

HARVARD UNIVERSITY



INSTITUTIONAL MASTER PLAN AMENDMENT

For the First Amendment to the 2013 Institutional Master Plan for Harvard University's Campus in Allston
Science and Engineering Complex



January 2016
Revised April 2016

Institutional Master Plan Amendment

For the First Amendment to the
2013 Institutional Master Plan
for Harvard University's Campus in Allston

Science and Engineering Complex

Submitted to:

Boston Redevelopment Authority

Submitted by:

Harvard University, through:

Harvard Planning & Project Management

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1.0 Introduction

1.1 Project Background

This Institutional Master Plan Amendment (IMP Amendment) is being submitted to the Boston Redevelopment Authority (BRA) in order to advance the review and construction of Harvard University's Science and Engineering Complex (SEC) in Allston (the Project). The Project consists of the following three components:

1. the construction of a new building at 130-140 Western Avenue (SEC Building) that will provide laboratories, classrooms, and related teaching and research facilities for Harvard's John A. Paulson School of Engineering and Applied Sciences (SEAS);
2. the renovation of the existing 114 Western Avenue office building for use by SEAS; and
3. the construction of an above-grade district energy facility (DEF) (formerly located in the subsurface level of the SEC Building) on a parcel of land located on the west side of the proposed "East Drive."¹

In addition to creating new facilities for SEAS, the Project will include significant publicly accessible open space, new streets, a broad range of streetscape improvements, infrastructure upgrades, and various transportation improvements including parking, transit accommodations, bike facilities, and pedestrian amenities.

Harvard University submitted an Institutional Master Plan Notification Form/Notice of Project Change (IMP/NPC) on November 10, 2015. The IMP/NPC described changes to Harvard's Allston Science Complex, a project that was approved under Articles 80B (Large Project Review) and 80D (IMP Review) of the Boston Zoning Code in 2007. The IMP/NPC filing started the formal review of the revised Project under Articles 80B and 80D. Following the public comment period, the BRA issued a Scoping Determination on December 23, 2015 outlining issues to be addressed in more detail in an IMP Amendment. A copy of the BRA's Scoping Determination and the comment letters submitted in response to the IMP/NPC is included in Chapter 5, Responses to Comments.

¹ As described in the IMP for Harvard University's Campus in Allston, the Long-Term Vision includes a new north-south street south of Western Avenue, referred to as "East Drive." See Figure 10 in Section 2.2 of this IMP Amendment.

1.2 Project Summary

SCIENCE AND ENGINEERING COMPLEX/114 WESTERN AVENUE

Designed by the firm of Behnisch Architekten and located at 130-140 Western Avenue, the SEC Building will comprise approximately 445,350 square feet², including the renovation and re-use of approximately 51,500 square feet of the existing 114 Western Avenue building, for a total of 496,850 square feet. The SEC Building and 114 Western Avenue will be surrounded by approximately 70,000 square feet of accessible, landscaped green space. The Project will house faculty, scientists, researchers, students, and staff from SEAS— including undergraduate concentrators and graduate students who are studying applied mathematics, applied physics, computational science and engineering, bioengineering, computer science, electrical engineering, environmental science and engineering, material science, and mechanical engineering.

A more detailed description of the Project is included in Chapter 2, Project Description.

DISTRICT ENERGY FACILITY

The IMPNF/NPC included a discussion of the subsurface facility located within the SEC Building that would supply hot water for heating, chilled water for cooling, and electricity for building power for the SEC Building. The IMPNF/NPC also noted that additional studies related to climate resiliency and district energy were underway and that an alternative approach to providing energy to the SEC may be pursued. As is discussed in more detail in Chapter 2, Project Description, the University is proposing to relocate the district energy facility to a location outside of the SEC Building. The University is proposing to construct an above-grade DEF of up to approximately 60,000 square feet on a parcel of land currently estimated to be approximately 121,000 square feet, located on the west side of the proposed “East Drive.”

By way of this IMP Amendment, and as shown in Figure 1, the University is requesting that this parcel of land for the DEF be added to the University’s IMP Area via a Map Amendment.

² With the exception of the DEF, all building square footage numbers in this document refer to gross floor area as defined by the Boston Zoning Code. As noted, the DEF is currently estimated to be approximately 60,000 square feet and of this, approximately 3,000 square feet is gross floor area as defined by the Boston Zoning Code.

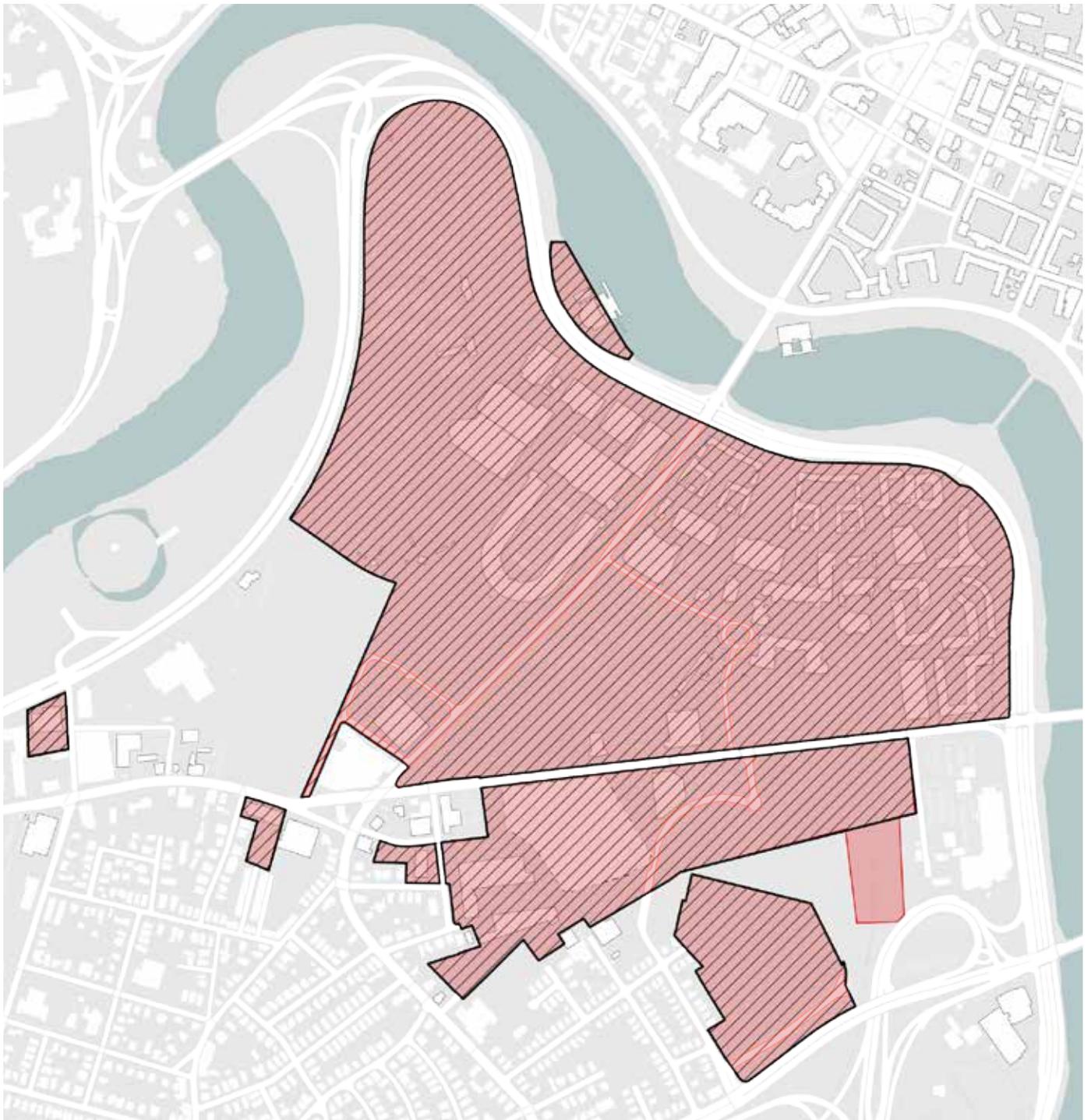


Figure 1: Harvard Property Within Existing & Proposed IMP Area



-  Existing IMP Boundary
-  Proposed IMP Boundary

1.3 Changes and Updates Since IMP Approval

The BRA's Scoping Determination requested that the IMP Amendment include an update on Harvard's properties since the Institutional Master Plan for Harvard's Campus in Allston (the IMP) was approved in 2013. There have been a number of changes and updates to the institutional and nearby non-institutional properties and these are discussed below and are shown on Figure 2.

Institutional

1. Tata Hall
2. Baker Hall / Esteves Hall
3. Chao Center
4. Klarman Hall / G2 Pavilion
5. Charlesview Demolition
6. Life Lab

Non-Institutional

7. Continuum
8. 224 Western Avenue
9. CSX



Figure 2: Changes and Updates Since IMP Approval



INSTITUTIONAL

1. Tata Hall

At the time of the approval of the IMP, Harvard Business School (HBS) was completing the construction of Tata Hall, situated at the northeast corner of the HBS campus. Tata Hall, which includes 179 beds, two classrooms, and common meeting space for HBS's Executive Education Program, was completed and occupied in January 2014.

2. Baker Hall/Esteves Hall

The IMP included the renovation of HBS's Baker Hall (and its renaming to Esteves Hall) as an IMP project. This project, which includes both cosmetic and system upgrades in order to provide comfortable accommodations and accessibility improvements for Executive Education participants, was completed in March 2015 and occupied in April 2015.

3. Chao Center

The IMP included the demolition of Kresge Hall and the construction of a new facility to be called the Ruth Mulan Chu Chao Center as an IMP project. The Chao Center will be approximately 75,000 square feet and will serve HBS's Executive Education program, providing space for dining, classrooms, offices, and common spaces. This project was approved by the BRA Board in December 2013, started construction in early 2014, and is currently scheduled to open in June 2016.

4. Klarman Hall/G2 Pavilion

On December 10, 2015 the BRA Board approved the Klarman Hall/G2 Pavilion project, referred to as the "Burden Hall Replacement Project" in the IMP. Harvard will replace the existing Burden Hall with a new classroom and academic building. The project will be a two-phased project consisting of a total of 105,100 square feet of new construction including an auditorium, meeting, and classroom space. Construction is expected to start in the spring of 2016 with the completion of Klarman Hall by August 2018. The construction of the G2 Pavilion will follow the completion of Klarman Hall and the demolition of Burden Hall.

5. Charlesview Demolition

The buildings on the former Charlesview site were remediated and demolished in late 2014 and throughout 2015. Abatement of the under slab piping, and the demolition of the slabs and foundation was recently completed. In addition, Harvard expects that in 2016 construction staging and construction worker parking will be located on the former Charlesview site to support construction of the Project, and beyond 2016 additional activities related to the construction of "Academic Way North" will take place on this site.

6. Life Lab

On March 17, 2016 the BRA Board approved the Harvard Life Lab project. The Life Lab is a new building of approximately 14,750 square feet of gross floor area designed to provide wet lab/co-working space for small Harvard-related scientific start-ups. The proposed site for the new Life Lab facility is adjacent to the existing Harvard Innovation Lab (i-lab) in Batten Hall on Western Avenue.

NON-INSTITUTIONAL

7. Continuum

In 2012, Harvard University selected a real estate partner, Samuels and Associates, to develop the Barry's Corner Residential and Retail Commons under a long-term ground lease. The project – now known as Continuum - includes approximately 325 units of housing, approximately 45,000 SF of retail space, and 225 parking spaces. The project also includes two new streets (South Campus Drive and Ivy Lane) which were built to facilitate access to Barry's Corner and Smith Field, to improve traffic flow, and to create on-street parking. The project was approved as a Planned Development Area (PDA) by the BRA Board in April 2013, and by the Zoning Commission in May 2013, and tenants began to move into the completed project in the fall of 2015.

8. 224 Western Avenue

Since the approval of the IMP, two community-focused Harvard programs have been relocated to 224 Western Avenue. The first is the Harvard Ed Portal, a Harvard-programmed community space offering innovative ways of learning and expanded programming in creative and performing arts; science and technology; wellness and recreation; and economic, workforce, and professional development. The second is the well-regarded Harvard Ceramics Program, which for over 40 years has offered studio ceramics classes, studio space, and programming for Harvard University and the broader community.

9. CSX

Much of Harvard's land located east of Barry's Corner and south of Western Avenue and known respectively as Allston Landing North (ALN) and Allston Landing South (ALS) have been encumbered by an exclusive perpetual easement held by CSX Transportation Inc. (CSX), the freight railway company. CSX has been relocating its freight railway facilities and operations to locations west of Boston. In connection with CSX's relocation, Harvard and CSX have entered into an agreement outlining the steps necessary over time to transfer to Harvard CSX's rights to this land. The transfer of rights will occur in phases. In December 2015, CSX relinquished to Harvard its easement rights to Allston Landing North (also commonly known as the Romar Parcel), but CSX will continue to occupy a significant portion of ALN until CSX completes environmental remediation being performed on-site.

1.4 Project Team

<i>Project Name:</i>	Science and Engineering Complex
<i>Address/Location:</i>	Western Avenue, Allston
<i>Proponent:</i>	President and Fellows of Harvard College through the Office of the Executive Vice President Massachusetts Hall Harvard Yard Cambridge MA 02138 Katherine N. Lapp, Executive Vice President
	Harvard Planning and Project Management Smith Campus Center 1350 Massachusetts Avenue Cambridge, MA 02138 Elizabeth Sisam
	Harvard Public Affairs and Communication 114 Mount Auburn Street Cambridge, MA 02138 Kevin Casey
	Harvard Office of the General Counsel Smith Campus Center, Room 980 1350 Massachusetts Avenue Cambridge, MA 02138 Daniel Rabinovitz
<i>Architect:</i>	Behnisch Architekten 125 Kingston Street Boston, MA 02111 Stefan Behnisch Matthew Noblett
<i>Landscape Architect:</i>	Stephen Stimson Associates 288 Norfolk Street Cambridge, MA 02139 Stephen Stimson

<i>Transportation Consultant:</i>	VHB Inc. 101 Walnut Street Watertown, MA 02471 Mike Regan
<i>Stormwater Engineer:</i>	Nitsch Engineering Inc. 2 Center Plaza Boston, MA 02108 John Schmid
<i>Climate Engineer:</i>	Transsolar 220 East 23rd Street New York, NY 10010 Erik Olsen
<i>Mechanical Engineer:</i>	Van Zelm Engineers 10 Talcott Notch Farmington, CT 06032 John Coyle
<i>Construction Consultant:</i>	Turner Construction Two Seaport Lane, Suite 200 Boston, MA 02210 Maureen Kirkpatrick
<i>Daylight, Air Quality, and Noise Consultants:</i>	Epsilon Associates Three Clock Tower Place Maynard, MA 01754 Cindy Schlessinger
<i>Wind Engineer:</i>	CPP Wind Engineering 2400 Midpoint Drive, Suite 190 Fort Collins, CO 80525 John Carter
<i>Legal Counsel:</i>	Goulston & Storrs 400 Atlantic Avenue Boston, MA 02110 Doug Husid Matt Kiefer

2.0 Project Description

The Institutional Master Plan Notification Form / Notice of Project Change submitted in November 2015 provides a detailed description of the Project. This Institutional Master Plan Amendment document is written to address the comment letters submitted in response to the IMPNF/NPC. Please refer to the IMPNF/NPC document for additional project description information not detailed in this chapter.

2.1 Project Overview

The Project is located in North Allston on the southerly side of Western Avenue, east of the intersection of Western Avenue and North Harvard Street, and east of Travis Street and also in Allston Landing North near the future street to be known as “East Drive.” The site for the SEC Building and 114 Western Avenue is approximately 12.5 acres. Those two components of the Project include 496,850 square feet of gross floor area, which includes both the renovation of the existing 114 Western Avenue building as well the construction of a new building for the John A. Paulson School of Engineering and Applied Sciences (SEAS). The new SEC Building will provide space for laboratories, teaching environments, and offices in addition to communal spaces, amenities, and retail. The SEC Building will consist of a single building on the northern portion of the site. The southern portion of the site is being preserved for future institutional development and will be landscaped in the interim.

In addition, as discussed in more detail in the following Section 2.2, by way of this IMP Amendment, Harvard is now proposing to remove the energy facility from the subsurface level of the SEC Building and to build an above-grade district energy facility of up to approximately 60,000 square feet to be located on a parcel of land on the west side of “East Drive.”

Table 1 presents the building program for the Project. Figure 3 depicts the Project within the proposed IMP area, and Figure 4 presents an updated illustrative plan.

Table 1: Building Program (Gross Floor Area)

	SEC	114 Western	SUBTOTAL	DEF	TOTAL
Dedicated Laboratory	209,000	0	209,000		209,000
Admin	8,400	12,200	20,600	3,000	23,600
Amenities / Retail	31,000	1,700	32,700		32,700
Atrium / Circulation	122,250	20,800	143,050		143,050
Teaching Environments	58,200	14,300	72,500		72,500
Core Layout	16,500	2,500	19,000		19,000
District Energy Facility				57,000	57,000
TOTAL	445,350	51,500	496,850	60,000	556,850

Note: With the exception of the DEF, all square footage numbers refer to gross floor area as defined by the Boston Zoning Code. As noted, the DEF is currently estimated to be approximately 60,000 square feet and of this, approximately 3,000 square feet is gross floor area as defined by the Boston Zoning Code.

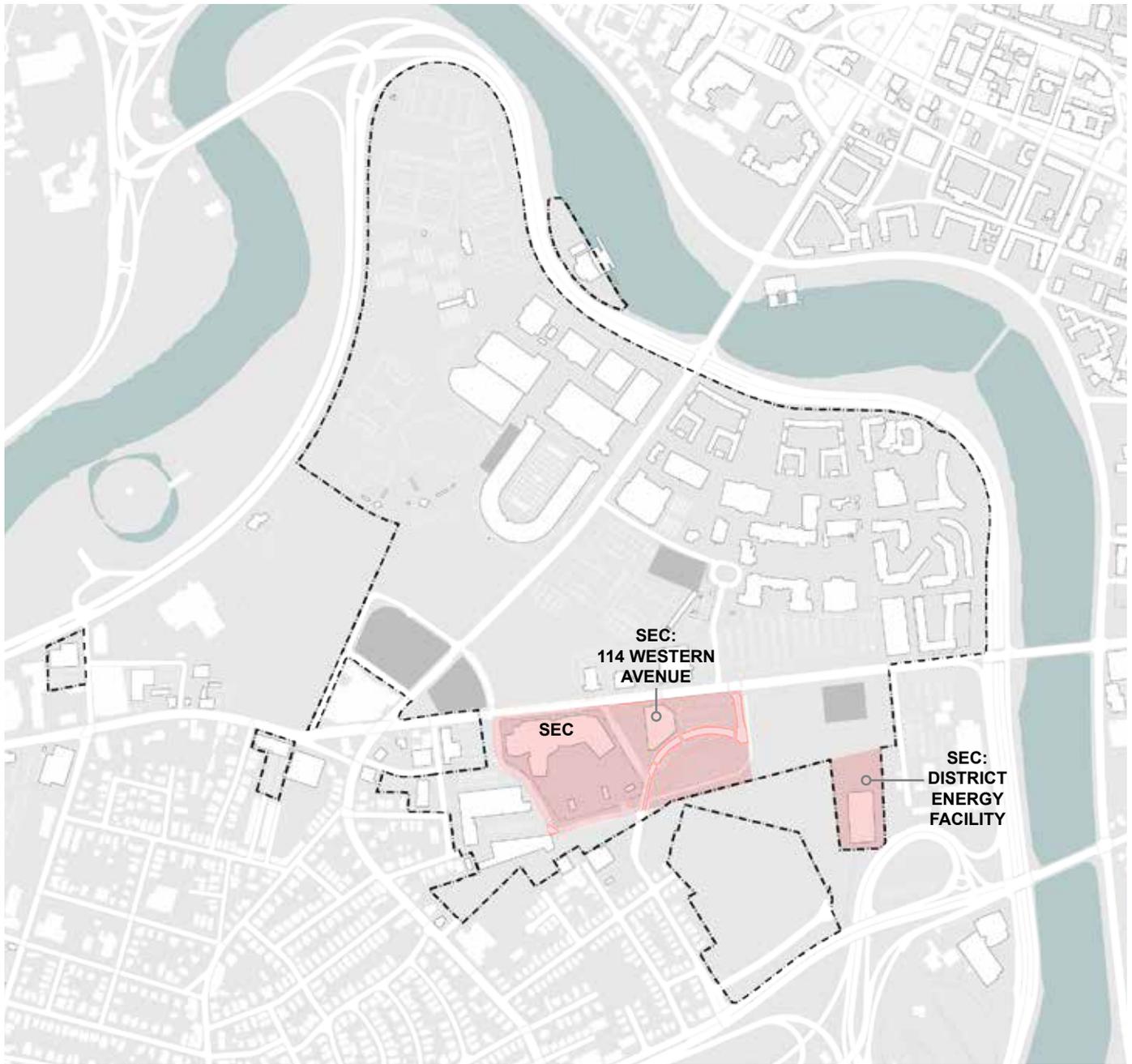


Figure 3: Project Within Proposed IMP Area





Figure 4: Updated Ten-Year Illustrative Plan



The public realm establishes an active interface with Western Avenue while the large courtyard creates a variety of outdoor gathering spaces for casual seating or more formal events. Figure 5 shows the site and ground floor plans for the SEC Building and 114 Western Avenue; Figure 6 depicts the SEC Building courtyard; and Figure 7 and Figure 8 show views of the proposed SEC Building from Western Avenue.

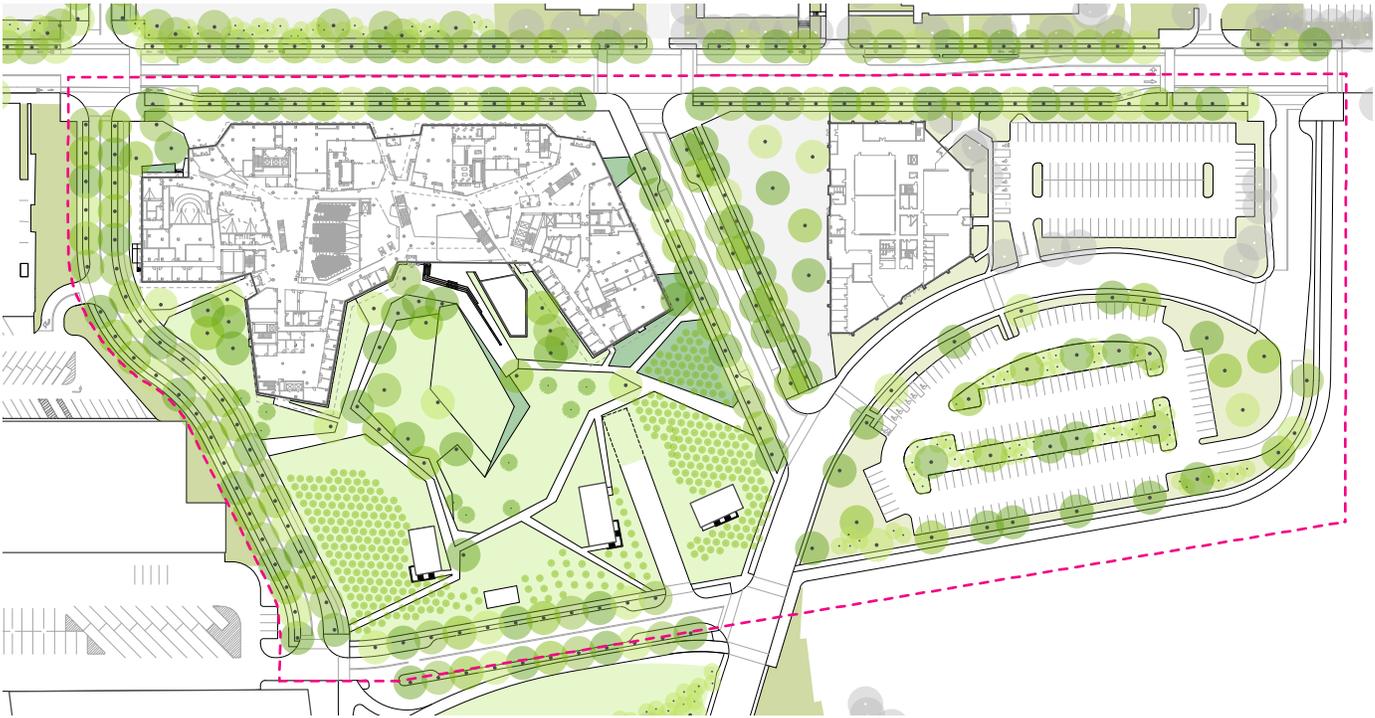


Figure 5: SEC and 114 Western Avenue Site Plan and Ground Floor Plans



Figure 6: South Courtyard, Looking Northwest

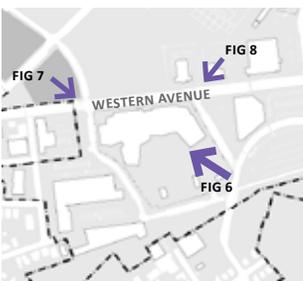




Figure 7: View from North of Western Avenue



Figure 8: View from Western Avenue East

2.2 Energy Systems for the SEC Building

The IMPNF/NPC included a discussion of the facility that will supply hot water for heating, chilled water for cooling, and electricity for building power for the SEC Building. The IMPNF/NPC also noted that additional studies related to climate resiliency and district energy were underway and that an alternative approach to providing energy to the SEC Building could potentially be pursued:

This IMPNF/NPC assumes that the SEC includes a district energy facility and the relevant technical analyses in this document (such as the noise impacts analysis) evaluate the impacts of such a facility. The University is currently undertaking an evaluation of climate resiliency and identifying specific risks for the buildings to be constructed within Harvard's campus in Allston. As part of this analysis, the cost of resiliency, including the replacement cost of equipment that could potentially be damaged and the downtime of facilities interrupted by mechanical failure, is being considered.

Simultaneously, the University is taking a broader look at the strategy of district energy in light of future growth associated not only with the institutional projects in the IMP Area but with the future development of the enterprise research campus to the east of the SEC. This evaluation includes options for optimizing the location of a district energy facility that could potentially serve additional future growth.

If the results of the resiliency evaluation and the broader look at district energy indicate that a different approach to providing energy to the SEC is appropriate, these analyses will be updated in the IMP Amendment. (see IMPNF/NPC pages 12-14)

The results of these analyses have led Harvard to remove the energy facility from the subsurface level of the SEC Building and propose the construction of an above-grade district energy facility. This approach will alleviate the significant risks outlined in the resiliency report and serve energy needs for the Ten-Year IMP program as well as future academic buildings, and in the future potentially provide redundant support for some Harvard facilities in Boston currently served by the Blackstone Plant in Cambridge. Concurrent with the resiliency review, Harvard also recently finalized agreements with CSX relinquishing control to Harvard of Allston Landing North. This transaction between CSX and Harvard provides an opportunity for Harvard to propose relocating the DEF from a subsurface location in the SEC Building to an above-grade site on the west side of the proposed "East Drive."

After considering several alternative locations, Harvard now proposes to locate the DEF on the west side of the block fronting on the southern extension of "East Drive" located in the Allston Landing North Economic Development Area Zoning District. The location of the southern extension of "East Drive" is consistent with the current MassDOT and BRA planning for roadways between Cambridge Street and Western Avenue that are part of the I-90 Interchange project. The specific site location will be coordinated with MassDOT.

Figure 9 depicts the location of the DEF in the Ten-Year Plan and Figure 10 depicts the location of the DEF in the Long-Term Vision.

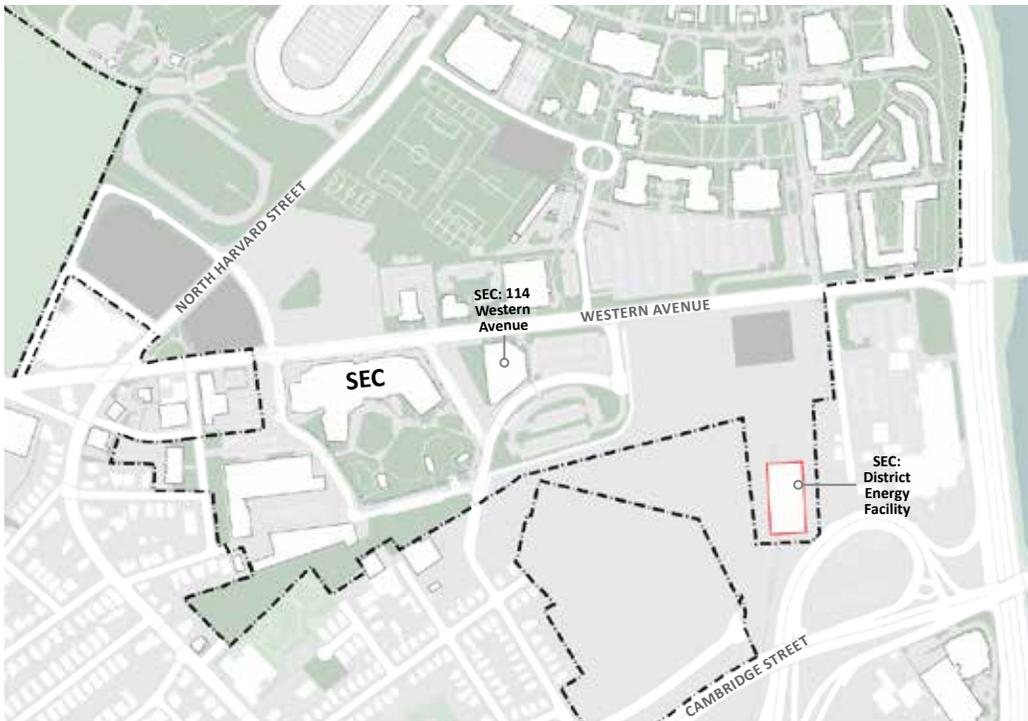


Figure 9: District Energy Facility Location in Ten-Year Plan



Figure 10: District Energy Facility Location in Long-Term Vision



DISTRICT ENERGY FACILITY SITING

The proposed DEF site was selected for the following reasons:

1. The site takes advantage of property in Allston Landing North over which Harvard gained control after the filing of the IMPNF/NPC;
2. The site allows for maximum flexibility in terms of future energy needs, including connections to the Blackstone Plant in Cambridge and accommodating future growth;
3. The site is distant from existing residential neighborhoods, respecting neighborhood concerns for proximity of such facilities; and
4. The site and building configuration are intended to minimize its impact on the future Greenway (described further in Section 2.4).

In addition, the location of this facility is being coordinated with Harvard's own thinking about the future Greenway and the future Enterprise Research Campus. The DEF is a permanent support facility and therefore its appearance and siting must complement future development opportunities, including open space, academic buildings, and research and development space. The rectangular configuration of the DEF and its siting along "East Drive" are intended to minimize its presence along the future Greenway and to preserve sufficient block depth to accommodate future development.

The DEF will be sited to extend along the western side of the alignment of the future "East Drive" at the southern edge of the extension of "Science Drive." Until "East Drive" is constructed, the building will be reached via an interim access-way south of Western Avenue. The narrow section of the building will face onto "Science Drive," where the building's primary entrance will be located. The primary loading activity will occur within an access-way on the west side of the building. Sufficient block depth will be preserved to accommodate future development to the west of the DEF, providing significant visual screening of the facility. Trees will line "East Drive" and "Science Drive" along the building's frontage. The building will be set back from the "East Drive" and "Science Drive" back-of-sidewalk in order to sufficiently provide for foundation plantings. The DEF façade will emphasize transparency along "East Drive" and "Science Drive", showcasing the energy equipment located within it. Mechanical equipment on the roof will be shielded by a screening system around the rooftop perimeter. The building's proximity to the future Greenway will benefit from the natural drainage functions that the Greenway will provide, and will link to the long term infrastructure corridors which will provide efficient routes for energy that promise to sustain the build-out of the district.

Figure 11 depicts the siting considerations of the DEF within the Long-Term Vision.



Figure 11: District Energy Facility Siting Considerations in Long-Term Vision



DISTRICT ENERGY FACILITY ELEMENTS

Serving the SEC Building with an above-grade DEF has the following attributes:

- The DEF will primarily be comprised of district-scale mechanical and electrical spaces that will house energy production and distribution equipment and systems supporting the heating, cooling, and electric distribution needs of the SEC and other future buildings.
- The facility will be up to approximately 60,000 square feet in size, consisting of an approximately 57,000 square foot plant area and approximately 3,000 square feet for a control room, plant office, bathrooms, storage, a training room, and miscellaneous space.
- The building will have a footprint of approximately 34,000 square feet and will be up to approximately 63 feet in height.
- The DEF will have space to expand and serve the heat-energy and chilled water requirements for the Ten-Year IMP and future academic buildings, and electricity for the Ten-Year IMP academic buildings.
- The facility is planned to be constructed at one time, with equipment installed in phases to meet current and near-term needs.
- The building will be resilient to projected storm-surge/climate change flooding impacts (e.g., 4 to 5 feet above-grade, slab-on-grade construction, and hot water distribution rather than steam distribution, which can be vulnerable to extreme flooding events).
- There will be five parking spaces for Harvard and vendor service vehicles.

Figure 12 depicts a conceptual rendering of the DEF.



Location of viewpoint



Figure 12: District Energy Facility Concept Rendering (Leers Weinzapfel Associates)

2.3 Urban Design Context

The IMPNF/NPC included text and graphics describing the urban design goals of the Project and the Project's relationship to the University's IMP. As described in the IMPNF/NPC, the design of the SEC Building reinforces the key principles and goals of the IMP. While the building is institutional and research-focused by nature, the design approach reflects a broader commitment to the larger Harvard, Allston, and Boston community, as well as long term sustainability goals consistent with the IMP.

Engaging and activating Western Avenue will be accomplished through the SEC Building's pedestrian-scale massing and materials strategy, an active and publicly accessible ground floor, and a vibrant streetscape. Ground floor uses such as the atrium and cafeteria/lounges promote a sense of community and contribute vibrancy to the neighborhood. The BRA's Scoping Determination requested additional graphics depicting the area context. Figure 13 shows the Project located within a broader area, from Barry's Corner to Hague Street, and Figure 14 and Figure 15 show aerial renderings of the Project in the Ten-Year Plan and Long-Term Vision, respectively.

The Project also includes the introduction of new streets, "Academic Way," "Stadium Way," and "Science Drive," which are consistent with the IMP and which begin to establish a road network that will be continued with future development. As requested in the BRA's Scoping Determination, further descriptions of site area circulation are addressed in 3.2, Transportation.

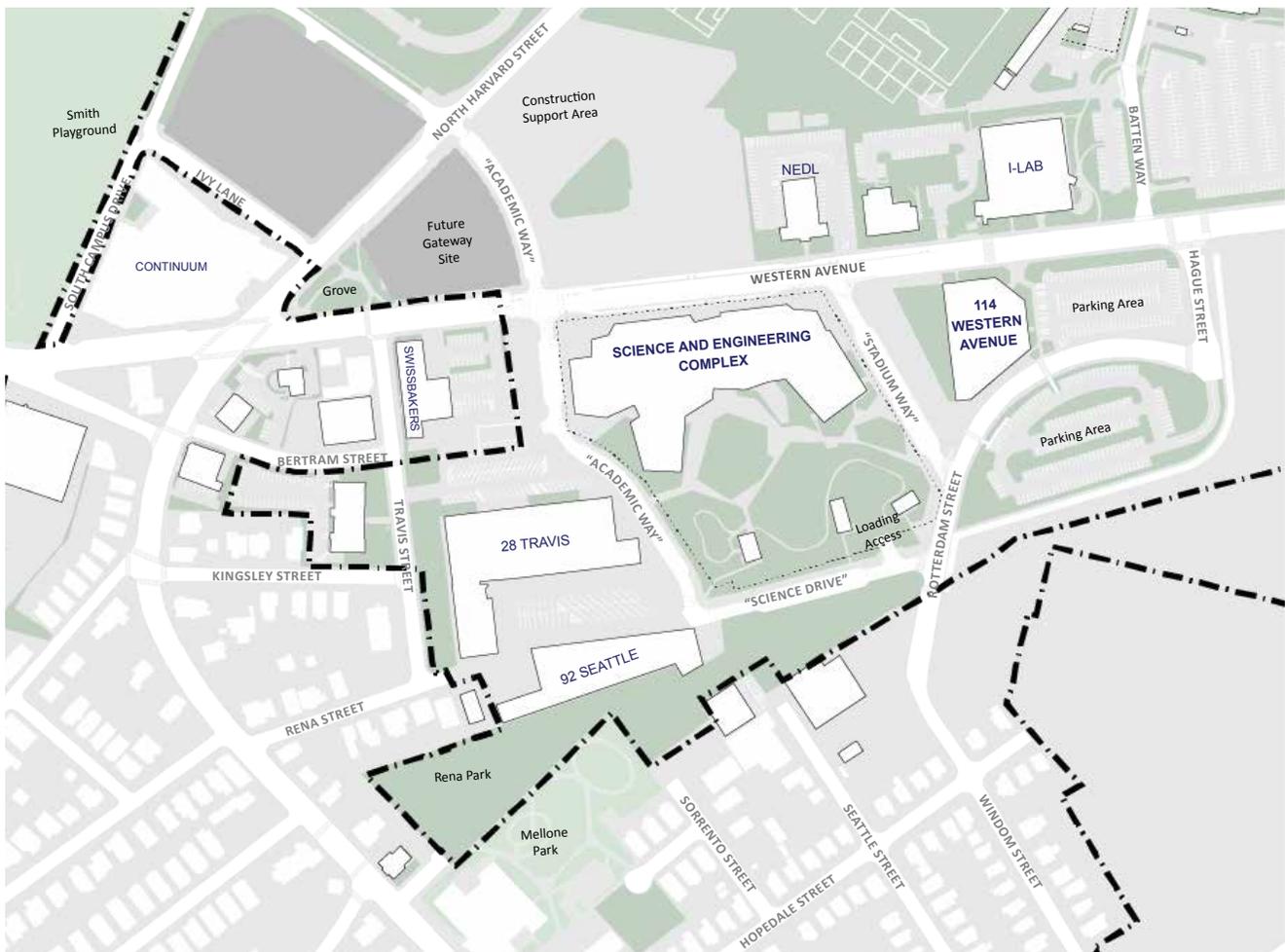


Figure 13: Urban Design Context





Figure 14: Proposed SEC Project in Context of Ten-Year Plan



Figure 15: Proposed SEC Project in Context of Long-Term Vision



2.4 Landscape Systems and the Greenway

In response to requests for clarification on the surrounding future context for the Project, and specifically in relation to the Greenway, this section outlines the Greenway as envisioned in the 2013 IMP document's Long-Term Vision, as well as in more recent planning including the Greenway Planning Memo submitted to the BRA by Harvard in December 2014.

The first portion of the Greenway to be implemented will be Rena Park in 2016, followed by improvements along "Science Drive" between "Academic Way" and Rotterdam Street to be constructed as part of the Project. As described in the December 2014 Greenway Planning Memo, the ultimate timeline for implementation of additional segments is influenced by a number of factors including site control, construction of streets and infrastructure, and the completion of adjacent projects which will improve the safety and security of the area.

GREENWAY

As described in Harvard's 2013 IMP and as depicted in Figure 16, the Long-Term Vision of this area includes a future Greenway, which is a complex linear working landscape. The Greenway organizes adjacent urban design, infrastructure, sustainability, and open space aspects of the University's Long-Term Vision for the area's development. Contributing to long-term sustainability, the location and shape of the proposed Greenway will build on existing open space, urban design, circulation, and utility and drainage systems.



Figure 16: Long-Term Greenway Illustrative Plan and Cross Section (2013 IMP)



OPEN SPACE CONTEXT AND CONNECTIONS

As shown in Figure 17, in Greenway planning, a number of nearby open spaces have been carefully considered in relation to the area's open space context:

- Charles River Reservation
- Smith Playground
- Barry's Corner Grove
- Rena Park
- Ray Mellone Park
- Hooker-Sorrento Park
- Harvard Business School Central Green



Figure 17: Open Space Network



GREENWAY IMPLEMENTATION

As a high-performance urban landscape project, the Greenway will evolve through adaptation and adjustment over time. Today, except for the upcoming improvements to the proposed Rena Park, the sites that will make up the future Greenway are now primarily paved, displaying degraded urban fill conditions in many areas. The IMP includes the Greenway in the Long-Term Vision, rather than the Ten-Year Plan because the timeline for full completion of the Greenway relies upon a number of factors.

The first portion of the Greenway to be implemented will be Rena Park in 2016, followed by improvements along “Science Drive” between “Academic Way” and Rotterdam Street to be constructed as part of the Project. Harvard will look for further opportunities to implement portions of the Greenway with future projects as a part of the future Enterprise Research Campus build-out.

A number of ongoing planning processes will need to be resolved in concert with finalization of the Greenway design and implementation strategy. These include the following:

Nearby Building Projects

Segments that comprise the Greenway ideally should be created as buildings are developed along the length of the Greenway. One parcel which is likely to be developed during the Ten-Year IMP is the Hotel and Conference Center. Development of this project would incorporate another piece into the Greenway connection. Similar portions will be created as projects come on-line.

Area-Wide Infrastructure Planning

Planning for infrastructure systems that will serve the Enterprise Research Campus remains in a preliminary stage. As a result, the final layout and infrastructural functions, such as stormwater retention, utility corridor, and circulation of the Greenway have not yet been fully defined. Collaboration with MassDOT is required as the I-90 Interchange and Western Avenue Bridge projects move forward. Both projects greatly impact the context in which this area is developed through potential new or altered street and river connections.

Environmental Remediation

A portion of the future Greenway will pass through the parcel known as Allston Landing North (also known as the Romar Parcel). This parcel had been encumbered by CSX’s perpetual exclusive railroad easement, but recently CSX relinquished to Harvard these easement rights. In the near-term, CSX still has to complete environmental remediation of Allston Landing North.

Resiliency Planning

Recent Harvard research regarding the need to anticipate climate change is resulting in ongoing Harvard planning that may bear on the ultimate design of the Greenway.

Planning and Design Considerations

Keeping the many evolving conditions and processes in mind, Greenway planning will unfold as a collaboration between Harvard, the BRA, and the community as decisions are made surrounding the future context for this area.

A number of important design issues shape ongoing Greenway planning. Key considerations include the following:

Greenway Continuity

The currently proposed Greenway configuration establishes the landscape corridor in two sections that are not entirely aligned. The section west of the future “Stadium Way” sits further to the south than does the section to the east of “Stadium Way”, impacting ease of navigation and sight lines.

“Stadium Way” Crossing

The Greenway’s east-west crossing of “Stadium Way” involves a potentially challenging diagonal movement that also includes an extra crossing of the future “Science Drive.”

Greenway Frontage

The Greenway position provides for active building frontage along its southern edge on the future “Science Drive,” but its northern edge abuts buildings whose primary face will be on Western Avenue. Establishing an active edge on the north edge of the Greenway is an important urban design consideration.

Transit Interface

Planning for a transit stop on “Stadium Way” in the vicinity of the Greenway is complicated by the Greenway’s two-section composition described above, where the Greenway shifts from a more northerly to a more southerly alignment at “Stadium Way.”

Eastern Terminus

Establishing a legible terminus at the east end of the Greenway may prove to be challenging due to the busy “East Drive” and Genzyme building beyond.

Western Avenue Corridor

The currently proposed Greenway is only one block south of the Western Avenue corridor, a future focus of pedestrian, bicycle, public realm, and stormwater resources that could be redundant with that of the Greenway.

114 Western Avenue Footprint

The existing 114 Western Avenue building is now part of the Project, and so it is not expected to be removed in the near future. However, a portion of the building is located within the proposed footprint of the Greenway as identified in the 2013 IMP Long-Term Vision.

2.5 Project Schedule

The Project schedule calls for modifications to the existing below-grade structure of the SEC Building to begin in the spring of 2016 and construction of the steel framework to begin in the fall of 2016. Based on the current schedule, the SEC Building will be open for the fall of 2020 academic year.

3.0 Anticipated Impacts

3.1 Introduction

As required by Article 80, the IMPNF/NPC includes discussion and analysis of the Project's impacts, including transportation, shadow, daylight, noise, sustainability, and construction period impacts. The BRA's Scoping Determination and comment letters request additional information on many of these areas, and these are discussed in the following sections.

3.2 Transportation

The IMPNF/NPC describes the transportation characteristics of the Project. The BRA Scoping Determination also directs Harvard to:

- Discuss the anticipated hours of each use, intensity of use by students, faculty, staff, and visitors, and the potential impact of these uses on pedestrian and student activity in the area around the site and more generally in the neighborhoods surrounding the Project.
- Provide any updates of Harvard's existing transportation and parking policies and impacts resulting from the Project. In particular, the IMP Amendment should describe anticipated parking demand and supply following the full build-out of the Science and Engineering Complex site (i.e., second phase) and replacement of the surface parking to the south of 114 Western Avenue with the Greenway.
- Meet with the BRA and the Boston Transportation Department (BTD) to explore the feasibility of improving the cycle track on Western Avenue to accommodate travel in both directions, as well as other potential improvements to the area's bicycle infrastructure.

The BRA also recommended that Harvard "set up a meeting with the Boston Transportation Department to discuss the IMP Amendment submission requirements and requested analysis" and directed Harvard to provide additional information about site circulation. This section provides additional information about these topics to supplement the transportation analysis presented in the IMPNF/NPC.

BTD Meeting

On January 14, 2016, representatives of the University and their consultant, VHB, Inc., met with BTD and BRA staff to discuss the IMP Amendment submission requirements and requested analysis. This discussion confirmed the analysis that is described below and outlined next steps to develop and review the Project roadway and transportation infrastructure improvements that are shown in Figure 18 and described in this section. Prior to submitting 30-percent design plans for the proposed transportation improvements, Harvard will meet with representatives from BTD, BRA, Boston Public Works Department (BPWD), and Public Improvement Commission (PIC) to review the current concept plans, discuss design options and develop a review schedule for future submittals. This will include an evaluation of the potential for traffic signal control at the intersection of “Academic Way” with North Harvard Street and with Western Avenue, particularly to address anticipated pedestrian and bicycle flows at these intersections.

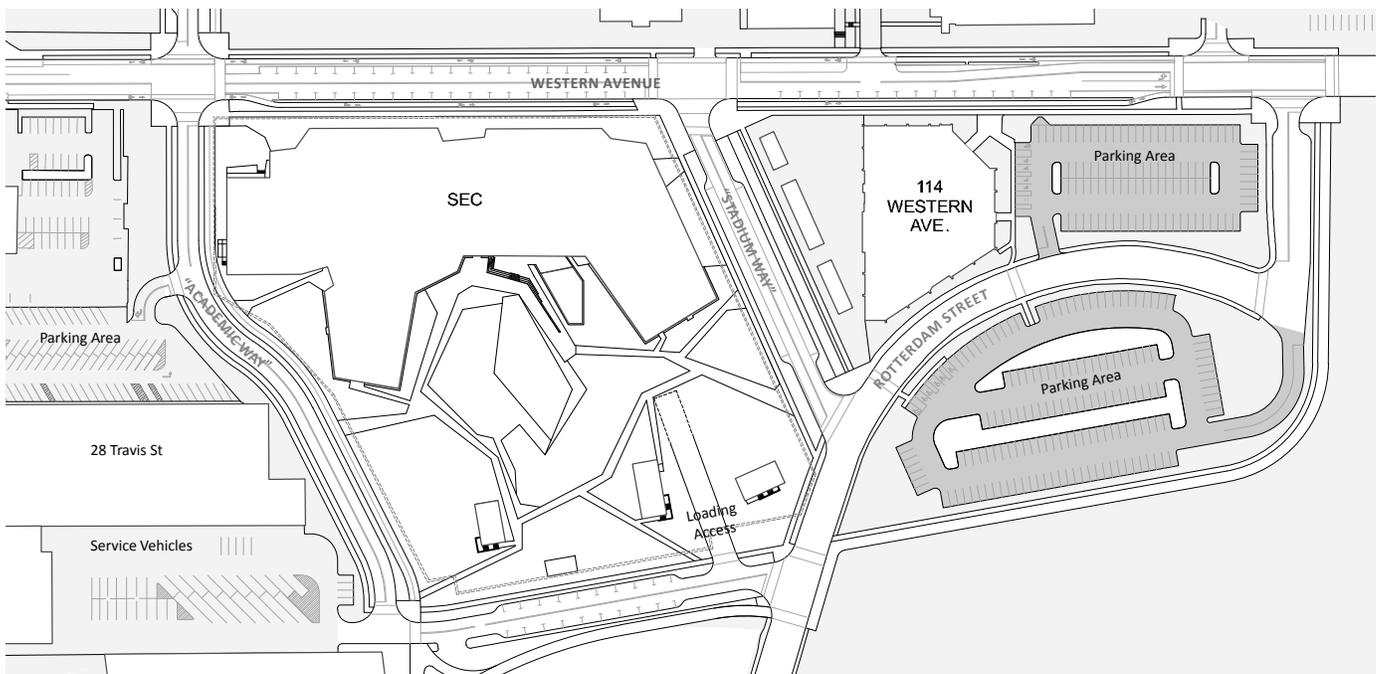


Figure 18: SEC Area Circulation



Intensity of Use

The majority of Project users are expected to use the SEC Building during the hours of course scheduling, which occur on weekdays from 8:45 a.m. to 6:00 p.m. during the academic year. Current estimates for daily users among these groups are 600 undergraduate students, 500 graduate/PhD students, and 110 faculty members. Researchers (estimated to be 550 per day) are expected from late morning to late evening, 11 a.m. to 10 p.m. throughout the year. Staff and individuals from the Wyss Institute are expected at the SEC from 9:00 a.m. to 5:00 p.m., following typical workday patterns.

Most occupants will be focused on uses within the building, in classrooms, lecture halls and research labs. There are limited large group events that may be held outdoors, such as graduation, which would utilize the courtyard.

The SEC Building doors will be unlocked and the ground floor will be open to the public from 7 a.m. to 7 p.m. weekdays. After hours and on weekends will require a Harvard ID to access the building. The SEC Building courtyard will be open to the public and security will be provided by the Harvard University Police Department.

Daily activity of SEC Building users is expected to bring positive activity to Western Avenue and the surrounding area. Nighttime activity is expected to be minimal and will likely have little impact on the neighborhood. Evening occupants will include researchers, student study groups, and Division of Continuing Education populations.

Existing Conditions Updates

The IMPNF/NPC described Harvard's parking and Transportation Demand Management (TDM) programs and provides an evaluation of the impacts of the Project within the context of the analysis that was prepared for the 2013 IMP. The 2013 IMP provides a detailed and comprehensive transportation analysis of the projects included in the Ten-Year Plan of the IMP. There are no updates to the analysis to report since the IMPNF/NPC.

Future Parking Conditions

The IMPNF/NPC indicates that the Project will provide 275 total parking spaces in two surface lots adjacent to and south of 114 Western Avenue. One of these lots, which would accommodate approximately 155 parking spaces, is located on the site of the proposed Greenway that was described as part of the 2013 IMP Long-Term Vision. Harvard will assess the status of this parking lot as part of the future planning for the Greenway and relocate the parking to a suitable location within the IMP Area or Allston Landing North, if appropriate, when this portion of the Greenway is ready for construction.

At this time, there are no plans for development on the southern portion of the SEC Building site. Harvard will assess the potential parking demand when plans for the use of this portion of the site are known and, at that time, identify appropriate parking supply options.

BICYCLE INFRASTRUCTURE

Figure 19 illustrates the future bicycle network that will serve the Project when it opens, including recently completed improvements to the Weeks Bridge, the new bike path along South Campus Drive, and the new cycle track on Western Avenue in Cambridge, as well as the bike lanes on the Anderson Bridge that will be completed in 2016. As described in the IMPNF/NPC and shown on Figure 19, the Project will:

- Enhance the eastbound cycle track on the southern side of Western Avenue in front of the site and create a new westbound cycle track on the northern side of Western Avenue in front of the site that will be buffered from traffic by parking lanes and raised curbs;
- Provide a new bicycle path next to “Stadium Way” on the block between Rotterdam Street and Western Avenue; and
- Provide secure/covered bicycle parking that will be conveniently located near the building entrances.

Prior to recent construction activity on Western Avenue, the existing bicycle infrastructure in front of the site included an eastbound cycle track with floating parking lane and a westbound bike lane. Harvard will work with BTM to refine this design including its transitions to adjacent bike facilities and to explore opportunities to create buffered bike lanes to the east of the site within the existing right of way.

Harvard will also work with BTM to refine the designs for “Academic Way” to provide new bicycle facilities to connect North Harvard Street with the SEC Building and establish a clear bicycle link between Rena Park and the multi-use path along South Campus Drive that leads to Smith Playground.

Other improvements to the area’s bicycle infrastructure that are in planning would be implemented after the opening of the SEC. MassDOT has proposed new bicycle infrastructure as part of its Allston Interchange project including cycle tracks on Cambridge Street and other new streets north of the interchange as well as enhancements to the Paul Dudley White Path that potentially widen the bike path and provide a new gateway connection south of Cambridge Street. As part of its evaluation of “Stadium Way,” Harvard proposed a new north-south bicycle path along “Stadium Way” that would connect the Project to the proposed West Station and new MassDOT bicycle infrastructure and other new streets.

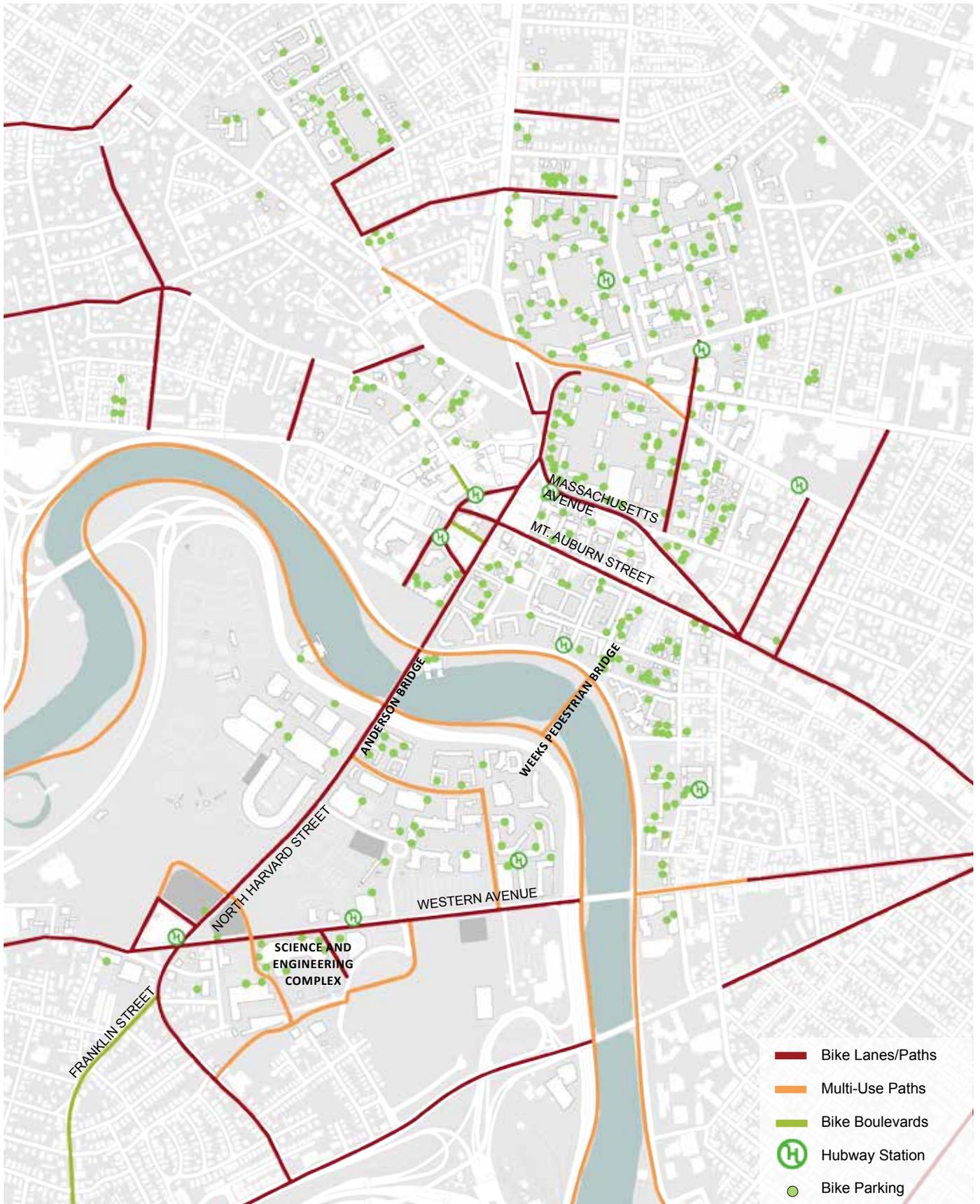


Figure 19: Bicycle Network



Bicycle Parking

The IMPNF/NPC indicated that the Project would include 400 secure/covered bicycle parking spaces and 100 or more outdoor parking spaces. The outdoor bike parking is located along the perimeter of the SEC Building and 114 Western Avenue near building entrances.

The site plan shown in Figure 20 illustrates two locations that have been identified for the secure/covered parking: one along “Academic Way” at the western side of the building and the other in a triangular area next to 114 Western Avenue. These locations are convenient to building entrances. Showers will be located on the ground floor of 114 Western Avenue next to the proposed bike parking area on Level A and Level C of the SEC Building near the eastern elevator core.

Harvard is also investigating opportunities to augment the bike parking at the 114 Western Avenue triangle with other bicycle amenities (e.g., bike repair station, Hubway) as part of a Mobility Hub that would serve the SEC. (The Mobility Hub concept was introduced in the 2013 IMP.) Other mobility options within close proximity to this location will include MBTA bus service, Harvard shuttle services, ZipCars, electric vehicle charging stations, and monitors providing transportation information. The provision and organization of these mobility options will be part of Harvard’s commitment to encourage the use of non-vehicular transportation at the Project and the campus development in Allston.

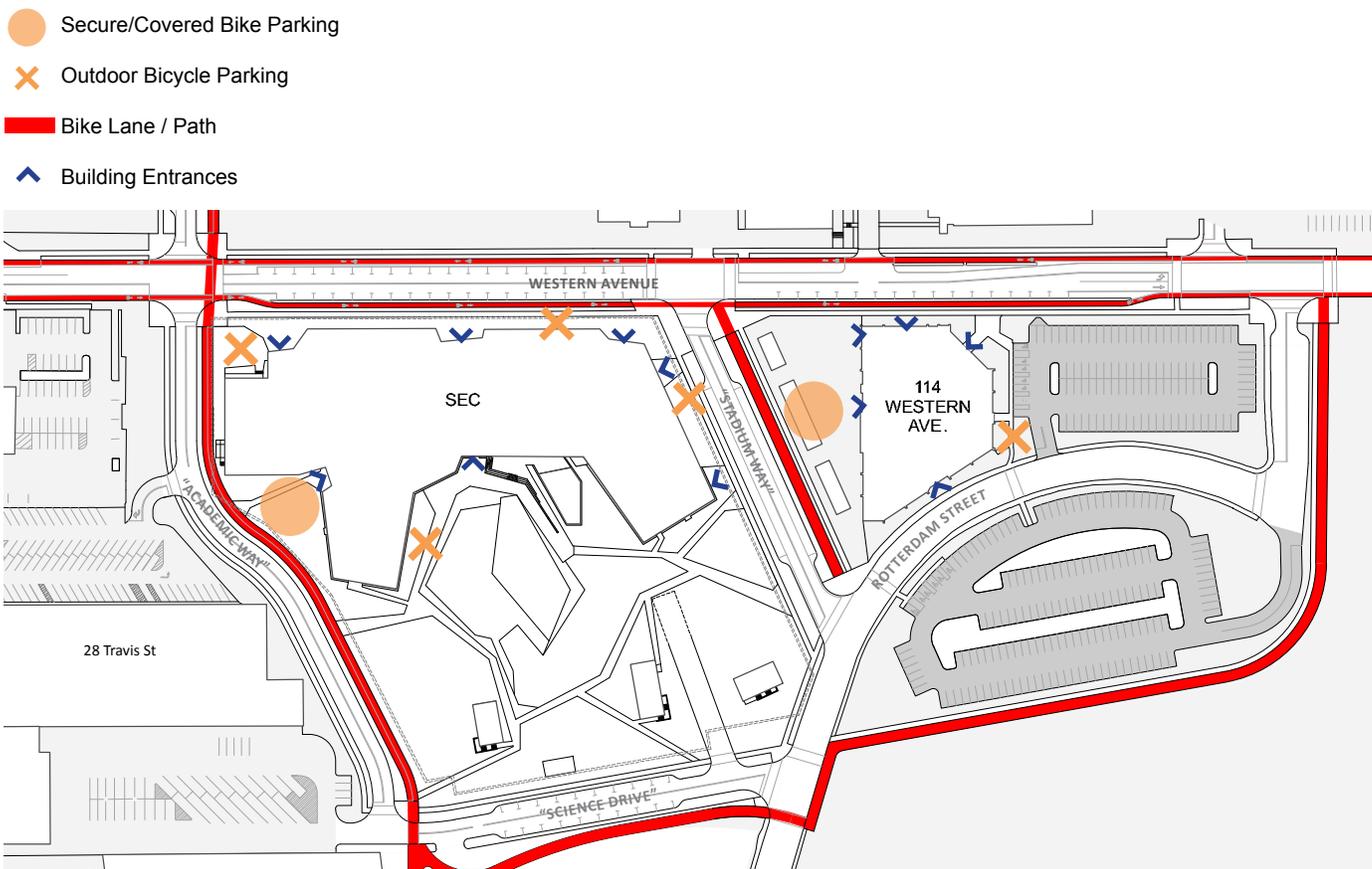


Figure 20: Bicycle Parking and Access



VEHICULAR CIRCULATION

The construction of “Academic Way,” “Science Drive,” and “Stadium Way” and the enhancements to the sections of Western Avenue in front of the site will improve local circulation and accommodate the multi-modal needs of the SEC. These streets, which will be designed using Boston’s Complete Streets Guidelines, will also replace the existing driveways that provide access to and egress from 28 Travis Street. The function of the existing Western Avenue driveway will be replaced by “Stadium Way” and the function of the existing Rotterdam Street driveway will be replaced by “Science Drive.” Figure 21 illustrates the vehicular circulation patterns of these streets.

Figure 21 also shows the SEC Building loading dock driveway located on “Science Drive.” This street will also provide the primary access and egress route for buses and trucks, at 28 Travis Street. These vehicles will use Rotterdam Street to connect with Western Avenue at the signalized Hague Street intersection. Buses and trucks will be prohibited from traveling on Rotterdam Street and Windom Street to the south of “Science Drive.” Existing signage will be updated as necessary at this intersection.

“Academic Way” will provide secondary access to the SEC Building loading docks and the 28 Travis Street bus/truck lot. It will also provide a connection into the parking lot on the northern side of 28 Travis Street near the southern end of the SEC Building.

Harvard will work with the City to update the existing signage plan and determine the appropriate design and location for directional signage to the 28 Travis parking lot. It is anticipated that this signage would be located on Western Avenue at “Academic Way” and the design of this signage would be consistent with the previously implemented directional signage.

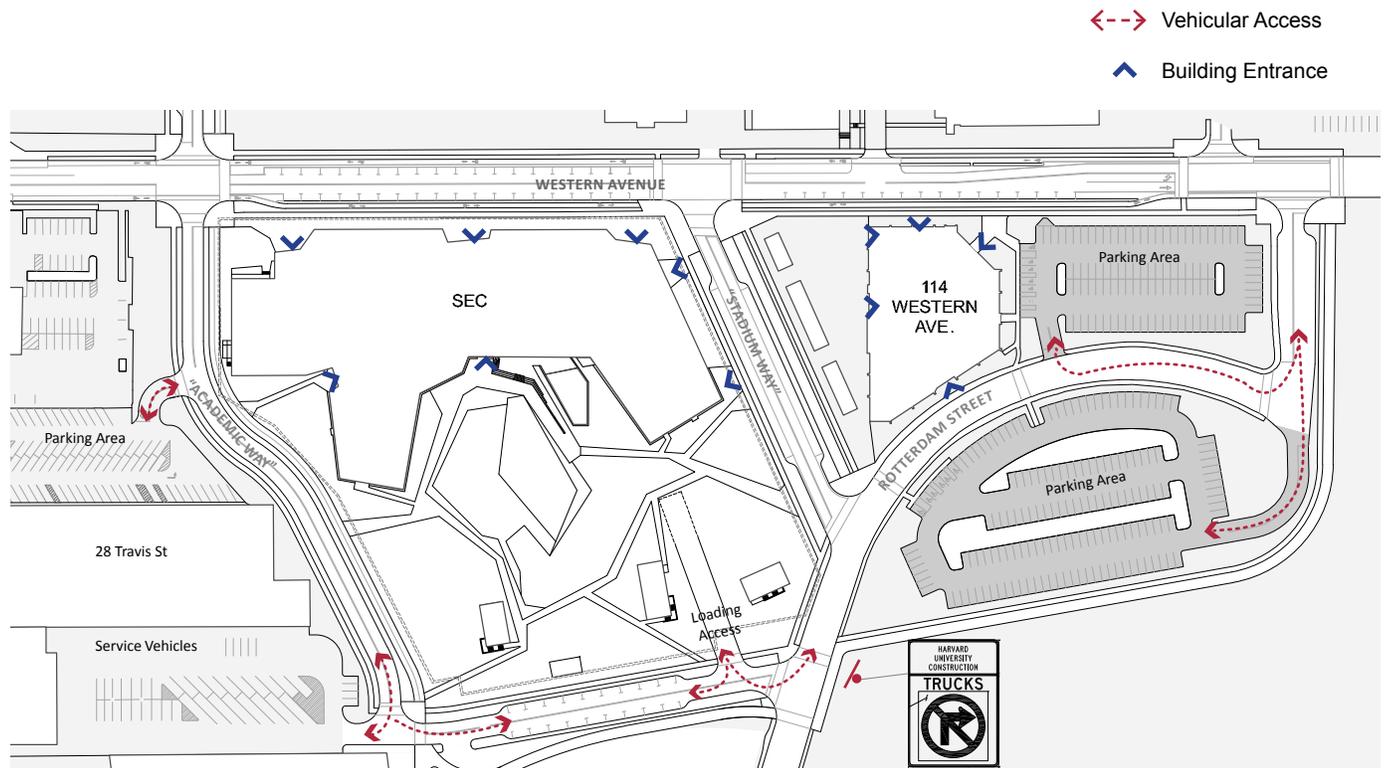


Figure 21: Entrances and Access Routes

3.3 Wind

The IMPNF/NPC included an initial analysis of the potential wind impacts from the SEC Building. As discussed at the City Agency Scoping Meeting on December 1, 2015, the full wind tunnel testing will be done during the Design Development phase of the Project and these results will be shared with the BRA design staff.

However, in the interim, the design team and its wind consultant, CPP Wind Engineering, conducted a computer simulation study to identify areas that will require more detailed study in the wind tunnel test. The results of this computer simulation study are discussed in the following sections.

PEDESTRIAN COMFORT

SEC Courtyard

As shown in Figure 22, the SEC Building's courtyard space is sheltered from the northwesterly and northeasterly winds but exposed to southeasterly through southwesterly winds. For a spring graduation ceremony, temporary shelter may be needed to protect from these wind directions.

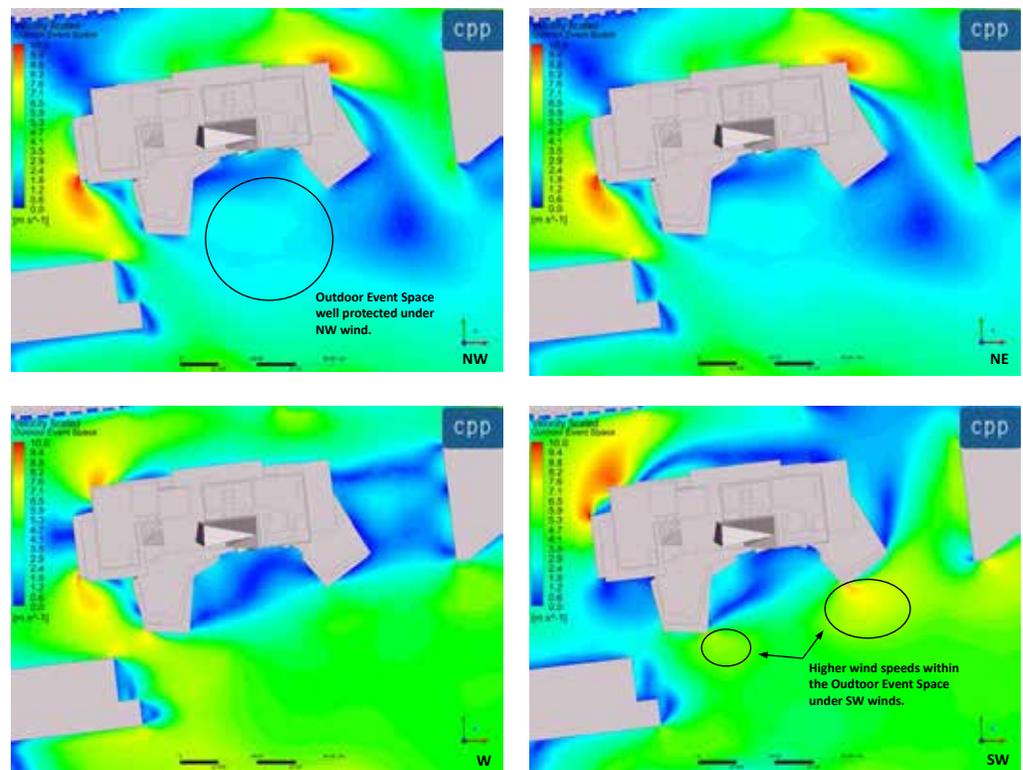


Figure 22: Courtyard Wind Analysis



Entrances

As shown Figure 23, the entrances to the SEC Building on Western Avenue are exposed to the northwesterly and northeasterly winds of concern. However, the irregular shape of the building and the inset at each entrance location may limit the effect of down-washed winds being accelerated at these locations. In addition, the landscape design is being looked at as a means to mitigate wind impacts at the SEC Building entrances.

The central entrance to the SEC Building on Western Avenue and the central entrance from the courtyard are set back into the building massing and are likely to be well protected most of the time.

The building entrance near the southeast corner, may be exposed to easterly and northeasterly winds down-washing on the east elevation and accelerating around the corner.

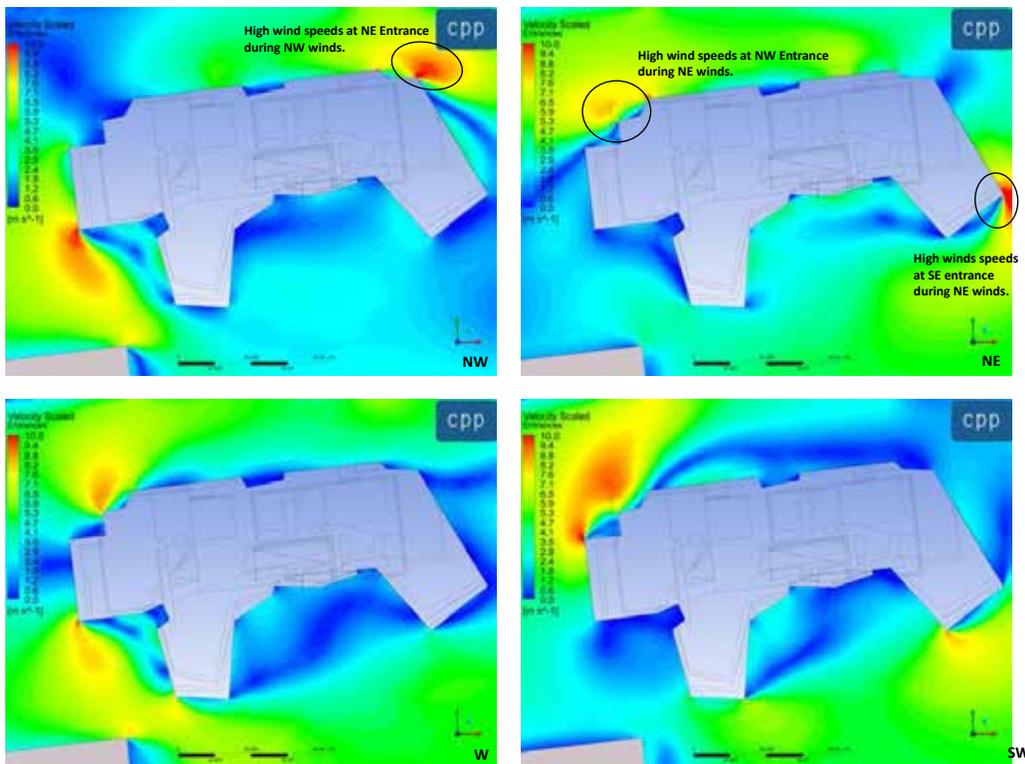


Figure 23: Entrances Wind Analysis

Western Avenue

As shown in Figure 24, the sidewalk along Western Avenue has the potential to be exposed to northwesterly and northeasterly and westerly winds being down-washed and accelerating around the building corners. If present, these accelerated flow areas may be small and limited to the extreme east and west ends due to the setback/break in the façade near the building center. This will be studied in more detail in the wind tunnel.

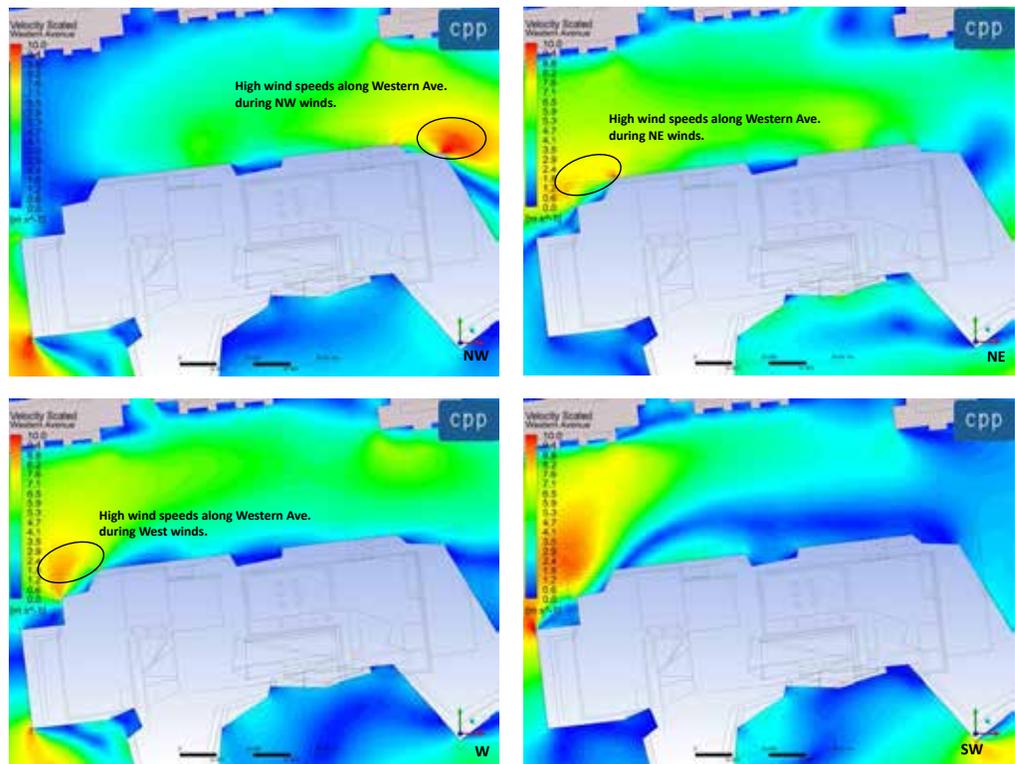


Figure 24: Western Avenue Wind Analysis



114 Western Avenue

As shown in Figure 25, the sidewalk along Western Avenue has the potential to be exposed to northwesterly and northeasterly winds. Only the western most door would likely be affected (by the northwesterly winds). The trees envisioned for the Project's landscape plan, if large enough, are likely to provide adequate protection.

The winds of concern for the west elevation are primarily northwesterly and southwesterly winds being down-washed and accelerating around the building corners. Only the northern most door would likely be affected (by the southwesterly winds), though accelerated flows at the southern corner sidewalk may also occur.

The south elevation doors may be exposed to unobstructed southwesterly winds. However, the setback indicated in the figure will reduce potential for impact from these winds.

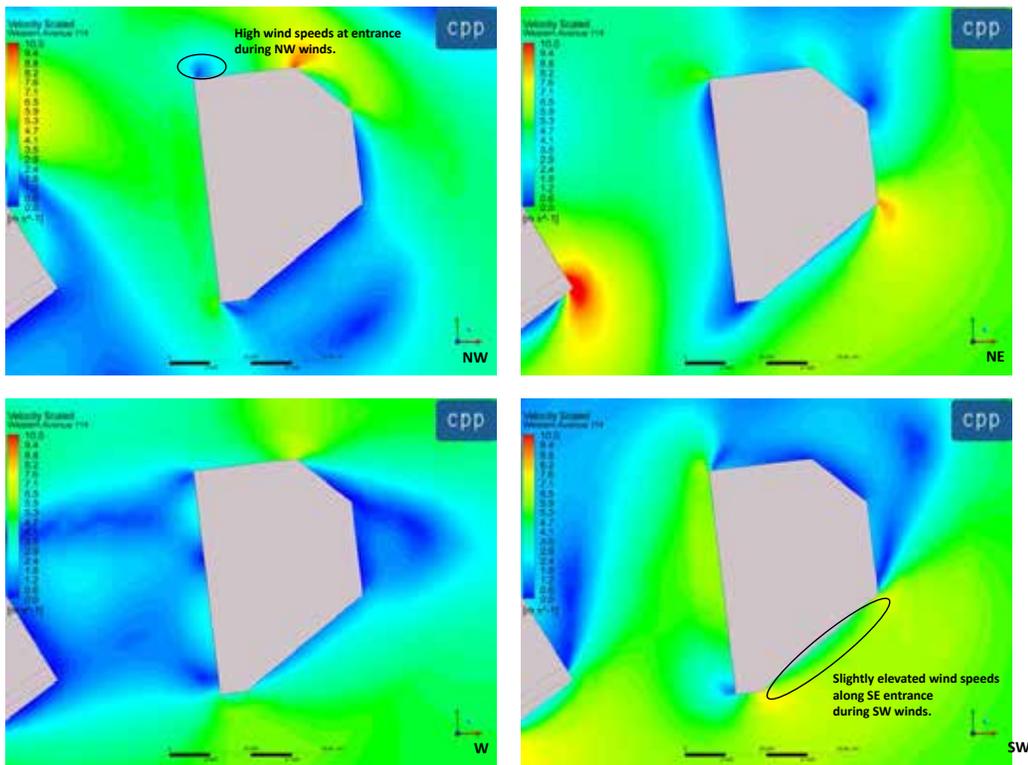


Figure 25: 114 Western Avenue Wind Analysis



3.4 Stormwater

72-Inch Drain Line

The 2013 IMP concluded that the capacity of Boston Water and Sewer Commission (BWSC) storm drainage systems serving the Allston campus and individual project sites are expected to be adequate to meet future project demands due to the planned reduction in impervious areas and the installation of green infrastructure. Over the past several years, Harvard has constructed new drainage facilities in the area, including new 12- to 36-inch drains in Western Avenue, a 72-inch drain in the roadways around the perimeter of the Science Project, and stormwater management facilities in Ray Mellone Park, including a grassed channel and leaching manhole. In addition, Harvard recently replaced and upgraded a BWSC-owned drain line that had collapsed in the area known as Rena Park. This involved installing a new 72-inch drain between North Harvard Street eastward to the SEC Building foundation.

The BWSC comment letter on the IMPNF/NPC indicates that “(t)he 72-inch drain on the (SEC) site currently connects to what is referred to as the “Shepard Brook” drain. The Shepard Brook drain was constructed by Harvard University. The drain originates near 135 Western Avenue, extends northward across the Harvard campus to Soldiers Field Road and then discharges to the Charles River at outfall 26G001.” BWSC also indicated that, “(t)he Shepard Brook drain is inadequately sized and constricts flow coming from the 72-inch (SEC) drain and the Commission’s drainage system further upstream, causing backups and flooding.”

Prior to the 2013 IMP, Harvard had proposed to redirect the stormwater flow down the south side of Western Avenue and separate it from the drainage areas north of Western Avenue that are also served by the Shepard Brook drain. The 2013 IMP identified the opportunity to align the extension of the 72-inch line within the proposed Greenway that would be developed as part of the Long-Term Vision for the IMP Area.

In 2010, Harvard’s Allston Work Team recommended that the University “(o)ver a longer-term horizon, develop an Enterprise Research Campus (ERC) in Allston Landing North, creating a gateway to a collaborative community for business, investment capital, research, and science development.” The 2013 IMP included the ERC as part of the Long-term Vision that was shown for the area between Western Avenue and Cambridge Street (i.e., “Allston Landing North”). Unlike the Ten-Year Plan, the Long-Term Vision did not include infrastructure plans.

Since the 2013 IMP was approved, the Massachusetts Department of Transportation (“MassDOT”) has proposed and planned improvements to the Allston Interchange that would significantly alter infrastructure in the area. This project creates the opportunity to approach the planning for the ERC and the resolution of the 72-inch stormwater line alignment with a comprehensive district approach, similar to efforts the BWSC had pursued in the South Boston Waterfront in coordination with the construction of the Seaport Access Road and Ted Williams Tunnel in the 1990s.

Harvard will work with the BWSC to develop a district stormwater plan for the ERC that will use the 72-inch line as the main collector for the ERC as well as serving other sections of Allston as previously considered. The plan will evaluate alternative north-south alignments, such as “Cattle Drive,” to connect the 72-inch line to an existing or potentially new outfall south of Western Avenue. Harvard will work with BWSC to coordinate the development of the district stormwater plan with the ongoing MassDOT planning of the Allston Interchange project.

Other Water, Sewer, and Stormwater Issues

The IMPNF/NPC includes an overview of the Project's water, sewer, and stormwater impacts. Additional information, including responses to comment letters from BWSC and the Charles River Watershed Association, are included in Chapter 5, Response to Comments.

3.5 Climate Resilience

As described in more detail in Chapter 2, Project Description, the IMPNF/NPC noted that studies related to climate resiliency and district energy were underway and that alternative approaches to providing energy to the SEC Building might be pursued. One of the critical studies was the location of the district energy facility which was to provide hot water for heating, chilled water for cooling, and electricity for building power for the SEC Building, as well as to serve as a distribution point for the Allston area of Harvard's campus. The architectural and mechanical/electrical review of the SEC Building revealed a number of possible points of failure given potential surge values for future storms.

The lowest point is the loading dock ramp which is at 16.5' Boston City Base (BCB) (10.04' North American Vertical Datum (NAVD) in elevation and would allow for direct flow of water from storm surge into the subsurface level of the building through various points of access. Other points of access are a few feet higher, from 19.5' BCB (13.04' NAVD) (light wells) to 20.5' BCB (14.04' NAVD) exterior stairs). The previously proposed location of the DEF facility below-grade mean that the impacts to the DEF due to any flooding into that area would be substantial not only in terms of costs of damage, but also potentially in terms of loss of use of a portion of the campus for an extended period during repair and replacement of equipment. The repair of damaged equipment or full scale replacement and installation of new equipment would be significantly complicated by a regional event of significant magnitude.

Harvard's consulting project team (led by Parson Brinkerhoff) performed a detailed resiliency analysis of the SEC Building, which, at the time of the analysis, was planned to house the DEF in the lower levels of the building. The major risk to the subsurface facility was identified to be future flooding associated with storm surge and sea level rise. Since the SEC Building is programmed to house research functions, as well as the energy supply for the future build-out of the Allston campus, the disruption associated with the loss of the energy facility in the building would impact both the critical research programs within the SEC Building and operations in other facilities the DEF would serve.

The report recommended that Harvard review alternative locations for the energy facility where critical elements would be located above future flood levels. Based on this analysis – and as is discussed in more detail in Chapter 2, Project Description - the University is proposing to construct an above grade district energy facility on a parcel of land located east of the SEC Building on the west side of the proposed "East Drive." As a newly constructed, above grade facility, the DEF will be built such that critical elements will be located above future flood levels. The elevation of the facility will be determined based on the predictive models used for this project. Based on a 1,000 year storm in 2070 or 2100, the base flood elevation for the building should be 18.56' BCB (12.1' NAVD). The design of the SEC Building will take prudent measures to protect the remaining below-grade facilities from flooding using both active and passive measures.

3.6 Security and Lighting

Street lights will line the streets surrounding the SEC Building to provide lighting for night visibility on both streets and pedestrian ways.

While there is not generally expected to be activity in the SEC Building's courtyard at night, ample lighting will be provided there and lights will remain lit through the night, and Harvard University Police Department will patrol the site.

Eleven security call boxes throughout the site are available to directly call Harvard University Police in the event of an emergency.

4.0 Community Benefits and Economic Development

4.1 Economic Development

STRATEGIES FOR ALLSTON

Harvard University is part of a coalition of community partners that are driven to improve the identity of Western Avenue and to provide a robust local business environment. The Harvard-funded Workforce and Economic Development Advisory Board was formed to develop new community-based strategies for economic development and coordination with local business partners. Harvard Business School's Innovation Lab is a collaboration and education space that has spawned exciting new business and technology ventures, and will grow Allston-Brighton's reputation as a locus for entrepreneurialism and startup development.

EDUCATIONAL AND WORKFORCE OPPORTUNITIES FOR BOSTON RESIDENTS

Harvard University offers a wide array of educational and workforce development opportunities, highlighted in detail in the 2015 Annual Report on Harvard University's Cooperation Agreements with the City of Boston. Harvard University has forged meaningful partnerships with local Boston Public Schools, opened the doors of an expanded and relocated Harvard Ed Portal, and offered workforce development programs that give Boston residents the skills to be job-ready in a 21st century economy. In addition to educational programming and mentoring for Boston students, there is a wide-ranging array of public health offerings and educational resources available through Harvard Medical School, Harvard School of Dental Medicine, the Harvard T. H. Chan School of Public Health, and Harvard Business School.

WORKFORCE NEEDS OF SEC PROJECT

The Project will include a range of occupants – mainly students, faculty, staff, and researchers. The vast majority of these building users will be relocated from the Cambridge campus. To the extent that new permanent jobs are created by the Project, this hiring will be coordinated through the Workforce and Economic Development Advisory Board mentioned above.

4.2 Community Benefits

Harvard University enjoys a valued and longtime partnership with the Allston-Brighton community and has prepared a comprehensive community benefits update. This update was summarized in the IMPNF/NPC and is available in full at: <http://community.harvard.edu/sites/default/files/BostonCooperationAgreement2015.pdf>

5.0 Responses to Comments

5.1 Comment Letters

The BRA's Scoping Determination requested that the IMP Amendment includes responses to each of the comment letters submitted during the public comment period on the IMPNF/NPC. This section includes annotated copies of the comment letters followed by responses to each of the issues raised in the letters.

Boston Redevelopment Authority

Boston's Planning & Economic
Development Office

Martin J. Walsh, *Mayor*
Timothy J. Burke, *Chairman*
Brian P. Golden, *Director*

One City Hall Square
Boston, MA 02201-1007
Tel 617-722-4300
Fax 617-248-1937

December 23, 2015

Mr. Kevin Casey
Harvard Public Affairs and Communications
Smith Campus Center, Room 1060
1350 Massachusetts Avenue
Cambridge, MA 02138

Re: Scoping Determination for proposed Harvard Institutional Master Plan Amendment, Science and Engineering Complex

Dear Mr. Casey:

Please find enclosed the Scoping Determination for the proposed Institutional Master Plan Amendment for the Harvard Science and Engineering Complex. The Scoping Determination describes information required by the Boston Redevelopment Authority in response to the Institutional Master Plan Notification Form/ Notice of Project Change, which was submitted under Article 80D of the Boston Zoning Code on November 9, 2015. Additional information may be required during the course of the review of the proposals.

If you have any questions regarding the Scoping Determination or the review process, please contact me at (617) 918-4425.

Sincerely,



Katelyn Sullivan
Senior Project Manager

CC: Brian Golden, BRA
Tad Read, BRA
Jonathan Greeley, BRA
Gerald Autler, BRA
Amy Mahler, Mayor's Office of Neighborhood Services



Equal Opportunity / Affirmative Action Employer / Equal Housing Opportunity



BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

FOR

HARVARD UNIVERSITY
INSTITUTIONAL MASTER PLAN AMENDMENT,
SCIENCE AND ENGINEERING COMPLEX

PREAMBLE

On November 9, 2015, the President and Fellows of Harvard College ("Harvard") submitted to the Boston Redevelopment Authority ("BRA") an Institutional Master Plan Notification Form ("IMPNF")/ Notice of Project Change ("NPC") for the purposes of amending the Harvard Allston Campus Institutional Master Plan ("IMP"). The IMPNF/NPC considers one project: the Science and Engineering Complex (the "Proposed Project") to be located at 114 and 140 Western Avenue in Allston. The Proposed Project was originally approved in 2007 as the Harvard Allston Science Complex. The Proposed Project will comprise of approximately 496,850 square feet and provide laboratories, classrooms, and related teaching and research facilities for Harvard's John A. Paulson School of Engineering and Applied Sciences (SEAS). In addition to creating new facilities for SEAS, the Proposed Project will include significant accessible open space, new streets, a broad range of streetscape improvements, infrastructure upgrades, and various transportation improvements including parking, transit accommodations, bike facilities, and pedestrian amenities.

The BRA will review the proposed IMP Amendment pursuant to Section 80D of the Boston Zoning Code ("Code"). As part of the BRA's Article 80 Review, Harvard is required to prepare and submit to the BRA a proposed IMP Amendment pursuant to Section 80D. The document must set forth in sufficient detail the planning framework of the institution and the cumulative impacts of the project included in the IMP Amendment to allow the BRA to make a determination about the merits of the proposed IMP Amendment. The proposed IMP Amendment shall contain the information necessary to meet the specifications of Article 80 as well as any additional information requested below.

Copies of the IMPNF/ NPC were made available to the public in both electric and hard copy format. A scoping session was held on December 1, 2015 with public agencies and community meetings were held on September 5, 2015, October 14, 2015 and December 3, 2015 at which the Proposed Project, as outlined in the IMPNF/NPC was presented. The comment deadline for the IMPNF/NPC was December 10, 2015. Comment letters are included in Appendix 1 (Comments from Elected Officials), Appendix 2 (Comments from Public Agencies) and Appendix 3 (Comments from the Public).

Based on review of the IMPNF/NPC, requests for additional data and related comments, as well as the scoping session and public meeting, the BRA hereby issues its written Scoping Determination ("Scope") pursuant to Section 80D-5.3 the Code. Harvard is requested to respond to the specific elements outlined in this Scope. Written comments constitute an integral part of the Scoping Determination and

should be responded to in the IMP Amendment or in another appropriate manner over the course of the review process. At other points during the public review of the IMP Amendment, the BRA and other City agencies may require additional information to assist in the review of the Proposed IMP Amendment.

In addition to the specific submission requirements outlined in the sections below, the following general issues should be noted:

- The City of Boston views its academic institutions as important economic and cultural assets and as valuable partners in a wide range of public policy priorities. However, while the benefits of Boston's academic institutions are felt across the city and even regionally, nationally, and globally, the negative impacts are generally limited to the immediate neighborhood. This dictates that both the BRA and academic institutions work to carefully balance the goals of vibrant institutions and healthy neighborhoods.
- The IMP mechanism is intended to help City agencies and residents assess the cumulative impacts of institutional expansion, and to facilitate a process by which those impacts can be addressed comprehensively. The BRA recognizes Harvard's efforts to support the goals of the IMP mechanism by projecting its long-term needs and proposing a multi-phase program for addressing those needs.
- An Institutional Master Plan describes an institution's entire long-range development program. The plan gives the BRA and the community a context in which to evaluate all of the institution's proposed projects and their overall effect on the neighborhood. An Institutional Master Plan may propose projects that are not allowed as-of-right by the general zoning for the area.
- In January 2011, Mayor Menino adopted new guidelines for the PILOT program as recommended by the PILOT Task Force. The new guidelines call for voluntary payments based on an institution's tax-exempt property value. Participants in the program include institutions from the educational, medical, and cultural sectors that own property valued in excess of \$15 million. Each institution is eligible for a community benefits deduction generally limited to 50% of the PILOT contribution. The new guidelines also allow a deduction for any real estate taxes paid on property owned by the institution that is used for a tax-exempt purpose.

SUBMISSION REQUIREMENTS

FOR THE

HARVARD FIRST INSTITUTIONAL MASTER PLAN AMENDMENT

The proposed IMP Amendment shall contain the information necessary to meet the specifications of Article 80 as well as any additional information requested below. The Scope requests information required by the BRA for its review of the proposed IMP Amendment in connection with the following:

1. Approval of the Harvard IMP Amendment pursuant to Article 80D and other applicable sections of the Code.
2. Recommendation to the Zoning Commission for approval of the Harvard IMP Amendment.

The Harvard IMP Amendment should be documented in a report of appropriate dimensions and in presentation materials which support the review and discussion of the IMP Amendment at public meetings. Ten (10) hard copies of the full report should be submitted to the BRA, in addition to an electronic version in .pdf format. Hard copies of the document should be available for distribution to the Harvard Task Force, community groups, and other interested parties in support of the public review process. The IMP Amendment should include a copy of this Scoping Determination. The IMP Amendment should include the following elements.

1. EXISTING PROPERTY AND USES

The IMP Amendment should present maps, tables, narratives, and site plans clearly providing the following information:

- Owned and Leased Properties. Provide an update on Harvard’s property holdings, disposition, acquisition, and major changes of use or renovation since approval of the 2013 IMP.

1

2. URBAN DESIGN

- Urban Design Guidelines and Objectives. Please refer to the comment submitted by BRA Urban Design in Appendix II.
- Open Space System and Public Realm. The 2013 IMP included an ambitious plan for a future greenway running east-west through this portion of Harvard’s Allston campus. Construction of the greenway has begun, with Ray Mellone Park complete and Rena Park to follow soon. In the 2014 Cooperation Agreement Harvard committed to “explore strategies to implement elements of the proposed Greenway...in at least an interim condition.” Harvard submitted a memorandum in 2014 with additional information on the feasibility of implementing the different segments of the greenway. However, given that that memo predated the proposal to use the area to the south of 114 Western Avenue as surface parking to support the Proposed Project—an area that corresponds with a segment of the future greenway—the BRA would like to revisit this planning process in order to explore the feasibility of identifying “implementable improvements that increase pedestrian permeability consistent with public safety concerns related to ongoing construction support and site remediation activities.” In addition, the role of this segment of the future greenway in meeting goals related to stormwater runoff and reduction of phosphorus loading to the Charles River should be part of a discussion with the BRA and other public agencies prior to submission of the IMP

2

3

- 4 Amendment. The IMP Amendment should identify alternative parking strategies and options for implementation of some facets of this segment of the greenway.

3. PROPOSED INSTITUTIONAL PROJECT

- 5 Article 80D Requirements. Pursuant to Article 80D, the IMP Amendment should provide the following information for each Proposed Project:

- Site location and approximate building footprint.
- Uses (specifying the principal subuses of each land area, building, or structure, such as classroom, laboratory, parking facility).
- Square feet of gross floor area.
- Square feet of gross floor area eliminated from existing buildings through demolition of existing facilities.
- Floor area ratio.
- Building height in stories and feet, including mechanical penthouses.
- Parking areas or facilities to be provided in connection with Proposed Projects;
- Any applicable urban renewal plans, land disposition agreements, or the like.
- Current zoning of site.
- Total project cost estimates.
- Estimated development impact payments.
- Approximate timetable for development of proposed institutional project, with the estimated month and year of construction start and construction completion for each.

- 6 Building Uses. For each Proposed Project, discuss the anticipated hours of each use, intensity of use by students, faculty, staff, and visitors, and the potential impact of these uses on pedestrian and student activity in the area around the site and more generally in the neighborhoods surrounding the Proposed Projects.

4. TRANSPORTATION AND PARKING MANAGEMENT / MITIGATION PLAN

In addition to the submissions detailed in this Scope, Harvard should set up a meeting with BTM to discuss IMP Amendment submission requirements and requested analysis.

- 7 Existing Conditions. Provide any updates of Harvard's existing transportation and parking policies and impacts resulting from the Proposed Project. In particular, the IMP Amendment should describe anticipated parking demand and supply following full buildout of the Science and Engineering Complex site (i.e. second phase) and replacement of the surface parking to the south of 114 Western Avenue with the greenway.

- 8 Western Avenue Cycle Track. Harvard should meet with the BRA and BTM to explore the feasibility of improving the cycle track on Western Avenue to accommodate travel in both directions, as well as other potential improvements to the area's bicycle infrastructure. The BRA appreciates Harvard's ongoing commitment to bicycles as an important component of the area's current and future mobility system.

5. CLIMATE RESILIENCE

Given the significant work currently underway to address Boston’s climate change vulnerabilities, and the specific vulnerability of the Proposed Project to inland flooding and storm surges, the BRA will convene a meeting with Harvard and relevant parties involved in climate resilience work to determine any additional analysis or action that should be undertaken in conjunction with the Proposed Project.

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6. ECONOMIC DEVELOPMENT

- **Workforce Development.** The BRA looks forward to working with Harvard to support the City’s employment and workforce development goals. This IMP Amendment provides an opportunity for further discussion of measures to enhance educational opportunities for Boston residents and prepare Boston residents and students for employment. The IMP Amendment should provide the information described in the “Job Training Analysis” component of Section 80D-3 of the Boston Zoning Code, with reference to the anticipated future employment of the Proposed Project.
- **Economic Development Goals and Strategies.** The City of Boston views its academic institutions as tremendous assets and as valuable partners in economic development. Harvard’s ongoing evolution will provide additional opportunities for cooperation with the City on key economic development goals. The City looks forward to working with Harvard in the future to explore ways that Harvard’s positive economic impacts can be increased.

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7. COMMUNITY BENEFITS PLAN

- **Existing Community Benefits.** The IMP Amendment should discuss community benefits currently provided by Harvard, with reference to the community benefits updates submitted regularly to the BRA.

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8. OTHER

- **Public Notice.** Harvard will be responsible for preparing and publishing in one or more newspapers of general circulation in the City of Boston a Public Notice of the submission of the IMP Amendment to the BRA as required by Section 80A-2. This Notice shall be published within five (5) days after the receipt of the IMP Amendment by the BRA. In accordance with Article 80, public comments on the IMP Amendment shall be transmitted to the BRA within sixty (60) days of the publication of this notice. A sample form of the Public Notice is attached as Appendix 3. Following publication of the Public Notice, Harvard shall submit to the BRA a copy of the published Notice together with the date of publication.
- **Response to Comments.** Harvard is required to include a “Response to Comments” section in the IMP Amendment.

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----- Forwarded message -----

From: **Amy Mahler** <amy.mahler@boston.gov>

Date: Thu, Dec 10, 2015 at 4:20 PM

Subject: Re: REMINDER: Harvard Science and Engineering Complex IMPNF/NPC comment deadline

To: Katelyn Sullivan <katelyn.sullivan@boston.gov>

Hi Katelyn,

15

Regarding the Science and Engineering building, I am fine with the proposal but just want to voice community concerns regarding insufficient bike racks and tracks and a strong desire for

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security and lighting. The neighborhood wants this area to be a safe and secure part of the Lower Allston community and I certainly support that.

Best,

Amy Mahler

Allston & Brighton Neighborhood Coordinator

Mayor's Office of Neighborhood Services

Boston City Hall, Rm. 805

Boston, MA 02201

[617-635-2678](tel:617-635-2678)

For all constituent service issues please call Boston 311.

MEMORANDUM

TO: Katelyn Sullivan, Project Manager
FROM: David Grissino, Senior Architect/Urban Designer
DATE: December 10, 2015
SUBJECT: Harvard University Allston Campus
Science and Engineering Complex
Institutional Master Plan Notification Form and Notice of Project Change

URBAN DESIGN COMMENTS

Background

In November 2015, Harvard University submitted an Institutional Master Plan Notification Form and Notice of Project Change (IMP/NF/NPC) for the Science and Engineering Complex located on Western Avenue. The project was originally proposed and permitted in 2007 as the Harvard Allston Science Complex.

After a lengthy delay, we are excited that redevelopment of the site is moving forward and offer the following urban design comments. In response to these comments, supplemental information should be submitted in order to provide enough information to evaluate the projects as proposed. Details of submission requirements are outlined in this memorandum.

Institutional Master Plan and Building Design

Campus organization and relationship to the surrounding community

The IMP/NF/NPC recognizes that, due to the changes in the neighborhood since 2007, the project can be seen "...in the context of future development and institutional activities rather than as a stand-alone project". Additional diagrams should therefore be provided which describe the relationship between the development of this site and the areas immediately adjacent to it.

A site plan which extends to Barry's Corner to the west and the iLab to the east should be submitted which shows the major points of entry to existing and proposed projects, including the recently proposed "Wet iLab". The interim conditions on the old Charlesview site should be included in this plan.

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With the recent opening of 28 Travis Street, a new access point was created along Western Avenue to provide staff and visitor vehicular access to the building. Service vehicles were directed to use Rotterdam Street to access the loading and service bays and signage was created to guide vehicles to the right locations. A detailed site plan which clearly describes how the two sites will operate and a strategy for directional signage along both Western

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Avenue and Rotterdam Street should be submitted.

19 Currently, planning is underway for the creation of Rena Park and the provision of enhanced pedestrian and bike facilities between North Cambridge Street, Western Avenue, and the Charles River via the “greenway” described in Harvard’s Institutional Master Plan. A detailed site plan should outline the location and scale of pedestrian and bicycle accommodations along Science Drive, Rotterdam Street, and Stadium Way, as well as describe the connection to Rena Park and points west of the site.

20 The parking area located to the south of 114 Western Avenue sits on land reserved for the greenway. Narrative must be submitted which describes the strategy for addressing the parking needs for the project once the parking area has been removed with the construction of the greenway and the full build-out of the science site.

On November 20, 2015, Harvard submitted a 25 percent design status report for Stadium Way. Given the concurrent planning studies as part of the I-90 Allston Interchange project administered by MassDOT, additional study of the roadway will be necessary as the project advances into Design Development.

Architectural Design

The massing and design of the building’s exterior will be an exciting addition to Western Avenue and assist in the continue transformation of the street from a vehicular oriented environment to one which is focused on the pedestrian experience. In order to fulfill its potential, the lower floors should remain transparent as the design progresses and the ground floor uses should remain as accessible as possible, both directly and visually.

The exterior façade is a complex system of screening elements which are critical to the energy performance of the building. They also will provide the most distinct and recognizable feature of the building when seen from Western Avenue and other point throughout the area. The cladding system provides a scaling element and adds visual interest which breaks up the mass of the building. Any modification to this system during design development must be submitted for review and it is recommended that the project formally submit documents for Design Development Review as outlined in the BRA Development Review Guidelines.

BRA MEMORANDUM

TO: Katelyn Sullivan

FROM: Katie Pedersen

DATE: December 14, 2015

RE: Science and Engineering Complex (SEC)
Harvard's John A. Paulson School of Engineering and Applied Sciences
(SEAS)
Institutional Master Plan Notification Form/Notice of Project Change

I have reviewed the Institutional Master Plan Notification Form/Notice of Project Change (the "IMP/NF/NPC") for the First Amendment to Harvard University's Campus in Allston, dated November 2015 and submit the following comments for the Environmental Protection component. The President and Fellows of Harvard College ("Harvard" or "Harvard University"), through the Office of Executive Vice President (the "Proponent") are proposing the construction of a 496,850 square foot (sf) Science and Engineering Complex, the renovation and reuse of the existing 114 Western Avenue (27,500 sf of office/other institutional uses), 275 total parking spaces (178 existing surface and 97 new surface) to be located in North Allston on the southerly side of Western Avenue, east of the intersection of Western Avenue and North Harvard Street, and east of Travis Street (the "Proposed Project").

Wind

The Proponent has stated that an initial review of the pedestrian level wind impacts was conducted in and around the Proposed Project site, in particular analyzing the potential impacts of the construction of the Science and Engineering Complex. The Proponent further stated that as the Proposed Project design advances, the Proposed Project team will conduct a quantitative (wind tunnel) analysis.

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The wind tunnel analysis shall be conducted for both the existing (no-build) as well as the build conditions. In addition, the analysis shall include all public and other areas of pedestrian use, including entrances to adjacent buildings, sidewalks, and pedestrian walkways adjacent to and in the vicinity of the Proposed Project buildings as well as existing and proposed open spaces in the vicinity of the Proposed Project.

Shadow

The Proponent conducted a shadow analysis for both existing and build conditions for the hours of 9:00 a.m., 12:00 noon, 3:00 p.m. for the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21) and 6:00 p.m. in the summer and the fall and included the results in the IMP/NF/NPC.

The shadow impact analysis included net new shadow as well as existing shadow and illustrated the anticipated incremental impact of the Proposed Project buildings and focused on open spaces and major pedestrian areas in the vicinity of the Proposed Project site.

The Proponent stated that the Proposed Project is anticipated to create new shadow, however, the Proposed Project design includes building setbacks which the Proponent has stated will limit the new shadow, primarily to the areas immediately surrounding the Proposed Project site and in particular Western Avenue. The Proponent further stated that the Proposed Project is anticipated to have a limited shadow impact on the central courtyard and no new shadow will be cast onto nearby public spaces or residential buildings. Accordingly, no further study is required.

Daylight

(Please refer to Urban Design's comments)

Solar Glare

The Proponent has stated that the Proposed Project design is not anticipated to include significant areas reflective glass or other reflective materials. However, should the Proposed Project design change and incorporate substantial glass-facades (reflective glass), a solar glare analysis shall be required. The analysis shall measure potential reflective glare from the buildings onto potentially affected streets and public open spaces and sidewalk areas in order to determine the likelihood of visual impairment or discomfort due to reflective spot glare. Mitigation measures to eliminate any adverse reflective glare shall be identified.

Air Quality

The Proponent stated that an air quality analysis was conducted, so as to determine the anticipated impact of pollutant emissions from mobile sources anticipated to be generated by the Proposed Project. In particular, a microscale analysis was performed to evaluate the potential air quality impacts of carbon monoxide (CO) resulting from traffic flow in and around the Proposed Project. The Proponent further stated that any new stationary sources will be reviewed by the Massachusetts Department of Environmental Protection (MassDEP) during permitting under the Environmental Results Program (ERP).

The results of the microscale analysis demonstrate that all predicted CO concentrations will fall below the one-hour and eight-hour National Ambient Air Quality Standards (NAAQS). As a result, the Proponent has demonstrated that the Proposed Project is not anticipated to have adverse air quality impacts, resulting from increased traffic in the Proposed Project area.

Noise

The Proponent stated that a noise analysis was conducted to evaluate the noise impacts likely to be created by the Proposed Project. The Proponent further stated that the analysis included both existing noise levels at the Proposed Project site as well as future noise levels (which included the mechanical equipment).

The results of the noise analysis demonstrate that the Proposed Project is designed to be in compliance with the sound level limits set by the Massachusetts DEP Noise Policy, City of Boston Noise Regulations, and HUD's Residential Site Acceptability Standards.

No further study shall be required however, should the Proposed Project design change, the Proponent shall be required to demonstrate conformance with all applicable Federal, State and City rules and regulations.

Sustainable Design/Green Buildings

(Please see the Interagency Green Building Committee (IGBC) Article 37 Comment Letter)

**Boston Water and
Sewer Commission**



980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

December 8, 2015

Ms. Katelyn Sullivan
Project Manager
Boston Redevelopment Authority
Boston City Hall
One City Hall Square
Boston, MA 02201

Re: Harvard University-Science and Engineering Complex
Institutional Master Plan Notification Form/Notice of Project Change

Dear Ms. Sullivan:

The Boston Water and Sewer Commission (Commission) has reviewed the Institutional Master Plan Notification Form (IMPNF) and the Notice of Project Change (NPC) for Harvard University's proposed Science and Engineering Complex (SEC, the Project). The SEC was originally permitted and approved in 2007 as the Harvard Allston Science Complex. The Project site is located in North Allston on the southerly side of Western Avenue, east of the intersection of Western Avenue and North Harvard Street, and east of Travis Street.

The Project will provide laboratories, classroom, and related teaching and research facilities for Harvard's John A. Paulson School of Engineering and Applied Sciences (SEAS). In addition to creating new facilities for SEAS, the SEC will include open space, new streets, a range of streetscape improvements, infrastructure upgrades, and various transportation improvements including parking, transit accommodations, bike facilities, and pedestrian amenities. The SEC will comprise approximately 496,850 square feet, including the renovation and re-use of the existing 114 Western Avenue building and will be surrounded by approximately 70,000 square feet of green space.

The primary changes to the 2007 Science Project include:

- The primary building occupant will be the John A. Paulson School of Engineering and Applied Science rather than the Harvard Stem Cell Institute.
- The existing Harvard-owned building at 114 Western Avenue has been added to the Project site. The building will be renovated and used for administrative space for SEAS.
- The building program on the existing building foundation has been reduced from 589,000 square feet (SF) to 445,350 SF and the overall Project square footage has been reduced from 589,000 square feet to 496,850 SF.
- The Project will consist of a single building on the northern portion of the site rather than four separate but connected buildings. The southern portion of the site is being preserved for future as yet to be determined institutional development and will be landscaped in the interim.
- The western edge of the site -- referred to as "Academic Way" -- will be a street running between Western Avenue and "Science Drive" rather than a pedestrian path.

- “Science Drive” will connect Rotterdam Street with “Academic Way” rather than end with a turn-around on its western edge.
- Parking will be located in two surface lots – the existing lot that serves the building at 114 Western Avenue and a new lot to be constructed south of Rotterdam Street – rather than in the basement of the building.

The Project site is served by separate sewers and storm drains owned by the Commission. The Project is expected to generate an estimated 59,500 gallons per day (gpd) of sewage. Water demand for the Project is estimated at 65,450 gpd.

Several times since 2007, University and Commission representatives met to discuss plans for the Science Complex Project and the University’s short and long-term expansion plans. In the course of the discussions the University agreed to construct a new storm drain to convey flows from the Commission’s drain system upstream of the Science Complex site to a new 72-inch drain the University had constructed on the Science Complex site. Construction of this new drain was completed by Harvard this past summer.

The 72-inch drain on the Science Complex site currently connects to what is referred to as the “Shepard Brook” drain. The Shepard Brook drain was constructed by Harvard University. The drain originates near 135 Western Avenue, extends northward across the Harvard campus to Soldiers Field Road and then discharges to the Charles River at outfall 26G001.

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The Shepard Brook drain is inadequately sized and constricts flow coming from the 72-inch Science Complex drain and the Commission’s drainage system further upstream, causing backups and flooding. To relieve the flooding, as part of its campus expansion plan agreement with the Commission, the University agreed to design and install a new storm drain on Western Avenue. Once installed, the University would disconnect the Science Complex drain from the Shepard Brook drain and re-direct it to the newly installed Western Avenue drain. This work has yet to commence.

In recent discussions with the Commission the University indicated that, in light of the proposed I-90 Interchange re-configuration project, it is currently evaluating different alternatives to a new Western Avenue drain. Construction of a new drain on Western Avenue, or an alternative thereto, is necessary to prevent the upstream neighborhood of Allston from being damaged by flooding. Harvard University will be required to address this issue before the Commission will approve any future large-scale development projects by the University.

The Commission submits the following additional comments regarding the proposed Science and Engineering Complex:

General

1. The Proponent must submit a site plan and General Service Application to the Commission for the proposed Project. The site plan must show the location of the private and public (BWSC, MWRA and DCR) facilities (water, sewer, drain pipes) serving the Project site, as well as the locations of existing and proposed service connections. To assure compliance with the Commission’s requirements the Proponent should submit the site plan and General Service Application to the Commission’s Engineering Customer Service Department for review when the design for the Project is at 50 percent complete.
2. With the site plan the Proponent must provide detailed and updated estimates for water demand, wastewater generation and stormwater runoff for Project. It is the Proponent’s responsibility to

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evaluate the capacity of the water, sewer and storm drain systems serving the Project site to determine if the systems are adequate to meet future Project demands. With the site plan the Proponent must include a detailed capacity analysis for the water, sewer and storm drain systems serving the Project site, as well as an analysis of the impact the Project will have on the Commission's and the MWRA's sewer and storm drainage systems overall. The analysis should identify specific measures that will be implemented to offset the impacts of the anticipated flows on the Commission and MWRA sewer systems.

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3. Any new or relocated water mains, sewers and storm drains must be designed and constructed at the Proponent's expense. They must be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use Regulations, and Requirements for Site Plans.

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4. Developers of projects involving disturbances of land of one acre or more are required to obtain an NPDES General Permit for Construction from the Environmental Protection Agency (EPA). The Proponent is responsible for determining if such a permit is required and for obtaining the permit. If such a permit is required for the Project, a copy of the Notice of Intent and any pollution prevention plan submitted to EPA pursuant to the permit must be provided to the Commission's Engineering Services Department prior to the commencement of construction.

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5. The design of the Project must comply with the City of Boston's Complete Streets Initiative, which requires incorporation of "green infrastructure" into street designs. Green infrastructure includes greenscapes, such as trees, shrubs, grasses and other landscape plantings, as well as rain gardens and vegetative swales, infiltration basins, and paving materials and permeable surfaces. The proponent must develop a maintenance plan for the proposed green infrastructure. For more information on the Complete Streets Initiative see the City's website at <http://bostoncompletestreets.org/>

Sewage/Drainage

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6. In accordance with the Commission's Sewer use Regulations grease traps will be required in any food service facility included in the Project. The Proponent is advised to consult with the Commission's Operations Department with regards to grease traps.

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7. The Department of Environmental Protection (DEP), in cooperation with the MWRA and its member communities, are implementing a coordinated approach to flow control in the MWRA regional wastewater system, particularly the removal of extraneous clean water (e.g., infiltration/ inflow (I/I)) in the system. In this regard, DEP has been routinely requiring proponents proposing to add significant new wastewater flow to assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Currently, DEP is typically using a minimum 4:1 ratio for I/I removal to new wastewater flow added. The Commission supports the DEP/MWRA policy, and will require the Proponent to develop a consistent inflow reduction plan. The 4:1 reduction should be addressed at least 90 days prior to activation of water service.

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8. A Total Maximum Daily Load (TMDL) for Nutrients has been established for the Lower Charles River Watershed by the DEP. In order to achieve the reductions in phosphorus loadings required by the TMDL phosphorus concentrations in stormwater discharges to the lower Charles River from Boston must be reduced by 64%. To accomplish the necessary reductions in phosphorus, the Commission is requiring developers of projects in the lower Charles River watershed to infiltrate all stormwater discharging from impervious areas. The Proponent must fully investigate methods for

9. infiltrating all stormwater on-site before the Commission will consider a request to discharge stormwater to the drainage system. The feasibility assessment must be submitted with the site plan for the Project. In addition, the Proponent will be required to submit with the site plan a phosphorus reduction plan for the Project.
10. The site plan must show in detail how drainage from the building roof and from other impervious areas will be managed. Roof runoff and other stormwater runoff must be conveyed separately from sanitary waste at all times. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer. 31
11. DEP has established Performance Standards for Stormwater Management. The Standards address stormwater quality, quantity and recharge. In addition to Commission standards, the proposed Project will be required to meet DEP's Stormwater Management Standards. 32
12. In conjunction the site plan and General Service Application the Proponent will be required to submit a Stormwater Pollution Prevention Plan. The plan must: 33
- Specifically identify how the Project will comply with the DEP's Performance Standards for Stormwater Management both during construction and after construction is complete.
 - Identify specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater or construction debris to the Commission's drainage system when construction is underway.
 - Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control or treatment structures to be utilized during construction.
13. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission and the MWRA. The discharge of any dewatering drainage to the storm drainage system, including those collected via a permanent underdrain system, requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products for example, the Proponent will be required to obtain a Remediation General Permit from the EPA for the discharge. 34
14. The Commission requests that the Proponent install a permanent casting stating: "Don't Dump: Drains to Charles River next to any new catch basin installed as part of the Project. The Proponent may contact the Commission's Operations Division for information regarding the purchase of the castings. 35
15. The Commission encourages the Proponent to explore additional opportunities for protecting stormwater quality by minimizing sanding and the use of deicing chemicals, pesticides and fertilizers. 36
- Water**
16. The Proponent is required to obtain a Hydrant Permit for use of any hydrant during construction of the Project. The water used from the hydrant must be metered. The Proponent should contact the Commission's Operations Department for information on obtaining a Hydrant Permit. 37

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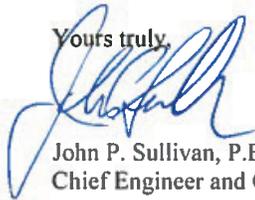
17. The Commission utilizes a Fixed Radio Meter Reading System to obtain water meter readings. Where a new water meter is needed the Commission will provide a Meter Transmitter Unit (MTU) and connect the device to the meter. For information regarding the installation of MTUs the Proponent should contact the Commission's Meter Installation Department.

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18. The Proponent should explore opportunities for implementing water conservation measures in addition to those required by the State Plumbing Code. In particular the Proponent should consider indoor and outdoor landscaping which requires minimal use of water to maintain. If the Proponent plans to install in-ground sprinkler systems the Commission recommends that timers, soil moisture indicators and rainfall sensors be installed. The use of sensor-operated faucets and toilets in common areas of buildings should also be considered.

Thank you for the opportunity to comment on this Project.

Yours truly,



John P. Sullivan, P.E.
Chief Engineer and Operations Officer

JPS/as

C: Katherine Lapp, Executive Vice President, Harvard University
Maura Zlody, Boston Environment Department
Phil Larocque, Boston Water and Sewer Commission



Gerald Autler
Senior Project Manager/Planner
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

RE: Harvard Allston Science Complex Plan Notification Form (IMP/NF) and Notice of Project change (NPC)

Dear Mr. Autler:

Charles River Watershed Association (CRWA) has reviewed the IMP/NF and NPC filed by Harvard University (proponent) and submits the following comments to help the BRA with the ongoing review process. CRWA is concerned about the lack of a comprehensive framework for analyzing the cumulative impacts of the various projects already underway or in the pipeline, both within and outside the purview of the IMP. In particular, at a minimum, the proponent should coordinate the building of the Science complex with DOT's I-90 reconstruction (2018-2024) and the Hotel & Conference center (2020-2024) so as not to foreclose regional strategies to help meet state and local water quality standards and enhance Allston's resiliency to climate change impacts.

Greenway and open space connections to the Charles River

Harvard's science complex PNF continues a poor tradition of a fragmented review process that undermines the very purpose of developing an IMP for Harvard's expansion into Allston. In particular, Harvard's approach to planning the greenway has been very disjointed. Instead of emphasizing the hydrological links between the greenway, green streets and a riverfront park, the planning for the "wet weather corridor" proposed in the long-term plan seems to be piecemeal and inadequate. Therefore, CRWA recommends that planning and design for the greenway be moved to a fast track from the current 10-year horizon to a shorter 2-5 year horizon. In fact, there may be opportunities to implement sections of the greenway in tandem with the I-90 project as Academic and Stadium Way are constructed in the next five years.

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CRWA would like to remind the proponent that the greenway is essential not only for providing public access through the campus, but also for improving the health of the Charles River. The greenway is an essential part of stormwater management and flood resiliency for the entire sub-watershed. It is, therefore, frustrating to note that a temporary parking lot is being planned

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for a section of the greenway which, for the short term, defeats the purpose of having an open space connection from the science complex courtyard to the river. Secondly, the parking lot precludes the opportunity to use a section of the planned greenway for managing stormwater from the entire science complex as a regional strategy. CRWA suggests that the proponent reconsider the placement of the parking lot and rethink how the courtyard space for the science site can better integrate with the rest of the greenway from a stormwater treatment and flood resilience standpoint.

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The IMP should provide more details and specific commitments for achieving the proponent’s stated goals¹ of creating continuous open space corridors through the campus for pedestrian, habitat and water connections to the Charles River and its parklands. If there are some constraints (such as CSX remediation) that prevent realization of the long-term vision, then the proponent should delineate the nature of the constraints and explicitly state the intended timeline for those improvements. We note that access to the river and parkland is highly desirable to the community and has been identified as high priority needs in various park and regional master plans.

Stormwater Management

Due to the location, size, and imperviousness of the project site, stormwater management is a key concern for CRWA. Polluted stormwater runoff is the leading cause of water quality impairments in the Charles River, which is impaired for chlorophyll-a, *Escherichia coli*, nutrient/eutrophication biological indicators, dissolved oxygen, and phosphorus (total), among other impairments. As recognized by the proponent, the project area drains directly to the reach of the Charles River that is subject to the Lower Charles River Nutrient Total Maximum Daily Load (TMDL) and the Bacteria TMDL². The nutrient TMDL requires a 65% reduction in phosphorus loading from the project site. While CRWA appreciates that the proponent agrees to comply with MassDEP stormwater standards, the NPC lacks a comprehensive discussion of drainage or runoff calculations for the entire project area and provides no indication regarding its compliance with the TMDL requirements.

¹ In the IMPNF, the greenway is characterized as a “long-term initiative” and “concept,” despite Harvard’s acknowledgment of it “as an organizing element . . . [that] could provide opportunities for a new type of campus landscape and new civic ecology.” Harvard also recognizes that in addition to “serving as a recreation and open space corridor, it should be an integral working landscape for stormwater management.”

² Total Maximum Daily Load for Nutrients in the Lower Charles River, Massachusetts (DEP 2007); Total Maximum Daily Load for Bacteria in the Lower Charles River, Massachusetts (DEP 2007)



The proponent should incorporate regional green infrastructure strategies within the public realm (neighborhood streets and open spaces) to treat stormwater runoff in the IMP area. The existing site is over 80% impervious, and, though the proponent will evaluate low-impact development (LID) techniques, they should demonstrate how these strategies will help with TMDL compliance. While the project broadly complements the series of open spaces and green corridors proposed as a part of the long-term framework by providing a large, publicly-accessible landscaped area, there seems to be a complete lack of coordination with the design of the surrounding open spaces with respect to the stormwater management strategy. Most importantly, the project doesn't utilize its proximity to the greenway as an opportunity to design a stormwater management system at the sub-watershed level.

A comprehensive stormwater management plan is therefore needed for the SEAS site to manage the runoff from building roofs as well as the surrounding areas by incorporating strategies for retention, treatment and infiltration or reuse of stormwater. The proposed reuse of harvested rainwater for indoor use is a good water resource management measure. However, strategies for treatment of runoff from the rooftop (apart from the garage roof) and open areas have not been specified and explained in the stormwater management section of the NPC. There is no information whatsoever about the quantitative analysis of the storm water discharge with respect to phosphorous reduction and infiltration. The stormwater management plan should be designed to meet the 1 inch infiltration and 65% phosphorous reduction standards set by BWSC. The landscape plan for the courtyard should include details regarding the sizing of swales, rain gardens, infiltration basins, etc. to retain, treat and infiltrate the runoff from the surrounding drainage areas. The choice of BMPs should be made based on the catchment drainage area, soil type and groundwater levels in the area.

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We commend the proponent's desire to achieve LEED V4 credits through the reuse of rainwater within the building using "fiberglass rainwater reuse tanks." The proponent has an ambitious target of designing a LID system that "collects and recharges up to the 100-year storm event."³ BWSC's current 10-year/24-hour design storm is 5.20 inches, while their 2035 climate change scenario of the 100-year/24 design storm is 9.3 inches.⁴ The proponent should work with BWSC to determine the 100-year design storm as it will help in sizing BMPs throughout the project area.

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³ PNF, p.94

⁴ BWSC Climate Change Risk Assessment, Findings and Mitigation/Adaptation Strategies for Wastewater and Storm Drainage, Charlie Jewell, NEWEA 2015 <http://www.newea.org/wp-content/uploads/2015/05/AC15_Session30_CJewell.pdf>



“Green Street” opportunities

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As stated in the NPC, reconstruction of Academic Way and other peripheral roads within the site is a part of the project. However, the document lacks any details showing the redesign of the peripheral streets, Academic Way or Stadium Way, through sections and plans. Since Stadium Way and East Drive are brand new streets that will likely be constructed by MassDOT in tandem with the I-90 project, the proponent should ensure that they fully incorporate the “greenscape” elements of Boston’s Complete Street Guidelines. In addition, green infrastructure retrofits should also be installed on existing streets that connect Western Avenue and Cambridge Street. CRWA would be happy to discuss appropriate stormwater BMPs and LID opportunities with the proponent and help integrate green infrastructure into the street right-of-way. Retrofit designs for Rena Street, Western Avenue and North Harvard Street, among others should not only achieve the targets for enhanced treatment under Boston’s Complete Streets Guidelines, but also serve as a model for other streetscape improvements in the neighborhood.

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Climate change and flood resiliency

As shown in Fig.1 in Appendix A, the project is located in an extremely flood-prone area⁵. Historically, sections of the IMP site both north and south of Western Avenue were low-lying tidal marshlands that were filled in to support development. In order to become resilient to flooding, the proponent should not only document the alteration of historic site hydrology, but also try and restore it through the establishment of a greenway and green infrastructure retrofits (bioswales, infiltration basins, etc). As a first step, the proponent should coordinate with the MassDOT team that is using the Boston Harbor ADCIRC model to pinpoint flooding vulnerabilities due to sea-level rise, storm surges and inland flooding from increased precipitation in the I-90 project area. Preliminary MassDOT results suggest that areas adjacent to the river between the Western Avenue and River Street bridges are at a high risk of flooding, especially after 2030. Moreover, because of high imperviousness and poor drainage, this section of Allston already experiences frequent localized inland flooding, especially after intense precipitation events such as Nor’easter storms (1-2 events/year). Inland flooding risks are also intensified as the stormwater and sewage conveyance systems are overwhelmed under intense storm events, and these risks should be carefully identified and mitigated in the EIR.

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As MassDOT’s turnpike realignment design evolves, an opportunity exists to move Soldier’s Field Road away from the river and create significant new parkland--an “Allston Esplanade.” A

⁵ Flood maps from City of Cambridge of the Mean High High Water +5’ projected to occur by mid- to late-century (equivalent to flooding from Hurricane Sandy if it hit Boston during high tide)



multi-functional esplanade (i.e. riverfront park) that not only cleanses stormwater and provides storage for flood waters, but also provides opportunities for the public's enjoyment and environmental stewardship of the Charles River, should be considered in the proponent's IMP. The Allston Esplanade would tie the greenway to the extended river parkland and would connect the two systems hydrologically in addition to providing a visual and physical link for public access.

Please feel free to contact me should you have any questions at (781) 788-0007 ext. 232.

Sincerely,

Pallavi Mande,

Director of Blue Cities, CRWA

Apratim Sahay,

Blue Cities Intern, CRWA



CRWA

Saving the Charles River since 1965

ATTACHMENT A

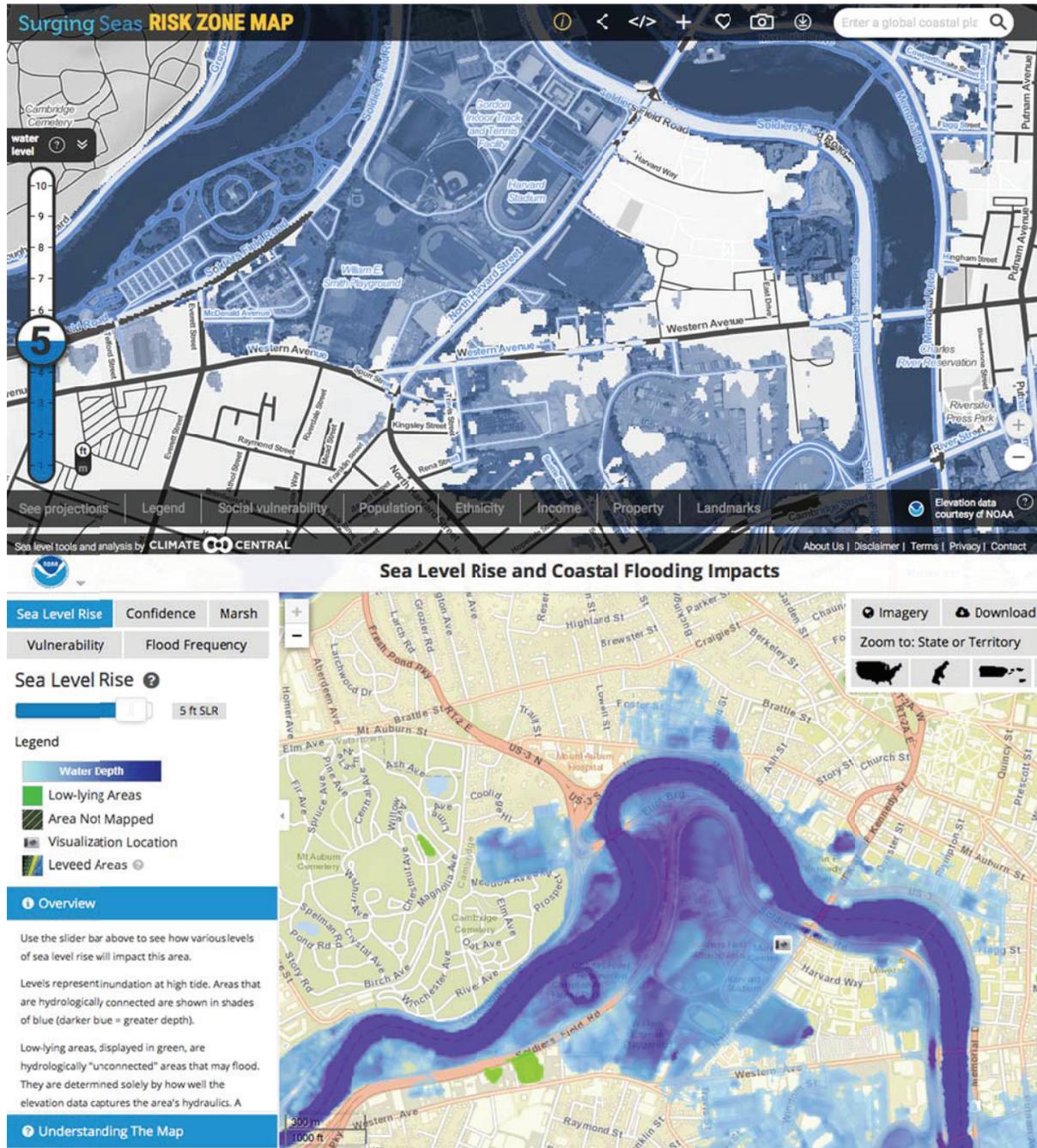


Fig 1.1 and 1.2 : (upper panel) Flood map from City of Cambridge of the combined effects of a storm surge, inland flooding and sea level rise resulting in a Mean High High Water +5' flood. Such a flood is projected to occur by mid- to late-century, with a 25% probability of occurring before 2040 (equivalent to flooding from Hurricane Sandy if it hit Boston during high tide).

As shown in Fig.1.3, a concept sketch developed by CRWA in 2007 as part of its master plan recommendations to Harvard, the greenway connecting the Honan Library to the river is essential not only for providing improved public access through the campus but also for improving the health of the river. Given the flooding that occurs in the neighborhood, following even minor rain events and poor water quality in this section of the Charles, the greenway is an effective strategy for incorporating resiliency through regional scale green infrastructure.

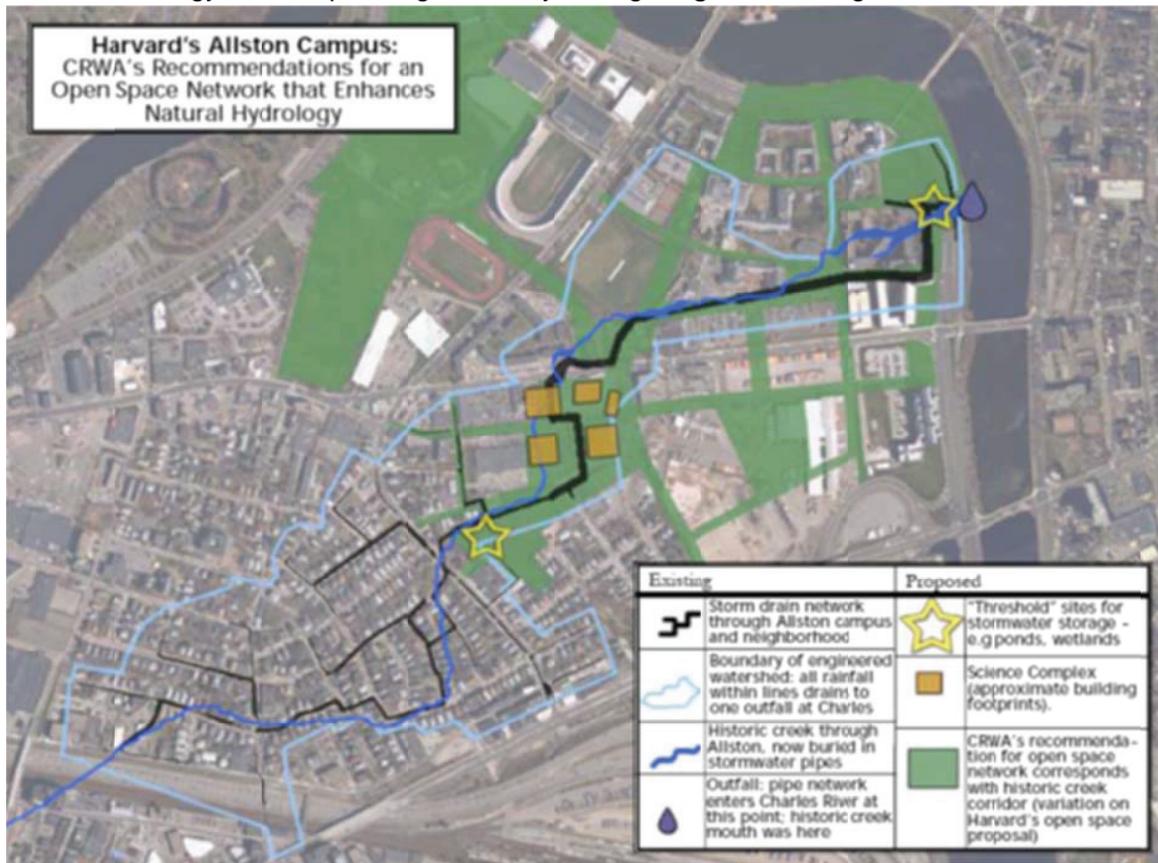


Fig 1.3 CRWA's concept sketch (from 2007) for a Greenway connection from the residential neighborhood to the Charles River along a historic stream corridor overlaid with existing storm drain network underground.

December 10, 2015

Mr. Gerald Autler, gerald.autler@boston.gov
Senior Project Manager
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201-1007

Subject: Harvard Science & Engineering Complex

Dear Mr. Autler:

Please accept the following comments on the November 2015 Notice of Project Change for the Harvard Science and Engineering Complex (SEC) on Western Ave in Allston.

We are pleased that Harvard is relying heavily on bicycle travel for faculty, staff, graduate students, and undergraduate students to travel to the SEC. Harvard's Notice of Project Change states that:

"As many as 390 faculty, staff, graduate students and researchers will commute by bicycle to the SEC on a daily basis. An additional 90-100 undergraduates (approximately 15 percent of the daily population) may also bike to the SEC on a daily basis."

For the safety of these Harvard affiliates, as well as members of the general public, we ask that Harvard collaborate with BTDC and provide funding for:

1. Creation of protected cycletracks:
 - a. On both sides of Western Ave, from North Harvard Street to Soldiers Field Road at the Western Ave Bridge (3,100 feet); and
 - b. On both sides of North Harvard Street, from Western Ave to Soldiers Field Road at the Anderson Bridge (2,400 feet).
2. A protected intersection at the intersection of Western Ave and North Harvard Street.

Harvard owns almost every property on both sides of these segments of North Harvard Street and Western Ave which should make it possible to provide both protected cycletracks and generous sidewalks.

[Case studies from across the country](#) have shown that installing cycletracks substantially increase bike ridership over prior road conditions. Fully protected and separated bike facilities will not only improve these streets for cyclists; they will help Harvard achieve its goal of increasing bike ridership as a mode of travel to the SEC.

We recommend that these improvements be implemented as early in 2016 as possible.

Sincerely,

Harry Mattison, Allston resident
John Eskew, Allston resident and bike commuter
Paola M. Ferrer, Allston resident
Griffin Monahan, bike commuter
Barbara Jacobson, Programs Director, Massachusetts Bicycle Coalition
Rich Parr, Allston resident and bike commuter
Lauren Mattison, Brighton resident
Steve Jamison, former Lower Allston resident, bike commuter
Andreae Downs, chair, Newton's Transportation Advisory Group
Alicia Bowman, Newton's Transportation Advisory Group



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Rachel Hock, Allston resident and pedestrian
 Sasha Albert, Brighton resident, bike commuter
 Allegra Stout, Allston resident and bike commuter
 Jasmine Guinta, Brighton resident and bike commuter
 Liam Sullivan, bike commuter and Harvard Business School employee
 Dimitri Kountourogianni, Somerville resident, Harvard affiliate, and bike commuter
 Kenzie Bok, Boston resident and Harvard student & alumna
 Susan Regan, Brookline resident and bike commuter
 Louise Johnson, Boston resident and bike commuter to Watertown
 Preston Buehrer, Brighton resident
 Megan Ramey, Cambridge resident
 Andrea Yakovakis, Cambridge resident
 Duer McLanahan, Allston resident, daily bicycle commuter, Massachusetts Academic Teacher Licensure: Elementary, Special Education
 Mary Ann O'Loughlin, Allston resident, bike commuter, Harvard Business School employee
 Brent Whelan, Allston resident, longtime bike commuter
 Leah Lowthorp, Allston resident, bike commuter, Harvard College faculty
 Steven Bercu, President, Boston Cyclists Union
 Christine Giraud, Allston resident and bike commuter
 Andreas Wolfe, MassBike and Cambridge resident
 Noah Augustine, UMass Boston Urban Planning program, bike commuter
 Justin Abrahms, Somerville resident and bike commuter
 James C. Simpson, Boston resident and avid bicyclist and pedestrian
 Karen Smith, Allston resident and timid bicyclist hoping to ride more
 Collin Fedor, Allston resident and bike commuter
 Sean Duane, Allston resident, bike commuter, and Novartis employee
 Mary Regan, Somerville resident and timid bicyclist hoping to ride more
 Noelle Janka, Jamaica Plain resident, Harvard Employee, Former president of the Boston Cyclists Union
 Rita Vaidya, Allston Resident would like to feel safer about my sons riding in Allston,
 John Bliss, Former cyclist and Newton resident who wants safety for all of today's cyclists
 Michael DeMarco, Brighton resident, biker, driver, and pedestrian
 David Hall, Allston resident, daily bike commuter on Western Ave
 David McNair, Allston resident, biker, pedestrian, driver
 Maritza Ciliberto, Allston-Brighton mother of bike-commuting teenagers
 Lisa Smith, Barrington Vaughn Brinson Memorial Fund, Allston resident, runner and biker
 Steven Miller, former Allston resident, Harvard employee, LivableStreets Board member
 Nathan Phillips, Bike Newton, former Brighton resident, BU employee
 Jeannine Garcia, Allston resident, novice but enthusiastic bike commuter
 Colleen McGuire, Allston resident
 Katherine von Stackelberg, Allston resident, Harvard employee, bike commuter
 Tamara Bonn, Allston resident, bike commuter (Western Ave daily), bike rider, pedestrian, driver, human
 Kathy Martin, East Watertown resident, daily bike commuter on Western Ave
 Casey Lange, Allston resident and bike commuter
 Galen Mook, Allston resident
 Laura Heath, Allston resident and bike commuter
 Laura Bethard, Allston resident and bike commuter
 Rebecca Smith, Cambridge resident, bike commuter
 Danielle DeLuca, Boston resident, year-round bike commuter
 Erick Colop, Boston resident, bike commuter

----- Forwarded message -----

From: **Roy Russell** <roy@alum.mit.edu>

Date: Wed, Dec 9, 2015 at 3:58 PM

Subject: Harvard Science & Engineering Complex

To: gerald.autler@boston.gov

Dear Mr. Autler:

Please accept the following comments on the November 2015 Notice of Project Change for the Harvard Science and Engineering Complex (SEC) on Western Ave in Allston.

I am a resident of Cambridge and a former resident of Allston, I lived on N Harvard Street and commuted daily by bicycle on N Harvard and Western Ave or Cambridge Street.

First I suggest you personally ride your bicycle (or rent a Hubway bicycle) on these streets to get first hand experience, preferably at an evening rush hour in the winter when it is dark. I believe you will find the relative safety of the space reserved for bicycles on Western Avenue to be a significant improvement over a marked lane as it is somewhat protected by the line of parked cars. An even better solution is a separated cycle track like the one on Western Avenue in Cambridge. The safety and convenience of such a solution will encourage the general public and Harvard affiliates to rely on bicycles rather than cars, reducing the demand for parking, reducing traffic, and reducing pollution.

Since Harvard owns almost every property on both sides of these segments of North Harvard Street and Western Ave which should make it possible to provide both protected cycletracks and generous sidewalks.

I ask that Harvard collaborate with BTM and provide funding for:

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1. Creation of protected cycletracks:

- a. On both sides of Western Ave, from North Harvard Street to Soldiers Field Road at the Western Ave Bridge (3,100 feet); and
- b. On both sides of North Harvard Street, from Western Ave to Soldiers Field Road at the Anderson Bridge (2,400 feet).

52

A protected intersection at the intersection of Western Ave and North Harvard Street.

[Case studies from across the country](#) have shown that installing cycletracks substantially increases bike ridership over prior road conditions. Fully protected and separated bike facilities will not only improve these streets for cyclists; they will help Harvard achieve its goal of increasing bike ridership as a mode of travel to the SEC.

I recommend that these improvements be implemented as early in 2016 as possible.

Best regards

Roy Russell
40 Cottage St
Cambridge, MA 02139

On Fri, Dec 4, 2015 at 9:33 AM, Keegan Dougherty <kdougherty@earthwatch.org> wrote:

Dear Gerald,

I attended the Harvard-Allston Task Force Meeting last night, but didn't get a chance to make public comment on the SEC plan. In short, I'd like to voice my support for the following issues:

Given the influx of Harvard students to the area, I think that Harvard should consider their students' safety and support improvements to public pedestrian and bike infrastructure in the following locations:

1. Pedestrian and bicycle crossings of Memorial Drive and Soldiers Field Rd along both Western Avenue and North Harvard St. These four intersections (Western-Soldiers, Western-Memorial, N. Harvard-Soldiers, and N. Harvard-Memorial) slow both pedestrian and bike traffic, and expose pedestrians and bikes to increased risk with increased foot/bike traffic. 53
2. Alternatively, Harvard could look into a redesign of the stairs connecting the John Weeks Bridge to HBS. The stairs on the portion of the bridge crossing Soldiers Field Rd do not allow bicyclists to use this otherwise preferred crossing. 54
3. Signaled pedestrian crossings across Western Avenue between Soldier's Field and Travis Street, near public bus stops. 55
4. Signaled pedestrian crossings across North Harvard St. near Gordon Road, & Hefferan St. 56

When the SEC project begins, my organization's lease will be have ended and we will move out of 114 Western Avenue, so I will not be affected by the outcome. But I do worry for the students, both on-foot and on bike, who may get hit by cars during their commute to class.

Cheers,

Keegan

Keegan Dougherty

Group Expeditions Coordinator | Ambassador Coordinator

The Earthwatch Institute | 114 Western Ave, Boston, MA 02134



US: [\(978\) 450-1249](tel:(978)450-1249) | UK: [+44 \(0\) 1865 318 831](tel:+44(0)1865318831) ext. 249

Please Note: our office is open from 8 AM to 6 PM EDT in Boston, MA

5.2 Responses

BRA Scoping Determination, December 23, 2015

1. *Provide an update on Harvard's property holdings since 2013 IMP*

Changes to Harvard's property holdings and updates on the IMP projects are included in Section 1.3, Changes and Updates Since IMP Approval.

2. *Revisit planning for Greenway*

The current status of planning for the Greenway is included in Section 2.4, Landscape Systems and the Greenway.

3. *Discuss role of site in meeting stormwater runoff*

The role of the Greenway in managing stormwater runoff is included in Section 2.4, Landscape Systems and the Greenway.

4. *Identify alternative parking strategies and options for implementing some facets of the Greenway*

The IMPNF/NPC indicates that the Project will provide 275 total parking spaces in two surface lots adjacent to and south of 114 Western Avenue. One of these lots, which would accommodate approximately 155 parking spaces, is located on the site of the proposed Greenway that was described as part of the 2013 IMP Long-Term Vision. Harvard will assess the status of this parking lot as part of the future planning for the Greenway and relocate the parking to a suitable location within the IMP Area or Allston Landing North, if appropriate, when this portion of the Greenway is ready for construction.

The approach to implementation of the Greenway is described in Section 2.4, Landscape Systems and the Greenway.

5. *Update project description*

An updated project description is included in Chapter 2, Project Description.

6. *Describe intensity of use by students, faculty, and staff and potential impact on pedestrian ways and the adjacent neighborhood*

The intensity of students, faculty, and staff for the SEC Building is described in Section 3.2 Transportation.

7. *Update Harvard's transportation and parking policies*

The IMPNF/NPC described Harvard's parking and Transportation Demand Management (TDM) programs and provides an evaluation of the impacts of the Project within the context of the analysis that was prepared for the 2013 IMP. The 2013 IMP provides a detailed and comprehensive transportation analysis of the projects included with the Ten-Year Plan of the IMP. There are no updates to report since the IMPNF/NPC.

8. Meet with BRA and BTB to discuss improving Western Avenue Cycle track

On January 14, 2016, representatives of the University and their consultant, VHB, Inc., met with BTB and BRA staff to discuss the IMP Amendment submission requirements and requested analysis. This discussion confirmed the analysis that is described in Section 3.2, Transportation and outlined next steps to develop and review the Project roadway and transportation infrastructure improvements that are described in this document.

9. Meet with the BRA to discuss climate resiliency planning

The IMPNF/NPC included the BRA's Climate Resiliency Preparedness and Resiliency Checklist. Additional information on resiliency – including the analysis that was conducted that led to the conclusion to remove the district energy facility from the subsurface level of the SEC Building - is included in Section 3.5, Climate Resilience.

10. Description of current and proposed programs with Boston schools to train and employ students from Boston

Harvard University offers a wide array of educational and workforce development opportunities, highlighted in detail in the 2015 Cooperation Agreement Annual Report. Harvard University has forged meaningful partnerships with local Boston Public Schools, opened the doors of an expanded and relocated Harvard Ed Portal, and offered workforce development programs that give Boston residents the skills to be job-ready in a 21st century economy. In addition to educational programming and mentoring for Boston students, there is a wide-ranging array of public health offerings and educational resources available through Harvard Medical School, Harvard School of Dental Medicine, the Harvard T. H. Chan School of Public Health, and Harvard Business School.

11. Describe workforce needs of proposed project

As described in Section 4.1, Economic Development, the majority of building occupants will be students, faculty, and staff relocated from the Cambridge campus.

12. Description of Harvard's economic impact to Boston

Harvard University is part of a coalition of community partners that are driven to improve the identity of Western Avenue and to provide a robust local business environment. The Harvard-funded Workforce and Economic Development Advisory Board was formed to develop new community-based strategies for economic development and coordination with local business partners. Harvard Business School's Innovation Lab is a collaboration and education space that has spawned exciting new business and technology ventures, and will grow Allston-Brighton's reputation as a locus for entrepreneurialism and startup development.

13. Discuss community benefits with reference to community benefits updates submitted to the BRA

Harvard University enjoys a valued and longtime partnership with the Allston-Brighton community and has prepared a comprehensive community benefits update. This update was summarized in the IMPNF/NPC and is available in full at <http://community.harvard.edu/sites/default/files/BostonCooperationAgreement2015.pdf>

14. IMP Amendment must include Responses to Comments section

This Chapter 5, Responses to Comments includes copies of each comment letter and responses to the comments raised.

Amy Mahler, Mayor's Office of Neighborhood Services, December 10, 2015

15. Insufficient bike racks and cycle tracks

The status of both bicycle parking and cycle track and other bicycle facilities is discussed in Section 3.2, Transportation.

16. Security and lighting

Security and lighting are discussed in Section 3.6, Security and Lighting.

David Grissino, BRA Urban Design, December 10, 2015

17. Include site plan showing broader context

A site plan showing the broader context of the Project is included in Section 2.3, Urban Design Context.

18. Include detailed site plan showing relationship to 28 Travis Street

A detailed site plan showing the relationship to the 28 Travis Street project is included in Section 3.2, Transportation.

19. Include detailed site plan showing pedestrian and bicycle accommodations

A detailed site plan showing pedestrian and bicycle accommodations is included in Section 3.2, Transportation.

20. Describe strategy for addressing long term parking needs

The IMPNF/NPC indicates the Project would provide 275 total parking spaces in two surface lots adjacent to and south of 114 Western Avenue. One of these lots, which would accommodate approximately 155 parking spaces, is located on the site of the proposed Greenway that was described as part of the 2013 IMP Long-Term Vision. Harvard will assess the status of this parking lot as part of the future planning for the Greenway and relocate the parking to a suitable location within the IMP Area or Allston Landing North, if appropriate, when this portion of the Greenway is ready for construction.

Katie Pedersen, BRA Environmental Reviewer, December 14, 2015

21. Wind tunnel test will be required

Section 3.3, Wind includes updated information on the potential wind impacts from the SEC Building. As discussed at the City Agency Scoping Meeting on December 1, 2015, the full wind tunnel testing will be done during the Design Development phase of the Project and these results will be shared with the BRA design staff.

John Sullivan, Boston Water & Sewer Commission, December 8, 2015

22. Address issue of 72-inch drain or an alternative

The status of the planning for the 72-inch drain line is discussed in Section 3.4, Stormwater.

23. Prepare and submit Site Plan and General Services Application

As noted in the comment letter, the proponent will prepare and submit a Site Plan and General Services Application for review by BWSC.

24. Provide updated estimates for Water, sewer, and stormwater with the Site Plan Application

The Site Plan Application will include updated estimates for water, sewer, and stormwater impacts.

25. Any new or relocated water mains, sewers and storm drains must be designed and constructed at the proponent's expense

As noted in the comment letter, any new or relocated water mains, sewers and storm drains will be designed and constructed at the proponent's expense.

26. A NPDES General Permit is required for disturbances of over one acre

As noted in the comment letter, a NPDES General Permit is required for disturbances over one acre.

27. The design of the Project must comply with the City of Boston's Complete Streets Initiative

The proposed roadway layouts and multi-modal accommodations were developed based on the Complete Streets Guidelines and reviewed with the Boston Transportation Department during the IMP Transportation Access Plan Agreement update, and BTD will remain a part of the process as the design moves forward. Relative to the green infrastructure, the roadways design incorporates the use of open grid pavers in the furnishing zone. Stormwater from sidewalks will be directed by sheet flow to the furnishing zone. The furnishing zone will contain sand-based structural soil and shade trees. This profile will mitigate runoff to storm systems through plant uptake and infiltration and provide additional water quality treatment.

28. Grease Traps will be required for any food service facility

The current Project design will have approved grease traps located within the building and the design team will consult with the BWSC Operations Department with regards to their use and maintenance.

29. Address infiltration/inflow

The design team will work with BWSC, the Massachusetts Department of Environmental Protection (DEP), and the Massachusetts Water Resources Authority (MWRA) to implement the Infiltration/Inflow (I/I) reduction plan. During the design process, the design team will engage with permitting groups to demonstrate compliance with the I/I effort.

30. In order to reduce phosphorous, the project must infiltrate all stormwater discharging from impervious surfaces

The current Project design plans to achieve a reduction of the Total Maximum Daily Load (TMDL) phosphorus concentrations in stormwater discharges from the site by use of bioretention basins and bioretention swales as well as non-proprietary water quality structures and implementation of Best Management Practices (BMPs) across the Project site. In addition, the design is proposing to capture, at a minimum, the 1-inch storm event over new impervious surfaces and infiltrate or reuse this run-off within the building.

The Project will demonstrate compliance with the reduction of stormwater run-off and phosphorous removal. The design intent is to meet or exceed BWSC's infiltration and phosphorous reduction standards. The conversion of land use from a parking lot to a green roof will reduce the phosphorous load for the site. Secondly, the water quality swales on the structure are designed to act as a horizontal filter with the dimensions to be determined during the design process. Lastly, enhanced media filtering could be used, if needed, to reduce the phosphorous loading prior to discharging the stormwater to the BWSC storm drain.

The roadway design will include treatment trains for stormwater runoff to provide a minimum of 64% phosphorous removal prior to discharge. The roadways will also provide infiltration equal to the BWSC requirement of 1-inch over the impervious area. A stormwater management plan and calculations demonstrating conformance with the applicable regulations will be prepared and submitted as part of the BWSC Site Plan Review process.

31. Site Plan must show how roof drainage is being managed

The design team will submit a comprehensive stormwater design plan (including a roof drainage plan) and supporting calculations for the Project which will meet the BWSC's requirements. The Project will not discharge stormwater into the sanitary sewer.

32. The Project will be required to meet DEP Stormwater Management Standards

As noted in the comment letter, the Project will be required to meet DEP Stormwater Management Standards.

33. The Proponent will be required to submit a Stormwater Pollution Prevention Plan

The Proponent will submit a Stormwater Pollution Prevention Plan. The design team will submit a comprehensive erosion and sedimentation control plan and supporting documentation, and a Long Term Operation and Maintenance Plan for the Project which will address erosion and sedimentation control and stormwater maintenance both during and after construction. The Project will provide a plan that indicates drainage patterns and construction stormwater control. The plan will also indicate areas of soil stockpiles and, if necessary, work with a Licensed Site Professional (LSP) to outline steps for treatment or disposal of contaminated soils.

34. The discharge of any dewatering drainage requires a Drainage Discharge Permit

The Project has no plans to alter or increase the existing approved dewatering method.

35. Any new catch basins require a permanent casting stating "Don't Dump: Drains to Charles River"

As noted in the comment letter, any new catch basins constructed by the Project will include a permanent casting stating "Don't Dump: Drains to Charles River."

36. Proponent is encouraged to explore additional opportunities for protecting stormwater quality by minimizing sanding and the use of chemicals, pesticides, and fertilizers

The SEC Building's courtyard and green spaces will be maintained by Harvard's landscape maintenance group which has an extensive program of organic maintenance, focused on reducing or eliminating the use of all inorganic fertilizers, chemical pesticides, fungicides, and herbicides.

37. A Hydrant Use Permit is required for use of any hydrant during construction

As noted in the comment letter, a Hydrant Use Permit is required for use of any hydrant during construction.

38. The Project will require use of a Meter Transmitter Unit

As noted in the comment letter, the Project will include a Meter Transmitter Unit.

39. Proponent is encourages to explore additional opportunities for implementing water conservation measures

The SEC Building plans to capture and reuse stormwater for irrigation purposes and is currently looking into other water conservation methods to keep potable water use to a minimum. The Project will use low flow fixtures, required under the current Building Code, to reduce water use. The design team will provide BWSC with irrigation information for review as the design process advances.

Stormwater from sidewalks directed to the street tree planting in the furnishing zone will provide passive irrigation and limit additional irrigation inputs. Active irrigation will be through subgrade drip tubing provided directly to the soils to limit evaporation. All irrigation will be moisture sensor based and will only operate when soils reach minimum moisture levels to sustain tree health.

Pallavi Mande, Charles River Watershed Association, undated

40. Accelerate planning and design of the Greenway

The current status of planning for the Greenway is included in Section 2.4, Landscape Systems and the Greenway.

41. Re-evaluate location of parking lot for SEC

The IMPNF/NPC indicates that the Project will provide 275 total parking spaces in two surface lots adjacent to and south of 114 Western Avenue. One of these lots, which would accommodate approximately 155 parking spaces, is located on the site of the proposed Greenway that was described as part of the 2013 IMP Long-Term Vision. Harvard will assess the status of this parking lot as part of the future planning for the Greenway and relocate the parking to a suitable location within the IMP Area or Allston Landing North, if appropriate, when this portion of the Greenway is ready for construction.

42. Provide more detail and commitments for the implementation of the Greenway

The current status of planning for the Greenway is included in Section 2.4, Landscape Systems and the Greenway.

43. Provide comprehensive stormwater management plan for SEAS site

A comprehensive stormwater management plan and calculations will be submitted to BWSC as part of the design process. The design intent is to meet or exceed BWSC's infiltration and phosphorous reduction standards. The current Project design plans to achieve a reduction of the TMDL phosphorus concentrations in stormwater discharges from the site by use of bioretention basins and bioretention swales as well as non-proprietary water quality structures and implementation of BMPs across the Project site. In addition, the design is proposing to capture, at a minimum, the 1-inch storm event over new impervious surfaces and infiltrate or reuse this run-off within the building.

The Project will demonstrate compliance with the BWSC standards for reduction of stormwater run-off and phosphorous removal. The conversion of land use from a parking lot to a green roof will reduce the phosphorous load for the site. Secondly, the water quality swales on the structure are designed to act as a horizontal filter with the dimensions to be determined during the design process. Lastly, enhanced media filtering could be used, if needed, to reduce the phosphorous loading prior to discharging the stormwater to the BWSC storm drain. The Project proposes to meet the requirement of Harvard's Green Building Standards which is in line with BWSC standards.

44. Work with BWSC to determine the 100-year design storm

The Project anticipates that it will exceed the current regulations and design guidelines for sizing BMPs for the site. As the design progresses, the design team will work with BWSC to meet stormwater design flows for the Project which includes mitigation for the 1-inch storm event.

45. Design new streets with the “greenscape” elements of Boston’s Complete Streets

The proposed design of the new roadways will be developed in accordance with Boston Transportation Department’s Complete Streets Guidelines, and in consultation with BPWD and BWSC. A stormwater management plan and calculations demonstrating conformance with the applicable regulations shall be prepared and submitted as part of the BWSC Site Plan Review process.

46. Retrofit existing streets with the “greenscape” elements of Boston’s Complete Streets

As described in Section 3.2, Transportation, the Project will reconstruct a section of Western Avenue in front of the site. The design of this section of the street will be developed in accordance with Boston’s Complete Streets Guidelines.

47. Work with MassDOT to identify flooding vulnerabilities

The IMPNF/NPC included the BRA’s Climate Resiliency Preparedness and Resiliency Checklist. Additional information on resiliency – including the analysis that was conducted that led to the conclusion to remove the district energy facility from the subsurface level of the SEC Building - is included in Section 3.5, Climate Resilience.

48. Create Allston Esplanade

Potential improvements to the open space along the Charles River are being coordinated through the MassDOT I-90 Allston Interchange Project.

Harry Mattison (and many others), December 10, 2015

49. Create cycle tracks on Western Avenue and North Harvard Street

As described in Section 3.2, Transportation, Harvard proposes to upgrade the existing eastbound cycle track in front of the site and to create a new westbound cycle track across the street from the site on Western Avenue. Harvard will work with the City of Boston to develop additional interim improvements within the existing right of way to the existing bicycle facilities on Western Avenue between the site and Soldiers Field Road. Cycle track improvements are not proposed for North Harvard Street.

50. Create a protected intersection at Western and North Harvard Street

Section 3.2, Transportation, describes the proposed improvements to the bicycle infrastructure. These improvements will build upon the recently completed work of the Continuum project that included extensive improvements to the intersection of North Harvard Street and Western Avenue, an extension of the Western Avenue bike lanes further westward, and construction of a new bike path along South Campus Drive that provides a bypass connection for bicycles traveling between North Harvard Street and Western Avenue. Further modifications to the intersection of North Harvard Street and Western Avenue are not contemplated as part of the Project.

Roy Russell, December 9, 2015

51. Create cycle tracks on Western Avenue and North Harvard Street

As described in Section 3.2, Transportation, Harvard proposes to upgrade the existing eastbound cycle track in front of the site and to create a new westbound cycle track across the street from the site on Western Avenue. Harvard will work with the City of Boston to develop additional interim improvements within the existing right of way to the existing bicycle facilities on Western Avenue between the site and Soldiers Field Road. Cycle track improvements are not proposed for North Harvard Street.

52. Create a protected intersection at Western and North Harvard Street

Section 3.2, Transportation, describes the proposed improvements to the bicycle infrastructure. These improvements will build upon the recently completed work of the Continuum project that included extensive improvements to the intersection of North Harvard Street and Western Avenue, an extension of the Western Avenue bike lanes further westward, and construction of a new bike path along South Campus Drive that provides a bypass connection for bicycles traveling between North Harvard Street and Western Avenue. Further modifications to the intersection of North Harvard Street and Western Avenue are not contemplated as part of the Project.

Keegan Dougherty, EarthWatch Institute, December 4, 2015

53. Improve pedestrian and bike crossings of Memorial Drive and Soldiers Field Road at Western and North Harvard

The Anderson Memorial Bridge project will be complete in spring 2016. It includes pedestrian and bicycle improvements on the bridge and at the adjacent intersections. As part of its Accelerated Bridge Program, MassDOT prepared designs for the Western Avenue Bridge that include pedestrian and bicycle improvements to that bridge and its adjacent intersections. Harvard will continue to coordinate with MassDOT regarding the potential future implementation of these improvements.

54. Redesign stairs at John Weeks Bridge

Harvard coordinated with the Department of Conservation and Recreation (DCR) on improvements to the John Weeks Bridge over the Charles River that included the replacement of stairs with new ramp systems. While there are no current plans to modify the Sinclair Weeks Bridge over Soldiers Field Road, Harvard is prepared to coordinate with DCR regarding the development of potential improvements to this bridge.

55. Add signalized pedestrian crossings of Western Avenue between Soldiers Field Road and Travis Street

Harvard will work with BTM to determine the feasibility of installing a traffic signal at the new intersection of "Academic Way" and Western Avenue.

56. Add signalized pedestrian crossings of North Harvard Street at Gordon Road and Heffernan Street

Harvard will work with BTM to determine the feasibility of installing a traffic signal at the new intersection of "Academic Way," North Harvard Street, and South Campus Drive.