

Project Notification Form

2147 Washington

Submitted to:
Boston Planning & Development Agency
Pursuant to Article 80 of the
Boston Zoning Code

Submitted by:
2147 Master Developer LLC

September 25, 2019

In association with:
DREAM Collaborative
Deborah Myers Landscape Architects
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1.0 PROJECT SUMMARY

1.1 Project Identification

Project Name: 2147 Washington
Location: 2139-2145 Washington Street
2147-2149 Washington Street (DND-Owned)
2159-2163 Washington Street (DND-Owned)
Ballinger Place (DND-Owned)
14-24 Dade Street
Dade Street – Parcel ID 0902449000
Boston (Roxbury) MA 02119

1.2 Project Team

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1.3 Project Overview

2147 Master Developer LLC (the project “Proponent”), a joint venture between Boston developers New Atlantic Development LLC and Dream Development LLC, is proposing to construct a multifamily apartment building totaling approximately 98,000 square feet of gross floor area, which will contain approximately 74 dwelling units and incorporate typical multifamily accessory uses such as a leasing office, gathering spaces, and rooftop outdoor amenity space, rooftop garden, active outdoor public courtyard, and accessory and public parking. The ground floor will contain an approximately 2,500 sf café space for Haley House as well as other community retail, shared workspace and individual artist workshops. A one-level below-grade parking structure is proposed that will contain approximately 32 spaces. Another 11 surface parking spaces will be

included. Certain of the Project's off-street parking spaces may be leased to a car-sharing service such as Zipcar.

1.4 Project Site & Surrounding Area Description

The proposed project is to be located on Washington Street between Gary Street and Dade Street in the Dudley Square Neighborhood of Boston's Roxbury District. The site contains approximately 29,000 square feet of land and is comprised of Parcel 0902431000 (2147-2149 Washington Street and Ballinger Place), Parcel 0902432000 (2159-2163 Washington), Parcel 0902448010 (12 Dade Street), and 0902449000 (Dade Street). Parcel 0902431000 also contains Ballinger Place, an unnumbered, discontinued private way.

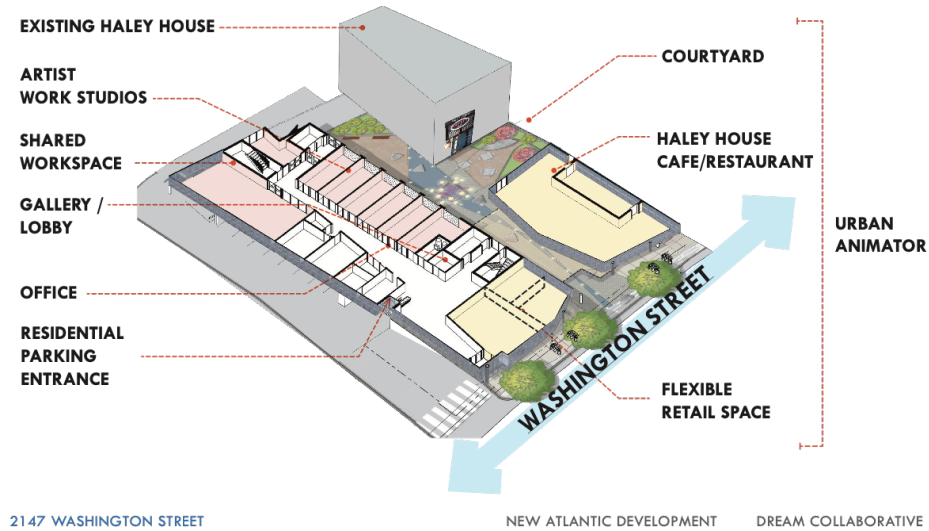
Surrounding uses generally include a mix of retail, office, institutional and residential uses. Immediate neighboring uses include the 10-12 Williams residential condominiums, Boston Gardener (gardening supply store), City on a Hill (public charter school), New York Fashions (clothing store), Black Market (cooperative-style retail and gallery) and The American Cities Coalition (offices).

Figure 1-1 Locus Map



Figure 1-2 Site Plan

GROUND FLOOR



1.5 Development Program

In response to the Department of Neighborhood Development’s Request for Proposals – Plan: Dudley, 2147 Washington Street, New Atlantic Development and Dream Development are pleased to propose the development of a new mixed-income, mixed-use project that will add new life and vibrancy to Dudley Square. With residential uses, a preference for artists and creative individuals, artist work studios, shared work space, flexible retail/commercial space, a new café/restaurant space for Haley House Bakery and Café and an engaging public space linking all of these uses together, Washington Street will see a significant increase in daytime and nighttime activity.

Our concept for the property results from careful consideration of the criteria and preferences developed by DND, the BPDA, neighborhood residents and the Roxbury Strategic Master Plan Oversight Committee as expressed in the RFP. We have also worked closely with the board and staff of Haley House to incorporate a new +/- 2,017 sf café/restaurant. The existing Haley House Bakery & Café will transition to focusing on catering and job training functions. We view the involvement of Haley House as that of another development partner and long-term steward of the project.

All of the units within 2147 Washington Street, whether rental or homeownership, will be marketed to, and a preference will be given to,

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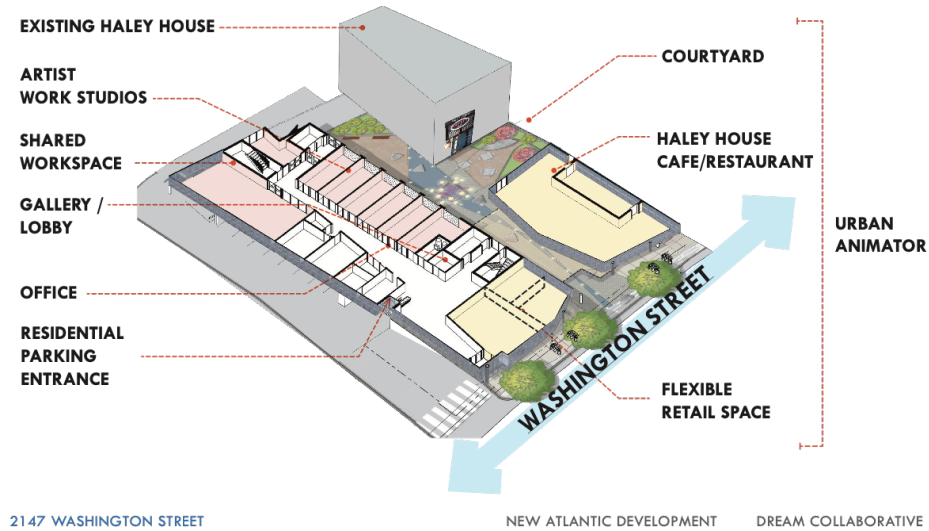
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Our concept for the property results from careful consideration of the criteria and preferences developed by DND, the BPDA, neighborhood residents and the Roxbury Strategic Master Plan Oversight Committee as expressed in the RFP. We have also worked closely with the board and staff of Haley House to incorporate a new +/- 2,017 sf café/restaurant. The existing Haley House Bakery & Café will transition to focusing on catering and job training functions. We view the involvement of Haley House as that of another development partner and long-term steward of the project.

All of the units within 2147 Washington Street, whether rental or homeownership, will be marketed to, and a preference will be given to,

artists and persons employed in creative professions that might fall out of the traditional definition of an artist. These professions include, for example, graphic design, architecture, media & film, video game design, culture & preservation, marketing and publishing. The Commonwealth of Massachusetts has many resources available to entrepreneurs engaged in the creative economy to help their businesses grow and thrive. We feel that by giving a preference to these individuals and households we will be providing affordable housing opportunities as well as supporting new and existing small businesses and sole proprietors. The availability of studio space and shared workspace on the ground floor also supports this goal.

The financing needs of the project will necessitate that it be structured as a master condominium with two distinct units – a homeownership unit (the “HO Unit”) and a low-income housing rental unit (the “LIHTC Unit”).

The HO Unit will contain all of the 12 for-sale condominium units located on the sixth floor of the building. Of the 12 units, 4 will be market rate, 4 will be at 70% AMI and 4 will be at 100% AMI. A mix of studios, one-bedroom, two-bedroom and three-bedroom units will be provided. Over the past decade, Roxbury has seen a sharp decline in the percentage of owner-occupied households, dropping from approximately 30% to just under 20%. The inclusion of mixed-income homeownership units helps address this issue and directly responds to preferences stated in the RFP.

The LIHTC Unit will contain 62 rental apartments, including 16 units available to households earning under 30% AMI, 8 units at or below 50% AMI, 21 units at or under 60% AMI and 17 units at or below 80% AMI. 45 units will qualify for subsidy under the Low Income Housing Tax Credit Program, as well as a majority the subsidy programs available through the Department of Housing and Community Development and the Department of Neighborhood Development. 17 units will be subsidized through MassHousing’s Workforce Housing Program. With 100% affordability, and taken together with the other housing components of the project, a significant number of truly affordable units at a mix of income ranges are provided. This meets an important goal of the RFP.

Average unit square footages are 449 sf for studios, 615 sf for one-bedrooms, 834 sf for two-bedrooms and 1,141 sf for three-bedrooms.

In addition to the residential units, the LIHTC unit will also include all ground floor uses, including the individual artist work studios and shared workspace, flexible commercial space, and the new Haley House café/restaurant.

The ground floor of the building will include 6 individual studio spaces as well as +/- 1,462 sf of shared workspace. These spaces will be made available for rent first to tenants of the building and then to community residents. Rents will be kept as low as possible by setting them equal to the operating expenses, debt and reserves, essentially functioning on a not-for-profit basis. As stated above, these studio/workspaces will help to support small businesses and sole proprietors, creating and maintaining job opportunities.

The +/- 1,881 sf flexible commercial space presents a number of opportunities. Potential uses could include entertainment, performance space, a gallery or a restaurant/bar. A use such as this would be the priority as it would bring nighttime activity to area and help activate the street. Alternative uses could be an office for a community non-profit, more shared workspace or other uses that promote job promotion.

The new +/-2,017 sf Haley House café/restaurant will provide significant benefits to Haley House, Dudley Square and area residents. For Haley House, the space allows them to significantly expand their operations, brings them to a more visible and prominent location on Washington Street and allows them to expand their existing catering and job training functions in its current building. The location of the new space helps the overall building complete the streetscape along Washington Street. The new café/restaurant and expanded catering and training functions will provide employment opportunities for area residents.

The proposed project includes a total of 43 off-street parking spaces. 32 will be in the garage within the building and 11 will be outdoor spaces. The indoor parking spaces will be considered common area and paid for on a pro rata basis by the HO Unit and the LIHTC Unit.

Aside from the uses specific to each of the master condominium units, there are a number of common amenities planned for the overall building. Residents will have use of a roof deck as well as a community space on the 2nd floor. The roof will also contain solar panels, reducing the electricity demand of the building. Ample bicycle parking will be provided as well as car charging stations. The most exciting amenity will be the public outdoor space in the heart of the property. This space will invite pedestrians in from the street to connect in the common courtyard. The studio spaces along the courtyard will have large double doors or garage doors, allowing open communication. The new Haley House space will also have large openings to the courtyard allowing spillover of customers. The courtyard will also promote the use of public art and an opportunity for artist tenants to display their work.

Figure 1-3 Daytime Façade Rendering



1.6 Public Benefits

The proposed project will benefit Dudley Square, the community and the area residents in several direct and indirect ways. As community developers, New Atlantic Development and Dream Development are committed to creating projects that prioritize the needs of the community. If selected as developers, we will continue to work to improve the plan and final product by incorporating feedback from all interested stakeholders. The following is a list of benefits associated with each unit type as well as the overall project:

Residential

- 74 units of housing, with 71 being affordable at a mix of income ranges, will be created.
- A mix of rental and homeownership opportunities will be provided.
- A preference for artists and creative professionals will provide living and working space for sole proprietors and those who work from home.

Artist Work Studios and Shared Workspace

- The artist work-only studios on the ground floor will provide a space for artists to work and display their art.
- The work-only spaces will engage and activate the public open space.
- Shared workspace will provide an affordable opportunity for artists and creative professionals to work in a collaborative environment.

New Haley House Restaurant/Café

- The new Haley House space will provide an accessible street-front presence and help activate Washington Street.
- Approximately 20 FTE jobs will be created.
- The existing Haley House space will expand its catering and training operations, offering potential new jobs and enhancing the employment opportunities for others.
- Haley House will be a key partner in the completed development and will be involved in the long-term stewardship of the property.

Flexible Commercial Space

- The new ground floor commercial space will also help activate Washington Street.
- Depending on the specific use, up to 10 FTE jobs could be created.

Parking

- 46 spaces will be included, providing short-term parking for customers and parking for residents at a 0.5 ratio, which is consistent with the demand experienced in other affordable housing developments – even in less transit-oriented areas.

Open Space/Courtyard

- The open courtyard area will be beautifully landscaped and inviting to the community.
- It will physically and functionally connect the various ground floor uses.
- Opportunities for outdoor seating, performances and events.
- Opportunities for public art, including murals and sculpture.

Overall

- Activate and enliven Washington Street.
- Residents and commercial activities will bring customers and users to other nearby businesses and amenities.
- Will help in the effort of establishing Dudley Square and Roxbury as an Arts & Cultural district.

In addition to the benefits provided by the project, the developers will provide a \$50,000 donation to a charitable organization in the community. The donation will be made from the final developer fee payment and the recipient will be identified at that time. Understanding that the completion of the project is several years away, we would like to identify the grant recipient at that time so that the contribution can go to an organization or initiative that can most effectively make use of it.

2.0 PUBLIC COORDINATION

2.1 Public Review Process

The Proponent has already begun to reach out to community stakeholders to inform them about the proposed redevelopment and solicit their comments and questions outside of the formal public review process. This informal outreach process will continue now that the Project Notification Form has been filed with the Boston Planning and Development Agency. The following is a list of community stakeholders the Proponent has already met with or will be meeting with in the coming weeks to continue to share information about the project and to solicit feedback outside of the formal public review process:

Resident Groups and Neighborhood Associations

- Residents of 8-10 Williams Street

Civic, Business, Environmental, Religious & Historical Groups

- Dudley Square Main Streets Black Market
- Historic Boston Inc. (HBI)
- Roxbury Cultural District
- The American City Coalition (TACC)
- The Roxbury Strategic Master Plan Oversight Committee

Elected Officials

- Mayor Martin J Walsh
- City Councilor Kim Janey
- City Councilor Andrea Campbell
- City Councilor Annissa Essaibi George
- City Councilor Michael Flaherty
- City Councilor Althea Garrison
- City Councilor Michelle Wu

City Agencies

- Boston Planning and Development Agency
- Department of Neighborhood Development
- Department of Public Works
- Boston Traffic Department
- Boston Water & Sewer Commission

2.1.1 City of Boston Article 80 Review Process

This Project Notification Form is being submitted to the BPDA as part of the Article 80B Large Project Review Process in order to initiate the public

review process for the proposed 2147 Washington Street Project. The following section identifies the agencies that will review the project in conjunction with the permitting of the project.

2.1.2 Boston Civic Design Commission

It is anticipated that the project will be subject to schematic design review by the Boston Civic Design Commission (BCDC) under Article 28. As part of this process, the Proponent will meet with BCDC to review and discuss the project plans. The BCDC will provide a recommendation to the BRA Board.

2.1.3 Boston Zoning Board of Appeals

This project will seek zoning relief as detailed below.

2.1.4 Boston Water and Sewer Commission

The project will require site plan approval as well as approval of a general service application. Once approved, permits will be sought for water, sewer & drainage connections.

2.2 Compliance with Boston Zoning Code

Map 6A/6B/6C of the Boston Zoning Maps indicates that 2147 Washington Street is located within the Dudley Square Economic Development Area of the Roxbury Neighborhood District, Article 50 of the Boston Zoning Code (the "Code"). The front portion of the site is located with the Boulevard Planning and Neighborhood Design Review Districts. Since the project involves new construction in excess of 50,000 square feet gross floor area, it will be subject to the provisions of Article 80B of the Code, Large Project Review. The project is also subject to portions of Article 37 of the Code, Green Buildings.

2.2.1 Boston Zoning Code Relief

Based on the requirements of the Code applicable to the Project and Site, the Project will require several variances and a conditional use permit. The variances needed for the Project are as follows:

Building Height

The construction proposed with the project will be approximately 69.9 feet tall, exceeding the allowable 55-foot height which will require a variance.

Floor Area Ratio

The construction proposed in connection with the Project will not only require relief for FAR, but due to the reconfiguration of the parcels, the FAR for the adjacent Haley House building/parcel (12-24 Dade Street) will be increased beyond what is allowable. Relief will be sought for this property as well.

Use

The Project includes a ground-floor commercial component, a portion of which will be occupied by the Haley House Café. As a part of their programming they intent to have live entertainment which is a Conditional Use.

The ground floor also includes Artist Studios and a shared Maker Space. While “Art Use” is allowed “Artists’ Mixed Use” is a Conditional Use, so relief will be sought.

2.3 Summary of Required Permits and Approvals

The Proponent expects to secure many local, state and federal permits and approvals prior to commencement of construction. The following is a list of the anticipated permits/approvals:

Federal

- Environmental Protection Agency – NPDES Notice of Intent for Construction Dewatering
- Environmental Protection Agency – NPDES Notice of Intent for Stormwater Management
- Environmental Protection Agency – Remediation General Permit

State

- Department of Environmental Protection – Notice of Construction
- Department of Environmental Protection – Underground Injection Control Permit
- Department of Environmental Protection – BRP WP 73 Compliance Certificate

Local

- Boston Redevelopment Authority – Article 80 Large Project Review
- Boston Redevelopment Authority – Cooperation Agreement
- Boston Transportation Department – Transportation Access Plan Agreement
- Boston Civic Design Commission – Recommendation Pursuant to Article 80
- Boston Water & Sewer Commission – Site Plan Approval
- Boston Water & Sewer Commission – General Service Application
- Boston Water & Sewer Commission – Sewer Connection Permit

- Boston Inspectional Services Department – Building Permit
- Boston Zoning Board of Appeals – Zoning Relief
- Boston Department of Public Works – Curb Cut Application
- Boston Public Improvements Commission – Site Plan Approval

3.0 URBAN DESIGN COMPONENT

3.1 Introduction

The proposed design of 2147 Washington provides equitable regard for the Development Objectives & Design Guidelines of the RFP and the Plan. Our plan is faithful to the purpose of the Roxbury Strategic Master Plan, Dudley Vision and PLAN: Dudley Square, addresses the current needs of the community, and is responsive to the mission of DND. The design will contribute to the continued development of a strong and united Roxbury at “the Heart of the City” by creating affordable housing and artist live/work spaces, boosting economic development, and providing job opportunities for residents. 2147 Washington Street will serve as a beacon in the Roxbury Cultural District and be a catalyst for the arts, culture, commercial, and retail uses, while honoring the history and cultural richness of the neighborhood. The objectives of the design are:

- Create affordable homes to support the continuing revitalization of Dudley Square; encourage working artists and entrepreneurship;
- Provide a welcoming building that respects the architectural character of its neighbors; and
- Incorporate the needs and desires of Haley House to ensure its future success and growth.

The 6-story building will create an active live/work/play environment that encourages community engagement with daytime and evening activity.

3.2 Design Principles

3.2.1 Overview

In keeping with the Strategic Plan’s stated goal of bolstering place making opportunities along Washington Street moving into Dudley Square, the Project proposes to infill a long-standing gap that has been a parking lot for much of recent memory.

The design of 2147 Washington stays true to the character and social fabric of the neighborhood through height, massing and materiality, while bringing a forward-looking, modern complement to the historical context. The six-story building will create a volume that is articulated, varied and dynamic. Through thoughtful use of materials and scale we will provide a unique solution which capitalizes on the prominence of the adjacent buildings which contribute to the Dudley Station Historic District while providing a modern interpretation of the proportions and massing.

3.2.2 Building Components

Arts

The ground floor of the building will include 6 individual work-only studio spaces as well as a shared workspace, which fosters accessibility and equitable opportunity to people of all socioeconomic backgrounds. These spaces will be made available for rent first to tenants of the building and then to community residents. The spaces will provide workspace for creative endeavors ranging from the fine arts, photography, graphic design, jewelry making, pottery, architecture, and more. The individual units will range in size from 265 sf to 304 sf. These affordable artist studio units, along with the 1,462 sf shared space, will provide flexible workspace that supports the immense creative talents of artists in Roxbury and surrounding communities.

Each artist unit will feature an operable glass “garage” door which will open to a shared courtyard, creating a welcoming community. Artists can then hold open houses, pop-up shops, demonstrations, or discussions, all of which cultivate entrepreneurship and provide economic mobility. The artists and individuals who work in the studio spaces or rent shared space in the larger unit would have the opportunity to live in the residential units above, creating a true live/work creative environment. The project will create an opportunity to engage local artists to help them brand the building with a distinctive marquee.

Figure 3-1 Courtyard Rendering



Retail Opportunity

Flexible retail space on the ground floor will encourage programming and activities that allow residents to stay local to the Dudley Square area. Potential uses could include entertainment, performance space, a gallery or a restaurant/bar. A use such as these would be the priority as it would bring nighttime activity to the area and help activate the street. Alternative uses could be an office for a community non-profit, more shared workspace or other uses that promote job creation. The retail space will contribute to an activated streetscape into the evening hours, engage patrons of Haley House Bakery Café, people passing by, and the larger community.

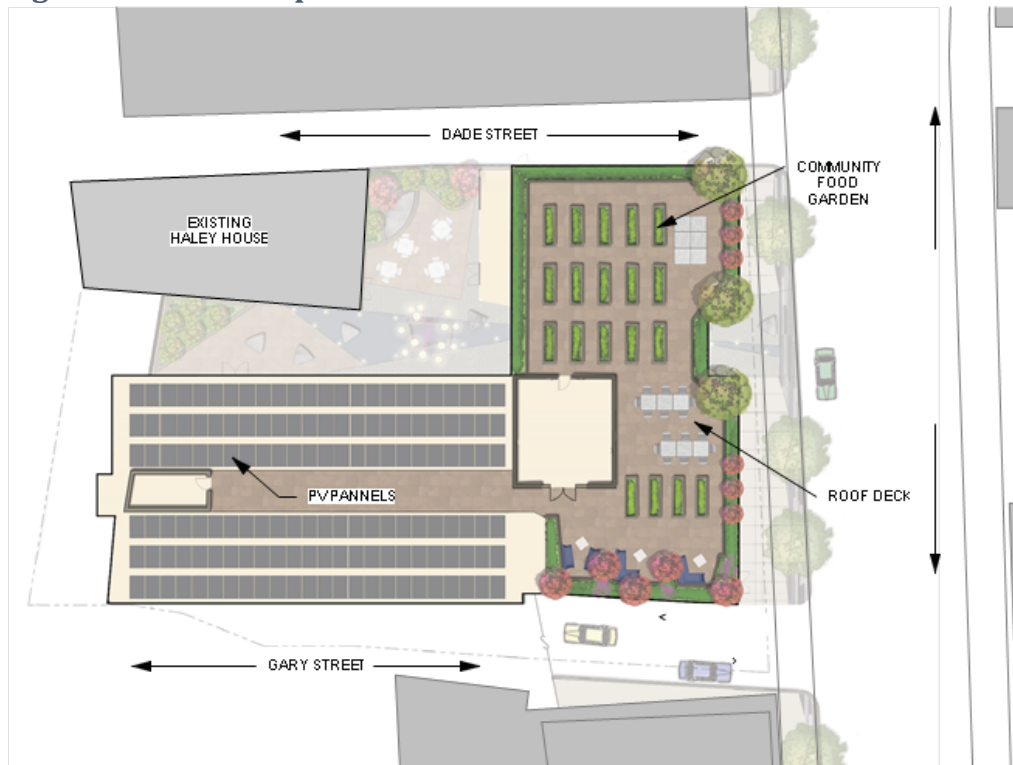
Supporting a Local Institution

The Project not only creates a space for the existing Haley House (a local café and non-profit institution) Haley House's café operations will be relocated to a higher-profile ground floor space positioned at the northeast corner of the site with frontage on Washington Street. Outdoor café tables will spill out into the public realm on Washington Street as well as into an interior courtyard. The space allows them to significantly expand their operations, brings them to a more visible and prominent location on Washington Street and allows them to expand their existing catering and job training functions in their current building. This space will help further Haley House's mission to use food with purpose and the power of community to break down barriers between people, empower individuals, and strengthen neighborhoods.

Amenities

There are a number of common amenities planned for the overall building. Residents will have use of a roof deck as well as a community space on the 2nd floor. The roof will also contain a community garden and solar (PV) panels, reducing the electricity demand of the building. Ample bicycle parking will be provided as well as electric vehicle charging stations.

Figure 3-2 Rooftop Amenities



Housing

Upper floors contain 74 residential units with 62 being rental units and 12 being for-sale condominium units located on the sixth floor. Both the rental and condominium units will be affordable to households earning a wide range of incomes, starting at below 30% of Area Median Income.

In order to maximize the level of affordability and respond to the building location “Compact Living” unit sizes have been used as the standard. The loft-like units will range in size and will be shaped to make abundant use of natural light. Unit sizes range from studios to three-bedrooms with most units being two-bedrooms.

2147 Washington includes a total of 43 off-street parking spaces. Spaces will be made available on a for-rent basis to residential and commercial tenants as well as provide short term parking for Haley House Bakery Cafe customers.

An open-air gateway beneath the upper floors is composed of strategic building angles to create a welcoming public entrance into the dynamic interior of the site. Transparency, through the abundant use of glass at the

base of the building, will provide a continuous pedestrian experience and highlight café and retail activities.

3.3 Sustainable Design

The proponent has engaged enviEnergy Studio to prepare a Green Building Report, LEED checklist and a Climate Resiliency checklist, all of which can be found in Addendum B.

4.0 HISTORIC RESOURCES

4.1 Site History

The proposed Project is located adjacent to, but is not within the Dudley Station Historic District which is listed on the National Register of Historic Places. Dudley Station Historic District is a historic district on Washington, Warren, and Dudley Streets in the Roxbury neighborhood of Boston. The central feature of the district is the Dudley Square MBTA station, a Beaux Arts/French Renaissance structure designed by Alexander Wadsworth Longfellow and built by the Boston Elevated Railway (BERy, a predecessor of the MBTA) in 1901. It is one of the best-preserved BERy stations remaining. The district was added to the National Register of Historic Places in 1985.

While currently there are no structures on the site Sanborn insurance maps indicate that the 2147 Washington site was once improved with the Hotel Adelphi, Potter's Hotel, several flats & townhouses, all constructed prior to 1887. The current Haley House building at 12 Dade Street was constructed as a furniture warehouse between 1897 and 1914 when the structure first appears on the Sanborn maps.

4.2 Proximate Historic Resources

Directly across Dade Street to the northeast is 10 Williams Street, a four-story structure. Originally built in 1877, The Comfort Hotel, has a polychromatic marble façade that was designed in the High Victorian Gothic style.

Figure 4-1 10 Williams Street



To the west of the Project is Ruggles Assisted Living at 25 Ruggles St. in the former Lafayette School. Built in 1910, the building was designed in the Classical Revival Style by architect JB Bair.

Figure 4-2 25 Ruggles Street



The commercial block southwest of the Project at 2167-2189 Washington was constructed in 1914 in the Classical Revival Style. Today it houses the City on a Hill School and multiple retail shops.

Figure 4-3 2167-2189 Washington Street



4.3 Project Impact on Historic and Cultural Resources

The proposed new building will cast shadows on a portion of side elevation of the adjacent 10 Williams Street property, but not on the main façade facing Washington Street. The form of the building has been designed to step back from the adjacent property in order to reduce area of shadow being cast.

Visually, the proposed project will provide a carefully designed contemporary structure in place of a surface parking facility, which will greatly improve the appearance of this stretch of Washington Street. The design of the new building will compliment the historic building fabric around it, with its scale, proportions, and design elements reflecting many of the principles underlying the architecture of the district as a whole, and reflecting special design features of buildings in its immediate context.

5.0 TRANSPORTATION

5.1 Introduction

The Proponent engaged Howard Stein Hudson (HSH) to conduct an evaluation of the transportation impacts of this Project in the Roxbury neighborhood of Boston. This chapter presents a summary of the Project's transportation impacts including site access, parking, public transportation, bicycle facilities, trip generation, loading and service, and Transportation Demand Management (TDM) measures. A complete transportation analysis of the Project will be included in the Draft Project Impact Report (DPIR), which will be developed in cooperation with the BPDA, the Boston Transportation Department (BTD), and the community

5.1.1 Project Description

The Project Site is located on 2147 Washington Street in the Roxbury neighborhood of Boston and currently consists of an active parking lot with approximately 40 parking spaces and the Haley House Café.

The proposed Project will replace the existing surface parking lot with approximately 74 residential units, approximately 1,881 square feet (sf) of ground floor retail space, an expansion of the existing Haley House Café and approximately 43 parking spaces. **Figure 5-1** summarizes the Proposed Development Program.

Figure 5-1 Proposed Development Program

Land Use	Size (approximate)
Residential	74 units
Café/Restaurant	2,017 sf
Retail	1,881 sf
Residential Parking	43 spaces

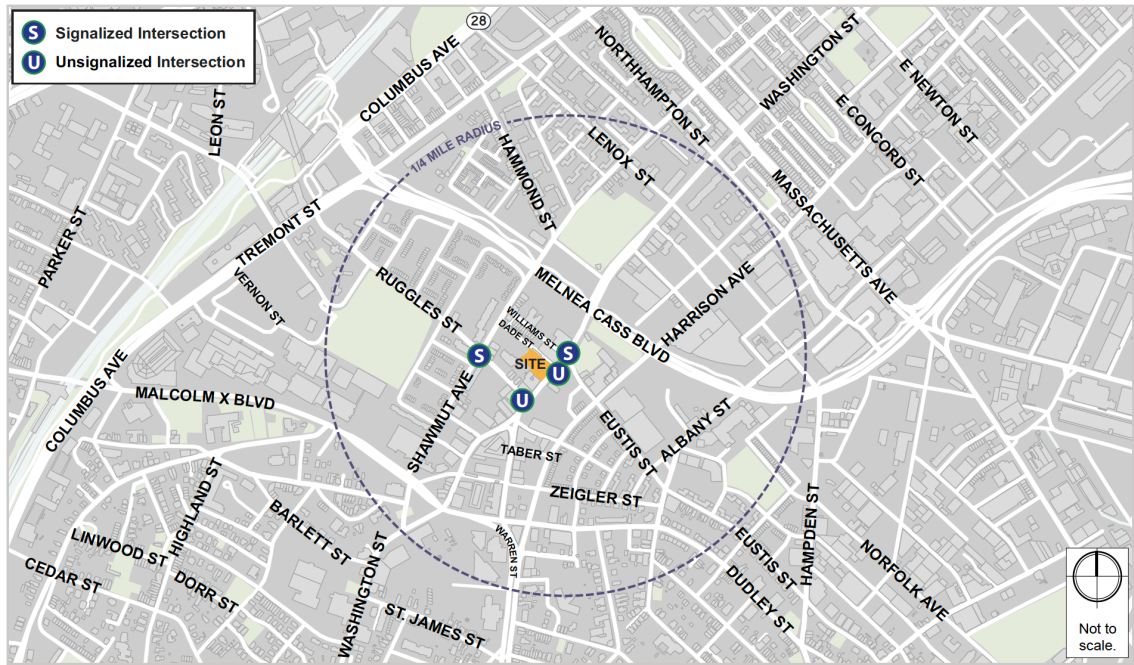
5.1.2 Study Area

The proposed study area, shown in **Figure 5-2**, consists of the following five (5) intersections in the vicinity of the Project site:

- Washington Street/Williams Street/Eustis Street (signalized);
- Shawmut Avenue/Ruggles Street (signalized);
- Washington Street/Ruggles Street (unsignalized);

- Washington Street/Dade Street/Existing Site Driveway (unsignalized); and
- Washington Street/Proposed Site Driveway (unsignalized).

Figure 5-2 Study Area



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5.2 Existing Conditions

This section includes descriptions of existing study area roadway geometries, curb usage parking, public transportation services, and bicycles and pedestrian facilities.

5.2.1 Roadway Conditions

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

Washington Street is an urban principal arterial under BTM jurisdiction located adjacent to the Project site. Washington Street generally runs in a north-south direction from its intersection with Court Street/State Street in downtown Boston, through Roxbury, Jamaica Plain, Roslindale, and West Roxbury. Washington Street becomes Route 1A in Dedham, Massachusetts.

Washington Street is one-way southbound with two travel lanes from its intersection with Palmer Street/Warren Street to its intersection with Malcolm X Boulevard and Dudley Street. In the vicinity of the Project site, on-street parking and sidewalks are provided along both sides of the roadway.

Shawmut Avenue is an urban minor arterial under BTD jurisdiction located to the west, behind the Project site. Shawmut Avenue is one-way southbound from its intersection with Tremont Street/Oak Street W in Chinatown Boston to its intersection with E Berkeley Street, where it switches direction to one-way northbound to its intersection with W Dedham Street, and shifts direction to one-way southbound to its intersection with Washington Street in Dudley Square. In the vicinity of the Project site, on-street parking and sidewalks are provided along both sides of the roadway.

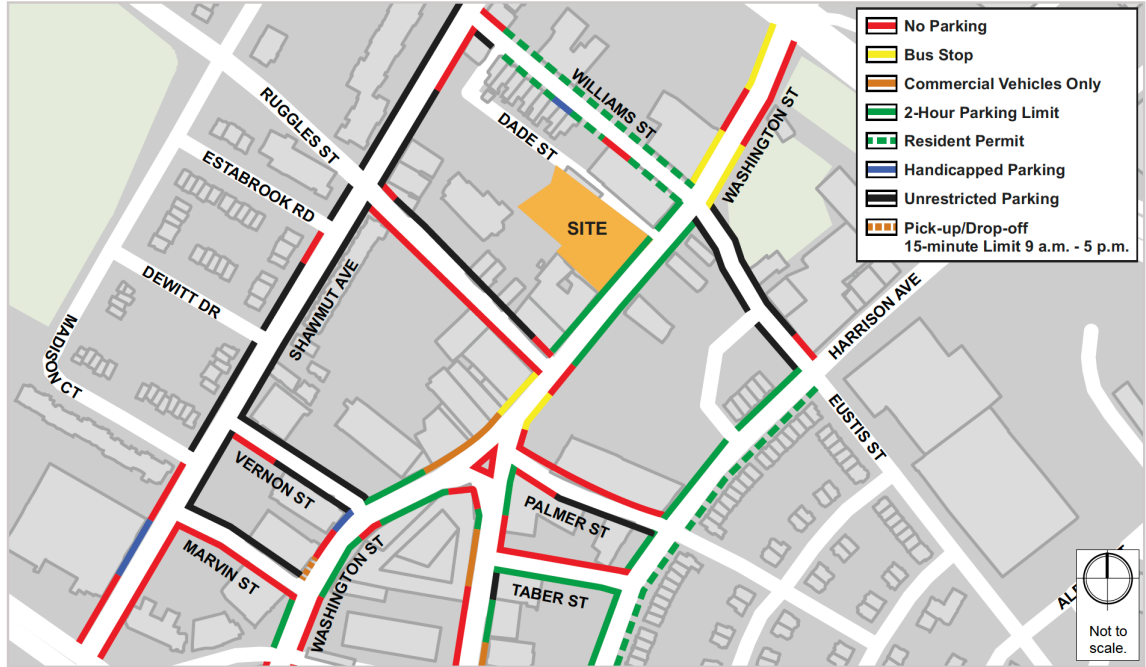
Ruggles Street is an urban minor arterial under BTD jurisdiction located to the south of the Project site. Ruggles Street is a two-way roadway that runs generally east-west direction between Washington Street and Shawmut Avenue and one-way eastbound between Tremont Street and Shawmut Avenue. In the vicinity of the Project site, on-street parking is permitted on the north side of the roadway between Shawmut Avenue and Washington Street and on both sides of the roadway between Tremont Street (Route 28) and Shawmut Avenue. Sidewalks are provided along both sides of the roadway.

5.2.2 Existing Parking Conditions

On-Street Parking

On-street parking surrounding the Project site consists of a variety of different parking regulations including two-hour parking, residential parking, and no parking. The on-street parking regulations within the study area are shown in **Figure 5-3**.

Figure 5-3 On-Street Parking



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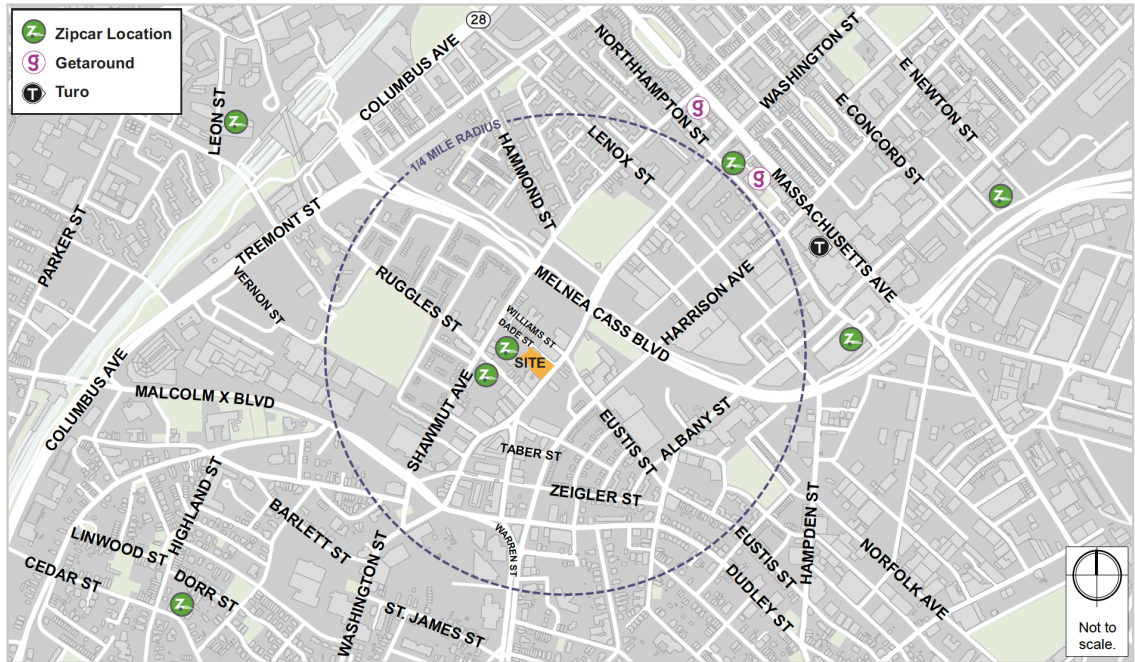
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Car Sharing Services

Car sharing services enable 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. Pick-up/drop-off locations are typically in existing parking lots or other parking areas throughout neighborhoods as a convenience to users of the services. Nearby car sharing services provide an important transportation option and reduce the need for private vehicle ownership.

Zipcar is the primary car share company in the Boston car sharing market, however other companies such as Turo and Getaround also operate within the city. Two Zipcar locations are within a five-minute walk (one-quarter mile) of the Project site. Additionally, four Zipcar locations, one Turo location, and two Getaround location exist within a half-mile from the Project site. The nearby car sharing locations are shown in **Figure 5-4**.

Figure 5-4 Car Sharing Locations



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5.2.3 Existing Public Transportation

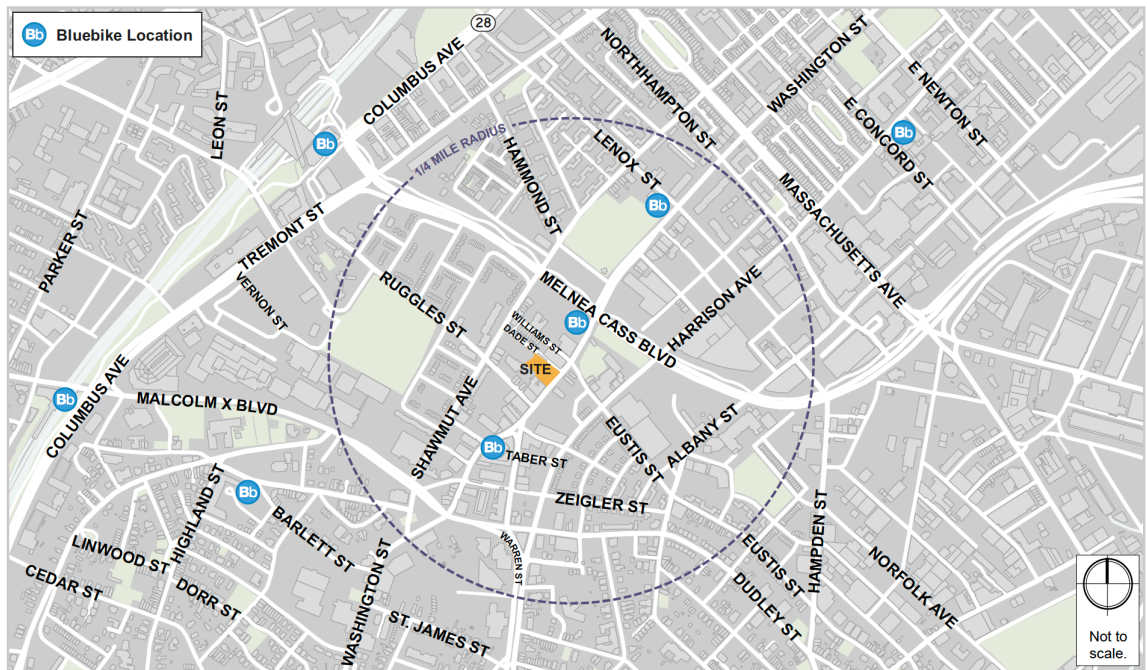
The Project site area is well-served by public transportation. Dudley Station, with access to several MBTA bus lines, including two Silver Line Rapid Transit bus routes, is located to the south of the Project site. Additionally, the Project site is located in walking distance from two other MBTA stations: the Ruggles Station is approximately 0.6 miles west of the Site and the Roxbury Crossing Station is approximately 0.8 miles to the southwest of the Site. Both stations provide access to the MBTA orange line as well as several bus routes. The Ruggles Station also provides access to three MBTA Commuter Rail lines. The MBTA public transportation services and bus routes that run adjacent to the Site are shown in **Figure 5-5** and summarized in **Figure 5-6**.

5.2.5 Bicycle Conditions

In recent years, bicycle use has increased dramatically throughout the City of Boston. Currently, no bicycle facilities (such as bicycle lanes) operate within the study area. However, the Boston Transportation Department (BTD) is conducting an initiative, Dudley Square Complete Street Design Project, which aims to improve traffic and parking, and overall safety of pedestrians and bicycles. The project will be constructed into two phases and includes the corridor of Washington Street between Melnea Cass Blvd. and Shawmut Avenue, and segments of Warren Street, Malcolm X Blvd., and Dudley Street.

The Project site is also located in proximity to numerous bicycle-sharing stations provided by BLUEbikes (formerly Hubway). BLUEbikes is the Boston area's largest bicycle sharing service, which was launched in 2011 and currently consists of more than 3,400 shared bicycles at more than 190 stations throughout Boston, Brookline, Cambridge, Somerville, and Everett. As shown in **Figure 5-7**, three BLUEbike stations are located less than a five-minute walk from the Site and an additional four stations are located just within half-mile of the Site.

Figure 5-7 Bicycle Sharing Locations



5.3 Future Conditions

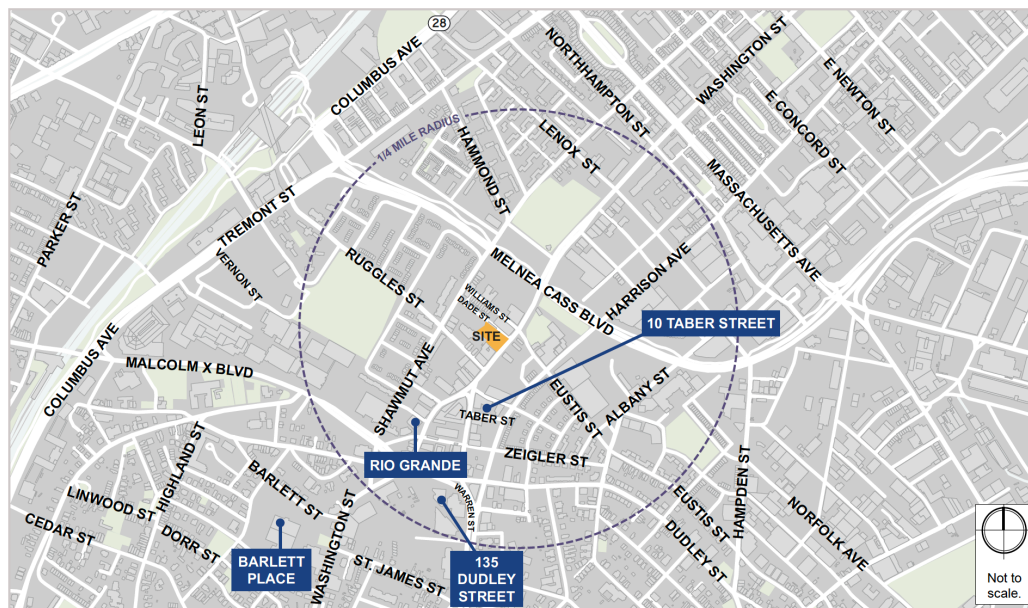
For the future transportation impacts, it is standard practice to evaluate two future conditions: No-Build Conditions (without the proposed project) and Build Conditions (with the proposed project). The following sections provide a summary of those future transportation conditions.

5.3.1 No-Build Condition

The No-Build Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with two factors: background traffic growth independent of any specific project and traffic associated with other planned specific developments.

The methodology to account for general future background traffic growth is to evaluate how traffic volumes may be affected by changes in demographics, smaller scale development projects, or projects unforeseen at this time. Based on a review of recent and historic traffic data collected and to account for any additional unforeseen traffic growth, a traffic growth rate of one-half percent per year applies to traffic volumes in the vicinity of the Project site. The traffic volumes associated with known, larger, or adjacent development projects can affect traffic patterns throughout the study area within the future analysis time horizon. Key background development projects were identified in the vicinity of the Project site and are shown in **Figure 5-8**.

Figure 5-8 Background Projects



5.3.2 Build Condition

The Project will result in the construction of approximately 74 residential units, an expansion of approximately 2,527 sf of the existing café, and approximately 1,400 sf of additional ground-floor retail space.

5.3.2.1 Parking and Loading Accommodations

Residential parking will be provided on-site in an underground garage, with access/egress provided via an existing curb-cut on Washington Street on the southern side of the Site. While the curb-cut exists today, the associated driveway is fenced off preventing vehicle access. This curb-cut will be reactivated to provide vehicle access and egress for the Site.

The parking goals developed by the BTDC for the Dudley Square neighborhood reflect a maximum of 0.5 - 1.0 residential parking spaces per unit. With approximately 74 residential units and 47 parking residential spaces, the Project anticipates having a parking ratio of approximately 0.64 spaces per unit, a rate consistent with City guidelines.

All residential move-in/move-out activity, retail and residential deliveries, and trash accommodations will occur off-street, within the Site.

5.3.2.2 Trip Generation Methodology

Trip generation is a complex, multi-step process that produces an estimate of vehicle trips, transit trips, walk trips, and bicycle trips associated with a proposed project and a specific land use program. A project's location and proximity to different modes determines how people will travel to and from that 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, 10th Edition*¹ 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 modes such as walking, bicycling, and transit.

Trip generation estimates for the Project were derived using the following Land Use Codes (LUC):

¹ Trip Generation Manual, 10th Edition; Institute of Transportation Engineers; Washington, D.C.; 2017.

- **LUC 220 – Multifamily Housing (Low-Rise) “Residential”.** Low-rise multifamily housing includes apartment, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors). Calculations of the number of trips uses ITE’s average rate per units. ITE also provides data for mid-rise and high-rise residential buildings with more than two floors. However, the study team chose to use the trip rates associated with the Low-Rise Residential LUC which are higher, resulting in a more conservative analysis (i.e., higher impact).
- **LUC 820 – Shopping Center “Retail”.** A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center’s composition is related to its market area in terms of size, location, and type of store. Of the ITE retail categories, this one best suits the retail component proposed within the Project. Calculations of the number of trips use ITE’s average rate per 1,000 sf.
- **LUC 931 – Quality Restaurant “Restaurant”.** This land use consists of high quality, full-service eating establishments with a typical duration of stay of at least one hour. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for meals after they eat. Calculations of the number of trips use ITE’s average rate per 1,000 sf.

5.3.2.3 Travel Mode Shares

BTD publishes transit, walk/bike, and vehicle mode split rates for different areas of Boston and the Project is located within designated Area 15 - Roxbury. The unadjusted vehicular trips were converted to person-trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)². The person-trips were then distributed to different modes according to the mode shares shown in **Figure 5-9**.

5.3.2.4 Existing Trip Generation

When assessing a site with existing, active land uses, it is standard practice to estimate existing trips and subtract those trips from the projected new future trips. The result of this process yields “net new” trips that become the basis for the traffic analysis in the DPIR submission.

² Summary of Travel Trends: 2017 National Household Travel Survey; FHWA; Washington, D.C.; July 2018.

The existing site generates trips associated with on-site parking and approximately on-site café. The existing café will remain in place for the future redevelopment; therefore, those trips will not be subtracted. The study team will conduct counts during the DPIR submission at the existing parking lot driveway to estimate the site trips.

5.3.2.5 Project Trip Generation

The travel mode share percentages shown in **Figure 5-9** were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates for the Project. Vehicle trips include automobiles, taxicabs, and transportation network company (TNC) services, such as Uber and Lyft. The trip generation for the Project by travel mode is shown in **Figure 5-10**.

Figure 5-9 BTD Travel Mode Shares and Vehicle Occupancy Rate

Land Use/Direction		Bike/Walk Trips	Transit Trips	Vehicle Trips	Vehicle Occupancy Rate
Daily					
Residential	In	27%	17%	56%	1.18
	Out	27%	17%	56%	1.18
Retail	In	35%	12%	53%	1.82
	Out	35%	12%	53%	1.82
Restaurant	In	35%	12%	53%	2.10
	Out	35%	12%	53%	2.10
a.m. Peak Hour					
Residential	In	27%	19%	54%	1.18
	Out	27%	29%	44%	1.18
Retail	In	36%	13%	51%	1.82
	Out	37%	21%	42%	1.82
Restaurant	In	36%	13%	51%	2.10
	Out	37%	21%	42%	2.10
p.m. Peak Hour					
Residential	In	27%	29%	44%	1.18
	Out	27%	19%	54%	1.18
Retail	In	36%	13%	51%	1.82
	Out	37%	21%	42%	1.82
Retail	In	37%	21%	42%	2.10
	Out	36%	13%	51%	2.10

Source: Boston Transportation Department mode share data for Area 15 for residential and retail.

Figure 5-10 Project Trip Generation

Land Use/ Direction		Walk/ Bicycle Tips	Transit Trips	Vehicle Trips		
				Private	Taxicab/ TNC	Total Vehicle Trips
<i>Daily</i>						
Residential LUC 220 – 74 units	In	86	55	144	16	160
	Out	<u>86</u>	<u>55</u>	<u>144</u>	<u>16</u>	<u>160</u>
	Total	172	110	288	32	320
Retail LUC 820 – 1, 440 sf	In	16	6	13	2	15
	Out	<u>16</u>	<u>6</u>	<u>13</u>	<u>2</u>	<u>15</u>
	Total	32	12	26	4	30
Restaurant LUC 931 – 2,527 sf	In	77	27	53	6	59
	Out	<u>77</u>	<u>27</u>	<u>53</u>	<u>6</u>	<u>59</u>
	Total	154	54	106	12	118
<i>a.m. Peak Hour</i>						
Residential LUC 220 – 74 units	In	2	2	4	2	6
	Out	<u>8</u>	<u>9</u>	<u>11</u>	<u>2</u>	<u>13</u>
	Total	10	11	15	4	19
Retail LUC 820 – 1, 440 sf	In	1	0	1	0	1
	Out	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
	Total	2	0	2	0	2
Restaurant LUC 931 – 2,527 sf	In	1	0	0	0	0
	Out	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total	2	0	0	0	0
<i>p.m. Peak Hour</i>						
Residential LUC 220 – 74 units	In	8	9	11	2	13
	Out	<u>5</u>	<u>3</u>	<u>8</u>	<u>2</u>	<u>10</u>
	Total	13	12	19	4	23
Retail LUC 820 – 1, 440 sf	In	2	1	1	0	1
	Out	<u>2</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>
	Total	4	2	2	0	2
Restaurant LUC 931 – 2,527 sf	In	10	6	5	0	5
	Out	<u>5</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>3</u>
	Total	15	8	8	0	8

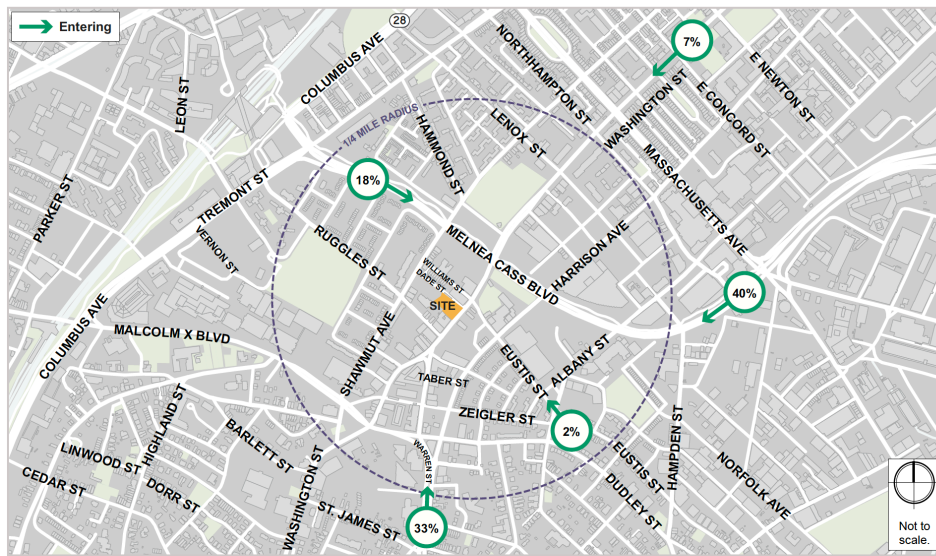
As shown in **Figure 5-10**, the Project will generate approximately 11 transit person trips (2 trips entering and 9 trips exiting) during the a.m. peak hour and 22 transit person trips (16 trips entering and 6 trips exiting) during the p.m. peak hour.

As shown in **Figure 5-10**, the Project will generate approximately 21 vehicle trips (7 trips entering and 14 trips exiting) during the a.m. peak hour and 33 vehicle trips (19 trips entering and 14 trips exiting) during the p.m. peak hour.

5.3.2.6 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 15. The trip distribution patterns were refined based on existing traffic patterns and review of the adjacent roadway network. The trip distribution pattern for the Project is illustrated in **Figure 5-11** and **Figure 5-12**.

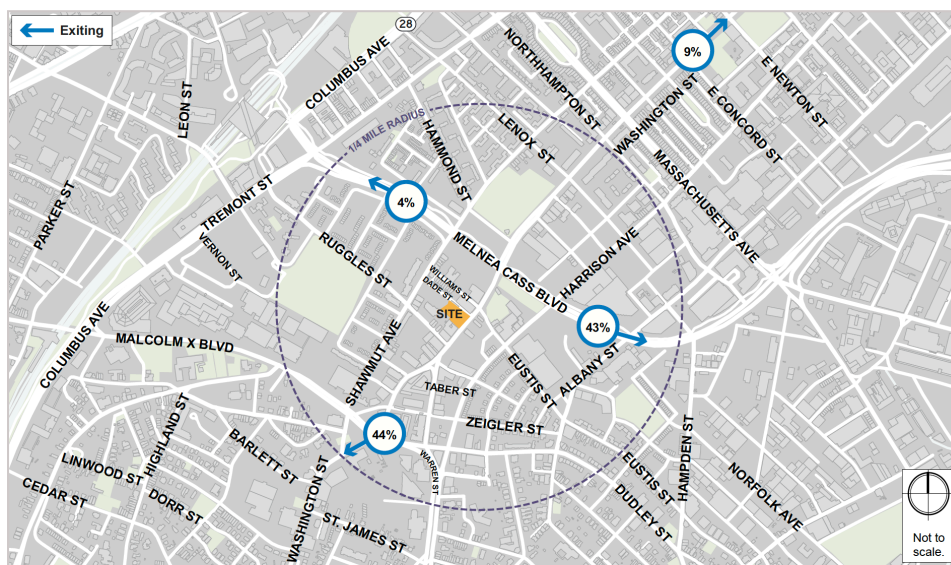
Figure 5-11 Trip Distribution - Entering



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Figure 5-12 Trip Distribution - Exiting



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5.3.2.7 Bicycle Accommodations

Based on BTM guidelines, the Project will provide secure covered bicycle storage for up to 74 bicycles (one space per residential unit) within the proposed building, available for building residents. Additional bicycle racks will be provided near main entrances to the new building for workers, visitors, and guests.

All bicycle racks, signs, and parking areas will conform to BTM standards and be sited in safe, secure locations. The Proponent will work with BTM to identify the most appropriate quantity and location for bicycle racks on the Project site as part of the *Transportation Access Plan Agreement (TAPA)* process.

5.4 Transportation Demand Management

The Project Proponent is committed to implementing a transportation demand management (TDM) program in support of the City's efforts to reduce dependency on the automobile. The Proponent will work with the Boston Transportation Department (BTM) as part of the Transportation Access Plan Agreement (TAPA) process to identify appropriate TDM measures.

TDM measures encourage travelers to use alternatives to driving, especially during peak periods and will be facilitated by the nature of the Project and its proximity to public transit. The TDM program may include an on-site transportation coordinator that will keep a supply of transit information (schedules, maps, and fare information) to be made available to tenants and visitors of the Project site. TDM measures may include, but are not limited to, the following:

- **Transportation Coordinator:** The Proponent will designate a transportation coordinator to manage move-in/move-out, loading and service activities, and provide alternative transportation materials to tenants.
- **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 car sharing locations. On-site management will work with residents and tenants as they move in to help facilitate transportation for new arrivals.
- **Public Transportation:** The Proponent will promote the use of public transportation by posting real-time information about nearby

transportation options provide on-site and online sale of MBTA passes through the building management office.

- **Bicycle Accommodation:** The Proponent will provide 74 bicycle spaces in secure sheltered areas for residents. Subject to necessary approvals, public use bicycle racks for visitors will be placed near building entrances.

The proponents will work with BTM to determine an appropriate TDM program and will formalize this program in a Transportation Access Plan Agreement (TAPA).

5.5 Evaluation of Short-Term Construction Impacts

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

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

6.0 ENVIRONMENTAL

6.1 Wind

The proposed residential building will reach 69 feet in height, on average, at the perimeter of the highest parts of the building. The new structure is an L-Shaped building with the majority of its mass moving into the Project Site.

The only public areas will be the retail plaza areas on the ground floor and the central courtyard. Other buildings in the vicinity of the Project are about the same height and scale with the exception of the package store immediately West of Gary Street which is a 1 Story brick and metal building.

As a result of the existing and proposed conditions, it is expected that none of the locations along the sidewalk will have pedestrian level winds (PLWs) that exceed the BRA guideline wind speed of 31 mph more than 1% of the time as a direct impact of the proposed building.

6.2 Shadow

6.2.1 Introduction and Methodology

A shadow impact analysis was conducted for the hours of 9:00 am, 12:00 noon, and 3:00 pm during the summer solstice (June 21), autumnal equinox (September 21), and the winter solstice (December 21). The vernal equinox shadow impacts were studied as if March 21 were still in Standard Time, meaning they are studied during the time periods of 10:00 am, 1:00 pm, and 4:00 pm. Impacts at 6:00 pm during the summer and autumn were also examined. The study used the applicable Altitude and Azimuth data for Boston presented in Appendix B of the BRA's 2006 Development Review Guidelines.

The shadow analysis presents existing shadow as well as net new shadow from the Project to illustrate the incremental impact of the Project. For the purposes of clarity, new shadow is shown in a blue tone while existing shadow is shown in gray. Results of the shadow impact study are discussed in the following sections and are supported by Figures 6.1 through 6.14.

6.2.2 Results

In general, new shadow from the Project will largely be limited to the inner block created by Washington St, Williams St, Ruggles St, and Shawmut Ave, casting shadow on the existing parking lot abutting the site. The new shadow

only leaves the block and crosses Washington St. later in the evening during the summer solstice and autumnal equinox. Results for each of the 14 times studied are presented below.

Vernal Equinox (March 21)

At 9:00 am during the vernal equinox, shadow from the Project will be cast in a northwesterly direction. New shadow will be cast onto the existing parking lot abutting the site and the rear façade of the Ruggles Assisted Living Facility.

As the day progresses, the shadows become shorter, falling to the north. At 12:00 pm, new shadow from the Project will be cast onto the side of the Haley House Café.

A 3:00pm, shadow will extend to the northeast. New shadow from the Project will be cast onto the side of Haley House Café and to a small degree onto the Dade St. façade of 10 Williams St.

Figure 6.1 Shadow Analysis – March 21, 9 am

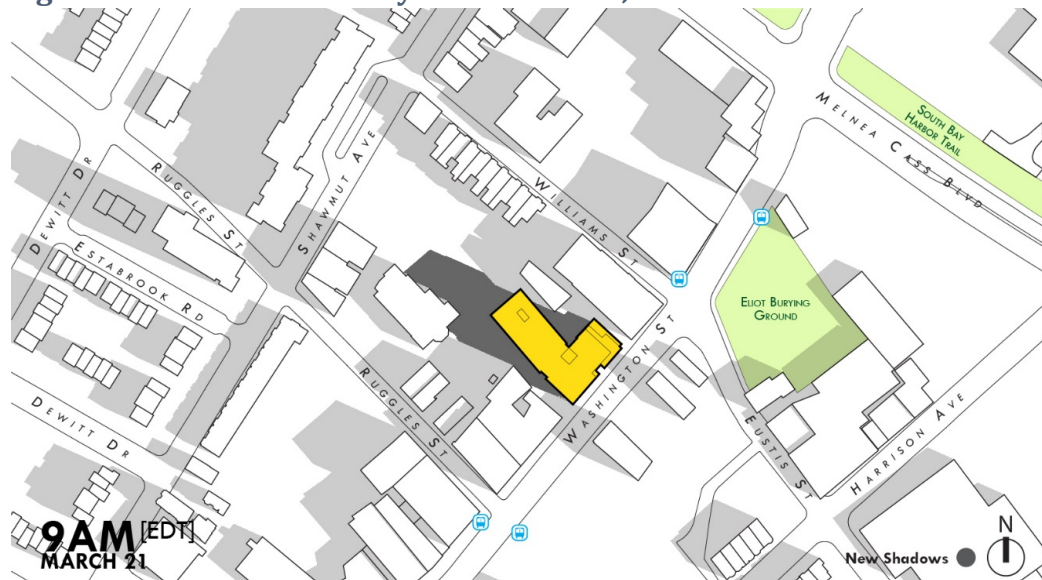


Figure 6.2 Shadow Analysis – March 21, 12 pm

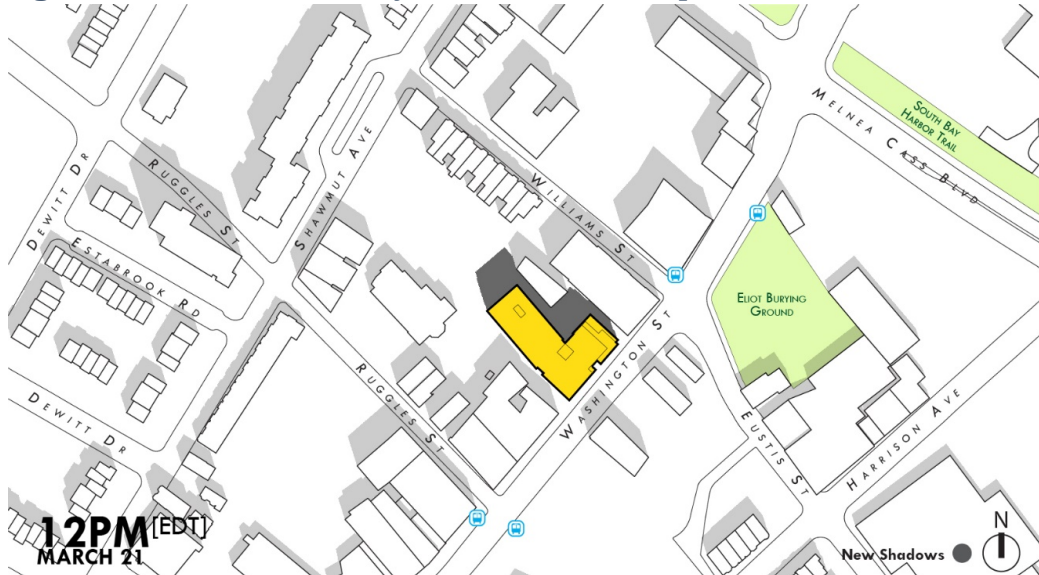
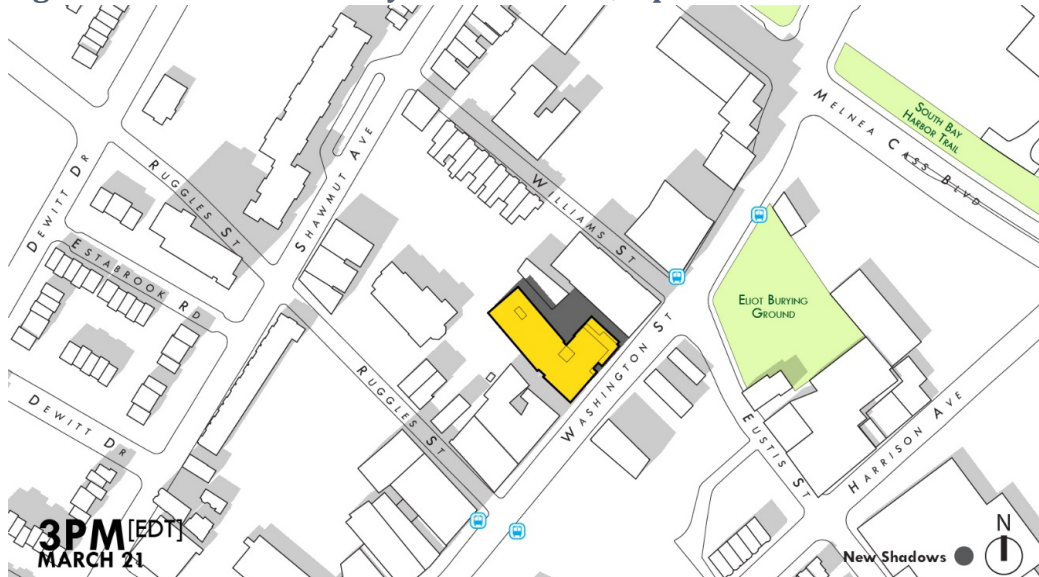


Figure 6.3 Shadow Analysis – March 21, 3 pm



Summer Solstice (June 21)

At 9:00 am during the summer solstice, shadow will be cast in a westerly direction. New shadow from the Project will be cast onto a portion of the inward facing façade of office space at 2173 2178 Washington St as well as a back corner of the Ruggles Assisted Living Facility to a small degree.

As the day progresses, the shadows become shorter and swing to the north at 12:00 pm.

At 3:00 pm, shadow will extend to the northeast. Net new shadow from the Project will fall partially on the Haley House Café, to a small degree on the 10 Williams St building, and cover part of the sidewalk directly in front of the Project on Washington St.

At 6:00 pm, shadow will be cast to the east. New shadow from the Project will be cast across Washington St. and onto Aga's Highland Tap and the Black Market. Some shadow will also be cast onto the side of Haley House Café and onto the building at 10 Williams St. to a small degree.

Figure 6.4 Shadow Analysis - June 21, 9 am

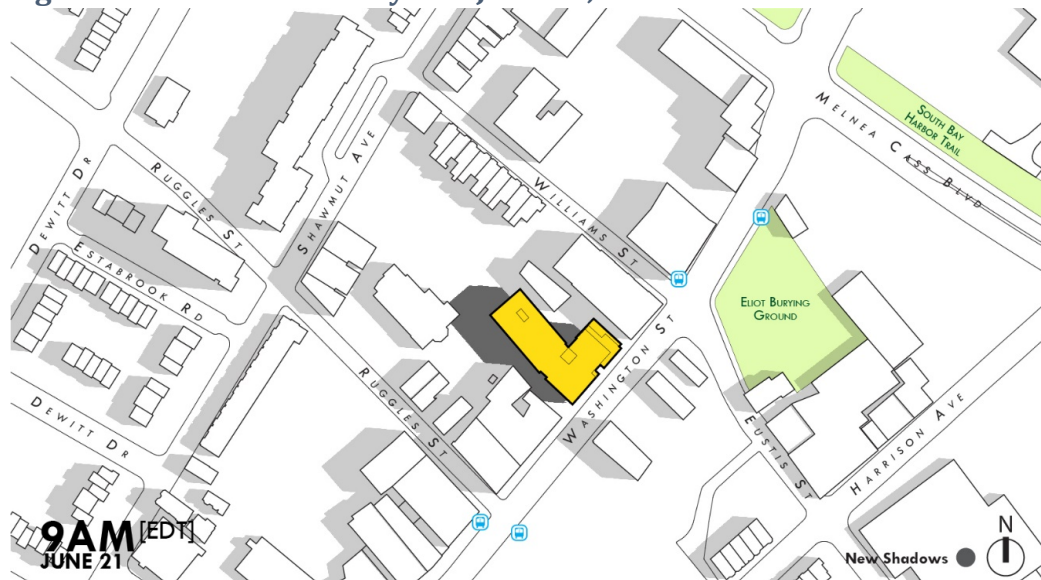


Figure 6.5 Shadow Analysis - June 21, 12 pm

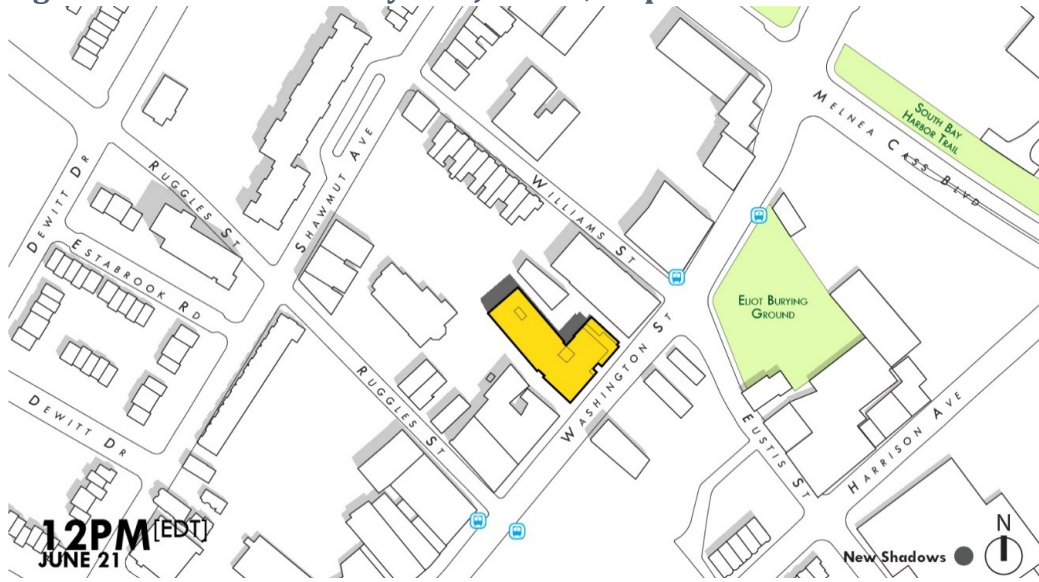


Figure 6.6 Shadow Analysis - June 21, 3 pm

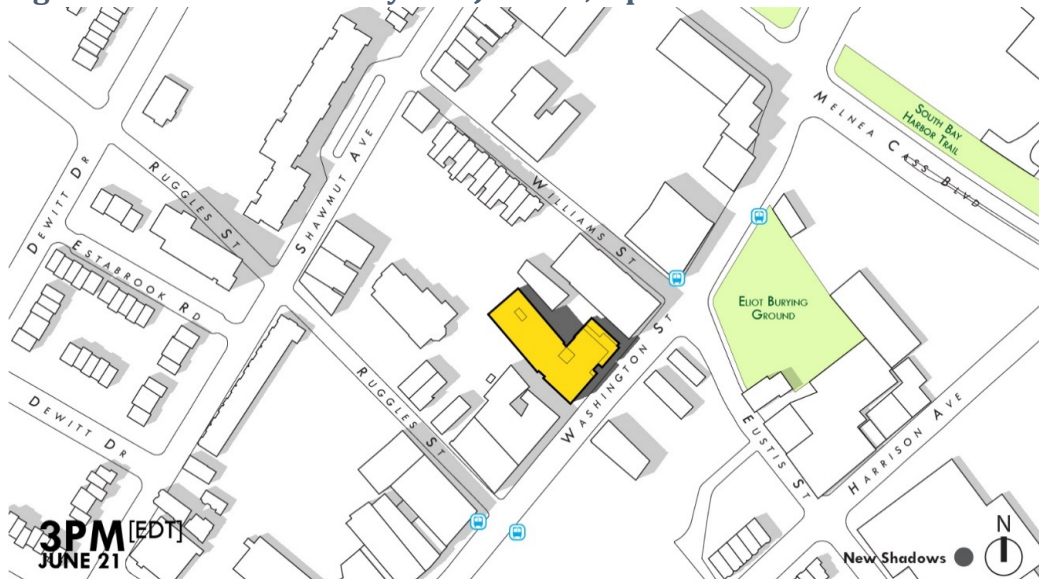
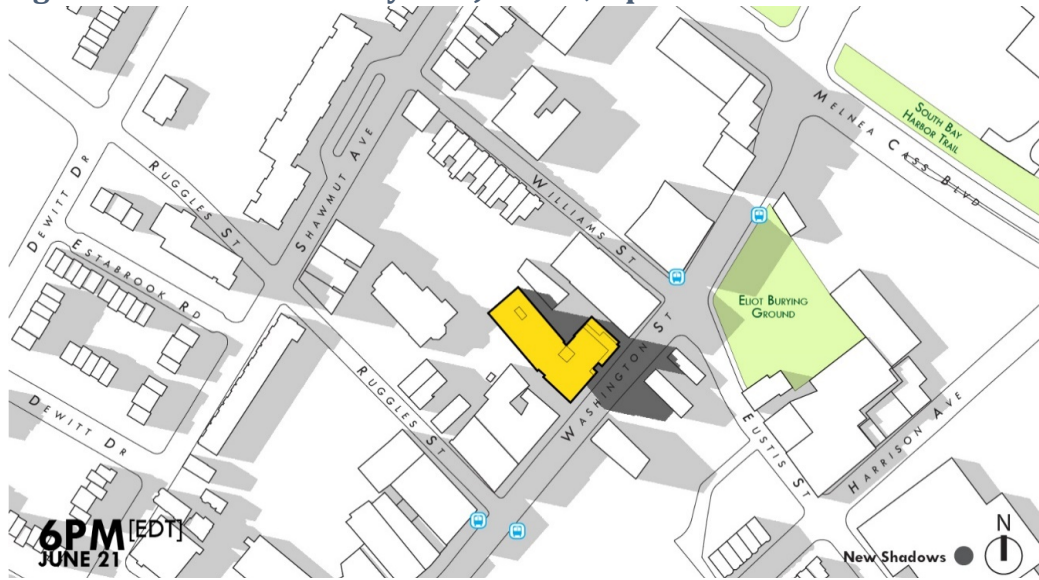


Figure 6.7 Shadow Analysis – June 21, 6 pm



Autumnal Equinox (September 21)

At 9:00 am during the autumnal equinox, net new shadow will be cast northwest onto the existing parking lot in the inner block adjacent to the project. Small amounts of shadow will also be cast onto the rear of the Ruggles Assisted Living facility and the office space at 2173-2178 Washington St.

At noon, new shadow from the Project will be cast to the North onto the Haley House Café and the Dale St. façade of the 10 Williams St. building.

At 3:00 pm, new shadow will extend to the northeast. New shadow from the Project will be cast onto the Haley House Café as well as the Dale the St. St. façade of the 10 Williams St. building. There will also be a small amount of shadow cast onto the Washington St. sidewalk in front of the project.

By 6:00 pm, much of the area is covered in existing shadow. New net shadow will affect the roofs of the Haley House Café and the Black Market, and will fill in the remaining area not yet in shadow on the 10 Williams St. building and the Eliot Burying Ground.

Figure 6.8 Shadow Analysis – September 21, 9 am

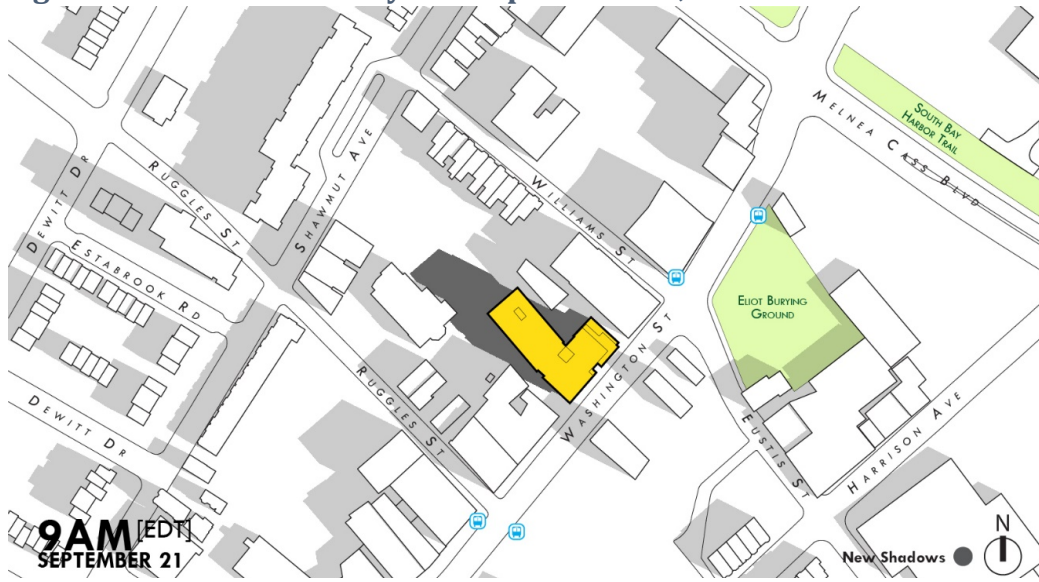


Figure 6.9 Shadow Analysis – September 21, 12 pm

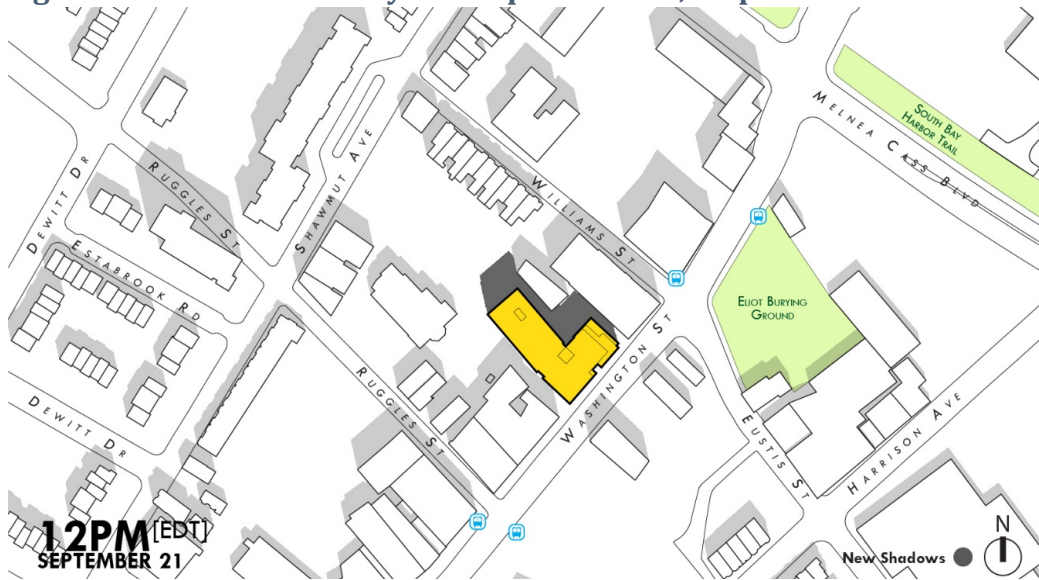


Figure 6.10 Shadow Analysis – September 21, 3 pm

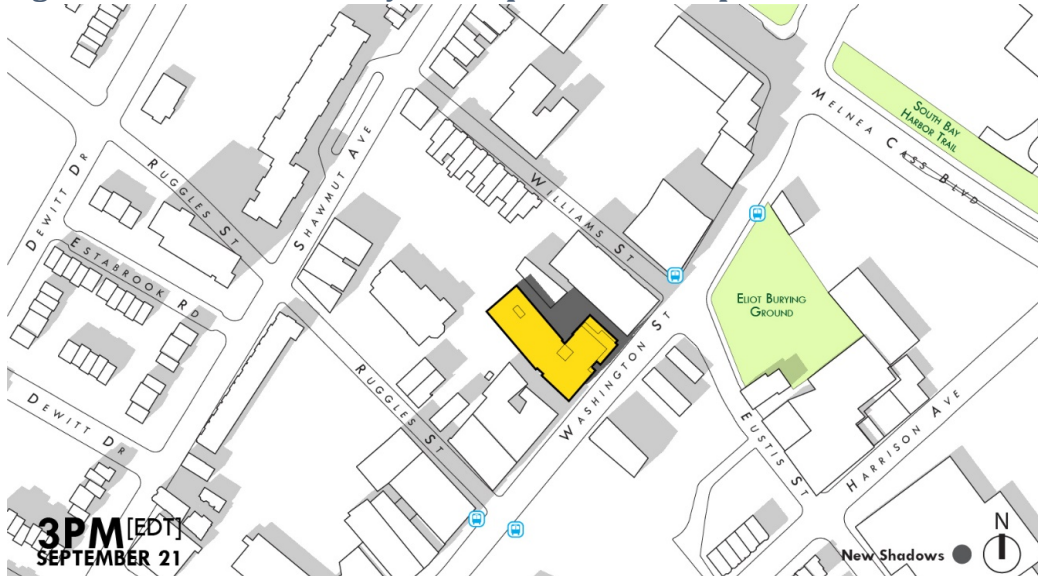


Figure 6.11 Shadow Analysis – September 21, 6 pm



Winter Solstice (December 21)

The winter solstice creates the least favorable conditions for sunlight in New England. The sun angle during the winter is lower than in any other season, causing shadows to elongate.

At 9:00 am, the morning sun will cast new shadow from the Project to the northwest that will span most of the inner block casting shadow on the existing parking lot. Shadow will also be cast on the front, side, and roof of the Haley House café.

At noon, shadow will extend directly to the north. New shadow will be cast on the front, side and roof of the Haley House Café, on the Dale St Façade of the 10 Williams St. building, and the rear of the residences at 24 Williams St.

At 3:00 pm, much of the area is already covered in existing shadow. New net shadow will fill in the remaining area not yet in shadow on Haley House Café and the 10 Williams St. building.

Figure 6.12 Shadow Analysis – December 21, 9 am

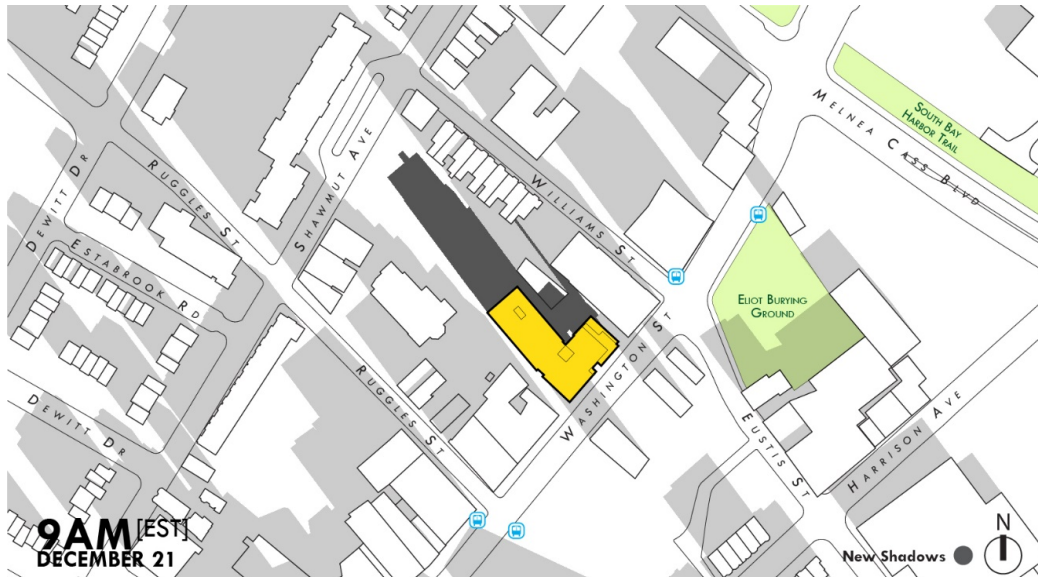


Figure 6.13 Shadow Analysis – December 21, 12 pm

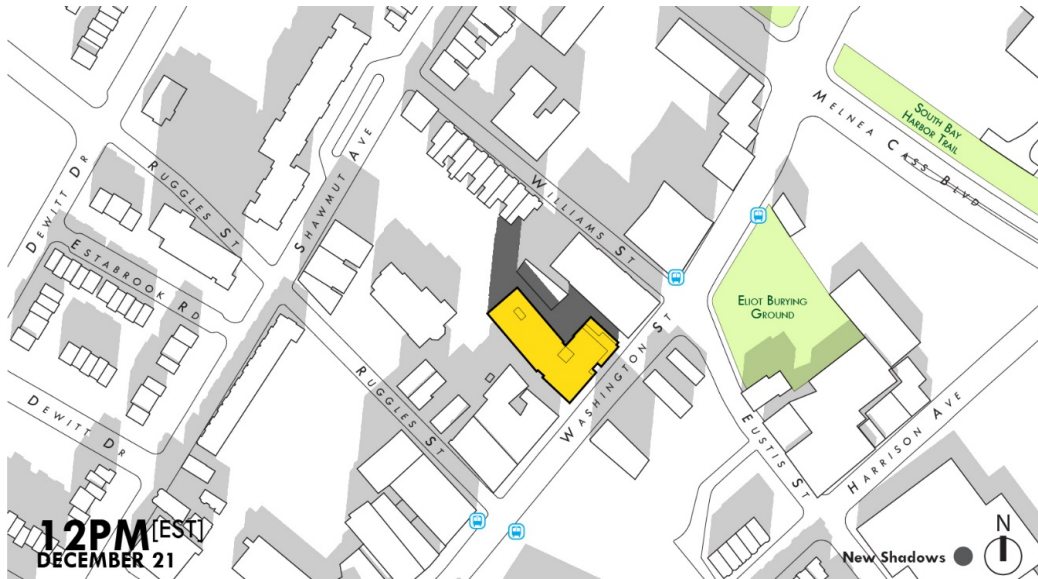
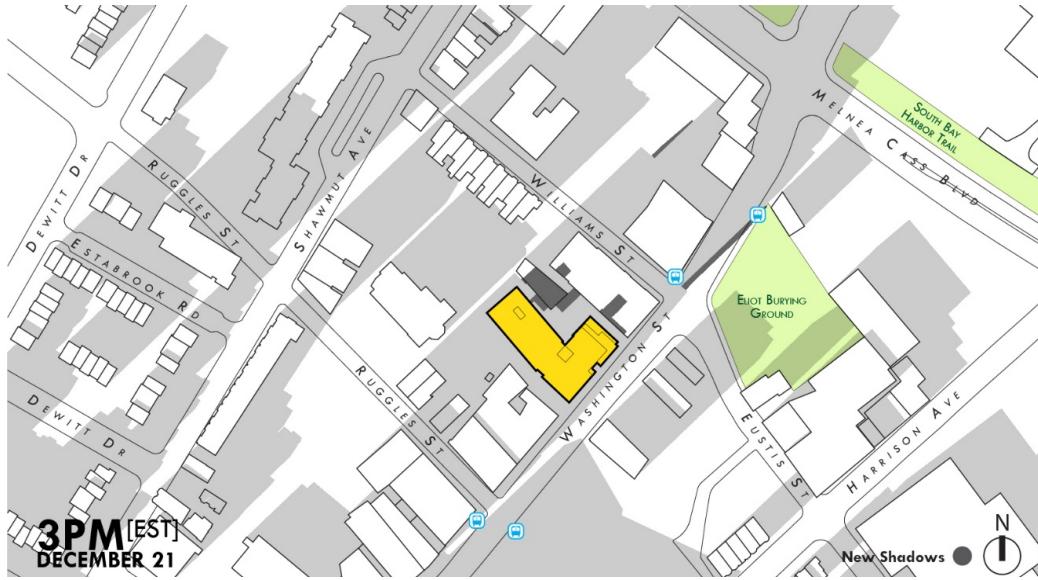


Figure 6.14 Shadow Analysis – December 21, 3 pm



6.3 Daylight

The proposed 69-foot high structure will result in some daylight obstruction along the south face of 10 Williams Street abutter. There is a modest separation of 15' for the first 60 feet into the depth of the lot which is only for the first story. Above the first floor the separation opens to a more generous 19-foot separation. Past the depth of the retail block the separation grows to a 70-foot setback along the depth of the proposed courtyard. The design strategy includes a stepped elevation and a courtyard which is intended to provide some spatial relief where the light-colored materials are expected to compliment this effect by bringing daylight and life into the depth of the building block

6.4 Solar Glare

A solar glare analysis is intended to measure potential reflective glare from the buildings onto potentially affected streets, and public open spaces and sidewalk areas in order to determine the likelihood of visual impairment or discomfort due to reflective spot glare. As a result of the design and use of generally non-reflective materials, including masonry, composite panels, and non-reflective glass, it is not anticipated that the Project will have adverse solar glare impacts or create solar heat buildup in nearby buildings.

6.5 Air Quality

This section provides a qualitative review of air quality sources and impacts as a result of the proposed Project from the parking and traffic sources. Impacts from construction operations are discussed in the Construction Impact Section 6.11.6. Although the heating and mechanical ventilation systems have not yet been designed, they will not impact pedestrian level air quality at all.

Existing Air Quality

The Site is currently occupied by a surface parking lot containing 48 spaces, which exert a relatively minor impact on air quality.

Parking and Loading

The proposed 32 vehicle spaces will be located below-grade under the proposed building. Though the system has not yet been fully designed, it is anticipated that the below grade garage shall be mechanically ventilated, with an air intake at grade toward Gary Street, and discharge of garage ventilation air through diffusers further along Gary Street, and in the loading area at the rear of the building near the northern property line, which is open to air on one side. Thus, motor vehicle emissions emanating from the below-grade parking structure will be widely dispersed prior to leaving the Site.

Over the long term, air quality impacts from the below-grade parking facility are expected to decline as new vehicles become subject to more stringent emission control requirements.

In addition, several design and program considerations will mitigate air quality impacts from the below-grade parking facility:

- Location of public use areas away from the ventilation discharge;
- Installation of parking spaces for shared-use vehicles;
- Installation of an electric vehicle charging station; and,
- Installation of covered and/or enclosed bicycle storage facilities for residents and guests.

Traffic

The traffic engineers, Howard/Stein & Hudson Associates have performed a transportation study for the Project area. Please refer to the Transportation Section of this report.

6.6 Noise

The proponent does not anticipate a significant increase in noise impacts associated with the proposed uses at the Project Site. The Boston Air Pollution Control Commission regulates noise in the City of Boston based on land use classification. The regulations establish a maximum sound level for residential areas such as the Project Site of 60 dBA during the day and 50 dBA at night. These limits do not apply to construction noise or motor vehicle traffic. The City of Boston has also established noise limits that apply to nine octave band center frequencies.

The primary sources of external mechanical noise will include the rooftop mechanical units. The Project may also include an emergency generator, which could also contribute to external mechanical noise, though this has not yet been determined as a need. As rooftop equipment is not expected to exceed maximum sound levels, no mitigation is proposed. During the final design phase, appropriate low-noise mechanical equipment and noise control measures will be selected, as necessary, to ensure compliance with City of Boston noise regulations at all nearby sensitive locations.

6.7 Stormwater Management & Water Quality

The Project proposes a stormwater management program that will improve the quality of stormwater runoff and promote recharge. Deep sump hooded catch basins, water quality units, and subsurface infiltration systems will be installed to treat and infiltrate stormwater. Proper maintenance for this infrastructure will be specified within a Long-Term Operation and Maintenance plan.

Stormwater pollution prevention measures will include standard best management practices such as properly storing materials, spill prevention and response plans, and proper storage and disposal of solid wastes. Erosion and sediment controls, such as silt socks, silt fence, and catch basin silt sacks will be used during construction to maintain and stabilize the site. The Contractor will also be responsible for controlling dust through the use of a stabilized construction entrance, street sweeping, and watering if necessary. Proper practices will be specified within a Construction Period Operation and Maintenance plan.

The stormwater management system will reduce the pollutant load to the municipal storm drain system. Deep sump hooded catch basins and water quality units will remove a portion of total suspended solids inherent in surface parking runoff and direct treated flows to a subsurface infiltration system (typically galleys or chambers). Rooftop runoff will also be directed to subsurface infiltration systems for storage and recharge, with overflows

being directed where possible to the municipal storm drain system during more severe storms.

We anticipate the project will yield a decrease in peak discharge rates and volumes of runoff previously associated with the site as the Proponent moves from a bituminous parking lot to a project built with proper stormwater management and treatment, new landscape plantings and green roof strategies.

6.8 FEMA Flood Zones and ACECS

Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) for the City of Boston, Community Panel 79 of 51 for Suffolk County, Massachusetts (Map number 15025C0079G, effective date September 25, 2009) was reviewed to determine if the project site lies within the 100-year flood plain. The site falls within a Zone C, defined by FEMA as an "area of minimal flooding." Thus, the project will not lead to an increased flood or storm damage risk. No Areas of Critical Environmental Concern or State Certified Vernal Pools exist within the site. Likewise, the site is not included on the list of either Priority Habitats for State-Listed Rare Species or the list of Estimated Habitats for Rare Wildlife.

6.9 Geotechnical

Four test borings are scheduled to be completed in late September 2019 to evaluate the subsurface conditions. Groundwater observation wells will be installed in three (3) of the boreholes.

6.9.1 Geotechnical Conditions and Ground Water

Based on previous experience and knowledge of the surrounding area the Geotechnical Engineer, McPhail Associates, anticipate the subsurface conditions to consist of urban fill in thicknesses ranging from 5 to 15 feet. The fill material is anticipated to be underlain by an organic deposit which should vary from 2 to 6 feet. Underlying the fill and organic deposit, at depth ranging from 10 to 18 feet, glacial outwash is anticipated. Groundwater is expected to be present at a depth of 5 to 10 feet below the existing ground surface. Information gather from the upcoming borings will be used to verify these assumptions and provide foundation design criteria.

Groundwater

To recharge rainwater into the ground, one inch of the proposed building roof area (drainage runoff) and other impervious areas (such as sidewalks) will be infiltrated on site. The infiltration system will be connected to the

BWSC 36-inch storm drainage pipe in Washington Street. Construction of the proposed infiltration system will have positive effect on groundwater level at the site.

6.9.2 Foundations & Below-Grade Construction

The excavation and foundation construction work will extend from Boston City Datum Elevation 25 to approximately 10 to 15 feet below the existing ground surface. Temporary earth support is planned to consist of soldier piles and lagging. A program of instrumentation will be implemented to monitor vibration during placement of the soldier piles.

6.9.3 Dewatering, Groundwater Observation Wells

Construction dewatering may be necessary to remove groundwater within the excavation and to remove rainwater following periods of precipitation. Measures will be implemented to maintain groundwater levels outside the property limits. Construction dewatering will be performed in accordance with applicable MWRA, EPA, BWSC and Massachusetts DEP regulations and permits. Groundwater observation wells will be installed in the vicinity of the Project prior to commencement of any site excavation or dewatering to monitor the groundwater during construction.

During excavation, all soils necessary for export will be managed for off-site disposal in accordance with the current regulations and policies of the Massachusetts DEP.

6.10 Solid & Hazardous Materials

6.10.1 Solid Waste Generation during Operation, Recycling

The Project will generate solid waste typical of other residential projects. The Project will be constructed with a trash chute with access from each floor. The chute will terminate on the ground floor into a compactor. Solid waste will include wastepaper, cardboard, glass, and bottles. A portion of the waste will be recycled as described below. The remainder of the waste will be compacted into 2 yard rolling dumpsters to be picked up and emptied on a regular schedule. With the exception of "household hazardous wastes" typical of residential uses (for example, cleaning fluids and paint), the residential and ground floor uses will not generate hazardous waste. Separate containers will be provided for the disposal of materials such as turpentine and paints.

Recycling by residents will be encouraged and coordinated. To encourage recycling, the proponent will implement a recycling program throughout the

Project. The Project will include space for recycling on each floor, and the loading/receiving area will include space for the storage and pick-up of recyclable materials. Recyclable materials are expected to continue to include newspaper, cardboard, cans, and bottles. The residential recycling program will be conducted in accordance with the City of Boston's recycling regulations.

6.10.2 Solid Waste Generation during Construction, Recycling

Solid waste generated by construction will consist primarily of demolition debris related to the selective interior demolition of the existing building and packaging and scrap materials (such as corrugated cardboard, glass, aluminum, scrap metal, and cable/wire) associated with new construction. Construction waste material from demolition and new construction will be recycled when possible (see below). For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per DEP's Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract. If any asbestos containing materials are identified, they will be treated as a special waste in accordance with Massachusetts DEP guidelines and addressed and disposed of accordingly.

The proponent will take an active role with regard to the reprocessing and recycling of construction waste. An evaluation of the potential for recycling will occur before the construction commences. Construction will be conducted so that some materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility. A comprehensive recycling program will be included in the final Construction Management Plan. The Proponent will also coordinate with the Boston Materials Resource Center and direct materials to them where possible to reduce the amount of surplus building material that is sent to landfills. Materials that cannot be reused or recycled will be transported in covered trucks by a contract hauler to a licensed facility, per the MassDEP regulations for Solid Waste Facilities, 310 CMR 16.00.

6.10.3 Hazardous Materials

A Phase I Environmental Assessment was prepared by Cooperstown Environmental LLC in August 2019. This ESA was performed in general accordance with the ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E 1527-13) and 40 CFR 312 and the Environmental Protection Agency's "All Appropriate Inquiry" (AAI) Final Rule.

The ESA revealed the history of the subject property and adjoining properties dating back to before 1887. The Phase I Environmental Site Assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527-13. There were no exceptions to, or deletions from, this practice.

This assessment revealed no evidence of recognized environmental conditions (RECs) in connection with the property except for the following:

RECs

- Two upgradient sites, the Ferdinand Curtis Watermain Building on Washington Street (RTN 3-30920), and 101-139 Madison Park Court (RTN 3-35402 and 3-35391) have reported releases of chlorinated volatile organic compounds (CVOCs) in soil and groundwater. The assessment of the release at the Ferdinand Curtis Watermain Building is ongoing, and the current conceptual site model puts the plume to within approximately 200 feet of the center of the Subject Property. The release at Madison Park Court resulted in an imminent hazard condition associated with detected concentrations of chlorinated solvents in indoor air of residential units. Although the utilities along Washington Street, Shawmut Avenue and Ruggles Street may provide a preferential pathway that limits migration to the Subject Property, there is the potential for migration of CVOC contaminated groundwater onto the Subject Property, and this is a recognized environmental condition.
- If groundwater on the Subject Property is impacted by CVOCs, a vapor encroachment condition (VEC) cannot be ruled out for the building at 12 Dade Street, and this is a recognized environmental condition.

Historical RECs

- Five upgradient sites; 757, 758 and 759 Shawmut Avenue, 2300, and 2326-2348 Washington Street, all have reported releases of chlorinated volatile organic compounds (CVOCs) in soil and groundwater. The closure results were compared to current closure standards, and it was determined that the remaining concentrations of VOCs in groundwater from these sites do not pose a VEC risk. These sites represent historical recognized environmental conditions.

Other Conditions

- The Sanborn maps show a long history of commercial and residential uses in the area and a history of a fire on an adjacent property. Based on

this history, urban fill is likely to be present at the Subject Property. While there are MCP reporting exemptions regarding urban fill, even if the condition is exempt from reporting, urban fill can increase soil disposal costs during re-development if off-site transport of soil is required.

Based on the identified RECs and the potential for urban fill at the subject property, it was recommended that a limited Phase II analysis be conducted at the site to investigate the potential impacts of volatile organic compounds (VOCs) in groundwater and the potential of a vapor encroachment condition. The LSP recommend the following actions as part of the Phase II:

- Based on the time frame, the health hazards, and the economic infeasibility of performing a full subsurface investigation within a working bakery, Cooperstown recommends performing soil gas sampling within the footprint of the building to determine if there are apparent VOC impacts from the upgradient sites and a potential vapor encroachment condition.
- It is recommended that a drilling contractor be engaged to advance several borings around the parking lot and the former loading dock area to characterize the soil for disposal, and completion of the borings as monitoring wells to determine if VOC impacted groundwater affects the site.

6.10.4 Building Construction

A soil and groundwater quality test will be conducted prior to construction to determine the options for reuse, recycling, disposal or treatment of excavated material. Groundwater testing will be conducted in support of obtaining temporary construction dewatering permits and to assess the need for on-site treatment to remove contaminants, if any are found.

Excavated soil will require characterization to assess its disposition for off-site reuse, disposal, treatment or recycling in accordance with DEP policy and the MCP. The construction contractor will be responsible for proper off-site removal of contaminated soil and disposal of construction and demolition debris.

6.11 Construction Impacts

The following section describes impacts likely to result from the project's construction. It also addresses steps that will be taken to avoid or minimize environmental and transportation-related impacts. The proponent will employ a construction manager who will be responsible for developing a

construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies. The project's geotechnical consultant will provide consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

6.11.1 Construction Management Plan

The proponent will require the general contractor to comply with applicable state and local regulations, as well as the Construction Management Plan ("CMP") developed 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 specific mitigation measures and staging plans to minimize impacts on abutters.

Proper pre-construction planning with the neighborhood will be essential to ensure that the project is constructed safely and successfully. Signage will include construction manager contact information with emergency contact numbers.

6.11.2 Construction Activity Schedule

The construction period for the proposed project is expected to last approximately 18 months, beginning in Fall 2020 and reaching completion by spring of 2022. The project will comply with the City of Boston Noise and Work Ordinance. Normal work hours will be from 7:00 AM to 6:00 PM, Monday through Friday, along with any approved exceptions.

6.11.3 Perimeter Protection/Public Safety

The CMP will describe any sidewalk closures, pedestrian re-routings, barrier placements, and/or fencing deemed necessary for safety around the site perimeter. Barricades and secure fencing will isolate construction areas from pedestrian traffic. Sidewalk areas and walkways near construction activities will be well marked and lighted to ensure pedestrian safety.

The proponent will continue to coordinate with all pertinent regulatory agencies and representatives of the surrounding neighborhoods to ensure they are informed of any changes in construction activities.

6.11.4 Construction Traffic Impacts

Truck traffic will vary throughout the construction period, depending on activity. Estimated truck deliveries and routes will be established with BTD through the CMP.

6.11.5 Construction Worker Parking

Measures will be employed during construction to minimize the impact of construction workers on the transportation network. Though the number of workers required for construction of the project will vary during the construction period, the following measures will reduce construction impacts on the transportation system:

- Worker shifts will end and begin before the normal commuter hours.
- The site's proximity to the Silver Line will incentivize personnel to use this mode of transportation.
- Lock-up facilities for work tools will be provided to make public transportation more convenient and desirable for workers.

Terms and conditions related to workforce parking and public transportation use will be written into each subcontract. These measures will be addressed in the Construction Management Plan (CMP) and reviewed and approved by the Boston Transportation Department prior to commencement of construction activities.

6.11.6 Construction Air Quality

Construction activities may generate fugitive dust, which will result in a localized increase of airborne particle levels. Fugitive dust emission from construction activities will depend on such factors as the properties of the emitting surface (e.g. moisture content), meteorological variables, and construction practices employed. To reduce emission of fugitive dust and minimize impacts on the local environment the construction contractor will adhere to a number of strictly enforceable mitigation measures and may include:

- Using wetting agents to control and suppress dust from construction debris;
- Ensuring that all trucks traveling to and from the site will be fully covered;
- Removing construction debris regularly;
- Monitoring construction practices closely to ensure that any emissions of dust are negligible;
- Cleaning streets and sidewalks to minimize dust and dirt accumulation; and
- Wheel-washing trucks before they leave the site during the excavation phase.

6.11.7 Construction Noise Impacts

Intermittent increases in noise levels will occur in the short-term during construction. Construction work will comply with the requirements of the City of Boston noise ordinance. Since there are residences in the adjacent building at 10 Williams Street, this issue will be carefully addressed. To reduce the noise impacts of construction, a number of noise mitigation measures will be included in the CMP. Measures that may be employed to reduce noise emissions include:

- Using mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on running equipment;
- Scheduling construction activities so as to avoid the simultaneous operation of the noisiest construction activities;
- Turning off all idling equipment;
- Locating noisy equipment away from abutters; and
- Shielding the noise generator by distance or enclosure.

6.11.8 Utility Protection During Construction

City infrastructure will be protected from construction hazards using sheeting and shoring, temporary relocations, and staging as required. The contractor will be required to coordinate all protection measures, temporary supports, and temporary shutdowns of all utilities with the appropriate utility owners and/or agencies. The contractor will be required to provide adequate notification to the utility owner/operator prior to any work commencing on their utility. Also, in the event a utility cannot be maintained in service during a switch-over to a temporary or permanent system, the contractor will be required to coordinate the shutdown with the utility owners/operators and project abutters to minimize impacts and inconveniences accordingly.

6.11.9 Rodent Control

A rodent control program including inspection, monitoring, and treatment will be implemented prior to, during, and after construction. The construction contractor will file a rodent extermination certificate, along with the building permit application, to comply with City regulations. A preliminary extermination treatment may be performed throughout the project site and the building interior prior to construction. During the construction process, regular service visits will be made in order to maintain effective rodent control levels.

7.0 INFRASTRUCTURE

7.1 Sanitary Sewer System

The Project will generate an estimated 12,515 gallons per day (GPD) based on design sewer flows provided in 314 CMR 7.00 Sewer System Extension and Connection Permit Program as summarized in **Table 7.1**.

Table 7-1 Projected Sewer Generation

Use	Quantity	Unit Flow Rate	Estimated Maximum Daily Flow
Residential Units (74)	109 Bdrms	110 GPD/Bdrm	11,990 GPD
Office	3,543 sf	75 GPD/1,000 sf	266 GPD
Retail	3,967 sf	50 GPD/1,000 sf	199 GPD
Restaurant	30 seats (est.)	35 GPD/seat	1,050 GPD
TOTAL *			13,505 GPD

Rough estimates based on areas shown on floor plans & Development Submission

The proposed sanitary sewer service for the building will connect to the existing 10" diameter combined sanitary sewer main located in Washington Street. To the Proponent's knowledge there is sufficient capacity in the existing main to accommodate the Project's proposed sanitary flow. This will be confirmed with the upcoming Boston Water and Sewer Commission (BWSC) review.

7.2 Domestic Water and Fire Protection System

There is a 12" dia. water main available in Washington Street to accommodate domestic water and fire protection services; presuming that the pressure is adequate for the proposed fire protection service (BWSC hydrant flow tests pending). To the Proponent's knowledge there is enough capacity in the existing main to accommodate the Project's water demand, which is projected to be 1.1 times the estimated sewer flow, or 13,767 GPD. This will be confirmed with the upcoming Boston Water and Sewer Commission (BWSC) review. Fire flow tests should be conducted in the next plan development phase in order to determine the viability of the existing main from a flow and volume perspective to accommodate a fire protection system without a fire pump.

7.3 Storm Drainage System

The proposed building's roof drain, as well as the parking lot drainage, will be connected to the proposed infiltration systems located in the adjacent surface parking lot. To recharge rainwater into the ground, one inch of the proposed building roof area (drainage runoff) and other impervious areas (such as sidewalks) will be infiltrated on site. The overflow pipe from the

infiltration system will connect to the existing 36" diameter storm drainage main in Washington Street. To the Proponent's knowledge there is enough capacity in both of the existing mains to accommodate the Project. This will be confirmed with the upcoming Boston Water and Sewer Commission (BWSC) review. It should be noted that the result of the infiltration system's construction, we anticipate the stormwater flow to the City's drainage system will be reduced while recharge to the aquifer/groundwater will be enhanced.

7.4 Electrical System

The design team believes that NStar maintains electrical infrastructure to support the proposed Project in Washington Street. The Proponent anticipates connecting to the electrical grid in Washington Street via primary high voltage service to a ground transformer located on the project site. Electric power will be distributed from switchgear and primary distribution equipment located in the electric service room on the first floor.

7.5 Telephone & Cable System

Data/cable and phone underground conduits are located in Washington Street. The Proponent does not anticipate any issue with these services.

7.6 Gas Service

There is a 6" gas main located in Malden Street and three gas mains: a 6" dia., a 10" dia. and an 18" dia. located in Harrison Ave. The Proponent believes that there is enough capacity in the existing main to accommodate the project's gas requirements. The MEP engineer will confirm that the existing gas service is sufficient to handle any additional loads that the project may add to the existing demand once preliminary loads have been determined.

APPENDIX A – PROJECT CERTIFICATION

This Project Notification Form has been submitted to the Boston Planning and Development Agency pursuant to Article 80 of the Boston Zoning Code, as evidenced by Proponent's signature below.

2147 Master Developer LLC



William Madsen Hardy
Manager

September 25, 2019

**APPENDIX B – GREEN BUILDING REPORT
LEED CHECKLIST
CLIMATE RESILIENCY CHECKLIST**

2147 Washington Street

Roxbury, MA

Article 37

Design Green Building Report

September 23, 2019



Prepared for: DREAM Collaborative

Prepared by: enviENERGY Studio

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Introduction

The 2147 Washington Street is a 6-story, 97,126 SF, new residential complex in Roxbury, Massachusetts, which is being developed and designed by New Atlantic Development, DREAM Development, and DREAM Collaborative. Sustainability is an important design and construction priority for the development team and the project team will evaluate and implement measures to reduce energy and water consumption, to improve the efficiency and useful life of building systems and infrastructure, and to reduce the burdens imposed by buildings on city services, the environment, and the public health.

General Project Information

<i>Building Gross Area</i>	97,126 SF; excluding garage: 82,500 SF
<i>Residential Occupancy</i>	74 units – (10) studios, (34) 1-bdr, (25) 2-bdr, (5) 3-bdr – 173 Residents plus 70 visitors
<i>Commercial Occupancy</i>	6 Work Studio + 10 at the Communal Maker Space + 2 at the office space + 4 at the Retail + 4 at Haley House = 26 FTE Plus 25 peak retail visitors
<i>Parking Spaces</i>	32 + 11 surface parking spaces = 43 total
<i>Long-Term Bike Storage</i>	LEED Requirement: 76 indoor spaces
<i>Short-Term Bike Storage</i>	LEED Requirement: 8 outdoor spaces
<i>Public Transportation</i>	Access to Bus Routes 1, 8, 15, 47, SL4, and SL5

The Project team includes several LEED Accredited Professionals and the sustainability efforts will be overseen by Samira Ahmadi, BEMP, LEED AP, the project LEED and Energy Consultant. The project team participated in a sustainable design charrette early in the design process to identify the environmental design goals and discussed the LEED program impact on the design and build consensus.

A LEED checklist is provided at the end of this section to identify credits that are going to be pursued for this project, highlights of which are included below. The 2147 Washington Street project will follow the requirements of LEED v4 for New Construction program during the design and construction, but it will not pursue a formal LEED certification with GBCI. The project team is currently targeting a minimum of LEED Silver certification with a total of 56 out of a possible 110 points in the LEED BD+C rating system. An additional 22 points are undergoing study to determine the feasibility of a Gold certification.

LEED checklist summary:

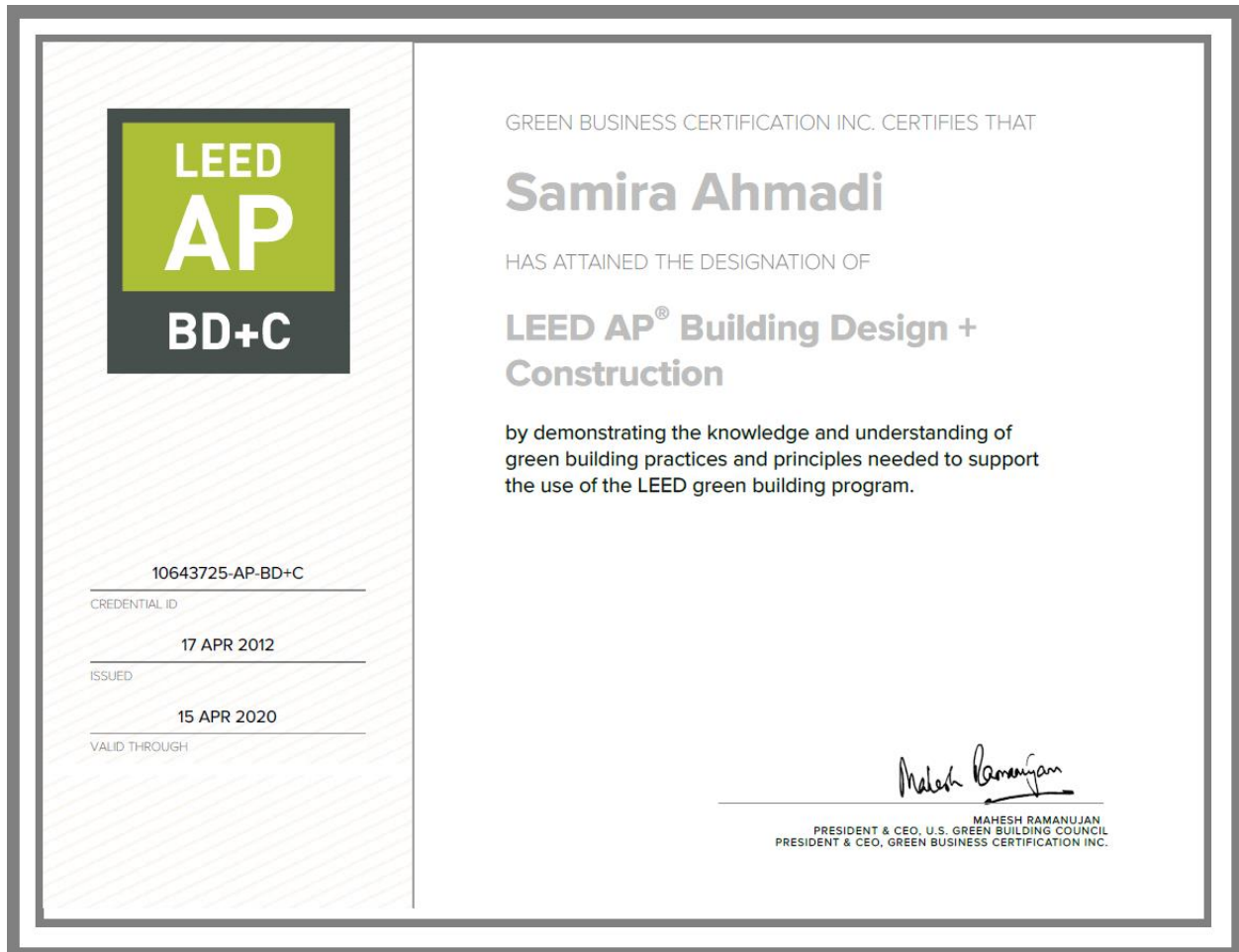
Integrative Process	1 Point	
Location and Transportation	12 Points	2 Possible Points
Sustainable Site	5 Points	1 Possible Points
Water Efficiency	5 Points	2 Possible Points
Energy and Atmosphere	15 Points	7 Possible Points
Materials and Resources	4 Points	3 Possible Points
Indoor Environmental Quality	7 Points	4 Possible Points
Innovation and Design Process	5 Points	1 Possible Points
Regional Priority	2 Point	2 Possible Points
Total Points	56 Points	22 Possible Points

Affidavit

As the lead Sustainability Consultant overseeing the planning, design and construction of the 2147 Washington Street project, I, Samira Ahmadi, certify that I am knowledgeable of the project’s green building strategies, designs, plans and details and to the best of my knowledge this project will be planned and designed so as to meet the prerequisites and earn the credits necessary to achieve Gold level certification at minimum (minimum for Gold level is 60 points) using the LEED BD+C for New Construction v4 Rating System. The referenced project has been designed to meet the Green Building requirements under Boston Zoning Code Article 37.



Samira Ahmadi, BEMP, LEED AP BD+C, ID+C, Homes
LEED Administrator and Sustainability Consultant



LEED Project Scope and Strategy

Integrative Process

The project team includes several LEED Accredited Professionals, who will lead the sustainability efforts and initiatives throughout the design and construction process. Sustainable design and energy efficiency goals were established early and strategies associated with the building envelope attributes, lighting design, thermal comfort ranges, plug and process loads, and operational parameters and their impact on the building energy performance will be explored and discussed throughout the design process. An early design energy model has been developed and will be used as an interactive and dynamic platform to evaluate systems synergies and the various pathways for achieving the targeted energy savings and required performance improvements in the most cost-effective manner.

Location and Transportation

Credit 2 – Sensitive Land Protection:

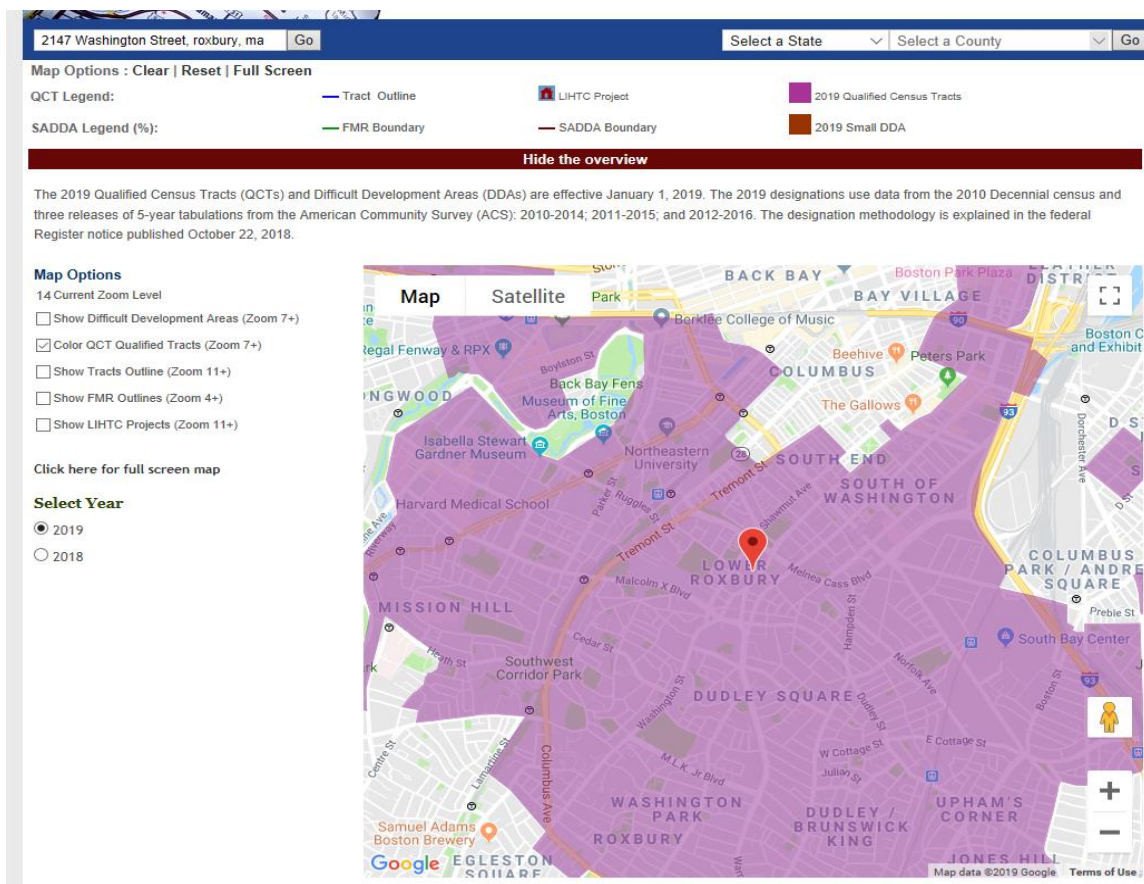
1 Yes Point

The Project Site has been previously developed and is located in an urban area of filled land.

Credit 3 – High Priority Site:

1 Yes Points

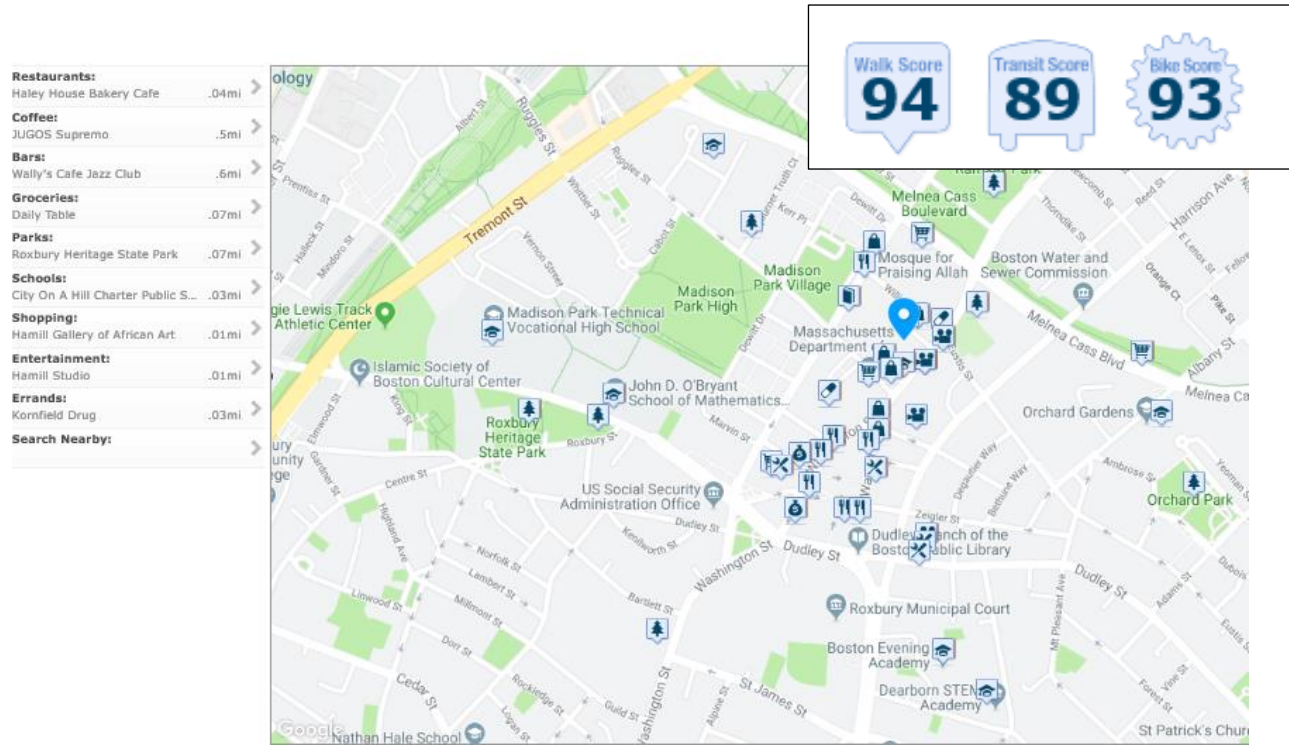
The project site is not a brownfield, but it is located in the US Department of Housing and Urban Development’s qualified Difficult Development Area (DDA) per the 2019 data.



Credit 4: Surrounding Density and Diverse Uses:

4 Yes Points

The building is located in an area with an average density greater than 22,000 sf/acre and is within a ½ mile walking distance of at least 8 basic services.



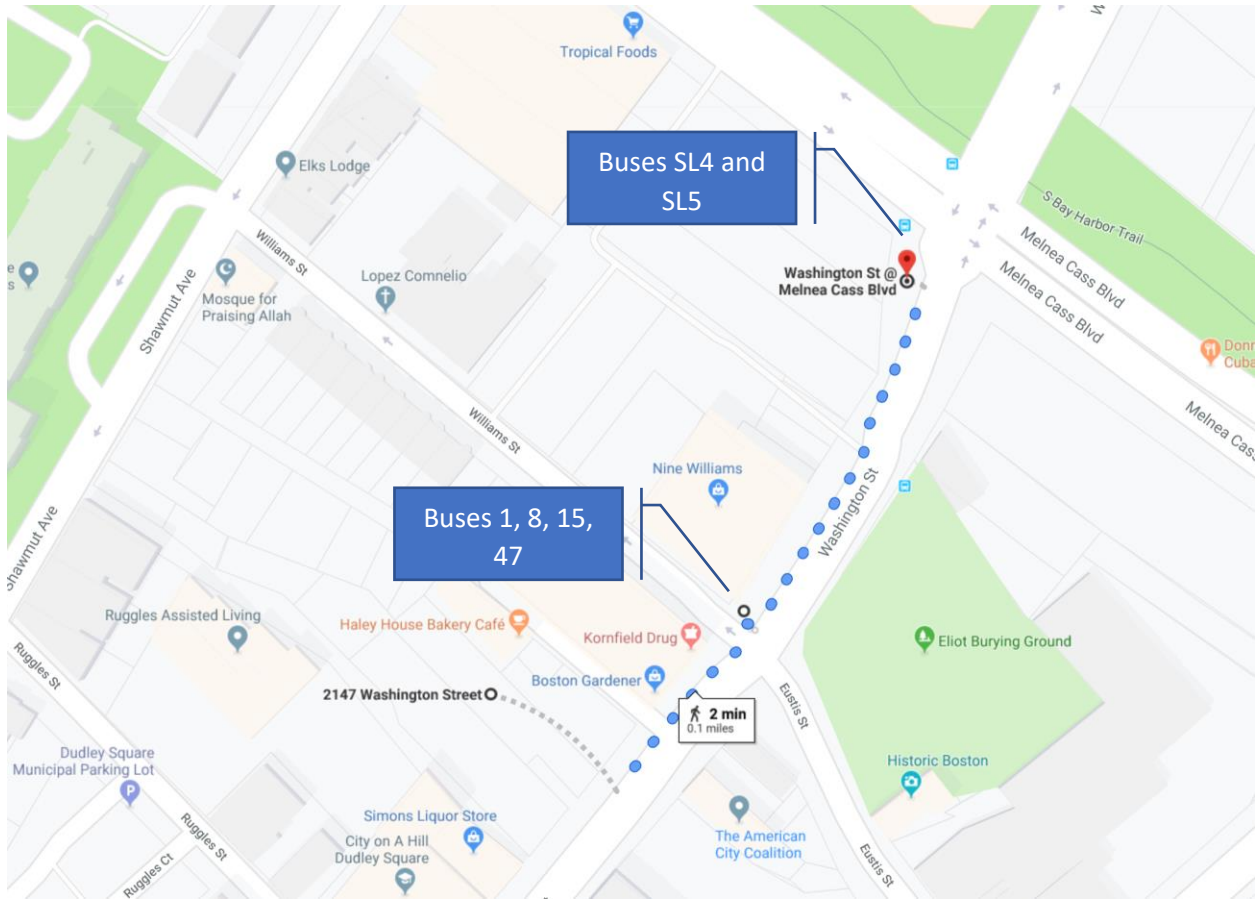
Category	Use Type	Business Name and Distance
Food Retail	Supermarket	Shawmut Grocery Store - 0.3 mile
Services	Restaurant	Dudley Cafe - 0.1 mile
	Bank	Citizens Bank - 0.2 mile
	Pharmacy	Walgreen- 0.1 mile
Community	Serving Retail	Gallery eye care - 0.1 mile
Civic and Community Facilities	Public Park	Roxbury Heritage Park - 0.1 mile
	Education Facility	Orchard Gardens k-8 School - 0.2 mile
	Public Library	Dudley Branch of the Boston Public Library - 0.2 mile

8 Basic Services within ½ Walking Distance from the Project

Credit 5 – Access to Quality Transit:

5 Yes Points

The project location provides access to quality transit and encourages alternative transportation. The occupants of 2147 Washington Street will have access to several nearby transit lines, including bus routes 1, 8, 15, 47, SL4, and SL5, which gives them the opportunity to travel through Boston and surroundings. These transit services provide more than 400 “weekday” and over 300 “weekend” trips.



Access to Quality Transit Map

Credit 6 – Bicycle Facility:

1 Yes Point

The bicycle storages and racks will be provided throughout the project and the development site; with a Bike Score of 93, the immediate neighborhood provides a direct connection between the project site and a variety of basic services.

Credit Requirements	LEED v4 Requirements	Facilities in 217 Washington
Long-term Bike Storage	Residential: 30% of occupants or 1 per unit = 74 Commercial: 5% FTE = 2	Meets LEED Requirements
Short-term Bike Storage	2.5% of peak visitors or at least 8	Meets LEED Requirements
Shower and Changing Rooms	N/A	N/A

Since the commercial area is less than 10% of the building total GSF, no shower facility is required to be provided for the non-residential occupants.

Credit 8 – Green Vehicles:

1 Maybe Point

There are 43 parking spaces throughout the project, including the handicap accessible spaces. Per the new requirements of the City of Boston, 25% of the parking spaces should be equipped with EV charging

stations which exceed the LEED minimum requirements (2%). The proponent is evaluating the feasibility of allocating 5% of the parking spaces to green vehicles.

Sustainable Site

Prerequisite 1 – Construction Activity Pollution Prevention:

A management plan will enforce measures to protect adjacent areas from pollution from wind and water-borne soil and sedimentation. The civil design team will prepare an erosion and sedimentation plan that meets the local codes and the EPA Construction General Permit of the National Pollution Discharge Elimination System (NPDES) program. The construction team will implement the erosion and sedimentation measures and will follow the requirements of the stormwater pollution prevention plan during the construction.

Credit 1 – Site Assessment:

1 Yes Point

The project team will conduct a comprehensive site assessment and will study topography, hydrology, climate, vegetation, soils, human use, and human health effects specific to 2147 Washington Street project.

Credit 3 – Open Space:

1 Yes Point

The project team will conduct a comprehensive site assessment and will study topography, hydrology, climate, vegetation, soils, human use, and human health effects specific to 2147 Washington Street project.

Credit 4 – Rainwater Management:

2 Yes Points

The project will comply with the Mass DEP Stormwater Management Policy and will implement a stormwater management plan with a goal of decreasing the volume of stormwater runoff and managing 100% of stormwater for at least 85th percentile of local rainfall events on-site and will capture and treat runoff using best management practices (BMP's). The project will use a combination of green infrastructure (GI) and low-impact development (LID) to manage on-site runoff from the developed site.

Credit 5 – Heat Island Reduction:

2 Yes Points

75% of parking spaces are located in an underground parking garage which helps with reducing the Heat Island Effect. The roof will be white TPO and partially covered with solar PV, and the hardscape area consists of open-grid pavement system and paving materials with a three-year aged solar reflectance (SR) value of at least 0.28.

Water Efficiency

Prerequisite 1 and Credit 1 – Outdoor Water Use Reduction:

1 Yes Point and 1 Maybe point

Landscape plantings will be selected to be climate appropriate, native and adapted and the irrigation system, if installed, will be designed to target at least a 50% reduction in the potable water use.

Prerequisite 2 and Credit 2 - Indoor Water Use Reduction:

3 Yes Points and 1 Maybe point

The project team anticipates reducing the use of potable water inside the building by at least 35% by installing low-flow and low-flush plumbing fixtures in restrooms. The feasibility of utilizing the 1 GPM

kitchen faucet is being investigated which will increase the estimated water use savings to 42.6% and will result in an additional LEED point.

Flush Fixture Family	Baseline Flush Rate (GPF)	Design Flush Rate (GPF)	Baseline Annual Water Use (gal)	Design Annual Water Use (gal)	% Reduction
Water Closet	1.6	1.28	538,448	430,758.4	
Urinal	1	0.125	11,680	1,460	
Annual Flush Volume (gallons/ yr)			550,128	432,218.4	21.4%
Flow Fixture Family	Baseline Flow Rate (GPM)	Design Flow Rate (GPM)	Baseline Annual Water Use (gal)	Design Annual Water Use (gal)	% Reduction
Res. Lavatory	2.2	1.0	694,595	315,725	
Res. Showerhead	2.5	1.5	1,262,900	757,740	
Res. Kitchen Faucet	2.2	1.5	555,676	378,870	
Public Lavatory	0.5	0.35	8,121.25	5,686.7	
Annual Flow Volume (gallons/ yr)			2,521,292.25	1,458,021.7	42.2%
Total Annual Water Use and Savings			3,071,420.25	1,890,240.10	38.46%

Indoor Water Use Calculations

Prerequisite 3 and Credit 4– Building-level Water Metering and Water Metering: 1 Yes Point

The building will be equipped with the main water meter and the project team is planning to install additional water meters for at least two of water subsystems: indoor plumbing fixture and fittings, irrigation, domestic hot water, boilers, reclaimed water, or other process water.

Energy and Atmosphere

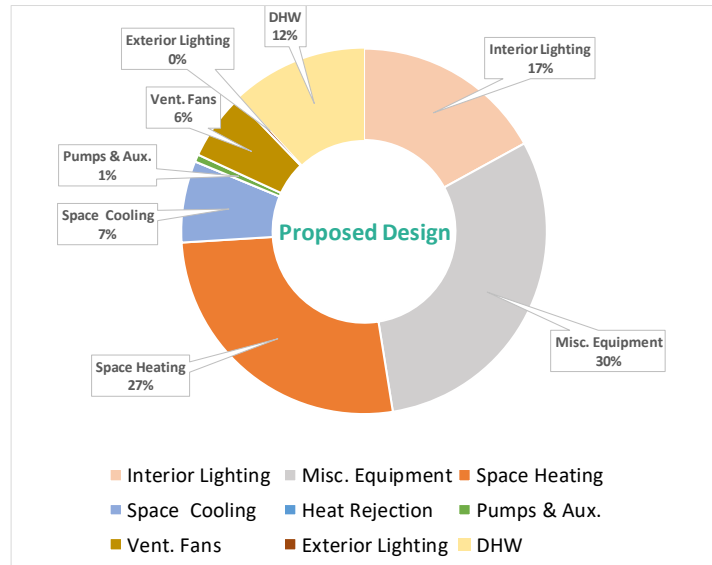
Prerequisite 1 – Fundamental Commissioning and Verification & Enhanced Commissioning 5 Yes Points

The building mechanical and electrical systems will be commissioned by a third-party commissioning agent to ensure correct operation. Commissioning activities include verification of system and equipment installation in accordance with the construction documents and manufacturer’s instructions, and confirmation that equipment start, test and check also meet manufacturer’s requirements. The project is pursuing enhanced commissioning for the building mechanical and electrical systems as well as the building envelope.

Prerequisite 2 and Credit 2 – Minimum and Optimize Energy Performance: 8 Yes + 2 Maybe Points

The project will be designed to comply with the Massachusetts Building Energy Code and to exceed the energy performance requirements of the Energy Code and LEED. Building energy models have been developed and used to evaluate various pathways for achieving the targeted energy savings and required performance improvements. The preliminary energy analysis shows that the project as designed – utilizing the 50% Schematic Design drawings and specifications – is anticipated to result in an annual energy cost savings of 21.3% as compared to the ASHRAE 90.1-2010 baseline. The analysis and results presented here focus on aspects of energy efficiency, thermal comfort, and water conservation that are most applicable to the early stages of design. As design progresses, the estimated savings may change. The following Energy Conservation Measures have been proposed:

- High-performance window system
- Increased roof insulation
- Increased wall insulation
- Reduced interior lighting power density
- High-efficiency Heat Pumps
- Energy recovery system
- Energy Star Appliances
- Low-flow plumbing fixtures



Prerequisite 3 – Building-level Energy Metering:

The project is equipped with permanent electricity and gas utility meters. Each residential unit will have a dedicated electricity meter. Natural gas consumption will be metered at the central plant.

Prerequisite 4 and Credit 6 – Fundamental and Enhanced Refrigerant Management: 1 Yes Point

No CFC-based refrigerants will be utilized for the Project. The selected equipment will only use refrigerants that minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change.

Credit 5 – Renewable Energy Production: 1 Yes Points

The proponent will install solar photovoltaics on a portion of the roof to offset at least 1% of the building annual energy cost.

Credit 7 – Green Power and Carbon Offset: 2 Maybe Points

The owner will investigate the feasibility of purchasing carbon offset through a 5-year contract to offset 100% of the building’s energy use with a renewable source.

Material and Resources

Prerequisite 1 – Storage and Collection of Recyclables

Each floor has trash and recyclable chute and a central area for sorting and collection of recyclables before removal from the site is provided in the basement. Recyclable materials collected will include mixed paper, corrugated cardboard, glass, plastics, and metals, and the disposal of batteries and electronic waste.

Prerequisite 2 – Construction and Demolition Waste Management Planning

The project will have a Construction and Demolition Waste Management plan and will meet the requirements of this prerequisite by establishing waste diversion goals and identifying at least five material streams to be diverted, including concrete, asphalt, metal, wood products, and comingled waste.

Due to the limited space on the site, the project will most likely follow the off-site separation approach; mixed recycled materials will be collected in one or more containers onsite and will be picked up by a qualified hauler and then transported to an off-site certified commingled recycling facility.

Credit 2, 3, and 4 – Building Product Disclosure and Optimization: 2-3 Yes Points

The project team, including the construction manager and their sub-contractors, will target the specification and use of at least 20 different permanently installed products and materials that have lower environmental impacts and comply with Environmental Product Declaration (EPD), and that conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930. The project team is also targeting the Material Ingredients credit and will specify materials and products with known chemical make-up. Documentation for at least 20 different permanently installed products will be provided, confirming the applicable certification which may be the Health Product Declaration (HPD), Cradle-to-Cradle or Declare.

Credit 5 – Construction and Demolition Waste Management: 2 Yes Points

The waste generated by the construction and demolition process will be recycled, rather than land-filled, and the ultimate goal is for more than 75% (by weight) of the construction waste, targeting at least 4 waste streams, to be recycled. The project team will most likely use the ReEnergy facility, which is the only certified comingling facility in Massachusetts, and will track comingled waste and 2 material streams for a 75% diversion rate.

Indoor Environmental Quality

Prerequisite 1 – Minimum Indoor Air Quality Performance

The mechanical systems will be designed to comply with the ASHRAE 55-2010, the indoor temperature, and humidity conditions standard, and to provide superior ventilation throughout the building, following the requirements of ASHRAE 62.1-2010 sections 4 through 7. The residential units will be conditioned by Fan Coil Units with HW heating coils and DX cooling and outside air will be provided by 100% energy recovery system. The current design meets the minimum requirements of ASHRAE 62.1-2010.

Prerequisite 2 – Environmental Tobacco Smoke Control

The building will have a no-smoking policy and smoking will be prohibited inside and outside within 25 feet of doors, operable windows, and outside air intakes.

Credit 1 – Enhanced Indoor Air Quality Strategies: 1 Yes Point

Building entrances will be provided entryway systems to remove dirt and debris from the shoes of people entering the building and will be cleaned and maintained by the house-keeping team. High-efficiency MERV 13 filters will be provided in the main outside air handling unit for superior air particulate filtration. All spaces where hazardous gases or chemicals may be present or used, i.e. housekeeping closets, will be designed with full height walls, exhaust ventilation and door closer.

Credit 2 – Low-emitting Materials: 2 Yes Points

The project will target low-emitting materials for 4 categories: Adhesives, sealants, and paints used inside the building will be selected to be low-VOC (Volatile Organic Compound) products and will meet the

emission testing requirements; specified wood products will have no added urea-formaldehyde; the flooring systems will meet the credit requirements.

Credit 3 – Construction Indoor Air Quality Management Plan:

1 Yes Point

The building will be constructed in accordance with the SMACNA Indoor Air Quality for Buildings under Construction Guideline. This guideline defines procedures for maintaining good indoor air quality inside the building during construction and also addresses construction practices to allow the best possible indoor environment after occupancy. These practices include cleaning during construction, interrupting paths of odor and dust travel within the building, segregating odor and dust-producing activities from absorbent materials, and scheduling similar odor or dust-producing activities to occur at the same time.

Credit 5 – Thermal Comfort:

1 Yes Point

The mechanical and envelope systems will be designed to comply with the ASHRAE 55-2010, and each residential unit will be equipped with at least one thermostat, depending on the size of the unit and the number of bedrooms. More than 50% of the building occupants will have access to individual thermal comfort controls and all shared multi-occupant spaces will have dedicated thermostats.

Credit 6 – Interior Lighting:

1 Yes Point

The project will provide individual lighting controls for at least 90% of individual occupant spaces, such as bedrooms, and those occupants are able to adjust the lighting to suit their task and preferences with at least three lighting levels. All shared multi-occupant spaces will be equipped with advanced multizone lighting controls that enable occupants to adjust the lighting to meet group needs.

Credit 8 – Quality Views:

1 Yes Point

At least 75% of the regularly occupied area will have a direct line of sight and quality views to the outdoors, which includes landscaped area, sky, pedestrian walkways, and streetscape.

Innovation and Design LEED Strategy

The project team will evaluate and implement measures and strategies in the design and construction of 2147 Washington Street to exceed the performance criteria of some of the base credits and will introduce innovative building features, technologies, and policies that are not addressed by existing prerequisites and credits in the BD+C rating system. The innovative strategies may include development and implementation of OM Starter Kit, including green cleaning policies, Walkable site, and integrative analysis of building materials.

Regional Priority

Regional Priority credits were established with a focus on the environmental issues and priorities at a local level. There are six (6) possibilities specific to the project location and the project team has targeted 4 points related to the following strategies: at least 18% performance improvements in Optimize Energy Performance credit; rainwater management; indoor water use reduction; and renewable energy.

END OF ARTICLE 37 DESIGN GREEN BUILDING REPORT



LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Project Name: 2147 Washington Street
Date: 9/23/2019
Project Type: Mixed-Use Residential

Y	?	N	Credit	Integrative Process	1
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12	2	Location and Transportation	16
		Credit	LEED for Neighborhood Development Location
1	1	Credit	Sensitive Land Protection
1	1	Credit	High Priority Site
4	1	Credit	Surrounding Density and Diverse Uses
5	1	Credit	Access to Quality Transit
1	1	Credit	Bicycle Facilities
1	1	Credit	Reduced Parking Footprint
1	1	Credit	Green Vehicles

5	1	4	Sustainable Sites	10
Y			Prereq	Construction Activity Pollution Prevention
1	1	1	Credit	Site Assessment
2	1	1	Credit	Site Development - Protect or Restore Habitat
2	1	1	Credit	Open Space
2	1	1	Credit	Rainwater Management
2	1	1	Credit	Heat Island Reduction
1	1	1	Credit	Light Pollution Reduction

5	2	4	Water Efficiency	11
Y			Prereq	Outdoor Water Use Reduction
Y			Prereq	Indoor Water Use Reduction
Y			Prereq	Building-Level Water Metering
1	1	1	Credit	Outdoor Water Use Reduction
3	1	2	Credit	Indoor Water Use Reduction
2	2	2	Credit	Cooling Tower Water Use
1	1	1	Credit	Water Metering

15	7	11	Energy and Atmosphere	33
Y			Prereq	Fundamental Commissioning and Verification
Y			Prereq	Minimum Energy Performance
Y			Prereq	Building-Level Energy Metering
Y			Prereq	Fundamental Refrigerant Management
5	1	1	Credit	Enhanced Commissioning
8	4	6	Credit	Optimize Energy Performance
1	1	1	Credit	Advanced Energy Metering
2	2	2	Credit	Demand Response
1	1	1	Credit	Renewable Energy Production
1	1	1	Credit	Enhanced Refrigerant Management
2	2	2	Credit	Green Power and Carbon Offsets

4	3	6	Materials and Resources	13
Y			Prereq	Storage and Collection of Recyclables
Y			Prereq	Construction and Demolition Waste Management Planning
5	1	1	Credit	Building Life-Cycle Impact Reduction
1	1	1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations
1	1	1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials
1	1	1	Credit	Building Product Disclosure and Optimization - Material Ingredients
2	2	2	Credit	Construction and Demolition Waste Management

7	4	5	Indoor Environmental Quality	16
Y			Prereq	Minimum Indoor Air Quality Performance
Y			Prereq	Environmental Tobacco Smoke Control
1	1	1	Credit	Enhanced Indoor Air Quality Strategies
2	1	1	Credit	Low-Emitting Materials
1	1	1	Credit	Construction Indoor Air Quality Management Plan
2	2	2	Credit	Indoor Air Quality Assessment
1	1	1	Credit	Thermal Comfort
1	1	3	Credit	Interior Lighting
1	1	1	Credit	Daylight
1	1	1	Credit	Quality Views
1	1	1	Credit	Acoustic Performance

5	1	0	Innovation	6
4	1	1	Credit	Innovation
1	1	1	Credit	LEED Accredited Professional

2	2	0	Regional Priority	4
1	1	1	Credit	Regional Priority: Optimize energy performance (8)/ Renewable energy
1	1	1	Credit	Regional Priority: High priority site (2)
1	1	1	Credit	Regional Priority: Indoor water use reduction (4)
1	1	1	Credit	Regional Priority: Rainwater Management (2)

56	22	32	TOTALS	Possible Points: 110
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Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).

A.1 - Project Information

Project Name:	2147 Washington Street		
Project Address:	2147 Washington Street, Roxbury, MA		
Project Address Additional:			
Filing Type (select)	<i>Initial (PNF, EPNF, NPC or other substantial filing) Design / Building Permit (prior to final design approval), or Construction / Certificate of Occupancy (post construction completion)</i>		
Filing Contact	Name: <i>Bill Madsen Hardy</i>	Company: <i>2147 Master Developer LLC</i>	Email: <i>bill@newatlantic.net</i> Phone: <i>617.335.8821</i>
Is MEPA approval required	Yes/ <i>no</i>		Date <i>9/23/2019</i>

A.3 - Project Team

Owner / Developer:	2147 Master Developer, LLC		
Architect:	DREAM Collaborative		
Engineer:	MEP: Norian Siani Engineering; Civil: Meridian Associates, Inc.		
Sustainability / LEED:	enviENERGY Studio		
Permitting:			
Construction Management:			

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Mixed-Use/Residential
List the First Floor Uses:	Commercial
List any Critical Site Infrastructure and or Building Uses:	

Site and Building:

Site Area:	23,904 SF	Building Area:	12,874 SF
Building Height:	69.9 Ft	Building Height:	6 Stories
Existing Site Elevation – Low:	18 Ft BCB	Existing Site Elevation – High:	25 Ft BCB
Proposed Site Elevation – Low:	15'-6" Ft BCB	Proposed Site Elevation – High:	25'-6" Ft BCB
Proposed First Floor Elevation:	25'-6" Ft BCB	Below grade levels:	1 Stories

Article 37 Green Building:

LEED Version - Rating System :	LEED NC – v4	LEED Certification:	No
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Proposed LEED rating: **Silver/ Gold**

Proposed LEED point score: **56 Pts.**

Building Envelope

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	R-50 c.i. (R)	Exposed Floor:	R-30 batt (R)
Foundation Wall:	R-7.5 c.i. (R)	Slab Edge (at or below grade):	7.5 (R)

Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	4.5 (%)	Wall & Spandrel Assembly Value:	Bellow: 0.133 (U) Above: 0.05 (U)
Area of Framed & Insulated / Standard Wall:	55.8 (%)	Wall Value	R- 17; U-0.050
Area of Vision Window:	27.1 %	Window Glazing Assembly Value:	U-0.35 (U)
		Window Glazing SHGC:	0.30 (SHGC)
Area of Doors:	%	Door Assembly Value:	Steel 0.50 (U)

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined

<i>The DOE II based energy simulation program, eQuest 3.65, has been used in this analysis to generate the estimated annual energy savings associated with each proposed option as compared to the ASHRAE 90.1-2013 Baseline model</i>			
Annual Electric:	844,991 (kWh)	Peak Electric:	281.2 (kW)
Annual Heating:	1,067 (MMbtu/hr)	Peak Heating:	0.7 (MMbtu)
Annual Cooling:	23,650 (Tons/hr)	Peak Cooling:	16.7 (Tons)
Energy Use - Below ASHRAE 90.1 - 2013:	25.5 %	Have the local utilities reviewed the building energy performance?:	Yes / <i>no</i>
Energy Use - Below Mass. Code:	23.6 %	Energy Use Intensity:	49 (kBtu/SF)

Back-up / Emergency Power System

Electrical Generation Output:	200 (kW)	Number of Power Units:	1
System Type:	200 (kW)	Fuel Source:	Diesel

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	150(kW)	Heating:	1,067 (MMbtu/hr)
		Cooling:	0(Tons/hr)

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: 316 (Tons)

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

We started the energy analysis early on, during the schematic design phase, and we will evaluate several envelope alternatives as well as multiple HVAC and electrical energy efficiency measures. In order to reduce the annual energy consumption and GHG emissions of this building, the design team will implement a series of integrated strategies and energy efficiency measures in the design of this project.

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

Optimum orientation, high-performance window assembly, increased roof insulation (R-50) and high-performance wall system.

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Within residential units high-efficiency heat pumps, Energy Star Appliances, LED lighting, and individual thermostats will be utilized; Building will be equipped with High-efficiency condensing boilers, Dedicated Outdoor Air System with Energy Recovery, Variable flow HW pumping system, low-flow plumbing fixtures, and reduced interior lighting power density is targeted throughout the project, including the parking garage.

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

Solar PV array on a portion of the roof. The generation will be evaluated.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

Describe any energy efficiency assistance or support provided or to be provided to the project:

The project will participate in Mass Save Incentive program.

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

The project is investigating the feasibility of electrification and utilization of all electric systems. Also, a portion of the roof will be covered by solar PVs which will offset a percentage of the building annual energy consumption. In the future, when the building systems need to be replaced, the new components will be more

energy efficient than the initial systems and if the building is all-electric, 100% of its energy consumption can be provided by renewable resources.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2 °F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:	7 Deg.	Temperature Range - High:	91 Deg.
Annual Heating Degree Days:	5512	Annual Cooling Degree Days	776

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:	9 #	Days – Above 100°:	0 #
Number of Heatwaves / Year:	10 #	Average Duration of Heatwave (Days):	3 #

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

The building roof is a high-albedo, reflective membrane. Sidewalks and plaza area consist of light-colored paving and vegetated areas. Parking is located below grade rather than at surface level.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

The building will include high performance heating, cooling, and ventilation, lighting controls, building system controls, healthy/resilient materials, and energy recovery, and operable windows.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

The building will be provided with emergency generator sized for life safety systems.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:	5.25 In. (formal Calculations not yet completed)
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Describe all building and site measures for reducing storm water run-off:

A stormwater system is proposed incorporating deep sump hooded catch basins, water quality units, and chamber infiltration chambers. A decrease in peak discharge rates and volumes from runoff previously associated with the site is anticipated as the existing untreated bituminous parking lot will be improved with proper stormwater management and treatment providing storage and recharge.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

In addition to integrating proper stormwater management, treatment, storage, and recharge, the site will incorporate new landscape plantings/areas and green roof strategies. The stormwater system will also include an overflow to the municipal storm drain system to accommodate more severe rain events.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA?	<input type="text" value="Yes / No"/>	What Zone:	<input type="text" value="N/A"/>
		Current FEMA SFHA Zone Base Flood Elevation:	<input type="text" value="Ft BCB"/>

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site.	<input type="text" value="Yes / No"/>
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If you answered YES to either of the above questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online [BPDA SLR-FHA Mapping Tool](#) to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24” of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12” of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	<input type="text" value="Ft BCB"/>		
Sea Level Rise - Design Flood Elevation:	<input type="text" value="Ft BCB"/>	First Floor Elevation:	<input type="text" value="Ft BCB"/>
Site Elevations at Building:	<input type="text" value="Ft BCB"/>	Accessible Route Elevation:	<input type="text" value="Ft BCB"/>

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Describe any strategies that would support rapid recovery after a weather event:

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. **NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).**

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

APPENDIX C – BUILDING ELEVATIONS AND SECTIONS

2147
WASHINGTON
STREET

Roxbury, MA 02119

September 23, 2019

No.	Description	Date

EXTERIOR
ELEVATIONS

A302

Scale 1/8" = 1'-0"

