
	Out	32%	31%	37%	1.13
p.m. Peak Hour					
Residential	In	32%	31%	37%	1.13
	Out	42%	23%	35%	1.13

2.1.4.2.4 Trip Generation

The mode share percentages shown in **Table 2-5** were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates. The existing uses on the Project site currently do not generate traffic volumes and were not accounted for in the trip generation estimates. The trip generation for the Project by mode is shown in **Table 2-6**. The detailed trip generation information is provided in the Appendix.

Table 2-6 Project Trip Generation

Land Use		Walk/Bicycle Trips	Transit Trips	Vehicle Trips
Daily				
Residential[1]	In	55	30	65
42 units	Out	55	30	65
a.m. Peak Hour				
Residential[1]	In	2	1	2
42 units	Out	6	6	6
p.m. Peak Hour				
Residential[1]	In	6	6	6
42 units	Out	4	2	4

[1]Based on ITE LUC 220 – Apartments for 42 units.

2.1.4.2.5 Vehicle Trip Generation

To develop the overall trip generation characteristics, the adjusted vehicular trips associated with the Project were estimated. The Project-generated new vehicle

trips are summarized in **Table 2-7**, with the detailed trip generation information provided in the Appendix.

Table 2-7 Project Vehicle Trip Generation

Time Period	Direction	Residential [1]
Daily	In	65
	Out	65
	Total	**130**
a.m. Peak Hour	In	2
	Out	6
	Total	**8**
p.m. Peak Hour	In	6
	Out	4
	Total	**10**

[1]Based on ITE LUC 220 – Apartments for 42 units.

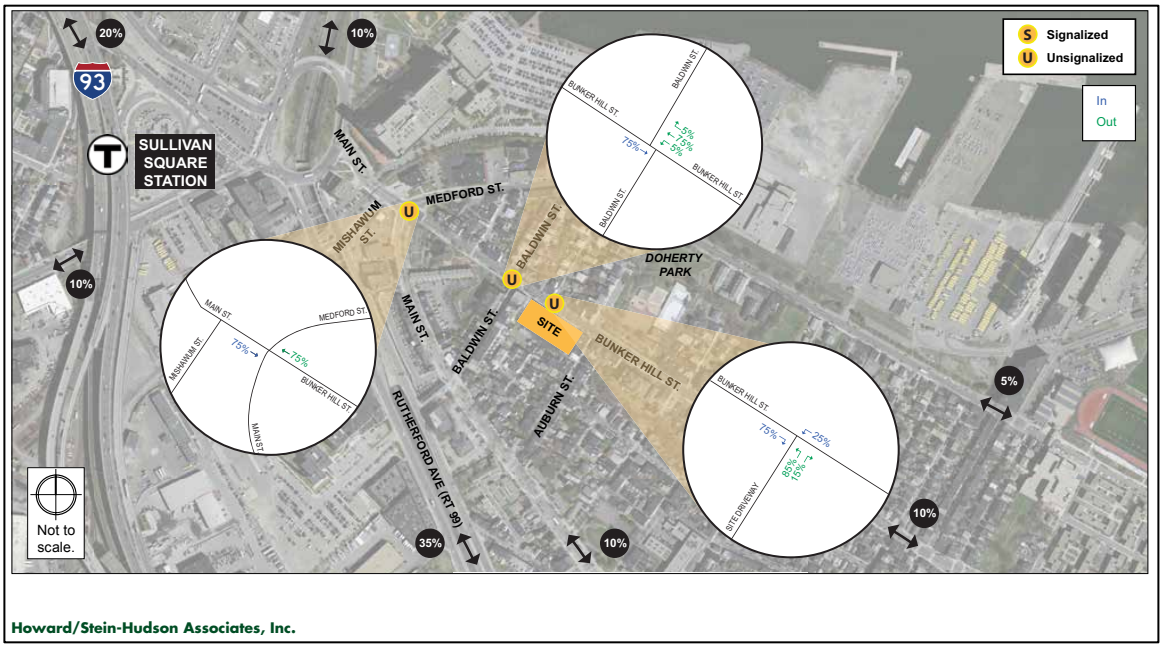
As shown in **Table 2-7**, the Project is expected to generate approximately 130 new daily vehicle trips (65 entering and 65 exiting), with 8 new vehicle trips (2 entering and 6 exiting) during the a.m. peak hour and 10 new vehicle trips (6 entering and 4 exiting) during the p.m. peak hour.

2.1.4.2.6 Trip Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Project site. Trip distribution patterns for the Project were based on BTD's origin-destination data for Area 11. The origin-destination data specifies the percentage of trips traveling between Charlestown and other areas within Boston and the metropolitan area. The trip distribution patterns for the Project are illustrated in **Figure 2-12**.

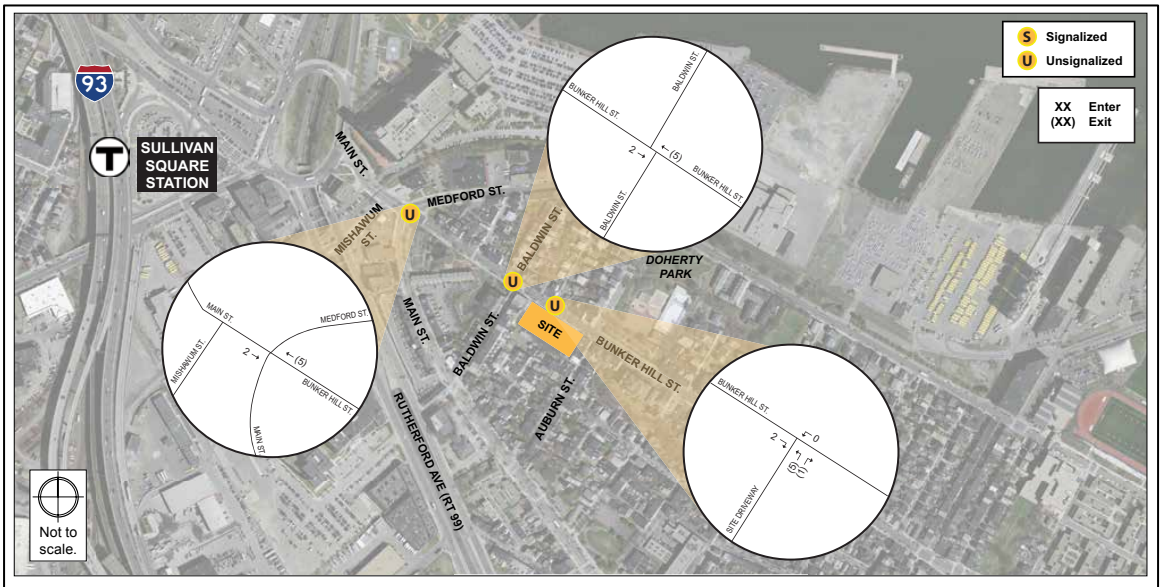
The Project-generated vehicle trips were assigned to the study area roadway network based on the trip distribution patterns shown in **Figure 2-12**, and are shown in **Figure 2-13** and **Figure 2-14** for the a.m. and p.m. peak hours, respectively. The Project-generated trips were added to the 2019 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.

Figure 2-12 Trip Distribution



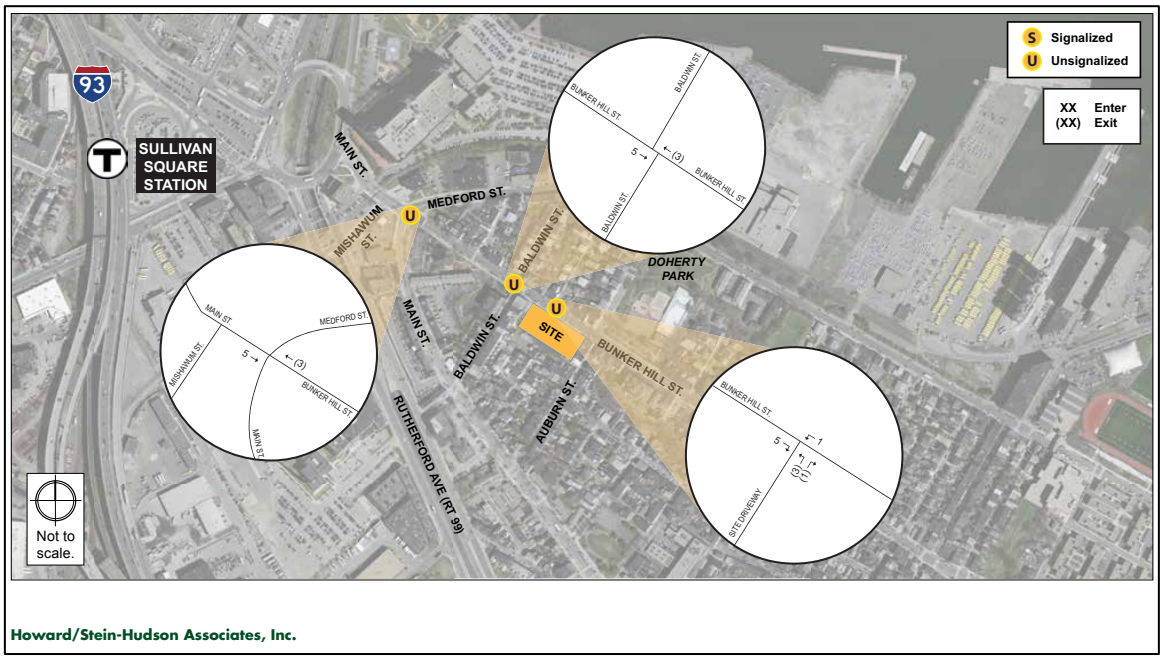
Howard/Stein-Hudson Associates, Inc.

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



Howard/Stein-Hudson Associates, Inc.

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

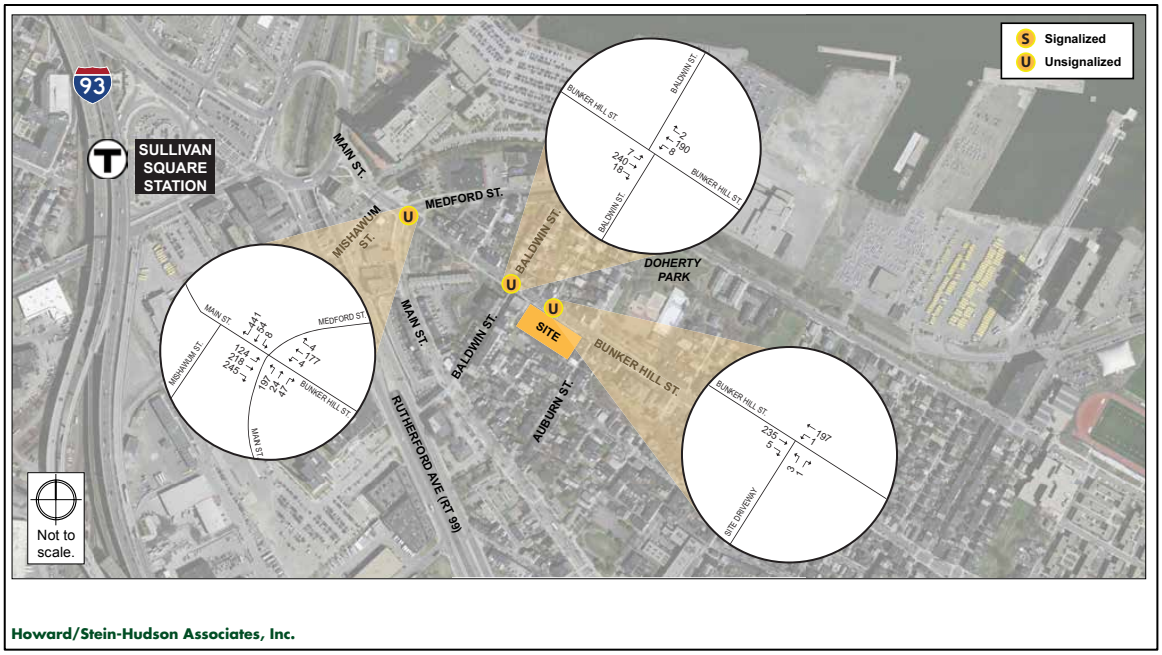


Howard/Stein-Hudson Associates, Inc.

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

Howard/Stein-Hudson Associates, Inc.

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



Howard/Stein-Hudson Associates, Inc.

2.1.4.2.7 Build Conditions Traffic Operations

The 2019 Build conditions scenario analyses use 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 2-8** for the a.m. and p.m. peak hours. The detailed analysis sheets are provided in the Appendix.

Table 2-8 Build Conditions (2019), Capacity Analysis Summary

Intersection	LOS	Delay (seconds)	V/C Ratio	95th Percentile Queue Length (ft)
a.m. Peak Hour				
Bunker Hill Street/Main Street/Medford Street				
Main Street EB left/thru/right	A	7.1	0.37	43
Bunker Hill Street WB left/thru/right	A	0.2	0.00	0
Main Street NB left/thru/right	F	>50.0	>1.00	*
Medford Street SB left/thru/right	F	>50.0	>1.00	265
Bunker Hill Street/Baldwin Street				
Bunker Hill Street EB left/thru/right	A	0.2	0.00	0
Bunker Hill Street WB left/thru/right	A	0.2	0.00	0
Bunker Hill Street/Site Driveway				
Bunker Hill Street EB thru/right	A	0.0	0.12	0
Bunker Hill Street WB left/thru	A	0.0	0.00	0
Site Driveway NB left/right	B	10.8	0.01	1
p.m. Peak Hour				
Bunker Hill Street/Main Street/Medford Street				
Main Street EB left/thru/right	A	2.6	0.10	9
Bunker Hill Street WB left/thru/right	A	0.2	0.00	1
Main Street NB left/thru/right	F	>50.0	>1.00	*
Medford Street SB left/thru/right	D	35.1	0.85	237
Bunker Hill Street/Baldwin Street				
Bunker Hill Street EB left/thru/right	A	0.3	0.01	0
Bunker Hill Street WB left/thru/right	A	0.4	0.01	1
Bunker Hill Street/Site Driveway				
Bunker Hill Street EB thru/right	A	0.0	0.15	0
Bunker Hill Street WB left/thru	A	0.0	0.00	0
Site Driveway NB left/right	B	11.1	0.01	1

* The v/c ratio is outside the acceptable limits for Synchro to calculate the 95th percentile queue.

As shown in **Table 2-8**, the side street movements at the intersection of Bunker Hill Street/Main Street/Medford Street will continue to operate poorly with moderate

to extensive queuing along both approaches during both the a.m. and p.m. peak hours with the addition of the Project; however, the Project will have negligible impact at the intersection due to the low vehicular trip generation. The movements at the intersection of Bunker Hill Street/Baldwin Street will continue to operate at LOS A during both the a.m. and p.m. peak hours. The site driveway is expected to operate at LOS B during both the a.m. and p.m. peak hours with minimal queuing.

2.1.4.2.8 Parking

This section presents the Project's parking supply and an evaluation of the Project's parking demand. The Project will provide a total of approximately 76 parking spaces in a basement level garage and 2 additional spaces located along the exterior of the building that will be used for visitor parking, resulting in a parking ratio of 1.8 spaces per unit. This proposed parking supply is sufficient to ensure that residents of the Project will not need to park on the heavily used residential streets in the vicinity of the Site. No change in curb usage along Bunker Hill Street will be necessary to accommodate the Project.

2.1.4.2.9 Public Transportation

As previously discussed, the Project is ideally situated to take advantage of nearby public transportation opportunities. Sullivan Square Station is located less than a half-mile from the Project site and provides access to the MBTA Orange Line and several MBTA bus routes. MBTA bus route 93 also travels along Bunker Hill Street with stops immediately adjacent to the Project site, providing convenient access to downtown Boston. Based on the transit mode shares presented earlier, the future transit trips associated with the Project were estimated and are summarized in **Table 2-9**.

Table 2-9 Project Transit Trips

Time Period	Direction	Residential [1]
Daily	In	30
	Out	30
	Total	**60**
a.m. Peak Hour	In	1
	Out	6
	Total	**7**
p.m. Peak Hour	In	6
	Out	2
	Total	**8**

[1]Based on ITE LUC 220 – Apartments for 42 units.

As shown in **Table 2-9**, the Project will generate an estimated 60 new transit trips on a daily basis. Approximately 7 new transit trips (1 alighting and 6 boarding) will occur during the a.m. peak hour and 8 new trips (6 alighting and 2 boarding) will occur during the p.m. peak hour. The majority of these transit trips will be accommodated by the MBTA bus routes 92 and 93 and the Orange Line at Sullivan Square Station.

2.1.4.2.10 Pedestrians

Based on the walk mode shares presented earlier, the future walk trips were estimated and are summarized in **Table 2-10**.

Table 2-10 Project Pedestrian Trips

Time Period	Direction	Residential [1]
Daily	In	55
	Out	55
	Total	**110**
a.m. Peak Hour	In	2
	Out	6
	Total	**8**
p.m. Peak Hour	In	6
	Out	4
	Total	**10**

1 Based on ITE LUC 220 – Apartments for 42 units.

Over the course of a day, the Project will generate an estimated 110 new pedestrian trips and an additional 60 new transit trips that will require a walk to or from the site. This results in an additional 170 new pedestrian trips per day. Approximately 8 new pedestrian trips will occur during the a.m. peak hour and 10 new pedestrian trips will occur during the p.m. peak hour in addition to the transit trips that will also require a walk from the site. The pedestrian facilities surrounding the site have adequate capacity to accommodate the pedestrian trips generated by the Project.

The Proponent is proposing to upgrade all sidewalks that are immediately adjacent to the Project site in accordance with the City of Boston's Complete Streets guidelines. These improvements will enhance the overall pedestrian network along Bunker Hill Street and will provide additional benefit to residents and businesses in the vicinity of the Project.

In addition to the improvements to the adjacent sidewalks, the long-term improvements at Sullivan Square will serve to provide better connectivity throughout Charlestown and safer pedestrian access to the MBTA Sullivan Square Station.

2.1.4.2.11 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure covered bicycle parking for residents and employees, and short-term bicycle racks for visitors. The Project will provide approximately 42 covered and secure bicycle storage spaces on-site in the garage. 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, secure locations. The Proponent will work with BTD to identify the most appropriate quantity and location for bicycle racks on the Project site as part of the Transportation Access Plan Agreement process.

2.1.4.2.12 Loading and Service Activity

All loading, service, and trash/recycling activity will take place along Bunker Hill Street. Move-in/move-out activity will also take place along Bunker Hill Street or along the site driveway in the visitor spaces. Residents can obtain street occupancy permits from the City of Boston to reserve curb space for moving purposes. The level of loading and service activity at the site is expected to be minimal and will have minimal impact to the public sidewalk, parking activity, and roadway.

A summary of anticipated loading/service activity by land use is presented below. Delivery trip estimates were 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 Project site will be limited to SU-36 trucks and smaller delivery vehicles.

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

The Project is expected to generate approximately 1 to 2 deliveries per day. 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 Bunker Hill Street.

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

2.1.5 Transportation Mitigation Measures

While the traffic impacts associated with the new trips are minimal, the Proponent will continue to 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 Project, the Proponent will bring all abutting sidewalks and pedestrian ramps to the City of Boston standards in accordance with the Boston Complete Streets design guidelines. This will include the reconstruction and widening of the sidewalks where possible, the installation of new, accessible ramps, improvements to street lighting where necessary, and providing bicycle storage racks surrounding the site, where appropriate.

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

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 Project. See **Section 2.1.9** for additional information related to the CMP.

2.1.6 Transportation Demand Management

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

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 good 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 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 and bicycle sharing locations. On-site management will work with residents 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. Secure bicycle storage will also be made available to employees to encourage bicycling as an alternative mode of transportation. 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 Charging Stations**: The Proponent will provide a total of two electric 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 spaces in the garage for a car sharing service.

2.1.7 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 Construction Management Plan (CMP) to be filed with BTD in accordance with the City's transportation maintenance plan requirements. A summary of the CMP content has been provided in Construction Impacts (Section 2.2.11) and addresses the need for pedestrian detours, lane closures, and/or parking restrictions, if necessary to accommodate a safe and secure work zone.

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

2.1.8 Construction Management

A Construction Management Plan will address construction-period issues and will be submitted by the general contractor to BTD in support of the building permit application. The Construction Management Plan will cover issues including truck routes, occupancy of public ways, noise and dust attenuation and hours of construction activity.

APPENDIX (see attached CD)

- Turning movement traffic counts
- Synchro traffic analysis files
- Trip generation calculations

2.2 Environmental Protection

2.2.1 Wind

The objective of a Wind Assessment is to determine the effect a proposed development would have on the pedestrian level winds in the vicinity of the Project. The primary criteria used to determine impacts are the surrounding terrain and the height and façade treatment of a proposed building.

The Project will be retaining the existing building massing and as a result will not be altering existing pedestrian level winds at the lower levels of a building. As a result, quantitative and qualitative wind studies would not be required

2.2.2 Shadow

The Project will be retaining the existing building massing and as a result will not be altering existing shadows on the adjacent sidewalks and public ways. As a result, shadow studies should not be required.

2.2.3 Daylight

The purpose of the daylight study is to estimate the extent to which the Proposed Project restricts the amount of light reaching the streets or pedestrian ways in the immediate vicinity of the Project Site. The Project will be retaining the existing building massing and as a result will not be altering existing daylight obstruction and will have no new impact on the sky dome. As a result, a BRADA study should not be required.

2.2.4 Solar Glare

The Solar Glare Analysis is intended to measure potential glare from buildings onto streets, public spaces and sidewalks in order to determine the potential visual impact or discomfort due to reflective spot glare as well as heat build-up on adjacent buildings. This analysis is required if a proposed project incorporates substantial glass facades as a part of the design.

The Project is not expected to have adverse solar impacts for several reasons. The Project will not significantly alter the percentage of glazing on the exterior façade. The new glazing will be limited to window area cut into the roof for new units inserted into these areas. As these picked roofs are not visible from the public ways they cannot create solar glare. Also, the Project will no be using reflective glass or other reflective materials.

With regard to solar gain impacts, the adjacent residential buildings are similar in height to the base of the existing structure so any reflectance from the windows is unlikely to reach those structures. Since reflected materials are not planned for the roof area or any new or existing window openings that might be attributed to reflecting sunlight on to adjacent structures, it would not be possible for the redevelopment to create significant solar impact and those created would be similar to the existing condition. As a result, solar reflectance from the building would be limited.

Since the Project will not use reflective glass or other reflective materials on the building facades, there should not be any adverse impacts from reflected solar glare on adjacent buildings, streets and sidewalks.

2.2.5 Air Quality

Potential long-term air quality impacts are generally attributed to emissions from project-related mechanical equipment and pollutant emissions from vehicular traffic attributed to the proposed development.

HVAC Equipment will be gas-fired boilers that would not create elevated carbon monoxide levels and would not trigger microscale air quality analysis.

Regarding potential vehicle related impacts, the traffic analysis (Section 2.1) does show that the Main/Bunker Hill/Medford intersection has a failing level of service. However, since this LOS is a preexisting condition and the Project will not result in more than a 10% increase of volume at that intersection, the build condition will not meet the DEP/BRA criteria for a microscale analysis to determine potential exceedances of the NAAQS thresholds so a microscale air quality analysis should not be required.

The Project will have an underground parking garage. This facility will be mechanically vented with a roof-top exhaust. Carbon Monoxide monitors and alarms will be provided to insure the safety of the residents and abutting residences and businesses.

2.2.6 Stormwater/Water Quality

The Project will comply with the Boston Water and Sewer Commission's regulations and standards regarding the design of the storm drainage system including methods to reduce the peak rates of runoff and improve the quality of the stormwater. Since the Project calls for the redevelopment of the existing building, the site coverage in the proposed build condition will not increase the amount of impervious area. The existing impervious areas will be reduced by utilizing porous paving in parking areas and potentially through green roof systems,

The stormwater runoff will be also be managed through a recharge system that will utilize the newly create park on site and perimeter landscape areas. Overflows will utilize new connections to the Boston Water and Sewer Commission's drain lines discontinuing the current system of discharging building storm drains into the sanitary sewer system and preventing impacts on abutting properties.

An oil and grease separator will be provided in the garage as required to improve water quality prior to discharge into the sanitary sewer. Additionally, sediment and construction materials will be controlled during construction through a combination of hay bales, silt fence and catch basin filters.

The Project will yield a decrease in peak discharge rates and volumes of run-off and improve ground water recharge. This is accomplished primarily by installing a stormwater infiltration system.

2.2.7 Stormwater Management Standards

In January 2008, the DEP revised the Stormwater Management Policy. The Policy prescribes specific stormwater management standards for development projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Compliance is achieved through the implementation of Best Management Practices (BMP's) in the stormwater management design. The Policy is administered locally pursuant to M.G.L. Ch. 131, s. 40.

In 2013 BWSC adopted a stormwater management policy that employs EPA BMPs for sites exceeding one acre. Typically this standard applies to development sites that will disturb that one acre in the construction process. This being a re-development project, the regulation is unclear. We are coordinating with the BWSC official in charge of

enforcement for a determination of applicability. That determination was not made at the time of this writing. In any event we are prepared to meet any filing requirements with EPA.

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

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

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

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

Compliance: The proposed design will not increase the impervious area compared to the pre-development condition. Therefore, we do not anticipate that a detention system will be needed to mitigate the peak rate of runoff from the Site.

Standard #3: Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The Project should not increase the impervious area compared to the pre-development condition. Therefore, there will be no loss in annual recharge to groundwater.

The plans will include a groundwater recharge system based on BWSC standards (One inch of water over the entire impervious area on the site.) Soil types will be determined by test pits and standard field testing procedures.

Standard #4: For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:

(a) Suitable nonstructural practices for source control and pollution prevention are implemented;

(b) Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and

(c) Stormwater management BMPs are maintained as designed.

2.2.8 Flood Hazard Zones/Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Site located in the City of Boston - Community Panel Number 250286 0014 G indicates the FEMA Flood Zone Designations for the Site area. The map shows that the Project is not located in a FEMA 100 year flood plain.

The Site is developed and does not contain wetlands.

2.2.9 Geotechnical/Groundwater

This section addresses the below-grade construction activities anticipated for the Project. It discusses existing soil and groundwater conditions, anticipated foundation construction methods and excavation work anticipated for the Project based on available subsurface information and a conceptual foundation design study.

The below grade construction activities will be limited to the installation of bell piles to support a new interior column/floor system. The site is situated on glacial till capable of supporting spread footings. This will minimize disruption to abutters as driven piles will not be required.

Initial geotechnical analysis indicates The Project Site is not located within area monitored by the Boston Ground Water Trust so review and permitting by this organization is not required. Test borings did not encounter ground water so dewatering is not anticipated during excavation. Project specifications will include provisions for remedial measures for the contractor to implement to mitigate any movement or lowering of groundwater levels should conditions warrant. Foundation excavation will be observed by an experienced geotechnical engineer for compliance with project specifications. The Proponent will secure all necessary construction dewatering and related permits from the City (BWSC) and State (MWRA) as required.

2.2.10 Solid and Hazardous Wastes

2.2.10.1 Existing Hazardous Waste Conditions

A Phase I environmental site assessment has been undertaken to inspect existing conditions and examine DEP site documentation. A review of the DEP web site indicates that there have been no releases at 374 Bunker Hill Street that triggered DEP involvement.

In addition to providing all information on the site's subsurface condition, the proponent will be responsible for removal of a fuel storage tank, lines, dispensing equipment and contaminated soils. The proponent will retain a licensed site

professional to monitor all remediation and cleanup operations and will insure that all monitoring and reporting requirements are followed. All soils removed from the site during construction will be managed for off-site disposal in accordance the current regulations and policies of the Massachusetts DEP.

2.2.10.2 Operational Solid and Hazardous Wastes

The Project will generate solid waste typical of other residential projects. Solid waste generated by the Project will be approximately 94.6 tons per year (See Table 2-11). The Project will construct a trash cute for non-recyclable waste with access from each floor that will terminate at the basement level where a waste compactor will be located. Non-recyclable waste and compacted material will be removed by a waste hauler contracted by the Project.

Table 2-11 Solid Waste Generation

Unit Type	Program	Number of Beds	Generation Rate	Solid Waste (tons per year)
One and Two Bedroom Units	App 61 Bedrooms	89	4 lbs/bedroom/day	64.8
Live/Work Spaces	App 24 Bedrooms	42	4lbs/bedroom/day	30.8
Total Solid Waste Generation				94.6

Solid waste will include wastepaper, cardboard, glass and bottles. The Proponent will coordinate with the City's recycling coordinator to develop and implement a recycling program to minimize solid waste. The Project will include space for recycling on each floor and the trash room will space for the storage and pick-up of recyclable materials.

With the exception of "household hazardous wastes" typical of residential and live/work uses (for example, cleaning fluids and paint), the residential and live/work uses will not generate hazardous waste.

2.2.11 Noise/Vibration

The noise analysis would be required to determine if the project generated noise, principally from the roof mounted HVAC equipment, would exceed the City of Boston Noise Zoning District Noise Standards for nighttime and residential zones, which are the most stringent of the applicable standards. The primary source of sound exterior to the Project will be the cooling towers that would be mounted on the roof. Noise generated from any rooftop units must be addressed, as the Site is within a residential neighborhood with existing residential buildings immediately adjacent to the north and west.

The Project is too early in the design and permitting process to determine what the equipment requirements and the associated sound generation would be and, as a result, noise analysis is not available at this time. However, since the Project intends to use water source heat pumps to heat and cool the condominiums (reducing the size requirements for the roof-top HVAC equipment) and any equipment would be screened with sound attenuation devises, the Project's mechanical equipment is not expected to result in a perceptible change in background noise levels. If required, a supplemental noise analysis can be prepared to insure the Project's compliance with the City of Boston Noise Ordinance.

2.2.12 Construction Impacts

A Construction Management Plan (CMP) will be submitted to the BTD for review and approval prior to issuance of a building permit. The CMP will include:

- A Construction Activity Schedule
- Defined Construction Staging Areas
- Parameters for the Demolition Phase
- Guidelines for Perimeter Protection/Public Safety
- Material Handling and Construction Waste Plan
- Construction Traffic Management including Worker Parking and Truck Routes
- Construction Air Quality and Noise management and mitigation

The Proponent will comply with all applicable state and local regulations governing construction of the Proposed Project. The Proponent will require that the general contractor comply with the Construction Management Plan, ("CMP") developed in consultation with and approved by the Boston Transportation Department ("BTD"), prior to the commencement of construction. The construction manager will be bound by the CMP, which will establish the guidelines for the duration of the Project and will include specific mitigation measures and staging plans to minimize impacts on abutters.

Construction methodologies that ensure public safety and protect nearby businesses will be employed. Techniques such as barricades, walkways, painted lines, and signage will be used as necessary. Construction management and scheduling – including plans for construction worker commuting and parking, routing plans and scheduling for trucking and deliveries, protection of existing

utilities, maintenance of fire access, and control of noise and dust -- will minimize impacts on the surrounding environment.

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

2.2.13 Geotechnical/Groundwater Impacts and Monitoring

This section addresses the below-grade construction activities anticipated for the Project. It discusses existing soil and groundwater conditions, anticipated foundation construction methods and excavation work anticipated for the Project based on available *subsurface information and a conceptual foundation design study.*

A Geotechnical Investigation Report was prepared for the Site by Geotechnical Services, Inc. in February of 2014. Based on the findings of the investigation, the development team believes soil bearing capacities are sufficient to allow the use of bell piles so that driven piles will not be required. As a result, the CM will not need to conduct a pre-construction survey of abutting structures. Should conditions warrant, the CM will take all appropriate actions to insure these structures are not impacted including a pre-construction.

The Report also did not reveal the presence of ground water due to a high water table so it is not anticipated that dewatering for the installation of foundations will be required. Also, the Project Site is not located within area monitored by the Boston Ground Water Trust so review and permitting by this organization is not required. Project specifications will include provisions for remedial measures for the contractor to implement to mitigate any movement or lowering of groundwater levels should conditions warrant. Foundation excavation will be observed by an experienced geotechnical engineer for compliance with project specifications. The Proponent will secure all necessary construction dewatering and related permits from the City (BWSC) and State (MWRA) as required.

2.2.14 Rodent Control

The City of Boston has declared that the infestation of rodents in the City is a serious problem. In order to control this infestation, the City of enforces the requirements established under the Massachusetts State Sanitary Code, Chapter 11, 105 CMR 410.550 and the State Building Code, Section 108.6. Policy Number 87-4 (City of Boston) established that extermination of rodents shall be required for issuance of permits of demolition, excavation, foundation, and basement rehabilitation.

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

extermination prior to work start-up will consist of treatment of areas throughout the Site. During the construction process, regular service visits will be made by a certified rodent control firm to monitor the situation..

2.2.15 Wildlife Habitat

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

2.3 Urban Design

Originally built in 1907 as a noble public building in the Georgian Revival style, the Charlestown Battalion Armory stood for half a century as a sentinel of community pride, participation and patriotism. Now lying underutilized in its overgrown landscape it is a musty shadow of its former glory and an unwelcome visitor on the street. Through a historic Preservation effort maintaining the basic volume and architecture of the exterior coupled with innovative housing design in the interior the Armory will be restored as a good neighbor. In addition the rehabilitated building will house a museum tribute to its former military use and the patriotism of the Charlestown Community. From this preservation effort will come several Urban Design benefits:

Maintaining of an existing historic structure - While the horizontal massing of the Armory exceeds that of the multi-story wood frame structures that predominate this section of Charlestown, its two story, articulated street façade has been a comfortable neighbor for over a century fitting sensitively into the urban street wall. The existing façade will be restored including repointing of masonry, repairing of cast masonry details, maintaining of existing fenestration patterns with new historically sensitive window systems and reproduction of the existing slate roof .

Expanded Residential Use - The adaptation of the Armory to residential use will bring a range of families to this close knit neighborhood increasing "eyes on the street" during all hours of the day and night.

Open Space Network – Site improvement plans include a new pathway system that will allow access to a landscaped open space from both the project and Armory Street. This will provide the abutting residents access to both the park and through the Armory site to Bunker Hill Street.

Some of the new units will also be provided balconies creating private open space that will provide views of the Mystic, Downtown and local landmarks.

Improved Landscaping - The proposed site landscaping will remove the overgrow blight experienced by the existing neighboring residences. The plan will not only include a new park that will add to the Neighborhood's open space resources, but the edges of the property will be improved with landscaping to create more of a visual screen and retaining walls will be reconstructed stabilizing the irregular site conditions for the Armory and abutting property owners as well as increasing the usability of the limited open space for all. The Proponents will work with abutters to restore and improve landscaping lost during construction.

Off Street Parking - The inclusion of structured parking providing two spaces per residence per market rate unit and one space per affordable will insure the limited on-street spaces are not taxed further. All residential parking is contained in the building.

Accessibility – The renovated building will be fully accessible from Bunker Hill Street, the parking garage and the open space to each unit door. Full access will be afforded to the museum like lobby.

Streetscape Improvements – Bunker Hill Street has been improved with street trees. The Project will replace any trees that have not survived and plans to upgrade street lighting and to repair existing sidewalks as required.

In conclusion, the renovation of the Armory should significantly improve the public realm of this section of Charlestown by retaining a local landmark that has been part of the community for over one hundred years while introducing a new use that will expand the residential character of the neighborhood and fully integrate it with the neighborhood.

2.4 Historic and Archaeological Resources

This Component addresses the potential impact of the proposed development on the City's historic resources located on or within a half mile of the site.

2.4.1 Historic Resources on the Project Site

The site is currently improved with the former Massachusetts National Guard Armory. Built in 1907, the Armory provided drill space for four local military companies, including the 192nd Infantry Regiment - the oldest combat regiment in the United States army. In 1968, the Commonwealth of Massachusetts Commission deeded the Armory to the Trustees of the Boston Public Library, which used the Armory as a book depository -- most recently housing the Jordan Collection, the largest collection of children's books in the world.

The Armory is a masonry structure built in the Georgian Revival style. Its main feature is a central drill hall, a large open volume covered by long-span steel trusses. The exterior masonry is detailed with cast masonry lintels and caps and the gabled roof that covers the main hall is clad in slate. Over its 100 year history, the Armory has been used for numerous community purposes but has been vacant since its transfer from the Boston Public Library to the City's Department of Neighborhood Development in 2010.

There are no records of the historical significance of the building in either the Environment Department's historic buildings survey files or the Inventory of Historic and Archeological Assets of the Commonwealth. Although not considered a historically significant structure, the Armory has been a major fixture of the Charlestown community.

2.4.2 Historic Resources within a Half Mile of the Site

The Proposed Project is located in the Charlestown Neighborhood of Boston near Sullivan Square. Areas proximate to the Site that are listed on the National Register of Historic Places or the Inventory of Historic and Archeological Resources of the Commonwealth are listed in **Table 2-12**.

Table 2-12 Designated Historic Resources

Key	Name
	National Historic Districts and Structures
A:	East Somerville Local Historic District
B:	Middlesex Canal and Archaeological
C:	Charlestown Heights
D:	Monument Square (Bunker Hill Monument)
E:	Terminal Warehouse District - 40 & 50 Terminal St
	Massachusetts Historic Districts and Structures
F:	Avon Place
G:	Charlestown Mystic River Industrial Area
H:	Belmont Street Area
I:	Bunker Hill School, 65 Baldwin Street
J:	St. Francis de Sales Roman Catholic Church
K:	2-22 Hill St-1-5 Mystic Place
L:	Crystal Place
M:	Bolton Place
N:	Russell Street, 19-35
O:	23-46 Green Street
P:	1-14 Lexington Street
Q:	Monument Street, 7-58
R:	Charlestown B&M Railroad Industrial Area
S:	Essex St, 4-21
T:	Harvard Street Area
U:	Hoosac Stores
V:	St. Mary's Roman Catholic Church Complex
W:	St. Catherine of Sienna Roman Catholic Church Complex
Y:	Town Hill
Z:	Winthrop Square
AA:	Boston Naval Shipyard/Charlestown Navy Yard

The Armory is not in any of the numerous historic districts within the Charlestown Neighborhood. The Armory is listed on the Inventory of Historic Assets of the Commonwealth.

2.4.3 Archaeological Resources

The Site consists of a developed urban parcel. Due to the nature of the Project, excavation that might un-cover items of historic or archeological significance is not anticipated and being a previously developed site, It is not expected that the Site contains significant archaeological resources.

2.4.4 Impacts to Historic Resources

The Proposed Project will retain what the Proponents believe to be a culturally significant building in Charlestown including undertaking a historically sensitive restoration of the exterior shell. As a result, the redevelopment will not have any

net new shadow, wind or visual impacts on the community's historic resources. On the contrary, the redevelopment will allow the former Massachusetts National Guard Armory to continue to be an important element of Charlestown's historic fabric with a new use that will strengthen the area's residential character.

Figure 2-17 Historic Resources Plan

2.5 Infrastructure Systems

The following sections describe the existing water, sewer, and drainage systems surrounding the Site and explain how these systems will service the Project.

2.5.1 Sewage System

2.5.1.1 Existing Conditions

The existing site is connected to water and sanitary sewer lines in Bunker Hill Street. The site is also connected to natural gas supply lines in the same location. These services lines will be abandoned replaced with new connections to meet the capacity requirements of the proposed use.

2.5.1.2 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 values for the source listed in Table 2-12. Other wastewater generation includes the cooling system. As shown in Table 2-12, the Project will have average daily flows of approximately 9,350 gpd of sanitary sewage.

Table 2-12 Project Sewage Generation

Use	Number	Sewage Generation Rate	Total gpd
One and Two Bedroom Units	85 bedrooms	110 GPD/BRM	9,350
Total			9,350

The net change in sewage generation is presented below in Table 2-13.

Table 2-13 Net Change in Sewage Generation

	Existing	Future	Net New Flow
Estimated Sewage Flow	0	9,350	9,350

2.5.1.3 System Connections

The Project will utilize existing public sanitary sewer lines to meet new program requirements minimizing required permits and approvals. All sewage flows will be kept separate from all storm drain service connections. All appropriate permits and approvals will be obtained prior to construction.

2.5.1.4 Sewer System Mitigation

Existing connections will be inspected and upgraded as required to comply with the BWSC Sewer Uses Regulations. Plumbing fixtures, including grease traps, deep sump catch basins and area drains and backflow valves will be installed as required to remove contaminants and sediments from the sewage before discharge into the BWSC sewer system. Storm Drain lines will not be connected to separated BWSC sanitary sewer systems.

2.5.2 Water Supply System

2.5.2.1 Existing Conditions

Bunker Hill Avenue contains a high water service main that is owned and operated by the BWSC. While it has not been confirmed that the site is currently served from this location the project's civil engineers assume future service will connect to this main.

2.5.2.2 Proposed Water System

The Project's water demand estimates for domestic sources are based on the Project's estimated sewage generation. A conservative factor of 1.1 is applied to the average daily wastewater flows to estimate the average water use on a daily basis. This factor accounts for consumption and other miscellaneous losses. Therefore, it is estimated that the Project will consume approximately 10,285 gpd of domestic water. The water will be supplied by the BWSC.

Water capacity and pressure are not anticipated to be an issue for the Project based on the projected domestic and fire protection water demands. BWSC record flow data and hydrant flow test will be used to confirm that there is enough pressure in the existing water system to support the Project's needs.

2.5.3 Stormwater System

2.5.3.1 Existing Condition

The existing streets adjacent to the Project contain storm drains owned and maintained by the BWSC. Bunker Hill Street contains separated storm and sanitary sewer lines that are believed to be of sufficient capacity to meet projected demands.

2.5.3.2 Proposed Stormwater System

The Project will utilize existing connections to the BWSC Drain System. A description of the future condition is provided in Section 2.2.6 Stormwater/Water Quality of this PNF. Additional information regarding Stormwater management is contained in the following section 2.5.4 and

2.5.4 Water Quality and Stormwater Management

The Project will not affect the water quality of nearby water bodies. There is expected to be minimal impact to the storm drain system due to erosion and sediment as the site will be encompassed with appropriate erosion control devices. The Project will minimize the transport of the soils and sediment to the Boston Water and Sewer Commission ("BWSC") storm drain system using BWSC, Department of Environmental Protection Agency ("DEP") and the Environmental Protection Agency ("EPA") Best Practices (BMPs") by protecting existing catch basins 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 or vegetative cover.

Any dewatering will be conducted in accordance with a MWRA and BWSC discharge permit, the application for which is currently being prepared. Once construction is complete, the Project will be in compliance with all local and state stormwater management policies. See Section 2.5.5 below for additional information.

2.5.5 BWSC Stormwater Management Compliance

In January 2008, the DEP revised the Stormwater Management Policy. The Policy prescribes specific stormwater management standards for development projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Compliance is achieved through the implementation of Best Management Practices (BMP's) in the stormwater management design. The Policy is administered locally pursuant to M.G.L. Ch. 131, s. 40.

In 2013 BWSC adopted a stormwater management policy that employs EPA BMPs for sites exceeding one acre. Typically this standard applies to development sites that will disturb that one acre in the construction process. This being a re-development project, the regulation is unclear. The Proponents are coordinating with the BWSC official in charge of enforcement for a determination of applicability. That determination was not made at the time of this writing. In any event we are prepared to meet any filing requirements with EPA.

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

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

Compliance: The proposed design will comply with this Standard. No new untreated stormwater will be directly discharged to, nor will erosion be caused to wetlands or

waters of the Commonwealth as a result of stormwater discharges related to the proposed Project.

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

Compliance: The proposed design should not increase the impervious area compared to the pre-development condition. The Proponent review all mitigation options with the BWSC, including the use of a detention system, to manage the peak rate of runoff from the Site.

Standard #3: Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.

Compliance: The Project should not increase the impervious area compared to the pre-development condition. However, the plans will include a groundwater recharge system based on BWSC standards (One inch of water over the entire impervious area on the site.) Soil types to assess perk rates will be determined by test pits and standard field-testing procedures.

Standard #4: For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when:

(a) Suitable nonstructural practices for source control and pollution prevention are implemented;

(b) Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and

(c) Stormwater management BMPs are maintained as designed.

Compliance: Within the Project's limit of work, there will be mostly roof and balcony area. There will be no paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system. Therefore, no measures will need to be taken for water quality.

Standard #5: Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs (see chart on page 1-8). The use of infiltration practices without pretreatment is prohibited.

Compliance: The Project is not associated with Higher Potential Pollutant Loads (per the Policy, Volume I, page 1-8). This Project complies with this standard.

Standard #6: Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas (see list on page 1-8). Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.

Compliance: The Project will not discharge untreated stormwater to a sensitive area or any other area.

Standard #7: Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.

Compliance: The Project will meet or exceed all standards.

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

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

Standard #9:A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Compliance: The project will comply with this standard. A long term maintenance plan will be submitted to the Boston Water & sewer Commission for review and approval during the Site Plan Approval process.

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

Compliance: The project will comply with this standard.

2.5.6 Mitigation Measures

The peak rate of runoff will not exceed the existing rate as the amount of impervious surface on site will not be increased by this Project. However, several measures will be implemented to reduce storm water discharge in accordance with BWSC and DEP regulations including the addition of a landscaped courtyard. The Project is also reviewing the opportunity to install porous paving on exterior paved surfaces and a ground water recharge system under the sublevel parking structure to address BWSC objectives regarding ground water recharge. A green roof system is also being investigated to reduce stormwater run-off.

2.5.7 Coordination with BWSC

Proposed connections to the Commission's water, sanitary sewer, and storm drain system will be designed in conformance with the Commission's design standards, Sewer Use and Water Distribution System Regulations, and Requirements for Site Plans. The Utility Contractor 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.

The applicant or proponent does not file the GSA application. Only a bonded, licensed Drain Layer can file this application.

2.5.8 Energy Needs

2.5.8.1 Heating and Cooling

The Project's heating and cooling will be provided by water source heat pumps. This system will require locating HVAC equipment on the building's roof. The total electric consumption for cooling is estimated 50,500 kWH per year. Heating will be produced by high efficiency boilers located in the basement mechanical room with an estimated consumption of 11,687 therms per year. Domestic hot water will be produced by individual heaters in each unit with an estimated energy requirement of 2,921 therms/year. The estimated gas consumption for cooking is 1,150 therms/year and for dryers is 2.600 therms/year.

2.5.8.2 Electrical Requirements

The Project electrical load is estimated at a range of 562,600 kWh per year inclusive of energy required for the cooling. NSTAR (Boston Edison Company) provides electric service in the City of Boston and has an underground service conduit located in Bunker Hill Street. It is anticipated that a NSTAR Network Transformer Vault will required either in the sidewalk or a dedicated space with in the Project. The final service approach and transformer location will be determined during the final design and discussions with NSTAR.

2.5.8.3 Energy Conservation Measures

Energy conservation measures will include the use of water-cooled equipment, controls to maximize free cooling, heat recovery, variable frequency fans and pumps.

2.6 Sustainable Design

Our team is committed to incorporating environmentally sensitive, sustainable design elements into the Charlestown Battalion Armory Condominium development. These elements will improve the quality of life for the residents of this project as well as the neighborhood, while helping to protect the global environment. Ultimately they will also reduce operating costs while increasing value for the project, improving its business viability. We are committed to identifying opportunities presented by the redevelopment by setting proactive goals and ensuring an undertaking that is LEED Silver certifiable as a minimum and satisfies the requirements of the City of Boston Environment Department.

The proponent has set proactive goals to ensure an undertaking that is LEED certifiable and satisfies the requirements of the City of Boston Environment Department, and has assembled an architectural and engineering team familiar with implementing these goals. Neshamkin French Architects, Inc.'s own LEED accredited personnel is working in concert with innovative LEED accredited engineers (mechanical, electrical and plumbing engineers.) In turn, the team will actively involve the selected contractor in turning this commitment into reality. Please see Appendix I for a LEED Scorecard.

The Owner and Project Team are seeking to comply with the requirements of Article 37 of the Boston Zoning Code and Article 80 Development Review and Approval.

The following sections outline the team's approach to individual LEED Credits:

2.6.1 City of Boston Article 37

The Project will include the following Prerequisite Boston Green Building Credits:

Boston Public Health Development Prerequisite Credits:

Prerequisite Diesel Retrofit of Construction Vehicles
Retrofit of all diesel construction vehicles from the United States Environmental Protection Agency approved retrofit technologies, or a contribution of a comparable amount to the Air Pollution Control Commission Abatement Fund.
Prerequisite Outdoor Construction Management Plan
An outdoor construction management plan including provisions for wheel washing, site vacuuming, truck covers and anti-idling signage.
Prerequisite Integrated Pest Management Plan
The Project will include Item No. 3 and 4 listed below, of the Boston Credits.

Boston Credits:

A. Modern Grid Credit; Not applicable for this Project.

B. Historic Preservation Credit; Not applicable for this Project.

C. Groundwater Recharge Credit; Yes

1. The Project will capture rainwater including landscape irrigation.

D. Modern Mobility Credit Yes

Prerequisites:

1. Designate an on-site transportation coordinator in the management office.
2. Post information about public transportation and car-sharing options.
3. Provide transit, bike and pedestrian access information on building website.
4. Provide on-site, external bicycle racks for visitors and covered secure bicycle storage for the building occupants. 15% residential and 5% other uses.
5. Comply with Boston Transportation Department district parking ratios.
6. Join a Transportation Management Association (for mixed-use projects).

For Residential Projects:

1. Provide preferred parking spaces for a car-sharing service capable of serving 1% of building occupants.
2. Residential parking spaces required by zoning may only be purchased and used by building tenants/unit owners.
3. On-site electric charging plug-in stations for plug-ins capable of serving 1% of the building occupants.

2.6.2 Sustainable Sites

The reintegration of the Armory Battalion Building into the urban fabric and the reuse of the building for housing reinforces the design goals of LEED. Reclamation of the physical building marshals sustainable resources, while reclamation of the Armory for housing marshals the economic and social engine of urban redevelopment to transform an endangered building into an essential part of the neighborhood.

This is further strengthened by the siting of the Armory along a major bus line, within close proximity to two T stops. The enclosed parking is designed to meet the minimum parking requirements of the Neighborhood Zoning District and will also accommodate bicycle storage areas as required by the City. To further enhance alternative transportation the enclosed parking will designate preferred parking status for hybrid fuel vehicles.

Our proposed reuse will reduce site disturbance by removing a small wing and restoring open space, will improve storm water management by introducing a recharge system, reduce the heat island effect by replacing selected asphalt areas with planting, reduce the heat island effect of the roof by creating a green roof on over 50% of the plan area, and reduce light pollution by introducing low cut off lights that concentrate lighting to increase safety of the

site and abutting public areas while enhancing architecture, landscape and streetscape.

2.6.3 Water Efficiency

Landscape materials will be selected that enhance sustainability and conservation of resources by virtue of suitability to site conditions. No irrigation system will be utilized and the team will design the building systems to reduce water consumption by 20%, using technologies such as dual-flush toilets and reduced flow sinks and lavatories.

2.6.4 Energy and Atmosphere

Energy efficiency is a key part of the overall design strategy. With rapidly increasing energy costs, attention to energy use will provide economic as well as environmental benefits to the project. The team will use an integrated design approach with life cycle costing of various system options, in order to ensure that this project meets the goals of LEED in this category in a cost effective manner.

Specific strategies to be incorporated include:

- Systems will be fully commissioned by a third party commissioning agent, meeting all requirements of both the LEED prerequisite for commissioning.
- Various HVAC systems will be explored in the design phase of the project, including gas absorption chillers.
- All equipment will be CFC free.
- The Developer will pursue third party funding of energy efficiency and renewable energy strategies through local utilities and the Massachusetts Renewable Energy Trust Fund.
- Measurement and verification of energy usage will be provided by the utilization of individual utility metering at each unit.

2.6.5 Materials and Resources

In addition to complying with the storage and collection of recyclables, the project will exemplify the fulfillment of LEED goals in a number of other aspects.

With the building's adaptive renovation one hundred percent of the shell will be reused and fifty percent of the existing non-shell. The existing masonry armory structure, including its large trussed pitched roof volume, will be reused "whole cloth" with parking at the lowest level, housing at the existing first level, housing at the existing second level, and the large central volume now inhabited by three levels of housing above the armory floor. Cut in balconies and skylights maintain the slope of the existing slate roof while providing light, air and view.

Projections above the roof level for circulation or mechanical spaces are strategically placed to minimize visibility.

The construction will divert seventy percent of waste through construction waste management, a minimum of five percent of materials incorporated into the project will be recycled content and a minimum of twenty percent of materials will be committed to be locally manufactured. The project will qualify for the LEED credit for Rapidly Renewable Materials by committing to meeting or exceeding five percent of the building value, excluding labor and MEP components, in rapidly renewable materials including Bamboo floors at living spaces and Marmoleum or other linseed/resin based flooring materials at utility spaces. The team will explore the potential use of strawboard for appropriate surfaces and will investigate the possibilities of utilizing FSC (Forest Stewardship Council) Certified woods for at least half of the woods used on the project.

2.6.6 Indoor Environmental Quality

The project will meet the required Minimum Indoor Air Quality Performance and Environmental Tobacco Smoke Control criteria. Additionally, in its selection of materials incorporated into the building, the project will provide for a high level of emissions reduction by the use of certified Low-Emitting Materials for Adhesives and Sealants, Paints, Carpet and Composite Wood. Indoor chemical and Pollutant Sources will be controlled by the utilization of separate exhausts for janitors' closets, walk off mats at entries, and garage separation and exhaust.

Perimeter systems will be controllable by virtue of the selection of operable windows and small lighting zones, and non perimeter systems will be controllable by the incorporation of local controls and zones. Mechanical design will comply with Thermal Comfort requirements by complying with the ASHRAE 55 standards. The building design will provide for daylight to seventy five percent of the spaces in the building, excluding enclosed parking. Ninety percent of the spaces designed for human occupancy (again excluding enclosed parking) will enjoy views.

2.6.7 Innovation and Design Process

There are three ways in which the team plans to initiate innovation in the design process: via the incorporation of environmental education into the process of the building construction and operation, the setting of a goal program in concert with the contractor, Bond Brothers, for exemplary performance in handling construction waste, use of energy star compliant appliances, and through the continued involvement of LEED accredited professionals.

Figure 2-18 LEED Checklist

LEED 2009 for New Construction and Major Renovations

Project Checklist

Charlestown Battalion Armory

380 Bunker Hill Street, Charlestown Ma

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
			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
		1	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			Credit 1	Water Efficient Landscaping	2 to 4
		1	Credit 2	Innovative Wastewater Technologies	2
3			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	
12			Credit 1	Optimize Energy Performance	1 to 19
		1	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	
2			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			Credit 2	Construction Waste Management	1 to 2
2			Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

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

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
			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: Specific Title	1
1			Credit 1.2	Innovation in Design: Specific Title	1
			Credit 1.3	Innovation in Design: Specific Title	1
			Credit 1.4	Innovation in Design: Specific Title	1
			Credit 1.5	Innovation in Design: Specific Title	1
			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

Y	?	N			
			Credit 1.1	Regional Priority: Specific Credit	1
			Credit 1.2	Regional Priority: Specific Credit	1
			Credit 1.3	Regional Priority: Specific Credit	1
			Credit 1.4	Regional Priority: Specific Credit	1

Total — Possible Points: 110

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

3.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

3.1 Massachusetts Environmental Policy Act

The Project does not meet the thresholds for review under the Massachusetts Environmental Policy Act (MEPA) so an Environmental Notification Form (ENF) will not be filed.

3.2 Massachusetts Historical Commission

The Project does not require any state permits and is therefore not subject to review by the Massachusetts Historical Commission (MHC).

3.3 Boston Landmarks Commission

The Project is not a designated landmark nor is it in a designated historic district therefore review by the Boston Landmark Commission is not required.

3.4 Architectural Access Board Requirements

The Project will comply with the requirements of the Architectural Access Board and the standards of the Americans with Disabilities Act.

3.5 Boston Civic Design Commission

Article 28 of the Boston Zoning Code stipulates that projects over 100,000 square feet shall be subject to review by the Boston Civic Design Commission. Preliminary determination by the BRA is that this project does not meet that threshold and therefore BCDC review is not required.

3.6 Other Permits and Approvals

Section 1.5 of this PNF lists agencies from which permits and approvals for the Project will be sought.

3.7 Community Outreach

The Proponent is committed to effective community outreach and will engage the community to ensure public input on the Project.

4.0 PROJECT'S CERTIFICATION

This form has been circulated to the Boston Redevelopment Authority as required by the Boston Zoning Code, Article 80.

_____	_____
Signature of Proponent's Representative	Signature of Preparer
Patrick Keohane C-Town Ventures, LLC	Thomas Maistros, Jr. Development Consultant
_____	_____
Date	Date