



Wentworth Institute of Technology Multipurpose Academic Building (MpA Building) Boston, Massachusetts

Expanded Project Notification Form

January 13, 2017

submitted to the **Boston Planning & Development Agency**

submitted by **Trustees of Wentworth Institute of Technology**

prepared by **Fort Point Associates, Inc.**

in association with

STV/DPM

Nitsch Engineering

Leers Weinzapfel Associates Architects

Ground, Inc.

Atelier Ten

Gilbane Building Company

McPhail Associates, LLC

Feldman Land Surveyors

Goodwin Procter LLP

Edward M. King & Associates

VHB



Fort Point Associates, Inc.
Urban Planning Environmental Consulting Project Permitting



WENTWORTH

Institute of Technology

January 13, 2017

Mr. Brian Golden, Director
Boston Planning and Development Agency
Boston City Hall, 9th Floor
Boston, MA 02201

Attn: Ms. Katelyn Sullivan, Project Manager
Re: Wentworth Institute of Technology
Multipurpose Academic Building
Expanded Project Notification Form
Institutional Master Plan Amendment

Dear Director Golden:

Trustees of Wentworth Institute of Technology, ("Wentworth", or the "Proponent") is submitting this Expanded Project Notification Form ("EPNF"), in accordance with the Article 80B Large Project Review requirements of the Boston Zoning Code, to construct a new academic building on its Boston campus. The Project also requires an amendment to Wentworth's Institutional Master Plan ("IMP"), as it represents a modification and relocation of a project previously included in the IMP. An Institutional Master Plan Notification Form ("IMP NF") is being filed simultaneously under Article 80D of the Code to begin the IMP amendment process.

Wentworth proposes to construct a Multipurpose Academic Building ("MpA Building" or the "Project"). The Project is designed to meet the next evolution in the collegiate study of several engineering disciplines by providing modern academic space for Wentworth's existing student body and to enhance the campus experience in a new "state-of-the-art" building.

At approximately 64 feet in height and approximately 69,000 gross square feet ("gsf"), the MpA Building will contain laboratories, student learning and group meeting space, offices, and support/storage space on floors two through four, and a first-floor maker space, manufacturing, and gathering space intended to invite the campus population to experience first-hand displays of Wentworth's engineering capabilities and teachings. The MpA Building will accommodate Wentworth's transition from providing engineering technology programs

to engineering and innovation programs, such as a new biological engineering program. This transition requires new and different teaching and learning spaces and configurations that will promote more collaboration and interdisciplinary approaches to the curriculum. The Project, which is a response to the evolution of engineering education at Wentworth, is intended to meet the needs of the existing student body, and is not driven by, or expected to result in, a measurable increase in enrollment.

The Project will be located at the center of the Wentworth campus on the eastern edge of the Academic Quadrangle (the "Quad"), situated between Watson Hall and the Nelson Recreation Center on Parker Street, across from Annex Complex (the "Site"). The Site is approximately 0.8 acres (34,000 square feet) and currently contains three outdoor tennis courts.

The Project is comprised entirely of new construction, and since the gross floor area is greater than 50,000 GSF, Large Project Review under Article 80B is required. A Letter of Intent to file this EPNF was filed with the BPDA for the Project on December 15, 2016 (attached as Attachment 3 to the EPNF).

The project team presented its plans to the BPDA project and urban design staffs, the Mayor's Office of Neighborhood Services and other city departments, the residents of the Mission Main neighborhood community, and local elected and appointed officials for the neighborhood, in order to identify issues/concerns as well as design requirements related to the Project.

In accordance with Boston Planning and Development Agency ("BPDA") requirements, please find attached 10 copies of the EPNF and the IMPNF plus an electronic copy of the filing for upload to the BPDA website for public review.

The public notice for the EPNF is scheduled to appear in the January 13, 2017 issue of the Boston Herald.

On behalf of the entire project team, we would like to thank you and the BPDA staff assigned to the Project, particularly Katelyn Sullivan and Michael Rooney for their invaluable assistance allowing the Proponent to achieve this comprehensive Article 80 filing.

Sincerely,



David A. Wahlstrom
Vice President for Business

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Chapter 1

PROJECT SUMMARY

CHAPTER 1: PROJECT SUMMARY

1.1 PROJECT IDENTIFICATION

Project Name: Wentworth Institute of Technology
 Multipurpose Academic (MpA) Building
Address/Location: 555 Parker Street, Boston, MA 02115
Assessor's Parcel # 0402024000

1.2 PROJECT SUMMARY

This Expanded Project Notification Form ("PNF") is being submitted by Wentworth Institute of Technology ("Wentworth") in accordance with Article 80B of the Boston Zoning Code. The purpose of the filing is to commence Large Project Review under Article 80B and to attest to the project's consistency with a proposed amendment to Wentworth's current Institutional Master Plan ("IMP") as described in the companion Institutional Master Plan Notification Form ("IMP NF") to be approved by the Boston Planning & Redevelopment Agency ("BPDA") and the Boston Zoning Commission.

Wentworth (the "Proponent") proposes to construct a Multipurpose Academic Building ("MpA Building" or the "Project"). The Project is designed to meet the next evolution in the collegiate study of several engineering disciplines by providing modern academic space for Wentworth's existing student body and to enhance the campus experience in a new "state-of-the-art" building.

At approximately 64 feet in height and approximately 69,000 gross square feet ("gsf"), the MpA Building will contain laboratories, student learning and group meeting space, offices, and support/storage space on floors two through four, and a first-floor maker space, manufacturing, and gathering space intended to invite the campus population to experience first-hand a presentation of Wentworth's engineering capabilities and teachings. The MpA Building will accommodate Wentworth's transition from providing engineering technology programs to engineering and innovation programs, such as a new biological engineering program. This transition requires new and different teaching and learning spaces and configurations that will promote more collaboration and interdisciplinary approaches to the curriculum. The Project, which is a response to the evolution of engineering education at Wentworth, is intended to meet the needs of the existing student body, and is not driven by, or expected to result in, a measurable increase in enrollment.

The Project will be located at the center of the Wentworth campus on the eastern edge of the Academic Quadrangle (the “Quad”), situated between Watson Hall and the Nelson Recreation Center on Parker Street, across from the Annex Complex (the “Site”). See Figure 1-1, Locus Map. The Site is approximately 0.8 acres (33,268 square feet) and currently contains three existing outdoor tennis courts.

1.3 COMMUNITY PROCESS

Engaging public outreach has always been a central tenet of Wentworth’s planning and project development process. Wentworth is committed to continuing that outreach with the BPDA/Wentworth Community Task Force (the “Task Force”), which includes representatives from nearby institutional, community, and civic organizations. In addition to the neighborhood input provided by the Task Force, the Article 80 Large Project Review process provides opportunity for further public review and comment on the Project.

1.4 PUBLIC AND COMMUNITY BENEFITS

The Project will provide the following significant public and community benefits:

- Preserve the academic campus setting with a uniquely designed building, enriching the character of the surrounding Mission Hill neighborhood;
- Support the City’s goals for a sustainable future through the development of an energy-efficient and environmentally-friendly building with a goal of LEED Silver level certifiable status;
- Uphold Wentworth’s commitment to implementing the Boston Residents Jobs Policy and establishing employment goals consistent with that program. Under that policy, a goal of 50% of the construction jobs will be intended for Boston residents, 25% for minorities, and 10% for women during the approximately fourteen-month construction period;
- Enhance and enliven pedestrian connections within the campus, as well as strengthen the pedestrian links provided to the community via the “Pike,” a pedestrian connector that runs through the campus in an east/west direction between Parker Street and Huntington Avenue. The Pike is Wentworth’s primary pedestrian spine, and a path heavily traveled each day by those making their way onto, and through, the campus;
- Improve campus edges and energize Parker Street with activity over a much longer and sustained period; and

- Remove the chain link fence that surrounds the tennis courts and currently cuts off access to the campus. The Project will enhance the welcoming experience on Parker Street by creating a new pedestrian connection.

1.5 CONSISTENCY WITH ZONING REGULATIONS AND ORDINANCES

According to the map entitled, “Zoning Districts City of Boston, Map 6D, Mission Hill Neighborhood District” (effective March 26, 2016) (the “Zoning Map”), the Site is located in the Wentworth Institute of Technology Institutional Subdistrict within the Mission Hill Neighborhood District. The Zoning Map also indicates that the Site is located within Wentworth’s Institutional Master Plan Area and the Groundwater Conservation Overlay District.

According to Section 59-26, any Proposed Institutional Project for the erection of any structure that is to be used or occupied for an Institutional Use shall be consistent with an approved Institutional Master Plan, subject to certain exemptions not applicable to the Project. As noted above, Wentworth is filing concurrently with this PNF an IMPNF to amend its IMP for approval by the BPDA and the Zoning Commission. Under Section 80D-11 of the Zoning Code, after the Project receives from BPDA a certification of consistency with the amended IMP and a certification of compliance with Article 80B’s Large Project Review requirements, the Project is deemed to be in compliance with the use, dimensional, parking, and loading requirements of the underlying zoning, including special purpose overlay districts established under Section 3-1A of the Zoning Code, notwithstanding any provision of the underlying zoning to the contrary and without the requirement for further zoning relief.

1.6 COMPLIANCE WITH THE INSTITUTIONAL MASTER PLAN

The Project is a modification and relocation of a project described in the IMP as a new 45,000 sf academic facility to be located at the site of Willson Hall and a portion of the West Lot. As a result of curriculum changes at Wentworth, a need has been identified for a single academic building to house a number of disciplines, including the new biological engineering program. In order to meet the needs of its students and faculty, Wentworth developed a plan to locate the MpA Building in an area of the campus that is currently undeveloped in order to maintain the academic space in Kingman and Willson Halls and to accommodate a number of engineering disciplines in one contained location. The Project represents a net increase of approximately 24,000 gsf of academic space over the project described in the IMP (the “IMP Project”). This modest increase in gsf and the change in location requires an amendment to the IMP. An IMPNF has been submitted to the BPDA concurrently with this PNF.

1.7 SUMMARY OF ANTICIPATED PERMITS AND APPROVALS

Table 1-1 includes a list of approvals anticipated for the Project at this time:

Table 1-1: List of Anticipated Permits and Approvals

Agency	Approval
<i>Local</i>	
Boston Planning and Development Agency (formerly Boston Redevelopment Authority)	Article 80 Large Project Review; Cooperation and other Article 80 Agreements; Institutional Master Plan Amendment; Urban Design Plan Review
Boston Civic Design Commission	Schematic Design Review/Recommendation
Boston Zoning Commission	Institutional Master Plan Amendment
Boston Fire Department	Flammable Storage Permit
Boston Public Improvements Commission	Specific Repair Plan, as needed
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan
Boston Water and Sewer Commission	Site Plan Approval: Backwater Valve Approval; Cross Connection Approval
Inspectional Services Department	Excavation/Retention Permit; Building Permit; Certificate of Occupancy
<i>State</i>	
Massachusetts Department of Environmental Protection	Source Registration for Sewer Discharge Notification Prior to Construction or Demolition
Massachusetts Board of Elevator Regulations	Elevator Permit for Installation; Elevator Inspection Certificate

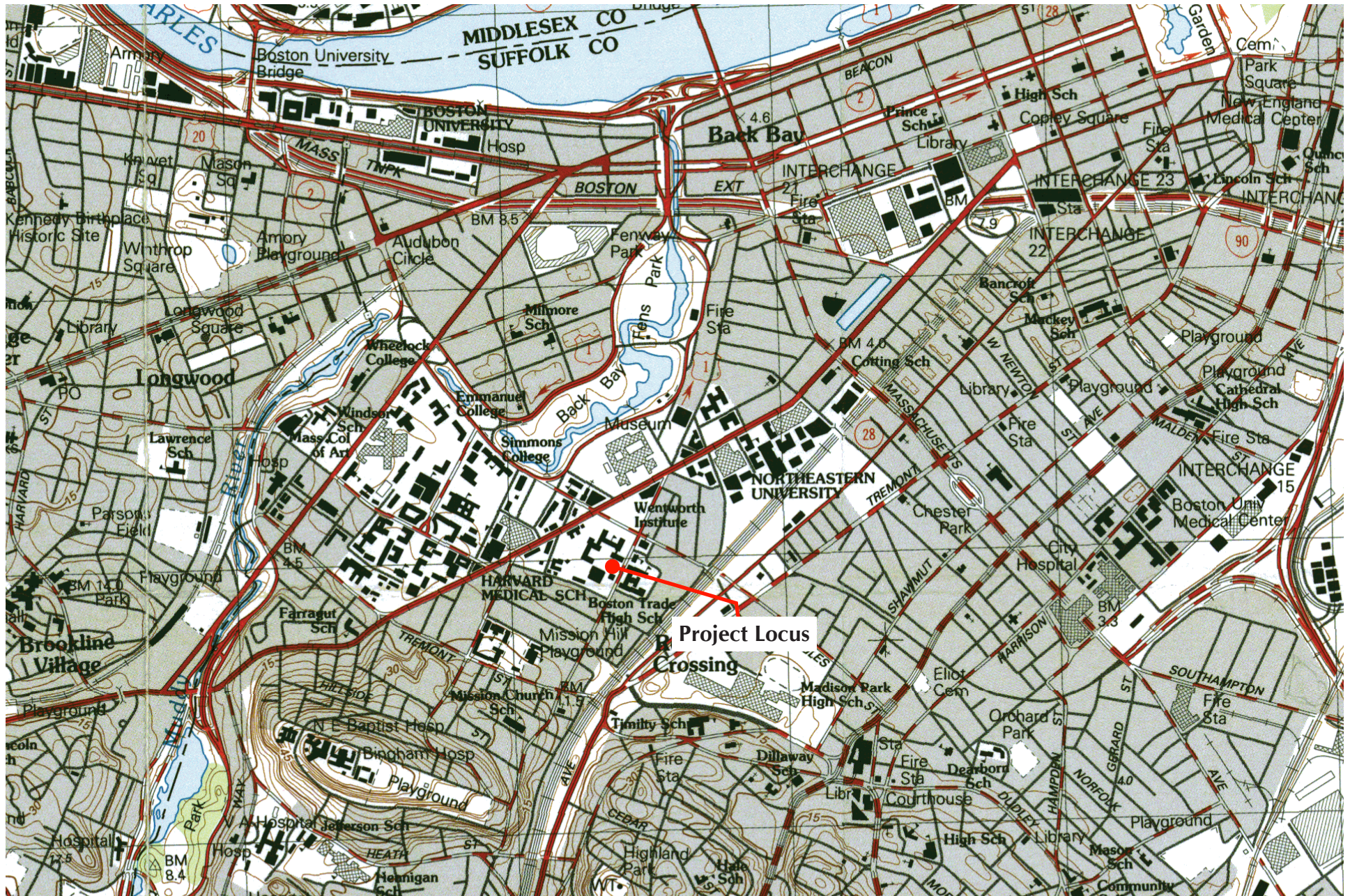
Agency	Approval
Massachusetts Water Resources Authority (MWRA)	Industrial Sewer Use Discharge Permit, Dewatering Permit
<i>Federal</i>	
US Environmental Protection Agency (EPA)	National Pollution Discharge Elimination System (NPDES) Construction General Permit; Remediation General Permit (RGP)

1.8 PROJECT TEAM

Table 1-2: Project Team

Proponent	Trustees of Wentworth Institute of Technology 550 Huntington Ave Boston, MA 02115 <i>Contact: David A. Wahlstrom, Vice President for Business</i> <i>Phone: (617) 989-4552</i> <i>E-mail: wahlstromd@wit.edu</i>
Project Manager	STV/DPM One Gateway Center, Suite 951 Newton, MA 02458 <i>Contact: Timothy Singleton, Senior Project Manager</i> <i>Phone: (617) 614-9345</i> <i>E-mail: timothy.singleton@stvinc.com</i>
Construction Manager	Gilbane Building Company 10 Channel Center Street, Suite 100 Boston, MA 02210 <i>Contact: Kevin A. Cooke, Senior Project Executive</i> <i>Phone: (617) 478-3349</i> <i>E-mail: kcooke@gilbaneco.com</i>
Planning/Environmental Consultant	Fort Point Associates, Inc. 31 State Street, 3 rd Floor Boston, MA 02109 <i>Contact: Judith Kohn, RLA, Vice President</i> <i>Phone: (617) 357-7044 x211</i> <i>E-mail: jkohn@fpa-inc.com</i>
Civil Engineering	Nitsch Engineering 186 Lincoln Street, Suite 200 Boston, MA 02111 <i>Contact: John Schmid, Senior Project Manager</i> <i>Phone: (617) 338-0063</i> <i>E-mail: jschmid@nitscheng.com</i>
Architect	Leers Weinzapfel Associates Architects 75 Kneeland Street Boston, MA 02111 <i>Contact: Tom S. Chung, Principal</i> <i>Phone: (617) 423-5711 x240</i> <i>E-mail: tschung@lwa-architects.com</i>

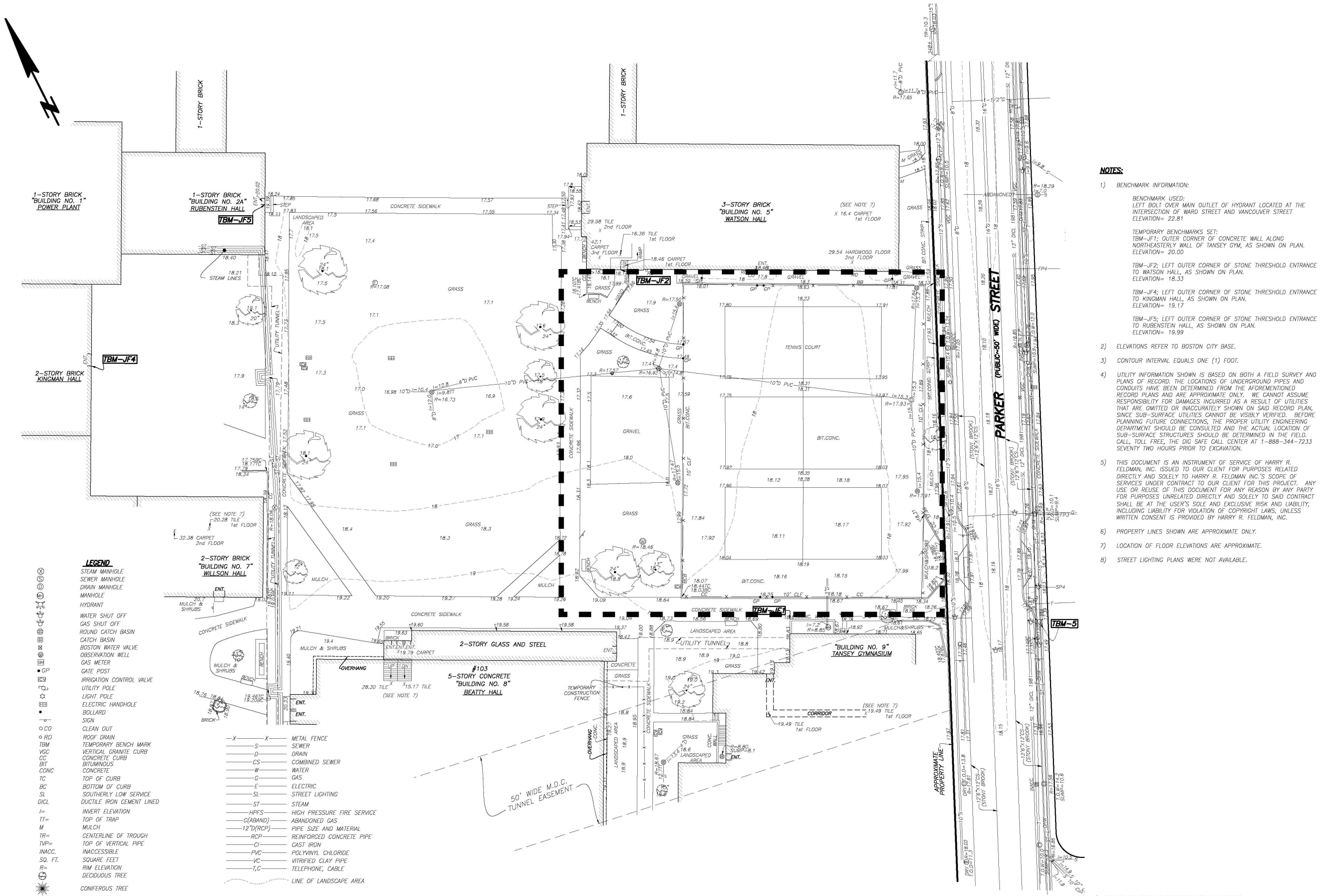
Landscape Architect	Ground, Inc. 6 Carlton Street Somerville, MA 02143 <i>Contact: Shauna Gillies-Smith</i> <i>Phone: (617) 718-0889</i> <i>E-mail: sgs@groundinc.com</i>
Sustainability Consultant	Atelier Ten 195 Church Street New Haven, CT 06510 <i>Contact: Marta Bouchard</i> <i>Phone: (203) 777 1400 x207</i> <i>(212) 254 4500 x261</i> <i>Email: Marta.Bouchard@atelierten.com</i>
Land Surveyors	Feldman Land Surveyors 112 Shawmut Avenue Boston, MA 02118 <i>Contact: Michael Feldman</i> <i>Phone: (617) 357-9740 x258</i> <i>E-mail: mfeldman@feldmansurveyors.com</i>
Geotechnical Consultant	McPhail Associates, LLC 2269 Massachusetts Ave. Cambridge, MA 02140 <i>Contact: Jonathan Patch</i> <i>Phone: (617) 868-1420 x316</i> <i>E-mail: JWP@mcphailgeo.com</i>
Transportation Consultant	VHB 99 High Street, 10 th Floor Boston, MA 02110 <i>Contact: Sean Manning, Principal</i> <i>Phone: (617) 728-7777</i> <i>E-mail: smanning@VHB.com</i>
Attorney	Goodwin Procter LLP 100 Northern Avenue Boston, MA 02210 <i>Contact: Jennifer Schultz</i> <i>Phone: (617) 570-8215</i> <i>E-mail: JSchultz@goodwinlaw.com</i>
Government Community Relations	Edward M. King & Associates 8 Porters Cove Road Hingham, MA 02043 <i>Phone: (617) 773-0373</i> <i>E-mail: King.EdwardM@gmail.com</i>





Boston, Massachusetts

Figure 1-2
Aerial View of Existing Site
Source: Google Maps, Fort Point Associates, Inc., 2016



Chapter 2

PROJECT DESCRIPTION

CHAPTER 2: PROJECT DESCRIPTION

2.1 INTRODUCTION

The MpA Building will be sited on the footprint of the three outdoor tennis courts situated between Watson Hall and Nelson Recreation Center on Parker Street, across from the Annex Complex. See Figure 2-1, Oblique View of Existing Site. The MpA Building modifies and replaces the 45,000 sf Center for Engineering and Technology as described in the IMP with an increase in size of 24,000 sf. Wentworth identified a need to build a new state-of-the-art building to accommodate the evolution and diversification of engineering programs, and to reduce impacts of building on the site of existing academic facilities located at Kingman and Willson Halls. The Site offers an excellent opportunity for Wentworth to visually enclose the fourth side of the Quad with a signature building situated in a highly visible location on Parker Street.

2.2 PROJECT SITE

The Project will be located at the center of the Wentworth campus on the eastern edge of the Quad. See Figure 2-1, Oblique View of Existing Site. The Project will be constructed on a site comprised of approximately 0.8 acres, and directly abuts Watson Hall, the Nelson Recreation Center, and the Quad, and also fronts on Parker Street, across from the Annex Complex (the "Site"). Wentworth owns the Site, which is presently comprised of three tennis courts, a paved area and open-air bicycle racks. The Project will be sited to take advantage of the recently constructed Wentworth pedestrian path (the "Pike"), which connects the Annex Complex to the Wentworth Campus, and to form the fourth built edge to the Quad. See Figure 2-2, Existing Conditions Photographs Key Plan; Figure 2-3, 2-4, and 2-5 Existing Conditions Photographs; and Figure 2-6, Project Site Plan.

2.3 PROPOSED PROJECT

As a result of curriculum changes at Wentworth, a need has been identified for a single academic building to house a number of interrelated disciplines, including the new biological engineering program. In order to meet the needs of its students and faculty, Wentworth developed a plan to locate the MpA Building in an area of the campus that is currently undeveloped in order to maintain the academic space in Willson and Kingman Halls and to accommodate a number of engineering disciplines in one contained location. The MpA Building is designed to meet the requirements of the evolving engineering disciplines and programs offered at Wentworth both through the more open physical layout of the learning and collaboration spaces, including the first floor gathering and presentation spaces. The MpA Building will also create space for larger state-of-the-art equipment and technology within the lab spaces. The more open collaboration spaces will be able to

physically accommodate mixed project teams comprised of, for example, architecture, civil engineering, structural engineering, and construction management students. These teams will work together in an interdisciplinary manner much the way they will in their future professional roles. Wentworth's current, generally compact, classroom set-ups and spread of disciplines among multiple buildings does not provide or foster the type of interdisciplinary collaboration the MpA Building will provide. In addition, the new larger lab spaces in the MpA Building will allow current students to expand their learning experiences beyond the curriculum that Wentworth is presently able to offer in its smaller and more traditional academic buildings. It is expected that some existing engineering and science labs will relocate to the MpA Building to alleviate the current under-capacity of classroom and lab space in Wentworth's existing academic buildings. Overall, Wentworth has reached capacity for classroom space. As an example, during the 2015-2016 Academic Year, multiple classes had to be held in conference rooms for the entire semester.

The departments and/or uses currently under consideration for the MpA Building include:

- Biological Engineering;
- Civil Engineering;
- Biology and Chemistry;
- Biomedical Engineering;
- Mechanical Engineering with High End Manufacturing;
- Shared academic space;
- Accelerate and Epic programs with maker, collaboration, and ideation space;
and
- Student and faculty presentation space.

Because the Project is intended to better serve the existing student body, no new off-street parking is needed for the Project. In addition, as part of its mission to promote alternative modes of transportation, the MpA building will be served by a newly constructed covered 100-space bike parking structure that will be located adjacent to the MpA Building alongside Beatty Hall.

The MpA Building, which is comprised of approximately 69,000 gsf, is planned to contain maker spaces, laboratories, student learning and group study spaces, offices, and support/storage space along with meeting rooms and open meeting spaces which are intended to promote collaboration among students and faculty. The building will be 4 stories above grade, with a 5th floor penthouse for mechanical equipment. A portion of the

4th floor space is currently unassigned “shell space” to allow for flexibility with future engineering program diversification or realignments. A partial basement will be allocated for mechanical and storage areas.

The MpA Building will be approximately 64 feet in height above grade to the top of the flat roof with a footprint of approximately 16,460 gsf at the ground floor. See Table 2-1, Project Program for a detailed description of the building.

The entrances to the MpA Building will be focused on alignments with the recently constructed crosswalk on Parker Street as well as the location and terminus of the Pike. See Figure 2-6, Project Site Plan.

2.3.2 GROUND FLOOR USES

The ground floor of the MpA Building will contain a flexible, multi-purpose common space near the main entry – intended as the main gathering space of the building – and also maker spaces, project rooms, and office areas for the EPIC/Accelerate program and the Mechanical Engineering Department. The ground floor areas will be highly visible from both Parker Street, the Pike, and the Quad, and will showcase student projects in a flexible display area. See Figure 2-8, Ground Floor Plan.

2.3.3 PROJECT PROGRAM

The Project program is comprised of open collaboration spaces, teaching laboratories and support spaces, project rooms, maker-spaces for Civil Engineering, Biological Engineering, Biomedical Engineering, Mechanical Engineering, and EPIC/Accelerate Programs, and offices and conference rooms to support these programs.

The complete list of Program spaces is provided in Table 2-1 Project Program.

Table 2-1: Project Program

Level	Uses	Floor Area	Gross Floor Area¹
Basement	Mechanical, Storage	5,000	N/A
Ground Floor	Lobby, Maker Spaces and Shops, Project Rooms, Offices	16,460	16,460
Second Floor	Offices, Conference Rooms, Study Lounges, Labs, Lab Support	17,283	17,283
Third Floor	Offices, Conference Rooms, Study Lounges, Labs, Lab Support	17,763	17,763
Fourth Floor	Offices, Conference Rooms, Study Lounges, Labs, Lab Support, Future Growth Space	17,494	17,494
Roof Area	Mechanical Penthouse	3,012	N/A
Total		77,012	69,000

2.3.4 LABORATORY SPACE

Laboratory spaces for the MpA Building are intended for teaching classes for the associated programs. There will be 15 such laboratory spaces along with support spaces for setup and storage.

2.3.5 ACADEMIC USES

The primary academic use of the Project is for general teaching of the academic programs listed in Section 2.3.2. In addition, the Project is intended to serve the purpose of gathering and collaboration for the overall Wentworth academic

¹ Gross Floor Area does not include certain space pursuant to Article 2A, Boston Zoning Code

community. The series of meeting spaces, including the ground floor Commons, is intended for this purpose.

2.3.6 SITE CIRCULATION

Currently, the Site is bounded on three sides by fencing around the tennis courts. The MpA Building will be located to take advantage of the Site's high visibility and access through the Site connecting Parker Street to the center of Wentworth campus, the Quad. Cross campus circulation via the Pike will be strengthened, and the ground floor of the building will be set back from Parker Street to create a generous and welcoming streetscape. In addition, the space between the MpA Building and Watson Hall, which is currently fenced off, will be open to circulation between Parker Street and the Quad, providing another means of access and connection to the Quad. See Figure 2-6, Site Plan.

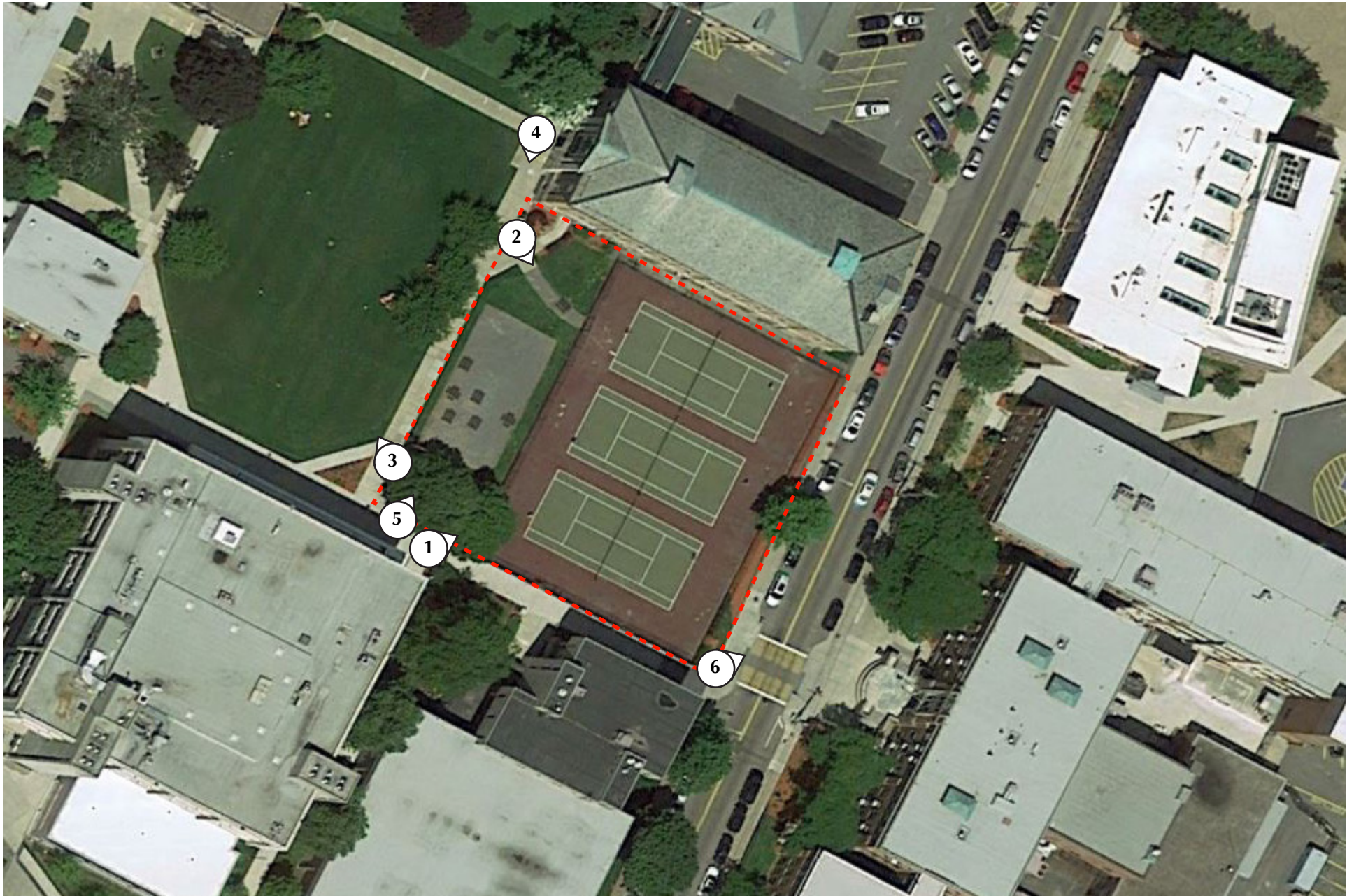
2.3.7 PARKING AND ACCESS

The Project does not require additional parking spaces and will not create an increased demand for parking. No new loading docks are required for service deliveries. Users of the MpA Building are expected to use the currently available existing modes of transportation as described in Chapter 5, Transportation. Pedestrian access into the MpA Building will be through two main entries located adjacent to the Pike, one facing Parker Street and one facing the Quad. Deliveries for the MpA Building purposes will arrive at a central shipping/receiving location on campus, and will then be sent to the MpA Building entrance that faces Watson Hall. Supplemental access through the building will be provided at other entrances. The MpA Building will utilize the existing driveway in the East Lot on the north side of Watson Hall.

2.3.8 OPEN SPACE AND LANDSCAPE

The MpA Building will be surrounded by open space, with a minimum setback of 30 feet from adjacent buildings and 25-32 feet from the edge of Parker Street. On the building's south elevation adjacent to the Pike, the walkway will be widened on Wentworth's property, and incorporated with the entry areas of the building. On the east elevation adjacent to Parker Street the ground floor of the MpA Building will be set back from the property line, and thus the sidewalk area will be widened and incorporated with the entry plaza area of the MpA Building to improve the streetscape. The ground floor is aligned with Watson Hall, while the cantilevered upper floors align with the Nelson Recreation Center to the south. The landscape design of the MpA Building will incorporate hardscape and areas of planting to provide both clear and accessible circulation around the building as well as outdoor areas or "rooms" for gathering and program use. See Figure 2-13, Landscape Plan.







View 1



View 2



View 3



View 4

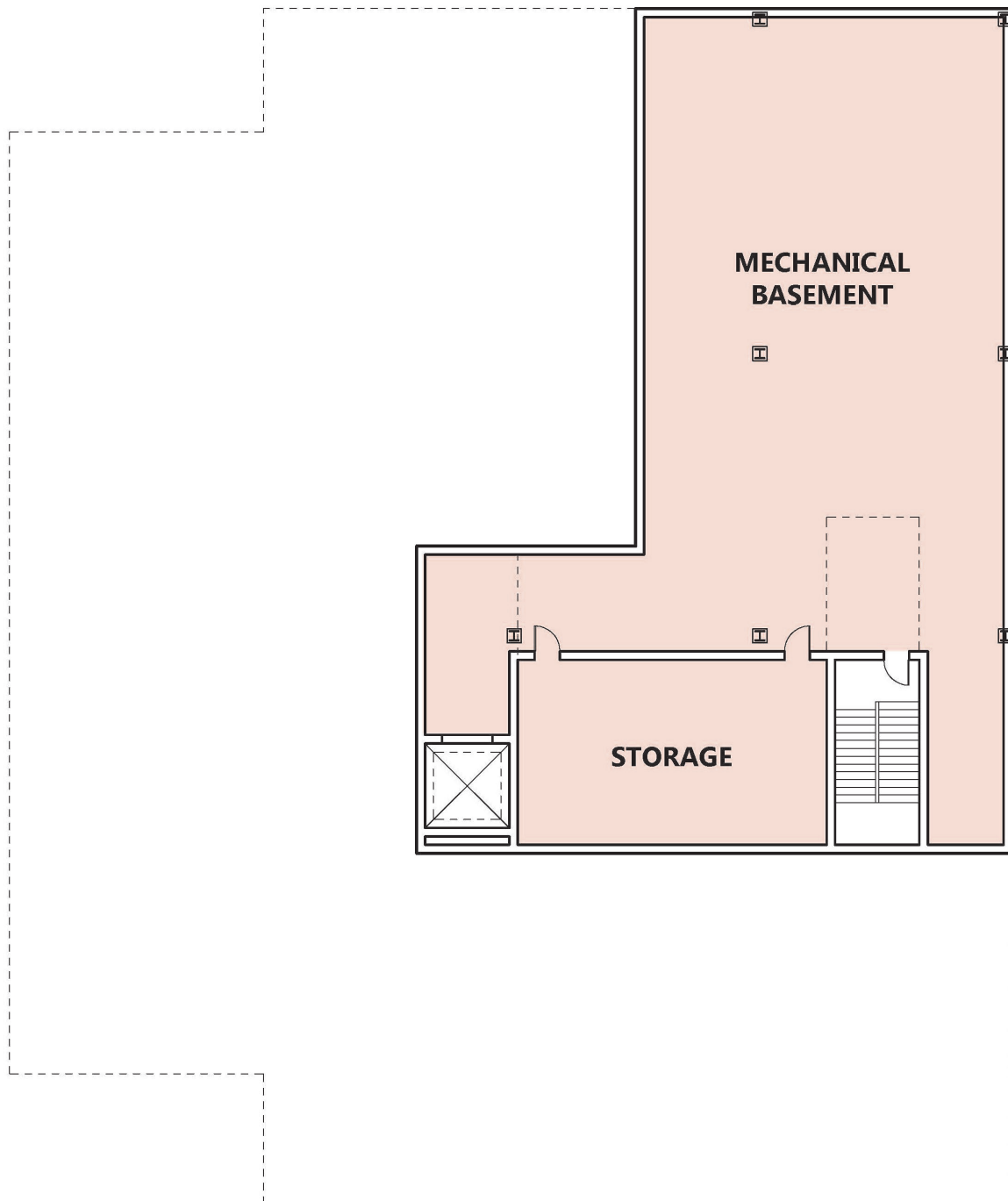


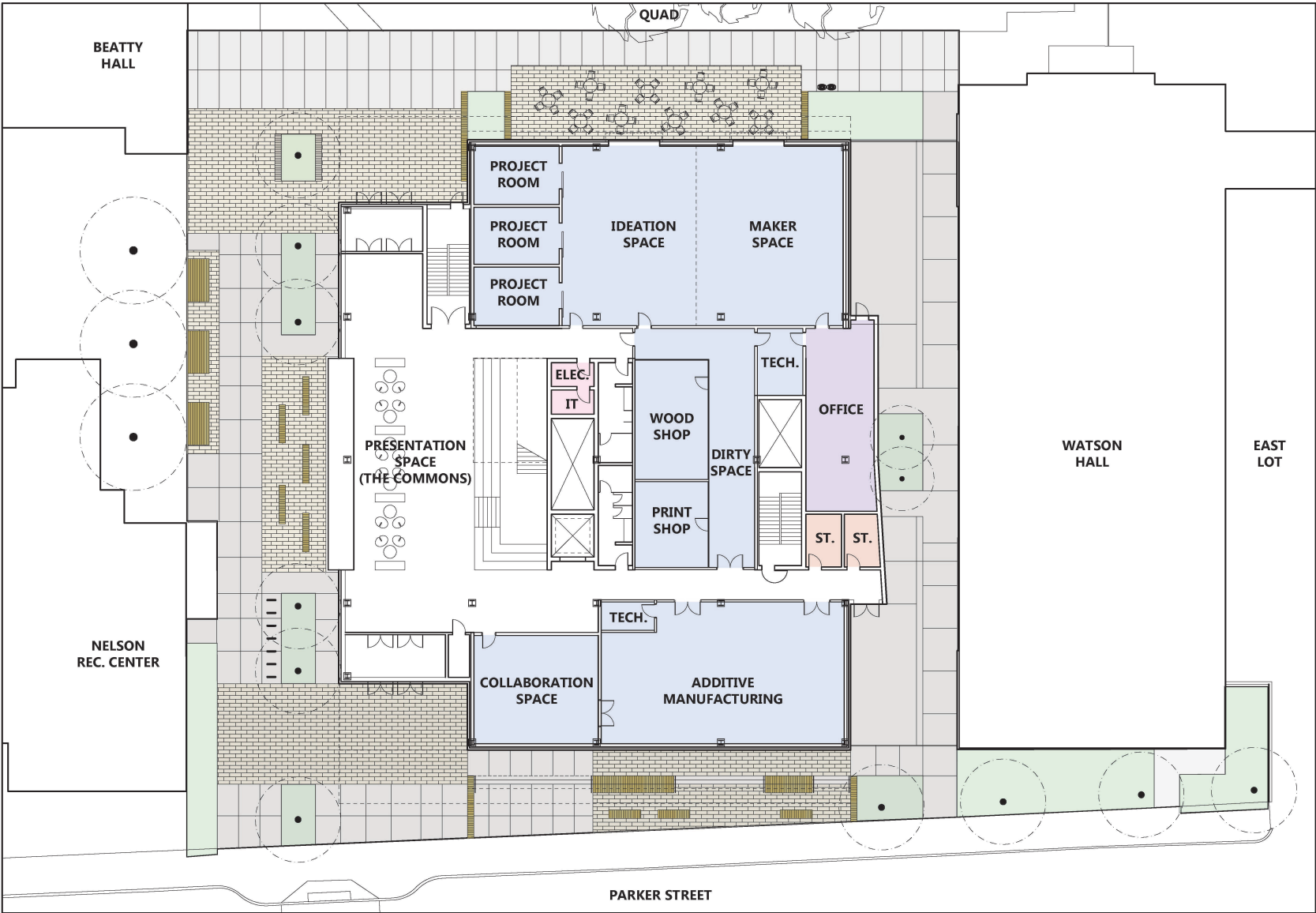
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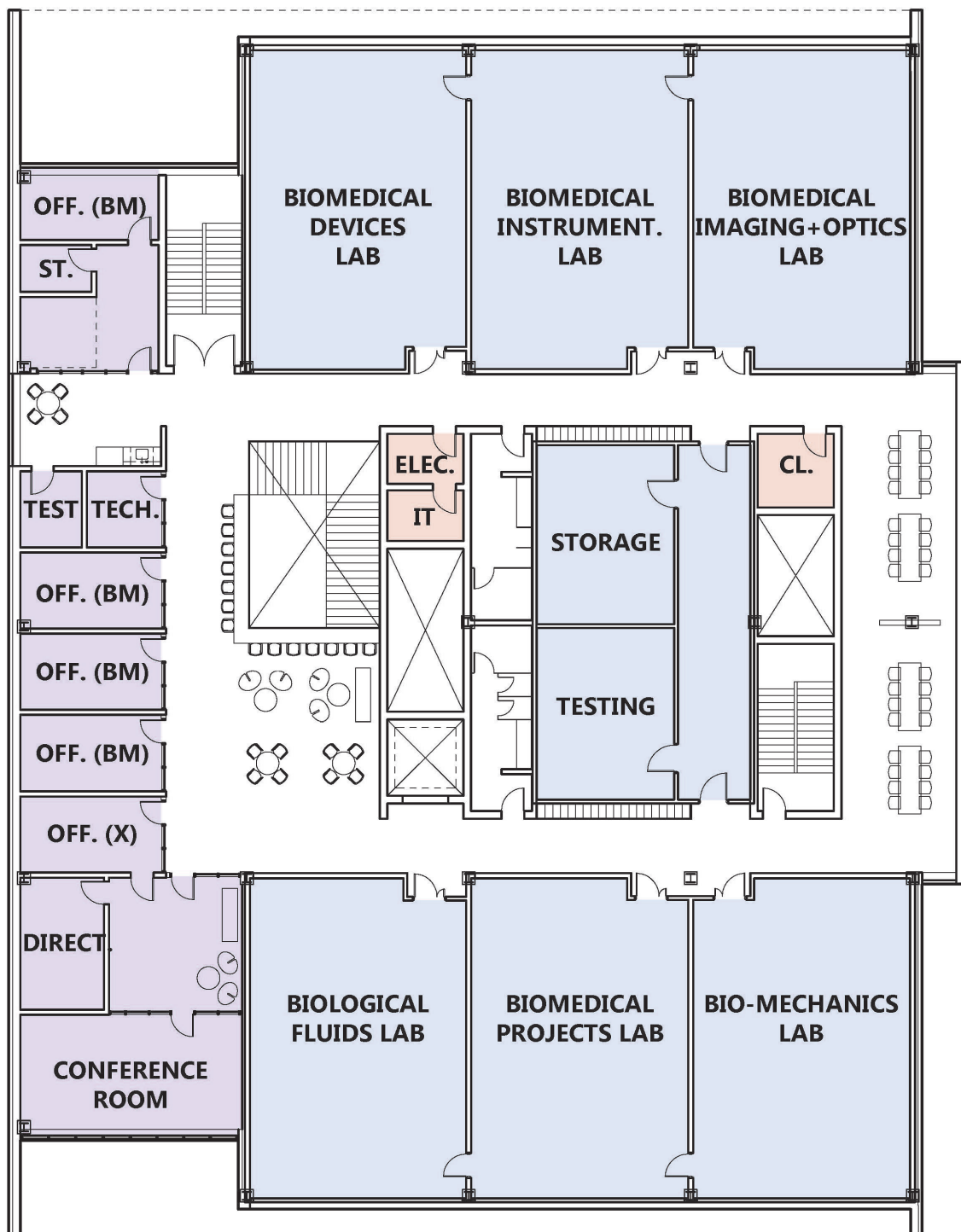


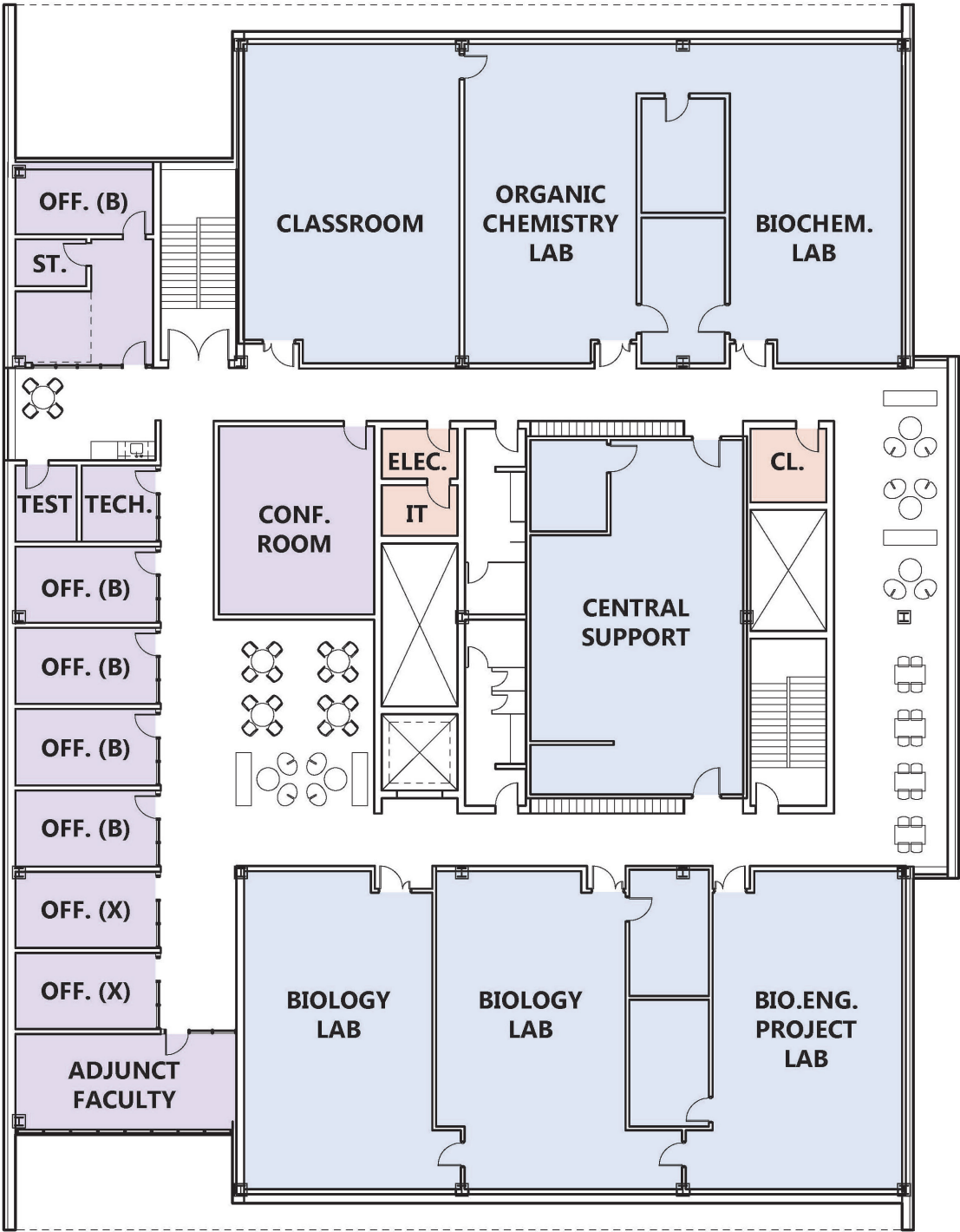
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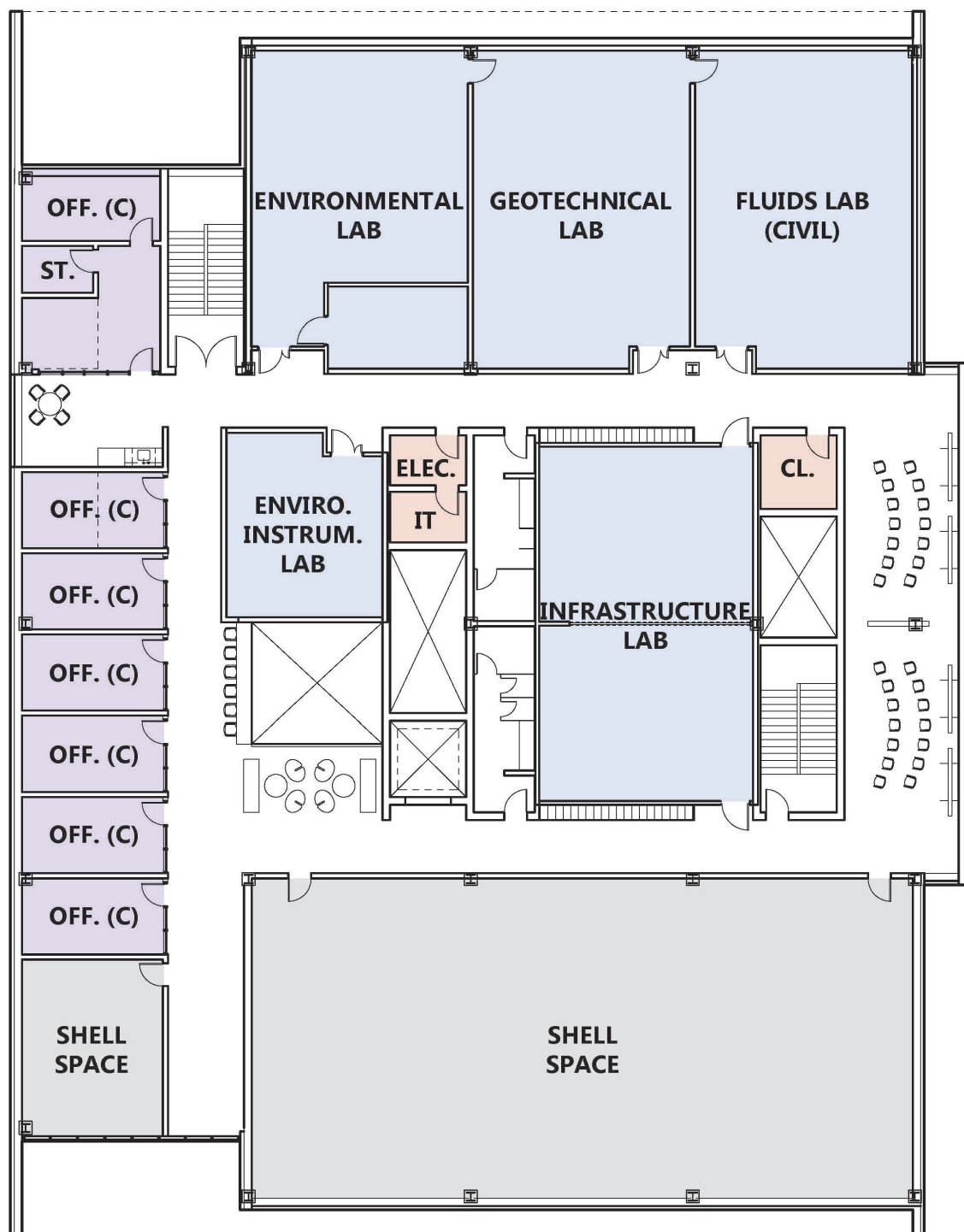


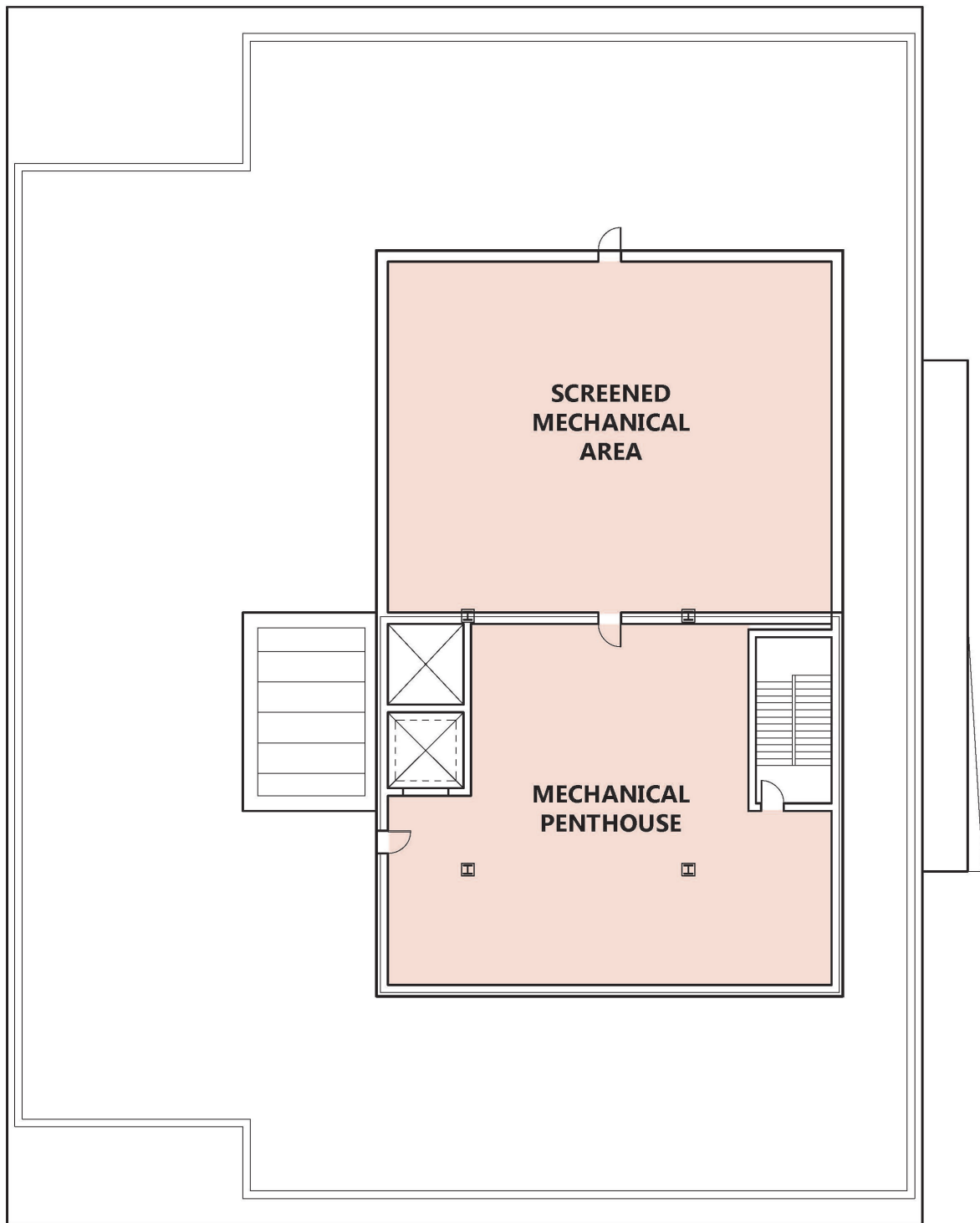














Chapter 3

URBAN DESIGN

CHAPTER 3: URBAN DESIGN

3.1 INTRODUCTION

The MpA Building will be located on the Wentworth Campus in an urban setting with various density and building heights ranging from high-rises and large institutional buildings along Huntington Avenue to smaller, residential buildings in the Mission Hill and Fenway neighborhoods. Within the Wentworth Campus, adjacent to the Site, there are mid-scale academic buildings ranging from three stories to four stories in height. Thoughtful attention to the overall size of the MpA Building (scale, footprint, and height) has been paid to these urban design elements during the design process to fit into this context.

Building materials of the adjacent buildings range from the light colored brick features of the earliest Wentworth Campus buildings dating from the early 1900s, to concrete and precast concrete structures on the west side of Parker Street built during the late 1960s. Red-brick buildings are located across Parker Street in the immediate Site locus. Parker Street is an important spine that connects the Wentworth Campus to the city of Boston and the adjacent Mission Hill and Fenway neighborhoods. Modulation of the ground floor with setbacks, canopies, and highly visible building façades will enhance walkability of the street, feeling of transparency, connectedness, and engagement with the City.

3.2 MASSING

The MpA Building is a four-story building intended to be a campus gateway that completes the Quad and provides continuity to the streetscape of Parker Street. The main four-story mass is supplemented by a 15 foot high mechanical penthouse that is set back at four sides from the main mass with significant setbacks from the street edge. This setback preserves the reading of the building as a low-rise four-story structure from the Parker Street level. A cantilevered second floor will provide an overhang along both east and west façades. The Parker Street building cantilever will be 12-feet in depth, remaining within the Wentworth owned portion of the streetscape. This cantilever reinforces the pedestrian character of the street edge as well as the ground plane activity, and offers weather protection to pedestrians.

3.3 CHARACTER AND MATERIALS

The materials utilized for façade and fenestration (window openings) will be modern but detailed to provide a scale and character consistent with the early twentieth century structures to the north along Parker Street. The primary materials will be zinc panel, glass, and aluminum curtainwall, with a granite base along the ground plane below the curtainwall sill. Soffits at the pedestrian level will be of either zinc panel or wood.

3.4 LANDSCAPE AND STREETSCAPE

The design of the landscape and streetscape for the MpA Building is intended to improve and enhance the overall experience and character of the Wentworth campus while facilitating student activity and programming.

The MpA Building is located at the heart of the Campus Academic area. It is bounded by Parker Street, the Quad, and the Pike pedestrian spine which connects the Annex Complex (student residential halls) to the Academic Core.

The public realm planned to surround the MpA Building will be designed to both enhance student movement and to be an extension of the indoor building program on all four sides. Flexible outdoor "rooms" will accommodate outdoor work space, viewing of indoor displays, and outdoor seating, and will provide informal gathering spaces to foster interaction and collaboration among students, faculty and staff members. Circulation into the MpA Building and along the Pike will be greatly enhanced with widened walkway areas. The new streetscape elements will provide a welcoming connection for pedestrians in the surrounding neighborhood.

Along Parker Street, the existing sidewalk area will be integrated with the main building entrance. The covered overhang of the building partially covers this walkway, providing a gathering node with stepped bench seating and some protection from New England's weather. The widened sidewalk along the Pike will provide for improved pedestrian circulation as well as new tree plantings, wide seating benches, and an opportunity to view the MpA display vitrines. The area between the MpA Building and Watson Hall will include outdoor work areas as well as a new pedestrian connection from Parker Street to the Quad. To the northwest, the MpA Building opens to the Quad, with flexible outdoor seating and social spaces.

New tree plantings will enhance the urban tree canopy, providing shade in the summer and seasonal interest without inhibiting pedestrian movement. The enlarged paved areas and the additional tree planting and seating on the Site will enhance current campus qualities, such as the Pike and the Quad, while improving connections, pedestrian circulation flow, and outdoor social and gathering opportunities.

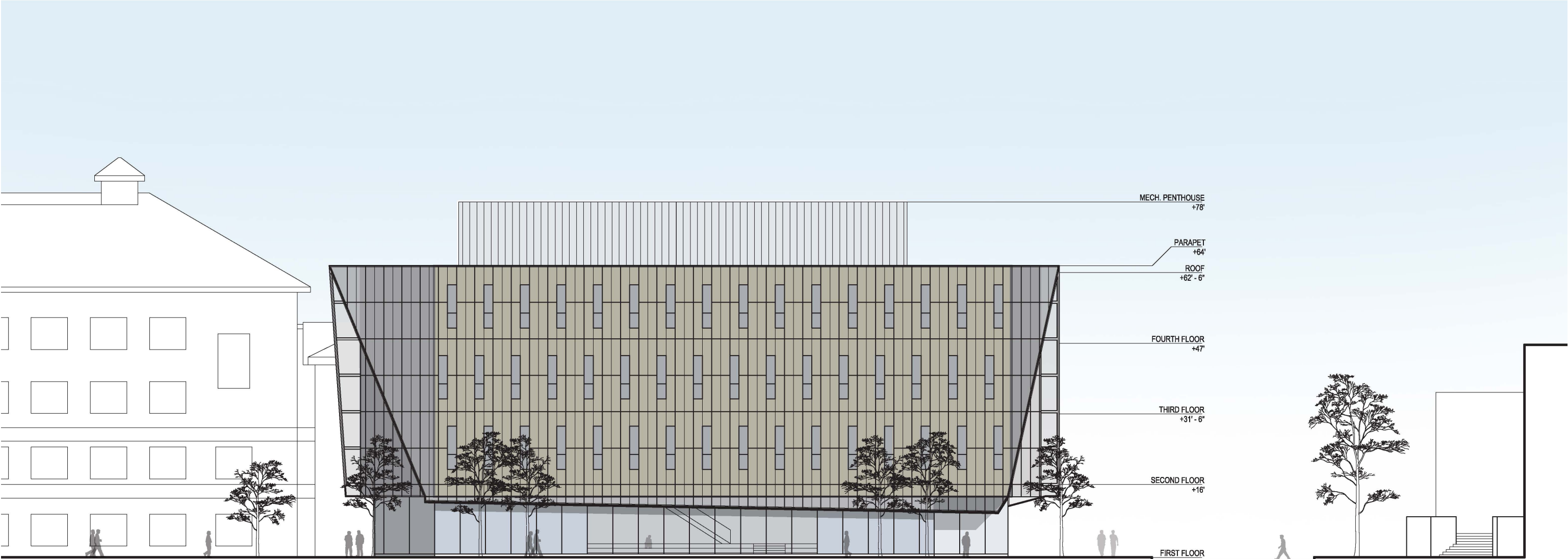
3.5 CONSISTENCY WITH AREA PLANS

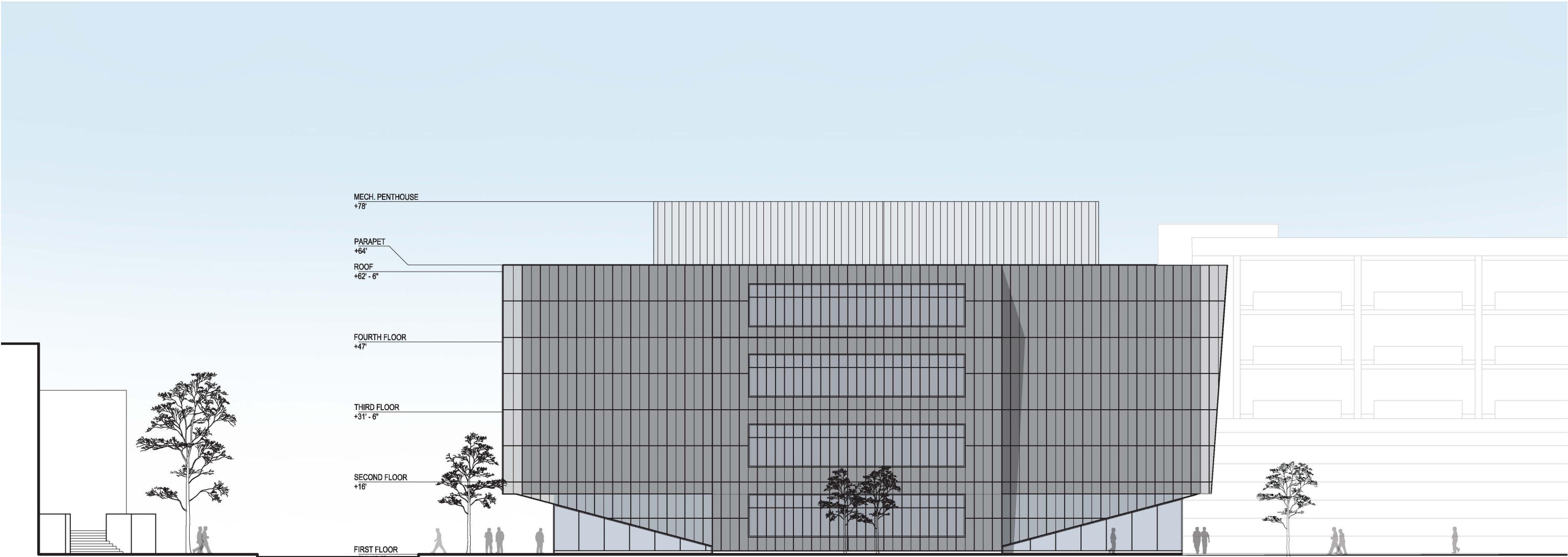
The Wentworth Campus is located in the Mission Hill Neighborhood of Boston. The Mission Hill Neighborhood is host to an active and engaged community. Members of the community participate in planning and review of Institutional Projects and other development and redevelopment activities in the neighborhood.

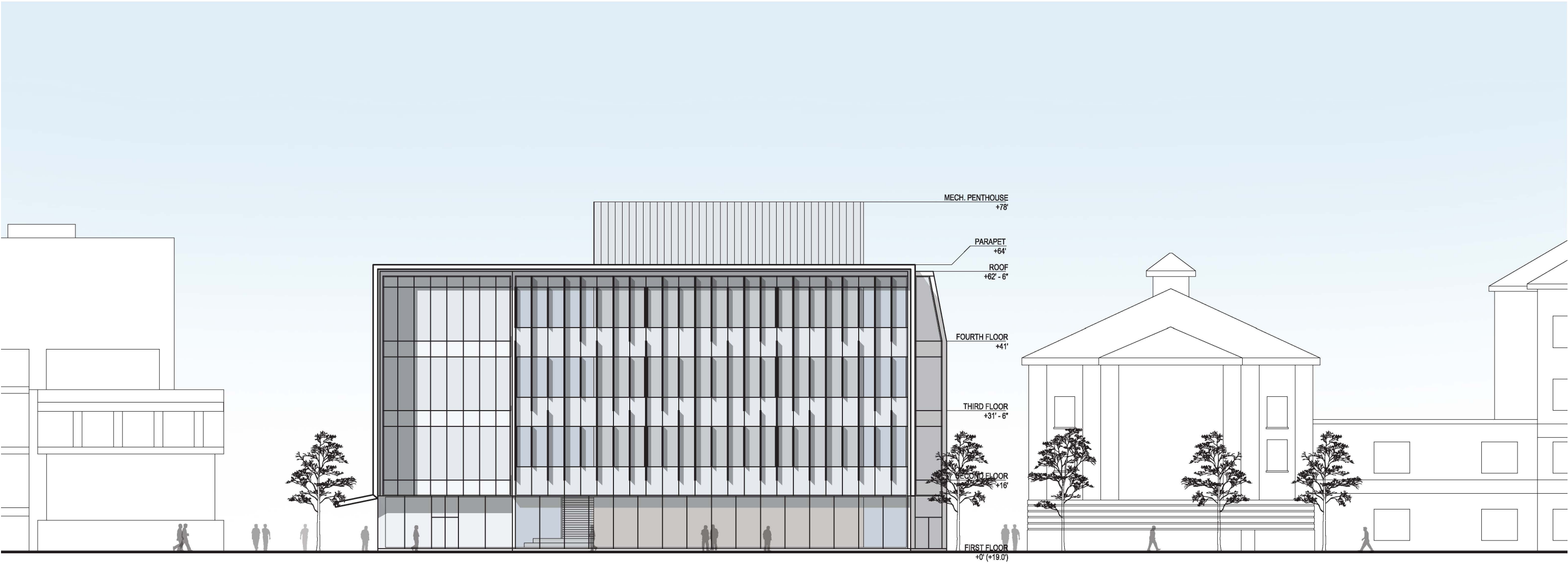
In 2015, the BPDA, in conjunction with Sasaki Associates and RWDI, conducted a planning and design analysis of portions of Huntington Avenue ("Avenue of the Arts Design Guidelines Study") to determine best future uses and design for the areas of the study. This study, which is presently in draft form, identifies properties on the Wentworth Campus that are included in the "Primary Study Area." The MpA Site is within this general area, but is not identified as an area of focus. Wentworth will work within the spirit of the study to be consistent with the principles identified as is appropriate during the Article 80 review process, and will consider the study in its future campus planning activities.

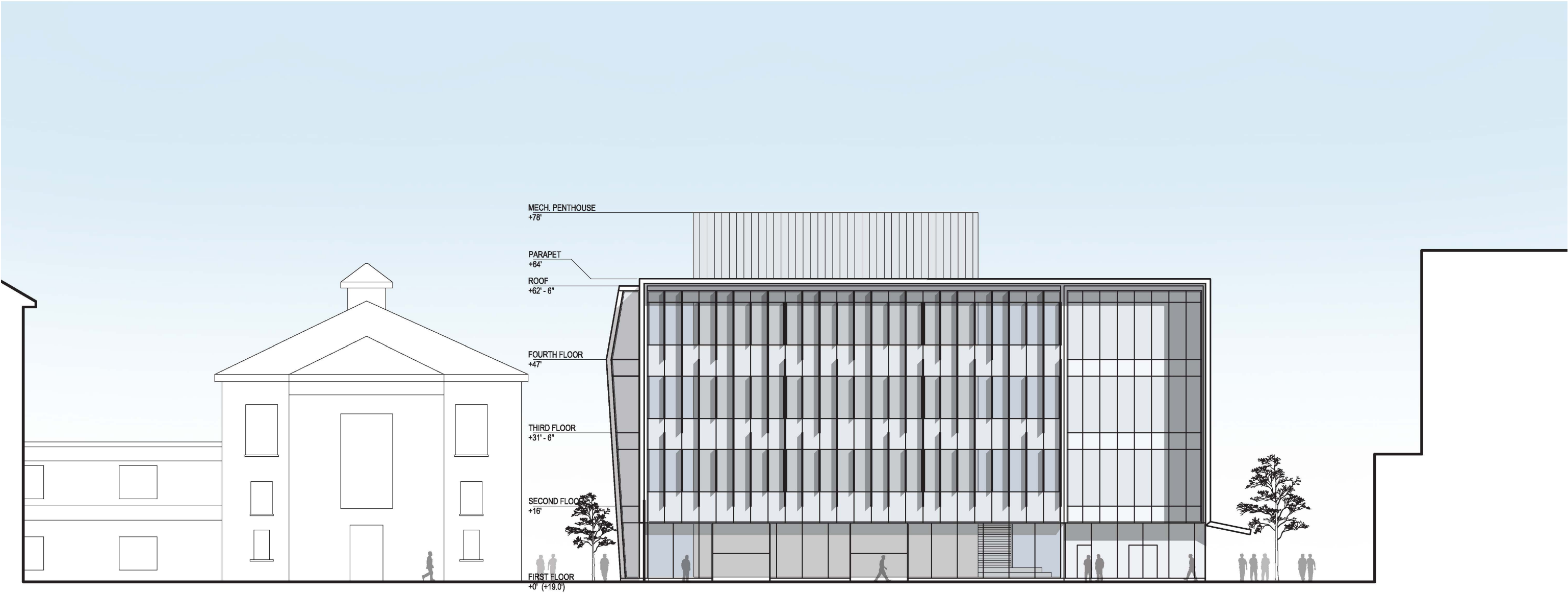












Chapter 4

SUSTAINABILITY

CHAPTER 4: SUSTAINABILITY

4.1 ARTICLE 37 / LEED COMPLIANCE

The Project will achieve compliance with the City of Boston's Article 37 Green Building standards. The Proponent's goal is that the Project will achieve a minimum of LEED Silver certifiable level by demonstrating compliance with all of the prerequisites and at least 50 credit points of the LEED version 4 Rating System for Building Design and Construction, New Construction rating system.

The Project will strive for the responsible use of resources, including energy, water, and materials, while providing a healthy and comfortable environment for its occupants. Article 37 of the Boston Zoning Code requires that projects that are subject to Article 80B, Large Project Review, be LEED certifiable. The Project will use the LEED version 4 for New Construction rating system to demonstrate Article 37 compliance. The LEED rating system tracks the sustainable features of the Project by assigning points in the following categories: Integrative Process, Location & Transportation, Sustainable Sites; Water Efficiency; Energy & Atmosphere; Materials & Resources; Indoor Environmental Quality; and Innovation, and Regional Priority.

Major sustainable design objectives for the overall Project include:

- Contribute to a walkable, bikeable campus and urban presence to promote alternate transportation;
- Design an integrative, healthy landscape that mitigates runoff and is designed for extreme rain/storm events for future climate resiliency;
- Retain, recharge, and conserve rainwater where possible and seek opportunities for reuse; limit demand on potable water for any exterior applications;
- Integrate passive design strategies where feasible (such as natural ventilation, daylighting, and high envelope thermal performance) to reduce overall building energy consumption;
- Optimize active design strategies, including low-energy HVAC systems and controls, energy-efficient lighting, and daylighting design and controls. Seek opportunities for occupant control to enable occupant health and well-being;
- Offset energy consumption and serve long-term institutional carbon-reduction goals by considering design for a rooftop photovoltaic renewable energy system;

- Utilize healthy, durable, maintainable materials that support local material resources and reduce material wastes;
- Create a healthy interior environment with high indoor air quality through efficient ventilation design and controls, air filtration, and non-toxic materials;
- Design a teaching building that occupants can adapt and adjust to meet needs for occupant well-being and future, flexible needs based on program and climate; and
- Wherever possible, seek opportunities for demonstrating sustainability to occupants and community through student engagement and active learning.

4.2 LEED CREDIT NARRATIVE

The following is a credit-by-credit analysis of the Project team's approach for achieving LEED v4 for New Construction at the Silver level. See Figure 4-1, LEED v4 for New Construction Checklist. As the Project is further developed, items listed in the "maybe" category will be evaluated and identified for inclusion to meet the LEED goals.

4.2.1 INTEGRATIVE PROCESS (0) POINTS (1) MAYBE

IPp1 Integrative Process: The Project team will determine if there is sufficient scope to perform the required SD phase energy and water balance analyses. The additional modeling and assessment may not be possible. (1) Maybe

4.2.2 LOCATION & TRANSPORTATION (9) POINTS (4) MAYBE

LTc2 **Sensitive Land Protection:** Project will be constructed on existing campus tennis courts, therefore site is previously developed and should meet credit criteria. (1) Point

LTc4 **Surrounding Density & Diverse Uses:** Campus is located in urban but low-rise, mixed-use neighborhood with commercial and multi-family residential buildings. Surrounding density and diverse uses criteria are most likely achievable. (5) Points

LTc5 **Access to Quality Transit:** Site is within close proximity of MBTA station(s) on Huntington Ave. Other transit options and service levels to be confirmed for point achievement. (3) Points (2) Maybe

LTc6 **Bicycle Facilities:** Campus is bike friendly; currently over 300 bicycle parking spaces with plans to have over 400 bicycle parking spaces when the Project is complete. Campus is close to Back Bay Fens urban park, which will likely meet

credit criteria for connection to bicycle network. Project would need to provide shower(s) for bicyclists that meet LEED criteria. (1) Maybe

LTc8 **Green Vehicles:** No parking in project scope, however, the team will consider pursuing credit based on existing campus parking used by project occupants. WIT is considering a ZipCar program. WIT would need to designate preferred parking for green vehicles. (1) Maybe

4.2.3 SUSTAINABLE SITES (3) POINTS (6) MAYBE

SSp1 **Construction Activity Pollution Prevention:** Civil engineering design will address erosion and sediment control and comply with more stringent of EPA Construction General Permit or local equivalent.

SSc1 **Site Assessment:** Project will consider pursuing this credit. (1) Maybe

SSc2 **Site Development - Protect/Restore Habitat:** Project will assess this credit, however campus vegetation appears to be mostly turf grass lawns, which does not meet native/adaptive intent. (1) Maybe

SSc3 **Open Space:** Credit should be achievable given campus pathways and lawns are pedestrian-oriented and accommodate outdoor social activities. (1) Point

SSc4 **Rainwater Management:** The Project design goal will be to meet the credit criteria for a 95th percentile rainfall event (approx. 1.5"), exceeding the BWSC required retention of 1" rainfall. Project will assess this credit for compliance and investigate strategies such as perforated stormwater piping and rain gardens. (2) Points (1) Maybe

SSc5 **Heat Island Reduction:** Roofing will most likely be compliant with high SRI materials and/or vegetated roof areas. Credit may be achievable if site hardscape is SRI compliant or sufficiently shaded to meet credit threshold. (2) Maybe

SSc6 **Light Pollution Reduction:** Credit will be assessed and will depend on whether campus standard exterior lighting for general illumination and security is compliant. (1) Maybe

4.2.4 WATER EFFICIENCY (3) POINTS (5) MAYBE

WEp1/WEc1 **Outdoor Water Use Reduction:** Project will include efficient irrigation system designed to achieve at least 30% savings in potable water for irrigation to meet the prerequisite. Team will consider other strategies such as selection of native/adaptive plantings to further increase savings above 50%. (1) Point (1) Maybe

WEp2/WEc2 **Indoor Water Use Reduction:** Project will include low-flow plumbing fixtures to achieve at least 30% savings in potable water to meet prerequisite and up to 35% to achieve additional credit points. Team will consider other strategies to further reduce plumbing fixture potable water demand. (2) Points (3) Maybe

WEp3/WEc4 **Building Level Water Metering/Water Metering:** Project will include whole-project meters for total water use for building and grounds to meet prerequisite. Team will consider additional submetering of at least two water end uses to earn additional credit. (1) Maybe

4.2.5 ENERGY AND ATMOSPHERE (8) POINTS (20) MAYBE

EAp1/EAc1 **Fundamental/Enhanced Commissioning:** Prior to end of Design Development phase, WIT will hire commissioning (Cx) agent to perform all activities and commission all systems required by the prerequisite. WIT to evaluate if Cx agent will be contracted for enhanced and envelope commissioning. (6) Maybe

EAp2/EAc2 **Minimum/Optimized Energy Performance:** Project will be designed as low-energy building with high performing envelope, systems, lighting and daylighting, etc. Energy modeling will likely be performed to identify the most cost-effective energy efficiency measures and document compliance with the prerequisite. The project will target at least 20% energy cost savings compared to ASHRAE 90.1-2010 (and at least 20% energy consumption savings compared to ASHRAE 90.1-2007 to comply with Massachusetts Stretch Energy Code). (8) Points (6) Maybe

EAp3/EAc3 **Energy Metering/Advanced Energy Metering:** Project will include whole-project meters for all energy sources. By not registering with the USGBC, WIT does not need to commit to sharing utility data with USGBC for 5 years. WIT to evaluate if submetering of energy end uses will provide beneficial information for building operators. (1) Maybe

EAp4/EAc6 **Fundamental/Enhanced Refrigerant Management:** New HVAC equipment will not use CFC's. Refrigerants used in the campus central chiller plant must be confirmed and CFC's phased-out if present to meet the prerequisite. To earn the credit, credit calculations will be performed when final system selections are known. (1) Maybe

EAc4 **Demand Response:** WIT will advise if the campus and building will participate in any demand response programs. (2) Maybe

EAc5 **Renewable Energy Production:** WIT will consider including on-site renewable energy systems, such as a rooftop solar PV, in the project. (2) Maybe

EAc7 **Green Power & Carbon Offsets:** WIT will consider purchasing green power and/or carbon offsets for the project to achieve credit. (2) Maybe

4.2.6 MATERIALS AND RESOURCES (2) POINTS (3) MAYBE

MRp1 **Storage & Collection of Recyclables:** Project will include required facilities for collecting and storing recyclable materials. WIT will advise on current campus policy for recycling batteries, mercury-containing lamps, and electronic waste.

MRp2/MRc5 **Construction & Demolition Waste Management:** Project specifications will include requirements to identify material streams for diversion (such as recycling and salvage) and minimum project-wide diversion rate of 75%. (2) Points

MRC2/MRC3/MRC4 **Building Product Disclosure & Optimization (BPDO):** Project will emphasize healthy, durable, environmentally preferable materials and products. The team will assess which BPDO credit(s) will be targeted, pursued, and tracked and select appropriate products. Requirements will be incorporated into project specifications. (3) Maybe

4.2.7 INDOOR ENVIRONMENTAL QUALITY (5) POINTS (9) MAYBE

EQp1 **Minimum Indoor Air Quality Performance:** The Project's HVAC systems will be designed to meet ASHRAE Standard 62.1-2010 to meet the prerequisite.

EQp2 **Environmental Tobacco Smoke (ETS) Control:** WIT is a Tobacco Free Community. No smoking signage will be provided outside the MpA Building to communicate the smoking policy on the building grounds.

EQc1 **Enhanced Air Quality Strategies:** The project will incorporate strategies such as permanent walk-off grilles at entrances, efficient HVAC filters (MERV 13), and CO2 sensors in densely occupied spaces. (2) Points

EQc2 **Low-Emitting Materials:** The project intent is to specify healthy, low-emitting adhesives, sealants, paints, coatings, ceiling and wall assemblies, flooring, composite wood, and furniture. The team will assess which credit categories are feasible to be targeted, pursued, and tracked. Project specifications will include low-emitting requirements such as VOC content, emissions testing, and 3rd party certifications. (1) Point (1) Maybe

EQc3 **Construction Indoor Air Quality Management Plan:** The Construction Team will develop and implement an IAQ management plan for the construction and pre-occupancy phase of the building. (1) Point

EQc4 Indoor Air Quality Assessment: The team will review options and determine feasibility for a building flush-out or air quality testing after construction completion and prior to occupancy. (2) Maybe

EQc5 Thermal Comfort: HVAC systems will be designed to meet ASHRAE 55-2010. The feasibility of providing thermal comfort controls for occupants will be determined as the HVAC system selection progresses. (1) Maybe

EQc6 Interior Lighting: The lighting design intent will be to provide controllability for individual occupants and group, shared spaces. Lighting quality strategies will be evaluated as the design progresses, including lighting fixture efficiency, lamp CRI and life, uniformity ratios, and finish surface reflectances. (1) Point (1) Maybe

EQc7 Daylight: The project intent is to provide quality, useful daylight to regularly occupied spaces with glare control, excluding direct sunlight wherever possible. Documenting this credit will require that daylighting simulations be performed for all regularly occupied spaces. WIT to determine if this credit will be pursued. (2) Maybe

EQc8 Quality Views: The project intent is to provide direct line of sight and quality views to the outdoors from regularly occupied spaces. This credit will be assessed after the design has progressed. (1) Maybe

EQc9 Acoustic Performance: The project intent is to provide an acoustically well-designed building which enhances the learning environment by minimizing HVAC background noise and sound transmission. This credit will be assessed after the design has progressed. (1) Maybe

4.2.8 INNOVATION (4) POINTS (2) MAYBE

INc1.1 to INc1.5 Innovation: The project team will identify five Innovation credits to pursue, using a combination of exemplary performance, innovative strategies, and/or pilot credits. Credits may include Green Building Education Program, Green Housekeeping, Ergonomics, Low Mercury Lighting, Walkable Project Site, amongst others. (3) Points (2) Maybe

INc2 LEED Accredited Professional: The project team includes multiple LEED Accredited Professionals. Tom Chung is the Principal-in-charge of the project from Leers Weinzapfel Associates Architects. The Sustainability Consultant Atelier Ten is comprised of multiple LEED Accredited Professionals. (1) Point.

4.2.9 REGIONAL PRIORITY (2) POINTS (1) MAYBE

RPC1.1 **EAc5 Renewable Energy Production:** Renewable energy systems, such as rooftop solar PV, will be considered for the project. The project will at least be solar PV ready with necessary electrical and data conduits to the rooftop and required structural capacity. (1) Maybe

RPC1.2 **EAc2 Optimize Energy Performance:** The project will target minimum 20% energy cost savings (8 point threshold). (1) Point

RPC1.3 **SSc4 Rainwater Management:** The project design intent will be to meet the credit criteria for a 95th percentile rainfall event to achieve the base credit. (1) Point

4.3 CLEAN AND RENEWABLE ENERGY ANALYSIS

The Proponent has initiated review of the cost and efficiency of installing a rooftop solar PV system. Based on a rough estimate of available roof area, the design team performed preliminary calculations for a 70 kW rooftop PV system generating approx. 80 MWh per year. While a system of this size would likely contribute a small portion of the building's electricity consumption, the Proponent will explore this option further during the Design Development phase of the Project. Regardless, the Proponent will include the necessary infrastructure to make the building "solar ready", including installing conduit and connections to add the PV panels in the future.

4.4 ENERGY EFFICIENCY ASSISTANCE

The Proponent is committed to working with utility, state, and federal energy programs to optimize its use of clean energy sources, and reduce waste on the campus. Wentworth has engaged Riverstone Sustainability to prepare an analysis of a recommendation for implementing the "Carbon Commitment," which is a policy directive setting the tone for Wentworth to become a leader in campus sustainability. Wentworth will continue to pursue opportunities to implement energy efficiency measures in the MpA Building.

Y	?	N			
	1		Credit	Integrative Process	1
9	4	3	Location and Transportation 16		
		0	Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
		2	Credit	High Priority Site	2
5			Credit	Surrounding Density and Diverse Uses	5
3	2		Credit	Access to Quality Transit	5
	1		Credit	Bicycle Facilities	1
		1	Credit	Reduced Parking Footprint	1
	1		Credit	Green Vehicles	1
3	6	1	Sustainable Sites 10		
Y			Prereq	Construction Activity Pollution Prevention	Required
	1		Credit	Site Assessment	1
	1	1	Credit	Site Development - Protect or Restore Habitat	2
1			Credit	Open Space	1
2	1		Credit	Rainwater Management	3
	2		Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1
3	5	3	Water Efficiency 11		
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
1	1		Credit	Outdoor Water Use Reduction	2
2	3	1	Credit	Indoor Water Use Reduction	6
		2	Credit	Cooling Tower Water Use	2
	1		Credit	Water Metering	1
8	20	5	Energy and Atmosphere 33		
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
	6		Credit	Enhanced Commissioning	6
8	6	4	Credit	Optimize Energy Performance	18
	1		Credit	Advanced Energy Metering	1
	2		Credit	Demand Response	2
	2	1	Credit	Renewable Energy Production	3
	1		Credit	Enhanced Refrigerant Management	1
	2		Credit	Green Power and Carbon Offsets	2
2	3	8	Materials and Resources 13		
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
		5	Credit	Building Life-Cycle Impact Reduction	5
	1	1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
	1	1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
	1	1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2
5	9	2	Indoor Environmental Quality 16		
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
2			Credit	Enhanced Indoor Air Quality Strategies	2
1	1	1	Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
	2		Credit	Indoor Air Quality Assessment	2
	1		Credit	Thermal Comfort	1
1	1		Credit	Interior Lighting	2
	2	1	Credit	Daylight	3
	1		Credit	Quality Views	1
	1		Credit	Acoustic Performance	1
4	2	0	Innovation 6		
3	2		Credit	Innovation	5
1			Credit	LEED Accredited Professional	1
2	1	1	Regional Priority 4		
	1		Credit	Regional Priority: EAc5 Renewable Energy Production	1
1			Credit	Regional Priority: EAc2 Optimize Energy Performance	1
		1	Credit	Regional Priority: LTc3 High Priority Site	1
1			Credit	Regional Priority: SSc4 Rainwater Management	1
36	51	23	TOTALS Possible Points: 110		
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110					

Chapter 5

TRANSPORTATION

CHAPTER 5: TRANSPORTATION

5.1 INTRODUCTION

This chapter addresses transportation issues associated with the Project, and includes the following:

- A brief discussion of the transportation characteristics of the Wentworth campus and the proposed MpA Building;
- The existing transportation infrastructure surrounding the Site. This discussion includes descriptions of public transportation, area roadways, parking, loading activities, and bicycle storage;
- A summary of future conditions with the Project in place, including parking and bicycle storage, loading activities and public realm improvements; and
- Wentworth's continued commitment to proactive transportation mitigation and improvement actions in association with its approved IMP and the Project.

For reference purposes, this chapter summarizes the most recent transportation information that was developed in support of the IMP and discusses Wentworth's plans to improve the pedestrian and bicycle environment on campus in connection with the Project.

5.2 PROJECT SUMMARY

The IMP contemplated the construction of a 45,000 square foot Center for Engineering and Technology (the "IMP Project"), which was to be built on a portion of the existing West Parking Lot. As described in greater detail in Chapter 2, Wentworth intends to relocate this approved academic building to the site of the existing tennis courts along Parker Street, and expand it by approximately 24,000 gsf. The MpA Building is proposed to include approximately 69,000 gsf in total, including a ground-floor showcase and gathering space for the Wentworth academic community, and upper level floors two through four including lab spaces for its students and office space for faculty and administrators. Figure 5-1, Site Location identifies the proposed location of the MpA Building.

As described in the IMP, the proposed institutional projects, inclusive of the 45,000 square foot Center for Engineering and Technology, would not generate additional vehicle or transit trips due to *"a reduction in student vehicular trips resulting from an increase in on-campus housing and a decline in the number of commuting students expected to offset a projected increase in employee vehicles trips by 2020."* Similarly, the Project does not create a quantifiable traffic impact to the surrounding area for the following reasons:

- The Project only nets an additional approximately 24,000 gsf from the previously approved and studied Center for Engineering and Technology Proposed IMP Project;
- The majority of the square footage of the Project is intended to provide office and modern laboratory space to serve the existing Wentworth student body that needs differently designed learning space, which provides both more opportunity for collaboration and also more physical space for some of the larger engineering equipment required to serve these studies in today's learning culture;
- The original IMP Project would have provided a more traditional academic building with classrooms and offices within each floor, including the ground floor. The MpA Building intends to use the ground floor as a display space for Wentworth students and faculty to showcase their work and to expand the reach of their research beyond the classroom;
- The Project does not include or require construction of any new parking spaces for the Wentworth campus, and does not reduce or change the configuration of existing parking in any way. Because the MpA Building is intended to better serve Wentworth's existing student body, no increases in Wentworth student populations are expected, and only phased, de minimis increases in faculty and staff will result from the Project. Therefore, no new external trips will be generated by any mode;
- Access to the MpA Building will be via internal campus pathways, the Pike, and the existing sidewalk along Parker Street; and
- The relocation of the IMP project will preserve 80 existing parking spaces that were planned to be eliminated with the IMP Project.

5.3 EXISTING ROADWAY NETWORK

The roadways serving Wentworth include two regional arterial roadways and one collector roadway. These roadways are shown in Figure 5-1, Site Location and described below.

Huntington Avenue – Huntington Avenue is a four-lane median divided highway, which borders Wentworth's Sweeney Field on the north. It is designated as Route 9, which is a major east-west corridor between downtown Boston, and communities to the west, including Brookline and Newton. The median contains the MBTA's E Branch of the Green Line. Each side of the roadway provides two travel lanes and no parking is allowed on either side.

Ruggles Street – Ruggles Street is part of a major north-south corridor that connects I-93 to the south with the Longwood Medical and Academic Area to the north. It separates the main part of the Wentworth campus on the west from Sweeney Athletic Field on the east.

Adjacent to Sweeney Field and the Wentworth campus Ruggles Street provides three lanes: one in the southbound direction and two northbound. No parking is allowed on Ruggles Street.

Parker Street – Parker Street is a two-way, two-lane roadway between Huntington Avenue and Tremont Street. It borders Sweeney Field and separates it from Northeastern University's West Village. Metered parking is provided on both sides of Parker Street between Huntington Avenue and Ruggles Street. West of Ruggles Street unrestricted parking is generally allowed on both sides adjacent to the Wentworth campus.

Traffic Volumes

In April 2009, automatic traffic recorder counts were conducted as part of the Wentworth Institutional Master Plan. Additional ATR counts were taken in October 2012.

Forty-eight hour Automatic traffic recorder (ATR) counts were taken in October 2012 at four locations in and around Wentworth:

- Huntington Avenue east of Parker Street
- Huntington Avenue west of Ruggles Street
- Parker Street south of Huntington Avenue
- Ruggles Street south of Huntington Avenue

Overall the numbers of vehicles per day and vehicles per hour declined from 2009 to 2012.

Huntington Avenue is the busiest roadway in the area, averaging between 20,450 and 22,300 vehicles per day in both directions. Volumes are nearly balanced in each direction in both peak hours. Ruggles Street is the next busiest roadway with approximately 14,000 vehicles north of Parker Street. The busiest morning hour was 7:00 to 8:00 except for Huntington Avenue, which peaked between 8:00 and 9:00. At all locations, the evening peak hour volume occurred between 5:00 and 6:00.

Morning and evening peak hour traffic volumes projected for the 2020 Build Condition including the IMP Project showed minimal increases at area intersections.

As described in Section 5.2, the Project will not generate additional traffic trips, and will not require the addition of parking spaces.

5.4 ON-STREET PARKING

On-street, unregulated parking is provided on both sides of Parker Street adjacent to the Site. Metered parking is available in less proximal locations along Parker Street. No increase

in on-street parking demand due to the Project is anticipated and therefore, no changes to the on-street parking regulations adjacent to the Site are proposed. No permanent reduction in parking along nearby streets is anticipated.

5.5 PUBLIC TRANSPORTATION

The Site is well served by public transportation, contributing to Wentworth's high proportion of student and faculty transit commuters. The following includes the most accessible public transportation hubs to the Site:

- Ruggles Station: MBTA Orange Line
Three (3) MBTA Commuter Rail Lines
- Museum of Fine Arts and
Longwood Medical Area: MBTA Green Line E Branch
- MBTA Bus Routes: 9, 19, 47, CT2
- Private Shuttles: LMA MASCO Shuttle Service

Area MBTA transit services are summarized in Table 5-1, Existing Public Transit Services, and presented in Figure 5-2, Transportation Systems.

Table 5-1 Existing Public Transit Services

Transit Service	Origin – Destination	Major Stops	Nearest Stop to Project Site	Peak Hour Headway (minutes) ¹	Weekday Daily Ridership ²	Hours of Service ¹
Commuter Rail Services						
Franklin Line	Forge Park/I-495 – South Station	Back Bay Station Ruggles Station	Ruggles Station	20 – 40	12,480	Weekdays: 3:50 AM – 12:51 AM Saturday: 6:35 AM – 12:19 AM Sunday: 10:40 AM – 12:20 AM
Needham Line	Needham Heights – South Station	Back Bay Station Ruggles Station Forest Hills Station	Ruggles Station	35 – 50	6,972	Weekdays: 6:05 AM – 12:00 AM Saturday: 7:10 AM – 12:00 AM Sunday: AM – AM
Providence/Stoughton Line	Wickford Junction – South Station	Back bay Station Ruggles Station Route 128 Station	Ruggles Station	20 – 50	19,634	Weekdays: 4:58 AM – 1:10 AM Saturday: 6:35 AM – 12:15 AM Sunday: No Service
MBTA Subway Services						
Orange Line	Oak Grove Station – Forest Hills Station	North Station Downtown Crossing Station Back Bay Station Ruggles Station	Ruggles Station	6	203,406	Weekdays: 5:16 AM – 12:35 AM Saturday: 5:16 AM – 1:50 AM Sunday: 6:00 AM – 12:35 AM
Green Line E Branch	Lechmere – Heath Street	Copley Sq. Station Park Street Station Government Center Kenmore Sq. Station	Museum of Fine Arts	6	227,645 ³	Weekdays: 5:01AM – 12:47 AM Saturdays: 5:01AM – 12:47 AM Sunday: 5:35 AM – 12:47 AM
MBTA Bus Services						
Route 8	City Point – Copley Square	Brookline Ave Huntington Ave E Berkeley Street	Saint James Ave @ Dartmouth Street	5 – 10	3,992	Weekdays: 5:13 AM – 1:14 AM Saturday: 5:10 AM – 1:14 AM Sunday: 6:00 AM – 1:12 AM
Route 19	Fields Corner Station – Ruggles Station	Grove Hall Dudley Station	Ruggles Street @ Huntington Ave	5 – 10	3,600	Weekdays: 6:08 AM – 7:47 AM

Transit Service	Origin – Destination	Major Stops	Nearest Stop to Project Site	Peak Hour Headway (minutes) ¹	Weekday Daily Ridership ²	Hours of Service ¹
		Kenmore Station				
Route 47	Central Square Cambridge – Broadway Station	Longwood Ave @ Brookline Ave Ruggles Station	Ruggles Station	10 – 20	5,036	Weekdays: 5:15 AM – 1:24 AM Saturday: 5:00 AM – 1:40 AM Sunday: 8:00 AM – 1:04 AM
CT2	Sullivan Station – Ruggles Station	Kendall Station Brookline Ave Huntington Ave	Ruggles Street @ Huntington Ave	15 – 20	2,815	Weekdays: 5:55 AM – 7:36 PM
CT3	BIDMC – Andrew Station	Ruggles Station Newmarket Andrew Station	Ruggles Street @ Huntington Ave	20-25	1,393	Weekdays: 6:05 AM – 8:36 PM
Private Shuttles						
Longwood Medical Area MASCO Shuttle Service	Boston Children's Hospital – Wentworth Parking Lot	Longwood Galleria Brookline Ave		10 – 15	N/A	Weekdays: 5:30 AM – 8:55 PM

1. Peak hour headways and hours of service from latest schedules posted on MBTA website, Nov. 2016
2. Weekday daily ridership from MBTA Blue Book 2014
3. Daily ridership includes all branches of the Green Line

5.6 PEDESTRIAN CONNECTIVITY

Wentworth is a compact campus with all of its facilities located within a 5 to 7-minute walk of each other. For students, faculty, staff and visitors, the primary mode of transportation while on campus is walking. The Pike, which runs through the campus in an east/west direction between Parker Street and Huntington Avenue, is Wentworth's primary pedestrian spine and a path heavily traveled each day by those making their way onto, and through, the campus. In most places on campus, the Pike is 12 feet wide, although a short section near the West Lot entrance is 9 feet wide. The Pike, which was recently renovated with improvements to sidewalk conditions and pathway connections, will provide direct access to the Project. As described in Chapter 2 - Project Description, the Pike will be widened and improved at the Parker Street sidewalk connection.

The Project's main entrance will be at the southern corner of the Site where the Pike meets Parker Street. The connection created on the Pike is extended across Parker Street by an existing 25-foot wide mid-block pedestrian crossing, which has been fitted with streetprint, advance pedestrian crossing warning signage and ADA-accessible ramps. The heavily utilized mid-block crossing connects Wentworth's Annex Complex to the main campus.

The MpA Building proposes improvements to enhance pedestrian access to the campus, including a new pedestrian-friendly entryway on Parker Street, landscape improvements along Parker Street, and possible enhancements to the existing mid-block crossing. Additional public realm improvements are described in Chapter 3 – Urban Design.

During the construction period, pedestrian access around the Site may need to be re-routed. A variety of measures will be considered and implemented to protect the safety of pedestrians around the Site that are affected by construction. Temporary walkways, appropriate lighting, and new directional and informational signage to direct pedestrians around the construction site will be provided. After construction is complete, finished pedestrian sidewalks will be reconstructed around the MpA Building.

5.7 BICYCLE ACCOMMODATIONS

Wentworth currently provides a total of 287 bicycle spaces distributed throughout the campus. An enclosed bicycle shelter adjacent to the Flanagan Center was recently constructed and provides an additional 100 long-term, covered and secure spaces. The Project will displace 3 temporary bicycle racks (approximately 30 spaces) located on the Site behind the existing tennis courts, adjacent to the Quad. The spaces removed by the Project will be replaced through multiple Wentworth bike parking initiatives that will add 60 bicycle parking spaces on campus (resulting in 417 total bicycle parking spaces). Students, faculty and staff using the MpA Building will be able to request access to this facility for use as long-term bicycle parking. Six racks, supporting 10 bicycles each (60 bicycle spaces referenced above), will be installed within the campus where bicycle

parking demand is increasing. Three of these racks will replace the temporary racks displaced by the Project. In addition, short term bicycle racks will be provided along Parker Street adjacent to the Project.

Wentworth is also committed to continuing its proactive participation in the Colleges of the Fenway bike-sharing program. Wentworth sponsors a Hubway station, with 14-docks, at 525 Huntington Avenue. The partnership between the Colleges of the Fenway and Hubway provides discounted memberships to students, faculty and staff. There is also a 15-dock Hubway station at Ruggles Station on Columbus Avenue, less than a half-mile from the Site.

5.8 LOADING AND SERVICE

The proposed MpA Building will generate a limited number of additional service and delivery trips. Service trucks can be accommodated on the campus nearby at the Service Building and Beatty Hall. Trash will be removed from the Site and disposed in dumpsters at the East Lot or compactors at Beatty Lot. See Figure 5-2 for the location of East Lot. Additional loading discussion is provided in Chapter 2, Project Description.

5.9 PARKING

Wentworth currently provides 1,067 on-campus parking spaces, most of which are available to students, faculty, staff and visitors of Wentworth. The Wentworth on-campus parking spaces are distributed throughout the campus area. Four lots are located in close proximity to the Site.

The Project will not change the parking supply on-campus or the on-street parking provided along Parker Street. It is anticipated that the Project will generate no new parking demands as the MpA building will support the existing student population and only a phased, de minimis increase in faculty and staff (approximately six faculty and 2 staff members).

5.10 TRANSPORTATION DEMAND MANAGEMENT

Wentworth continues to foster a proactive Transportation Demand Management (TDM) program. The TDM measures currently implemented by Wentworth include:

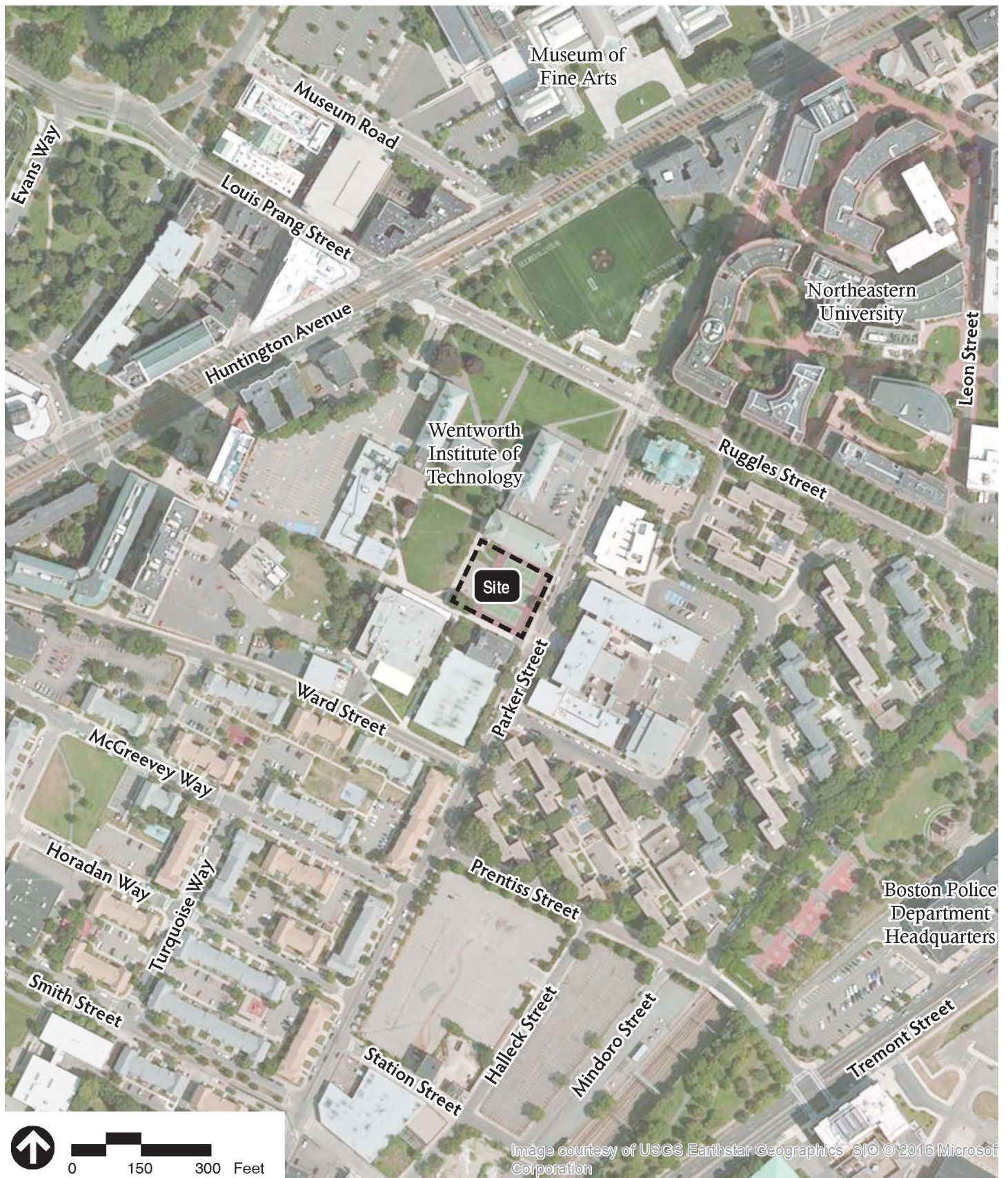
- A \$84.50 per month MBTA Charlie Card subsidy to employees;
- Participation in the MBTA Corporate Pass Program, providing tax-free withholding from employees' pay for transit passes. Currently 245 WIT employees participate in this program;
- Participation in MBTA Student Semester Pass program. Currently 227 students participate in this program;

- Membership in the MASCO Transportation Management Association (TMA);
- Financial support for MASCO shuttle service to campus;
- Carpool/vanpool matching through MASCO TMA;
- Preferential parking for carpools/vanpools;
- Fees for parking for staff, faculty and students;
- Participation in the Bike Week Commuter Challenge;
- Posting transit schedules and routes;
- Provisions for motorcycle parking;
- Emergency Ride Home through MASCO's Commute Works Program; and
- Although there are no car sharing spaces on campus, there are four Zipcars near the campus: two at the Museum of Fine Arts and two at Vancouver and Ward streets.

These measures will continue to be offered in connection with the future utilization of the MpA Building.

5.11 TRANSPORTATION MITIGATION AND IMPROVEMENTS

With respect to IMP projects already completed, Wentworth has met its mitigation obligations described in the most recent, executed Transportation Access Plan Agreement for the 525 Huntington Avenue Student Residence building. In addition to activities described in Section 5.7, Wentworth has provided the following improvements: Wentworth funded the design, equipment costs, and installation of a pan-tilt-zoom (PTZ) camera at the intersection of Louis Prang Street and Evans Way. This improvement was put in place in 2014. Wentworth also installed fully-accessible sidewalk ramps and pedestrian crosswalks adjacent to the Site. Additionally, Wentworth helped the BTD to clearly define curbside uses along Vancouver Street. A new Wentworth sponsored Hubway, bike sharing station was also installed at 525 Huntington Avenue, as described in Section 5.7 – Bicycle Accommodations.





Chapter 6

ENVIRONMENTAL

CHAPTER 6: ENVIRONMENTAL

6.1 INTRODUCTION

The MpA Building will be built in full compliance with local, state, and federal environmental regulations. The Project will incorporate the latest in building design methods and technology to ensure minimal impact to the environment. In addition, the Site, which is situated near the Quad, is well-served by extensive existing utility and transportation infrastructure.

6.2 WIND

The Project will replace an existing open space which is utilized for recreational activities. The four-story structure will occupy a space between two existing buildings of similar height and depth. Wind levels in publicly accessible areas, including sidewalks on the street, and interior to the campus will remain unchanged following construction. The Project is not expected to change pedestrian-level winds in the vicinity due to its low height, similarity in form, and proximity to adjacent buildings on Parker Street.

As a result of the Project, Pedestrian Level Winds (PLWs) along adjacent sidewalks are not anticipated to exceed the BPDA guidelines of wind speeds of 31 miles per hour.

6.3 SHADOW

Below is a description of the shadow study images depicted in Figures 6-1 through 6-4, Shadow Studies. All existing shadows are depicted in grey. New shadows resulting from the presence of the Project are depicted in red.

6.3.1 VERNAL EQUINOX

At 9:00 AM the west face of the MpA Building is in full shadow, which extends across much of the Quad. By the noon hour the Quad will gradually gain full sun, with shadow cast along most of Watson Hall, which is 30 feet north of the MpA Building. By 3:00 PM the east façade of Watson Hall will be in shadow. Shadow will extend across Parker Street to the sidewalk in from of the Annex Complex on the opposite side of Parker Street. It should be noted that, due to the massing setback of the entrance on Parker Street, the pedestrian crosswalk will remain in sunlight at this important campus node.

6.3.2 SUMMER SOLSTICE

At 9:00 AM the west face of the MpA Building is in full shadow, which extends to approximately about $\frac{1}{4}$ of the Quad. The remainder of the Quad retains full sun. By the noon hour some shadow is cast across the 30-foot space between the north façade of the building and Watson Hall. However Watson Hall's south façade still retains full solar exposure. The south and east faces of the MpA Building will receive full sun. Solar gain is mitigated here with the use of shading devices.

6.3.3 AUTUMN EQUINOX

At 9:00 AM the west face of the building is in full shadow that extends across much of the Quad. By the noon hour the Quad will gradually gain full sun with shadow cast along most of Watson Hall, which is 30 feet north of the building. By 3:00 PM the east façade will be in shadow. Shadow will extend across Parker Street to the sidewalk in front of the Annex Complex on the opposite side of the street. It should be noted that due to the massing setback of the new entrance that the pedestrian crosswalk will remain in sunlight at this important campus node.

6.3.4 WINTER SOLSTICE

At 9:00 AM the west face of the building is in full shadow that extends to approximately one fourth of the Quad. The remainder of the Quad retains full sun. By the noon hour some shadow is cast across the 30 foot space between the north façade of the building and Watson Hall. However Watson Hall's south façade still retains full solar exposure. The south and east façades of the building will receive full sun. Solar gain is mitigated here with the use of shading devices.

6.3.5 CONCLUSIONS

The MpA Building is intended to complete a dense urban area of the campus. As a four-story building with a mechanical penthouse set back at all sides from the main mass, the MpA Building does not substantially increase the shadows in the area relative to adjacent buildings, which are of similar size and scale. The setback of the main entrance volume at the south-east corner of the building is intended to reinforce the campus axis along the south edge. This setback also provides direct sunlight to the Parker street crosswalk even in late afternoon in spring, summer and fall seasons.

6.4 DAYLIGHT

The Site is currently undeveloped and contains open space which is utilized for tennis courts. The MpA Building is a modest four stories, which are comparable to surrounding buildings. The MpA Building will be surrounded by open space, with a minimum setback

of 30 feet from adjacent buildings and 25-32 feet from the edge of Parker Street, and a minimum of thirty feet from adjacent Wentworth buildings. Pedestrian paths will be maintained and enhanced around all four building elevations. Daylight impacts are contained within the Wentworth campus.

6.5 SOLAR GLARE

It is anticipated that there will little or no perceptible impact from solar glare due to selected materials. Building glazing will be selected to reduce solar glare while additionally increasing the efficiency of the building envelope. The skin/sheath on the south facing elevation will be designed to minimize and reduce solar glare. The perforated metal panel exterior surface will be of a matte finish to minimize glare. In addition, the glazed curtain wall on the east and west elevations will be mitigated from direct sunlight by the shading fins which will also be of a matte finish.

To address daylight and solar glare, Atelier Ten performed preliminary analyses for the MpA Building and surrounding context. The intent was to study the impacts of solar heat gain exposure, overshadowing from existing adjacent buildings, and self-shading from the MpA Building itself to help inform envelope design and shading strategies.

Using a 3D model of the building and site context as well as weather data for Boston, the computer simulations quantified solar radiation impacts over the course of a typical year and seasonal peak conditions (summer/winter solstices and equinoxes). Simulations were run both without exterior shading and with a proposed vertical fin system on the east and west facades.

Analysis results helped to identify potential facade areas that may benefit from exterior shading to reduce cooling loads and visual discomfort (glare) and, conversely, those with potential for natural daylighting.

During Design Development phase Atelier Ten will further refine these analyses to help optimize the facades for daylighting, minimizing solar glare, occupant comfort, and energy use.

6.6 AIR QUALITY

The Project is not expected to adversely impact air quality in the Project area. Activities that may potentially affect air quality are: traffic, parking and building operations. The scale and size of the MpA Building will not cause measurable air quality impacts from those sources.

6.7 NOISE

The primary sources of external noise will comprise the ventilation equipment associated with the Project's rooftop mechanical systems. More specifically, the air intakes and

discharges of the two large air handlers and discharge stacks of the main exhaust fans are anticipated to be the building's principle exterior noise sources. As cooling water will be supplied by the central chiller plant, no cooling towers are planned for the roof of the building. Other mechanical equipment, such as boilers and pumps, will be located inside a mechanical room in the basement.

A number of noise control techniques will be employed, as appropriate, to help ensure that compliance with applicable local and state noise regulations is achieved, including the selection of low-noise equipment, possible use of intake and discharge mufflers, erection of visual/acoustical screening, and careful equipment placement and orientation. In particular, the building's mechanical systems will be designed to meet the City of Boston's 60 dBA daytime / 50 dBA "all other times" requirements at nearby residential properties, as outlined in the Boston Air Pollution Control Commission's "Regulation for the Control of Noise in the City of Boston," as well as the "10 dB above background" guidelines of the Massachusetts Department of Environmental Protection.

6.8 FLOOD ZONES AND WETLANDS

It is not anticipated that the Site will be susceptible to flooding events. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates the FEMA Flood Zone Designations for the Site (City of Boston, Community-Panel Number 25025C0078G). The FIRM for the Site does not show the Project located in or near to any flood zone areas, nor does the Site contain any wetlands. Nonetheless, first floor elevations will be set at a minimum of Elevation 19 Boston City Base, or 3.5 feet above the closest 100-year flood elevation.

6.9 WATER QUALITY

During construction, best management practices ("BMPs") will be used to limit the transportation of sediment off-site. The contractor will obtain a National Pollution Discharge Elimination System (NPDES) stormwater permit if required, and will implement BMPs to minimize pollutant runoff. The contractor will also follow these measures:

- Comply with all federal, state, and city codes, ordinances, and regulations governing the on-site discharge of construction dewatering effluent;
- Use hay bales and silt fencing to prevent silt or soil from entering existing catch basins;
- Use temporary wheel wash areas within the Site;
- Use temporary gravel entrance berms at the main exits from the Site;
- Isolate and protect stockpiled materials;

- Monitor the proper use of tarpaulin-covered trucks;
- Prevent/control truck spillage; and
- Clean the adjacent portions of City streets entering and exiting the Site.

6.10 GROUNDWATER

The Site is located within the Groundwater Conservation Overlay District (GCOD) as outlined in Article 32 of the City of Boston Zoning Code. Because of the Site's location in a GCOD, the Project plans to promote infiltration of rainwater into the ground and the Proponent will certify that the Project will not negatively impact groundwater levels on the Site or on adjacent lots pursuant to the provisions of Article 32, Section 6.

The Proponent anticipates that the below-grade construction will be performed within a continuous temporary steel sheet pile cofferdam driven into the impervious clay deposit. Under this scenario the perimeter steel sheet piling will provide a positive groundwater cut-off during the construction phase of the Project which will minimize the impact of temporary construction dewatering performed within the limits of the Site on adjacent properties.

The proposed below-grade perimeter foundation walls and foundation are expected to be protected against groundwater intrusion by the utilization of a membrane type waterproofing.

Note that continuous pumping of groundwater for the permanent building condition will not be performed, and therefore the Project is not anticipated to have an adverse impact on the groundwater level within or adjacent to the Site.

The Project will coordinate with the Boston Groundwater Trust to protect groundwater levels in the area, and it may include the installation of groundwater observation wells in the vicinity of the Site before excavation to facilitate monitoring of the groundwater level before, during, and following construction.

6.11 GEOTECHNICAL

This section addresses the below-grade construction activities anticipated for the Project. It discusses existing soil and groundwater conditions; anticipated foundation construction methods; and excavation work anticipated for the Project based on subsurface information obtained from the Site and a preliminary foundation design study.

6.11.1 SUBSURFACE SOIL CONDITIONS

Based on subsurface explorations completed at the Site, the existing ground surface is underlain by an 11.5 to 16-foot thickness of miscellaneous granular fill. The fill is underlain by an organic deposit that ranges from 11 to 15 feet in thickness. Below the organic layer, a 0.5 to 3-foot thick natural outwash deposit consisting of dense sand and gravel is present. The surface of the outwash deposit ranges from depths of about 26.5 to 28.5 feet below ground surface. The outwash deposit is underlain by a deposit of stiff to very soft marine clay that extends to a depth of about 90 feet below the existing ground surface. The marine clay deposit was underlain by a dense to very dense glaciomarine deposit that extended to 124 feet below ground surface and was underlain by a 2.5-foot thickness of stiff marine clay over a glacial till deposit. The top of the glacial till deposit was observed at a depth of 126.5 feet below ground surface and was 1.5 feet thick. Bedrock was encountered within one boring at a depth of 128 feet below ground surface and was observed to consist of very soft to soft, very severely to completely weathered argillite.

6.11.2 GROUNDWATER CONDITIONS

The stabilized groundwater level in observation wells located at the Site was observed to range from depths of about 7.5 to 10 feet below existing ground surface, corresponding to approximately Elevation +8.8 and Elevation +9.9 on the Boston City Base (BCB) datum. Groundwater observations wells operated by the Boston Groundwater Trust in the vicinity of the Site indicate stabilized groundwater levels ranging from Elevation +7.3 to Elevation +9.9 on the BCB between 2005 and 2016.

6.11.3 FOUNDATION DESIGN AND CONSTRUCTION

Foundation support for the partial one level below-grade basement and overlying four-story structure will be provided by steel H-piles or precast-prestressed concrete piles which derive their capacity in the glacial till and/or bedrock deposits. The portion of the structure with a basement will also be supported by a waterproofed structural mat foundation and the at-grade portion of the structure will utilize a slab-on-grade.

Construction of the below-grade level will require an excavation approximately 18 feet deep. The lateral earth support system consisting of interlocking steel sheet piling, which will extend as much as 5 feet into the relatively impervious clay deposit, will remain in-place and be cut down to a depth of about 4 feet below ground surface following the completion of construction.

Ground vibrations will be produced as a result of the steel or concrete pile and steel sheet pile installation procedures. Based on prior experience, impacts from these

vibrations are not anticipated to result in structural damage to existing, adjacent structures. Vibration monitoring with seismographs will be performed during the pile installation activities.

6.11.4 SOLID AND HAZARDOUS WASTE

Asphalt pavement, brick, and concrete (ABC) rubble generated from demolition of Site walkways and structures will be handled in accordance with applicable Massachusetts Department of Environmental Protection (DEP) solid waste policies. The Project's disposal contract will include specific provisions for the segregation, reprocessing, reuse, and/or recycling of building materials and demolition debris. Those materials that cannot be reused on-site will be transported in covered trucks to an approved solid waste facility per applicable DEP solid waste policies.

Abatement and disposal of hazardous materials (or hazardous waste), if encountered, will be performed under the provisions of MGL c21/2C, OSHA, and the Massachusetts Contingency Plan (MCP) by specialty contractors experienced and licensed in handling materials of this nature.

6.11.5 SITE HISTORY AND COMPLIANCE WITH MA CONTINGENCY PLAN

Based on a review of Sanborn Maps, the Site was developed by the US Government in 1888. Associated development on the Site included a rope walk complex and a branch of the Stony Brook also occupied a portion of the Site. The 1919 Map indicates that the US Government developed the Site with a store house, barracks, and a dining room. The Maps from 1950 to present do not indicate any buildings on-site. Currently, the Site, which has been disturbed during 19th and 20th Century campus development, is occupied by tennis courts and landscaped areas.

Environmental due diligence investigations have been performed at the Site. The Site is currently in compliance with the Massachusetts Contingency Plan (MCP).

Recent subsurface explorations completed at the Site have identified the presence of contaminants (total mercury and total lead) at the Site in soil at concentrations exceeding applicable MCP RCS-1 Reportable Concentrations. The Proponent will notify the DEP within the required 120-day reporting period and remedial response actions will be performed in accordance with the provisions of the MCP. In addition to the presence of total mercury and total lead, the subsurface explorations also indicate elevated levels of Polycyclic aromatic hydrocarbons (PAHs) that are considered attributable to the presence of ash and cinders in the fill material and are therefore exempt from notification to the DEP pursuant to the provisions of the MCP. The Proponent will manage excavation and handling of contaminated soil concurrently with the proposed construction. The remedial excavation performed as

part of the proposed construction is anticipated to facilitate the filing of a Permanent Solution Statement (PSS) to bring MCP closure to the Site.

It is currently anticipated that construction of the proposed building and Site improvements will require excavation and off-site reuse, recycling, or disposal of fill and underlying natural soils. Off-site reuse of excess excavated soil will be conducted in accordance with the current policies of the Massachusetts Department of Environmental Protection (DEP). Preliminary laboratory analysis of fill samples for off-site reuse indicate the fill is considered regulated for off-site reuse. Additional chemical testing of soil samples will be performed as needed to characterize the soils for off-site reuse. The soils transported will be managed in accordance with the MCP and other applicable DEP regulatory requirements. Off-site reuse of soils will be tracked via Material Shipping Records, Bills of Lading and/or other methods, as required to ensure their proper and legal disposal.

The Proponent will retain a Licensed Site Professional (LSP) to manage the environmental aspects of the Project, including proper management and/or disposal of contaminated soil encountered during construction. The LSP will also prepare required MCP regulatory compliance submittals.

Excess excavated soil that may be generated during construction will be managed in accordance with DEP policy and the MCP. Furthermore, excavation and management of total lead and total mercury contaminated soil during construction will be completed under a Release Abatement Measure (RAM) Plan in conjunction with the foundation excavation for the new building. Upon completion of the RAM, a RAM Completion Report and a Permanent Solution Statement (PSS) will be prepared and submitted to the DEP indicating that a Permanent Solution has been achieved and that a Condition of No Significant Risk exists at the Site.

6.12 CONSTRUCTION IMPACTS

A Construction Management Plan (CMP), in compliance with the City of Boston's Construction Management Program, will be submitted to the Boston Transportation Department. This plan will include detailed information about construction activities, specific construction mitigation measures and construction materials access and staging area plans to minimize impact on the surrounding neighborhood.

Construction methodologies that ensure public safety and protect nearby residents will be employed. Techniques such as barricades, walkways and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting, routing plans for trucking and deliveries, and control of noise and dust. Although the design of the building is in process, Wentworth has begun to identify preliminary elements of how traffic, parking,

and construction staging will be managed during construction. Provisions for construction routes and worker parking will be addressed in detail in the Construction Management Plan.

6.12.1 CONSTRUCTION MANAGEMENT PLAN

Perimeter Fencing and Public Safety

The construction site will be defined by chain link fencing with fabric scrim and jersey barriers along Parker Street. The fence will occupy the sidewalk along Parker Street, and pedestrians will be rerouted across the street. Please refer to Pedestrian Sidewalk Access for more information.

There will be entrance gates on either corners of the Site on the Parker Street side to allow for truck access drive through to help minimize traffic congestion on Site. Vehicles will be required to consistently enter one side of the Site and exit through the other.

Site Vehicular Access

To minimize impacts to the community during the Project, the Contractor proposes a single vehicle access route to the Site for large trucks and small deliveries:

Construction vehicles will be required to access the Site from the north via Huntington Avenue and Parker Street. They will be directed to utilize major routes via Interstate Route 93, the Mass Avenue Connector and Massachusetts Avenue. Vehicles exiting the Site will be directed south on Parker Street to Malcolm X Boulevard, Tremont Street and Melnea Cass Boulevard to the Mass Avenue Connector to Interstate Route 93. See Figure 6-5 Construction Traffic Routes.

Pedestrian Sidewalk Access

The sidewalk directly in front of the Site along Parker Street is proposed to be closed, and pedestrians directed to cross the street via a temporary striped crosswalk on the north side by Watson Hall, and an existing crosswalk on the south side.

Temporary chain link fencing with fabric scrim will be installed at the edge of the existing sidewalk curb line on Parker Street. Temporary jersey barriers will line the fence for protection against vehicular traffic. Signage will be installed and cross walks painted to direct pedestrians to the opposite side of Parker Street.

The on-campus sidewalk between the construction site and the Nelson Recreation Center (the Pike) serves as a major pedestrian access, and will be maintained for the majority of the Project. Once the structural steel work commences a pedestrian covered walkway will be installed for protection purposes.

Material Storage

In general, storage of materials will be contained within the fenced-in area of construction. Additional storage of materials will be located at the Parker Street parking lot where the proposed jobsite trailers will be located.

Construction Waste

A clean site is a safe site. The contractor takes great pride in maintaining a clean, well-organized construction site. The contractor will take an active role with regard to the removal of construction waste. The demolition and excavation contracts will include specific requirements, which will ensure construction procedures allow for necessary segregation, reprocessing, re-use, and recycling of materials. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per the Department of Environmental Protection (DEP) Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in all appropriate bid documents and contracts.

6.12.2 CONSTRUCTION ACTIVITY SCHEDULE**Mobilization and Site Preparation Phase:**

The contractor will prepare for activities during the site preparation phase by completing the following activities:

- A screened construction fence will be erected around the entire Site perimeter for safe separation of adjacent existing buildings and pedestrian activity;
- Construction exit gates will be installed on either corner of the perimeter fence on the Parker Street side allowing for a vehicle drive-through. Vehicles will enter from the south entrance and exit through the north. This function will remain over the duration of the Project;
- A personnel gate will be installed so that pedestrian and vehicular accesses are separated; and
- Construction office trailers will be located in the Wentworth parking lot off of Parker Street. Entrance to the lot is off of Halleck Street.

Construction Phase:

Construction of the MpA Building will occur within the perimeter of the fenced-in area. During sitework, piles and foundation work, pedestrians will use the existing walkway just outside of the southern fence line. Once the structure and exterior façade construction starts, a covered walkway will be erected to protect pedestrians.

Once the Mobilization and Site Prep Phase is completed, the Construction Phase will be initiated with the preparation and excavation for the building footprint. The contractor will proceed during the Construction Phase by completing the following major activities:

- Excavation will begin with the removal of existing surface areas, excavation for the basement footprint, and preparation for piles and foundations.
- Cranes will be used to erect the structural components of the building super structure and major components of the façade. Crane set up will be within the construction fence perimeter. Steel deliveries will be divided into smaller trucks to avoid stacking of trucks and allow live offloading on-site and installation at the same time. As many pieces will be pre-fabricated as possible to allow efficient and quick rigging on-site. Cranes for equipment rigging will set from within the Site as well. No cranes are planned to be set on any public streets.
- The interior build-out of the structure will be staged and fed from the Parker Street side of the Site.

During the Construction Phase, Gilbane will continue to implement a “Just-in-Time” (JIT) concept for the delivery of all construction materials and equipment to minimize congestion on the Site.

Hours of Operation

Per the City of Boston’s Noise Regulations, the typical hours of construction operations will be from 7:00AM – 5:00PM Monday thru Friday, and will depend on the type of work being performed. Occasional night work may be necessary during concrete floor placement. Weekend work may be necessary on occasion to meet the Project schedule. This work shall be performed by permit from Boston Inspectional Services.

6.12.3 CONSTRUCTION TRAFFIC IMPACTS

Designated truck routes will be established to govern where construction trucks access and egress the Site. Potential truck routes will be discussed with the Boston Transportation Department (BTD). A detailed CMP will be developed and submitted

under separate cover. The Proponent will work closely with the BTB in developing the CMP and will include more detail on construction phasing, number of trips, haul routes, hours of operation, and ways to minimize impacts to residents and neighbors.

6.12.4 CONSTRUCTION WORKER PARKING

To prevent impact to the neighborhood, construction worker parking will not be permitted on-site or on streets adjacent to the Site. Should workers choose to drive to the Site, they will be required to use nearby parking garages. The work force will be arriving before the peak traffic periods in the surrounding area and are not expected to substantially impact traffic conditions. The subcontractor community will have storage areas for their workers on the Project or at the Parker Street parking lot area so that the drop off for small tools and equipment will not be a daily occurrence. Signage will be established for the drop off area and there will be "No Idling" signage posted to alleviate air quality issues with idling vehicles. The area will be monitored for compliance on a daily basis by Gilbane and enforced to meet these criteria.

Approximately 10 unmetered on-street parking spaces located directly in front of the construction site on Parker Street will be taken during the construction phase of the Project. These are required to allow for the drive-through, as well as provide enough room to position the crane fully within the construction site. These will be re-opened at the conclusion of the Project construction.

All workers will be encouraged to utilize public transportation.

6.12.5 CONSTRUCTION AIR QUALITY

Short-term air quality impact from fugitive dust may be expected during the removal of soil materials and during the early phases of the Site preparation activities. The construction contract for the Project will require the contractor to reduce potential emissions and minimize air quality impacts. Mitigation measures are expected to include the use of wetting agents where needed on a scheduled basis, covered trucks, minimizing exposed construction debris stored on-site, monitoring construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized, locating aggregate storage piles away from areas having the greatest pedestrian activity where and when possible, and periodic cleaning of streets and sidewalks to reduce dust accumulations.

6.12.1 CONSTRUCTION NOISE IMPACTS

Intermittent increases in noise levels will occur in the short term during the construction of the MpA Building. Work will comply with the requirements of the City of Boston noise ordinance. Efforts will be made to minimize the noise impact of construction activities, including appropriate mufflers on all equipment such as air compressors and welding generators, maintenance of intake and exhaust mufflers, turning off idling equipment, replacing specific operations and techniques with less noisy ones, scheduling equipment operations to synchronize the noisiest operations with times of highest ambient noise levels, and scheduled blasting times, if necessary.

6.12.1 SEDIMENT CONTROL MEASURES

During demolition and construction, erosion and sediment control measures will be implemented to minimize the transport of Site soils to off-site areas and BWSC storm drain systems. The existing catch basins will be protected with filter fabric or silt sacks to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until all areas of disturbance have been stabilized through the placement of pavement, structure or vegetative cover.

Other sediment controls, which will be implemented as needed during construction, will include the following:

- Stacked hay bales and/or silt fence barriers will be installed at the base of stockpiled soils and at erosion-prone areas throughout the construction phase of the Project. The erosion controls will be maintained and replaced as necessary to ensure their effectiveness.
- Where necessary, temporary sedimentation basins will be constructed to prevent the transport of sediment off-site.
- Measures to control dust will be implemented during renovations. All debris will be properly contained on the Site.
- Erosion controls will be maintained and replaced as necessary until the installation of pavement and the establishment of stabilized vegetation at the Site.

6.13 RODENT CONTROL

The contractor will file a rodent extermination certificate with the building permit application to the City. Rodent inspection, monitoring and treatment will be carried out

before, during and at the completion of all construction work for the Project, in compliance with the City's requirements. Rodent extermination prior to commencing work will treat areas throughout the Site, including building interiors. During the construction process, regular service visits will be made to maintain effective rodent control levels.

6.14 WILDLIFE HABITAT

The Site is fully developed with urban landscape materials and, as such, the Project will not impact important wildlife habitats. According to the latest Natural Heritage & Endangered Species Program maps, no Priority or Estimated Habitats are located on or near the Site.

6.15 HISTORIC AND ARCHAEOLOGICAL IMPACTS

The Site is presently the site of three WIT campus tennis courts.

No cultural or historic resources have been identified on the Site. The existing tennis courts were constructed in approximately 1986. Prior to the construction of the tennis courts, the Site was utilized as a parking lot, therefore the Site was disturbed and regraded during that construction activity.

6.15.1 HISTORIC AND ARCHAEOLOGICAL RESOURCES ON AND WITHIN THE VICINITY OF THE SITE

Tables 6-1 and 6-2 identify properties and districts in the immediate vicinity of the Project (approximately one quarter mile). Four sites of interest have been identified in the National and State Registers of Historic Places, as shown in Table 6-3. The Back Bay Fens is an individual Local Landmark (LL), and the Olmsted Park System of which it forms a part is a National Register District (NRDIS). The Isabella Stewart Gardener Museum, located at 280 The Fenway, is individually listed on the National Register (NRIND) and a Pending Local Landmark (LL). The Greek Orthodox Cathedral of New England is also individually listed on the National Register. The Museum of Fine Arts, located at 465 Huntington Avenue, is a pending Local Landmark. The sites of these resources are mapped in Figure 6-6, Historic Resources Map. Numerous other buildings have been identified in the Massachusetts Cultural Resource Information System, but have not received designations of any kind. Table 6-3 presents other properties identified in the Inventory of Historic and Archaeological Assets of the Commonwealth, within the same vicinity.

Due to its location and similar scale to existing buildings in the immediate area, as well as the lack of proximity to identified historic resources in the vicinity, the Project will have no visual or other impact on any of these properties.

Table 6-1: Districts Listed in the State and National Registers

Name	Other Designations
Olmsted Park System Back Bay Fens, Muddy River Boston, Brookline	Back Bay Fens, Local Landmark

Table 6-2: Individual Properties Listed in the State and National Registers

Name	Other Designations
Gardner, Isabella Stewart Museum 280 The Fenway	Pending Local Landmark
Greek Orthodox Cathedral of New England 520 Parker St.	

Table 6-3: Other Properties Identified in the Inventory of Historic and Archaeological Assets of the Commonwealth

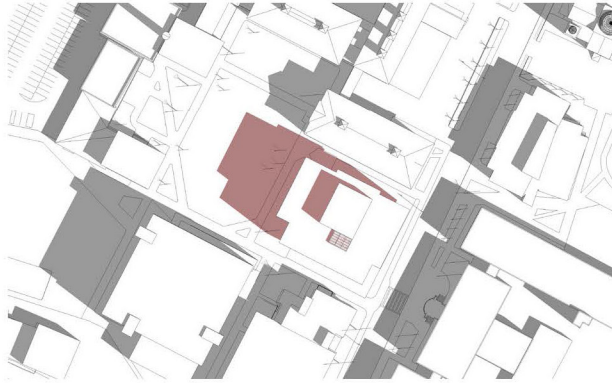
Name	Other Designations
Boston Public Latin High School 78 Louis Pasteur Ave.	
Endicott, John Monument Forsyth Way	
Museum Villa Apartments 465-460 Huntington Ave.	
Beaufort, the Apartments 464 Huntington Ave.	Pending Local Landmark
Boston Museum of Fine Arts 465 Huntington Ave.	
Stanley, Martha Apartment Building 641 Huntington Ave.	
Holmes, William Apartment Building 643-645 Huntington Ave.	
Carlton Apartment Building 160 Longwood Ave.	
Westcourt Apartment Building 164 Longwood Ave.	
Massachusetts College of Pharmacy 179 Longwood Ave.	
Angell Memorial Animal Hospital 180 Longwood Ave.	

Name	Other Designation
Girls Latin School Palace Rd.	
Collins, Patrick A. Model School Palace Rd.	
Boston Normal School Palace Rd.	
Clemente, Roberto Field Park Drive	
School of the Museum of Fine Arts 230 The Fenway	
Simmons Female College 300 The Fenway	
Green, Joseph Three-Family House 7 Vancouver St.	
Gilligan, William Apartment Building 456 Parker St.	
Allen, Ira Public School 540 Parker St.	
Boston Trade School 550 Parker St.	

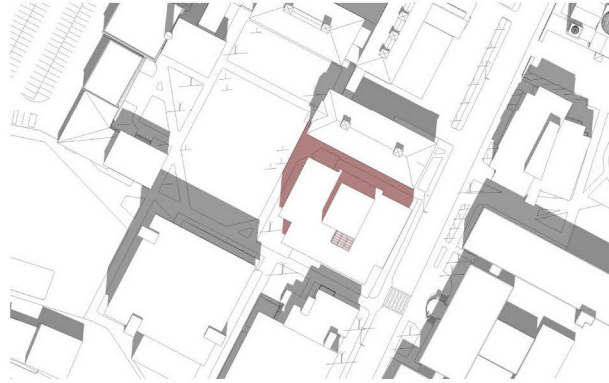
Massachusetts Cultural Resources Information System, July 2012

Boston Landmarks Commission lists of designated Boston Landmarks and petitions pending before the Commission,
July 2012

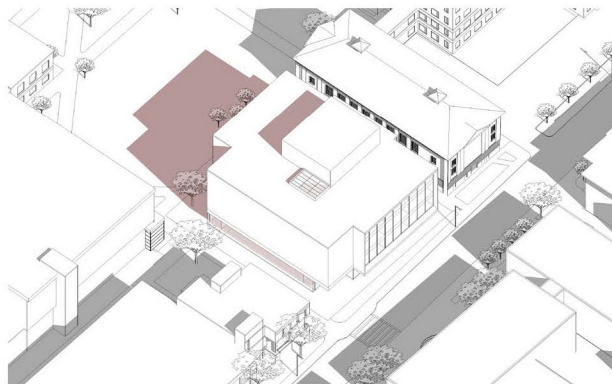
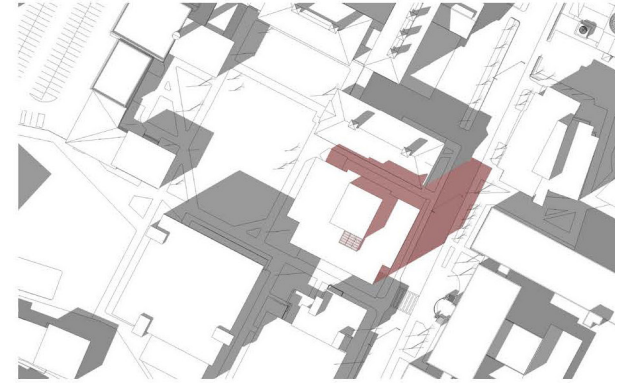
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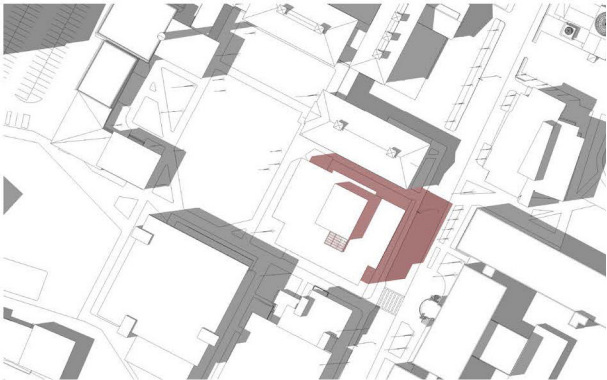
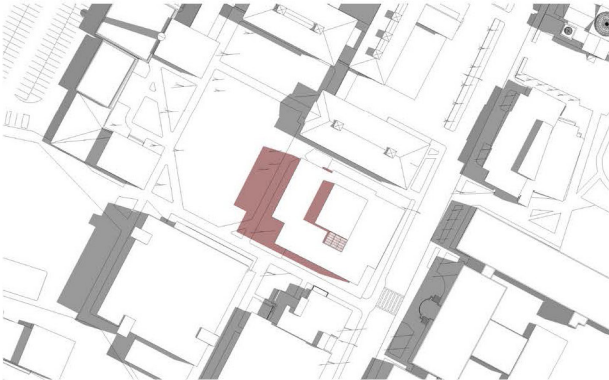


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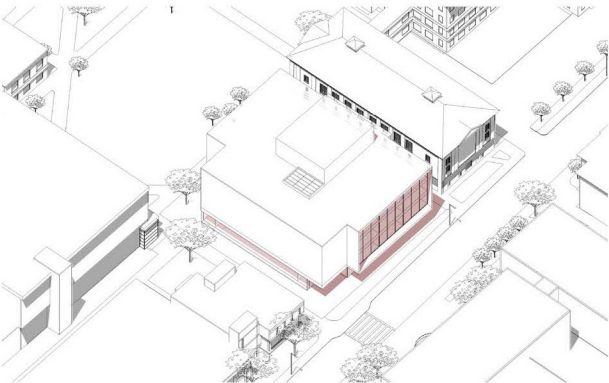
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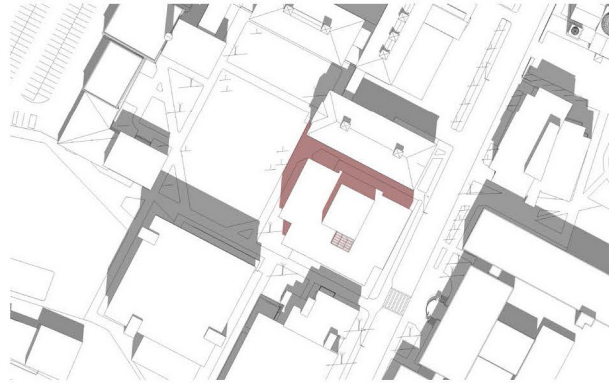


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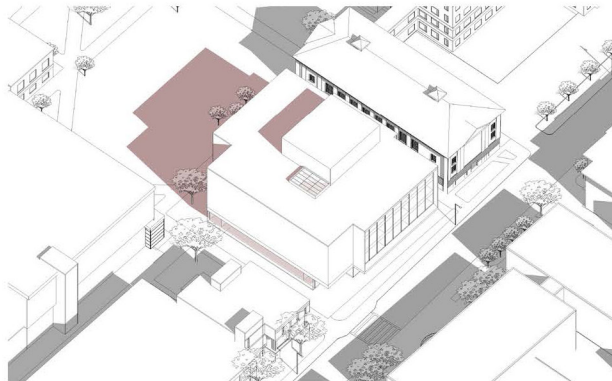
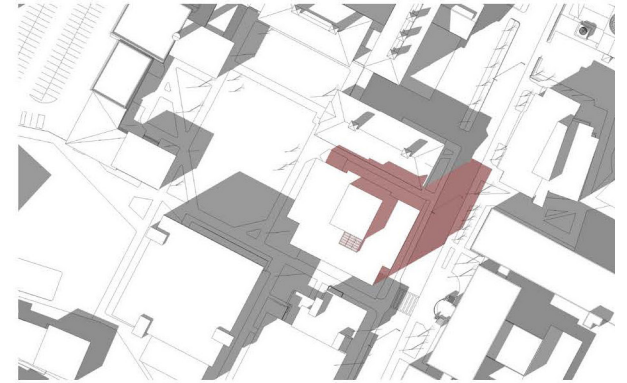
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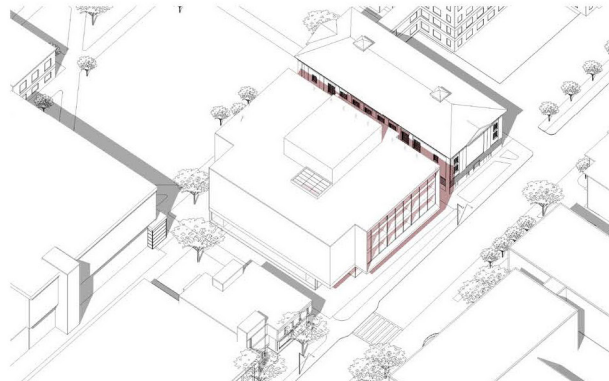
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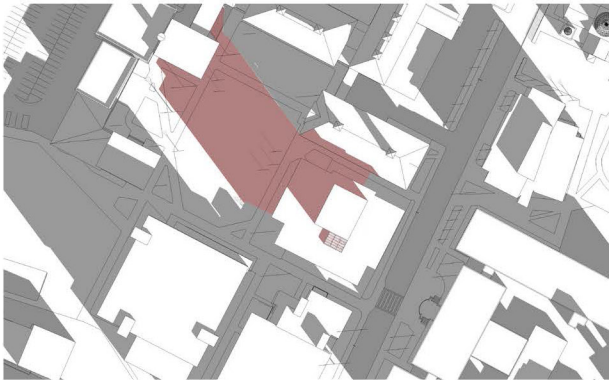


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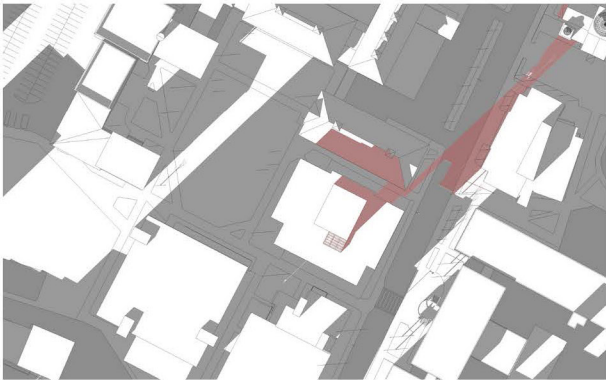
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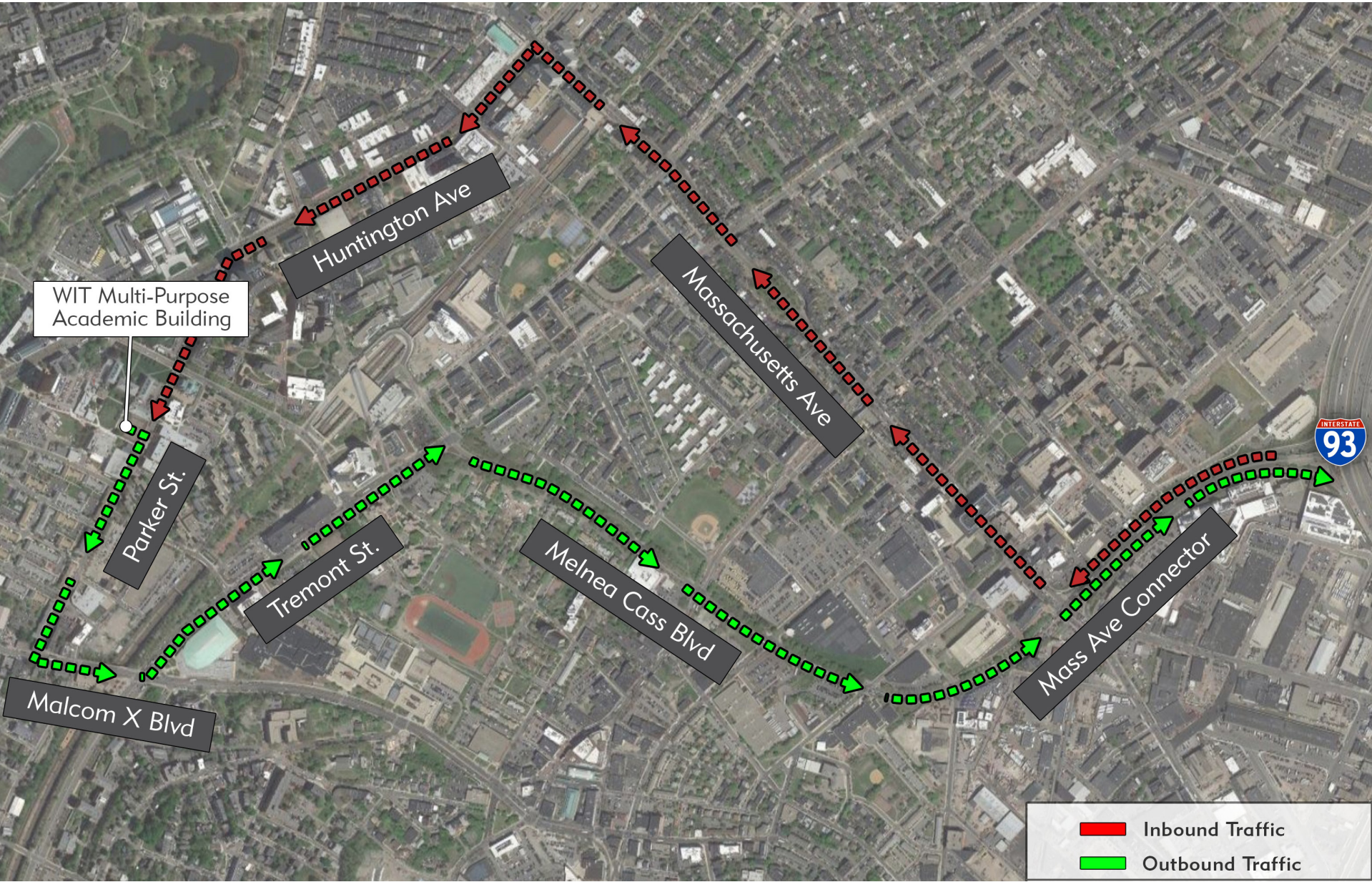
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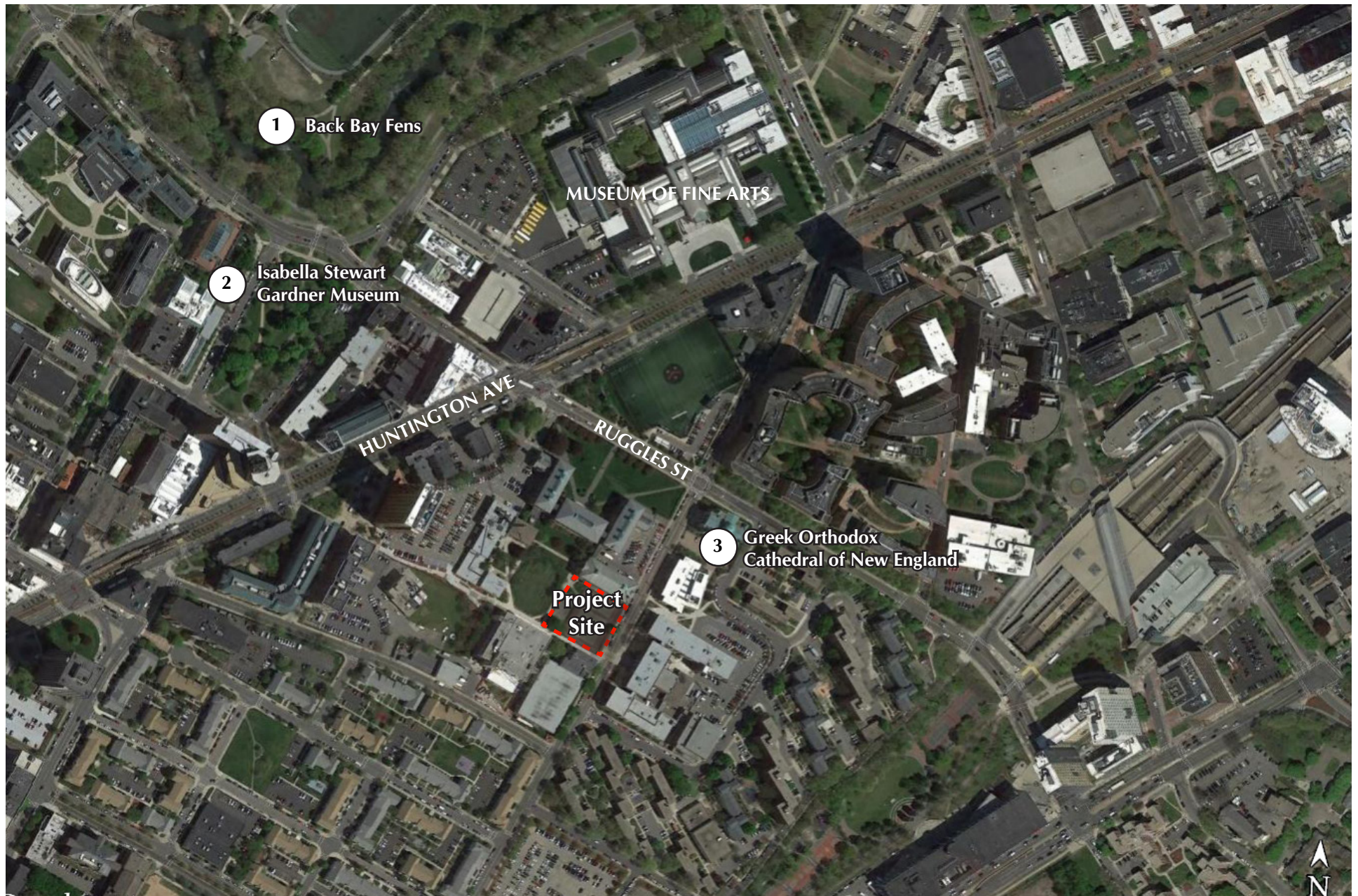


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Chapter 7

INFRASTRUCTURE

CHAPTER 7: INFRASTRUCTURE

7.1 INTRODUCTION

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

- Sewer;
- Domestic water;
- Fire protection;
- Drainage;
- Natural gas;
- Electricity; and
- Telecommunications.

The Site is approximately 0.8 acres and is bounded by Watson Hall to the north, Parker Street to the east, the Nelson Recreation Center and Beatty Hall to the south, and the Quad to the west. The existing site is comprised of tennis courts, paved walkways, and landscaped areas. The Project includes the demolition of the existing tennis courts, and construction of a new four-story academic building with office and laboratory space.

7.2 WASTEWATER INFRASTRUCTURE

7.2.1 EXISTING SEWER SYSTEM

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

There is existing BWSC infrastructure in Parker Street adjacent to the Site. There is a 10-inch BWSC sanitary sewer main which increases to a 12-inch main in the western

portion of Parker Street, a 10-inch sanitary sewer main in the eastern portion of Parker Street, and two (2) 150-inch x 144-inch combined sewers, known as the Stony Brook.

The 10-inch BWSC sanitary sewer main in Parker Street which increases to a 12-inch main, flows Northerly in Parker Street. The 12-inch main then increases to a 15-inch BWSC sanitary sewer main and then connects to a 66-inch MWRA sewer main in Huntington Avenue which flows westerly. The 66-inch main in Huntington Avenue flows to the 66-inch sewer main in Louis Prang Street which flows north, then increase to a 78-inch x 84 inch MWRA main in Vancouver Street which flows south. The 78-inch x 84-inch MWRA main flows to the Ward Street Headworks sewer station on Huntington Avenue, and is ultimately directed to the Deer Island Wastewater Treatment Plant for treatment and disposal. See Figure 7-1, Existing BWSC Sewer and Drain.

The existing Site is comprised of grass lawn, pavement, and tennis courts, and does not contribute existing sewer flows.

7.2.2 PROJECTED SANITARY SEWER FLOW

The Project will consist of a new building with office, and wet lab space. The Project's waste water generation rates were estimated using several methods. The office space was estimated using the Massachusetts Department of Environmental Protection's 310 CMR 15.203. The estimated flow from office space is 75 gallons per day (GPD) per 1,000 square feet. Typical generation values are conservative values for estimating the sewage flows from new construction.

Laboratories can produce variable amounts of wastewater depending on the type of lab and its required water usage. Therefore, 310 CMR 15.203 is not used to determine wastewater generation for the laboratory portions of the proposed Project. There is no formally recognized formula for estimating wastewater generation rates in research and lab areas. These estimates are empirical and are taken from typical pH neutralization calculations estimating quantity of water to be treated and are based on fixture counts and types. The pH neutralization estimations are as follows:

Table 7-1: pH Neutralization Estimations

pH Neutralization Design Criteria			
Flow Rate Sizing			
	Item	Flow Rate gallons/hour (GPH)	
	Cup Sinks	1	
	Laboratory Sinks	5	

pH Neutralization Design Criteria			
	Under Counter Glass Washer		30
	Steam Sterilizers/Autoclave		130
	Central Large Capacity Glass Washer		55

The projected wastewater flow has been calculated over a yearly basis, as the facility will not be used 365 days per year. The majority of the building usages is estimated to be 5 days/week, 10 hours/day. The autoclave usage is estimated at 2.5 days/week, with no more than 6 cycles per day of usage. The autoclave cycle is estimated to be no more than 1 hour. It is also assumed that Wentworth recognizes approximately three (3) weeks of holidays, resulting in an approximate building usage of 49 weeks per year. Table 7-1 describes the total projected sewage generation due to the Project.

Table 7-2: Proposed Project Wastewater Generation

Office Space			
Room Use	Total Size (sf)	314 CMR Value (gpd/unit)	Daily Flow (gpd)
Office	4,600	75/1,000s.f.	345
Proposed Sewer Flow			345

Lab Waste Water Generators						
Room Use	Units	Estimated Value	Daily Flow (gpd)	Usage	Yearly Flow (gallons)	Daily Flow (gpd)
Lab Sinks	57	5 gph x (10hrs/day)	2850	5 days/week x 49 weeks/year	698,250	1,913
Cup Sinks	20	1 gph x (10hrs/day)	200	5 days/week x 49 weeks/year	49,000	134
U/C Glassware Washer	1	30 gph x (10hrs/day)	300	5 days/week x 49 weeks/year	73,500	201
Central Glassware Washer	1	55 gph x (10hrs/day)	550	5 days/week x 49 weeks/year	134,750	369
Autoclave	1	130 gph x 6hrs/day	780	2.5 days/week x 49 weeks/year	95,550	262
Proposed Sewer Flow					955,500	2,880

Proposed Daily Sewer Flow	Lab Waste Water Generators	2,880 gpd
	Office	345 gpd
	Total Daily Sewer Flow	3,225 gpd

7.2.3 SANITARY SEWER CONNECTION

The Project's impacts on the existing BWSC 10-inch and 12-inch sewer main in the western portion of Parker Street were analyzed. The existing sewer system capacity calculations are presented in Table 7-2.

Table 7-3: Sewer Hydraulic Capacity Analysis

BWSC Sewer Manhole ²	Slope (%) ¹	Dia. (inches)	Manning's Number	Flow Capacity (cfs) ³	Flow Capacity (MGD)
Parker Street					
311 to 310	0.3%	10	0.013	1.12	0.73
310 to 309	0.4%	10	0.013	1.42	0.92
309 to 308	0.3%	12	0.013	2.07	1.34
308 to 307	0.4%	12	0.013	2.21	1.43
Minimum Flow Analyzed:				1.12	0.73

1. Manhole numbers taken from BWSC Sewer Map received 11/2/2016 prepared by Nitsch Engineering.
2. Flow calculations based on Manning's Equation.
3. Inverts Provided by BWSC on 11/3/2016

Proposed Conditions

The proposed building will require new building sewer services. The new sewer services for the Project will connect to the existing 10-inch and/or 12-inch sanitary sewer service in the western portion of Parker Street.

Improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC's Site Plan Review process for the Project. This process will include a comprehensive design review of the proposed service connections, an assessment of Project demands and system capacity, and the establishment of service accounts. Coordination with BWSC will include review and approval of the design, capacity, connections, and flow increase resulting from the proposed discharges to the sanitary sewer system. In total, the complete Project sewer generation is expected to increase wastewater flows by approximately 3,225 gpd for the Project. Approval for the increase in sanitary flow will come from BWSC.

Proposed Impacts

Table 7-2 indicates the flow (hydraulic) capacity of the 10-inch and 12-inch sanitary sewer main in Parker Street. The minimum flow capacity is 0.73 million gallons per day (MGD) or 1.12 cubic feet per second (cfs) for the 10-inch main in Parker Street.

As previously stated, the approximate proposed increase in sewage flow is 3,225 gpd or 0.0032 MGD. Based on an increase in average daily flow of 0.0032 MGD; and with a factor of safety of 10 (total estimate = $0.0032 \text{ MGD} \times 10 = 0.03 \text{ MGD}$), no capacity problems are expected for the existing sewer mains in Parker Street.

7.3 WATER SYSTEM

7.3.1 EXISTING WATER SYSTEM

Water for the Project will be provided by BWSC. BWSC is supplied water by the MWRA system.

There are five water systems within the City of Boston, and these provide service to portions of the City based on ground surface elevation. The five systems are the southern low (SL), southern high (SH), southern extra high (SEH), northern low (NL), and northern high (NH). Water mains are labeled by their system, pipe size, year installed, pipe material, and year cement lined (CL), if applicable.

There is a 12-inch BWSC southern low main in Parker Street (SL 12 DICL 1981) adjacent the Site. The existing BWSC water system is shown in Figure 7-2.

There are existing water services at the existing site. The existing BWSC water system is shown in Figure 7-2.

Existing Water Capacity

BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the Site was requested by the Proponent. Recent hydrant flow data was not available near the Site. As the design progresses, the Proponent will request hydrant flows be conducted by BWSC adjacent to the Project, as hydrant flow test data must be less than one-year old when used for design.

7.3.2 ANTICIPATED WATER CONSUMPTION

The Project's water demand estimate for the domestic services is based on the Project's estimated sewage generation, described in the previous section. A conservative factor of 1.1 (10%) is applied to the estimated daily sewage flows, calculated in Table 7-1 to account for consumption system losses, and other usages to estimate an average daily water demand. The estimated proposed domestic water demand is approximately 3,548 gallons per day.

7.3.3 PROPOSED WATER SERVICE

The Project will require a new domestic water service and a fire protection service. The domestic water and fire protection services for the Project will connect to the existing BWSC water main in Parker Street.

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

7.3.4 WATER SUPPLY CONSERVATION AND MITIGATION MEASURES

Water capacity problems are not anticipated within the BWSC water system as a result of the Project's construction.

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

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

7.4 STORM DRAINAGE INFRASTRUCTURE

7.4.1 EXISTING STORM DRAINAGE SYSTEM

The existing site is comprised of tennis courts, paved walkways, and landscaped areas. The existing site is approximately 65-percent (65%) impervious.

There are existing BWSC storm drain mains in Parker Street. There are two 150-inch by 144-inch BWSC storm drain mains, commonly referred to as Stony Brook, in Parker Street. The two 150-inch by 144-inch storm drain mains in Parker Street, flow northerly in Forsyth Street to the Muddy River via a storm drain outfall which ultimately discharges to the Charles River.

Currently, Stormwater runoff is collected by existing catch basins located around the site. The survey indicates an existing closed drainage system but it is not certain where the system discharges to, but likely connects to the Stony Brook Conduit.

The existing BWSC Storm Drainage System is shown in Figure 7-1.

7.4.2 PROPOSED DRAINAGE CONDITIONS

The proposed design will render the Site nearly 100-percent (100%) impervious, with an increase of approximately 35-percent (35%) compared to the existing condition. The proposed impervious area will consist mostly of building roof and paved pedestrian sidewalks. The Project will evaluate the incorporation of landscape areas onto the site if possible. The Project will be designed to meet or reduce stormwater runoff peak rates and volumes, and to minimize the loss of annual stormwater recharge to groundwater through the use of on-site infiltration measures to the greatest extent practicable.

The Project is located within the GCOD and the Project will be designed to capture and recharge one-inch stormwater from the impervious site areas. In order to meet the BWSC stormwater quality and stormwater recharge requirements the Project's design will include a private closed drainage system that will be adequately sized for the Site's expected stormwater flows, and will direct stormwater to the on-site infiltration system for groundwater recharge prior to overflow to the BWSC systems. Overflow connections to the BWSC storm drain mains will be provided for greater stormwater flows.

Overflow drain connections will connect to the Stony Brook conduit in Parker Street. The proposed stormwater management system, overflow drain connections, and any potential improvements to the BWSC infrastructure will be evaluated as part of the BWSC Site Plan Review Process.

7.4.3 MITIGATION MEASURES

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

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

7.4.4 DEP STORMWATER MANAGEMENT POLICY STANDARDS

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

A description of the Project's anticipated compliance with the Standards is outlined below:

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

Compliance: The proposed design will comply with this Standard. The design will not propose new stormwater conveyances and no new untreated stormwater will be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the Project.

Standard #2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

Compliance: The proposed design will comply with this Standard to the maximum extent practicable. The existing peak discharge rate will be met or will be decreased as a result of the improvements associated with the Project.

Standard #3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met

when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Compliance: The Project will comply with this standard. The Project is located within Boston's Groundwater Conservation Overlay District, and the stormwater system shall be designed to capture and infiltrate 1-inch of stormwater from the impervious site's areas.

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

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

Compliance: The proposed design will comply with this standard. Within the Site, there will be mostly roof, and paved pedestrian walkways. Runoff from paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system will be collected by deep sump, hooded catch basins or area drains and treated before discharging into the BWSC system.

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

Compliance: The proposed design will comply with this standard. The proposed design will include source control, pollution prevention and pretreatment practices, as necessary.

Standard #6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

Compliance: Not Applicable. The Project is not within an outstanding resource area.

Standard #7: A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

Compliance: The proposed design will comply with this standard. A plan to control temporary construction-related impacts including erosion, sedimentation, and other pollutant sources during construction and land disturbing activities will be developed and implemented.

Standard #8: A long-term operation and maintenance (O&M) plan shall be developed and implemented to ensure that stormwater management systems function as designed.

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

Standard #9: All illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will comply with this standard. There will be no illicit connections associated with the Proposed Project. Temporary construction dewatering will be conducted in accordance with applicable BWSC and Massachusetts Water Resource Authority (MWRA) requirements, as necessary.

7.5 ELECTRICAL SERVICES

1200 A 480V//277 Volt 3phase-4wire service will be provided in the basement of the MpA Building. There will be no generator backup. A central emergency inverter will provide battery backup power for emergency lighting. Power distribution throughout the building will consist of 480/277 Volt and 208/120 panelboards and step down transformers. The panelboards will be located in respective electrical rooms on each floor of the building. Each laboratory and/or shop will be provided with dedicated panelboards serving each space. LED lighting is planned with associated automated controls meeting energy codes requirements. Wall mounted receptacles and overhead branch circuit busducts will be provided in labs.

7.6 TELECOMMUNICATIONS SYSTEM

The telecommunication system will consist of a backbone conduit system from the main service entrance room to each tel/data closet. The Project will include: cabling, racks, patch panels, telecommunication outlets, faceplates, terminations, testing and labeling, as well as cable trays for horizontal and backbone cabling distribution. Dedicated conditioned equipment rooms will be provided. All data drop locations will be in conduit and back boxes. Telecommunications grounding busbars will include a grounding backbone per TIA standards. Category 6 copper cabling and Category 6A (for Wireless Access Points) copper cabling will also be provided.

7.7 NATURAL GAS SYSTEMS

Natural gas service will be brought to the building from Parker Street to a gas meter and pressure regulator located on the building exterior. The gas will serve domestic and laboratory water loop hot water heaters and boilers used for HVAC summer reheat needs. Natural gas connections to laboratory benches will be also provided in selected laboratories.

7.8 UTILITY PROTECTION DURING CONSTRUCTION

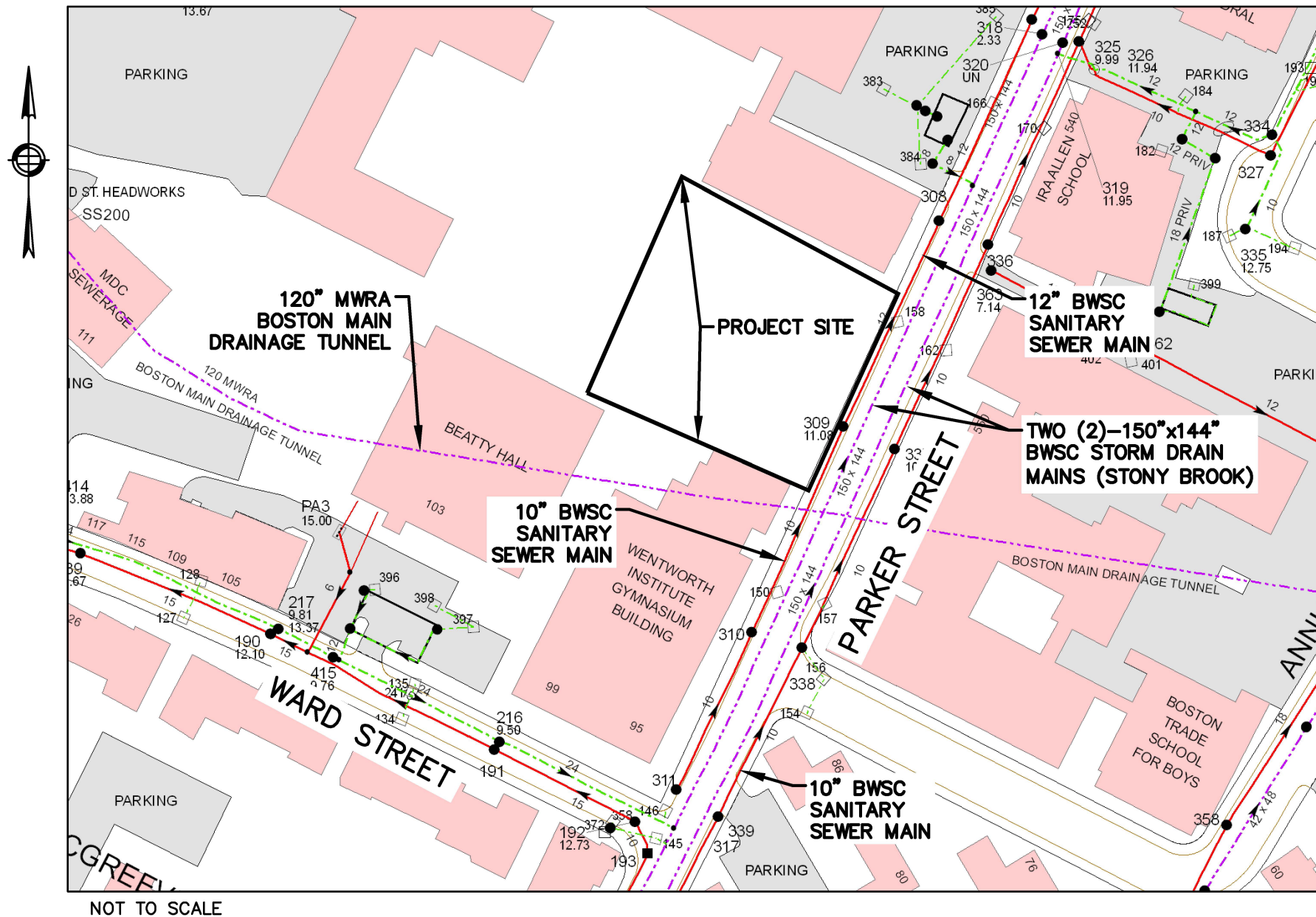
Existing public and private infrastructure located within any public or private rights-of-way shall be protected during construction. The installation of proposed utilities within a public way will be in accordance with the BWSC, Boston Public Works Department, Dig-Safe Program, and applicable utility company requirements. Specific methods for construction of

proposed utilities where they are near or within existing BWSC water, sewer, and drain facilities will be reviewed by the BWSC as part of the Site Plan Review Process. The necessary permits will be obtained before the commencement of work.

7.9 FIRE PREVENTION

The building will be fully sprinklered. Class I standpipes in stairwells will be provided. Wet sprinkler system is planned throughout. A need for a fire pump is being evaluated, but based on the recent calculations it appears that a fire service connection can be extended from the existing fire pump located in the Williston Hall.

An addressable, monitored, multiplexed, network style voice fire alarm system control panel will be provided for the facility and interfaced with the existing central Main Campus fire alarm system command center panel located in the Dobbs Hall. (1) 4" underground conduit to Dobbs Hall will be provided as a part of the Central Plant Upgrades project. The system will be voice type, with all code required signaling and annunciation devices.





Attachment 1

ACCESSIBILITY CHECKLIST

Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

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

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

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

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

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

Accessibility Analysis Information Sources:

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

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- a. http://www.mbtta.com/about_the_mbtta/accessibility/

Project Information

Project Name:	Wentworth Institute of Technology Multipurpose Academic Building
Project Address Primary:	555 Parker Street, Boston Massachusetts 02115
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	David Wahlstrom, Vice President for Business Wentworth Institute of Technology 550 Huntington Avenue Boston, MA 02115

Team Description

Owner / Developer:	Wentworth Institute of Technology
Architect:	Leers Weinzapfel Associates Architects
Engineer (building systems):	BVH Integrated Services
Sustainability / LEED:	Atelier Ten
Permitting:	Fort Point Associates, Inc.
Construction Management:	Gilbane Building Company

Project Permitting and Phase

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

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

Building Classification and Description

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

Residential – One to Three Unit	Residential - Multi-unit, Four +	<u>Institutional</u>	<u>Education</u>
Commercial	Office	Retail	Assembly
<u>Laboratory / Medical</u>	Manufacturing / Industrial	Mercantile	Storage, Utility and Other
First Floor Uses (List) Building Lobby, Commons, maker-spaces, collaboration rooms, shops			

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	<u>Steel Frame</u>	Concrete
------------	---------	--------------------	----------

Describe the building? Multi –purpose academic building with science and engineering labs, maker-spaces, faculty offices and collaborative meeting and working spaces

Site Area:

+/- 34,000SF

Building Area:

+/- 77,000 SF

Building Height:

+/- 64 Ft.

Number of Stories:

4 stories plus
mechanical
penthouse

First Floor Elevation:

+/- 19' Elev.

Are there below grade spaces:

Yes

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how

Article 80 | ACCESSIBILITY CHECKLIST

the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.

The local area is relatively flat and characterized by three to five story Wentworth academic buildings. A block away from the building site are two to three story residential neighborhoods to the south as well as highrise buildings to the west along Huntington Ave.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.

The Project site is within walking distance to both MBTA Greenline stop at Museum of Fine Arts and MBTA Orange Line/Commuter Rail Ruggles Station. The MBTA stations provide accessibility to the trains via accessible platforms and trains. The project is also served by MBTA bus routes 8, 19, 47 and CT 2 and CT3.

List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.

Museum of Fine Arts, Mission Main elderly/disabled housing, Northeastern University, Simmons College, Massachusetts College Pharmacy and Massachusetts College of Art, Isabella Stewart Gardner Museum

Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.

No

Surrounding Site Conditions – Existing:

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

Are there sidewalks and pedestrian ramps existing at the development site?

There is a public sidewalk along Parker Street to the east, and there are Wentworth Campus walkways along the south and west sides of the project site.

If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.

Sidewalks are concrete and in good, normal wear condition.

Are the sidewalks and pedestrian ramps existing-to-remain? **If yes**, have the sidewalks and pedestrian

Sidewalks appear compliant but may be rebuilt as part of the project depending construction logistics. Non-compliant sidewalks immediately adjacent to the Project Site will be repaired and replaced as needed.

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ramps been verified as compliant? **If yes**, please provide surveyors report.

Is the development site within a historic district? **If yes**, please identify.

No.

Surrounding Site Conditions – Proposed

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

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org

Existing public sidewalk along Parker Street to be improved with streetscape amenities. There are no new public sidewalks proposed in the Project

If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.

N/A

What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.

N/A

List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?

N/A

If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the City of Boston Public Improvement Commission?

N/A

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Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?

N/A

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

N/A

Proposed Accessible Parking:

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

What is the total number of parking spaces provided at the development site parking lot or garage?

No new parking spaces are planned to be provided at the project site. There is public parking along Parker Street

What is the total number of accessible spaces provided at the development site?

N/A

Will any on street accessible parking spaces be required? **If yes,** has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?

No.

Where is accessible visitor parking located?

Wentworth provides accessible parking throughout the campus.

Has a drop-off area been identified? **If yes,** will it be accessible?

N/A

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry

See Attached

Article 80 | ACCESSIBILITY CHECKLIST

locations. Please include route distances.

Circulation and Accessible Routes:

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

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

Provide a diagram of the accessible route connections through the site.

See Attached

Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.

The project entrance at Parker Street will be slightly elevated (+/- 1') from adjacent grades with accessible walkways (1:20 slope max) or ramps (1:12 slope max). The Project entrance on the west elevation will be flush with the existing campus walkway.

Are the accessible entrance and the standard entrance integrated?

Yes

If no above, what is the reason?

Will there be a roof deck or outdoor courtyard space? **If yes**, include diagram of the accessible route.

No

Has an accessible routes way-finding and signage package been developed? **If yes**, please describe.

No wayfinding or signage package has been developed at this time.

Accessible Units: (If applicable)

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

What is the total number of proposed units for the development?

Not Applicable

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How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?

How many accessible units are being proposed?

Please provide plan and diagram of the accessible units.

How many accessible units will also be affordable? If none, please describe reason.

Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments?
Example: stairs at entry or step to balcony. **If yes**, please provide reason.

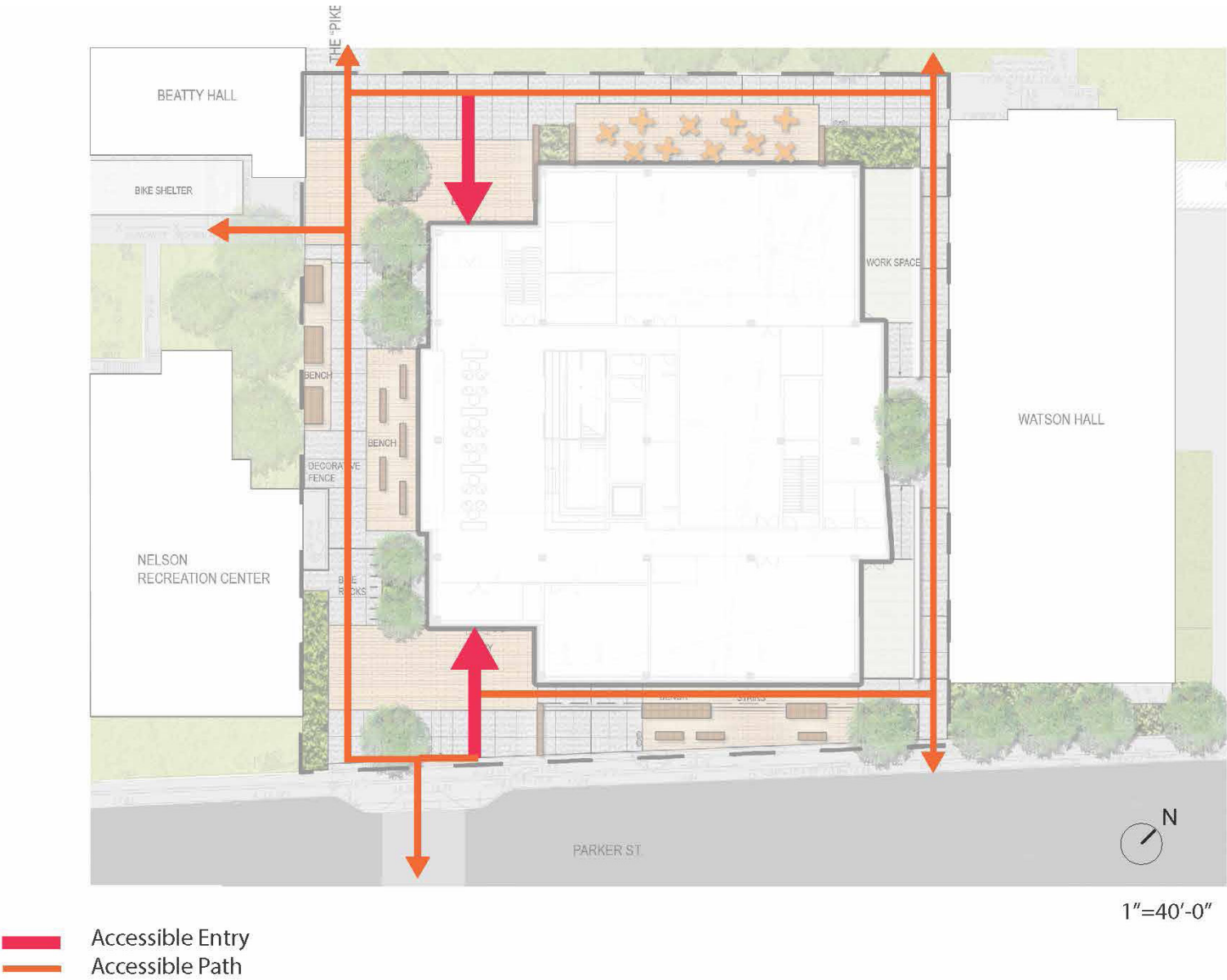
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?

Did the Advisory Board vote to support this project? **If no**, what recommendations did the Advisory Board give to make this project more accessible?

Thank you for completing the Accessibility Checklist!

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

patricia.mendez@boston.gov | Mayors Commission for Persons with Disabilities



Attachment 2

CLIMATE CHANGE PREPAREDNESS AND RESILIENCY CHECKLIST

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at <http://www.cityofboston.gov/climate>

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
2. USGCRP 2009 (<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/>)
3. Army Corps of Engineers guidance on sea level rise (<http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf>)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (<http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf>)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr*, Kara S. Doran and Peter A. Howd, 2012 ([http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf](http://www.bostonredevelopmentauthority.org/planning/Hotspot%20of%20Accelerated%20Sea-level%20Rise%202012.pdf))
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 (http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf)

Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

Please Note: When initiating a new project, please visit the BRA web site for the most current [Climate Change Preparedness & Resiliency Checklist](#).

Climate Change Resiliency and Preparedness Checklist

A.1 - Project Information

Project Name:

Multipurpose Academic Building

Project Address Primary:

555 Parker Street

Project Address Additional:

Project Contact (name / Title /
Company / email / phone):

Jeffrey Fishbein, Project Manager/ Leers Weinzapfel Associates/
jfishbein@lwa-architects.com / 617-423-5711

A.2 - Team Description

Owner / Developer:

Wentworth Institute of Technology

Architect:

Leers Weinzapfel Associates Architects

Engineer (building systems):

BVH Integrated Services, Inc.

Sustainability / LEED:

Atelier Ten

Permitting:

Fort Point Associates, Inc.

Construction Management:

Gilbane Building Company

Climate Change Expert:

Fort Point Associates/Atelier Ten

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

PNF / Expanded PNF Submission	Draft / Final Project Impact Report Submission	BRA Board Approved	Notice of Project Change
Planned Development Area	BRA Final Design Approved	Under Construction	Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:

Laboratory, Offices, Shops, Assembly (first floor)

List the First Floor Uses:

Shops (with maker space), Offices, Assembly

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

Steel Frame			
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Describe the building?

Site Area:

+/- 34,000 SF

Building Area:

+/- 77,000 SF

Building Height:

+/- 64 Ft.

Number of Stories:

4 Floors,
Penthouse &
Basement

First Floor Elevation (reference
Boston City Base):

+/- 19.00 Elev.

Are there below grade spaces/levels,
if yes how many:

1 No /
Number of Levels

A.5 - Green Building

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

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

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

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

A.6 - Building Energy

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

Electric:	Not yet known (kW)	Heating:	Not yet known (MMBtu/hr)
What is the planned building Energy Use Intensity:	Target EUI +/- 80 to be confirmed (kbtu/SF or kWh/SF)	Cooling:	Not yet known (Tons/hr)

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

Electric:	Not yet known (kW)	Heating:	Not yet known (MMBtu/hr)
		Cooling:	Not yet known (Tons/hr)

What is nature and source of your back-up / emergency generators? **No generators are anticipated for this project**

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

B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:	10 Years	25 Years	50 Years	75 Years X
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What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	10 Years	25 Years X	50 Years	75 Years
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What time span of future Climate Conditions was considered?

Select most appropriate:	10 Years	25 Years	50 Years X	75 Years
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Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

<i>07/ 88 Deg.</i>

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

<i>90 Deg.</i>	<i>1.5 Days</i>	<i>2 Events / yr.</i>
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What Drought characteristics will be used for project planning – Duration and Frequency?

<i>14 Days</i>	<i>1-Events / yr.</i>
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What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

<i>60 Inches / yr.</i>	<i>6.4 Inches</i>	<i>6 Events / yr.</i>
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What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

<i>105 MPH Peak Wind</i>	<i>3 seconds Hours</i>	<i>2% annual probability Events / yr.</i>
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B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code:	<i>Target 20 %</i>
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How is performance determined:

Energy modeling using Appendix G of ASHRAE 90.1-2010.

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	High performance building envelope X	High performance lighting & controls X	Building day lighting X	EnergyStar equip. / appliances X
	High performance HVAC equipment X	Energy recovery ventilation X	No active cooling	No active heating

Describe any added measures:

Occupancy sensors for mechanical and lighting systems to reduce building energy demand in areas not occupied; air quality monitoring (i.e. Aircuity) to provide a more precise demand controlled ventilation reducing energy usage

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

Roof:	<i>R = 20 min.</i>	Walls / Curtain Wall Assembly:	<i>R = 11.4 min. (walls) / R = 13+7.5 contin. min. (cw)</i>
Foundation:	<i>R = 7.5 min.</i>	Basement / Slab:	<i>R = to be determined</i>
Windows:	<i>R = 2.2 min. / U = 0.45 max</i>	Doors:	<i>R = 1.25 min. / U = 0.80 max.</i>

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

On-site clean energy / CHP system(s) <i>Campus central plant</i>	Building-wide power dimming	Thermal energy storage systems	Ground source heat pump
On-site Solar PV <i>To be considered</i>	On-site Solar Thermal	Wind power	None
Describe any added measures:			

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:

Connected to local distributed electrical <i>X</i>	Building will be Smart Grid ready	Connected to distributed steam, hot, chilled water <i>X</i>	Distributed thermal energy ready
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Will the building remain operable without utility power for an extended period?

	Yes / <i>No</i>	If yes, for how long:	Days
If Yes, is building "Islandable?"			
If Yes, describe strategies:			

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:

Solar oriented – longer south walls	Prevailing winds oriented	External shading devices <i>X</i>	Tuned glazing,
Building cool zones	Operable windows <i>X</i>	Natural ventilation <i>X</i>	Building shading <i>X</i>
Potable water for drinking / food preparation	Potable water for sinks / sanitary systems	Waste water storage capacity	High Performance Building Envelop <i>X</i>
Describe any added measures:			

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:

High reflective paving material <i>X</i>	Shade trees & shrubs <i>X</i>	High reflective roof materials <i>X</i>	Vegetated roofs
Describe other strategies:			

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:	On-site retention systems & ponds	Infiltration galleries & areas	vegetated water capture systems	Vegetated roofs
Describe other strategies:				

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	Hardened building structure & elements	Buried utilities & hardened infrastructure X	Hazard removal & protective landscapes	Soft & permeable surfaces (water infiltration) X
Describe other strategies:				

C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

C.1 - Location Description and Classification:

Do you believe the building to be susceptible to flooding now or during the full expected life of the building?

Yes

Describe site conditions? Subject to Flooding from Muddy River

Site Elevation – Low/High Points:

Boston City Base
17.5/19.0 Elev. (Ft.)

Building Proximity to Water:

1400 +/- Ft.

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

Coastal Zone:

Yes / No

Velocity Zone:

Yes / No

Flood Zone:

Yes / No

Area Prone to Flooding:

Yes / No

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

2013 FEMA Prelim.
FIRMs:

Yes / No

Future floodplain delineation updates:

Yes / No

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

1400 +/- Ft.

If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:

3 Ft.

Frequency of storms:

6 per year

C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:

Boston City Base
19.0 Elev. (Ft.)

First Floor Elevation:

Boston City Base
19.0 Elev. (Ft.)

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

Yes / No

If Yes, to what elevation

Boston City Base
Elev. (Ft.)

If Yes, describe:

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located
above 1st Floor.

Water tight utility
conduits X

Waste water back
flow prevention

Storm water back
flow prevention

Were the differing effects of fresh water and salt water flooding considered:

Yes / No

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

Yes / No

If yes, to what height above 100 Year
Floodplain:

Boston City Base
4.5 feet to FF 19.0
Elev. (Ft.)

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

Yes / No

If Yes, describe:

Will the building remain occupiable without utility power during an extended period of inundation:

Yes / No

If Yes, for how long:

days

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:	Yes / No	Hardened / Resilient Ground Floor Construction YES	Temporary shutters and or barricades	Resilient site design, materials and construction
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Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:	Yes / No	Surrounding site elevation can be raised	Building ground floor can be raised YES	Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:	Yes / No	Solar PV	Solar Thermal NO	Clean Energy / CHP System(s) NO
		Potable water storage NO	Wastewater storage NO	Back up energy systems & fuel NO
Describe any specific or additional strategies:				

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: John.Dalzell.BRA@cityofboston.gov

Attachment 3

LETTER OF INTENT



WENTWORTH

Institute of Technology

December 15, 2016

Brian Golden, Director
Boston Planning and Development Agency
One City Hall Square
Boston, MA 02201

Re: Letter of Intent to File a Project Notification Form
Wentworth Institute of Technology
Boston, MA

Dear Mr. Golden:

On behalf of the Trustees of Wentworth Institute of Technology ("Wentworth"), this letter constitutes a Letter of Intent to file a Project Notification Form ("PNF") under Article 80 of the Boston Zoning Code (the "Code"), consistent with the Executive Order entitled, "An Order Relative to the Provision of Mitigation by Development Projects in Boston."

Wentworth proposes to construct a four-story, multipurpose academic building consisting of approximately 69,000 gross square feet of laboratory and office space, as well as ground floor presentation and gathering space for collaboration among students, faculty and staff (the "Project"). The Project is designed to meet the next evolution in the collegiate study of several engineering disciplines by providing modern academic space for Wentworth's existing student body. Wentworth's curriculum is transitioning from a focus on engineering technology to engineering innovation in such areas as biological engineering. This transition requires new and different teaching and learning spaces with configurations that promote collaboration and interdisciplinary approaches to solving the technical challenges of our day. Because the Project is intended to serve the existing student body and add only six faculty and two lab tech positions to support the Project, no new off-street parking is proposed as part of the Project; however, Wentworth is nearing completion of construction of a 100-space bicycle parking area adjacent to the Project.

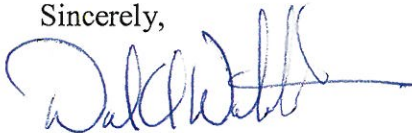
The Project will be located on Wentworth's existing campus in the Mission Hill Neighborhood District, between Watson Hall and Nelson Recreation Center/Tansey Gymnasium, in the present location of three outdoor tennis courts (the "Site"). The Site is bounded to the east by Parker Street, to the south by Nelson Recreation Center/Tansey Gymnasium, to the west by Wentworth's Academic Quadrangle (*i.e.*, open space) and to the north by Watson Hall. The Site area is approximately 0.8 acres or 34,848 square feet.

The Project constitutes a Large Project under Article 80B of the Code and, therefore, Wentworth intends to file an Expanded PNF ("EPNF") to commence review under Article 80B. The Project also will require an amendment to Wentworth's Institutional Master Plan ("IMP"), as it represents a modification and relocation of a project previously included in the IMP, as well as the separate filing of an Institutional Master Plan Notification Form ("IMPNF") under Article 80D of the Code. Wentworth expects to file the EPNF and IMPNF at the same time in mid-January.

Because the Project is located in the Groundwater Conservation Overlay District, the Project will comply with the performance standards of Article 32 of the Code as required by the Boston Planning and Development Agency's Institutional Master Plan Policy. In addition, the Project will satisfy Article 37's Green Building and Climate Resiliency Guidelines with a goal of achieving LEED Silver certifiable status.

Wentworth has been a consistent and active member of its community, engaging the public and its neighbors in its master planning and project development efforts. Wentworth has met, and will continue to meet, with the Wentworth Community Task Force (the "Task Force") as the Project moves through the review process. The Task Force includes representatives of nearby community and civic organizations, as well other institutions. Wentworth believes at its core that community engagement and public input is essential to making the Project the best it can be, for both Wentworth and the community alike. Wentworth looks forward to working with your agency, other agencies of the City, and the Task Force throughout the Article 80 review process.

Sincerely,

A handwritten signature in blue ink, appearing to read "David Wahlstrom", with a long horizontal flourish extending to the right.

David Wahlstrom
Vice President for Business

cc: Katelyn Sullivan, Boston Planning and Development Agency
Michael Rooney, Boston Planning and Development Agency
Sandy Pascal, Wentworth Institute of Technology
Johanna Sena, Wentworth Institute of Technology