

HARVARD  
UNIVERSITY



# Institutional Master Plan

HARVARD UNIVERSITY'S CAMPUS IN ALLSTON | JULY 2013



*Appendices*



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# APPENDIX A:

## Scoping Determination & Response to Comment Letters

## **Appendix A: Responses to Comments**

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### **BRA Scoping Determination and Letters Received on the IMPNF**

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Boston Redevelopment Authority Scoping Determination  
BRA Urban Design Scoping Determination Comments (David Grissino)  
Boston Environment Department  
Boston Landmarks Commission)  
Boston Water and Sewer Commission  
Boston Parks and Recreation Department  
Boston Police Department  
Boston Transportation Department  
Boston City Council District 9  
The Harvard Allston Task Force  
Charles River Conservancy  
Charles River Watershed Association/ MAPC  
Kimberly S. Courtney, Esq.  
Matthew Danish  
Paula and Robert Alexander  
Tim McHale  
Joyce Radnor  
Art and Al Boright

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March 29, 2013

Ms. Katherine Lapp, Executive Vice President  
Harvard University  
Massachusetts Hall  
Cambridge, MA 02138

Re: **Institutional Master Plan Scoping Determination**

Dear Ms. Lapp:

Please find enclosed the Scoping Determination for the proposed Harvard University Institutional Master Plan. The Scoping Determination describes information required by the Boston Redevelopment Authority in response to the Institutional Master Plan Notification Form, which was submitted under Article 80D of the Boston Zoning Code on October 19, 2012. 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) 918-4438.

Sincerely,

Gerald Autler  
Senior Project Manager / Planner

cc: Peter Meade  
Kairos Shen  
Linda Kowalcky  
Angela Holm

In 2005, the BRA published the North Allston Strategic Framework for Planning (“NASFP”). The NASFP contains a conceptual vision for the future of the area between the Massachusetts Turnpike and the Charles River. Although it is clear that, given the conceptual nature of the NASFP, many of the specific elements of the vision will not be realized in the form that they appear in the document, the vision is based on planning goals and principles that enjoy broad support from North Allston residents, businesses, institutions, and community groups, among them the following:

- The transformation of Barry’s Corner into an active “main street” neighborhood center.
- Opportunities for physical and programmatic connections between the Harvard community and the surrounding population.
- Improved public realm and “placemaking” with active streets and public spaces.
- Improved green spaces, particularly the opportunity for improved connections to the Charles River parkland.
- Improved transportation options and a more sustainable transportation system.
- Leveraging of Harvard’s development for economic and community benefit.

On January 11, 2007, Harvard University (“Harvard” or the “University”) submitted an Institutional Master Plan Notification Form (“IMPNF”) to the Boston Redevelopment Authority (“BRA”) pursuant to the provisions of Section 80D of the Boston Zoning Code (the “Code”), in order to initiate the process for review and approval of an Institutional Master Plan (“IMP”) that outlined a 50-year master plan and requested approval for a 20-year program of development and associated infrastructure investments for the Allston campus.

Changes in the economy and the University’s finances and leadership led to a rethinking of Harvard’s plans in Allston. The University didn’t file a response to the BRA’s Scoping Determination and, despite proceeding with Tata Hall and the Harvard Innovation Lab through amendments to the existing Institutional Master Plan, focused on the effort of the “Work Team” that was charged with thinking about the University’s future in Allston.

In October, 2012, Harvard filed a new IMPNF for a 10-year IMP that includes nine Proposed Institutional Projects, as well as an outline of framework elements including open space and transportation systems. While recognizing the changed circumstances and the recalibrated scope of Harvard’s ambitions in Allston, the BRA nevertheless considers this IMP an opportunity to achieve, or at least set the stage for, the goals stated above. In addition, the IMP is a vehicle for advancing other shared goals that have been part of the conversation about Harvard’s future in Allston at least since the development of the NASFP and that have been expressed in Harvard’s filings, the BRA’s Scoping Determinations, and the Community Wide Plan (CWP) undertaken by the BRA.

It is important to recognize the broader context in which the IMP will be developed. Specifically, there are a number of work items that will both inform and be informed by the IMP, whether or not they are technically part of the review or treated explicitly in this Scoping Determination. These include:

- Implementation of the community benefits associated with the Science Complex, acknowledging that some specific items may be modified.
- Ongoing work to create a community benefits package to be associated with the new IMP.
- Review of other projects that have a bearing on the future Barry’s Corner.
- Discussion of Statement of Principles for all Harvard-owned land in Allston and ongoing, focused efforts to create positive change outside of the immediate IMP Area. This includes, for example, a discussion of the Brookline Machine site, potential public realm



improvements such as the greening of Everett Street, and enhanced connections to the planned new commuter rail station. While the BRA acknowledges the reality of Harvard's recalibration of its ambitions and recognizes that Harvard's development will span many years, there is still a need to advance key improvements of mutual interest and to create a better shared understanding of the future of all of Harvard's landholdings.

The remainder of this document sets forth specific submission requirements for the Institutional Master Plan. It also serves as a statement of the BRA's view of key planning issues and goals. This reflects the BRA's view that the IMP must be about more than just projects; it must articulate the vision and principles that will guide development of Harvard's land in Allston, and it must explain how each proposed project will serve to advance and support the overall vision. As such, there will inevitably be a tension between, on the one hand, the need to advance detailed plans and projects in some areas and, on the other hand, the desire for more long-term, comprehensive thinking about the future of all Harvard's landholdings and the neighborhood at large. The BRA looks forward to an ongoing dialogue about how to best achieve the proper balance through the IMP and the other processes mentioned above.

## I. PLANNING FRAMEWORK

The IMPNF presents information at two scales: the project level and the long-term framework level. While both are necessary, they are not sufficient for an adequate IMP. The IMP will need both an intermediate scale and more detail on how individual projects relate to the larger planning framework.

The IMP would benefit from the use of a district approach to further define and organize the planning for the intermediate scale. While it is understood that some areas will undergo more detailed analysis than others, it is important for this IMP to begin to establish the character even of those districts whose development lies farther in the future, as that character will inform decision-making about everything from building programming and design to public realm and open space systems, both now and in the future.

This section draws heavily on the letter from the BRA's Urban Design Department. Although key elements of that letter and the submission requirements set forth therein are incorporated into the text below, the letter itself should be considered an integral part of the Scoping Determination and is incorporated by reference.

### **Key Principles and Goals**

- **Leverage Development for Economic and Community Benefit.** One of the core premises underlying the NASFP, as well as all other conversations among Harvard, the BRA, and the community, has been the notion that Harvard's expansion into Allston holds great promise for the neighborhood, and this promise is vividly illustrated in the examples of Ray Mellone Park, the Harvard Education Portal, and the proposed Barry's Corner Residential and Retail Commons. The neighborhood will derive benefit from "convergent strategies," from the ongoing use of Harvard properties to catalyze residential and retail development, from employment opportunities and from negotiated community benefits packages. Whatever form the benefits take, the planning for Harvard's development in Allston must treat those benefits as an integral component.
- **Create Placemaking and Activity Centers.** One of the central themes in the NASFP and the planning that has followed is the importance of creating new activity centers that draw people from the university, the neighborhood, and the region. Such places are a key element in any successful campus or neighborhood, and in Allston will play a doubly important role as meeting places for the campus and neighborhood communities. In addition to creating memorable architecture and physical spaces, Harvard and the City of Boston must work together to ensure that those spaces are programmed with a mix of uses and populated with a mix of people. Retail is an anchor component of a successful mix, but there is also a need for a range of academic uses (from 9-5 offices to classrooms and labs with more irregular use patterns), publicly accessible athletic facilities (such as Smith Field and the programming that can enhance it), cultural uses, and unique educational facilities such as the Harvard Education Portal.
- **Innovation in Public Realm Design.** Creative and innovative public realm design enhances the identity of campus spaces and the character of neighborhood places. In addition to key elements such as the "grove of trees," a first-rate public realm will require many smaller gestures in the design of sidewalks, landscape elements, technology and information, public art, and other components. Allston should be both a testing ground for new ideas and a showcase of best practices.
- **Landscape and Open Space as Core Plan Element.** Landscape and green spaces at multiple scales are an integral part of Harvard's traditional campus character in both Cambridge and Allston, and should continue to be a primary focus of planning for Allston, as the IMPNF indicates

it will be. The landscape and open space systems should play multiple roles as gathering places, restorative ecological spaces, elements of the circulation system, and components of a stormwater and possible flood control system.

- **Permeability.** The campus plan should serve to create connections through the campus to key open spaces, transportation opportunities, and other key destinations. Building placement, configuration, and massing should convey a welcoming relationship for non-Harvard members of the Allston community and for visitors. Beyond physical permeability, the campus should also be welcoming to the larger community through access to programs and resources of mutual benefit and through an active effort to bring the resources of the University out to the city at large.
- **Connectivity.** The campus plan, in conjunction with the broader neighborhood plan, should serve to link together more effectively the residential communities of North Allston to one another and to the academic community, as well as linking both the residential and academic communities to the larger region. The planning should yield a variety of types of connections between the existing residential community, emerging neighborhood and campus destinations, and the recreational opportunities of the neighborhood's major open space resources, including in particular the Charles River and its embankment parks.
- **Environmental Sustainability.** Harvard has shown itself to be a leader in campus sustainability efforts, and the creation of an entirely new campus provides the opportunity to raise the bar even higher, both for individual buildings and for master planning. Sustainability efforts should include strategies to reduce resource consumption, reduce greenhouse gas emissions, remediate contamination and restore ecologies, create healthy human environments, and implement climate adaptation strategies.
- **Integrated Transportation System.** The focus should be on planning for a comprehensive transportation system that encompasses a pedestrian/open space system, a bicycle network, public transportation and shuttle routes, campus and neighborhood parking, and a hierarchy of roadways that includes both a regional road network, roads that collect and distribute travelers to and from the neighborhood and campus, and smaller neighborhood and campus streets. The system's elements should all fit together and support one another as part of an integrated system that serves residents of the neighborhood, commuters, and visitors alike while minimizing reliance on the automobile.
- **Relationship to Charles River.** The Charles River is the neighborhood's most prominent and most precious natural asset and should serve as armature for planning and for the creation of an open space system that contains a network of publicly accessible passive and active open spaces. Harvard's development should serve to enhance the quality of the Charles River and its associated parklands (for example, by improving the quality of stormwater runoff), to enhance public access to and enjoyment of those resources, and should respect and enhance the historic character of the river's parklands, associated structures (including bridges), and roadways.
- **Relationship to Other Plans.** Harvard's planning should acknowledge and build on the work already completed in previous planning exercises, including the *Boston Open Space Plan*, the Massachusetts Department of Conservation and Recreation's *Master Plan for the Charles River Basin: The Second Century*, and the NASFP. The IMP should also be developed in a way that is informed by the ideas that emerged from the CWP.

### **Submission Requirements**

- **Integrated Context and Analysis.** All submission materials should present integrated information on all framework elements and projects, whether or not undergoing review through this IMP. In addition to the Proposed Institutional Projects, the IMP should include the Barry's Corner Residential and Retail Commons, Harvard Ceramics (224 Western Avenue), the 28 Travis

BRA.1

Street project, the Health and Life Science Center, and Swissbäkers. Regardless of the zoning and permitting mechanism, all of these are integral components of the overall planning for Barry's Corner and the larger neighborhood and should be viewed and treated as such. Materials should be coordinated across districts. BRA.2

- **Orientation Towards Allston.** Most of the diagrams submitted in the IMPNF discuss the Allston campus development in the context of its relationship to Cambridge, showing how vehicular and pedestrian systems, land use, view corridors, or open space connections are related to areas outside the boundary of the IMP area, but only to the north and east. The IMP should give equal consideration to and representation of the area within the Allston community to the west and south of the campus. However, in contrast to the more detailed planning expected for other areas, information pertaining to the area west of Barry's Corner may consist of a more general description of existing conditions, planning challenges, development opportunities, and stewardship principles. BRA.3
- **District Approach.** The IMP should adopt a district approach, with the following districts suggested. BRA.4
  1. Barry's Corner
  2. Western Avenue Corridor
  3. The Hotel/Conference Center and future Enterprise Research Campus
  4. The Harvard Business School
  5. Athletics and Harvard Stadium
- **Vision, Principles, Goals.** The IMP should present a statement of the vision, principles, and goals guiding Harvard's planning for Allston generally, for the IMP Area, and for individual districts. The IMP should reference these in connection with proposed projects, transportation and open space proposals, and other plan elements, in order to show that those proposals are consistent with and serve to implement the vision, principles, and goals. BRA.5
- **Integrated Long-Term Planning Framework.** Rather than presenting separate plan elements as in the IMPNF, the IMP should present an integrated long-term planning framework. As with the vision, principles, and goals, the IMP should refer back to this physical planning framework in order to ensure that development proposals can be reviewed within a broader context. BRA.6

The IMP should present the framework in a new comprehensive series of urban design diagrams and supporting narrative. These submissions should discuss how individual elements such as land use, open space, pedestrian and vehicular circulation, work together as a system to further the goals and vision of the university and community for the area. BRA.7

While acknowledging that at this stage more specificity is possible in some areas than in others, the BRA still requires information on the approach to, if not the specific attributes of, key districts and locations. It is not expected that the framework elements show details regarding specific physical improvements that lie outside the timeframe of the 10-year IMP; rather, they should outline principles and present guidelines that can govern the planning and development even of those areas of Harvard's present and future campus where little is known about the exact nature of future buildings.

The framework elements should be coordinated with a set of district-level materials that show more detail, particularly in the Barry's Corner and Western Avenue districts. The IMP should include, at a minimum, the following elements: BRA.8

- **Placemaking.** The plan should identify key destinations and activity nodes—i.e., BRA.9 “placemaking” opportunities—that will need to be supported by appropriate public realm elements, multimodal connectivity, and adjacent uses. This element should include a discussion of programming options to ensure that key destinations enjoy a critical mass of activity, whether through campus uses that can help enliven the public realm, cultural programming or recurring events such as the farmer’s market.
- **Public Realm.** A public realm plan including proposed guidelines for and improvements to BRA.10 sidewalks, plazas, green spaces, and other public realm elements, whether publicly or privately owned.
- **Landscape and Open Space System.** The long-term planning framework should present an BRA.11 integrated system of open spaces (including public realm components) and landscape elements that serve the multiple roles described above, including facilitating connections to the Charles River. The IMP should include planning for the area referred to as Rena Park. While it is understood that, consistent with existing agreements, planning for Rena Park will be undertaken in parallel with the IMP process, the IMP should nevertheless reflect that work BRA.12 and present the University’s long-term thinking about the presence and configuration of any future institutional uses for that area, such as the student housing contemplated in previous planning efforts.
- **Street and Block Plan.** A detailed street and block plan with more information on the BRA.13 proposed new streets’ public or private character, how they will conform to the city’s Complete Streets guidelines, and proposed implementation of green streets infrastructure. This plan should respond to and integrate questions from both the BRA Urban Design Staff and the Boston Transportation Department comments, which are summarized below in the Transportation section and incorporated by reference.
- **Integrated Transportation Network.** The IMP should include a diagram showing BRA.14 pedestrian, bicycle, vehicular, and public transit networks, with attention paid both to linkages across the Charles River to Cambridge and to the rest of Allston-Brighton and Boston. The submission should also include current thinking on the location of supportive infrastructure—Hubway stations, bicycle parking, etc.—and “mobility hubs” that bring together multiple services in close proximity. As appropriate, in either the long-term planning framework and/or BRA.15 the district-level frameworks, the IMP should also show specific proposed enhancements, e.g. pedestrian and bicycle infrastructure, or modifications to crosswalks or intersection geometry.
- **Campus Edges.** The IMP should describe opportunities to redefine the edges of the campus BRA.16 as they face the Allston community along the Western Avenue corridor, North Harvard Street, and Barry’s Corner.
- **Land and Building Use.** The IMP should present proposals and guidelines for land and BRA.17 building use in different areas and the rationale underlying those proposals and guidelines. Some areas of the future campus, such as key nodes along Western Avenue, should present a more public character and contribute to the vibrancy of public streets by mixing complementary uses with different peak hours (e.g. daytime administrative uses, evening academic uses, accessory uses such as retail).
- **Building Design Guidelines.** The IMP should present building design guidelines that can BRA.18 ensure that individual buildings support the overall district goals. For example, buildings should not be designed to face inward toward the campus, turning their backs toward the neighborhood; instead, most campus buildings, especially those that abut courtyards and other public or semi-public spaces, should contain multiple façades to accept “outsiders” and “insiders.” Instead of packaging all building components (e.g. laboratory, office, lounge, reception, cafeteria, health club, and day care center) into one large mass, the program can

be divided into smaller components and designed as a separate element in space and as an individualized form.

- **Early Implementation.** The IMP should describe specific ways in which proposed IMP projects are implementing the first stages of the long-term vision, as discussed more detail in connection with specific projects in later sections. BRA.19
- **Phasing.** The IMP should also provide more detailed information about the anticipated sequence of the proposed IMP projects and the rationale behind that proposed sequence. The IMP should also explain the anticipated phasing of key infrastructure and public realm improvements that would accompany those projects. BRA.20  
BRA.21
- **Description of Property Holdings.** The IMP should include an updated inventory and description of all Harvard's property holdings in North Allston/North Brighton, regardless of current use, zoning, or planning status. BRA.22
- **Changes to Institutional Master Plan Area.** The IMP should clearly indicate proposed changes to the IMP Area, including the land to be removed from the IMP area as part of the permitting of the Barry's Corner Residential and Retail Project BRA.23
- **Support Uses.** The proposed relocation of support uses to 28 Travis Street has focused attention on the University's need for certain types of uses that, in the long run, should be located away from the areas of prime interest to Harvard and the neighborhood. The IMP should identify any suitable locations in Harvard's landholdings that could be considered for these uses in the longer-term future. BRA.24

## **Specific Submission Elements by District**

### **1. Barry's Corner**

The public workshop held on May 23, 2012 generated a strong consensus that the "center of gravity" of Barry's Corner, traditionally considered—at least implicitly—to lie slightly to the west of the intersection of Western Avenue and North Harvard Street, should actually include and even center on the "Gateway" Site at the location of the existing Charlesview housing. The new center of Barry's Corner would comprise both the existing "grove of trees" and a new public space to be created in conjunction with the Institutional/Mixed-Use Project on the adjacent site.

This shift in geography only increases the importance of these spaces in the creation of a vibrant Barry's Corner, but also the complexity of having the area's future paramount public realm element privately owned. This is not an insurmountable barrier: just as many visitors to Harvard Square may enjoy the iconic plaza outside Holyoke Center without realizing that the property is owned by Harvard University, the Gateway site and its future development can take on a truly public character through thoughtful design and programming.

This goal—and challenge—should inform all of the IMP's content on Barry's Corner, which, in addition to any detailed district-level content from the overall framework elements that is better incorporated into a district-level plan, should include the following:

- **District Vision, Principles, Goals.** The IMP should present a statement of the vision, principles, and goals guiding Harvard's planning for the Barry's Corner District. The IMP should reference these in connection with proposed projects, transportation and open space proposals, and other plan elements, in order to show that those proposals are consistent with and serve to implement the vision, principles, and goals. BRA.25

- **Integrated Context and Analysis.** Diagrams should integrate all projects in the vicinity, including the renovation of 224 Western Avenue, the Barry's Corner Residential and Retail Commons, renovation of 168 Western Avenue, renovation of 28 Travis Street, and the Health and Life Science Center in order to foster an understanding of how all the proposed projects work in unison to support the goals for Barry's Corner through pedestrian connectivity, location of complementary ground-floor uses, and the relationship to key public realm elements. BRA.26
- **Open Space Plan and Public Realm Plan.** Through the community process, the concept of the "center" of Barry's Corner shifting to the east emerged. The existing "grove of trees" would be coupled with a new public space on the Gateway site. The IMP should present a comprehensive open space and public realm plan that would both transform and connect the grove of trees to other plan elements. An exploration of widely diverging concepts for the grove of trees site is welcome: the concepts need not be bound by the current character of the site. BRA.27
- **Uses and Performance Criteria.** The IMP projects need more definition of ground-floor uses, particularly the Institutional/Mixed Use Project (see the submission requirements for that project for more detail) and the Basketball Venue/Mixed-Use Project. These uses must support the vision of Barry's Corner as an active, memorable, and attractive place at the crossroads between the campus and community. The IMP should discuss proposed performance criteria to guide the programming of ground floor uses that will create synergies with surrounding uses, provide amenities for residents, employees, students, and visitors alike, and activate the public realm throughout the day and on weekends. BRA.28
- **Massing Context.** A discussion should be provided of how these IMP projects help shape the evolving massing context of the area. This should be supported by analytical diagrams, 3D models, and other methods that explain the relationship. All materials should incorporate the IMP projects into a context which extends south to Rena Street, west to Riverdale Street, north to the McCurdy Track, and east to include the previously permitted Science Complex (now known as the Health and Life Science Center). In addition to Science, the context should include all projects which have been built, permitted, or are currently in the development review process. At least three birds-eye views should be provided depicting the "future" condition only from vantage points north, south, and west of the intersection of Western Avenue and North Harvard Street. Diagrammatic site sections should also be provided which are taken perpendicular to Western Avenue, North Harvard Street, Grove Street, Smith Field Drive, Academic Way, and Academic Way Extension allowing the proposed massing to be evaluated in the context of the public realm and other surrounding buildings and open spaces. Locations of these sections should be determined in consultation with BRA Urban Design staff. BRA.29
- **Intersections and Pedestrian Crossings.** Harvard Square, Davis Square, and other successful places work well in spite of their physical complexity. This is due to both the continuous frontage of active uses along all their edges and to the way that intersections and pedestrian crossings are designed in a way that they are able to overcome the physical separation of roadways. The IMP should propose specific improvements to intersections and pedestrian crossings that can ensure that the area can function as a unified whole. BRA.30
- **Relationship to Smith Field.** The IMP should propose guidelines to govern the relationship between new development in Barry's Corner and Smith Field. The Barry's Corner Residential and Retail Commons has already—through feedback from residents and discussions with Boston Parks and Recreation—considered the ability of the building, through design and programming, to enhance Smith Field through its adjacency. The IMP should propose comparable strategies for the Basketball/Mixed-Use Project while paying careful attention to the design of the new roadways to border Smith Field. 224 Western Avenue and Teele Hall can also take on an enhanced relationship with the park through proposed use changes or public realm improvements. BRA.31

- **Interim Uses for Current Charlesview Site.** Although a portion of the current Charlesview Development—the Gateway site—contains a proposed project, the remainder is described in the IMPNF as a “long-term quad” and Harvard permit parking. The IMP should present alternative options for all or portions of the site, to be developed in consultation with the BRA and Allston community. BRA.32
- **Health and Life Science Center.** Although not being permitted through this IMP, the Health and Life Science Center is a key contributor to the future of Barry’s Corner. The IMP should describe the project’s contributions to the goals for Barry’s Corner, as well as those for the Western Avenue Corridor and the area-wide open space and circulation systems. BRA.33
- **28 Travis Street/168 Western Avenue.** The 28 Travis Street site has been discussed in the context of the proposed Fifth IMP Amendment, and 168 Western Avenue is home to the newly-occupied Swissbäkers location. Together they represent a long-term development opportunity for a new project adjacent to both Barry’s Corner and to the Health and Life Science Center. The IMP should describe the University’s thinking about potential long-term uses and timeframe for these properties. BRA.34
- **182 Western Avenue.** Harvard’s property at 182 Western Avenue is currently occupied by Stone Hearth Pizza. Given the key location of the site as part of Barry’s Corner, the IMP should address potential long-term uses or redevelopment of the property. BRA.35

## 2. Western Avenue Corridor

Subject to further conversation with the BRA, the IMP may treat the Western Avenue corridor as a district as described here, or alternatively as part of a treatment of the area’s overall public realm. In addition to any detailed district-level content from the overall framework elements that is better incorporated into a district-level plan, the Western Avenue corridor plan should include the following:

- **District Vision, Principles, Goals.** The IMP should present a statement of the vision, principles, and goals guiding Harvard’s planning for the Western Avenue Corridor. The IMP should reference these in connection with proposed projects, transportation and open space proposals, and other plan elements, in order to show that those proposals are consistent with and serve to implement the vision, principles, and goals. BRA.36
- **Street Wall.** Special consideration should be given to a discussion of the cumulative effect of the 6-9 story building massing currently proposed by two IMP projects and the permitted Science Complex and the attitude toward the establishment of a street wall edge. BRA.37
- **Cross-Street Connections.** Western Avenue is an important thoroughfare, but it is also a barrier between the activities on the northern side and those on the southern side, which traditionally have had little or no relationship to one another. In the future, however, the connection between those activities will be crucial. The IMP should describe strategies for knitting together the northern and southern sides of this major street, including: BRA.38
  - New and enhanced pedestrian and bicycle crossings that support the larger circulation system for those modes.
  - New activity nodes (e.g. the “Allston Square” concept proposed in conjunction with the Allston Science Complex) that draw visitors from one side of the street to the other and create destinations along the corridor.
  - Corridor-wide pedestrian and public realm enhancements.
  - Corridor-wide transportation enhancements, e.g. bus and shuttle stops, bicycle infrastructure, traffic lights and other traffic flow measures.



### 3. Future Enterprise Research Campus

Most of the future Enterprise Research Campus is outside of the proposed IMP Area, and thus information describing the University's overall intent for this area is expected to be more general and flexible than for areas within the IMP zone. In addition to any detailed district-level content from the overall framework elements that is better incorporated into a district-level plan, the Enterprise Research Campus plan should include the following:

- **District Vision, Principles, Goals.** The IMP should present a statement of the vision, principles, and goals guiding Harvard's planning for the future Enterprise Research Campus, including the Hotel/Conference Center. The IMP should reference these in connection with proposed projects, transportation and open space proposals, and other plan elements, in order to show that those proposals are consistent with and serve to implement the vision, principles, and goals. BRA.39
- **Use and Design Guidelines.** Detailed planning and building proposals for this district are not expected in this IMP. However, given the importance of understanding the relationship between future development and the long-term planning framework that is starting to be put in place, the IMP should set forth proposed guidelines for building use and design guidelines at the parcel level. For example, in some locations buildings may present a more public or active façade, and in others a more private or passive face. In particular, the IMP should explore in greater detail the relationship between future development and the greenway, Western Avenue, and key circulation elements. BRA.40

### 4. HBS Campus

- Specific submission requirements to be determined in consultation with the BRA Urban Design Department, with reference to the attached comment letter. BRA.41

### 5. Athletics

- Specific submission requirements to be determined in consultation with the BRA Urban Design Department, with reference to the attached comment letter. BRA.42

## II. PROPOSED INSTITUTIONAL PROJECTS

Most of the Proposed Institutional Projects need more information both on the specifics of the project and on the relationship between the project and the larger context. None of the projects are presented in the context of larger framework elements. The IMP must address this disconnect between the Proposed Institutional Projects and the framework plan by integrating the concepts in text and graphics at all scales: the project level, the district level, and the area-wide framework level.

### Key Principles and Goals

- **Active Ground Floor Uses.** Consistent with the district guidelines to be formulated as described above, institutional buildings in those parts of the campus that interface with the public realm should contain ground floor uses with a public element, as well as a mix of uses that encourages activity throughout the day and evening. In areas identified as key placemaking opportunities, such as Barry's Corner, the public element should prevail and the need for active uses is even greater.
- **Consistency with Planning Framework.** Individual projects need to be consistent with the larger planning framework and help implement key area-wide goals, and the IMP should demonstrate that they accomplish this.

### Submission Requirements

- **Common Submission Requirements.** All Proposed Institutional Projects require the following:
  - **Phasing and Timing.** The IMP should describe anticipated phasing and timing of the principal projects and the relationship of that timing to key infrastructure elements, primarily new roadways but also other elements of the circulation, open space, and public realm systems. BRA.43
  - **Comprehensive Context.** All Proposed Projects should be described in the IMP with reference to all other projects proposed or underway in the vicinity, whether or not they are zoned or permitted through the IMP, and with reference to the framework plan. BRA.44
  - **Narrative on Role of Project in Context.** As described in the BRA Urban Design comment letter, the IMP should include a narrative on the role of each project in the context of the broad planning framework and the district guidelines, i.e. a description of those elements and principles of the long term vision that are being implemented by the current projects. BRA.45
- **Mixed-Use Institutional Project.** The IMPNF states that the proposed project aims to “enliven Barry's Corner, enhance the pedestrian environment, and link students, faculty members, staff and the community,” goals that are consistent with the BRA view that this project—and the Gateway site on which it will be built, are critical to creating the character and identity of Barry's Corner as a neighborhood center and meeting place of campus and community, as well as a destination for the broader city and region. Key elements of a full proposal include:
  - **Ground Floor Uses.** The IMP should present more detail on potential ground floor uses in the project. Given the importance of the site, those uses must have a clearly public character (e.g. retail, publicly accessible cultural or educational uses, etc.) and hours of operation that serve to activate the project and its surroundings morning, afternoon, evening, and weekends. Beyond identifying specific types of uses that might be included, the IMP should propose BRA.46

performance criteria that will guide the selection of uses and the design of the project in order to ensure the proper relationship between those uses and the key public realm elements. BRA.47

- **Relationship to Context.** The relationship between the project and its context—the “grove of trees” and the other public space to be created on the Gateway site—is crucial to the functioning of Barry’s Corner. The IMP must clearly articulate the ways in which both the program and design of the building relate to and support the goals for the adjacent public spaces, as well as Barry’s Corner as a whole. BRA.48
- **Other Uses in Project.** The IMP should describe potential other uses in the building, which the IMPNF states “may include administrative or academic office space,” with greater specificity. BRA.49

- **Basketball Venue and Mixed-Use Project**

- **Rationale for Location.** The IMP should demonstrate the compatibility of this project with the other proposed uses in Barry’s Corner, and with the overall goals for Barry’s Corner. At a minimum, it should contain the following information: BRA.50
  - **Proposed Uses.** Proposed uses (e.g., number of practices, number of games, other uses), hours of use, and other information to explain the compatibility with Barry’s Corner.
  - **Public Programming.** An explanation of any planned public programming or opportunities for public access to the facility, given the key role that buildings in Barry’s Corner must play in creating a destination and engaging the public realm.
  - **Alternatives Analysis.** A description of alternative sites contemplated for this facility and the reasons for their rejection.

- **Complementary Uses.** The IMPNF names “Housing/Office/Institutional/Retail” as potential complementary uses in the project. These present very different characteristics with regard to their relationship to the core use of the project and to the goals for Barry’s Corner. The IMP should explore in greater detail scenarios for complementary uses and analyze the advantages and disadvantages of those scenarios. BRA.51
- **Relationship to Context.** The proposed project will play a key role in the future Barry’s corner and must support and enhance the proposed uses at the Barry’s Corner Residential and Retail Commons and the Gateway site, in addition to forming a respectful neighbor to Smith Field, and one that enhances that important public space. Accordingly, the IMP must explain the physical and programmatic relationships among these elements. BRA.52
- **Future Use of Current Facility.** The IMP should explain the intended use for the existing basketball facility. BRA.53
- **Relocation of Harvard Education Portal.** Given that the proposed Basketball Venue and Mixed-Use Project would displace the Harvard Education Portal, the IMP should discuss the options for relocation of that facility and their consistency with the overall goals of the IMP and the plan for Barry’s Corner. BRA.54

- **Hotel/Conference Center**

- **Location.** In order for the Hotel/Conference Center to meet the standard for an approvable project under Article 80 of the Boston Zoning Code, as well as to ensure consistency with the open space, transportation, and other elements of the planning framework discussed above, the IMP must describe the proposed location and site in more detail. BRA.55

- **Rationale for Location.** The IMP should provide a description of the reasons the specified site—and general area—was selected, and a description of alternative areas contemplated for this facility and the reasons for their rejection. BRA.56
- **Relationship to Context.** The IMP must describe the intended physical and programmatic relationship to the project’s context, in particular the Western Avenue District and the future Enterprise Campus. The project should be conceived to support the goals of the Western Avenue Corridor referenced above. Specifically, it should present an active face to the street, provide uses that are open to and inviting to the public, help tie together the northern and southern sides of Western Avenue, and both support and take advantage of the larger framework elements connecting the project to the future Enterprise Campus, Harvard Business School, the rest of Allston, and Cambridge. BRA.57  
BRA.58
- **Other**
  - **Other Allston Properties.** The IMP should identify any institutional uses to be included in other Harvard-owned properties, including 114 Western Avenue and 224 Western Avenue. BRA.59
  - **Relocation of Institutional Uses.** The IMP should describe any proposed permanent or temporary relocation of existing institutional uses as a result of Proposed Institutional Projects. BRA.60
  - **BRA Urban Design Requirements.** Submission requirements for other Proposed Institutional Projects should be determined with reference to the Urban Design letter and ongoing consultation with the BRA. BRA.61

### III. TRANSPORTATION AND STREETS

The comment letter from the Boston Transportation Department is included in Appendix 1 and is hereby incorporated by reference.

#### Key Principles and Goals

- **Integrated Transportation System.** The focus should be on planning for a comprehensive transportation system that encompasses a pedestrian/open space system, a bicycle network, public transportation and shuttle routes, campus and neighborhood parking, and a hierarchy of roadways that includes both a regional road network, roads that collect and distribute travelers to and from the neighborhood and campus, and smaller neighborhood and campus streets. The system's elements should all fit together and support one another as part of an integrated system that serves residents of the neighborhood, commuters, and visitors alike while minimizing reliance on the automobile.
- **Complete Streets.** New streets should be laid out and designed to adhere to the city's Complete Streets guidelines.
- **Mobility Hubs.** Mobility hubs integrate infrastructure from multiple modes in close proximity and combine them with technology and information to facilitate effective transportation choices. The nature of Harvard's future development and trip generation patterns makes this a useful concept for implementation throughout Allston and across all Harvard facilities.
- **Green Streets.** New and, to the extent possible, existing streets should adhere to green streets practices that address storm water management, energy-efficient lighting and signals, tree trenches, use of recycled and impervious street building materials, and appropriate street maintenance.
- **Smart Technologies.** Harvard's transportation planning must use "smart" technologies such as interconnected traffic signals and video feeds, digital tags and sensors to monitor on-street parking, and other state-of-the-art practices for managing transportation demand, facilitating the use of alternative modes, and effectively managing traffic and parking.

#### Submission Requirements

- **Transportation Impact Study Scope and Methodology.** Harvard should consult with the Boston Transportation Department in order to determine the necessary baseline data and complete scope and methodology of transportation impact studies to be conducted in association with the IMP <sup>BRA.62</sup>
- **Parking Management Plan.** Harvard shall submit a parking management plan as part of the IMP, as outlined in the Boston Transportation Department letter. <sup>BRA.63</sup>
- **Regional Pedestrian and Bicycle Network.** Harvard should meet with City agencies, DCR, and MassDOT to coordinate regional pedestrian and bicycle connections, including future connections across the Charles River bridges. <sup>BRA.64</sup>
- **Intersections and Pedestrian Crossings.** The IMP should propose specific improvements to intersections and pedestrian crossings, particularly in the areas slated to undergo development in the short to medium term. <sup>BRA.65</sup>
- **Mobility Hubs.** The IMP should explore ways in which the concept of mobility hubs can be implemented in the short, medium, and long terms. <sup>BRA.66</sup>
- **Mode Share and Transportation Demand Management.** The IMP should describe the University's mode share goals for its development in Allston and any strategies to be implemented in order to achieve those goals. <sup>BRA.67</sup>

- **Bus and Shuttle Service Plan.** As stated in the letter from the Boston Transportation Department, the IMP should include a bus and shuttle service plan. The University should provide an update on efforts to allow access to the shuttle buses to Allston residents, and the plan should also provide projections of growth in demand for shuttle services and anticipated growth in the fleet, with the aim of determining future need for layover and maintenance facilities such as the one proposed for 28 Travis Street. Regardless of the projected level of growth in the fleet, the IMP should identify locations where these uses could be accommodated in the long term. BRA.68
- **Phasing of Principal Projects.** The IMP should describe anticipated phasing and timing of the principal projects and the relationship of that timing to new roadways and other transportation infrastructure and services. BRA.69
- **New Commuter Rail Station.** The proposed commuter rail station at New Brighton Landing would bring rail service to North Allston/North Brighton for the first time in decades. The IMP should incorporate Harvard's thinking about how to take advantage of the service to serve the University's growth, as well as how to work with the City of Boston and other entities to improve access to the station from North Allston/North Brighton. BRA.70

## IV. HOUSING

### Key Principles and Goals

- **Housing as a Key Component of Neighborhood Development.** Housing has been a central focus of all planning efforts in the neighborhood, and should remain an element of all thinking about ongoing change in North Allston/North Brighton. The Barry's Corner Residential and Retail Commons will add hundreds of units of market-rate and affordable units to the neighborhood housing stock, and there may be other opportunities for Harvard to participate in the creation of new housing in the neighborhood.

### Submission Requirements

- **Harvard Affiliate Housing.** The IMP should describe the University's goals and policies regarding additional housing for graduate students, faculty, and other affiliates, and the extent to which those goals might be met in the longer-term through projects in North Allston/North Brighton. BRA.71
- **Use of Linkage Funds.** In addition to the linkage funds generated by the Health and Life Science Project, future Proposed Institutional Projects and projects built in conjunction with Harvard, such as the Barry's Corner Residential and Retail Commons, will generate additional funding for the Neighborhood Housing Trust and the Neighborhood Jobs Trust. As committed to in the Science Complex Cooperation Agreement, Harvard should work with the BRA, other City agencies, and the Task Force to identify opportunities to support projects and initiatives in the immediate neighborhood. The IMP should outline efforts made by the University in this regard. BRA.72
- **Potential Additional Housing.** The IMP should identify any Harvard land that could be considered for additional housing construction in the short, medium, and long terms. BRA.73

## V. RETAIL

### Key Principles and Goals

- **Retail as a Neighborhood Service.** Discussions with the Allston community have repeatedly identified the desire for more retail supply in order to meet the daily needs and desires of neighborhood residents. The NASFP called for approximately 200,000 square feet of retail and services in a mixed-use “Main Street” format at Barry’s Corner, with a preference for neighborhood-focused retail rather than high-end or chain businesses. This was paired with a call for enhanced retail at Brighton Mills and additional supply in other locations along Western Avenue.
- **Retail as a Key Activating Element.** Retail will also be a key element in activating the new places to emerge from the IMP and other planning endeavors. The retail supply should include elements that can serve residents, employees, students, and visitors alike, drawing people into Barry’s Corner and other key locations and giving them a reason to stay there.

### Submission Requirements

- **Barry’s Corner Retail Inventory.** Projects currently underway, notably the Barry’s Corner Residential and Retail Commons, in addition to the recent addition of Stone Hearth Pizza and Swissbäkers, will provide new retail vitality in Barry’s Corner. The IMP should provide an inventory of existing and planned retail in Barry’s Corner by type and square footage. BRA.74
- **Barry’s Corner Retail Plan.** The IMP should include, at a minimum, the following: BRA.75
  - **Retail Goals.** A summary of achievable retail goals for neighborhood that respond to the needs of both Harvard affiliates and residents at large.
  - **Retail Implementation.** An implementation plan showing how key retail goals can be achieved during appropriate phases of development of the Harvard campus and of other parcels of Harvard-owned land in ways that support the overall planning and placemaking goals described above.
  - **Scope of Potential Retail.** Proposed retail square footage, anticipated types, and locations within IMP Area, with specific reference to the Health and Life Science Building, the two major Proposed Institutional Projects in Barry’s Corner, and 224 Western Avenue.
  - **Business Development Strategies.** Potential strategies for small business development that will maximize the potential for locally-owned retail establishments and for entrepreneurial activity by residents of the neighborhood.



## VI. ENVIRONMENTAL SUSTAINABILITY

### Key Principles and Goals

- **Energy and Climate Change.** In 2000, Mayor Menino recognized that “carbon dioxide and other greenhouse gases (GHG) released into the atmosphere will have a profound effect on the Earth’s climate” and that “the City of Boston can take important steps to reduce greenhouse gas emissions and increase energy efficiency.” Harvard’s planning should set ambitious goals in the area of climate change, aiming for a significantly lower level of carbon emissions than the existing campus, or even carbon neutrality. High performance buildings, conservation techniques, use of renewable fuel sources (wind, solar, geothermal, thermal energy from sewer lines, biomass), combined heat and power generation, and carbon sequestration should all be considered as part of the campus planning process. BRA.76
- **Environmental Restoration.** Harvard’s planning and design work should commit to the principle of restoring environmental health and natural systems to the greatest extent possible. This includes committing to the highest possible standard of environmental remediation for any sites that are determined to be contaminated and, when feasible and compatible with other goals, pursuing the restoration of the historic functioning of the landscape with regard to hydrology and other natural functions. BRA.78
- **Landscape and Ecology.** A well-considered program of landscape design can not only create a high-quality aesthetic realm but can also enhance regional biodiversity, help mitigate air pollution, reduce heating and air conditioning costs and associated energy consumption, reduce water consumption, and reduce stormwater runoff and water pollution. Sustainability should be a primary consideration in the design of the campus open space system as a whole as well as the design of individual spaces and the design of the roadway network. Landscape approaches should be integrated with sustainability goals. BRA.79

### Submission Requirements

- **University Sustainability Principles.** The IMP should clearly state and explain Harvard’s sustainability principles. In particular, the document should describe how Harvard’s capital planning and approvals process for new construction and major renovation of existing campus facilities has been expanded to incorporate the sustainability principles in its review. BRA.80
- **Existing Sustainability initiatives.** The IMP should summarize key existing sustainability initiatives; this summary should include an inventory of the University’s LEED-certified and other high-performance buildings in Allston. BRA.81
- **Application of Sustainability Principles.** The IMP should describe how Harvard’s sustainability principles have been applied throughout the development of the IMP and should discuss the aspects of the Proposed Projects and other investments that further those principles and the performance areas described above. BRA.82
- **Performance Standards and Indicators.** The IMP should go beyond broad sustainability principles to propose specific performance standards and a system of indicators and metrics to track performance, in line with the University’s stated principle of “Developing planning tools to enable comparative analysis of sustainability implications and to support long-term economic, environmental and socially responsible decision-making.” BRA.83
- **Innovative Water Strategies.** The IMP should present strategies for innovative approaches to water and stormwater management, e.g. rainwater capture, water use reduction strategies, reuse of graywater, and on-site or on-campus wastewater treatment. BRA.84

- **Stormwater Goals.** The IMP should provide a statement of Harvard's goals related to stormwater retention and treatment and to water quality, as well as a comprehensive plan for all of Harvard's North Allston property developed at the sub-watershed scale that is designed to integrate stormwater control systems into the open space system and urban infrastructure. BRA.85
- **Stormwater Strategies.** The IMP should articulate the ways in which the planning and design work related to water, sewer, and stormwater issues are being integrated with other Harvard Allston Campus infrastructure issues, the sustainability agenda, and any other relevant components of the planning framework. The IMP should provide detail on specific stormwater strategies/Best Management Practices (BMPs) and should provide project-wide mitigation commitments, timetables for those commitments, and estimated cost. BRA.86
- **Climate Adaptation.** Recent major storms have highlighted the vulnerability of significant areas of Boston, including Allston, to rising sea levels and storm-related flooding. Pursuant to Mayor Menino's announcements of January, 2013, the BRA will seek to increase climate preparedness in new development by, among other actions, including climate change preparedness as a required design component under the Article 80 Development Review Guidelines and developing climate-preparedness guidelines and checklists. To this end, the IMP should include the following, subject to further discussion and definition: BRA.87
  - **Vulnerability Assessment.** University's assessment of vulnerability of Allston property
  - **Proposed Adaptation Measures.** The IMP should propose specific steps to address that vulnerability through both system-level infrastructure (e.g. landscape features that can mitigate flooding) and project-level design features to make buildings more resilient.
- **Grow Boston Greener.** Trees are an integral part of many landscapes and streetscapes and an important element of an overall sustainability plan. Last year, Mayor Menino announced Grow Boston Greener, a campaign to plant 100,000 trees by 2020. For the city to achieve that goal, it is important for both private residents and large institutions to plant and maintain the bulk of those trees. The IMP should describe opportunities for Harvard to assist with the Grow Boston Greener campaign as part of an overall landscape plan, including the following information: BRA.89
  - **Number of New Trees.** Number of new trees, both street trees and trees in landscaped areas, to be planted with a maintenance commitment by Harvard. The IMP should show the locations and types of trees proposed, at the level of detail appropriate for each campus district based on the proposed phasing of development for that district.
  - **Maintenance Commitments.** Existing of planned commitments for maintenance assistance with existing trees on streets and other public land.
  - **GIS Database.** Possibilities for Harvard to support the Grow Boston Greener effort with a GIS database of tree inventories and locations, similar to the inventory of campus trees maintained as a GIS layer by Harvard Facilities Maintenance.

## VII. ECONOMIC DEVELOPMENT

### Key Principles and Goals

- **Employment and Workforce Development.** Harvard is already a major employer in the City of Boston, and the development of the Allston campus will only expand the number of Boston-based employees. At the same time, the development of the campus will be one factor leading to a shift in the types of employment available in the Allston-Brighton neighborhood. Harvard is an active partner in the City's workforce development efforts, and the City looks forward to working with Harvard to explore creative approaches to education, employment, and workforce development.
- **Technology Transfer and Commercialization of Research.** Harvard's planned major life sciences research holds great potential to yield economic benefits for the City of Boston. The IMP is an opportunity to explore the possibilities for a long-term plan that leverages academic research for business development, particularly in the realm of the life sciences.
- **Business Development.** In addition to supporting public realm and quality of life goals, retail is an important component of any economic development strategy. The Allston campus will yield important opportunities to support the local business sector by capturing spending from Harvard affiliates and visitors while helping to meet resident needs. As a major property owner and developer with academic resources in business administration and other key fields, Harvard can play an important role in the development of the local business community. In addition, the university's role as a major purchaser of goods and services suggests that there are untapped opportunities for Boston-based businesses to benefit from current University spending.

### Submission Requirements

- **Current and Projected Harvard Employment.** The IMP should provide figures on current and projected employment over the term of the IMP by Harvard in Allston, including breakdown of new jobs, relocated jobs, contractors, and estimated construction employment by project. BRA.90
- **Outreach and Training.** The IMP should describe outreach and training initiatives designed to help Allston/Brighton residents and Boston residents generally gain access to employment opportunities at Harvard and on Harvard-associated construction sites. There is particular interest in exploring programs to recruit, train and promote the population of neighborhoods adjacent to the proposed development. Harvard shall collaborate with the BRA, in particular the Office of Jobs and Community Services, to create and implement a workforce development plan to prepare residents for employment opportunities at Harvard and at other employers with similar workforce needs, as well as a plan for disseminating information about employment opportunities and goals for local hiring. BRA.91
- **Purchasing.** The IMP should provide background information on the structure and scale of Harvard's purchasing activities, an estimate of purchases from Boston-based businesses, and current outreach activities to Boston-based businesses or other efforts aimed at increasing local purchasing and/or building the capacity of local businesses to provide goods and services to Harvard. BRA.92
- **Taxes and PILOTs.** In the context of the master planning process, Harvard should meet with the City's Assessor to discuss property tax generation and PILOTs and to establish a plan or strategic approach to the payment of PILOTs acceptable to the City Assessor. BRA.93

## VIII. PUBLIC BENEFITS PLAN

The public benefits plan for the IMP should build on both existing commitments (some of which may be renegotiated) and on the ongoing work that is associated with, if not necessarily part of, the IMP. The starting point for the former is the 2008 Cooperation Agreement executed in connection with the Science Complex, while the latter items include the Harvard Ceramics Program relocation to 224 Western Avenue, which may provide opportunities for delivery of some public benefits, and the Barry's Corner Residential and Retail Commons.

Of prime concern are the "Transformative Project" discussed in the 2008 Cooperation Agreement and the future of the Harvard Education Portal.

### Submission Requirements

- **Transformative Project.** The BRA plans to start discussions about the Transformative Project in advance of Harvard's submission of the IMP. However, the IMP should present the most up-to-date information about the status of any proposals for the Transformative Project and, more importantly, about the potential for any Proposed Projects to play a role in implementing one or more elements of the Transformative Project. BRA.94
- **Relocation of Harvard Education Portal.** Given that the proposed Basketball Venue and Mixed-Use Project would displace the Harvard Education Portal, the IMP should discuss the options for relocation of that facility and their consistency with the overall goals of the IMP and the plan for Barry's Corner. Options should be analyzed in detail with a discussion of pros and cons of each, as well as an assessment of likely timing of the move under different scenarios. BRA.95
- **Smith Field Improvements.** Smith Field is in need of both short-term improvements and long-term planning and capital investments. Harvard should engage in a conversation with the Boston Parks and Recreation Department about potential forms of support for Smith Field as part of a comprehensive public benefits package. BRA.96
- **Other Public Realm Improvements.** In conjunction with the BRA, Harvard shall—as part of or parallel to the IMP—create an inventory of potential public realm improvements that could be implemented in the short, medium, and long terms. This inventory can inform the new package of public benefits for the IMP as well as the city's own capital plan. BRA.97

## IX. CONSTRUCTION PHASING AND MANAGEMENT

### Submission Requirements

- **Phasing of Principal Projects and Infrastructure.** The IMP should describe anticipated phasing and timing of the principal projects and the relationship of that timing to key infrastructure elements, primarily new roadways but also other elements of the circulation, open space, and public realm systems. BRA.98
- **Construction Management Strategy.** Given the number of projects proposed in the IMP, many of which are in close proximity to one another and to the evolving Barry's Corner area, the IMP should present an outline construction management strategy, the exact scope of which shall be determined through consultation with the Boston Transportation Department and the BRA. The strategy should show how Harvard and its development partners will minimize and mitigate any construction impacts on current and future residents as well as on existing and planned retail and public realm elements. BRA.99

## X. 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 to the BRA as required by Section 80A-2 of the Code. This Notice shall be published within five (5) days after the receipt of the IMP by the BRA. In accordance with Article 80, public comments on the IMP 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 1. Following publication of the Public Notice, Harvard shall submit to the BRA a copy of the published Notice together with the date of publication.
- **Template.** Harvard should complete the Institutional Partnership Template (attached in Appendix 2) to facilitate collection of standardized data by the BRA. The template is available electronically upon request. This tool will become a standard request as part of the bi-annual updates required by Article 80D.
- **100,000 Square Foot DIP Exemption.** Pursuant to agreements between Harvard and the BRA, there will be no new exemption for any Development Impact Project (DIP) uses in this IMP. The 100,000 square foot exemption has already been applied to the Science Complex project approved as part of the Third Amendment to the previous IMP.

**APPENDIX 1  
TEMPLATE FOR IMP/DPIR PUBLIC NOTICE**

**PUBLIC NOTICE**

The Boston Redevelopment Authority (“BRA”), pursuant to Article 80 of the Boston Zoning Code, hereby gives notice that an Institutional Master Plan (“IMP”) / Draft Project Impact Report (“DPIR”) was submitted by the NAME OF INSTITUTION, on MONTH, DAY, AND YEAR. The NAME OF INSTITUTION IMP describes currently proposed institutional projects on the NAME OF INSTITUTION campus. The DPIR describes the design and impacts of the Proposed Project. DESCRIPTION OF IMP / DPIR. Approvals are required of the BRA pursuant Article 80 for the issuance of an Adequacy Determination / Preliminary Adequacy Determination by the Director of the BRA for the approval of the IMP/Project.

The IMP/DPIR may be reviewed at the Office of the Secretary of the BRA, Boston City Hall, Boston, Massachusetts 02210 between 9:00 a.m. and 5:00 p.m., Monday through Friday, except legal holidays. Copies may also be reviewed at LIBRARIES.

Public comments on the IMP/DPIR, including comments of public agencies, should be submitted to Mr. Gerald Autler, Senior Project Manager/Planner, BRA, at the address stated above or by email at [Gerald.Autler.BRA@cityofboston.gov](mailto:Gerald.Autler.BRA@cityofboston.gov) within sixty (60) days / forty-five (45) days of this notice or by \_\_\_\_\_, 20\_\_.

**BOSTON REDEVELOPMENT AUTHORITY**

Brian Golden, Secretary

**APPENDIX 2**  
**INSTITUTIONAL PARTNERSHIP TEMPLATE**



**Boston Institutional Partnership Program**  
Data and Information Request (Brief Version)

Data Category and Description	Data
<p><b>Facilities</b></p> <ul style="list-style-type: none"> <li><b>Total acreage owned in Boston</b> <ul style="list-style-type: none"> <li>Tax-exempt</li> <li>Taxable</li> </ul> </li> <li><b>Total Gross Floor Area owned in Boston</b> <ul style="list-style-type: none"> <li>Tax-exempt</li> <li>Taxable</li> </ul> </li> <li><b>Total Gross Floor Area Leased in Boston</b></li> <li><b>Total Gross Floor Area proposed, under review, in construction</b></li> <li><b>New properties purchased or leased since previous update</b></li> </ul>	
<p><b>Student Population (as applicable)</b></p> <ul style="list-style-type: none"> <li><b>Undergraduate</b> <ul style="list-style-type: none"> <li>Part-time</li> <li>Full-time</li> </ul> </li> <li><b>Graduate</b> <ul style="list-style-type: none"> <li>Part-time</li> <li>Full-time</li> </ul> </li> <li><b>Post-doctoral</b></li> <li><b>Other (e.g. not in degree program)</b></li> </ul>	
<p><b>Patients (as applicable)</b></p> <ul style="list-style-type: none"> <li><b>Annual inpatient visits to Boston facilities</b></li> <li><b>Annual outpatient visits to Boston facilities</b></li> <li><b>Annual emergency room visits</b></li> </ul>	
<p><b>Employees</b></p> <ul style="list-style-type: none"> <li><b>Total employee count</b> <ul style="list-style-type: none"> <li>Staff (FTE)</li> <li>Faculty (FTE)</li> <li>Other (FTE)</li> <li>Number living in Boston (not FTE)</li> </ul> </li> </ul>	
<p><b>Financial Information</b></p> <ul style="list-style-type: none"> <li><b>Annual operating budget</b></li> <li><b>Property tax payments</b></li> <li><b>PILOT payments</b></li> <li><b>Other payments (fees and permits)</b></li> </ul>	
<p><b>Housing</b></p> <ul style="list-style-type: none"> <li><b>Student Housing (as applicable)</b> <ul style="list-style-type: none"> <li>Undergraduates housed by institution <ul style="list-style-type: none"> <li>Dormitory/apartment beds</li> <li>Leased housing</li> </ul> </li> <li>Graduate students housed by institution <ul style="list-style-type: none"> <li>Number living in owned housing</li> <li>Number living in leased housing</li> </ul> </li> </ul> </li> <li><b>Employee Housing</b> <ul style="list-style-type: none"> <li>Number of units owned by institution</li> <li>Number of units leased by institution</li> <li>Number of employees housed by institution</li> </ul> </li> </ul>	

**Boston Institutional Partnership Program**  
Data and Information Request (Brief Version)

<b>Data Category and Description</b>	<b>Data</b>
<p><b>Transportation</b></p> <p><b>Total Trip Generation by Mode</b></p> <ul style="list-style-type: none"><li>Drive alone</li><li>Carpool</li><li>Public transportation</li><li>Walk</li><li>Bicycle</li><li>Other</li></ul> <p><b>Parking Facilities</b></p> <ul style="list-style-type: none"><li>Number of surface spaces (owned and leased)</li><li>Number of structured spaces (owned and leased)</li><li>Applicable charges</li></ul> <p><b>Transportation Demand Management Programs</b></p> <ul style="list-style-type: none"><li>T pass subsidies<ul style="list-style-type: none"><li>Amount/percentage of subsidy</li><li>Number of passes subsidized</li></ul></li><li>Number of carpool parking spaces</li><li>Number of bicycle spaces<ul style="list-style-type: none"><li>Covered</li><li>Uncovered</li></ul></li></ul>	

## **BRA Scoping Determination**

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**BRA.1            Integrated Context**

See Section 5.0, District Plans and Project Descriptions

**BRA.2            Coordination Across Districts**

See Section 3.0, Long-Term Vision; and Section 5.0, District Plans and Project Descriptions

**BRA.3            Orientation Towards Allston**

See Section 2.0, Existing Conditions; and Section 3.0, Long-Term Vision.

**BRA.4            District Approach**

See Section 5.0, District Plans and Project Descriptions

**BRA.5            Vision, Principles, Goals**

See Section 3.2, Long-Term Vision Planning Principles; and Planning Principles by district in Section 5.0, District Plans and Project Descriptions

**BRA.6            Long-term Planning Framework**

See Section 3.0, Long-Term Vision

**BRA.7            Urban Design Diagrams and Narrative**

See Section 3.0, Long-Term Vision

**BRA.8            District-level Materials**

See Section 5.0, District Plans and Project Descriptions

**BRA.9            Placemaking**

See Section 5.0, District Plans and Project Descriptions

**BRA.10           Public Realm**

See Section 5.0, District Plans and Project Descriptions

**BRA.11           Landscape and Open Space System**

See Section 5.0, District Plans and Project Descriptions

- BRA.12**      **Rena Park**
- See Section 5.0, District Plans and Project Descriptions
- BRA.13**      **Street and Block Plan**
- See Section 5.0, District Plans and Project Descriptions
- BRA.14**      **Integrated Transportation Network**
- See Section 5.0, District Plans and Project Descriptions
- BRA.15**      **Proposed Transportation Enhancements**
- See Section 5.0, District Plans and Project Descriptions; and Section 6.1, Transportation
- BRA.16**      **Campus Edges**
- See Section 5.0, District Plans and Project Descriptions
- BRA.17**      **Land and Building Use**
- See Section 5.0, District Plans and Project Descriptions
- BRA.18**      **Building Design Guidelines**
- See Section 5.0, District Plans and Project Descriptions
- BRA.19**      **Early Implementation**
- See Section 5.0, District Plans and Project Descriptions
- BRA.20**      **Phasing of Projects**
- See Section 4.6, Ten-Year Plan Phasing
- BRA.21**      **Phasing of Key Infrastructure**
- See Section 4.6, Ten-Year Plan Phasing
- BRA.22**      **Description of Property Holdings**
- See Section 2.2, Campus Overview
- BRA.23**      **Changes to IMP Area**
- See Section 1.4, IMP Boundary

- BRA.24**      **Support Uses**  
See Section 6.6, Support Services
- BRA.25**      **Vision, Principles and Goals**  
See Section 5.2, Barry’s Corner District
- BRA.26**      **Integrated Context and Analysis**  
See Section 5.2, Barry’s Corner District
- BRA.27**      **Open Space and Public Realm Plan**  
See Section 5.2, Barry’s Corner District
- BRA.28**      **Uses and Performance Criteria**  
See Section 5.2, Barry’s Corner District
- BRA.29**      **Massing Context**  
See Section 5.2, Barry’s Corner District
- BRA.30**      **Intersections and Pedestrian Crossings**  
See Section 5.2, Barry’s Corner District
- BRA.31**      **Relationship to Smith Field**  
See Section 5.2, Barry’s Corner District
- BRA.32**      **Interim Uses for Charlesview Site**  
See Section 5.4, Academic District
- BRA.33**      **Health and Life Science Center**  
See Section 5.3, Science and Enterprise District
- BRA.34**      **28 Travis Street/ 168 Western Avenue**  
See Section 5.2, Barry’s Corner District
- BRA.35**      **182 Western Avenue**  
See Section 5.2, Barry’s Corner District

- BRA.36**      **District Vision, Principles, Goals**  
See Section 3.0, Long-Term Vision
- BRA.37**      **Street Wall**  
See Section 3.0, Long-Term Vision
- BRA.38**      **Cross-Street Connections**  
See Section 3.0, Long-Term Vision
- BRA.39**      **District Vision, Principles, Goals**  
See Section 5.3, Science and Enterprise District
- BRA.40**      **Use and Design Guidelines**  
See Section 5.3, Science and Enterprise District
- BRA.41**      **HBS Campus**  
See Section 5.4, Academic District
- BRA.42**      **Athletics**  
See Section 5.5, Athletics District
- BRA.43**      **Phasing and Timing**  
See Section 4.6, Ten-Year Plan Phasing
- BRA.44**      **Comprehensive Context**  
See Section 4.0, Ten-Year Plan
- BRA.45**      **Narrative on Role of Project in Context**  
See Section 5.0, District Plans and Projects
- BRA.46**      **Ground Floor Uses**  
See Section 5.2, Barry’s Corner District
- BRA.47**      **Performance Criteria**  
See Section 5.2, Barry’s Corner District

- BRA.48 Relationship to Context**  
See Section 5.2, Barry’s Corner District
- BRA.49 Other Uses in Project**  
See Section 5.2, Barry’s Corner District
- BRA.50 Basketball Venue: Rationale for Location**  
See Section 5.2, Barry’s Corner District
- BRA.51 Basketball Venue: Complementary Uses**  
See Section 5.2, Barry’s Corner District
- BRA.52 Basketball Venue: Relationship to Context**  
See Section 5.2, Barry’s Corner District
- BRA.53 Basketball Venue: Future Use of Current Facility**  
See Section 5.2, Barry’s Corner District
- BRA.54 Relocation of Education Portal**  
See Section 5.2, Barry’s Corner District
- BRA.55 Hotel/ Conference Center: Location**  
See Section 5.3, Science and Enterprise District
- BRA.56 Hotel/ Conference Center: Rationale for Location**  
See Section 5.3, Science and Enterprise District
- BRA.57 Hotel/ Conference Center: Relationship to Context**  
See Section 5.3, Science and Enterprise District
- BRA.58 Hotel/ Conference Center: Goals of the Western Avenue Corridor**  
See Section 5.3, Science and Enterprise District
- BRA.59 Other Allston Properties**  
See Section 5.3, Science and Enterprise District

- BRA.60 Relocation of Institutional Uses**  
See Section 5.4, Academic District
- BRA.61 BRA Urban Design Requirements**  
See Section 5.0, District Plans and Projects
- BRA.62 Transportation Impact Study Scope and Methodology**  
See Section 6.1, Transportation
- BRA.63 Parking Management Plan**  
See Section 6.1, Transportation
- BRA.64 Regional Pedestrian and Bicycle Network**  
See Section 6.1, Transportation
- BRA.65 Intersections and Pedestrian Crossings**  
See Section 6.1, Transportation
- BRA.66 Mobility Hubs**  
See Section 6.1, Transportation
- BRA.67 Mode Share and TDM**  
See Section 6.1, Transportation
- BRA.68 Bus and Shuttle Service Plan**  
See Section 6.1, Transportation
- BRA.69 Phasing of Principal Projects**  
See Section 4.6, Ten-Year Plan Phasing
- BRA.70 New Commuter Rail Station**  
See Section 6.1, Transportation
- BRA.71 Harvard Affiliate Housing**  
See Section 6.9, Housing



<b>BRA.72</b>	<b>Use of Linkage Funds</b>
	See Section 6.9, Housing
<b>BRA.73</b>	<b>Potential Additional Housing</b>
	See Section 6.9, Housing
<b>BRA.74</b>	<b>Barry’s Corner Retail Inventory</b>
	See Section 6.10, Retail
<b>BRA.75</b>	<b>Barry’s Corner Retail Plan</b>
	See Section 6.10, Retail
<b>BRA.76</b>	<b>Climate Change Goals</b>
	See Section 6.4, Climate Change Adaptation
<b>BRA.77</b>	<b>Emissions Reduction Methods</b>
	See Section 6.2, Sustainability
<b>BRA.78</b>	<b>Environmental Restoration</b>
	See Section 6.2, Sustainability
<b>BRA.79</b>	<b>Landscape and Ecology</b>
	See Section 3.4, Design Guidelines
<b>BRA.80</b>	<b>University Sustainability Principles</b>
	See Section 6.2, Sustainability
<b>BRA.81</b>	<b>Existing Sustainability Initiatives</b>
	See Section 6.2, Sustainability
<b>BRA.82</b>	<b>Application of Sustainability Principles</b>
	See Section 6.2, Sustainability
<b>BRA.83</b>	<b>Performance Standards and Indicators</b>
	See Section 6.2, Sustainability

- BRA.84**      **Innovative Water Strategies**
- See Section 6.3, Water, Sewer, Stormwater
- BRA.85**      **Stormwater Goals**
- See Section 6.3, Water, Sewer, Stormwater
- BRA.86**      **Stormwater Strategies Integration**
- See Section 6.3, Water, Sewer, Stormwater
- BRA.87**      **Stormwater Strategies/ BMPs**
- See Section 6.3, Water, Sewer, Stormwater
- BRA.88**      **Climate Adaptation: Vulnerability Assessment and Proposed Measures**
- See Section 6.4, Climate Change Adaptation
- BRA.89**      **Grow Boston Greener**
- See Section 3.4, Design Guidelines
- BRA.90**      **Current and Projected Harvard Employment**
- See Section 6.8, Economic Impact
- BRA.91**      **Outreach and Training**
- See Section 6.8, Economic Impact
- BRA.92**      **Purchasing**
- See Section 6.8, Economic Impact
- BRA.93**      **Taxes and PILOTs**
- See Section 6.8, Economic Impact
- BRA.94**      **Transformative Project**
- See Section 7.0, Community Benefits
- BRA.95**      **Relocation of Education Portal**
- See Section 5.2, Barry’s Corner District

- BRA.96**      **Smith Field Improvements**  
See Section 5.2, Barry’s Corner District
- BRA.97**      **Other Public Realm Improvements**  
See Section 7.0, Community Benefits
- BRA.98**      **Phasing of Principal Projects and Infrastructure**  
See Section 4.6, Ten-Year Plan Phasing
- BRA.99**      **Construction Management Strategy**  
See Section 6.7, Construction Phasing and Management

**APPENDIX 3  
PUBLIC COMMENTS**

## **BRA MEMORANDUM**

TO: Gerald Autler, Project Manager  
FROM: David Grissino AIA, Senior Architect/Urban Designer  
DATE: January 28, 2013  
SUBJECT: **Harvard University Allston Campus**  
2012 Institutional Master Plan Notification Form

## **URBAN DESIGN SCOPING DETERMINATION COMMENTS**

### **Background**

Harvard University filed their Institutional Master Plan Notification Form (IMPINF) in October 2012. The IMPINF described nine new IMP Projects spread throughout the IMP area; seven projects are new construction or replacement of existing facilities and two projects are renovations of existing structures to remain. The IMPINF also references several projects which are outside the jurisdiction of the current IMPINF, but are important contributing factors to an understanding of the Harvard campus in Allston and the broader community at large. These projects include the Health and Life Science Center (formerly the Science Complex), the Barry's Corner Residential and Retail Commons, renovation of 224 Western Avenue, renovation of 28 Travis Street, and the on-going construction of Tata Hall.

Despite the seemingly large number of projects, this level of development activity represents a recalibration of the scope of Harvard's undertakings in the Allston community in the near-term. Unlike previous planning efforts which perhaps were over-reaching in their ambition, the focus today is on crafting a compelling vision and rational framework which can achieve tangible results. Such an approach would enable the University, the City, and the Allston community to identify a fixed set of aspirations, principles, and goals while preserving flexibility in the final physical design of the plan.

The IMP *must* identify the vision, mission, and principles which will guide the development of the campus in Allston and specifically describe how each proposed IMP project which is seeking approval will serve to advance and support that vision.

The IMPINF submitted narrative and illustrative information which began to describe their planning concepts. Chapter 3 outlined specific information regarding the individual proposed IMP projects while Appendix B presented a series of long-term framework plans which addressed issues such as vehicular circulation, land use, and view corridors. While useful as a starting point, the various concepts were isolated from one another and did not enable a clear understanding of the relationship between individual IMP projects to each other or to the broader planning concepts which were outlined. Due to the timing of the submission, specific information regarding the Barry's Corner Residential and Retail Commons and the renovation of 28 Travis Street was not included in the area context. The previously permitted Health and Life Science Center was only described by the site boundary.

These Scoping comments should therefore be viewed as a way to make connections between both scales of operation (individual projects and the long term planning principles) and to clarify how the IMP projects support the mission and vision for the campus and community. The following comments are structured in two ways, items that deal with the overall campus, and items that look more closely at various “campus precincts” which may include more than one currently proposed IMP project. These comments also request more details for the area context around proposed projects.

## **Overall Institutional Master Plan**

### *Urban Design Principles*

Several very positive on-going trends in Harvard’s physical growth in Allston should be built upon by any new series of projects and by the long term framework elements established to support their development. Those trends include the campus becoming more related to points south and west, increasingly becoming a more porous connector between the Cambridge and Boston communities, and becoming the vehicle through which large superblocks of industrial land are redefined as pedestrian oriented places.

DG.1

Perhaps the most compelling trend is the great opportunity for the public realm as new projects finally turn their faces toward Western Avenue and the Allston community. Historically, the physical development of the campus was focused on the Charles River and looked back toward the Cambridge campus. But with the development of the Harvard Innovation Lab, a significant presence for the university was established along Western Avenue, enlivening the street with activity and drawing in a wider range of people to the area.

As sites along Western Avenue are developed with uses such as science, hotel and conference, academics, and community-oriented spaces, this trend will be greatly expanded and will demand an understanding of not only how the two-sided redevelopment of Western Avenue will affect its overall character and qualities, but how the networks of spaces through the community and Harvard Business School campus can be enhanced to support this new destination. The same issues hold true for North Harvard Street, where the two-sided development of the area near Barry’s Corner provides an opportunity to stitch together previously separate pieces of the urban fabric at the intersection of the campus and the community.

As this development occurs, new streets and sidewalks are being created within large existing tracts of land to support this enhanced connectivity. As with more established portions of the campus and the surrounding neighborhood, definition of a hierarchy and differentiation of street types and character will enable the new development to fit seamlessly into the existing context.

To enable these trends to be clearly related to the long term planning concepts and specific IMP projects, a new comprehensive series of urban design diagrams and supporting narrative should be provided in the IMP. These analytical maps should discuss how individual issues

DG.2

such as land use, open space, pedestrian and vehicular circulation, work together as a *system* to support these trends and further the goals and vision of the university and community for the area. The maps should be sure to include specific and accurate information regarding *all* the various development activities in the area, either permitted, currently under review, or in construction. These diagrams should be accompanied by clear statements of specific urban design principles which will guide individual project development.

DG.3

DG.4

DG.5

Diagrams should be provided for various interrelated themes such as, but not limited to:

DG.6

- The opportunity to redefine the edges of the campus as they face the Allston community along the Western Avenue corridor, North Harvard Street, and Barry’s Corner
- The ability for growth to knit together the campus and community through the two-sided development of major streets and creation of new destinations for various users
- The opportunity to enhance existing and create new pedestrian and open space networks which will provide access these areas and destinations

It is typical of IMP submissions to describe how campus development impacts and enhances the surrounding community on all sides of its physical IMP boundary. However, most of the diagrams submitted in the IMPNF discussed the Allston campus development in the context of its relationship to Cambridge, showing how vehicular and pedestrian systems, land use, view corridors, or open space connections were related to areas far outside the boundary of the IMP area but only to the north and east. In any future submission or presentation, diagrams *must* include an equal consideration and representation of the area within the Allston community to the west and south of the campus.

DG.7

It is not expected that the framework diagrams show details regarding specific physical improvements which lie outside the timeframe of the 10-year IMP, rather that the principles are outlined in a comprehensive manner. However, additional diagrams must be submitted which clearly show the specific ways in which proposed IMP projects are implementing the first stages of the long term vision. In addition, an overall illustrative campus plan should be provided which places the IMP project site plan details requested individually below into a single graphic image.

DG.8

DG.9

### *Phasing*

The IMP should also provide more detailed information regarding the rationale behind the anticipated sequence of the execution of the proposed IMP projects. The IMPNF suggests that many of the projects early in the sequence are internal to the campus and would not have a direct impact on the community edges of the campus.

DG.10

Of particular concern is the suggestion that the redevelopment of Mixed-use Institutional Project (or “Apex” site) would not occur until the later phases of the planning timeline. The existing Charlesview residents will be vacating their buildings in the near future, which will leave the site vacant and not contributing to the surrounding community until redevelopment occurs or active interim uses are identified. The IMP should provide a list of viable interim uses for the Charlesview site and describe how those uses can help support the vision for Barry’s Corner in the near term.

DG.11

## Campus Precincts

### **Barry's Corner**

Despite having only two proposed IMP Projects located in the vicinity, the Barry's Corner area will see the greatest degree of change due to the presence of several other on-going projects being executed with Harvard's involvement. These projects include the renovation of 224 Western Avenue, development of the Barry's Corner Residential and Retail Commons, renovation of 168 Western Avenue, renovation of 28 Travis Street, and restarting of the Health and Life Science Center. The cumulative impacts of all these projects must be understood in order to fully evaluate the appropriateness of the uses and scale of development proposed under the IMPNF.

#### *Public Realm*

As the area throughout Barry's Corner becomes more pedestrian oriented and activated, a clearly articulated vision of the character and image of the area will help guide the future development. An illustrated and annotated precinct plan should be submitted which places the proposed IMP projects within the context of the many other projects noted above. The site plan should depict each of the proposed IMP projects with diagrammatic footprints which describe the potential location and size of the building on the site. The plan should highlight those elements and principles of the long term vision that are being implemented by the current projects. DG.12

A more developed site plan should also be submitted which describes the anticipated overall site organization of major ground floor elements. Although no specific building project is currently proposed, the potential locations for loading and service areas, access to underground parking, the main building entry, and other significant building program components should be discussed. Due to the concurrent review of the Barry's Corner Residential and Retail Commons, an understanding of the potential location of active ground floor uses should also be provided, noting how the projects work in unison to create a memorable and accessible destination. DG.13  
DG.14

With the renovation of 224 Western Avenue, a new series of public realm improvements are being implemented which incorporate specialty paving materials, site furnishings, landscape elements, and a design and configuration which are unique in the area. This system should be expanded throughout the area of the Western Avenue and North Harvard Street intersection in order to create a recognizable, distinctive, and memorable set of elements which will signal to pedestrians that they have entered Barry's Corner. An illustrated and annotated site plan should be provided at a scale large enough to identify those places that the system would be employed and how it would adapt and accommodate itself onto the various sites throughout the precinct. A description of the public realm elements should also be provided if they differ from those permitted for the 224 Western Avenue project. DG.15  
DG.16

#### *Use*

A successful public realm is greatly aided by the presence of an active and engaging ground



floor which is easily accessible and by facades which can enable the activities within the building to enliven the street. It is also valuable to have spaces on the ground floor which are available to the general public to use and enjoy. A clearly defined set of ground floor uses for the IMP projects should be provided, particularly for the Institutional/Mixed Use site. This defined set of uses should support the vision of Barry’s Corner as an active, memorable, and attractive place at the crossroads between the campus and community. In addition to ground floor uses, potential upper level uses should be defined for the “wrapper” of Basketball Venue.

DG.17

DG.18

A vitally important use that is being displaced by development on the Basketball Venue site is the Education Portal, which provides a wide range of important services to the Harvard and Allston communities. The same determination and energy given to finding sites within the immediate area for Ceramics (224 Western Avenue) and Fleet Management (28 Travis Street) should be given to finding a new home for the Education Portal in Barry’s Corner.

DG.19

*Height and Massing*

Along with the development of the Barry’s Corner Residential and Retail Commons, the proposed Basketball Venue and Mixed use Institutional projects will transform the qualities and character of Barry’s Corner by creating a two-sided streetscape experience lined with new activity and landscape elements. A discussion should be provided of how these IMP projects help shape the evolving massing context of the area. This should be supported by analytical diagrams, 3D models (physical and/or computer generated), and other methods which explain the relationship. All materials should incorporate the IMP projects into a context which extends south to Rena Street, west to Riverdale Street, north to the McCurdy Track, and east to include the previously permitted Health and Life Science Center. In addition to Science, the context should include all projects which have been built, permitted, or are currently in the development review process.

DG.20

DG.21

For the Barry’s Corner precinct study, at least three birds-eye views should be provided depicting the “future” condition only from vantage points north, south, and west of the intersection of Western Avenue and North Harvard Street. Diagrammatic site sections should also be provided which are taken perpendicular to Western Avenue, North Harvard Street, Grove Street, Smith Field Drive, Academic Way, and Academic Way Extension allowing the proposed massing to be evaluated in the context of the public realm and other surrounding buildings and open spaces. Locations of these sections should be determined in consultation with BRA Urban Design staff.

DG.22

DG.23

*Alternatives*

During the course of public meetings, questions were raised by the community regarding the location of the Basketball Venue. A discussion which outlines the rationale behind the proposed site for this use and investigations of alternative locations should be provided. A matrix should be created to evaluate the proposed site and alternative sites based on the facility’s size, adjacencies, access needs, parking requirements, and other factors.

DG.24

The vitality of Barry’s Corner and its potential to be a common ground between the campus and community will depend a great deal on the types of programs and activities of the



facilities developed there. A discussion should be provided which outlines the pros and cons of locating the Hotel and Conference Facility (shown as Proposed Institutional Project #7 in Figure 8 of the IMPNF and discussed later in these comments) to the “Apex” site adjacent to the district’s signature public open space. DG.25

*Open Space and Pedestrian Networks*

Through the community process, the concept of the “center” of Barry’s Corner shifting to the east emerged. The basis for this shift was the opportunity to use the existing grove of trees at the Western Avenue and North Harvard Street intersection in such a way that it became a focus of activity and pride. The IMPNF provided examples of the vision for this space (see Figure 13B) and other spaces, such as Davis Square in Somerville, were discussed. The IMP should provide diagrams of urban design principles which outline the role and responsibility of buildings developed adjacent to this space in order to enable its success as the physical and symbolic “center” of Barry’s Corner. DG.26

Specifically, the diagrams should describe the direct, vehicle-free connection between the open space and the “Apex” site and how safe and attractive pedestrian connections from Travis Street and the Barry’s Corner Residential and Retail Commons are made. If not highlighted in the public realm diagrams described above, the relationship between the ground floor publically accessible spaces and the grove of trees should be discussed in graphic form. DG.27  
DG.28

**Harvard Business School**

Similar to the way the Harvard Business School (HBS) curriculum has provided a model for business education nationally and globally, the physical design of the HBS campus, originated by McKim, Mead & White, has influenced a generation of campus planning and architecture. The radial organization of the structures and open spaces have helped establish the placement of other buildings on the campus and informed planning decisions as recent as the development of Tata Hall, currently under construction. The campus has also evolved as an accessible and welcoming part of the pedestrian network in the area, providing students and residents many tree-lined pathways between Allston and Cambridge. Five of the nine proposed IMP projects occur on the HBS portion of the campus.

*Public Realm*

Three of the five proposed projects for HBS are internal to the campus proper and have more limited visibility from Soldiers Field Road or Western Avenue. However, more information should be provided regarding the scope and extent of the renovations of Baker Hall and the Soldiers Field Park Housing. Of particular interest are any possible modifications to the exterior of the buildings or to the surrounding public realm which may be associated with the projects. DG.29

*Height and Massing*

In general, the heights described in the IMPNF for the new buildings are generally consistent with the existing HBS campus and pose no concern. The massing of these projects, however, can have a great impact on the evolution of the original McKim, Mead & White plan and also



on the attitude toward the surrounding Allston community. Although no IMP project has formally proceeded with designs for a specific project, a discussion should be provided which addresses the planning principles which will guide these projects as they move forward. DG.30

A description should be provided of how this collection of IMP projects help shape the evolving massing context of the HBS precinct, particularly the relationship between the traditional buildings of the original campus and the more contemporary approaches found in the Executive Education areas. This should be supported by analytical diagrams, 3D models (physical and/or computer generated), and other methods which explain the relationship. At least two aerial views should be provided, taken from points to the north and south. All materials should incorporate the IMP projects into a context which extends north and east to the Charles River, west to Baker Library, and south to Western Avenue. Because the concerns with massing are also related to its effects on creating open spaces and the pedestrian realm, additional analysis related to massing is discussed below. DG.31

#### *Open Space and Pedestrian Networks*

The five projects outlined in the IMPNF for this area will give the Harvard Business School an opportunity to define the future of its evolving campus and its relationship to the Allston community and other Harvard initiatives. As areas south and west of the campus become home to the uses envisioned by the Allston Work Team, the campus will become an increasingly important connection between Cambridge and Boston. This is exemplified by the “long-term pedestrian circulation” diagram submitted in Appendix B of the IMPNF. Not only will the HBS campus provide major connections along its North Harvard Street edge, but through the campus along East Drive and radial portions of the original campus plan. The incredible success of the Harvard Innovation Lab is already drawing pedestrians from across the Charles River and from the surrounding neighborhood onto the campus.

The Kresge Hall Replacement, Baker Hall, Soldiers Field Housing, and Burden Hall Replacement sites are all located directly on East Drive, identified as a major “ladder” connection in Appendix B. In addition to having a presence on East Drive, the Kresge site is located at the terminus to one of the formal axis of the original campus plan and forms the edge of the new Executive Education Quad with Tata Hall. Likewise, the Burden site will define an edge to East Drive and establish massing and open space relationships with Spangler Hall along original campus geometries.

An illustrated and annotated precinct plan for the HBS portion of the IMP area should be submitted which analyzes the proposed IMP projects relative to the issues noted above. The plan should address the evolution of East Drive and a major pedestrian corridor and future connector between the Weeks Bridge, Western Avenue, and beyond. The site plan should depict each of the proposed IMP projects with diagrammatic footprints which describe the potential location and size of the building on the site. The detailed plan should highlight those elements and principles of the long term vision that are being implemented by the current projects and graphically depict the existing and proposed open space network throughout the campus. DG.32

The plan should highlight how the potential massing and site organization of the Kresge Replacement relates to the open space and circulation concepts for the Executive Education Quad defined during the review of the Tata Hall project, particularly if the vision for this site would require modification to the layout of pathways or landscape elements currently under construction. Massing concepts should recognize the dual role the building will play at the visual end of Harvard Way and in shaping the definition of the Executive Education quad. DG.33

A discussion should also be provided regarding the open space which will be created when Burden Hall is demolished and a new space is coupled with the existing area between Aldrich Hall and Spangler Hall. Described as a “Community Green” in the IMPNF, the IMP should more fully address the details of this concept with narrative and graphics. DG.34

The location of the new Faculty & Administrative Offices building poses several unique questions due to its location and relationship to the existing pedestrian and vehicular circulation system. The annotated precinct plans should be sure to analyze how the location of these program elements adjacent to the main vehicular drop off at Batten Way and the Central Receiving area relate to pedestrian and vehicular connections. A discussion should also be provided of the strategy for relocating the uses which currently exist on Ohiri Field that will be displaced by the development of the site. DG.35

### **Hotel and Conference Center**

The development of a site on the south side of Western Avenue has great potential to redefine the character and urban qualities of the area. The general area for the Hotel and Conference Center identified in the IMPNF will have relationships to both the HBS campus, the Health and Life Science Center, and other urban design concepts identified in earlier planning discussions. DG.36

#### *Public Realm*

Similar to the changes in Barry’s Corner, the redevelopment of a site along the south side of Western Avenue will require the establishment of new streets which define discrete development parcels. A conceptual site plan should be submitted which identifies the possible number and type of streets which would be necessary to enable a Hotel and Conference Center to be located along Western Avenue. It should graphically outline how the block pattern established by this first redevelopment of a large undifferentiated tract of land will influence future potential sites in the area identified by the Work Team for the Enterprise Research Campus. The site plan should depict the project with a diagrammatic footprint which describes the potential location and size of the building on the site. The plan should highlight those elements and principles of the long term vision that are being implemented by the current projects. DG.37

Throughout the BRA-led planning process, the concept of a “greenway” connection from Ray Mellone Park to the Charles River has been discussed, with its general location running along the southern edges of the development parcels on Western Avenue. Appendix B of the IMPNF recognized this concept in its long-term open space diagram. The conceptual site plan should depict the ways in which the development of the site will support and enhance DG.38

the greenway concept and link together with similar improvements associated with the Health and Life Science Center site.

### *Height and Massing*

The evolution of the Western Avenue corridor from an auto-oriented industrial street to a vibrant pedestrian-oriented boulevard will be greatly influenced by the scale and disposition of new structures along its length. A discussion should be provided of how the Hotel and Conference Center would influence the evolving massing context of this portion of Western Avenue. This should be supported by analytical diagrams, 3D models (physical and/or computer generated), and other methods which explain the relationship. At least two aerial perspectives should be provided from points north and south of the proposed site area. All materials should incorporate the Hotel and Conference Center into a context which extends east to the Charles River, south to the Genzyme Buildings, west to Batten Hall, and north to Spangler Hall.

DG.43

### **Athletics and Harvard Stadium**

While small in scale compared to other IMP projects, the proposed addition and renovation of Harvard Stadium requires increased attention due to the fact that it is a National Historic Register property and due to the potential changes in pedestrian and vehicular circulation as a result of the project. The proposed timetable suggests that this project is moving forward in the very near term, as soon as this year. Additional narrative material should be provided which describes the scope of the work in more detail, including any issues related to the modification or demolition of any portion of the existing structure to accommodate the program.

DG.44

Accompanying the narrative description, detailed floor plans should be submitted showing the existing interior layout and the general location and extent of the proposed addition. The unique nature of the existing structure, location of the proposed addition, and the suggestion that portions of the project will cantilever over the existing roof will require a 3D massing study be submitted for the project. The massing study should capture several views of the Stadium and Addition from the area immediately around the project and also at least one vantage point from Soldiers Field Road. The viewpoints should be determined in consultation with BRA Urban Design staff.

DG.45

DG.46

A site plan should also be provided which clearly describes the existing and potential future conditions related to site access and circulation, particularly if the additional program space or nature of future use will impact the current layout. The site plan should also identify the location of all other current or proposed future athletics facilities in the area, including Ohiri Field and the Basketball Venue. The diagram should identify the major pedestrian and vehicular routes used to access these facilities and how changes to the Stadium site will work to support and enhance these patterns, particularly along North Harvard Street.

DG.47

DG.48

### **Western Avenue Corridor**

While three of the precincts described above all have some influence and impact of the future

of Western Avenue, diagrams and urban design analysis should be submitted which considers the Avenue as a distinct urban corridor. In earlier BRA efforts, this area was described as the “University Boulevard” and considered one of three major sections (together with the “Mills Corner Concourse” and “Neighborhood Boulevard”) of Western Avenue as it stretched from river to river through Allston. DG.49

The comprehensive analysis of the existing a future conditions of Western Avenue should include an area stretching from Soldiers Field Road to Barry’s Corner. Although composed of a wide range of programs and uses, potential design strategies and public realm elements that can serve to provide unity and an identity to this corridor should be proposed. Special DG.50

consideration should be given to a discussion of the cumulative effect of the 6-9 story building massing currently proposed by two IMP projects and the permitted Science Complex and the attitude toward the establishment of a street wall edge. DG.51



**DG.1**            **On-going trends to be built upon including campus becoming more related to points south and west, more porous connector between Boston and Cambridge communities, vehicle for redefining large superblocks of industrial land**

See Section 3.0, Long-Term Plan

**DG.2**            **Provide a Comprehensive series of urban design diagrams and narrative to relate these trends to the long term planning concepts and specific IMP projects**

See Section 3.0, Long-Term Plan, and Section 5.0, District Plans and Project Descriptions

**DG.3**            **Analytical maps should discuss how individual issues such as land use, open space, pedestrian and vehicular circulation work together as a system to support trends and further the goals and vision for the area**

See Section 3.0, Long-Term Plan

**DG.4**            **Include all development activities in the maps**

See Section 5.0, District Plans and Project Descriptions

**DG.5**            **Accompany diagrams with clear statements of urban design principles guiding individual projects**

See Section 5.0, District Plans and Project Descriptions

**DG.6**            **Provide diagrams for interrelated themes including redefining the edges of the campus along Western Avenue, North Harvard Street, and Barry’s Corner; ability for growth to knit together the campus and community through two-sided development of major streets and creation of new destinations; and the opportunity to enhance existing and create new pedestrian and open space networks to provide access to the areas and destinations.**

See Section 3.0, Long-Term Plan

**DG.7**            **Future diagrams to include equal consideration and representation of the area within Allston community to the west and south of the campus**

See Section 2.0, Existing Conditions, and Section 7.0, Community Benefits

**DG.8**            **Submit diagrams showing how the proposed IMP projects are implementing the first stages of the long term vision**

See Section 5.0, District Plans and Project Descriptions

- DG.9** Provide overall illustrative campus plan placing IMP project site plan details into a single graphic
- See Section 4.0, Ten-Year Plan
- DG.10** Provide detailed information on the rationale behind the anticipated sequence of the proposed projects (Harvard)
- See Section 4.6, Ten-Year Plan Phasing
- DG.11** Provide a list of viable interim uses for Charlesview site and description of how they can support the Vision for Barry's Corner in the near term
- See Section 5.2, Barry's Corner District
- DG.12** Submit a precinct plan placing proposed IMP projects within the context of other projects: renovation of 224 Western Avenue, development of Barry's Corner residential and retail commons, renovation of 168 Western Avenue, renovation of 28 Travis Street, restarting of the Health and Life Science Center
- See Section 5.2, Barry's Corner District
- DG.13** Submit site plan with site organization of major ground floor elements and building program components
- See Section 5.2, Barry's Corner District
- DG.14** Provide information on potential location of active ground floor uses and note how projects work in unison to create a memorable and accessible destination
- See Section 5.2, Barry's Corner District
- DG.15** Expand public realm improvements associated with the renovation of 224 Western Avenue and provide illustrated and annotated site plan at a large enough scale to identify places where the system would be employed and how it would adapt itself to the various sites
- See Section 5.2, Barry's Corner District
- DG.16** Provide a description of public realm elements if they differ from those permitted for the 224 Western Avenue project
- See Section 5.2, Barry's Corner District



**DG.17** Provide a clearly defined set of ground floor uses that should support the vision of Barry's Corner as an active, memorable and attractive place at the crossroads between the campus and the community

See Section 5.2, Barry's Corner District

**DG.18** Define potential upper level uses for the "Wrapper" of the Basketball Venue

See Section 5.2, Barry's Corner District

**DG.19** Find a new home for the Education Portal in Barry's Corner

See Section 5.2, Barry's Corner District

**DG.20** Discuss how proposed Basketball Venue and mixed use institutional projects help shape the evolving massing context of the area including analytical diagrams, 3D Models and other methods

See Section 5.2, Barry's Corner District

**DG.21** Provide diagrams and other materials to highlight project and area context including projects built and those in the Development Review Process; area should extend south to Rena Street, west to Riverdale Street, north to the McCurdy Track, and east to include the Health and Life Science Center

See Section 5.2, Barry's Corner District

**DG.22** Provide at least three birds-eye views depicting the future condition only from vantage points north, south and west of the intersection of Western Avenue and North Harvard Street

See Section 5.2, Barry's Corner District, and Section 3.0, Long-Term Vision

**DG.23** Provide diagrammatic site sections taken perpendicular to Western Avenue, North Harvard Street, Grove Street, Smith Field Drive, Academic Way and Academic Way Extension allowing proposed massing to be evaluated in the context of the public realm and other surroundings buildings and open spaces. Location of sections to be determined in consultation with BRA staff

See Section 5.2, Barry's Corner District

**DG.24** Discuss rationale behind location of basketball venue and alternatives considered, including a matrix to evaluate proposed and alternative sites based on facility's size, adjacencies, access needs, parking requirements and other factors

See Section 5.2, Barry's Corner District

**DG.25**            **Outline pros and cons of locating the Hotel and Conference Facility Site to the “apex” site adjacent to the district’s signature open space**

See Section 5.3, Science and Enterprise District

**DG.26**            **Provide diagrams of urban design principles which outline the role and responsibility of buildings developed adjacent to grove of trees at Western Avenue and North Harvard Street to enable space to be physical and symbolic “center” of Barry’s Corner**

See Section 5.2, Barry’s Corner District

**DG.27**            **Diagrams should describe direct, vehicle-free connection between open space and the “apex” site and how pedestrian connections from Travis Street and Barry’s Corner Residential and Retail Commons are made**

See Section 5.2, Barry’s Corner District

**DG.28**            **Include graphic discussion of relationship between ground floor publicly accessible spaces and grove of trees**

See Section 5.2, Barry’s Corner District

**DG.29**            **Provide scope and extent of renovations of Baker Hall and the Soldiers Field housing and possible modifications to exterior of buildings or public realm**

See Section 5.4, Academic District

**DG.30**            **Address planning principles which will guide HBS projects**

See Section 5.4, Academic District

**DG.31**            **Describe manner in which IMP projects shape evolving massing context of HBS precinct, particularly relationship between traditional buildings and contemporary approaches, supported by analytical diagrams, 3D models, and other methods; at least two aerial views should be provided; IMP projects to be incorporated into area which extends north and east to the Charles River, west to the Baker Library, and south to Western Avenue**

See Section 5.4, Academic District

- DG.32**      **Illustrated and annotated Precinct Plan for HBS portion of the IMP area including evolution of East Drive and a major pedestrian corridor and future connector between the Weeks Bridge, Western Avenue and beyond; depiction of each of the proposed IMP projects with diagrammatic footprints of potential location and size; elements and principles of long term vision being implemented by current projects; graphic depictions of existing and proposed open spaces throughout campus**
- See Section 5.4, Academic District
- DG.33**      **Plan to include how massing and site organization of the Kresge Replacement relates to open space and circulation concepts for Executive Education Quad**
- See Section 5.4, Academic District
- DG.34**      **Massing concepts to recognize dual role Kresge replacement building will play at the visual end of Harvard Way and in shaping the definition of the Executive Education Quad**
- See Section 5.4, Academic District
- DG.35**      **Description of “Community Green” space with narrative and graphics**
- See Section 5.4, Academic District
- DG.36**      **Plans to include location of program elements for new faculty and administrative offices related to pedestrian and vehicular connections**
- See Section 5.4, Academic District
- DG.37**      **Discuss strategy for relocating current uses on Ohiri Field**
- See Section 5.4, Academic District
- DG.38**      **Submit conceptual site plan identifying possible number and type of streets necessary to enable a Hotel and Conference Center to be located along Western Avenue**
- See Section 5.3, Science and Enterprise District
- DG.39**      **Graphically outline how the block pattern established by first redevelopment will influence future potential sites in the area for the Enterprise Research Center**
- See Section 5.3, Science and Enterprise District
- DG.40**      **Depict the project with a diagrammatic footprint describing potential location and size of the building on the site**
- See Section 5.3, Science and Enterprise District

**DG.41** Plan to include elements and principles of long term vision being implemented by current projects

See Section 5.3, Science and Enterprise District

**DG.42** Conceptual site plan should depict how development of the site will support greenway concept and link with improvements associated with the Health and Life Science Center site

See Section 5.3, Science and Enterprise District

**DG.43** Discuss influence on massing context of this portion of Western Avenue including analytical diagrams, 3D models, and other methods to explain the relationship; at least two aerial perspectives from points north and south of site area; materials should incorporate the Hotel and Conference Center into a context which extends east to the Charles River, South to the Genzyme Buildings, West to Batten Hall and North to Spangler Hall

See Section 5.3, Science and Enterprise District

**DG.44** Describe scope of work in detail, including issues related to modification or demolition of any portion of existing structure

See Section 5.5, Athletics District

**DG.45** Submit detailed floor plans showing existing interior layout and general location and extent of proposed addition

See Section 5.5, Athletics District

**DG.46** 3D massing study required for portions of the project that will cantilever over the existing roof and should capture views of the stadium and addition from immediate area, as well as vantage point from Soldiers Field Road; consultation with BRA Urban Design Staff to determine viewpoints

See Section 5.5, Athletics District

**DG.47** Provide site plan describing existing and potential future conditions related to site access and circulation, particularly if future use will impact current layout

See Section 5.5, Athletics District

**DG.48 Identify location of all other current or proposed athletic facilities in the area; major pedestrian and vehicular routes used to access these facilities and how changes will support these patterns, particularly along North Harvard Street (Harvard/ ASG)**

See Section 5.5, Athletics District

**DG.49 Submit urban design analysis that considers Western Avenue as a distinct urban corridor**

See Section 3.4, Design Guidelines

**DG.50 Comprehensive analysis of existing and future conditions of Western Avenue should include area stretching from Soldiers Field Road to Barry's Corner (ASG)**

See Section 3.4, Design Guidelines

**DG.51 Discuss cumulative effect of the 6-9 story building massing proposed by two IMP projects and Science Complex and the attitude toward the establishment of a street wall edge (ASG)**

See Section 3.4, Design Guidelines, and Section 5.3, Science and Enterprise District



# CITY OF BOSTON

## THE ENVIRONMENT DEPARTMENT

Boston City Hall, Room 805 • Boston, MA 02201 • 617/635-3850 • FAX: 617/635-3435

February 27, 2013

Peter Meade, Director  
Boston Redevelopment Authority  
Boston City Hall, Room 925  
Boston, MA 02201  
Attention: Gerald Autler, Senior Planner/Senior Project Manager

Re: Harvard University Allston Campus  
Institutional Master Plan Notification Form and Institutional Master Plan

Dear Director Meade:

The Boston Environment Department has reviewed the 10-year Harvard Allston (Harvard) Institutional Master Plan IMPNF/IMP (IMP) and offers the following comments. Harvard plans 1,019,000 square feet of new construction and 500,000 square feet of renovation during the IMP term.

We note that the Harvard Green Campus Initiative, formed in 1999, began the work that has resulted in the Harvard University Office for Sustainability. The University's commitments to sustainability focus on, but are not limited to, energy and greenhouse gases, renewable energy, water, reducing waste, food and transportation. The IMP does not take credit for this work nor does it describe the way in which this broad planning will be included in the IMP projects. We request that the first IMP Amendment or Article 80 project filing, whichever comes first, identify Harvard's framework for new construction, renovation and operation and maintenance.

BED.1

### CITY OF BOSTON KEY PRIORITIES

- On-site alternative energy generation to the maximum extent possible or the use or purchase of off-site green power
- Reduce energy intensity to the maximum extent possible
- Strive to achieve LEED Platinum status for projects
- Conserve, maximize efficiency and reuse water to the greatest extent possible
- Seek innovative green attributes that exceed existing performance and strengthen the "Green is the New Crimson" attribute
- Due to the expected increase in flooding and high temperatures, assess the vulnerability of projects from both the construction and operation perspectives and identify risk management measures
- Maximize Transportation Demand Management opportunities for all students and staff
- Create a standard for sustainable campus operations and maintenance

### **On-Site Alternative Energy Generation**

There is a range of potential on-site alternative/renewable energy generation methods for individual projects as well as generation that can serve more than a single project. We request the evaluation of anaerobic digestion, combined heat and power, photovoltaics, geothermal, solar thermal, district energy using a renewable source and other options. The evaluation of district energy should include how neighbors and other users may be included in district generation. We asks that the first IMP Amendment or Article 80 project filing, whichever comes first, describe Harvard's evaluation of energy generation opportunities and discuss their potential for the IMP period and for the Barry's Corner project. BED.2  
BED.3

### **Energy Conservation**

Reducing energy use in existing and new buildings lowers operating costs, conserves limited natural resources, improves outdoor environmental quality, minimizes impacts on the local electrical grid and reduces greenhouse gas emissions.

One simple step to reduce energy use is, to the extent possible, meter and sub-meter in buildings to provide information to facility managers about the ways in which behavior influences cost and, subsequently, about conservation. BED.4

### **LEED Platinum**

We suggest that the design of new and renovation projects subject to Article 37 begin with the intent that the project can be built to LEED Platinum standards. As credits are assessed for implementation from that perspective, the reasons for choosing and not choosing credits can be clearly explained as can a description of the ways in which chosen credits will be implemented. We ask that LEED information be provided from this perspective during the Article 80 process and that a goal for LEED Gold be established. BED.5

We strongly suggest the use of LEED for Existing Buildings: Operations and Maintenance, even for buildings that do not trigger Article 37. BED.6

### **Water conservation and reuse**

Given the importance of conserving potable water, lower usage along with reuse strategies such as greywater are essential. We urge Harvard to develop a conservation and reuse plan and obtain all LEED Water Efficiency credits for projects subject to Article 37. Measures to increase conservation, such as behavior change and leak detection measures, should be evaluated for the IMP period and discussed in the first IMP Amendment or Article 80 project filing, whichever comes first. BED.7  
BED.8

We also request that Harvard evaluate the potential for rainwater harvesting for reuse. BED.9

### **Exemplary Green Performance**

Harvard has 76 buildings certified with the USGBC. It has installed a green roof, photovoltaic panels, a cogeneration unit and has conducted a full lighting retrofit on Shad Hall, the HBS fitness and recreation facility. It is this level of performance that can distinguish Harvard's built environment from other institutions as a model for sustainability and green building. Exceeding Code minima, instituting new green measures such as anaerobic digestion or combined heat and power and using various opportunities to market Harvard as a leader in yet another respect, are examples of exemplary performance. Another option would be a commitment to implement during the IMP term for all campus buildings, LEED for Existing Buildings: Operations and Maintenance (EBOM) at the certifiable level.

### **Climate Change Preparedness**

The results of sea level rise associated with climate change will increase the risk of riverine flooding and storm surge. The Charles River closely follows the perimeter of parts of Harvard's Allston Campus, making it vulnerable to flooding. The Executive Education campus, located in an area of high groundwater and proximate to the Charles, is particularly at risk in this regard.

As noted previously, vulnerability assessments of asset locations and Harvard's projects to identify risk management measures during construction and operation should be conducted due to expected increases in flooding and high heat BED.10

days due to climate change. We ask that the first IMP Amendment or Article 80 project filing include a discussion of the ways in which Harvard will engage in Climate Change Preparedness.

**BED.11**

This department compliments Harvard on the attention it has given to reducing its environmental impacts. Regarding this IMP, the purpose of the issues we have outlined is two-fold: they are required to meet Mayor Thomas M. Menino's goal to reduce Boston's GHG emissions by 25 percent by 2020 and 80 percent by 2050 and to ensure that Harvard continues its missions for another 300 years.

**Transportation Demand Management**

The IMP should outline all existing and any new TDM measures proposed for the IMP period and quantify their results in the first IMP Amendment or Article 80 project filing, whichever comes first. Eligibility for TDM benefits should be identified with an emphasis on part-time and contract workers.

**BED.12**

**Operations and Maintenance**

LEED EBOM focuses on institutionalizing building operations and maintenance best practices so we again recommend it as a worthwhile resource. An operations and training manual for students, faculty and staff and associated training can help to ensure efficient operations and the reduction of environmental impacts. Such a manual will also serve as an educational tool and may present opportunities for students, faculty and staff to compete in implementation.

**BED.13**

We thank you for the opportunity to comment and for your consideration.

Sincerely,

Maura T. Zlody  
Senior Environmental Policy Analyst



**BED.1 Identify sustainability framework for new construction, renovation and operation maintenance**

Planning principles are presented in Section 3.2 and the University's framework for sustainability is presented in Section 6.2.

**BED.2 Evaluate anaerobic digestion, combined heat and power, photovoltaics, geothermal, solar thermal, district energy using a renewable source and other options**

As described in Chapter 6.0, the thermal load for energy for the IMP projects is largely taking advantage of the Combined Heat and Power provided from Harvard's Blackstone Plant.

In addition, existing Harvard-owned district energy systems serving all or portions of the IMP Area include an electric micro-grid, a steam distribution network, and a chilled water plant/distribution system.

Additional systems and measures will be evaluated on a project-by-project basis.

**BED.3 Evaluation of energy generation opportunities and potential for IMP period and for Barry's Corner Project**

As described previously the IMP projects will take advantage of the efficiencies of the Blackstone Plant, as well as Harvard-owned district energy systems.

As a private development project, the Barry's Corner Residential and Retail Commons project will have building-only energy systems.

**BED.4 Reduce energy through meter and sub-meter in buildings to provide information to facility managers about how behavior influences cost and conservation**

Harvard currently does meter the primary energy sources at all of its buildings.

In addition, sub-metering is part of menu of measures that individual projects look at through Harvard's internal design review process and as part of its Green Building Standards.

**BED.5 Begin projects with the intent to build to LEED Platinum standards and as credits are assessed describe ways in which chosen credits will be implemented; establish a goal of LEED Gold**

The University's Green Building Standards establish a goal of LEED Gold. As described in Section 6.2, Harvard has a very strong track record with regard to LEED and this will continue with the design and review of each of the IMP projects.

**BED.6 Use LEED for Existing buildings even for buildings that do not trigger Article 37**

Harvard continually evaluates the capital needs across the buildings that make up the Allston campus, and as part of this process it evaluates the ability to upgrade projects to increase the sustainability features when a renovation project is identified.

**BED.7 Develop a water conservation and reuse plan and obtain all LEED Water Efficiency credits for projects subject to Article 37**

Harvard already has plans for water conservation and sustainable practices, including, for example, recycling of laboratory water used in autoclaves and electron microscopes, as well as using non-potable water for irrigation whenever possible. These practices will be applied to the IMP projects. Harvard will require designers of individual projects to seek to incorporate all the LEED Water Efficiency credits whenever practicable.

**BED.8 Evaluate measures to increase conservation, such as behavior change and leak detection**

Other conservation measures such as education about water savings and physical improvements such as dual flush toilets and waterless urinals in public building restrooms will be evaluated.

**BED.9 Evaluate the potential for rainwater harvesting**

As part of the stormwater planning, harvesting of rainwater, particularly for irrigation use, will be evaluated. Final volumes will be subject to the square footage of “green areas” and the type of landscaping utilized.

**BED.10 Conduct vulnerability assessments of asset locations and projects to identify risk management measures during construction and operation**

The University’s current approach to climate change and sea level rise is described in Section 6.4.

**BED.11 Discuss Harvard’s engagement in climate change preparedness**

The University’s current approach to climate change and sea level rise is described in Section 6.4.

**BED.12 Discuss existing and new TDM measures proposed for IMP period and quantify their results; identify eligibility for TDM benefits with emphasis on part-time and contract workers**

Harvard has a robust set of TDM measures that are implemented through its CommuterChoice program. Chapter 2 describes the existing program and Chapter 6 describes potential areas for future expansion.

**BED.13****Institutionalize building operations and maintenance best practices through a training manual**

Given the variety of uses across its physical plant Harvard does not have one training manual for building operations. However, the University does continually organize formal and informal training and best practice events and forums so that these measures can be shared across schools and departments.



## Boston Landmarks Commission

### City of Boston The Environment Department

Boston City Hall/ Room 805  
Boston, Massachusetts 02201  
617/635-3850

[www.cityofboston.gov/landmarks](http://www.cityofboston.gov/landmarks)

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Charles Vasiliades  
Richard Yeager  
Ellen J. Lipsey, Exec. Director

February 15, 2013

Mr. Peter Meade, Director  
Boston Redevelopment Authority  
One City Hall Plaza  
Boston, MA 02201

Re: Harvard University Allston Campus, Comments on IMPNF

Dear Director Meade:

The Boston Landmarks Commission appreciates the opportunity to comment on the IMPNF for Harvard University's Campus in Allston. The BLC commends Harvard on a thorough description of projects and a recognition of historic properties that the proposed projects will impact. The BLC appreciates Harvard's recognition of the need to work cooperatively with the Boston Landmarks Commission (BLC) and the Massachusetts Historical Commission (MHC) in accordance with applicable historic preservation statutes and regulations.

The BLC looks forward to reviewing the full list of properties that may become eligible for the National Register in the course of the IMPNF or to be approaching eligibility age-wise. Because the IMPNF has a 10-year span, the BLC requests that Harvard identify all National Register, State Register listed and eligible properties and all properties that will attain 45 years of age within the next 10 years, as well as all properties included in the *Inventory of historic and Archaeological Assets of the Commonwealth (the state inventory)*. The inventory form for the Business School and Athletic Complex is quite comprehensive in listing essentially all buildings in the area, not just those that comprise the McKim-designed campus. The inventory form states that the Harvard Business School-Athletic Facilities Area is considered eligible for listing in the National Register of Historic Places. **BLC.1**

Kresge Hall, 1953, is based on plans by Perry, Dean and Hepburn. Burden Hall, 1968-71 is by Phillip Johnson, Johnson/Burgee Architects. All buildings proposed for demolition will require review under Article 85, Demolition Delay. Questions and applications may be addressed to Elizabeth Stifel, BLC Architect: [elizabeth.stifel@cityofboston.gov](mailto:elizabeth.stifel@cityofboston.gov). **BLC.2** Article 85 is intended to discourage demolitions prior to the start of new construction.

Baker Hall, 1970, by Shepley, Bulfinch, Richardson and Abbott and the Harvard Stadium, 1902-03 by Charles Follen McKim and George Bruno de Gersdorff of McKim, Mead and White are included in the inventory. Harvard Stadium is a National Historic Landmark. Staff of the BLC looks forward to reviewing plans for the renovations of these facilities, especially exterior renovations and repairs and the proposed addition to Harvard Stadium.

Funding sources for the proposed projects will likely trigger review by the MHC. The BLC requests copies of filings and correspondence with the MHC on proposed projects and looks forward to being a concurring party should an MOA be required. **BLC.3**

Sincerely,

Ellen J. Lipsey  
Executive Director

cc. Gerald Autler, BRA  
Brona Simon, MHC

**BLC.1 Identify National and State Register eligible properties, all properties that will attain 45 years of age within the next 10 years and all properties included in the *Inventory of Historic and Archaeological Assets of the Commonwealth***

Section 2.3 includes information on the IMP Area, including a listing of all National and State Register eligible properties, all properties included in the *Inventory of Historic and Archaeological Assets of the Commonwealth*, and all properties that will attain 45 years of age within the next 10 years.

**BLC.2 All buildings proposed for demolition require review under Article 85 (Epsilon)**

As noted, all buildings proposed for demolition will undergo review through the BLC's Article 85 (Demolition Delay) review process.

**BLC.3 Provide BLC with copies of MHC Filings and correspondence with the MHC on proposed projects**

As requested, any filings that are sent to the Massachusetts Historical Commission will also be sent to the BLC.

**Boston Water and  
Sewer Commission**



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

November 19, 2012

Mr. Gerald Autler  
Senior Project Manager  
Boston Redevelopment Authority  
Boston City Hall  
One City Hall Square  
Boston, MA 02201

Re: Project Notification Form  
Harvard University's New Institutional Master Plan (IMPNF)

Dear Mr. Autler:

The Boston Water and Sewer Commission (BWSC, the Commission) has reviewed the Project Notification Form for Harvard University's new Institutional Master Plan. The IMPNF presents plans for physical development of Harvard University's campus in Allston. Among the main components of the ten-year plan is the construction of three new academic buildings, two new faculty and/or administrative buildings, the addition to and renovation of, Harvard Stadium, a new basketball venue and institutional/mixed use building, and a hotel and conference center. The plan also includes the renovation of both an academic building and a graduate student residential building.

Currently, the University's campus north of Western Avenue is transected by a storm drain (referred to as the "Shephard Brook" drain) that varies in size from 36-inches to 42-inches. The drain originates near 135 Western Avenue. It extends northeast across the campus, and crosses Soldiers Field Road approximately 700 feet north of Western Avenue, where it then discharges to the Charles River via a storm drain outfall owned by the Department of Conservation and Recreation (DCR). This drain was constructed by the University years ago to contain what was formerly Shepherd Brook.

To the south of Western Avenue there is a new 72-inch drain connecting to the Shepherd Brook drain. The new 72-inch storm drain serves the site of Harvard University's proposed Health and Life Science Center (Science Center site), as well as the Commission's storm drain system to the south. The drain on the Science Center site was installed several years ago by the University, pursuant to its campus expansion agreement with the Commission. The drain replaced an undersized 36-inch storm drain located on the property. The drain on the Science Center site is now owned by BWSC.

The Shephard Brook drain is inadequately sized and constricts flow from the Commission’s storm drain system, causing flooding in areas south of Western Avenue. As part of its campus expansion plan, the University agreed to design and install a new 72-inch storm drain on Western Avenue. Once installed, the University would disconnect the drain on the Science Center Site from Shephard Brook drain, and reconnect it to the new 72-inch drain on Western Avenue. However, this work has yet to be completed. The design and construction of the new 72-inch drain on Western Avenue (or alternative means of relieving upstream flooding) should be addressed in the IMP. This issue must be addressed before the Commission will approve any large scale development plans on the campus. BWSC.1

University owned buildings, at 28 Travis Street and 38 Travis Street/90 Seattle Street, currently overlay portions of sewers and drains owned by the Commission. The Commission has researched its records and has not found any formal licenses or agreements with the University to permit the Commission to access and maintain these facilities. The University should research its own records to determine if any such licenses or agreements exist, and if not, work with the Commission to establish such licenses/agreements. BWSC.2

The Commission has the following additional comments regarding Harvard University’s development plan and the Master Plan:

**General**

1. It is the proponent’s responsibility to evaluate the capacity of the water, sewer and storm drainage systems serving the campus and individual project sites to determine if the systems are adequate to meet future project demands. An evaluation of the capacity of existing systems on the campus to meet future project needs, and a discussion of any currently anticipated plans for changes to these systems, must be provided in the Master Plan. BWSC.3
  
2. The proponent is advised that any new, relocated, reconstructed or expanded water, sanitary sewer, storm drainage facilities required to accommodate future development must be designed and constructed at the proponent’s expense and in conformance with the Commission’s Sewer Use and Water Distribution System regulations. The proponent should continue to keep the Commission apprised of any proposed plans to install, relocate, reconstruct or expand sanitary sewer, storm drainage or drinking water mains. BWSC.4  
BWSC.5
  
3. The proponent must submit site plans and General Service Applications to the Commission for individual construction projects as they are proposed. Site plans must show the location of existing public and private water mains, sanitary sewers and storm drains serving project sites, as well as the locations of proposed service connections. With each site plan, the proponent must provide detailed estimates for water demand, sanitary sewer flows and stormwater runoff generation for the proposed project. The amount of potable water required for landscape irrigation must be quantified and provided separately. BWSC.6  
BWSC.7
  
4. To assure compliance with the Commission’s requirements, the proponent should submit site plans and General Service Applications for individual projects to the Commission for review when project designs are 50 percent complete. BWSC.8

5. As plans progress and are finalized BWSC will require drawings of public and private water, sewer and storm drainage facilities in AutoCAD R14 format. Drawings must include locations of any abandoned facilities, such as pipes and manholes, locations of new installations, profiles of sewer and drain lines, invert elevations of sewer and drain lines at the manholes, depth of water pipe at all gates, bends and connections, size and type of all pipes, valves and hydrants installed and rim elevations of all manholes. BWSC.9
6. Prior to demolition of any buildings, all water, sewer and storm drain connections to the buildings must be cut and capped at the main pipe in accordance with the Commission's requirements. The proponent must then complete a Termination Verification Approval Form for a Demolition Permit, available from the Commission, and submit the completed form to Boston's Inspectional Services Department before a demolition permit will be issued. BWSC.10

### **Sewage/Drainage**

7. Oil traps are required on all drains discharging from all new and existing enclosed parking garages. Discharges from garage drains must be directed to a building sewer and not to a building storm drain. The requirements for oil traps are provided in the Commission's Requirements for Site Plans. BWSC.11
8. Grease traps are required in all new and existing cafeteria or kitchen facilities in accordance with the Commission's Sewer Use Regulations. The proponent is advised to consult with the Commission prior to preparing plans for grease traps. BWSC.12
9. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority (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. BWSC.13
10. A Total Maximum Daily Load (TMDL) for Nutrients has been established for the Lower Charles River Watershed by the Massachusetts Department of Environmental Protection. 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 of the Project will be required to submit with the Site Plan a phosphorus reduction plan for the Project. BWSC.14
11. The Site Plan must show in detail how drainage from the building's roof and from other impervious areas will be managed. Roof runoff and other stormwater runoff must be BWSC.15



- conveyed separately from sanitary waste at all times. Separate sanitary sewer and storm drain service connections must be provided from the Project to the respective pipes in the street. **BWSC.16**
12. 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, and prepare a pollution prevention plan. The proponent is responsible for determining if such a permit is required and for obtaining the permit. If a permit is required, a copy of the Notice of Intent and the pollution prevention plan prepared pursuant to the Permit must be provided to the Commission, prior to the commencement of construction. **BWSC.17**
13. In conjunction with each site plan and General Service Application submitted, the proponent will be required to submit a Stormwater Pollution Prevention Plan. Each plan must: **BWSC.18**
- 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. **BWSC.19**
  - 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.
  - Specifically identify how the project will comply with the Department of Environmental Protection’s Performance Standards for Stormwater Management both during construction and after construction is complete.
14. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. The proponent is advised that the discharge of any construction site dewatering drainage to the storm drainage 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 Environmental Protection Agency (EPA) for the discharge. **BWSC.20**
15. The proponent is advised that a Drainage Discharge Permit is also required for the long-term (permanent) discharge to the drainage system of infiltrated groundwater collected via an underdrain system, such as those that are commonly installed in below-grade parking garages. **BWSC.21**
16. Any uncovered parking or paved areas that are built require particle separators on all drains that will collect the runoff from these areas. Specifications for particle separators are provided in the Commission’s Requirements for Site Plans. **BWSC.22**
17. 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. The proponent may contact the Commission’s Operations Division for information regarding the purchase of the castings. **BWSC.23**

18. The Commission encourages the proponent to explore additional opportunities for protecting stormwater quality on the campus by minimizing sanding and the use of deicing chemicals, pesticides, and fertilizers.

BWSC.24

**Water**

19. 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.

BWSC.25

20. 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 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.

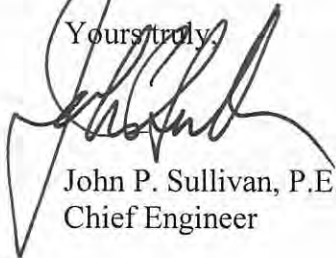
BWSC.26

21. The proponent is required to obtain a Hydrant Permit for use of any hydrant. The water used from the hydrant must be metered. The proponent should contact the Commission's Operations Division for information regarding Hydrant Permits.

BWSC.27

Thank you for the opportunity to comment on this project.

Yours truly,



John P. Sullivan, P.E.  
Chief Engineer

JPS/as

C: K. Lapp, Executive Vice President, Harvard University  
C. Schlessinger, Epsilon Associates  
G. Roach, CDM  
M. Zlody, Boston Environment Department  
P. Larocque, BWSC

**BWSC.1 Address design and construction of new 72 inch drain**

Section 6.3 includes a discussion of drainage including the 72-inch drain.

**BWSC.2 Research records to determine if formal agreements exist permitting BWSC to access and maintain facilities on 28 Travis Street and 38 Travis Street/90 Seattle Street; if none exist, work with BWSC to establish**

As part of the Site Plan review of the 28 Travis Street project, a copy of the recorded easement was provided to BWSC.

**BWSC.3 Evaluate capacity of existing systems to meet future project needs and discuss anticipated plans for changes**

Section 6.3 of the IMP provides capacity evaluations of the water, wastewater and stormwater systems and discusses improvements required where applicable.

**BWSC.4 Any new facilities required to accommodate future development designed and constructed at Proponent's expense in conformance with Commission's Sewer Use and Water Distribution System Regulations**

The BWSC requirements for Sewer Use and Water Distribution System Regulations will be adhered to in the design of individual building projects.

**BWSC.5 Keep Commission apprised of proposed plans regarding sanitary sewer, storm drainage or drinking water mains**

As the IMP moves forward, individual projects will be discussed with BWSC to keep them apprised of proposed system changes and connections required.

**BWSC.6 Submit site plans and general service applications for individual projects as they are proposed; site plans should show the location existing water mains, sanitary sewers and storm drains as well as locations of proposed service connections**

Harvard will submit the necessary site plans and General Service Applications (GSAs) as required by BWSC to obtain approvals.

**BWSC.7 Quantify amount of potable water required for landscape irrigation**

This will be quantified when individual building projects are in design and the square footage and type of landscaping in "green spaces" are known.

**BWSC.8            Submit site plans and general service applications for individual projects when designs are 50 percent complete**

Harvard will submit the necessary site plans and GSAs as required to obtain BWSC reviews at the appropriate percent complete.

**BWSC.9            Drawings of facilities in AutoCAD R14 format required, including locations of abandoned facilities, locations of new installations, profiles of sewer and drain lines, invert elevations of sewer and drain lines at the manholes, depth of water pipe at all gates, bends and connections, size and type of all pipes, valves and hydrants installed and rim elevations of all manholes**

The individual project designs will conform to all BWSC site plan design and construction and as built record requirements.

**BWSC.10          Prior to demolition all existing connections must be cut and capped in accordance with BWSC requirements, and Proponent must complete Termination Verification Approval Form for a Demolition Permit**

Demolition will be performed in accordance with BWSC requirements and the individual project designs will include submittal of the complete Termination Verification Approval Form for a Demolition Permit when required.

**BWSC.11          Oil traps required on all drains discharging from enclosed parking garages; discharges must be directed to a building sewer**

The individual building project designs will include design of the required oil traps in accordance with Commission's requirements and the designer will consult with Commission prior to preparing plans.

**BWSC.12          Grease traps required in all cafeteria or kitchen facilities in accordance with Commission's Sewer Use Regulations; consult with Commission prior to preparing plans**

The individual building project designs will include design of the required grease traps in accordance with Commission's Sewer Use Regulations and the proponent will consult with Commission prior to preparing plans.

**BWSC.13          Create an Inflow Reduction Plan consistent with DEP 4:1 ratio for I/I removal to new wastewater flow added**

Harvard is committed to preparing an Inflow Reduction Plan consistent with DEP 4:1 ratio for I/I removal to new net wastewater flow added for each individual project as design progresses.

**BWSC.14 Submit a Phosphorus Reduction Plan with the site plan**

The individual building project designs will include phosphorus reduction plans with the site plans, including phosphorus reducing Best Management Practices (BMPs), such as bioretention systems, designed to treat one inch of runoff from impervious areas in accordance with BWSC requirements.

**BWSC.15 Site plan to include how roof runoff and other impervious areas will be managed**

The individual building project designs will include drainage analyses and stormwater management plans showing that proposed BMPs will be treating one inch of runoff from roof areas and other impervious areas.

**BWSC.16 Separate sewer and storm drain connections must be provided**

Separate sewer and storm drain connections will be provided and shown in designs.

**BWSC.17 Determine if an NPDES General Permit is required**

An NPDES General Permit will be required for individual projects that disturb one acre or more as they reach the construction phase. Projects that disturb less than one acre will require a NPDES permit for trench dewatering.

**BWSC.18 Provide Commission with a copy of Notice of Intent and Pollution Prevention Plan if prepared**

The Commission will receive a copy of Notice of Intent and Stormwater Pollution Prevention Plan for projects disturbing one acre or more requiring a NPDES Construction General Permit.

**BWSC.19 Stormwater Pollution Prevention Plan**

As stated above, the Commission will receive a copy of Notice of Intent and Stormwater Pollution Prevention Plan for projects disturbing one acre or more requiring a NPDES Construction General Permit.

**BWSC.20 Discharge of any construction site dewatering drainage to the storm drainage system requires a drainage discharge permit; if dewatering drainage is contaminated a remediation general permit from EPA is required**

This requirement will be addressed in design for each IMP project when more data is available.

- BWSC.21**      **Drainage Discharge Permit is required for long-term discharge to the drainage system of infiltrated groundwater collected via an underdrain system**
- If underdrains are found to be required during design for each IMP project, this requirement will be addressed.
- BWSC.22**      **Uncovered parking or paved area built require particle separators on drains that will collect runoff**
- Section 6.3 of the IMP states that particle separators will be included where needed for pre-treatment and as required for parking or paved areas.
- BWSC.23**      **Install a permanent casting stating “Don’t Dump”; contact Commission’s Operations Division regarding the purchase**
- The “Don’t Dump” castings will be included in the individual building site designs.
- BWSC.24**      **Explore additional opportunities for protecting stormwater quality by minimizing sanding and use of deicing chemicals, pesticides and fertilizers**
- Harvard University recognizes that source reduction of pollutants is the first, most effective step that should be taken to reduce stormwater runoff pollution. The stormwater management operation and maintenance plans will include minimizing sanding and use of deicing chemicals, pesticides and fertilizers. If fertilizers are used, they will be zero phosphorus fertilizers.
- BWSC.25**      **Contact BWSC for information regarding installation of MTUs**
- During design of each IMP project when the number and location of meters are determined, the designer will contact BWSC for information regarding the installation of MTUs.
- BWSC.26**      **Explore additional opportunities for implementing water conservation measures; consider outdoor landscaping that requires minimal use of water, use of timers, soil moisture indications and rainfall sensors for in-ground sprinkler systems, and sensor-operated faucets and toilers**
- All of the above will be explored in the design of individual building projects.
- BWSC.27**      **Hydrant Permits required for use of any hydrant, and water used from hydrant must be metered**
- Harvard will require that contractors involved in the construction of individual building projects will obtain the necessary Hydrant Permits. Harvard will require metering of each individual building.

# BOSTON

Thomas M. Menino, Mayor

November 21, 2012

Mr. Brian Golden  
Boston Redevelopment Authority  
City Hall, Ninth Floor  
Boston, MA 02201

**RE: Harvard University IMPNF/PNF and IMPNF  
Allston, MA**

Dear Mr. Golden,

The Boston Parks and Recreation Department is responding herewith to the Institutional Master Plan Form (IMPNF) and Project Notification Form (PNF) issued for projects on the Harvard University Allston Campus.

In accordance with City Ordinance 7-4.11, the proponent will be required to obtain approval from the Boston Parks Commission for all projects within 100 feet of a public park or parkway. It appears that the projects at 219 Western Avenue and 28/38 Travis Street / 90 Seattle Street will both require Parks Commission approval due to their proximity to Smith Field and Raymond Mellone Park respectively. If the proximate projects are demolition only, or do not include any exterior work, Parks Commission approval would not apply. **BPRD.1**

We encourage you to initiate the review process as early as possible, so that specific concerns or requirements by this Department can be incorporated into the plans early in the design process.

Please contact this Department with any questions.

Regards,



Liza Meyer, ASLA  
Chief Landscape Architect  
Boston Parks and Recreation

CC: Antonia M. Pollak, Commissioner, Boston Parks and Recreation Department  
Gerald Autler, Boston Redevelopment Authority



**Boston Parks and Recreation Department**

Antonia M. Pollak, Commissioner

1010 Massachusetts Avenue, Boston MA 02118/ 617.635.4505

**BPRD.1**      **Projects at 219 Western Avenue and 28/38 Travis Street/ 90 Seattle Street will require Parks Commission approval, unless they are demolition only or do not include exterior work.**

The project at 219 Western Avenue (Barry's Corner Residential and Retail Commons) underwent thorough review by - and received formal approval from - the Boston Parks & Recreation Commission. The 28 Travis Street project does not include exterior work within 100 feet of a City of Boston park and therefore did not require review by the Boston Parks & Recreation Department.



**From:** [O'Hara, Michael C](#)  
**To:** [Autler, Gerald;](#)  
**CC:** [Evans, William; Lanchester, Wayne;](#)  
**Subject:** Traffic Concerns Harvard--Barry"s Corner  
**Date:** Monday, November 19, 2012 4:17:17 PM  
**Attachments:**

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Gerry, The Boston Police Department at District 14 would like to see Harvard University provide funding for two speed boards that can be used to monitor the traffic flow in this neighborhood. This will allow the community/ police to track any increase/decrease in traffic, monitor and BPD.1 suppress speed as needed and to provide a Boston Police Traffic Management device 24/7 on these neighborhood streets. The costs of these units are \$25,000-\$30,000 each, they last about 10 years and can be maintained by the Boston Police Department. In addition these are great tools in the event of Special Events or Emergencies. Any increased use of the roads as planned by Harvard in the Barry's Corner Area should be done with these Traffic Monitor Speed Boards in place prior to any new development.

Sergeant Michael C. O'Hara  
Boston Police Department  
Community Service Office  
District 14-Allston & Brighton  
617-343-4376-office  
617-343-9741-fax  
617-678-7084-cell  
oharami.bpd@ci.boston.ma.us

**BPD.1 Provide funding for two speed boards for Barry's Corner**

The approach to community benefits for the IMP is presented in Chapter 7.0, Community Benefits.



BOSTON  
TRANSPORTATION  
DEPARTMENT

ONE CITY HALL PLAZA/ROOM 721  
BOSTON, MASSACHUSETTS 02201  
(617) 635-4680/FAX (617) 635-4295

December 13, 2012

Gerald Autler  
Boston Redevelopment Authority  
One City Hall square  
9<sup>th</sup> Floor  
Boston, Massachusetts 02201

**Subject: Institutional Master Plan Notification Form for Harvard University's Campus in Allston.**

Dear Mr. Autler:

Thank you for the opportunity to comment on the Institutional Master Plan Notification Form (IMPNF) for Harvard University's Campus in Allston. It outlines a Ten Year Plan of specific projects that the university aims to complete in the coming decade consisting of approximately one million square feet of new development and another half million square feet of renovation. However, while acknowledging their importance during the ten year framework, the IMPNF does not include the Barry's Corner Residential and Retail Commons project and the completion of the Health and Life Center within the scope of the current document.

To ensure a coordinated review, the Boston Transportation Department (BTD) anticipates that Harvard will develop a general Transportation Access Plan Agreement (TAPA) for the Ten Year Plan as described in the IMPNF as well as project specific TAPAs for each development as part of the Article 80 process. BTD.1

### **Principles**

As we have in the past, our comments will focus on integrating proposed campus improvements with the North Allston neighborhood as well as with the regional roadway and transit network.

THOMAS M. MENINO, Mayor  
Thomas J. Tulin, Commissioner



In addition, key principles for Harvard to adopt in detailing the IMP include:

- The proposed street network must be designed in concert with the policies and guidelines of Boston’s **Complete Streets** initiative. Issues to consider include design speeds for motor vehicles, context-based roadway lane and sidewalk widths, multimodal approach to intersection geometry, greenscape feature and the use of the technology to improve traffic flow and access to transportation services. **BTD.2**
- **Mobility Hubs** co-locate alternative transportation choices such as bus stops, bicycle parking, electric vehicle charging and car- and bicycle-share services to provide for seamless transfers between modes. They must be distributed evenly throughout the campus. **BTD.3**
- Harvard must embrace **Green Street** practices that address storm water management, energy-efficient lighting and signals, tree-trenches, use of recycled and pervious street building materials and appropriate street maintenance. **BTD.4**
- Harvard must use “**Smart**” technologies such as interconnected traffic signals and video feeds to assess and improve traffic flow and pedestrian safety in real-time. This information infrastructure should include the installation of digital tags and sensors particularly with respect to monitoring on-street parking. **BTD.5**

### **New streets**

Four new campus streets will be constructed as a part of the Ten-Year Plan. These streets will have two travel lanes (one in each direction) and, with the exception of Smith Field Drive, a sidewalk and a parking lane in each direction. Smith Field Drive will have a sidewalk and a parking lane on the southeasterly side of the street. The proposed streets have the potential to extend the existing network of city streets and create new neighborhood-scaled blocks in a currently underutilized industrial section of North Allston.

The new streets must play a larger role in accommodating traffic in the area rather than only as low-volume streets serving adjacent land uses. As noted in the IMPNF, Academic Way will provide a connection for cars turning right from Western Avenue to North Harvard Street, thereby avoiding congestion at Barry’s Corner. Harvard should also examine how eastbound traffic on Western Avenue approaching Barry’s Corner can similarly take a left on Smith Field Drive and connect up with Academic Way. This will allow Academic Way to play a more integrated role in distributing existing and future Master Plan related traffic in the area. BTD notes that all new streets are proposed to be two-way and will work with Harvard to further develop the design of the new streets. **BTD.6**

Differentiation of city owned and Harvard owned streets need to be further defined. Who will be responsible for the maintenance, enforcement of parking regulations, and general policing of the proposed streets? For example, it is not clear how the proposed “Harvard permit parking” will be signed and/or metered. To the extent that the new streets are open to the public and part of the city street network they must be fitted with standard BTD regulatory and street-name signs. **BTD.7**  
**BTD.8**

All new streets must have sidewalks on both sides and adhere to sidewalk and travel lane widths detailed in Boston’s Complete Streets guidelines. We encourage Harvard to continue their ground- **BTD.9**

breaking program to install rain-gardens, storm water planters and pervious pavements to appropriately manage rain and storm-water. BTD.10

### **Pedestrian and Bicycle Networks**

We would like to take this opportunity to thank Harvard for their ongoing program to reconstruct sidewalks along Western Avenue and North Harvard Street as well as the installation of a cycle track on Western Avenue.

The Ten Year Plan will create sidewalks along the new campus streets and provide pedestrian paths within and through the campus. What are the design parameters for the new sidewalks? To provide visual coherence between city and Harvard managed sidewalks, we recommend a consistent pallet of streetscape elements such as materials, street lights, street trees and plantings. BTD.11

Over the past three years Harvard and the Boston Transportation Department have made significant progress in creating bicycle friendly infrastructure in the neighborhood. The City is currently finalizing its Boston Bicycle Network Plan and recommends that proposed campus and citywide bicycle off-street path and on-street lane networks are well integrated. BTD.12

Linking the proposed pedestrian and bicycle networks with facilities proposed over the Anderson, Western Avenue and River Street Bridges will be critical. Harvard should convene joint meetings with city agencies, DCR and MassDOT to ensure that these links are seamless and coordinated in terms of design and construction schedules. BTD.13

### **Public Transportation and Mobility Hubs**

Harvard's Ten Year Plan must be informed by a comprehensive public transportation strategy to make it more convenient and affordable for residents, students and faculty not to bring their cars to the campus. The MBTA is currently improving service on Route 66 as part of its Key Bus Routes program. The IMPNF also notes that Harvard will institute new shuttle services in tandem with the completion of the Science Center and the development of Barry's Corner. Harvard should work with the MBTA and MASCO to develop a coordinated bus and shuttle service plan to connect with the surrounding communities, the Longwood Medical Area, Green and Red Line Stations and the proposed commuter rail station at Everett Street in Brighton. The service plan should include anticipated routing, frequency and hours of operation for the shuttle system. BTD.14

Bus station, bicycle parking, bike- and car-share and electric car charging stations must be located in close proximity to enable seamless transfers. As part of the IMP and the Long Term Framework Plan, Harvard should propose a network of these "mobility hubs" to create a finer-grained, more personalized, environmentally friendly transport choices for residents, students and faculty to use daily. Harvard should facilitate trip planning by providing location-aware real-time information on the availability of all travel modes and the development of a mobility card system for students and faculty, which could potentially be made available to local residents. BTD.15

BTD.16

### **Traffic Impacts**

We note that the IMPNF states that as part of the traffic analysis, the 2022 Build scenario will incorporate projects identified in the Ten Year Plan as well as non-IMPNF projects such as the Barry's Corner Residential and Retail Commons and the Health and Life Sciences Center (the latter are included in the 2022 No Build Scenario).

Starting in 2008, at BTD's request, Harvard developed a SYNCHRO traffic model for the North Allston area that stretches beyond the IMPNF area to encompass all major intersections from the Charles River and across the Turnpike to include intersections in the Commonwealth Avenue – Brighton Avenue – North Beacon Street corridor. Harvard must update this model in coordination with BTD. As the Barry's Commons and Science Center projects will be included in the 2022 No Build scenario Harvard must first seek approval of the trip generation and distribution projections of those projects. Review of traffic flow in the street network must include Multimodal LOS analysis. As the Campus grows during the ten year time frame, consideration must be given to a greater increase in pedestrian and bicycle volumes than current counts would indicate. BTD.17

BTD will work with Harvard to determine a phased traffic mitigation program including the installation of new traffic control equipment for motorists, pedestrians and bicycles. As part of the street reconstruction and mitigation program we recommend that Harvard develops a ITS plan including the use of networked traffic monitoring equipment such as video cameras, mounted variable message boards and in-street sensors. BTD.18

### **Off Street Parking and Electric Car Charging**

The IMPNF does not detail how new parking spaces will be built as part of the Ten Year Plan to add to the approximately 2,600 existing off-street spaces. Harvard must develop a Parking Management Plan which includes an inventory of existing and proposed parking spaces as well as details on who will have access to them – will they be open to the public or limited to faculty and students? An overall strategy to keep the parking ratio less than 0.75 spaces / 1000 Sq Ft as the campus is built out should be proposed. BTD.19  
BTD.20

We urge Harvard to explore the creation of an electric grid to support the fueling of electric vehicles and plug-in hybrids. Charging stations at campus garages as well as at publicly accessible locations at mobility hubs should be considered. The use of renewal sources of energy to power the grid should be explored. BTD.21  
BTD.22

### **Construction Phasing**

The IMP should outline how the construction of the new buildings will be phased in during the Ten Year Plan. When will the new streets be built relative to the developments included in the IMPNF, the completion of the Science Center and the Barry's Corner Commons project? BTD.23  
The IMP should include an initial outline of a construction management strategy that can mitigate any impacts of the campus build-out. BTD.24

We urge Harvard to continue to work with the community and public agencies to develop their IMP in the coming months. It is critical that this effort is coordinated with the Article 80 process associated with the Barry's Corner Commons project and the completion of the Science Center. If you have any questions regarding the requirements outline above please contact

Sincerely,

Robert D'Amico  
Senior Planner

Vineet Gupta  
Director of Policy and Planning

Cc: Commisioner Thomas J. Tinlin  
John DeBenedictis, Director of Engineering

**BTD.1      Develop a Transportation Access Plan Agreement for the IMP as well as project specific TAPAs**

Harvard will work with BTD to develop a Transportation Access Plan Agreement for the IMP as well as project specific TAPAs.

**BTD.2      Design street network in concert with Complete Streets Initiative including design speeds, context-based roadway and sidewalk widths, multimodal approach to intersection geometry, greenscape feature and use of technology to improve traffic flow and access to transportation services**

The street network will be developed in concert with the City’s Complete Streets Initiative. Chapter 3 describes how the Complete Streets Guidelines have been extended to include campus streets in the IMP area.

**BTD.3      Evenly distribute mobility hubs throughout campus**

Chapter 4 describes the location of proposed Mobility Hubs.

**BTD.4      Embrace Green Street practices that address stormwater management, energy-efficient lighting and signals, tree-trenches, use of recycled and pervious street building materials and appropriate street maintenance**

Chapter 3 describes the long-term vision for Harvard’s sustainable practices in the IMP. Chapter 6 describes the various “green” practices that Harvard has incorporated into the IMP.

**BTD.5      Use smart technologies such as interconnected traffic signals and video feeds, including installation of digital tags and sensors particularly with respect to monitoring on-street parking**

Chapter 6 identifies potential smart technologies. Additional information, including a discussion about Intelligent Transportation Systems, is provided in Appendix C.

**BTD.6      Examine how eastbound traffic on Western Avenue approaching Barry’s Corner can take a left on Smith Field Drive and connect up with Academic Way**

The Barry’s Corner Residential and Retail Commons Project will extend the eastbound left-turn on Western Avenue to accommodate left-turns onto “South Campus Drive.” “South Campus Drive” will meet “Academic Way” at a new intersection on North Harvard Street. “South Campus Drive” will include traffic calming features to reduce traffic speeds by Smith Field and the new residential uses.



The Barry's Corner Residential and Retail Commons Project is designing "South Campus Drive" and its intersection with North Harvard Street to accommodate the future construction of "Academic Way." Harvard proposes to signalize this new intersection and will work with BTM to review traffic volumes and signal warrants as part of BTM's approval process.

**BTM.7      Differentiation of street ownership to be further defined including responsibility for maintenance, enforcement of parking regulations and general policing**

"South Campus Drive" and "Ivy Lane" are being developed as private streets open to public travel. Harvard will work with BTM to further define street ownership issues for "Academic Way" and "Science Drive" with BTM.

**BTM.8      New streets open to the public fitted with standard BTM street-name signs**

Harvard will fit the new streets that are open to public travel with standard BTM street name signs at the intersection of these streets with adjacent public streets.

**BTM.9      Create sidewalks on both sides of new streets and to adhere to sidewalk and travel lane widths detailed in Boston's Complete Streets Guidelines**

The IMP envisions creating sidewalks on both sides of new streets. In some locations, a sidewalk may be replaced by a multiuse path as part of the overall planning for open space, bicycle and pedestrian systems. Chapter 3 describes the proposed streetscape guidelines that are based on Boston's Complete Streets Guidelines.

**BTM.10     Continue program to install rain-gardens, storm water planters and pervious pavements to manage rain and stormwater**

Chapter 3 describes the long-term vision for Harvard's sustainable stormwater practices in the IMP. Chapter 6 describes the various "green" practices that Harvard has incorporated into the IMP.

**BTM.11     Use consistent pallet of streetscape elements such as materials, street lights, street trees and plantings**

Chapter 3 describes the proposed streetscape guidelines that are based on Boston's Complete Streets Guidelines.

**BTM.12     Integrate bike paths with the Boston Bicycle Network Plan**

Harvard will continue to collaborate with BTM to enhance the bicycle network serving North Allston. Chapters 4 and 6 describe the proposed bicycle network, which will be integrated with the Boston Bicycle Network.

**BTD.13 Link pedestrian and bicycle networks with facilities proposed over the Anderson, Western Avenue and River Street bridges**

Chapter 3 describes the vision for integrating the pedestrian and bicycle network with external connections like the river bridges. As indicated in Chapters 4 and 6, the IMP projects are focused on Barry's Corner, although the IMP does propose to upgrade the existing Western Avenue cycle track as new projects are constructed along the corridor.

**BTD.14 Work with MBTA and MASCO on coordinated bus and shuttle service plan to connect with surrounding communities, the Longwood Medical and Academic Area, Green and Red Line Stations and the proposed commuter rail station at Everett Street in Brighton; include anticipated routing, frequency and hours of operation for shuttle system**

The transit analysis in Chapter 6 indicates that there is sufficient capacity on the existing bus system to accommodate new peak hour transit trips that will be generated by the IMP projects. The focus on shuttle service is to link the Cambridge and Allston campuses and to provide connections with Harvard Station. Connectivity with Harvard Station is appropriate given the amount of transit service at this station and the general commuting patterns of Harvard affiliates. While there are no plans to provide shuttle service to the commuter rail station at Everett Street, Harvard will continue to monitor the status of this station and its service to determine whether some type of service is appropriate in the future.

**BTD.15 Propose a network of mobility hubs**

Chapter 6 illustrates the proposed locations of Mobility Hubs.

**BTD.16 Facilitate trip planning by providing location-aware real-time information on the availability of all travel modes and the development of a mobility card system for students, faculty, and potentially local residents**

Harvard has a robust set of TDM measures that are implemented through its CommuterChoice program. Chapter 2 describes the existing program and Chapter 6 describes potential areas for future expansion. Harvard also provides real-time information about its shuttle services at: <http://harvard.transloc.com/>.

**BTD.17 Update SYNCHRO Traffic Model in coordination with BTD, seek approval of trip generation and distribution projections and give consideration to greater increase in pedestrian and bicycle volumes than current counts would indicate**

VHB has upgraded the SYNCHRO Traffic Model in coordination with BTD and reviewed the study methodology with BTD. Estimated bike and pedestrian trips are presented in Chapter 6 and described in detail in Appendix C.

**BTD.18 Mitigation program to include an ITS plan including use of networked traffic monitoring equipment**

As described in Chapter 6, the IMP proposes connecting intersections along North Harvard Street to BTD's Traffic Management Center. Appendix C provides details about this approach, which also includes proposals for new video monitoring equipment at several North Allston intersections.

**BTD.19 Parking Management Plan to include an inventory of existing and proposed parking spaces and who will have access**

A parking inventory is presented in Chapter 6 and discussed in detail in Appendix C. The parking management plan describes the anticipated users of the proposed on-street and off-street parking spaces.

**BTD.20 Propose an overall strategy to keep parking ratio less than 0.75 Spaces/ 1,000 SF**

As presented in Chapter 6 and discussed in detail in Appendix C, the proposed parking strategy provides a ratio that is slightly less than 0.75 spaces/1,000 sf. This is achievable due to the mix of uses in the IMP and the ability to share parking among different users.

**BTD.21 Consider electric charging stations as well as publicly accessible locations at mobility hubs**

The proposed Mobility Hub concept provides a framework to deploy publically accessible electric charging stations. Harvard will evaluate the future installation of electric charging stations within this this context and as part of the review of individual projects.

**BTD.22 Explore the use of renewable sources of energy to power the electric grid**

Existing Harvard-owned district energy systems serving all or portions of the IMP Area include an electric micro-grid, a steam distribution network, and a chilled water plant/distribution system. Harvard has also installed solar panels on the Gordon Indoor Track and Tennis Facility and wind turbines on the Soldiers Field Park Garage. Smaller multi-space meter pay stations are also solar powered. Additional systems and measures will be evaluated on a project-by-project basis.

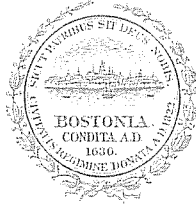
**BTD.23 Outline how construction of new buildings will be phased and when new streets will be built relative to developments**

The Construction Phasing and Management section in Chapter 6 outlines the currently anticipated phasing of building and roadway construction.

**BTD.24**

**Include initial outline of construction management strategy that can minimize impacts of campus build-out**

Chapter 6 includes the framework for the construction management strategy. This section discusses the neighborhood communication strategy, anticipated construction worker hours, public safety and access, construction worker transportation, truck route and delivery, environmental mitigation, air quality and noise, construction waste protection of utilities and rodent control. This section also includes a discussion about construction employment.



MARK CIOMMO  
BOSTON CITY COUNCIL  
DISTRICT 9

November 20<sup>th</sup>, 2012

Gerald Autler, Project Manager  
Boston Redevelopment Authority  
One City Hall Square, 9<sup>th</sup> Floor  
Boston, MA 02201

Dear Mr. Autler,

As the delegation of local elected officials representing Allston-Brighton, we wish to provide our comments on the October 17<sup>th</sup>, 2012 Harvard University Institutional Master Plan Notification Form (IMPINF) and appendix sections, and the Travis Street/Seattle Street amendment to the current IMP.

We recognize that reviewing and offering constructive feedback on these submissions is a necessary aspect of the BRA's article 80 process, and the contents of the submissions reflect that Harvard University has engaged in planning for the next decade of development. We acknowledge that the filing of the IMPINF is only the beginning of the Article 80 review process. We must also make note of the length of time allotted for public review of these documents (one month) and the number of task force meetings to review and discuss the contents (one meeting) during the initial comment period.

We question Harvard's decision to include the information in Appendix B, a "Long-Term Framework Plan... included for information purposes only and not submitted for approval", in the IMPINF filing (Appendix B introduction page B-1). Planning "intended to guide growth over decades to come" should have been more inclusive of community input, and should be included for approval to the extent that it informs the submitted Ten-Year Plan. The Ten-Year plan must also include planning about prospective projects to improve neighborhood infrastructure, connectivity and accessibility. The community has clearly voiced a desire to collaborate with Harvard in long-term planning efforts. All of Harvard's property in North Allston-Brighton should be included in these planning efforts. BCC.1 BCC.2

It is clear that three proposed projects in particular – the basketball venue and institutional/mixed-use facility, the institutional/mixed use project on the current Charlesview site, and the hotel and conference center – will be most important in defining the long-term connection between University and community. The lack of detail and direction in planning development in these areas is a matter of concern. In all three cases, the time frame of planned construction is the second five years of the master plan (2017 -2022). Harvard must clarify the design and programming of these three critical projects. Using the Charlesview site as a construction staging area or parking lot for any substantial duration will counteract the development of a vibrant Barry's Corner streetscape. Harvard must explore other less detrimental uses for this parcel in the decade before large-scale construction is approved. The degree to which the basketball venue will be active and encourage neighborhood vibrancy outside BCC.3 BCC.4 BCC.5


BOSTON CITY HALL, ONE CITY HALL SQUARE, BOSTON, MASSACHUSETTS, 02201  
617-635-3113 FAX: 617-635-4203 Mark.Ciommo@cityofboston.gov

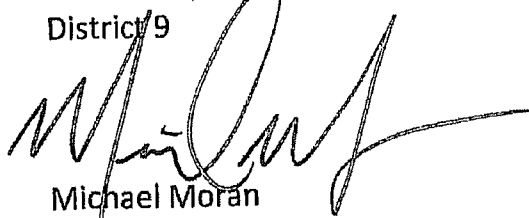
of athletic-related events is an area of concern. Additionally, more attention needs to be given to transportation issues. The community requires a more detailed assessment of the overall traffic impacts that will result from the full scope of development over the next decade and ways these impacts can be mitigated. BCC.6

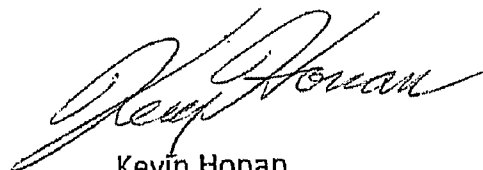
The six remaining proposed projects, especially the five projects within the bounds of the traditional Harvard Business School (HBS) existing campus, will be less impactful to the relationship between neighborhood and University. We respect Harvard’s ambitious plans to improve their Business School campus. We expect that these campus improvement projects must include parallel development activity to upgrade the infrastructure and connectivity of the North Allston-Brighton neighborhoods. We recognize Harvard’s successful efforts in recent years to aggressively pursue desirable tenants for their leasable space. At the outset of this 10-year planning and development process, we reiterate our ongoing expectation that Harvard University include specific measures to improve the North Allston-Brighton public realm concurrently with their plans to improve their traditional HBS campus. The Institutional Master Plan should include specific planning about future neighborhood improvements. The BRA’s Article 80 Large Project Review framework is the appropriate context to implement these plans in the form of community benefits. BCC.7 BCC.8


Harvard University’s presence in North Allston-Brighton over the next decade will depend in very large part on the fulfillment of the Health and Life Science Center and Barry’s Corner Residential and Retail Commons, along with other projects not included in the scope of the new IMPNF. To that effect, we were pleased with the inclusion of these ongoing projects in Appendix A of the IMPNF filing. Harvard has committed to redesigning (to the extent necessary) the Science Center in early 2013, prepare the work site for construction in late 2013 and resume work in 2014. We request that Harvard provide a comprehensive update on the Science Center Cooperation agreement that documents all unfulfilled community benefits and commits to concrete timelines and scopes of work for these benefits. We also request clarification on the degree to which the proposed Travis Street/Seattle Street IMP Amendment will impact plans for Rena Park. Harvard must address these outstanding aspects of the current IMP before seeking final approval of a new master plan. BCC.9 BCC.10

Sincerely,

  
Mark Ciommo  
Boston City Councilor  
District 9

  
Michael Moran  
State Representative  
18<sup>th</sup> Suffolk District

  
Kevin Honan  
State Representative  
17<sup>th</sup> Suffolk District

  
Sal N. DiDomenico  
State Senator  
Middlesex, Suffolk and Essex District

**BCC.1 The Long-Term Framework Plan should be included for approval**

As a regulatory document, this IMP includes a Ten-Year Plan for which the University is seeking formal approval. However, Chapter 3.0, Long-Term Vision, and Chapter 5.0, District Plans and Project Descriptions, include information on long term planning and provide the framework for the specific projects in the Ten-Year Plan. While the IMP does not seek approval of the Long-Term Vision, the IMP projects in the IMP are designed to be consistent with the Long-Term Vision.

**BCC.2 Include planning about prospective projects to improve neighborhood infrastructure, connectivity and accessibility; community has expressed desire to collaborate on long term neighborhood planning efforts including all of Harvard’s property in North Allston-Brighton in planning efforts**

The University’s IMP establishes a new network of green spaces, strengthens pedestrian connections, improves transportation, enhances public realm, continues the activation of Barry’s Corner, and provides a long-term development vision for campus and community. While the IMP is focused on specific geographic area, the University remains committed to thoughtful stewardship of its properties beyond the IMP boundary, as described in Section 2.7.

**BCC.3 Clarify design and programming for the Basketball Venue and Institutional/Mixed-Use Facility, Institutional/Mixed-Use Project on Charlesview Site and the Hotel and Conference Center**

Chapter 5.0, District Plans and Project Descriptions, includes updated project and programming information on all of the projects included in the IMP.

**BCC.4 Explore less detrimental uses for Charlesview Site than as construction staging area**

As described in more detail in Chapter 5.0, District Plans and Project Descriptions, the interim planning for the Charlesview area would reduce the site’s current 230 parking spaces to approximately 150 spaces, which will support institutional project requirements and potentially provide construction-related parking. The parking would also help support the establishment of new retail activities in Barry’s Corner and provide a new parking alternative for visitors to athletics events and facilities. The parking will be located well-away from Western Avenue, either fully internal to the site or partially along North Harvard Street, where it will be well-buffered by landscape materials. The area may also serve other Harvard functional needs including support services, interim office space, construction offices and support.

**BCC.5                    Concern about degree to which Basketball Venue will be active and encourage neighborhood vibrancy outside of athletic events**

Chapter 5.0, District Plans and Project Descriptions, includes a more detailed description of the overall Mixed Use Facility and Basketball venue project. This description includes the range of uses that are projected for the mixed use portion of the project and explains the intention in providing a mix of uses on the site that not only meet an institutional need but also provide for an active and publicly accommodating site.

**BCC.6                    More detailed assessment of traffic impacts and possible mitigation**

Section 6.1 and Appendix C include a detailed analysis of the transportation impacts and mitigation related to the implementation of the IMP projects.

**BCC.7                    Campus improvement projects to include parallel infrastructure upgrades and connectivity of the North Allston-Brighton neighborhoods**

Section 4.6 provides a diagram depicting the relationship between the IMP projects and the implementation of identified public realm improvements. The ongoing discussion of community benefits will identify additional infrastructure and public realm projects in the neighborhood.

**BCC.8                    Include specific measures to improve public realm concurrently with plans to improve HBS Campus**

Section 4.6 provides a diagram depicting the relationship between the IMP projects and the implementation of identified public realm improvements. The ongoing discussion of community benefits will identify additional infrastructure and public realm projects in the neighborhood.

**BCC.9                    Provide a comprehensive update for the Science Center Cooperation Agreement that documents all unfulfilled community benefits and commits to concrete timelines and scopes of work**

Harvard provides the BRA with an annual report on the status of the implementation of the Science Complex Cooperation Agreement.

**BCC.10                  Clarify the degree to which proposed Travis Street/ Seattle Street IMP Amendment will impact Rena Park plans**

The 28 Travis Street project does not preclude the planning for Rena Park and Harvard has committed to moving forward on the planning for Rena Park. To date, two community meetings have been held on the planning for Rena Park and these meetings will continue later this summer.



November 19, 2012

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

Harvard University has submitted three separate but related planning documents to the Harvard Allston Task Force and North Allston/North Brighton community. These Notification Forms for an IMP Amendment, 10-Year IMP, and Long-Term Framework combine to create a complex Institutional Master Plan for projects in the near-term and distant future.

While these documents meet the Article 80 requirements for this early stage of the zoning review process, it is unrealistic to assume that the unrelated goals and timelines of these plans can be combined to create real connectivity and context and there are tangible differences between the community's vision and Harvard's proposals. The many questions about how to achieve physical, social, and programmatic connections between the University and community must be answered.

The Community Master Plan, as expressed in the North Allston Strategic Framework and the Community-Wide Plan, is not addressed by Harvard's inward-looking approach and the utilitarian mixed-use projects proposed for its campus edge. Height and density alone are not sufficient to create a vibrant and inclusive place where all will be welcome to live, learn, work, and play.

Harvard is proposing a fundamental reassessment of Barry's Corner through its proposed Basketball/Mixed-use arena, the Travis Street projects, relocation of the Educational Portal, parking at the current Charlesview site, and the lack of amenities and cultural resources that Harvard had previously proposed for Barry's Corner. Harvard is apparently no longer committed to the Community Master Plan and is instead determined to keep its options open to realize its own goals without fully revealing or discussing its intentions.

We are concerned that the current Article 80 IMP process is not suited to Harvard's use of 3<sup>rd</sup> party developers and projects like the Basketball/Mixed-use arena that combine market-based and institutional projects. The IMP process is one of the important issues to be addressed in the BRA's Scoping Determination.

In light of the above issues, the minimal detail provided in Harvard's submissions to the BRA, and the complexity and inter-related nature of these plans, an open, iterative, and interactive process is needed to remedy the fact that Harvard's current proposals are blatantly self-serving and fail to meet key goals of the community vision.

In our comments that follow we pose questions and offer opinions that we hope will be included in the BRA's Scoping Determination and will be addressed by Harvard as its planning evolves.

Sincerely,  
The Harvard Allston Task Force

## General Comments

- Harvard proposes projects benefit Harvard but do not adequately improve the neighborhood.
- Harvard must fulfill all previous commitments, particularly those tied to the submission of a new IMP. No project should be approved that is incompatible with these commitments.
- Harvard’s new approach to development and unclear framework for use of 3<sup>rd</sup> party developers threatens the community’s future and undermines the ability of the Task Force to engage in careful planning and review.
- Harvard’s “long-term framework” is both too vague and geographically limited, as it fails to include all Harvard property in Allston/Brighton. For Harvard to include it in the IMP while stating that it is “not submitted for approval” makes no sense. It should be either subject for formal scoping, review, and approval, or it should be removed from the IMP.

### **1. Transportation**

Harvard proposes 650,000 square feet of new construction in the IMPNF. This is in addition to the Science Complex (approximately 600,000 sq ft) and the Barry’s Corner residential mixed-used project.

The IMPNF fails to include sufficient transportation improvements to accommodate this huge increase in activity. This is unacceptable. How specifically does Harvard plan to address transportation impacts on the neighborhood? HATF.1

On page 6 of the Science Complex Cooperation Agreement, Harvard pledged that the new IMP would report on Harvard’s investigations into allowing residents of North Allston and North Brighton to ride the Harvard Shuttle. This topic has been discussed for several years. We believe it is time for a definitive response from Harvard. HATF.2

In its 2008 IMPNF, Harvard set a mode-share goal to have no more than 50% of its Allston community commute by car. Does Harvard still have that goal? What yearly progress has Harvard made? HATF.3

### **2. Parking**

For the three IMP projects with the greatest impact on the community (the “Basketball Venue and Mixed Use Project”, the “Mixed Use Institutional Project”, and “Hotel/Conference Center”) the IMPNF describes their parking areas and facilities as “To Be Decided”. This lack of information is troubling. We request that Harvard submit a written supplement to the IMPNF with additional details before the BRA issues its Scope. HATF.4

Harvard proposes several new private streets where parking would be limited to Harvard permit holders. Why should new streets should be privately owned and operated by Harvard, as shown on page 35 of the IMPNF? Why should members of the Allston community be prevented from parking on these streets? How is this consistent with a campus that is integrated with the community? HATF.5

### 3. Floor Area Ratio & Building Heights

For every project in the IMPNF, Harvard states that the Floor Area Ratio is “To Be Decided”. We HATF.6 request that Harvard submit a written supplement to the IMPNF before the BRA issues its Scope which should include a set of specific alternatives regarding FARs as they relate to building footprints, density, and height.

### 4. Active Ground Floors and Vibrant Public Realm

The term "active ground floor" needs to be more clearly defined and must ensure that year-round and HATF.7 7 day a week public access and amenities will be created. Teele Hall and the I-Lab are shown on page 36 of the IMPNF as having "active ground floors", but public access to these buildings is for limited groups of people and is restricted to a few hours per month at most.

To create a vibrant public realm, new buildings near Barry's Corner must have much greater public use and benefit than what currently exists at Teele Hall and the I-Lab. Harvard should define specific HATF.8 parameters and guarantees for public use and access to ground floors.

We understand that Article 51 for Allston/Brighton of the Boston Zoning Code is superseded by the HATF.9 Article 80 process. But we recommend that Harvard should apply Article 51’s commercial sub-district definition to Barry’s Corner so that ‘fifty percent of the gross floor area of the first story, including street frontage, [be] a local retail business use or a general retail business use.’”

Page 38 of the IMPNF claims that Barry’s Corner will be a destination for many people from HBS, Harvard Athletics, and Cambridge. We hope that this will be true. But the current plans for Barry’s Corner are not particularly creative, interesting, or inspiring.

What specific activities does Harvard propose for Barry’s Corner that are not already accessible on the HBS campus or in Harvard Square that would draw people from HBS and Cambridge? Also, why does HATF.10 the “Evening and Weekend” diagram show much less activity than the “daytime” diagram? We view it as essential that Barry’s Corner be vibrant 7 days a week, including weekday and weekend evenings.

### 5. Housing

Harvard, through its partnership with Samuels and Associates, proposes to build 100s of new units of rental housing in Allston. We are disappointed that Harvard has announced no plans to increase homeownership in Allston/Brighton, other than a handful of units at the Brookline Machine site.

On page 8 of the Science Complex Cooperation Agreement, Harvard and the BRA pledged to work with the Harvard Allston Task Force to identify opportunities in North Allston and North Brighton to use the HATF.11 \$3.8M that Harvard would pay to the Neighborhood Housing Trust fund. We believe that this planning should be done before Harvard’s new IMP is approved. If no opportunities can be found that meet the requirements of the Trust Fund, Harvard should make an equal and direct investment to increase homeownership in the community.

## 6. Community Based Planning beyond Harvard's IMP Boundaries

Harvard committed on page 21 of the Science Complex Cooperation Agreement to participate in planning for its properties outside the IMP area. The cooperation agreement states that this planning will begin before Harvard submits its new IMP and that it will generate specific commitments by Harvard to advance specific goals and projects.

Harvard's immense land holdings, its domination of Western Ave between North Harvard Street and Watertown, the lack of Harvard/community planning for the Holton Street Corridor, and the fact that the CSX and Romar properties may soon be vacated, make it crucial that the IMP review and Scoping process be adapted to include this planning and that this community planning process started now. HATF.12 Clear goals and sufficient resources of time, money, and personnel must be dedicated to the effort to help guarantee its success.

## 7. Transformative Project

On page 20 of the Science Complex Cooperation Agreement, Harvard promised to begin planning for a "transformative project" such as a new school or community center *before* it submitted a new Master Plan. When will that planning begin and how will Harvard show its commitment to a robust planning HATF.13 process with a significant result? We understand that Harvard's development plans are smaller than they were 5 years ago, but the scope of Harvard's land-banking is effectively unchanged, and we do not support any down-sizing of Harvard's transformative commitment.

### Comments on Specific Projects

#### 1. Travis Street / Seattle Street

Harvard proposes the following uses on page 7 of the Institutional Master Plan Amendment Notification Form:

Mail room services, office space, Information Technology department, storage space, recycling program, police training facility, storage of seasonal items, and maintenance and upkeep of busses, vehicles, and other maintenance equipment

While we support the construction of new, Class A office space as part of a vibrant commercial district in Barry's Corner, the other uses do not belong adjacent to the Rena/Kingsley residential neighborhood and just 1/8<sup>th</sup> of a mile from the heart of Barry's Corner. Harvard can use property in Cambridge, Watertown, or elsewhere to maintain its busses and store seasonal items! HATF.14

Harvard's current plans for these parcels would occupy the same land that Harvard promised to use for Rena Park on page 10 of the Science Complex cooperation agreement and would likely delay or prevent Harvard's ability to keep the promise of Rena Park. HATF.15

## 2. Basketball Venue and Mixed Use Project

What is the rationale for an athletic facility to be physically separated from the existing venues (Bright Hockey, Blodgett Pool, etc) that serve Harvard student-athletes who live in Cambridge?  
What will Harvard do with its existing basketball arena in Allston if a new one is built?  
How many seats could be added to Harvard's *existing* Lavietes Basketball Pavilion if it was expanded?  
How many hours a week (during the collegiate basketball season, other parts of the academic year, holidays, and school vacations) would the proposed facility be used?  
Will Harvard use the arena for activities other than varsity basketball?  
How could a partnership with an organization such as the YMCA make the proposed facility part of the Allston community and allow public use when Harvard students are not practicing or competing?

HATF.16

## 3. Harvard Parking Lot on the site of the current Charlesview housing

This proposed use shown on page 35 of the IMPNF is completely unacceptable. A large surface parking lot in this strategic and highly-visible site is completely contrary to our vision for North Allston. We strongly oppose Barry's Corner being the backside of Harvard's campus where undesirable uses are dumped.

HATF.17

Harvard has suggested that this site could also be used for construction activities such as material storage, staging, and parking. We disagree with this proposal, especially considering the pending vacancy of the CSX and Romar sites which would give Harvard other nearby options for parking and construction activities.

HATF.18

## 4. Health and Life Science Center (formerly known as the Science Complex)

This project is shown on page 36 of the 10-year IMPNF as not having an "active ground floor". On page 22 of the Science Complex Cooperation Agreement, Harvard promised to public uses including a cafeteria, restaurant, retail, daycare, and auditorium. These Science Complex public uses were promised to be in addition to new public uses in Barry's Corner, and Harvard should update this portion of its IMP to honor this active ground floor commitment at the Health and Life Science Center.

HATF.19

## 5. Ed Portal and Annex relocation

Harvard notes on page 26 of the IMPNF that the Ed Portal will need to be relocated to accommodate the Basketball Venue. The IMP needs a specific new location for the Ed Portal, preferably one that makes the Ed Portal more physically accessible to the community because of its vital benefit to the North Allston/Brighton community.

HATF.20

## 6. 224 Western Ave Ceramics Studio relocation

224 Western Ave is a large, 1.7 acre parcel with an important and complex relationship to Barry's Corner, Western Ave, Spurr Street, and the residential properties on Franklin Street and Mead Street. The majority of 224 Western Ave abuts Spurr Street, not Western Ave, and the North Allston Strategic Framework proposes removing Spurr Street. According to the City of Boston, the property is owned by Nancy Stone, not Harvard (<http://www.cityofboston.gov/assessing/search/?pid=2201060000>).

It is not clear if the existing one-story structure should be renovated, expanded, or demolished to make way for a new building. Considering the age and condition of the building, it would require significant investment to modernize it. The future use of the site and what uses might accompany the ceramics studio should be carefully considered before any conclusions are made. This project should part of HATF.21 Harvard's 10-year IMP and included in the BRA's Scoping Determination.

We believe the arts in general, and Harvard's ceramic studio in particular, offers great opportunities for town-gown interaction and for the community to be enriched by Harvard's presence. However, it is not clear if Harvard will make this vision a reality. Fees for members of the public are more than twice those that Harvard charges to its employees (<http://www.ofa.fas.harvard.edu/ceramics/fee.php>).

As a condition of relocating the ceramics studio, registration fees for the public should be the same as those for Harvard employees, and educational programs (including for children afterschool and during vacation) and retail sales should be greatly expanded. HATF.22

## 7. Boundaries of Ray Mellone Park

Figure 8 on page 3 of the IMPA shows Ray Mellone park as being larger than it actually is. In reality, there is a fenced-off area abutting the park that is not accessible to the public. However, the IMPA figure shows this as part of the park. Harvard should clarify its intentions for this land and if it will be opened to the public and become part of the park. HATF.22

**HATF.1 Address transportation impacts and improvements**

Section 6.1 and Appendix C include a detailed analysis of the transportation impacts and mitigation related to the implementation of the IMP projects.

**HATF.2 Report on investigations into allowing residents of North Allston and North Brighton to ride Harvard Shuttle**

As part of the 28 Travis Street project Harvard agreed to open its shuttle buses in Allston to the public.

**HATF.3 Confirm if mode-share goal is to have no more than 50% of its Allston community commute by car; yearly progress so far?**

Harvard has not established a mode share goal for its Allston community. As part of the 2007 20-Year Master Plan ENF and IMPNF (both of which have since been withdrawn by Harvard), Harvard indicated that “An automobile mode share of 50 percent for employees has been targeted for Phase 1. This mode share should be achievable by continuing and enhancing the current TDM program and improving the pedestrian, bicycle, and public transit networks to and from the Allston Campus.”

Harvard is committed to encouraging non-auto commuting by its affiliates. The University provides a robust set of TDM measures as described in Chapter 2. In addition, Harvard has coordinated with the City of Boston to implement bike lanes in North Allston and has sponsored four Hubway stations within the study area. Harvard will work with BTM to identify appropriate mode share goals as part of the IMP TAPA.

**HATF.4 Submit additional details on parking areas and facilities**

Chapter 6 and Appendix C describe the University’s approach to parking for the IMP. Additional descriptions of each IMP project are included in Chapter 5.0, District Plans & Project Descriptions.

**HATF.5 Justify privately owned streets limiting parking to Harvard permit holders**

As described in Chapter 2, Harvard manages its institutional parking as a University-wide resource. A parking inventory of off-street spaces within the IMP area is presented in Chapter 6. The parking management plan describes the anticipated users of the proposed on-street and off-street parking spaces.

**HATF.6 Include a set of specific alternatives regarding FARs as they relate to building footprints, density and height**

In a campus setting, FAR is not generally a useful measure of density since the site area is usually not formally bounded. Depending on the stage of planning, some projects are proposed with specific parameters, and some projects are depicted with alternative massing and ranges of square footages.

**HATF.7 Clearly define term “active ground floor” and ensure year-round and 7 day a week public access**

The term “active ground floor” is a general reference to the goal of ensuring that ground floor conditions engage pedestrians and activate the street. Although 7 day a week public access cannot generally be guaranteed at this stage of planning, the activation of ground floor uses will strive to encompass as much of the week as practical.

**HATF.8 Define specific parameters and guarantees for public use and benefit**

The University’s objective is to improve and create a cohesive streetscape for the area and establish a diverse mix of uses that activate Barry’s Corner. Public benefits will be memorialized in the IMP Cooperation Agreement. Public use is a more generalized concept and is a stated Harvard goal for certain areas of the Plan such as Barry’s Corner.

**HATF.9 Apply Article 51’s Commercial Sub-District definition to Barry’s Corner**

Harvard’s planning for Barry’s Corner is subject to and controlled by Boston’s Planned Development Area (PDA) regulations and Boston’s IMP regulations. Article 51 has not been utilized as a planning metric.

**HATF.10 Specify Barry’s Corner activities proposed and explain why evening and weekend diagram shows less activity than daytime diagram**

Plans for the activation of Barry’s Corner are detailed in Section 5.2, Barry’s Corner District.

**HATF.11 Planning to identify opportunities to use Harvard’s payment to the Neighborhood Housing Trust Fund to be completed; if no opportunities found, Harvard to make an equal and direct investment to increase homeownership in the community**

The University makes linkage payments to the City of Boston associated with any approved Development Impact Projects. The City of Boston is responsible for allocating those funds.

**HATF.12 Start community planning for Holton Street Corridor**

While the IMP is focused on specific geographic area, the University remains committed to attentive stewardship of its properties beyond the IMP boundary, as described in Section



2.7. In addition, the University has engaged in a discussion with the community and the City about community benefits associated with the approval of the IMP (see Chapter 7). Those community benefits are not restricted the area within the IMP boundary and could extend west of Barry's Corner pending discussions with the BRA and the community.

**HATF.13 Plan and commit to a transformative project**

As part of an approved IMP and with input from the community and the BRA, the University will identify a transformative project (or suite of projects that collectively constitute a transformative project).

**HATF.14 Use property elsewhere to maintain busses and store seasonal items**

Section 6.6 presents the plan for support services.

**HATF.15 Plans for Travis Street/ Seattle Street Parcels would occupy land promised to use for Rena Park**

The 28 Travis Street project does not preclude the planning for Rena Park and Harvard has committed to moving forward on the planning for Rena Park. To date, two community meetings have been held on the planning for Rena Park and these meetings will continue later this summer.

**HATF.16 Basketball Venue**

A description of the basketball venue is included in Section 5.5.

**HATF.17 HATF opposes surface parking lot on site of the current Charlesview Housing**

As described in more detail in Chapter 5.0, District Plans and Project Descriptions, the interim planning for the Charlesview area would reduce the site's current 230 parking spaces to approximately 150 spaces, which will support institutional project requirements and potentially provide construction-related parking. The parking would also help support the establishment of new retail activities in Barry's Corner and provide a new parking alternative for visitors to athletics events and facilities. The parking will be located well-away from Western Avenue, either fully internal to the site or partially along North Harvard Street, where it will be well-buffered by landscape materials. The area may also serve other Harvard functional needs including support services, interim office space, construction offices and support.

**HATF.18 HATF disagrees with proposal to use Charlesview Site for construction activities**

See Response to Comment HATF.17.

**HATF.19 Update IMP to include active ground floor public uses to Health and Life Science Center**

The current proposal and approach to retail and service uses in Barry's Corner (including the Science project) is presented in Section 6.10. Further planning as to the potential ground floor uses of the Science project is anticipated. The IMP does allow for and encourage a mix of uses in the Western Avenue corridor. Based on the community planning process led by the BRA there was encouragement to focus the retail and service activity in the area in Barry's Corner, however the proposed projects and the design guidelines emphasize active and public uses on the ground floors of buildings along Western Avenue.

**HATF.20 Include specific location for a new Education Portal, preferably one that is accessible to the community**

Harvard is continuing to analyze the future location for the Ed Portal, the guiding principles being: (1) prominent location in Barry's Corner; (2) safe access for community residents, students and faculty and; (3) ensure a smooth transition from the current site to the new one.

**HATF.21 Consider future uses of Ceramics Studio Site**

Harvard will open a new ceramics facility in September 2013 at 224 Western Avenue to include a new public gallery directly fronting the street. It will be the new home of the Ceramics Program, Office for the Arts at Harvard (OFA), which has been active in Allston for 26 years at 219 Western Avenue.

**HATF.22 Ceramics Studio registration fees for the public should be the same as for Harvard employees, and educational programs and retail sales should be expanded**

The Ceramics Studio fees for members of the public and for employees are the same, except that Harvard employees are eligible for tuition assistance. Harvard anticipates moving this fall into the new space at 224 Western Avenue and this new location will allow for a new, public gallery. Other program opportunities presented by the new location are still being explored.

**HATF.23 Clarify intentions for Ray Mellone Park and whether or not it will be opened to the public**

As noted in the comment letter, the IMP Amendment for the 28 Travis Street project misidentified an area of land as being part of Ray Mellone Park. The area in question is part of what is referred to as Rena Park. To date, two community meetings have been held on the planning for Rena Park and these meetings will continue later this summer.



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November 19, 2012

Gerald Autler  
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One City Hall Square  
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Dear Mr Autler,

I am writing to provide comments on Harvard's Institutional Masterplan.

As mentioned at the meeting at the HBS, the Charles River Conservancy is proposing underpasses at Charles River bridge intersections on the Boston side. We view the addition of underpasses as a crucial infrastructural improvement that makes particular sense now in conjunction with Harvard's Institutional Master Plan for Allston.

The underpass issue arises from the Accelerated Bridge Program under which MassDOT is restoring the Anderson Memorial, Western Avenue, and River Street bridges. From the outset the CRC has urged MassDOT to include underpasses in its designs, since including them now would be much less expensive and more convenient than adding them in a separate project.

We are convinced that underpasses on the Allston side of all three bridges will enhance the use of the Parklands in a number of important respects. Surface intersections, frequently gridlocked, with cars making unpredictable turns, pose real safety concerns to the many walkers, runners, skaters, and cyclists who use the paths. Underpasses would relieve the congestion and open a safe, car-free corridor stretching nearly eight miles along the river from across Watertown to downtown Boston. Underpasses would also offer more fluid transit for the increasing number of bicycle commuters who use the paths, thus encouraging clean, carbon-free commuting at a time when this is an urgent priority. In short the Conservancy's mission to promote healthy, active use of the Parklands would be well served by this substantial improvement to the paths.

We believe that Harvard's interests would be similarly served. Harvard students are certainly among the many who run, bike, and walk along the river, so our concerns are yours as well. I can only imagine that as Harvard builds more facilities on the Allston side, the river paths will be even more of a central boulevard through your campus than they are today, and Harvard's interest in smoothly functioning bridge intersections will only increase. Harvard's commitment to green development in Allston, its strong support for the Hubway

program, and its awareness of the need for alternative transit modes would all point to its institutional interest in this issue.

And we feel we are close to prevailing. After some initial reluctance, MassDOT's engineers are looking more closely at the possibilities for underpasses. This past summer Governor Patrick signed a Transportation Bond Bill that includes authorization for the underpasses, though there is no guarantee yet that the funds will be used for the project. We have built a coalition of 29 elected officials and 44 organizations, including the Conservation Law Foundation, the Environmental League of Massachusetts, the Massachusetts Area Planning Council, MassPIRG, the City Councils of Cambridge and Boston, and civic groups on both sides of the river. Recently more than 1300 supporters have written letters to the Governor urging him to release the underpass funds.

You might also be interested to learn that Boston Traffic Commissioner Tinlin and Boston's Environmental Chief Brien Swett both wrote letters to the MassDOT in support of underpasses.

These underpasses should either become part of the Institutional Masterplan or be a mitigation effort.

CRC.1

Yours truly,



Renata von Tscherner  
Charles River Conservancy

Cc;  
City Councilor Ciommo

**CRC.1            Include underpasses at Anderson Memorial, Western Avenue and River Street Bridges as part of IMP or as a mitigation effort**

The University has engaged in a discussion with the community and the City about community benefits associated with the approval of the IMP (see Chapter 7). There have been a range of ideas put forward at previous community meetings and we look forward to continuing these discussions in the coming months.



November 19, 2012

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

RE: Harvard University Institutional Master Plan Notification Form (IMPNF) and Project Notification Form (PNF)

Dear Mr. Autler:

Charles River Watershed Association (CRWA) and the Metropolitan Area Planning Council (MAPC) have reviewed the IMPNF and PNF filed by Harvard University (Proponent) and submit the following joint comments to help the BRA with the ongoing review process. CRWA and MAPC are specifically 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. Our comments below highlight the issue of project segmentation which we are currently also examining with the MEPA office in our role as co-chairs for the Citizen Advisory Committee (CAC) established by the EOEAA Secretary in 2007 to oversee the review of Harvard’s Master Plan under MEPA.

It is very clear that some of the infrastructure improvements and mitigation measures that are currently part of the “Long Term Framework Plan” can and should be phased in with the projects being developed in the 10 year timeline. Both development and mitigation that are currently called for in the “Long Term Framework Plan” should be included as part of the IMP, within the framework of a phased approach. If there are some components of the long term vision, which in fact cannot be realized over the 10 year timeframe because of various physical or economic constraints, the Proponent should articulate the nature of these constraints and explicitly state the intended timeline for those improvements.

CRWA.1

CRWA.2

An overall concern across all topic areas is the scaling back of this plan to more limited number of projects over the next 10 years. There is little doubt that other projects will follow beyond 10 years, but by truncating the planning horizon, long term and cumulative impacts are not fully taken into account. More importantly, the necessary

larger scale infrastructure improvements and other mitigation and amenities are also not fully captured, and a more fragmented, incremental approach is the result. The Proponent has an obligation to undertake development and infrastructure improvements in a way that does not preclude, either in physical or economic terms, other infrastructure or mitigation that should take place later. CRWA.3

The IMPNF attempts to address this by describing some of the longer term issues in an Appendix, which itself is emblematic of the fragmentation problem. The Appendix explicitly states, “This Long Term Framework Plan is provided for information purposes only and is not submitted for approval under the IMP regulations.”<sup>1</sup> The issues discussed in this Appendix therefore include no commitments for implementation and carry no enforceable status under the BRA’S IMP process.

Truncating and fragmenting the long term plan undermines the very purpose of developing an IMP for a large long term development program such as Harvard’s expansion into Allston. What results is more a collection of individual projects, without adequate context or planning framework to allow for comprehensive, integrated planning and programming for infrastructure, mitigation measures, and community amenities.

Given changing economic conditions since the previous IMP, it is understandable that Harvard would focus attention on a set of projects with more certainty of being implemented over the next 10 years. However, there is still a need for the IMP to serve as the long term framework for Harvard’s growth in Allston. We therefore recommend that the IMP should contain a phased approach to infrastructure development with a clear intended timeline commitment for achieving the improvements highlighted in the Long Term Framework Plan. CRWA.4

While we would expect that elements of the IMP that extend beyond 10 years would not have as much site specific detail as those appearing in the first 10 years, we would also expect that the Proponent would, as previous plans have, identify priorities for longer term development as well as the corresponding infrastructure and mitigation needed to support it. Such a phased approach could be accomplished by incorporating much of the IMPNF’s Long Term Framework Plan into the second phase of the IMP, rather than separating it as an Appendix without commitments for implementation. CRWA.5

Without such a comprehensive, longer term context, the IMP will not accomplish the most basic function of a master plan, and opportunities for longer term infrastructure and mitigation could be foreclosed by actions taken within a shorter term framework.

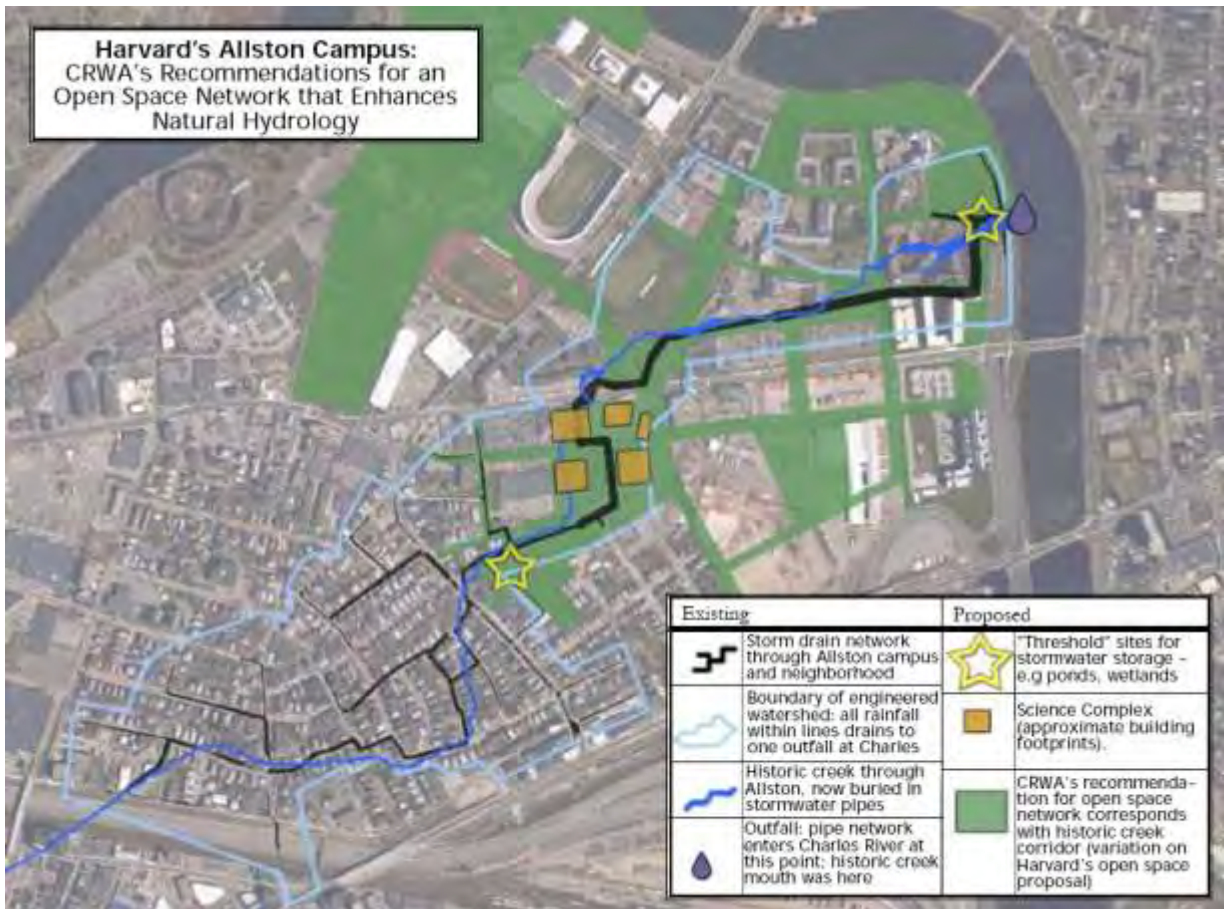
Following are detailed comments about key issues in the IMPNF, including open space, stormwater, and transportation.

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<sup>1</sup> Pg. B-1 IMPNF

**Open Space connections between the neighborhood and the Charles River**

Improving connections to the Charles River has been a consistent theme in neighborhood planning for North Allston during the past several years. These improved connections to the river would improve the environmental health of the neighborhood, encourage more people to commute by bike to the Allston Campus, provide recreational opportunities, and be an appropriate public amenity considering the magnitude of the development proposed in the IMP. Significant improvements to the existing conditions are required to address the needs of pedestrians, cyclists, public transportation, and the environment more broadly.



*Fig. 1 Concept sketch for Greenway connection from the residential neighborhood to the Charles River along a historic stream corridor overlaid with existing storm drain network underground*

As shown in Fig.1, a concept sketch developed by CRWA in 2007 as part of its master plan recommendations to Harvard ([www.crwa.org/projects/ESUD/AllstonScienceHandout.pdf](http://www.crwa.org/projects/ESUD/AllstonScienceHandout.pdf)), 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



integral part of the stormwater management for the entire engineered sub-watershed. In addition to exploring opportunities for off-line stormwater treatment and storage via a constructed wetland system before stormwater is discharged into the river, it is necessary to incorporate a variety of green infrastructure retrofits into the design of various individual projects within the sub-watershed to address stormwater runoff quality, quantity and peak flow attenuation.

The greenway connecting the Honan-Allston Library and Ray Mellone Park to the Charles River is currently not a part of the 10 year IMP and while it is mentioned as part of the “Long Term Framework Plan” in the Appendix of the IMPNF,<sup>2</sup> there is no commitment to implement it in the foreseeable future. In fact, the greenway is characterized as a “long-term initiative” and “concept”, despite Harvard’s acknowledgement of it “as an organizing element...[that] could provide opportunities for a new type of campus landscape and new civic ecology.”<sup>3</sup> 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.”<sup>4</sup>

As part of the IMP filing, the Proponent should make a commitment to build the greenway and the Longfellow Path, in phases, if necessary, as part of the development of 28 & 38 Travis Street, the Health and Life Science Center, and the Hotel and Conference Center projects. The IMP should also provide more information on other means of achieving the stated goals of creating continuous open space corridors through the campus for pedestrian, habitat and water connections to the Charles River and its parklands. CRWA.6  
CRWA.7

A successful greenway connection from the neighborhood to the Charles River and its parklands, should include improved access to (the condition of the parkland) the river and the existing river crossings at the Weeks footbridge and Western Avenue. We note that river and parkland access have been consistently identified as high priorities for the neighborhood, and have been identified as regional needs in various park and regional Master Plans. These improvements are important mitigation for the impacts of the various IMP projects being proposed and the Proponent should commit to implement these actions over a specified time frame. CRWA.8

### **“Green Street” retrofit opportunities**

Given the City’s leadership on and commitment to Complete Streets that are multimodal, green and smart, (<http://bostoncompletestreets.org/>), our agencies expect that the Proponent would work closely with the BRA, the Boston Transportation Department and other City departments including Public Works and Boston Water and

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<sup>2</sup> Pg B-6 IMPNF

<sup>3</sup> Ibid

<sup>4</sup> Ibid

Sewer Commission (BWSC), to ensure that the street improvements being proposed as part of this Project are truly “green and complete.”

Given that fewer new streets are being proposed as part of the IMP, investing in retrofitting existing streets should be an important goal of the Proponent’s. To reduce off-site runoff and minimize drainage impacts, the project design should embrace green infrastructure at both the site level and in the surrounding public realm. Retrofit designs for Rena, Travis, Western Ave. and North Harvard, among others, will not only achieve the targets for enhanced treatment under the Boston’s Complete Streets Guidelines, but also serve as a model for other streetscape improvements in the neighborhood. CRWA.9

**Stormwater Management**

The IMP projects will need to comply with the Total Maximum Daily Load (TMDL) for Nutrients in the Lower Charles River Basin (2007) and the Pathogen TMDL for the Charles River Watershed (2007). Phosphorus loads will need to be reduced by 65 percent. It is therefore critical that stormwater management design for all the IMP projects be undertaken at the sub-watershed level and the drainage calculations for the design be documented in the IMP filing. While the Long Term Framework Plan recognizes “opportunities for installing green stormwater management and water quality treatment measures in the IMP area”<sup>5</sup> there is no firm commitment to meeting the TMDL through the provision of Low Impact Development (LID) Best Management Practices (BMP’s) at a site specific, sub-watershed and/or an overall campus level. CRWA.10

The IMP should provide as a baseline, a description, evaluation and mapping of existing drainage conditions and treatment systems in the IMP area. This should include delineation of sub-watershed boundaries and drainage patterns, and a discussion of past and current flooding and drainage issues with drainage calculations for existing and proposed conditions. The Proponent should demonstrate that development of the Allston campus will not result in a net loss of flood storage capacity. And finally, the IMP should provide sufficient information to demonstrate that the proposed stormwater management plan for the IMP area provides adequate protection for wetland resources, improves water quality and ecosystem function, manages surface and groundwater flows and integrates the environment fully into the urban infrastructure. CRWA.11

Through retrofitting the larger sub-watershed in which the IMP area is located, in coordination with the City of Boston, the Proponent will not only reduce the drainage impacts from the project, but also improve water quality in the Charles River. Implementing green infrastructure retrofits in this section of the City, given the amount of redevelopment that is currently being planned, would not only help the City to comply with the TMDL, but also help to address infrastructure challenges faced by the City as a result of climate change. CRWA.12  
CRWA.13

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<sup>5</sup> Pg. 53 IMPNF

**Proposed Projects at 38 Travis Street / 90 Seattle Street**

The stormwater design for the projects proposed as part of the Fifth Amendment to the IMP<sup>6</sup> precludes the opportunity to use green infrastructure BMP’s at a sub-watershed level as envisioned in the 2007 IMPNF. Most importantly, if these projects are approved as proposed, the commitments for Rena Park, Longfellow Path and Rena Street extension as included in the Cooperation Agreement of the Science Complex, will not be honored.

We strongly urge the BRA to address these difficulties. No action taken pursuant to the IMP should preclude green infrastructure BMP’s or the completion of green space or the completion of public realm improvements previously agreed to by the Proponent. CRWA.14

**Transportation Issues**

The IMPNF outlines seven projects proposed for new construction and two projects proposed for renovations. These projects need to be presented in the context of how they will be implemented as a phased plan. Understanding cumulative impacts phase by phase is critical to effective planning and ensuring that appropriate mitigation is identified and implemented. Specifically, the IMP should address the cumulative transportation impacts of each phase covering impacts on parking, local and regional traffic, and public transportation. In addition to phasing of the impact analysis, early action priorities should also be identified. The IMP should include a specific timeline and triggers for the implementation of all traffic mitigation steps. Harvard should discuss how proposed improvements to the transportation network will be implemented to ensure that community and campus-wide benefits are phased in along with building construction. CRWA.15  
CRWA.16  
CRWA.17  
CRWA.18

For ease of understanding, we suggest that the IMP should describe the proposed mitigation steps for the phased development of the Allston campus in a matrix. CRWA.19

**Mode Share Goal of 50%**

The IMP needs to address how the mode share goal of 50% for the entire Allston campus will be achieved. This should be done by specifically outlining the mode split goals for the Allston Campus and comparing this goal to the level of non-auto access that is achieved at the Cambridge campus. The IMP needs to include a plan for monitoring mode-split in the Master Plan area and outline contingency measures that will be implemented if mode share goals are not met. It should be noted that this was a condition of MEPA’s Draft Record of Decision for the 20 Year Master Plan. CRWA.20  
CRWA.21

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<sup>6</sup> Pg. 26 IMPNF/PNF

In addition to meeting the mode share goal of 50%, Harvard has committed to developing a monitoring plan as part of MEPA's Special Review Procedure for the Science Complex, publicly sharing the results of trip monitoring, and outlining measures that will be undertaken if the 50% more share target is not met as part of the Science Complex agreement. This commitment should be expanded to the entire Allston campus. CRWA.22

### Transportation Demand Management Program

The IMPNF does mention that the Proponent has an extensive Transportation Demand Management (TDM) program that is an important tool in managing vehicular travel to the campus which they are committed to maintaining and enhancing. A TDM program which has explored all feasible measures to reduce site trip generation needs to be fully outlined in the IMP. CRWA.23

### Transportation Monitoring Program

The IMP needs to include a transportation monitoring program for all modes (vehicular, bicycle, pedestrian and public transit). Specifically, the pedestrian and bicyclist activity monitoring plan needs to evaluate usage, level of service at pedestrian and bike path intersections, and signal timing, to ensure that proposed facilities are adequate and that crossing times are maximized and safe. CRWA.24

### Infrastructure Investments

The IMP should discuss the Proponent's contributions to programming for infrastructure as part of its mitigation responsibilities. Specifically, the IMP should outline all current and future coordination with the BRA and other public agencies, as well as with private utility providers on the financing of proposed infrastructure investments. Phasing information and plans for the long-range maintenance and upkeep of infrastructure improvements should also be included in the IMP. CRWA.25  
CRWA.26

### Parking

The IMP should outline a comprehensive parking program and identify the number of parking spaces proposed for each project. A timeframe of proposed changes to the number and allocation of parking needs to be included for each phase. The IMP should clearly indicate the number of parking spaces that are leased, owned, occupied and controlled by Harvard and provide an inventory of on- and off- street parking throughout the IMP area. Underutilized on- and off-street opportunities should be identified as well as problematic areas. The need for a comprehensive parking program was outlined in the BRA's Harvard Allston Campus IMP Scoping Determination (8/31/08). CRWA.27  
CRWA.28  
CRWA.29  
CRWA.30

The Proponent should make a concerted effort to maximize the use of existing parking spaces and not add additional parking spaces to the IMP area. We are pleased that the IMPNF mentions that shared parking uses will be discussed and look forward to seeing this addressed in more detail in the IMP. CRWA.31

### Shuttles

The Proponent should work to expand and enhance the University's shuttle system, including new service between the Allston campus and the Longwood Medical Area and Cambridge campus. Ways to coordinate the University's shuttle system with the MBTA's bus system and expanding routes to the Allston/Brighton community should be investigated. Expanding the University's shuttle system to a potential new commuter rail station on the Framingham/Worcester line at Everett Street in Brighton should also be explored. CRWA.32  
CRWA.33  
CRWA.34

The IMP should outline the anticipated routing, frequency, hours of operation, the number of anticipated passengers, and whether shuttles will be open to the public. In order to measure progress, Harvard should report on the status of shuttle use and demand. CRWA.35  
CRWA.36

### Connections to MBTA Buses and MASCO's Shuttle Service

According to the IMPNF, all areas within the Allston Campus are within one-quarter mile of bus stops for at least two routes and most of the campus is near bus stops for three routes. During commuter peak hours there are 30 to 35 buses per hour traveling along North Harvard Street or Western Avenue through the Harvard's Campus in Allston.

The Proponent should continue to work with the MBTA to develop bus routes that will facilitate service and provide good access for the Allston campus in addition to recommending short and long term improvements that will provide service for the community. In addition to working with the MBTA, the Proponent should also coordinate with MASCO's LMA shuttle service to enhance access to and from the Longwood Medical Area. CRWA.37  
CRWA.38

Barry's Corner is at the intersection of neighborhood arterials and is also a future meeting ground for campus and neighborhood activities. Major bus routes have stops in the area. The IMP should address the feasibility of a bus station in this area that is designed to allow for easy transfers and links to bicycle, shuttle and shared-car parking. The IMP should detail how the Proponent will contribute to advancing transit options as well as expanding residential and retail development at Barry's Corner. CRWA.39  
CRWA.40

Access along and across the Charles River

The IMP needs to include a proposal for improving existing river crossings (N. Harvard Street, Western Avenue, and the John Weeks Bridge) and the possibility of creating additional crossings along or across the Charles River in order to meet transportation goals. CRWA.41

I-90 Exit 18

The IMP should provide an analysis of how traffic from Exit 18 on I-90 affects roadways and intersections in the area, and outline how planned improvements to the Master Plan area will accommodate this traffic. CRWA.42

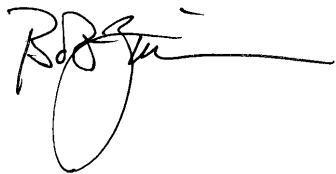
Conclusion

The IMP should be seen as a key component of the overall planning effort for the Allston neighborhood. As stated in the BRA's IMP Scoping Determination for the Harvard Allston Campus (August 31, 2008), the IMP should "offer the opportunity to look comprehensively at such topics as education, workforce housing, economic development, and other realms in which Harvard as an entity (rather than as a collection of physical plans) can build on its partnership with the City of Boston as its presence expands. Throughout the IMP process Harvard should assist the BRA and other public agencies to understand the full scope of Harvard's current presence in Boston and to explore ways that that presence can be leveraged in ever more creative ways as it continues to grow."

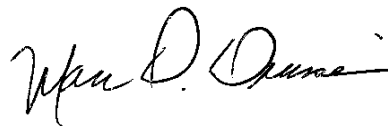
It is critical to develop an IMP that will serve to guide Harvard in its own vision for a new campus and highlight the opportunity for and benefits of cooperation among the community, the University, the City of Boston and neighboring municipalities.

Thank you for the opportunity to provide our input on this important process for the review of the Harvard IMPNF. Please feel free to contact Pallavi Mande, CRWA's Director of Blue Cities and Martin Pillsbury, MAPC's Environmental Planning Director should you have any questions.

Sincerely,



Robert L. Zimmerman, Jr.  
Executive Director  
Charles River Watershed Association



Marc D. Draisen  
Executive Director  
Metropolitan Area Planning Council

cc: Kairos Shen, Chief Planner, City of Boston  
Vineet Gupta, Boston Transportation Department  
Maeve Valley-Bartlett, MEPA Office

**CRWA.1      Some infrastructure improvements in the long term framework plan should be included in IMP with a phased approach**

Section 4.6 provides a diagram depicting the relationship between the IMP projects and the implementation of identified public realm improvements. The ongoing discussion of community benefits will identify additional infrastructure and public realm projects.

**CRWA.2      Articulate constraints and timeline for any improvements that cannot be made in the 10 year timeframe**

Improvements to be undertaken in the 10 year timeframe are described in Section 4, Ten-Year Plan. Improvements beyond that timeframe will be undertaken on a schedule that cannot yet be firmly established, and that will be dependent on a range of factors such as funding, development opportunities, regulatory parameters, etc.

**CRWA.3      Undertake development and infrastructure improvements in a way that does not preclude, either in physical or economic terms, other infrastructure or mitigation that should take place later**

The purpose of articulating Harvard Long-Term Vision (see Section 3.0) is to ensure that Harvard's Ten-Year Plan does not preclude longer-term planning principles and opportunities.

**CRWA.4      IMP to contain a phased approach to infrastructure development with an intended timeline commitment**

Section 4.6 provides a diagram depicting the relationship between the IMP projects and the implementation of identified public realm improvements. The ongoing discussion of community benefits will identify additional infrastructure and public realm projects.

**CRWA.5      Incorporate long term framework plan into the second phase of the IMP**

As a regulatory document, this IMP includes a Ten-Year Plan for which the University is seeking formal approval. However, Chapter 3.0, Long-Term Vision, and Chapter 5.0, District Plans and Project Descriptions, include information on long term planning and provide the framework for the specific projects in the Ten-Year Plan. While the IMP does not seek approval of the Long-Term Vision, the IMP projects in the IMP are designed to be consistent with the Long-Term Vision.

**CRWA.6**            **Commit to building Greenway and Longfellow Path in phases as part of development of 28/38 Travis Street, the Health and Life Science Center, and the Hotel and Conference Center Projects**

Harvard's plans for phased construction of the Greenway and Longfellow Path are detailed in Section 3, Long-Term Vision, and in Section 5, District Plans and Project Descriptions.

**CRWA.7**            **Provide more information on means of creating continuous open space corridors throughout campus for pedestrian, habitat and water connections to the Charles River and its parklands**

Harvard's plans for campus and community connections are detailed in Section 3, Long-Term Vision, and in Section 5, District Plans and Project Descriptions.

**CRWA.8**            **Specify time frame for greenway connections**

Harvard's plans for phased construction of the Greenway and Longfellow Path are detailed in Section 3, Long-Term Vision, and in Section 5, District Plans and Project Descriptions.

**CRWA.9**            **Invest in retrofitting existing streets and embracing green infrastructure at the site and surrounding public realm**

The IMP describes planned green infrastructure designed to meet BWSC's requirement of treating one inch of runoff from impervious surfaces. Project designs will include methods for retaining this volume of stormwater on project sites, by directing stormwater to water features, porous pavements and other infiltration facilities, and landscaped areas, including vegetated bioretention areas and swales. New roadways are planned as part of the IMP, and these streets will also include green infrastructure similar to individual building project sites.

**CRWA.10**          **Stormwater Management Design should be undertaken at the sub-watershed level and IMP should document drainage calculations**

The computer program HydroCAD, Version 10.00, was used to determine peak rates of runoff and total runoff volumes from the Ten-Year Plan project areas during 2-,10-, 25- and 100-year, 24-hour rainfall events. The modeling results, as well as water quality volume calculations, are summarized in Section 6.3 of the IMP.

**CRWA.11**          **Provide a baseline description, evaluation and mapping of existing drainage conditions and treatment systems**

A drainage area map and table summarizing water quality volumes and areas that will be reserved for treatment systems, as well as a cross section of the proposed campus Greenway that will be used for stormwater management, are included in Section 6.3 of the IMP.



**CRWA.12      Demonstrate that development of Allston Campus will not result in a new loss of flood storage capacity**

The existing IMP area footprint is predominantly a highly developed industrial and commercial area. As presented in Section 6.3, the proposed plan will produce a net flood storage capacity increase through planned reductions in impervious area and installation of green infrastructure, particularly in the proposed Greenway.

**CRWA.13      Demonstrate that Stormwater Management Plan provides adequate protection for wetland resources, improves water quality and ecosystem function, manages surface and groundwater flows and integrates the environment fully into the urban infrastructure**

As discussed above and in Section 6.3 of the IMP, the existing IMP area footprint is predominantly a highly developed industrial and commercial area. The proposed plan will improve water quality and ecosystem function, and manage surface and groundwater flows through planned reductions in impervious area and installation of green infrastructure.

**CRWA.14      No action taken should preclude green infrastructure BMPs or the completion of green space or public realm improvements previously agreed to**

See above responses to comments.

**CRWA.15      Address the cumulative transportation impacts of each phase covering impacts on parking, local and regional traffic and public transportation**

Chapter 6 presents the analysis of the cumulative transportation impacts of the Ten-Year Plan. Specific project impacts will be reviewed on a project-by-project basis as each individual project is reviewed under Article 80.

**CRWA.16      Identify early action priorities**

The proposed set of transportation improvements will be reviewed with BTM as part of the TAPA process for the IMP. The IMP TAPA will identify, as appropriate, early action items that might be needed to support the Ten-Year Plan.

**CRWA.17      Include timeline and triggers for implementation of traffic mitigation steps**

The IMP TAPA will include a set of improvements to address the cumulative impacts of the Ten-Year Plan. The implementation of these improvements will be coordinated with the construction of individual projects, which may include additional transportation improvements that result from the review of these projects under Article 80.

**CRWA.18      Discuss how transportation improvements will be implemented to ensure community and campus-wide benefits are phased in along with building construction**

The implementation of improvements will be coordinated through the IMP TAPA and updated, as necessary, through the Article 80 review of individual projects.

**CRWA.19      Describe proposed mitigation steps for phased development of Allston Campus in a matrix**

The Ten-Year Plan is not envisioned as a phased development plan. The IMP TAPA will provide the context for implementing the proposed set of improvements to address the cumulative impacts of the Ten-Year Plan.

**CRWA.20      Address how mode share goal of 50% will be achieved**

Harvard has not established a mode share goal for its Allston community. As part of the 2007 20-Year Master Plan ENF and IMPNF (both of which have since been withdrawn by Harvard), Harvard indicated that “An automobile mode share of 50 percent for employees has been targeted for Phase 1. This mode share should be achievable by continuing and enhancing the current TDM program and improving the pedestrian, bicycle, and public transit networks to and from the Allston Campus.”

Harvard is committed to encouraging non-auto commuting by its affiliates. The University provides a robust set of TDM measures as described in Chapter 2. In addition, Harvard has coordinated with the City of Boston to implement bike lanes in North Allston and has sponsored four Hubway stations within the study area. Harvard will work with BTM to identify appropriate mode share goals as part of the IMP TAPA.

**CRWA.21      Include a plan for monitoring mode split and outline contingency measures if goals are not met**

The IMP TAPA will include a monitoring program. Harvard will work with BTM to define the scope of this effort.

**CRWA.22      Expand mode share monitoring plan to entire Allston Campus**

The IMP TAPA will include a monitoring program. Harvard will work with BTM to define the scope of this effort.

**CRWA.23      Outline a TDM Program that has explored all measures to reduce site trip generation**

Harvard has a robust set of TDM measures that are implemented through its CommuterChoice program. Chapter 2 describes the existing program and Chapter 6 describes potential areas for future expansion.

**CRWA.24 Include a Transportation Monitoring Program**

The IMP TAPA will include a monitoring program.

**CRWA.25 Outline all current and future coordination with BRA and other public agencies and private utility providers on financing of infrastructure investments**

As specific plans for infrastructure are developed, the range of options for financing these investments will be included in those discussions.

**CRWA.26 Include information on phasing and long-range maintenance of infrastructure improvements**

As specific plans for specific infrastructure projects are developed, the range of options for long-term maintenance and upkeep will be included in discussions with the relevant regulators and other stakeholders.

**CRWA.27 Outline a comprehensive parking program and identify the number of parking spaces proposed for each project**

As described in Chapter 2, Harvard manages its institutional parking as a University-wide resource. A parking inventory of off-street spaces within the IMP area is presented in Chapter 6. The parking management plan describes the anticipated users of the proposed on-street and off-street parking spaces.

**CRWA.28 Include a timeframe of proposed changes to the number and allocation of parking needs for each phase**

Harvard manages its institutional parking supply as a University-wide resource. Chapter 4 describes proposed new parking facilities that include new garages within proposed projects and independently sited surface parking lots. As individual projects are brought on line, the parking demand and amount of parking associated with the individual project will be evaluated on a project-by-project basis and coordinated within the context of the overall parking supply to ensure that adequate parking is provided while not over-building the supply.

**CRWA.29 Indicate the number of parking spaces that are leased, owned, occupied and controlled by Harvard and provide an inventory of on- and off-street parking**

A parking inventory of off-street spaces within the IMP area is presented in Chapter 6. Harvard owns these off-street spaces. Chapter 2 describes the on-street parking supply with additional detailed information provided in Appendix C

**CRWA.30 Identify underutilized on- and off-street parking opportunities as well as problematic areas**

Within the IMP area, the off-street supply is used to support Harvard institutional uses and the parking needs of adjacent buildings (e.g., 114 Western Avenue). The current on-street parking supply is well utilized within Barry's Corner, particularly by long-term parkers. On-street parking conditions within the neighborhood vary by location.

The relocation of Charlesview in 2013 creates the opportunity to revise the current parking management strategy there to accommodate other uses such as short-term parking to support retail businesses. New on-street parking will also become available as part of the Barry's Corner Residential and Retail Commons Project and the IMP. Harvard will work with BTD to identify an on-street parking management strategy to balance competing needs for the on-street parking and to support increased activity at Barry's Corner.

**CRWA.31 Try to maximize use of existing parking and not add additional parking spaces**

The proposed parking supply in the IMP is described in Chapters 4 and 6. The new institutional spaces are within BTD's recommended parking ratio of 0.75 spaces per 1,000 square feet. As described in Chapter 2, Harvard manages its institutional parking supply as a University-wide resource and charges fees for use of these spaces. In addition, as described in Chapter 2, Harvard has a robust set of Transportation Demand Management measures to encourage the use of non-auto modes.

**CRWA.32 Expand shuttle system service, including new service between the Allston Campus and the Longwood Medical and Academic Area and Cambridge Campus**

As described in Chapter 6, the shuttle system will be expanded to Barry's Corner and new service will be added between Barry's Corner and Harvard Square. MASCO's M-2 service currently provides connections between the Longwood Medical Area and Harvard Square in Cambridge where transfers are possible between this service and the Allston shuttles. Harvard does not anticipate the need for direct Allston to Longwood Medical Area shuttle as part of the program of IMP uses, but will monitor the potential need for this connection to determine whether some type of service is appropriate in the future.

**CRWA.33 Investigate ways to coordinate with MBTA Bus System and expand routes to the community**

The transit analysis in Chapter 6 indicates that there is sufficient capacity on the existing bus system to accommodate new peak hour transit trips that will be generated by the IMP projects. The MBTA will make improvements to the Route 66 as part of its Key Bus Route program. The IMP proposes to consolidate MBTA bus stops within Barry's Corner, which should improve service to the neighborhood.

**CRWA.34 Explore expanding shuttle to potential new commuter rail station at Everett Street in Brighton**

The focus on shuttle service is to link the Cambridge and Allston campuses and to provide connections with Harvard Station. Connectivity with Harvard Station is appropriate given the amount of transit service at this station and the general commuting patterns of Harvard affiliates. While there are no plans to provide shuttle service to the commuter rail station at Everett Street, Harvard will continue to monitor the status of this station and its service to determine whether some type of service is appropriate in the future.

**CRWA.35 Outline anticipated routing, frequency, hours of operation, the number of anticipated passengers and whether shuttles will be open to the public**

Chapter 6 provides information about the shuttle routes, which are open to neighborhood residents and employees of the Barry's Corner Residential and Retail Commons Project.

**CRWA.36 Report on the status of shuttle use and demand**

Chapter 6 presents an analysis of shuttle bus demand.

**CRWA.37 Continue working with MBTA to develop bus routes for the Allston Campus in addition to recommending short and long term improvements that will provide service for the community**

The transit analysis in Chapter 6 indicates that there is sufficient capacity on the existing bus system to accommodate new peak hour transit trips that will be generated by the IMP projects. Harvard will coordinate with the MBTA regarding the proposed consolidation of bus stops that are described in Chapter 6, which will improve service on bus routes serving the campus and the neighborhood. Harvard does not anticipate the need for additional changes to MBTA bus service to accommodate IMP demand, but will continue to coordinate with the MBTA as necessary.

**CRWA.38 Coordinate with LMA Shuttle Service to enhance access to and from the Longwood Medical and Academic Area**

As described in Chapter 6, the shuttle system will be expanded to Barry's Corner and new service will be added between Barry's Corner and Harvard Square. MASCO's M-2 service currently provides connections between the Longwood Medical Area and Harvard Square in Cambridge where transfers are possible between this service and the Allston shuttles. Harvard does not anticipate the need for direct Allston to Longwood Medical Area shuttle as part of the program of IMP uses, but will monitor the potential need for this connection to determine whether some type of service is appropriate in the future.

**CRWA.39      Address the feasibility of a Barry’s Corner bus station designed to allow for easy transfers and links to bicycle, shuttle and shared-car parking**

Harvard currently provides ZipCar parking and sponsors a Hubway station in Barry’s Corner. Two additional ZipCars will be provided as part of the Barry’s Corner Residential and Retail Commons Project. The IMP will create a new shuttle bus node on “Academic Way.” The IMP also proposes to relocate and consolidate MBTA bus stops within Barry’s Corner. Chapter 4 describes a proposed Mobility Hub network that would include a Mobility Hub in Barry’s Corner that would create an organizational framework for these services that would be linked by existing and proposed new paths and crosswalks.

**CRWA.40      Detail how the Proponent will contribute to advancing transit options as well as expanding residential and retail development at Barry’s Corner**

Chapter 6 describes proposed transit and shuttle improvements. These improvements include the expansion of the shuttle bus system to Barry’s Corner and the implementation of a new shuttle bus route between Barry’ Corner and Harvard Square that will support the expansion of residential and retail development at Barry’s Corner. The proposed expansion of the shuttle bus system has been coordinated with the Barry’s Corner Residential and Retail Commons Project.

**CRWA.41      Include a proposal for improving existing Charles River crossings and possibility of creating additional crossings**

This IMP proposes a range of open space/public realm improvements. Additional open space ideas have been the subject of numerous Task Force meetings and will continue to be discussed as part of the ongoing discussion of community benefits.

**CRWA.42      Provide an analysis of how traffic from Exit 18 on I-90 affects roadways and intersections in the area, and how planned improvements will accommodate this traffic**

Chapter 6 presents the results of the traffic analysis that is described in detail in Appendix C. The analysis includes the proposed MassDOT improvements to the Cambridge Street intersections.

Kimberly S. Courtney, Esq.  
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Allston, MA 02134  
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212-362-1838

Gerald Autler  
Boston Revelopment Authority  
One City Hall Square  
Boston, MA 02201

November 14, 2012

Re: Comments in Support of Harvard-Allston IMPNF dated 10/19/12

Dear Mr. Autler,

This letter is in support of the Harvard-Allston IMPNF for Ten Year Master Plan dated October 19, 2012 that was presented to community members at a meeting on November 7, 2012. I am an Allston resident and write this letter on behalf of myself and Xavier Dietrich, who owns a home located on Coolidge Road near North Harvard Ave and has resided there since 1996.

KC.1

We both attended the November 7<sup>th</sup> meeting and would like to express our support for Harvard's expansion efforts. There were a number of critical comments from members of the Allston-Brighton Task Force that we disagreed with, and we do not believe that those comments adequately represent the Allston-Brighton community.

The residential/commercial building that is planned on the north-west corner of Western Ave and North Harvard Street sounds like it will be a positive addition to the neighborhood. We are comfortable with the proposed height of the building and would even support a plan for the entire building to be 9 stories, which would only add to the vibrancy of Barry's Corner.

There were comments at the meeting about Barry's Corner turning into "another Harvard Square", and that the expansion is too "Harvard centric". We believe that the expansion should be Harvard focused, and at the same time are pleased to see the amount of residential and retail space that is being proposed. The closer Barry's Corner can come to "another Harvard Square" the better for our community.

In regards to the parking lot on the current Charlesview Apartment lot, it does seem like there could be a more appropriate location for construction parking, especially with the large amount of space allocated for the Science Center that is sitting idle. That area would be much better utilized as open space or another Harvard building.

KC.2

In sum, we are in support of the expansion and are pleased to see the plans moving forward after the previous delays.

Sincerely,

Kimberly S. Courtney, Esq.

**KC.1 This letter is in support of project**

This letter is in support of project.

**KC.2 Charlesview lot would be better utilized as open space or another Harvard building; there could be a more appropriate location for construction parking**

As described in more detail in Chapter 5.0, District Plans and Project Descriptions, the interim planning for the Charlesview area would reduce the site's current 230 parking spaces to approximately 150 spaces, which will support institutional project requirements and potentially provide construction-related parking. The parking would also help support the establishment of new retail activities in Barry's Corner and provide a new parking alternative for visitors to athletics events and facilities. The parking will be located well-away from Western Avenue, either fully internal to the site or partially along North Harvard Street, where it will be well-buffered by landscape materials. The area may also serve other Harvard functional needs including support services, interim office space, construction offices and support.



To whom it may concern:

First, I want to say that I appreciate that Harvard is looking to integrate with and enhance the community as they move forward with the IMP. I believe that the fundamental goals of creating a safe, lively, walkable neighborhood with mixed uses and safe streets are laudable. I also believe that Harvard is pursuing the correct course by increasing density, creating smaller blocks, wrapping buildings in first-floor retail and other mixed uses, minimizing setbacks, putting parking out of sight, and seeking to maximize the use of walking, bicycling and public transportation. Here are some points and questions:

What is Harvard planning to do about the gas station and the Stone Hearth Pizza site, both of which are anti-urban and out of step with the rest of the plans, because they feature large parking lots prominently out front where people are supposed to be walking? Will Harvard also be looking to fix the design of the rest of the Western Ave parcels that it owns? MD.1 MD.2

I know we had some discussion on this but: there should be no "surface permit parking" or "construction staging" zone in such a central location of Barry's Corner for any extended period of time. If it is still such in 5-10 years, then it is a failure. MD.3

The shuttle buses should accept all passengers regardless of affiliation. The BU shuttle operates this way and it works out fine. It is too much effort to try and distinguish Allston/Brighton residents from other persons, and the area will generally benefit from providing a piece of the public transit puzzle that fits in with the T. MD.4

I oppose any attempt to widen North Harvard Street, as indicated in page 45 of the IMPNF. Widening the street will make it more dangerous to cross. It is not worthwhile to widen the street to create on-street parking spaces. While the on-street parking spaces may protect pedestrians from speeding traffic (or may worsen matters by creating difficult sight-lines), that only applies to streets that are already too wide. The correct fix is not to make the streets wide in the first place. Do not widen North Harvard Street, or any other street. MD.5

I support the creation of new, SMALL, streets to help break up the overly large blocks. However, Harvard should seek to make those streets as small as possible, to discourage speeding and cut-throughs. There is no reason to ever widen a street to add on-street parking, if the street could be made narrow instead. Also, Harvard should consider adopting the "Shared Street" style for some of the smaller streets, similar to what already exists in Harvard Square: Palmer Street is a good model to begin with. MD.6

Harvard should consider adopting a parking space cap similar to the one implemented in downtown Boston. Allston should not become Harvard's parking lot. Instead, Harvard should seek to cap the number of spaces to reduce the number of vehicle being driven into and out of Allston. This helps clean the air as well as relieve the traffic. I would like to see Harvard take a leadership role in promoting walking, bicycling and public transit by example here in Allston. MD.7 MD.8

I am disappointed that Harvard has chosen to use ITE and BTD models for trip generation and vehicle mode share. Especially ITE, which is based on surveys which were conducted decades ago in places far away from Massachusetts, and therefore have limited applicability. The BTD surveys of Area 17 (Allston) are flawed as well because they presume that the future will look like the past. However, Harvard's influence on travel choices in the future is extremely strong. North Allston is going to change greatly in ten years. Also, the kind of users that Harvard is bringing to the area are different from the users that predominated here before: I believe that the kind of users that Harvard is bringing are more amenable to alternative transportation and walking than in the past. Therefore, assumptions about vehicle mode share based on past models are flawed. Harvard has a chance here to make a significant change: but if they project heavy car usage in the future, and try to accommodate it, then that will become a self-fulfilling prophecy – and a bad result for the neighborhood. MD.9

Instead, Harvard should seek to imitate some of the success of Kendall Square, which has seen a 40% growth in commercial real estate at the same time as a decrease in traffic volumes. The city of Cambridge is hosting a talk on their methods that they deployed in Kendall Square on November 28th, 7pm, 301 Binney Street. Perhaps a representative from Harvard should attend. MD.10

I have a question for the architects: why can you not imitate the classic design of the older buildings (pre-20th century) in Harvard Square? Not only are some of them very beautiful, they are flexible in use and provide a good level of intensity while interacting with the street well. It seems that learning from the past would be a good way to MD.11

import some of the success of Harvard Square onto the Allston campus area. Especially in creating buildings that are friendly to walking. Modernist buildings are too oriented towards automobiles and that type of design is inappropriate for this location. It seems strange to be turning to modernist architecture when Harvard contains such a prize example of classic architecture, streets and squares just a short distance away.

The long term Land Use plan for Western Ave looks a bit sparse. It is dominated completely by institutional uses once you go east of North Harvard Street. Surely there should be some mixed uses allowed on this corridor?

MD.12

I look forward to hearing more about these issues and others,

Matthew Danish  
Allston resident

**MD.1            What plans does Harvard have for the Gas Station and Stone Hearth Pizza sites?**

Harvard does not own the gas station referenced in the comment letter. For the ten year term of the IMP, Harvard anticipates that the Stone Hearth Pizza site will remain as it is today.

**MD.2            Will Harvard fix the design of the other Western Avenue parcels they own?**

As specific institutional and non-institutional parcels are proposed for redevelopment, they will undergo design review with the BRA.

**MD.3            There should be no surface permit parking or construction staging in a central location of Barry's Corner for any extended period of time**

As described in more detail in Chapter 5.0, District Plans and Project Descriptions, there are a number of interim uses proposed for the former Charlesview site. One of these uses includes reducing the site's current 230 parking spaces to approximately 150 spaces, which will support institutional project requirements and potentially provide construction-related parking. The parking would also help support the establishment of new retail activities in Barry's Corner and provide a new parking alternative for visitors to athletics events and facilities. The parking will be located well-away from Western Avenue, either fully internal to the site or partially along North Harvard Street, where it will be well-buffered by landscape materials.

**MD.4            Shuttle buses should accept all passengers**

As part of the 28 Travis Street project Harvard agreed to open its shuttle buses in Allston to the neighborhood residents and employees of the Barry's Corner Residential and Retail Commons project.

**MD.5            Opposes attempts to widen North Harvard Street, which would make it more dangerous to cross**

The IMPNF filed previously discussed the possibility of widening a small portion of North Harvard Street in order to provide bike lanes and parking lanes in both directions. This would make North Harvard Street in this area north of Western Avenue approximately the same width as it is south of Western Avenue.

**MD.6            Consider adopting the shared street style for some of the smaller streets, similar to Palmer Street**

The intent of the proposed new streets is to provide a range of street types that connect to the existing roadway network and provide relief for the more heavily traveled roadways.

**MD.7 Consider adopting a parking space cap**

The proposed parking supply in the IMP is described in Chapters 4 and 6. The new institutional spaces are within BTD's recommended parking ratio of 0.75 spaces per 1,000 square feet. As described in Chapter 2, Harvard manages its institutional parking supply as a University-wide resource and charges fees for use of these spaces. In addition, as described in Chapter 2, Harvard has a robust set of Transportation Demand Management measures to encourage the use of non-auto modes.

**MD.8 Take a leadership role in promoting walking, bicycling and public transit by example in Allston**

As described in this IMP, Harvard will be actively promoting walking, bicycling, and public transit. Harvard has a robust set of TDM measures that are implemented through its CommuterChoice program. Chapter 2 describes the existing program and Chapter 6 describes potential areas for future expansion.

**MD.9 Assumptions for mode share based on past models are flawed, they should not try to accommodate heavy car usage but should influence travel choices instead**

The modeling assumptions used in the traffic analysis presented in full in Appendix C follow the requirements of the BTD's methodology.

**MD.10 Seek to imitate the success of Kendall Square at decreasing traffic volumes**

Harvard has a robust set of TDM measures that are implemented through its CommuterChoice program. Chapter 2 describes the existing program and Chapter 6 describes potential areas for future expansion.

**MD.11 Imitate the classic design of older buildings in Harvard Square**

Chapter 3.0, Long-Term Vision, includes design guidelines for the IMP projects. In addition, individual projects will undergo design review and, as appropriate, large Project Review and as part of those reviews the design of individual buildings will be evaluated.

**MD.12 There should be some mixed uses allowed on the Western Avenue Corridor**

The IMP does allow for and encourage a mix of uses in the Western Avenue corridor. Based on the community planning process led by the BRA there was encouragement to focus the retail and service activity in the area in Barry's Corner, however the proposed projects and the design guidelines emphasize active and public uses on the ground floors of buildings along Western Avenue.

**From:** [Paula and Robert Alexander](#)  
**To:** [Autler, Gerald](#);  
**CC:**  
**Subject:** Comments on Harvard Master Plan in Allston  
**Date:** Monday, November 19, 2012 4:43:31 PM  
**Attachments:**

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Dear Gerald,

We are long-time homeowners and residents of North Harvard Street in Allston and have attended most of the BRA/Harvard/ Allston Community Task Force meetings. We have also participated in the past exercises with various consultants who presented scenarios of what we would like to see developed on Harvard's properties in our neighborhood. After reading over the Amendment to Harvard's Master Plan, we have the following comments:

We are concerned about the impact of Harvard's service vehicles, shuttle buses etc. moving to Travis Street. This location is very close to residential homes on Rena and Kingsley Streets. The employee parking lot is accessed by Travis Street. A better access route would be for employees driving to use Rotterdam Street, the same as the service vehicles. The Travis Street entryway should be closed off or bollards erected which could be removed in case of emergency access. We are not favor of the erection of the Shuttle Bus garage on Travis St. Our home is located on the corner of North Harvard and Kingsley Streets. Over the last several years, we have noticed a marked increase in heavy equipment vehicles, buses, trucks, etc. so much so that we are on the verge of a transportation overload cliff. Bringing even more commercial vehicles so close to our houses will push us over this cliff.

Kingsley and Rena Streets presently have 'resident permit' parking restrictions. During Harvard stadium events many cars park on these and other neighborhood streets which makes it difficult for residents to enter their driveways or park in front of their own house. A transportation/parking study needs to be updated for this area to plan for the extra vehicle traffic and parking.

The proposed new buildings in Barry's Corner are much too high and dense. These buildings would loom over the neighborhood houses and create a nightmare gridlock situation of traffic. We are not in agreement ofr this building plan as presented in the Harvard Master plan.

Sincerely,

Robert and Paula Alexander  
226 North Harvard Street  
Allston, MA 02134

**RA.1 Concerned about impact of service vehicles and shuttle buses moving through Travis Street due to proximity to residential homes. A better access route for employees and service vehicles would be the use of Rotterdam Street**

As part of the agreement on 28 Travis Street, Harvard agreed that all employee and visitor vehicles will enter and exit the site via Western Avenue and that all trucks will enter and exit the site via Rotterdam Street.

**RA.2 Opposed to the Shuttle Bus Garage on Travis Street**

Since it was originally proposed, the University has made a number of improvements to the 28 Travis Street project including, as mentioned above, eliminating vehicle and truck access from Travis Street. The University believes that these and other mitigation measures will help to make this project a good neighbor.

**RA.3 Transportation/ parking study to be updated for Kingsley and Rena Streets to plan for extra vehicle traffic and parking during Harvard Stadium events**

As described in Section 6.1 and Appendix C, the proposed increase to the institutional parking supply along with the new pedestrian paths and streets in the IMP will improve Harvard's ability to manage events at its athletic facilities and relieve potential impacts on neighborhood streets. Harvard currently uses a "shared parking" approach to accommodate event-related parking demand. The Harvard commuter-oriented parking near athletics is particularly well suited to accommodate parking demand for athletic events.

**From:** [Bostonminstrel@aol.com](mailto:Bostonminstrel@aol.com)  
**To:** [Autler, Gerald;](#)  
**CC:** [allstonbrighton2006@googlegroups.com;](mailto:allstonbrighton2006@googlegroups.com)  
**Subject:** IMPNF Comments  
**Date:** Tuesday, November 20, 2012 1:12:41 PM  
**Attachments:**

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Dear Gerald:

This is to respond to the Harvard IMPNF.

1. Permeability, a highly valued concern of the community, has not been adequately addressed in the PNF. The proponent could address physical connection, educational, civic and cultural opportunities. Barry's Corner was always considered for museums and performance venues. The PNF lacks any details on how the Community and Harvard will interact, other than through retail or eventual basketball games. Yet, the PNF states "shared opportunity and a strong public realm" between the University and Community. Let's open up possible ways the two can interact. TM.1
2. The community benefits previously agreed to within the framework of the science center may be at odds with this PNF, specifically Rena Park. TM.2
3. Improve the traffic conditions within a radius of 1/2 mile, especially at intersections that have current failing grades. TM.3
4. The interim period of construction parking that is destined for the old Charlesview site could be ten years. This site is integral in composing a balanced and healthy environment. Development is warranted. TM.4
5. Greenways need to be planned and built. TM.5
  - a) Melone Park to Science Center
  - b) Science Center to Seattle St. neighborhood
  - c) Smith Field to HBS.
  - d) Smith Field to Charles River.
  - e) A series of integrated neighborhood parks throughout AB North.
  - f) Smith Field to the Riverdale Street neighborhood.
6. Community Benefits:
  - a) The Ed Portal, if moved, should have a prominent, permeable location, in the thick of the pedestrian traffic. TM.6
  - b) Front load the community benefits so the community realizes a quality of life boost. TM.7

- c) Free community parking for Spangler cafeteria use. TM.8
- d) Create a new walkway along the River bend at the west and south side of SFR, TM.9  
between the SFR and Harvard's brick pillar/wrought iron fence.
- e) Community garden at old Charlesview site. TM.10
- f) Transformational project has to be discussed and resolved. TM.11
- g) Holton Street Corridor has to be planned and moved forward as stipulated by TM.12  
elected representatives, prior to more IMP.
- h) Enhance Smith Field by removing or modifying stone wall, landscaping, and fully TM.13  
integrating the new plaza at the Residential Commons.
- i) Provide new neighborhood park at former Brookline Machine Building. TM.14
- j) Continue the Partnership Fund. TM.15

7 The City needs to address the urban planning elements that they can have influence with the Gulf Gas Station, Flint Cleaners, and 7 - 11. These parcels are key to a holistic development approach of Barry's Corner.

8. While I am thrilled that the Harvard Shuttle will accept AB residents, I would further support the concept of a loop through the neighborhood. TM.16

I hope these ideas are helpful to the furthering of these important projects.

Thanks,

Tim

Tim McHale  
102 Litchfield Street  
Brighton, MA 02135  
617-787-2122  
bostonminstrel@aol.com



- TM.1 Permeability has not been adequately addressed; address physical connection, educational, civic and cultural opportunities**
- These issues are addressed in Section 3, Long-Term Vision, and in Section 5.2, Barry’s Corner District.
- TM.2 Community benefits previously agreed to within the framework of the Science Center may be at odds with this PNF, specifically Rena Park**
- The 28 Travis Street project does not preclude the planning for Rena Park and Harvard has committed to moving forward on the planning for Rena Park. To date, two community meetings have been held on the planning for Rena Park and these meetings will continue later this summer.
- TM.3 Improve the traffic conditions within a radius of ½ mile, especially at intersections that have current failing grades**
- Section 6.1 and Appendix C include a detailed analysis of the transportation impacts and mitigation related to the implementation of the IMP projects.
- TM.4 Charlesview Site is integral and development is warranted**
- This IMP proposes a range of interim and long-term uses for the old Charlesview site. These are described in more detail in Chapter 5.0, District Plans & Project Descriptions.
- TM.5 Greenways to be planned and built: Mellone Park to Science Center; Science Center to Seattle Street Neighborhood; Smith Field to HBS; Smith Field to Charles River; a series of integrated neighborhood parks throughout AB North; and Smith Field to the Riverdale Street Neighborhood**
- This IMP proposes a range of open space/public realm improvements, as presented in Chapter 4. Additional open space ideas have been the subject of numerous Task Force meetings and will continue to be discussed as part of the ongoing discussion of community benefits.
- TM.6 The Education Portal to have a prominent, permeable location, in the thick of pedestrian traffic**
- Harvard is continuing to analyze the future location for the Ed Portal, the guiding principles being: (1) prominent location in Barry’s Corner; (2) safe access for community residents, students and faculty and; (3) ensure a smooth transition from the current site to the new one.

**TM.7 Front load the community benefits**

The University has engaged in a discussion with the community and the City about community benefits associated with the approval of the IMP (see Chapter 7). There have been a range of ideas put forward at previous community meetings and we look forward to continuing these discussions in the coming months about the specific benefits to be provided and their timing.

**TM.8 Provide free community parking for Spangler Cafeteria use**

The University has engaged in a discussion with the community and the City about community benefits associated with the approval of the IMP (see Chapter 7). There have been a range of ideas put forward at previous community meetings and we look forward to continuing these discussions in the coming months.

**TM.9 Create a new walkway along the river bend at the west and south side of SFR, between the SFR and Harvard's brick pillar/wrought iron fence (Harvard/ ASG)**

This IMP proposes a range of open space/public realm improvements. Additional open space ideas have been the subject of numerous Task Force meetings and will continue to be discussed as part of the ongoing discussion of community benefits.

**TM.10 Community garden at old Charlesview Site**

The current status of the ongoing discussion of community benefits – including open space - is described in Chapter 7.0, Community Benefits.

**TM.11 Discuss and resolve the transformational project**

As part of an approved IMP and with input from the community, the University will identify a transformative project (or suite of projects that collectively constitute a transformative project).

**TM.12 Holton Street Corridor should be planned and moved forward as stipulated by elected representatives prior to moving forward with IMP**

While the IMP is focused on a specific geographic area, the University remains committed to attentive stewardship of its properties beyond the IMP boundary, as described in Section 2.7. In addition, the University has engaged in a discussion with the community and the City about community benefits associated with the approval of the IMP (see Chapter 7). Those community benefits are not restricted to the area within the IMP boundary and could extend west of Barry's Corner pending discussions with the community and the BRA.

**TM.13 Enhance Smith Field by removing or modifying stone wall, landscaping and fully integrating the new plaza at the Residential Commons**

As part of the Barry's Corner Residential and Retail Commons, the Boston Parks & Recreation Department will be undertaking a master plan for Smith Field. As part of this process issues such as the stone wall will be studied.

**TM.14 Provide a neighborhood park at former Brookline Machine Building**

As part of the Charlesview land exchange, Harvard committed to issuing an RFP for market rate home ownership on the Brookline Machine parcel. At the request of the direct neighbors and the BRA, that process is going through further assessment.

**TM.15 Continue the Partnership Fund**

As part of the 28 Travis Street project Harvard agreed to extend the Harvard Allston Partnership Fund for an additional five years.

**TM.16 Supports the concept of a Harvard Shuttle loop through the neighborhood**

As part of the IMP, the shuttle bus route will include new stops closer to Barry's Corner. In addition, in connection with the Barry's Corner Residential and Retail Commons project, a new shuttle route more directly connecting Barry's Corner and Harvard Square will be established.

**From:** [Joyce Radnor](#)  
**To:** [Autler, Gerald;](#)  
**CC:**  
**Subject:** comments to Harvard's IMPNFs  
**Date:** Monday, November 19, 2012 3:58:38 PM  
**Attachments:**

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Hi Gerald,

Thanks, once again, for the opportunity to comment on Harvard's IMPNFs.

This time, my comments are general and brief:

First, I remain unclear on the BRA's desire to hear new construction proposals from Harvard while a huge hole still sits just 300 yards from my house. I think before the BRA entertains any new holes in the neighborhood, the old hole should be addressed -- not through kind letters from President Drew Faust -- but through backhoes and lots of contractors looking for work. JR.1

I'm also interested in why many of the new projects are being reviewed under the auspices of an Institutional Master Plan, when they are clearly not for institutional use. The new athletic and Business School projects notwithstanding, all other developments, including Barry's Corner and the hotel complex are clearly for-profit enterprises. It seems to me, in my reading of Article 51 (Allston-Birghton Neighborhood District; 11/12/91), that these projects should be held up to the same candle that a commercial development would be held. If I understand correctly, that would limit height and density to those prescribed in Article 51. In the past, we know that Harvard has an "institutional zone" defense, allowing it to build higher than the Zoning Board of Appeals would likely allow. I would suggest Harvard submit two new proposals -- one a bona fide Institutional Master Plan and one a commercial development request. Veritas. JR.2

I have no real issues with anything Harvard wants to do with its Business School campus or its athletic complexes. I feel these are none of my business as long as parking and traffic are well defined and enforced by both Harvard Police and the Boston Transportation Department.

Finally, I wonder why -- after this community waited nearly three years for any update on the Science Complex -- we are now being inundated with lots of new development requests. It certainly feels like a barrage of new "look-over-there" projects while we're still waiting for the City to make good on what we all worked hard to come to agreement on

many years ago.

Thanks,  
Joyce Radnor  
59 Hopedale Street  
Allston  
617-787-5192

**JR.1 Unfinished construction should be addressed before new construction is allowed**

As has been discussed at Task Force meetings, Harvard's position has been that the IMP and the restart of the Science project can occur on parallel tracks. This IMP document reports on the status of both.

**JR.2 Suggests Harvard submit two new proposals: one a bona fide IMP and one a commercial development request**

While the IMP is focused on institutional uses in a specific geographic area, the University remains committed to attentive stewardship of its properties beyond the IMP boundary, as described in Section 2.7.

November 18, 2012

To: Boston Redevelopment Authority (BRA)

Subject: Comments on Harvard's IMPNF submission for Allston development

Dear Sir or Madam:

We submit the following comments with respect to the Institutional Master Plan Notification Form (IMPNF) for Allston development recently submitted by Harvard University, which is open for public comment through November 19th.

Harvard's new master plan for holdings along the Charles River in Allston is premature, until Harvard and the Greater Boston region have developed an updated and comprehensive regional solution for storm-driven sea incursions and impending long term sea level rise. The recent experience of New York and New Jersey with Super Storm Sandy provides graphic evidence of the current reality of this threat. The Harvard solution with regard to these issues must exist as a subset of a viable metro-Boston regional solution. At this point, we see no explicit acknowledgement of this threat, nor any requirement for or description of its mitigation, in either Boston Redevelopment Authority (BRA) or Harvard plan documentation.

I. It is not an acceptable option to ignore the implications of storm-driven flooding and long-term sea level rise.

It is instructive to imagine the effects of a storm of the magnitude of Super Storm Sandy, if it were to hit the Charles estuary, today. Preliminary NOAA measurements of the Sandy storm surge at The Battery in NYC and at Sandy Hook, NJ, (Figures 2 and 3 attached) were over 9 ft above the predicted tide, an event which, if it had happened in the Boston region, would have caused billions of dollars in damage as did occur in New York City and New Jersey. Such a storm would have topped the Charles River dam by about 2 feet, (See discussion in Appendix II) making the surge about 14 and a half feet high above mean sea level (msl). This might be compared with the 10 ft msl elevation at some Harvard residence houses near the Charles and with still lower ground elevations in Allston. As the Cambridge Climate Action Committee Report (Ref. 9) puts it: "If a storm surge exceeds the elevation of the dam, sea water will flow into the lower Charles River basin and with sufficient time will flood areas of Cambridge and Boston. Kendall Square, most of the MIT campus, Cambridgeport, East Cambridge, North Point, and even the southern portion of Harvard Square would be at risk. Dr. Kirshen's scenarios are conservative in the sense that they do not factor in additional sources of floodwater from storm water runoff from precipitation or two potential routes for sea water that could short circuit the Charles River Dam through Boston and Somerville/Cambridge." Flood damage would occur in those areas and in previously protected areas of Cambridge and Allston along the Charles River estuary, above the dam. We are told that storms approaching this magnitude should be expected to occur more frequently in the future (Refs. 4, 14). Even without considering dangers due to the long term trend of sea level increases, existing properties along the Charles are extremely vulnerable to storm surges from the ocean.

II. The risks of damaging storm-driven surges increase, the more the sea level rises. As the current master plan was developed over a period of recent years, most likely it was based upon a sea rise projection developed by the IPCC in its 2007 report. The IPCC then based its

computations mainly on the principle that sea water will expand as it gets warmer (with minor contribution from continental glacier melt), but explicitly ignored contributions of water from loss of mass by polar ice caps in Greenland and West Antarctica. This polar icecap contribution has been well documented in recent years and is explored in material cited in Appendix II. As is explained in that material (Refs. 1, 2, 5, 8, 9, 10, 11), current literature anticipates global sea level rising up to more than 6 feet this century without unstable loss of either the West Antarctica or Greenland ice caps, and 16 to 23 feet more with rapid loss of either of those polar ice caps. (The even larger East Antarctica ice cap is assumed to remain stable.)

If direct impact by Super Storm Sandy would have been devastating to the Boston region today, what will be the likely effects of a similar storm taking place in several decades when the sea level is several feet higher? What if it were a Category 4 Hurricane? It seems clear that, today, the Charles River dam, by itself, no longer provides credible, long-term flood protection for the Charles estuary where Harvard and others have substantial investment and where Harvard now proposes further development.

Our comment, thus, may be best categorized as objecting specifically to the inadequately shortsighted storm water and drainage component of the current plan: the ever increasing risk of damage from storm-driven flooding threatens all planned and existing development that is located within the (yet undesignated by FEMA but actual) flood zone along the Charles estuary above the dam. In addition, Super Storm Sandy highlights reasons for particular concern with regard to the following: water supply; food supply; surface water quality; the regional transportation network, in particular the subway system and highways and bus routes that use any portion of "the big dig"; the region's electricity, sewage and other utility and communication systems; the appropriate use and location of back-up generation systems by individual property owners in the region, and their related fuel storage practices; flood proofing and capping of all basement and underground facilities, particularly all underground repositories of valuable historical resources, such as Harvard's museums and libraries; emergency petroleum distribution systems; and the availability of emergency shelters. We understand from our Ref. 5 that Boston was to undertake a survey of these vulnerabilities in its infrastructure during summer 2012; we think that final action on new proposals to develop in the area in question must be informed by detailed and updated, region-wide knowledge of those vulnerabilities, and must be in compliance with an appropriate region-wide master plan of adaptation, protection, or retreat, or some combination thereof.

It is not premature to address the long term need to encourage and manage the migration of yet-to-be-identified segments of the U.S. population, and related businesses and infrastructure, away from the danger of storm-driven sea incursions and sea level rise, both on an emergency and a permanent basis. In addition, this internal U.S. migration away from the seas should be considered in conjunction with any potential immigration that might develop if the U.S. undertakes immigration policy to help effectuate global migration away from densely populated, low-lying regions threatened by inundation.

III. Regional action required. It is clear that the region as a whole must develop an approach to mitigating the threat of storm-driven flooding and sea level rise (Refs. 1, 3, 6, 7, 8, 9, 12), before Harvard can put detail to a defensible long term plan with regard to new construction at any of its



property along the Charles. A Harvard capital plan would look different if the ultimate regional plan is to retreat from low lying areas (in which case construction of major new buildings would be counter to policy), than it would if the region constructs a huge sea wall (Ref. 7) outside Boston Harbor (which hopefully would be designed to protect the region for the expected useful life of the buildings). If the region decides to build a softer barrier of reefs, marshes, wetlands, and perhaps absorptive streets, the plan as a whole may be still different, as would Harvard's part of the plan. On the other hand, perhaps the ultimate plan would be to accommodate sea rise and to design buildings to allow the occasional storm surge to blast through the area while minimizing long term impact. In that case, Harvard ought to put critical equipment on upper floors and make limited use of ground floors and basements; pre-emptive compliance with the measures contained in Massachusetts legislation on flood plain construction would be a good place to start. Some have urged that anything constructed in a zone threatened by sea incursions be constructed of small components that can eventually be moved, or that it be built with eventual abandonment in mind.

All feasible alternatives ought to be considered with due haste by the metro-Boston region; particularly since there appear to be legions of challenging underlying intergovernmental, legal, and funding questions. Developing public support for appropriate action will be a challenge. Comparison of alternative approaches and the selection of a comprehensive regional response, by itself, could take decades, even with a substantial sense of regional urgency. Construction and implementation of selected measures will take longer. Unfortunately, only hindsight will tell us how fast metro-Boston and Harvard needed to act. But one thing is clear: the sooner, the better. This point is underlined by a November 2012 paper in Science magazine by National Center for Atmospheric Research climate modeling experts John Fasullo and Kevin Trenberth which reinforces recent experience that pessimistic predictions of climate change are the most likely to prove correct (Ref. 15).

IV. Interim solutions. Until the metro-Boston region decides what additional measures it intends to take to protect itself from or avoid storm-driven sea intrusions and sea level rise, it would be wise to allow new construction only of a nature and to an extent that will not preclude effective future regional action and that will flexibly accommodate a wide range of possible regional approaches. Then, when a particular regional direction is selected, consistent new development plans could be authorized. But it should be clear: anyone who initiates construction of major new development along the Charles River prior to development of an updated regional solution to storm-driven sea incursions and impending sea level rise is gambling that an effective, yet unknown regional solution will somehow protect their investment. The Authority must decide whether it is adequate long term capital planning for Harvard and others to intentionally gamble on siting new buildings in a potentially dangerous sea water incursion zone. The essence of their gamble is that they will be saved from sea incursions at some time in the future, at an unknown cost to yet unspecified persons, through a process yet to be developed, using technologies yet to be selected, most likely through the efforts of an unidentified entity with broad but currently undefined powers to complete its mission. If you are compelled by your existing planning process to determine that this is adequate, long term planning, we respectfully suggest that your planning process itself may need emergency repairs. One would hope, in case Harvard proceeds with such a gamble, that it would disclose in advance to potential donors that their donations may be spent constructing new buildings in locations that can reasonably be

expected to be overrun by the sea with increasing frequency, during their expected useful lifetimes.

In addition, we suggest that the BRA take testimony from climate and storm prediction scientists at regular intervals, and issue guidelines to identify specific storm hazard and sea level rise projections that you determine to be the current state of the art. These guidelines should be made public and kept current to serve as a basis for planning with regard to sea water incursions and sea level rise. As these projections evolve, your regional planning guidelines and requirements should be revised accordingly. These constraints and the details of their satisfaction should be explicitly addressed in any applications to the BRA for development plan or construction approval.

These observations occur to us as donors to and alumni of Harvard who care for the future of Harvard and of Boston, Cambridge, and Allston, and who fully expect to be approached to assist in funding future Harvard developments. In addition, our widely diverging professional careers shared a common focus on long term environmental risk management, a focus and perspective that now compels us to speak out. One of us, Al Boright, is president of the Harvard Radcliffe Club of Vermont, but is submitting these comments on his own behalf. We believe that wise stewardship of Harvard resources requires that the apparently increasing risk of flooding be mitigated for current facilities, and that future facility investments be made at sites protected or physically removed from sea water flooding threat over the expected lifetimes of the facilities.

AB.1

Thank you for this opportunity to provide input.

Art Boright, Harvard AB '61, Harstine Island, WA  
Al Boright, Harvard AB '68, Middlesex, VT

3 Appendices and 3 Figures follow.

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---

Appendix I. Background of correspondents:

**Arthur L. (Art) Boright**, Colonel, US Air Force (retired), served for 26 years as a USAF weather officer, providing and managing weather and space environmental services to Department of Defense personnel and facilities (including hurricane and tornado-threatened sites in south-central US), and to aviation and space system developments and operations in the US and overseas. He retired from the Air Force in 1987 and then worked in the aerospace industry for 17 years, primarily as a systems engineer and atmospheric/space physicist at Boeing's space system development activity in Kent, WA. He was recognized as a Boeing Associate Technical Fellow and retired from Boeing in 2004. He currently resides on Harstine Island in Puget Sound and in Vail, Arizona. He is an avid salt water boater and fisherman, and a frequent user of tide and weather information.

Academic background:

Harvard College: AB Physical Sciences 1961;  
UCLA: Professional Certificate in Meteorology 1962;  
University of Colorado: MS AstroGeophysics 1967 (PhD Candidate, 1973)  
Saint Mary's University (TX): MS Computer Info. Systems (Distinction) 1988;

**Charles Alan (Al) Boright**, Esq., retired from Vermont's Legislative Council in 2008, after 31 years of service which included 25 years as the Senior Counsel and as the primary staff assigned to and drafter of legislation involving land use planning and development, energy, natural resources, and climate change. A former law clerk for Vermont Supreme Court Justice Robert W. Larrow, he chaired Vermont's Statutory Revision Committee, wrote the legislature's first drafting manual, and developed a drafting manual as a volunteer consultant for the Parliament of Ghana. He served two terms as Staff Chair of the National Conference of State Legislatures Committees with jurisdiction over energy and natural resources. He resides in Vermont, where he is current President of the Harvard Radcliffe Club of Vermont.

Academic background:

Harvard College: AB Social Relations 1968;  
Suffolk University Law School: J.D. cum laude 1976

---

Appendix II. Example estimate of sea level rise in Boston/Cambridge/Allston, if hit by a storm like Super Storm Sandy:

NOAA tide tables and measurements are normally referenced to a local datum called "Mean Lowest Lower Water (MLLW)", which for Boston Harbor is 5 ft below the zero point for "Mean Sea Level (msl)". (Ref. NOAA tide datum for Boston Light, MA.)

The top of the Charles River dam is located at a height of 12.5 ft msl.

Tides in Boston Harbor have been predicted in the NOAA tables to rise as high as 12.5 ft MLLW on several days this year. On the days of Super Storm Sandy, NOAA tide prediction tables called for high tides of 9.5 to 10.5 ft above MLLW. Correcting for the 5 ft difference, the 10.5 ft MLLW tide max would rise 5.5 ft up the face of the 12.5 ft msl Charles River dam face, leaving 7 ft exposed.

A storm surge of about 9 feet above the normal tidal high appears in NOAA preliminary tide measurements for The Battery in NYC and for Sandy Hook, NJ, during Super Storm Sandy (See Figures 2 and 3, below). When transferred intact to Boston, a surge of 9 ft would rise 2 ft (9 ft minus 7 ft) above the top of the dam. Coincident with such a storm surge, waves might increase the over-topping flow and water would also flow around the sides of the Charles River dam, though low elevation neighborhoods into the Charles estuary above the dam (Ref. 9).

How long an over-topping of the dam it would take to fill the up-stream estuary to the top of the dam remains in question and depends upon whether the storm also causes a flood-level volume of storm water to run down the river at the same time.. If water level stabilized at the level of the top of the dam, the water would be about 2 ft deep around Harvard's river-front residence

houses, significantly deeper at Harvard Business School and elsewhere in Allston where ground elevations are typically 5 to 10 ft msl.

Note that these interpretations of Super Storm Sandy features in terms of possible Boston/Cambridge/Allston impacts are intended only to establish feasibility of current-day storms overtopping the Charles River dam and bringing substantial flooding to developed areas up-river along the Charles estuary. A more detailed analysis is beyond our current intent. This estimate is consistent with earlier estimates in Refs. 3 and 9 which suggest that a 5 ft storm surge on top of a 12 ft high tide would come within inches of topping the Charles River dam. NOAA storm surge predictions before the center of Sandy reached landfall indicated a five-in-ten chance of storm surges as high as 7 to 11 ft above normal tide level along a broad area of New York and New Jersey coast (Ref. 13 and Figure 1, below), making the preliminary storm surge measurements of about 9 ft at The Battery, NY, and at Sandy Hook, NJ, (See Figures 2 and 3, below) appear very reasonable.

Also, note that terrain elevations may be obtained from scenes viewed with Google Earth, where the elevation (msl) can be shown in cursor data along (with cursor latitude/longitude) at the bottom of the display.

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#### Appendix III. References:

Harvard scientists' work on the subject is recognized in a number of issues of Environment@Harvard, including:

- (1) <http://environment.harvard.edu/node/3272> and
- (2) <http://environment.harvard.edu/news/general/answers-ice>.

Elsewhere:

- (3) A 14 April 2011 Boston Harbor Sea Level Rise Forum video in which Dr. Ellen Douglas of UMass Boston provides science background and Dr. Paul Kirshen of Battelle Institute describes alternative responses (do nothing; accommodate; protect; retreat) and recommends a flexible planning approach: [www.cctvcambridge.org/node/76896](http://www.cctvcambridge.org/node/76896).

- (4) A 22 February 2012 Bloomberg BNA blog referencing NYC's encounter with tropical storm Irene in August 2011 is eerily prescient of storm Sandy. It provides insight on the expected increasing trend in east coast storm severity and frequency, and on related adaptation planning: <http://www.bna.com/us-storms-sealevel-b12884908431/>.

- (5) A Boston Globe article on 25 June 2012 highlights recent measurements of accelerated sea level rise along the East Coast and its increasing accommodation in Massachusetts and Boston development regulation and planning: [articles.boston.com/2012-06-25/news/32411232\\_1\\_sea-levels-powerful-storms-storm-surges](http://articles.boston.com/2012-06-25/news/32411232_1_sea-levels-powerful-storms-storm-surges).

- (6) An earlier paper in Environmental Research Letters (Issue 3, Volume 4, 2009) identified areas of greater Boston, including much of Cambridge and Allston along the Charles, as

developed and almost certain to require "hard" structural protection from rising sea waters:  
<http://plan.risingsea.net/Massachusetts.html> .

(7) An ambitious vision of how greater Boston might confront the long-term sea level rise threat is presented in a 2010 Murray-DeMambro paper:  
[http://architectureboston.files.wordpress.com/2010/05/murray-dimambro\\_summer10\\_web.pdf](http://architectureboston.files.wordpress.com/2010/05/murray-dimambro_summer10_web.pdf) .

(8) A 14 Jan 2010 article by Rob Young and Orrin Pilkey in Yale's ENVIRONMENT360 newsletter entitled "How High Will Seas Rise? Get Ready for Seven Feet" offers response options: <http://e360.yale.edu/content/feature.msp?id=2230>

(9) Final recommendations of the City of Cambridge Climate Protection Action Committee, published in 2010, can be obtained at:  
<http://www.cambridgema.gov/CDD/climateandenergy/climatechangeplanning/climateprotectionactioncommittee.aspx> .

(10) A report of a National Academy of Sciences review entitled "Sea-Level Rise for the Coasts of California, Oregon and Washington: Past, Present, and Future" released in summer 2012 also provides an authoritative, conservative view of the global picture:  
[http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389)

(11) A video of a talk on future sea level rise given by Harvard's Prof. Jerry Mitrovica at a meeting held March 31-April 2, 2011 at the AAAS Auditorium, in Washington, D.C.:  
[http://www.youtube.com/watch?v=RhdY-ZezK7w&continue\\_action=brgOWPvvEmQEow-xDK4UqJfkK\\_DtK7ayJpUZ38kRJGiP5EeevUzfdKQF-NTQ\\_9zPU5\\_RIgzTcEzqp055HSkF16A-oU1j1PjR2oi8AmD6-V8=](http://www.youtube.com/watch?v=RhdY-ZezK7w&continue_action=brgOWPvvEmQEow-xDK4UqJfkK_DtK7ayJpUZ38kRJGiP5EeevUzfdKQF-NTQ_9zPU5_RIgzTcEzqp055HSkF16A-oU1j1PjR2oi8AmD6-V8=)

(12) An editorial on Bloomberg View makes the case that recent experience of damage from storms such as Sandy and Katrina supports the economic utility of major investment by threatened metropolitan areas in flood protection projects:  
<http://www.bloomberg.com/news/2012-11-05/hurricane-sandy-alters-calculus-of-climate-change.html>

(13) NOAA storm surge predictions for storm Sandy (Advisory 31) are available at:  
[http://www.nhc.noaa.gov/refresh/graphics\\_at3+shtml/150352.shtml?gm\\_esurge](http://www.nhc.noaa.gov/refresh/graphics_at3+shtml/150352.shtml?gm_esurge) (Also see graph, below)

(14) A recent talk by Harvard's Professor Dan Schrag provides his insights on the significance of Super Storm Sandy: [http://news.harvard.edu/gazette/story/2012/11/hello-again-climate-change/?utm\\_source=SilverpopMailing&utm\\_medium=email&utm\\_campaign=11.07.12%2520%281%29#.UJ7apm8pZ4A.mailto](http://news.harvard.edu/gazette/story/2012/11/hello-again-climate-change/?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=11.07.12%2520%281%29#.UJ7apm8pZ4A.mailto)

(15) A November 2012 paper in Science magazine by National Center for Atmospheric Research experts John Fassulo and Kevin Trenberth evaluating performance of climate prediction models is described at: [http://www.washingtonpost.com/national/health-science/warmer-still-extreme-climate-predictions-appear-most-accurate-study-says/2012/11/08/ebd075c6-29c7-11e2-96b6-8e6a7524553f\\_story.html](http://www.washingtonpost.com/national/health-science/warmer-still-extreme-climate-predictions-appear-most-accurate-study-says/2012/11/08/ebd075c6-29c7-11e2-96b6-8e6a7524553f_story.html)

Figure 1: NOAA Storm Surge Exceedance prediction (Sandy Advisory 31)

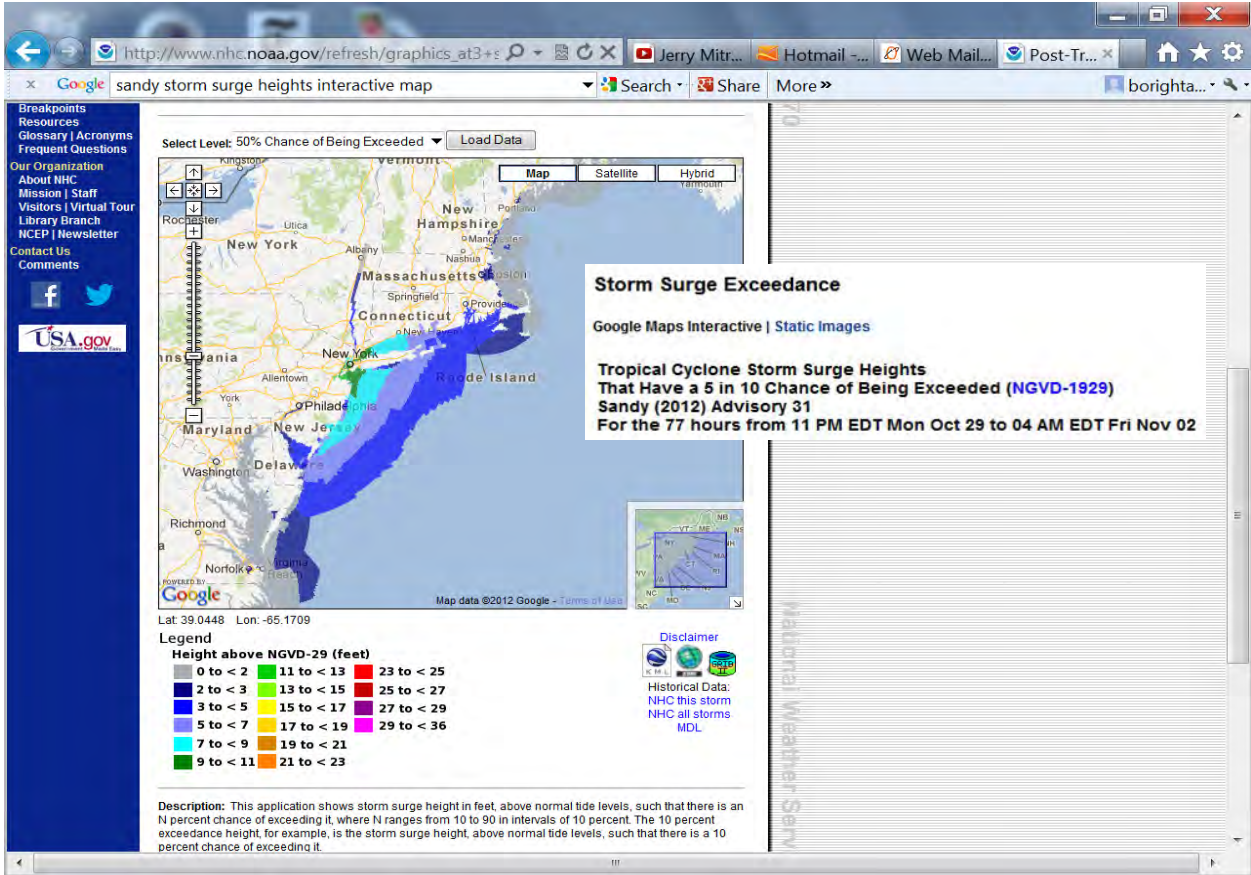


Figure 2: NOAA preliminary water level measurements for The Battery, NY

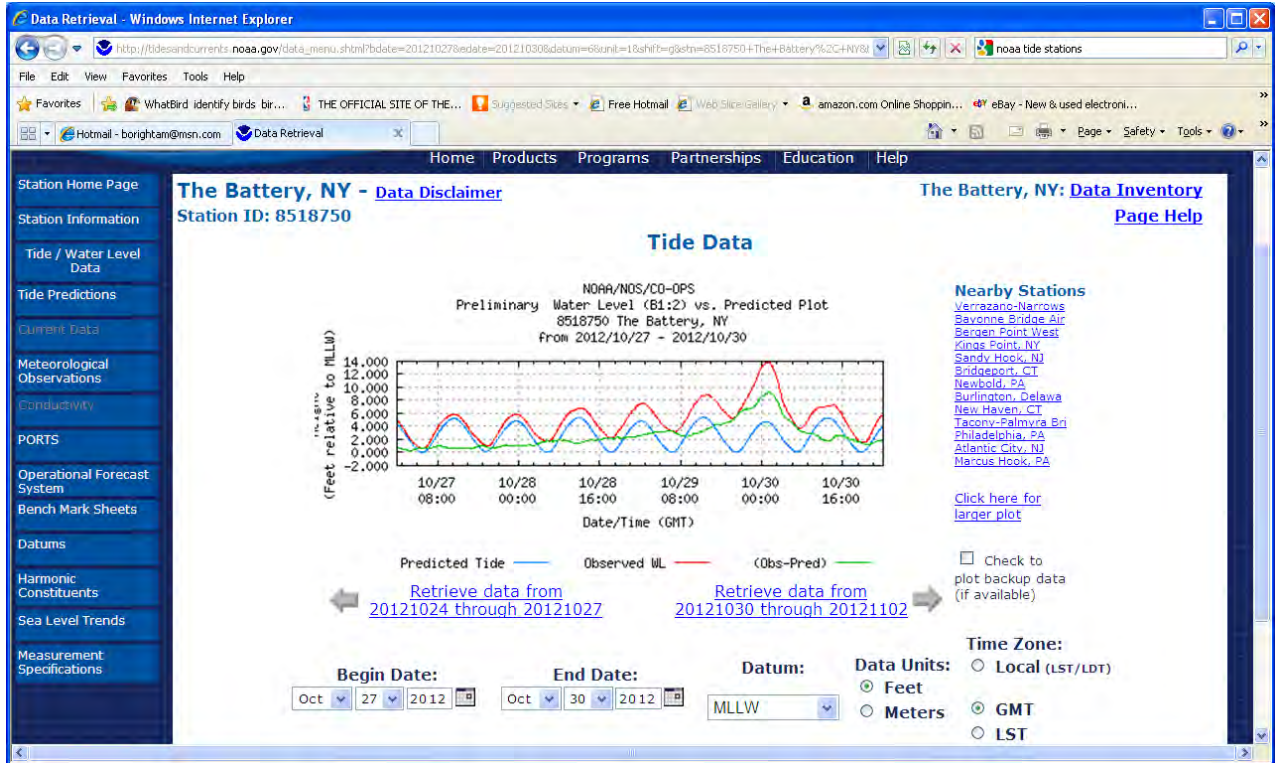
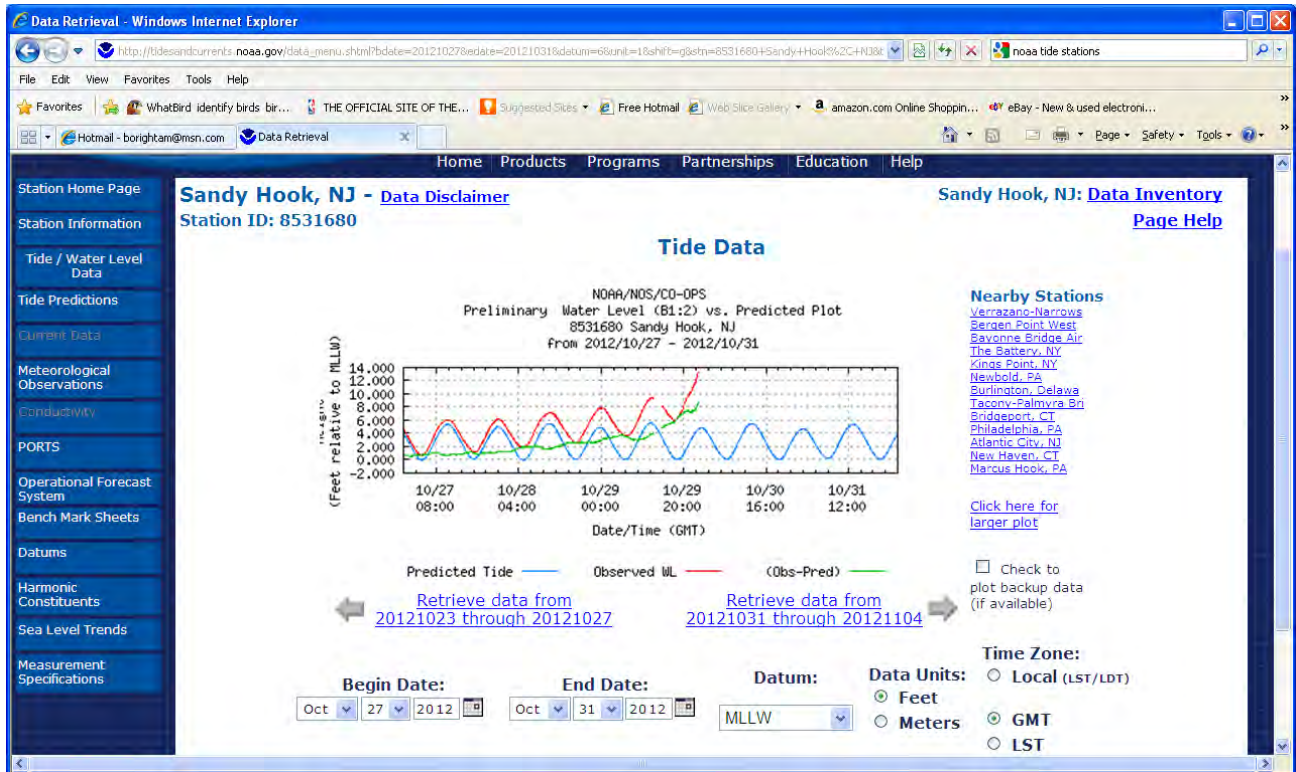


Figure 3: NOAA preliminary water level measurements for Sandy Hook, NJ



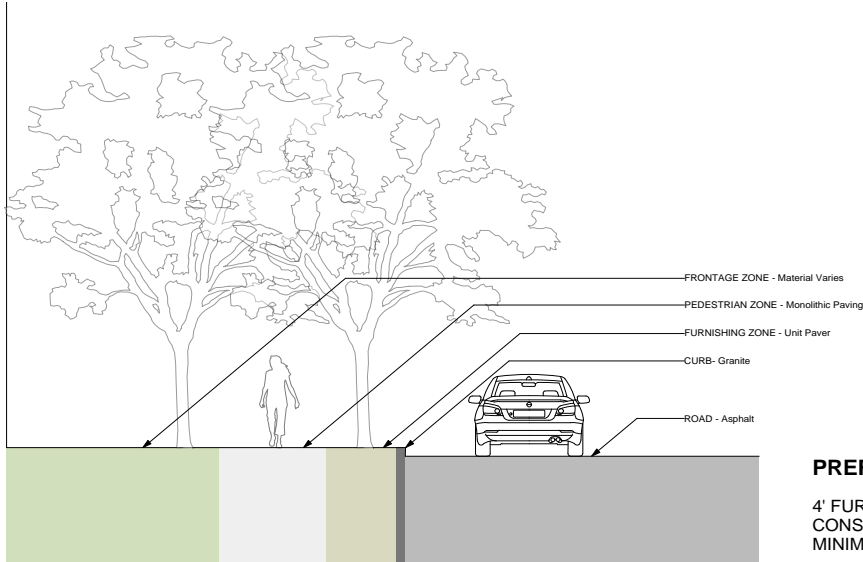
**AB.1 Risk of flooding should be mitigated for current facilities, and future facility investments should be made at sites protected or physically removed from sea water flooding threats over the expected lifetimes of the facilities**

The University's current approach to climate change and sea level rise is described in Section 6.4.



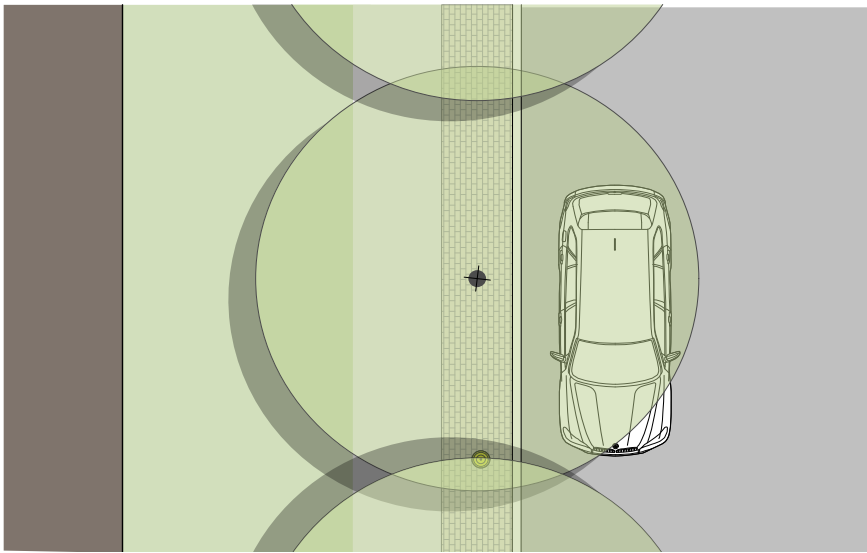
# APPENDIX B:

## Public Realm Guidelines Supplement

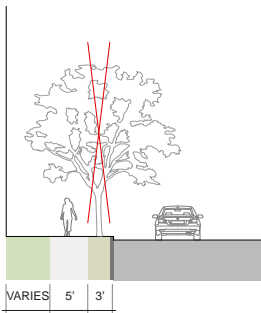


**PREFERRED STANDARD SECTION:**

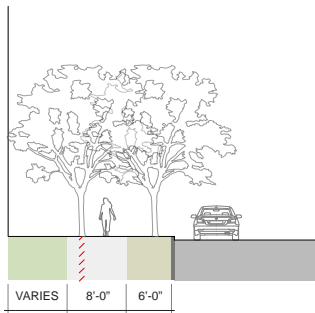
4' FURNISHING ZONE, 6' SIDEWALK:  
 CONSISTENT STREET TREE EDGE WITH VARRIED FRC  
 MINIMAL CONFLICTS WITH EXISTING CONDITIONS



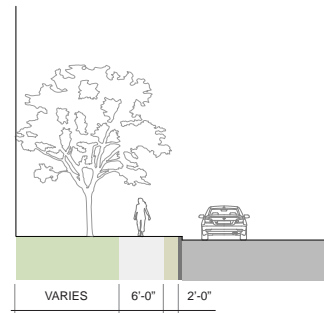
*PEDESTRIAN REALM COMPONENTS*



3' FURNISHING ZONE, 5' SIDEWALK:  
 INSUFICIENT ROOM FOR TREE



6' FURNISHING ZONE, 8' SIDEWALK:  
 CONFLICTS WITH EXISTING TREES, WALLS,  
 FENCES AND HEDGES



2' FURNISHING ZONE, 6' SIDEWALK:  
 NO STREET TREE, TREE IN FRONTAGE ONLY

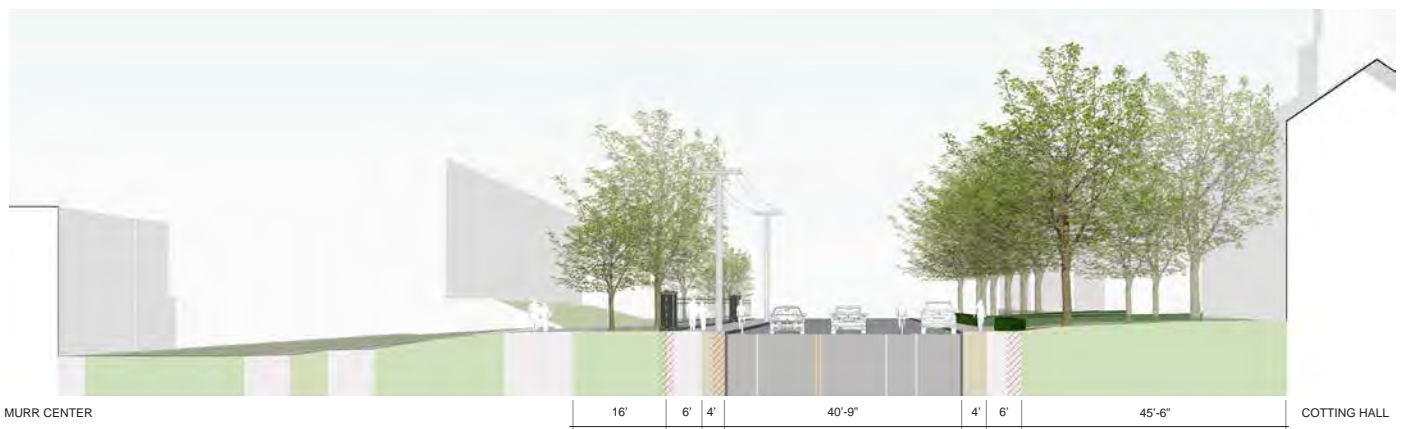
*DIMENSIONS TESTED*



Existing Condition



Minimal Change Option: 2' Furnishing / 6' Sidewalk



Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk

- VEHICULAR ZONE
- CURB
- PEDESTRIAN ZONE
- VEGETATED ZONE
- CONFLICT WITH PROPOSED



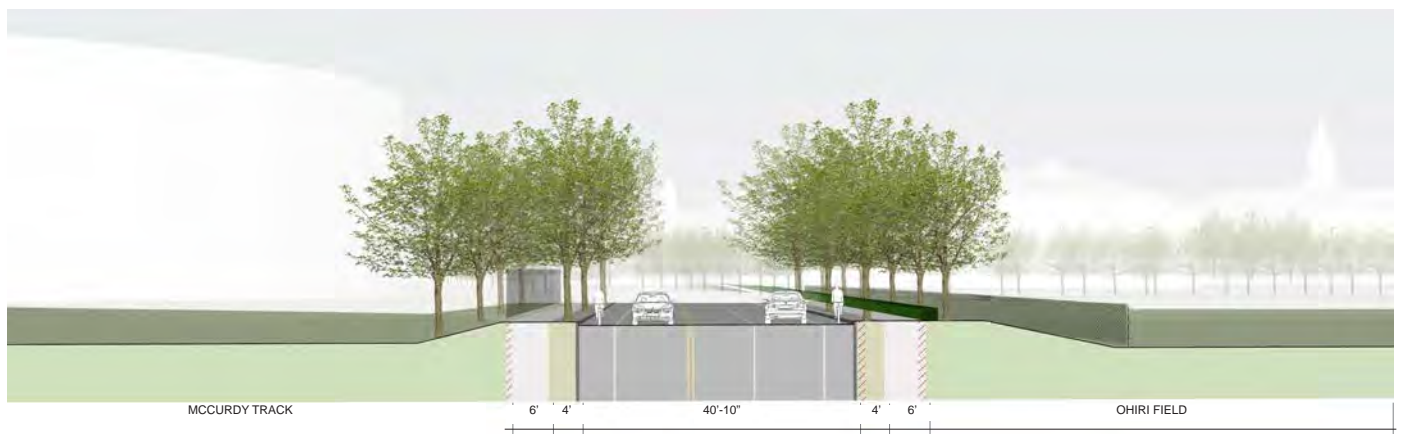
Figure 129: North Harvard Street At Business School



Existing Condition



Minimal change option: 2' furnishing / 6' sidewalk



Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk

- VEHICULAR ZONE
- CURB
- PEDESTRIAN ZONE
- VEGETATED ZONE
- CONFLICT WITH PROPOSED



Figure 130: North Harvard Street at Athletics



Existing Condition



Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk

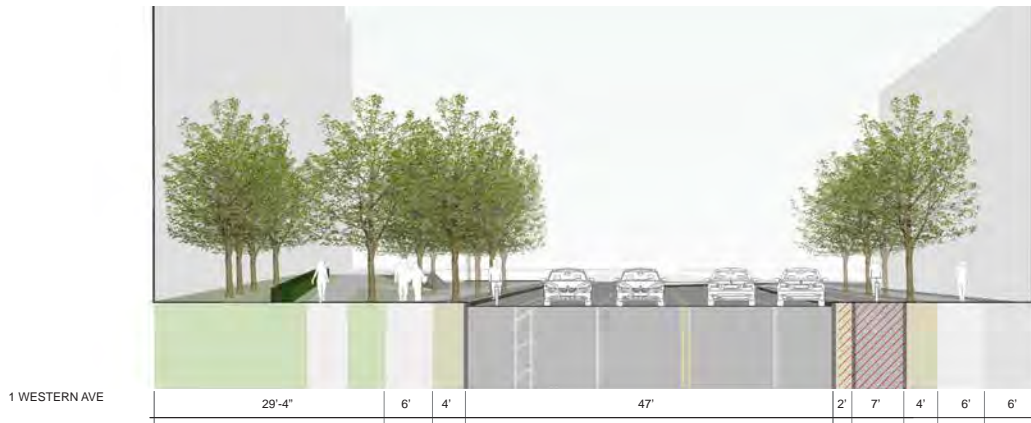
- VEHICULAR ZONE
- CURB
- PEDESTRIAN ZONE
- VEGETATED ZONE
- CONFLICT WITH PROPOSED



Figure 131: North Harvard Street Between Grove and Athletics



Existing Condition



Single Cycle Track And Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk



Double Cycle Track And Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk

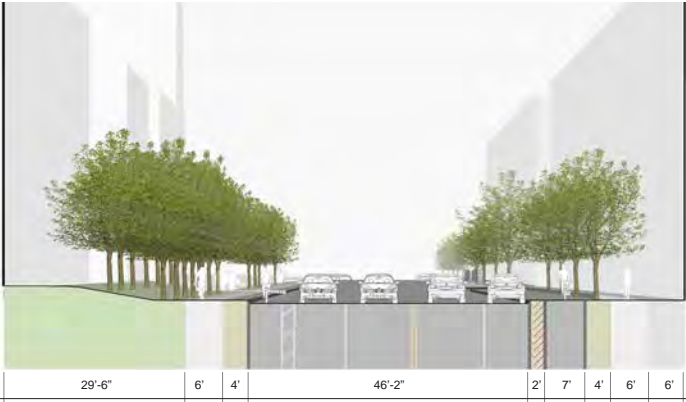
- VEHICULAR ZONE
- CURB
- PEDESTRIAN ZONE
- VEGETATED ZONE
- CONFLICT WITH PROPOSED



Figure 132: Western Ave in One Western



Existing Condition



Single Cycle Track And Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk



Double Cycle Track And Prototypical Pedestrian Realm: 4' Furnishing / 6' Sidewalk

- VEHICULAR ZONE
- CURB
- PEDESTRIAN ZONE
- VEGETATED ZONE
- CONFLICT WITH PROPOSED



Figure 133: Western Ave at HBS Parking

# APPENDIX C:

## Transportation Study



Institutional Master Plan

*Harvard University's Campus  
in Allston*

---

Prepared for **Harvard University**

Prepared by



**Vanasse Hangen Brustlin, Inc.**

Transportation, Land Development, Environmental Services

101 Walnut Street

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617 924 1770

July 2013



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# 1

## Introduction

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### Introduction

This transportation analysis was conducted to support Harvard's Ten-Year Plan for its campus in Allston. Both the Ten-Year Plan and Harvard's Long-Term Vision for its Allston campus are discussed Volume 1 of this Institutional Master Plan (IMP).

The Ten-Year Plan ("the Plan") comprises a range of projects involving renovation, re-use, building replacement and new construction. For the transportation analysis, only the projects that generate traffic, shift traffic, alter access/egress patterns, or change parking demand/supply are considered. As such, the transportation effects of four projects (the HBS Faculty & Administrative Office Building, Mixed Use Facility & Basketball Venue, Gateway project, and Hotel & Conference Center) are discussed in this report. The remaining five Ten-Year Plan projects are not expected to generate new traffic or parking demand and therefore are not included in the transportation assessment.

This report also discusses the transportation effects of previously approved projects, including the Science project, the Barry's Corner Residential & Retail Commons (RRCP), the renovation of 28 Travis Street, Charlesview and New Brighton Landing (New Balance).

The Ten-Year Plan includes the construction of four new streets: "South Campus Drive" (formerly known as "Smith Field Drive"), "Ivy Lane" (formerly known as "Grove Street"), "Academic Way," and "Science Drive" to create new connections to Barry's Corner, link the proposed Greenway and Smith Field, support shuttle bus operations, and provide access to the proposed projects in the Ten-Year Plan, particularly those projects located near Barry's Corner. The Barry's Corner RRCP will construct "South Campus Drive" and "Ivy Lane" in coordination with the IMP.

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## Study Methodology

The transportation analysis was conducted in three stages and in accordance with the Boston Transportation Department's (BTD's) Transportation Access Plan Guidelines (2001) and the BRA Development Review Guidelines (2006). This report adheres to the general format requested by BTD as described in their December 13, 2012 comment letter.

The first stage involved collecting pedestrian, bicycle, and vehicular volume data and quantifying and describing existing transportation conditions in the vicinity of the site. The transportation conditions studied included the transportation infrastructure, pedestrian and bicycle facilities, transit operations, traffic operations, parking availability, crash data, and existing loading facilities.

The second stage of the study established the framework for evaluating transportation operations and the impacts of the Ten-Year Plan. Specific travel demand forecasts for the Ten-Year Plan were assessed along with future traffic demands on the IMP study area roadways due to projected background traffic growth and other proposed area development that will occur, independent of the Ten-Year Plan. The year 2022, was selected as the design year for analysis to coincide with the horizon year of the IMP.

The final stage of the study, presents mitigation measures to address the IMP-related transportation impacts. The proposed mitigation measures include a transportation demand management program, designed to reduce vehicular travel to the Allston campus; and implementing infrastructure enhancements to improve vehicular and non-vehicular operations.

---

## IMP Study Area

The IMP study area (the "study area") is comprised of the following 23 existing intersections, shown graphically in Figure 1:

- Western Avenue at Telford Street/Telford Street Extension - *signalized*
- Western Avenue at Everett Street - *signalized*
- Soldiers Field Road at Everett Street - *signalized*
- Western Avenue at North Harvard Street - *signalized*
- North Harvard Street at Bertram Street - *unsignalized*
- North Harvard Street at Spurr Street - *unsignalized*
- North Harvard Street at Franklin Street/Kingsley Street - *signalized*
- North Harvard Street at Bayard Street/Rena Street - *unsignalized*
- Western Avenue at Travis Street - *unsignalized*
- Western Avenue at Batten Way/Hague Street - *signalized*

- Hague Street at Rotterdam Street - *unsignalized*
- North Harvard Street at Gordon Road - *unsignalized*
- Soldiers Field Road at North Harvard Street (2 intersections) - *signalized*
- Soldiers Field Road at Western Avenue (2 intersections) - *signalized*
- Cambridge Street at I-90 On-Ramp/Hotel Driveway-*signalized*
- Soldiers Field Road at Cambridge Street (2 intersections) - *signalized*
- Cambridge Street at Windom Street- *signalized*
- Cambridge Street at North Harvard Street- *signalized*
- Cambridge Street at Harvard Avenue- *signalized*
- Soldiers Field Road at Eliot Bridge- *signalized*

The existing conditions evaluation consisted of an inventory of the traffic control; roadway, driveway, and intersection geometry; the collection of peak period traffic volumes; and a review of recent vehicular crash history at each of these intersections.

# 2

## Existing Conditions

Existing transportation conditions in the study area include roadway geometry, traffic controls, daily and peak period traffic flow, vehicular crash information data, traffic operations, parking, public transportation, pedestrian and bicycle facilities, and loading/service. Each of these elements is described in detail below.

---

### Roadway Network

The major roadways within the proposed IMP study area are described below. Descriptions include characteristics such as roadway jurisdiction, street typology based on Boston's Complete Streets Guidelines and other considerations, typical lane cross-sections, transportation elements, and surrounding land uses. Detailed descriptions of transit routes, pedestrian and bicycle accommodations, and parking supply and regulations along study area roadways are discussed in greater detail in subsequent sections. Figure 2 graphically depicts the traffic control and observed lane use at the study area intersections.

---

#### Western Avenue

Western Avenue is an east-west roadway that is under City of Boston jurisdiction between the Charles River/Soldiers Field Road intersections to the east and to the west. To the west in Watertown, Western Avenue becomes Arsenal Street at the Charles River and provides access to points west. To the east in Cambridge, Western Avenue becomes one-way westbound, providing access from Central Square.

The Department of Conservation and Recreation (DCR) has jurisdiction of the Soldiers Field Road and Memorial Drive intersections. The river bridges are under the jurisdiction of Massachusetts Department of Transportation (MassDOT).

With a mix of residential and commercial/retail land uses, the western end of Western Avenue has characteristics of a Neighborhood Main Street. The roadway transitions to a Neighborhood Connector to the east of Barry's Corner as the abutting



land uses transition to primarily Harvard-related uses. Sidewalks are typically eight to ten feet wide in and to the east of Barry's Corner.

Within the study area, Western Avenue functions as an urban minor arterial, providing one lane of travel in each direction, with additional turning lanes at key intersections. Roadway widths range from approximately 45 - 47 feet wide curb-to-curb east of Spurr Street and are approximately 42 feet wide curb-to-curb west of Spurr Street. Bike lanes are provided in both directions east of Barry's Corner including a cycle track with a floating parking lane in the eastbound direction Travis Street to Soldiers Field Road. MBTA bus stops are provided throughout the corridor for the Route 70/70A and Route 86 as discussed below.

MassDOT is planning improvements to the Western Avenue Bridge as part of the Accelerated Bridge Program (ABP). Specific improvements are discussed in detail in Chapter 3.



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## North Harvard Street

North Harvard Street is a north-south roadway that is under the City of Boston jurisdiction between Cambridge Street in the south and the Charles River/Soldiers Field Road in the north. After crossing the Anderson Memorial Bridge at the Charles River and entering Cambridge, North Harvard Street becomes JFK Street and terminates at Massachusetts Avenue (Route 2A) in Harvard Square. North Harvard Street provides a critical connection between Cambridge Street and Western Avenue. DCR has jurisdiction of the Soldiers Field Road and Memorial Drive intersections and MassDOT has jurisdiction of the Anderson Memorial Bridge.

Between Cambridge Street and Barry's Corner, North Harvard Street has characteristics of a Neighborhood Main Street. North of Barry's Corner the roadway transitions to a Neighborhood Connector as the abutting land uses transition from primarily residential with a mix of commercial/retail and community centers (e.g., Honan Library) to primarily Harvard-related uses. Sidewalks are typically eight to ten feet wide in and to the north of Barry's Corner.

Within the study area, North Harvard Street functions as an urban minor arterial, providing one travel lane in each direction, with turning lanes provided at key intersections. To the north of Barry's Corner, the roadway is approximately 40 feet wide from curb-to-curb; to the south of Barry's Corner, the roadway is approximately 44 feet wide. Bike lanes are provided throughout the corridor exclusive of a short section of the northbound approach to the Barry's Corner intersection where "Sharrows" are in place. Parking is provided on both sides of the street south of Spurr Street and on two sections of the roadway to the north of Barry's Corner. MBTA bus stops are provided throughout the corridor for the Route 66 and Route 86 buses as discussed below.



As part of the Accelerated Bridge Program, MassDOT has begun rehabilitation of the Anderson Memorial Bridge. Specific improvements are discussed in detail in Chapter 3.



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## Cambridge Street

Cambridge Street is an arterial northeast/southwest roadway that is under City of Boston jurisdiction. Cambridge Street becomes River Street, a one-way northeast-bound roadway, after it crosses the Charles River and enters Cambridge. Cambridge Street extends southwest to Brighton where it becomes Washington Street. This road provides regional access to and from I-90 (including a major highway interchange), Route 2 to the east and Route 20 to the south. DCR has jurisdiction of the Soldiers Field Road and Memorial Drive intersections and MassDOT has jurisdiction of the River Street Bridge.

Within the study area, Cambridge Street has characteristics of a Neighborhood Connector. Sidewalks are generally present along both sides of Cambridge Street. Sidewalk widths vary along Cambridge Street from approximately eight to ten feet wide.

Through the study area, Cambridge Street provides two to three travel lanes in each direction with turning lanes at key intersections. East of the intersection with Franklin Street and Harvard Avenue the roadway is divided by a narrow median. Roadway widths vary along Cambridge Street from approximately 80-88 feet curb-to-curb. No bike lanes are provided along the corridor, although the City of Boston is planning improvements as described in Chapter 3. MBTA bus stops are provided for the Route 64 bus as discussed below.

MassDOT is planning improvements to River Street Bridge as part of the Accelerated Bridge Program (ABP). Specific improvements are discussed in detail in Chapter 3.



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## Soldiers Field Road

Soldiers Field Road is a significant metropolitan parkway under the jurisdiction of the DCR. The roadway runs along the south side of the Charles River from the Boston University Bridge to the east to North Beacon Street to the west. To the east, Soldiers Field Road becomes Storrow Drive. To the west, Soldiers Field Road becomes Nonantum Road. Soldiers Field Road provides access to Route 2 via Fresh Pond Parkway, to Interstate 90 at the Allston/Brighton interchange, and to Interstate 93/U.S. 1 at Leverett Circle.

Within the study area, Soldiers Field Road consists of two travel lanes in each direction, with additional lanes for on-ramps and off-ramps. Parking and bicycle use are prohibited on the roadway. In general, commercial traffic, including trucks and buses, is prohibited on Soldiers Field Road.

The Charles River Reservation includes pedestrian and bicycle paths, including the Paul Dudley White Bicycle Paths that flank both sides of the river. These paths are under the jurisdiction of DCR and provide important local and regional connections and recreational opportunities between Watertown Square in the west and the Museum of Science in the east. Land uses along Soldiers Field Road are primarily recreational to the north with access to the Charles River, and office, institutional, and industrial uses to the south.

---

## Vehicular Traffic

To identify current traffic flow characteristics along the major roadways serving the IMP study area, peak hour and daily traffic volumes were collected on roadways and intersections in and around the study area during April 2012. It should be noted that traffic volumes were collected prior to construction activities began on the Anderson Memorial Bridge.

■

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## Traffic Volumes

Weekday daily volumes along roadways were collected using automated traffic recorders (ATRs). Table 1 summarizes the daily and peak hour traffic volumes along the study area roadways.

**Table 1 Observed Traffic Volume Summary**

Location	Weekday Daily <sup>1</sup>	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Vol <sup>2</sup>	K Factor <sup>3</sup>	Dir. Dist. <sup>4</sup>	Vol	K Factor	Dir. Dist.
Western Avenue east of Everett St	20,200	1,485	7.4%	51% WB	1,560	7.7%	56% WB
Western Avenue west of Hague Street	12,500	895	7.2%	54% WB	955	7.7%	63% WB
North Harvard St north of Hefferan Street	13,400	890	6.7%	59% NB	1,020	7.6%	55% NB
Cambridge Street east of Windom Street	31,400	2,160	6.9%	69% WB	2,545	8.1%	70% WB

Source: Vanasse Hangen Brustlin, Inc.; based on automatic traffic recorder counts conducted in April 2012.

- 1 average daily traffic volume expressed in vehicles per day
- 2 expressed in vehicles per hour
- 3 percent of daily traffic that occurs during the peak hour
- 4 directional distribution of peak hour traffic

Weekday morning (7:00 AM - 9:00 AM) and evening peak hour (4:00 PM - 6:00 PM) volumes were collected in April 2012 at study area intersections using turning movement/ classification counts (TMCs) to identify current traffic volumes traveling through the key intersections in the study area. The data was used to establish the existing traffic conditions for the peak hour traffic analysis of study area intersections. All traffic count data is included in the Technical Appendix.

To evaluate the potential for seasonal fluctuation of traffic volumes on roadways within the IMP study area, the MassDOT 2011 Weekday Seasonal Factors, based on MassDOT's statewide traffic data inventory, indicates that traffic volumes in April are approximately eight percent *higher* than the yearly average conditions. To remain conservative, the April existing traffic counts were not adjusted. Seasonal adjustment factors are included in the Technical Appendix. Figures 3 and 4 reflect the 2012 Existing weekday morning and weekday evening peak hour traffic volumes, respectively.

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## Pedestrians

This section discusses on- and off-street pedestrian accommodations within the study area. Pedestrian activity at study area intersections during the weekday morning and evening peak hours is also characterized.

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### Pedestrian Accommodations

The study area benefits from an extensive network of sidewalks and pedestrian paths. Harvard owns and maintains a network of campus paths within its campus in



Allston. These pathways provide internal connections as well as links to the system of public sidewalks and paths that are on the periphery of the campus.

---

## Sidewalks and Crosswalks

Sidewalks are provided along the primary roadways within the study area and are under the jurisdiction of the City of Boston. Western Avenue, North Harvard Street and Cambridge Street have eight to ten foot wide sidewalks on both sides of the streets that are generally in good condition within the study area. In 2007, Harvard reconstructed sidewalks on North Harvard Street and, more recently, sections of the Western Avenue sidewalks.

The majority of signalized study area intersections have pedestrian accommodations (crosswalks and pedestrian signal heads), with the following exceptions:

- Soldiers Field Road at Everett Street
- Cambridge Street at I-90 On-ramp and Hotel Driveway
- Soldiers Field Road at Eliot Bridge

Additionally, while crosswalks are provided at the intersections of Soldiers Field Road at Cambridge Street, there is no pedestrian signal equipment.

Crosswalks are also provided at unsignalized intersections along Western Avenue and North Harvard Street and at intersections in the residential neighborhood. On Western Avenue, there are unsignalized crossings at Travis Street, 114 Western Avenue and East Drive. On North Harvard Street, there are unsignalized pedestrian crossings at Spurr Street/Bertram Street, Coolidge Road, Eaton Street, Hooker Street and Empire Street. Pedestrian signals are located on Western Avenue at Riverdale Street and on North Harvard Street near Easton Street.

---

## Charles River Paths

Within the study area, the Paul Dudley White Bicycle Paths flank the Charles River and provide both pedestrian and bicycle connections. Additionally, paths are provided along the southerly side of Soldiers Field Road between the Anderson Memorial Bridge and the River Street Bridge and to the west of Smith Field, and along the entire northerly edge of Memorial Drive.

The network of river paths cross at signalized intersections at the Anderson Memorial Bridge, Western Avenue Bridge and River Street Bridge. Underpasses are provided for paths at either end of the Eliot Bridge.

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## Charles River Bridges

Within the study area, there are four bridge crossings of the Charles River that are under the jurisdiction of MassDOT:

- Eliot Bridge
- Anderson Memorial Bridge
- Western Avenue Bridge
- River Street (Cambridge Street) Bridge

Pedestrian accommodations are being improved at the latter three bridges as part of MassDOT's Accelerated Bridge Program (ABP). Specific improvements are discussed in detail in Chapter 3.

In addition to these crossings, the John W. Weeks Bridge provides a pedestrian-only crossing of the Charles River. The Weeks Bridge is under DCR jurisdiction and is located between the Anderson Memorial Bridge and the Western Avenue Bridge. Accessibility improvements and structural repairs are being considered and are discussed in detail in Chapter 3.

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## Soldiers Field Road Pedestrian Crossings

Pedestrian crossings of Soldiers Field Road occur at five bridge crossings between the Western Avenue/Arsenal Street Bridge to the west and the Western Avenue/River Street Bridge to the east. Three of the crossings occur at locations where Soldiers Field Road is in an underpass: at the Anderson Memorial Bridge, the Western Avenue Bridge, and the River Street Bridge. These pedestrian crossings occur at signalized intersections with the cross street and the Soldiers Field Road ramp system.

The remaining two of the crossings occur via pedestrian bridges. The Sinclair Weeks Bridge, which connects with the John Weeks Bridge over the Charles River, is located between the Anderson Memorial Bridge and the River Street Bridge. The Telford Street Pedestrian Bridge is the only pedestrian crossing between the Arsenal Street Bridge and the Anderson Memorial Bridge. Neither of the pedestrian bridges meets current accessibility requirements.



---

## Pedestrian Volumes

As with traffic volumes, pedestrian volumes were collected at study area intersections to characterize pedestrian flow. Data collection included weekday morning (7:00 AM – 9:00 AM) and evening peak period (4:00 PM – 6:00 PM) volume

counts in April 2012. It should be noted that volumes were collected prior to construction activities began on the Anderson Memorial Bridge and do not take into account Harvard football games or other special events.

Peak hour pedestrian volumes at study area intersections are shown in Figure 5. Intersections with notably high pedestrian activity include Barry's Corner (Western Avenue at North Harvard Street), North Harvard Street at Soldiers Field Road, and Western Avenue at Soldiers Field Road.

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## Bicycles

This section discusses on- and off-street bicycle accommodations within the study area. Bicycle activity at study area intersections during the weekday morning and evening peak hours is also characterized.



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### Bicycle Accommodations

Bicycles are an important component of the transportation system at Harvard and bicycle accommodations within the study area are illustrated in Figure 6. Harvard provides both covered and uncovered bicycle parking for its employees, students, and visitors on its Allston Campus. As shown in Figure 6, totals of approximately 212 covered and 704 uncovered bicycle parking spaces are clustered around residential and academic buildings on the Allston Campus. Harvard has also worked with the City of Boston and the City of Cambridge to sponsor and install four 15-dock Hubway regional bike-share stations within the study area.

Over the last three years, there has been a significant increase in the number of bike lanes serving Allston. Harvard has collaborated with the City of Boston to install bicycle lanes on North Harvard Street from Soldiers Field Road to Cambridge Street and on Western Avenue from Barry's Corner east to Soldiers Field Road, including a westbound cycle track. As described previously, the Paul Dudley White Bicycle Paths along the Charles River provide off-road east-west mobility for bicycles and pedestrians from Watertown Square to Museum of Science passing by the study area.

Bicycle accommodations on the Anderson Memorial Bridge, Western Avenue Bridge, and River Street Bridge are being improved as part of MassDOT's Accelerated Bridge Program (ABP), discussed in detail in Chapter 3




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## Bicycle Volumes

Bicycle volumes were collected at study area intersections concurrently with vehicular and pedestrian volumes in April 2012. Peak hour bicycle turning movements at study area intersections are shown in Figure 7.



## Transit

This section discusses public transportation and Harvard shuttle services within the study area. Ridership on MBTA bus services is also presented.




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## Public Transit

All areas within the Allston Campus are within one-quarter mile of bus stops for at least two routes and most of the campus is near bus stops for three routes. There are five MBTA bus routes traveling within the study area. These routes are shown graphically in Figure 8, including the location of bus stops and shelters. Two of the five routes (86 and 66) operate along North Harvard Street and provide connections between the study area and Harvard Square. Two other routes (70 and 70A) provide connections to Central Square and operate along Western Avenue. The fifth bus route (64) runs between Oak Square in Brighton and Central Square in Cambridge via Cambridge Street in the study area with stops in both directions. Characteristics of the MBTA bus services are summarized in Table 2 and are included in the Technical Appendix for reference.

**Table 2 MBTA Bus Service in Allston**

Route #	Route Name	Allston Area Service Via	Peak Period Headway (minutes)	Average Weekday Ridership
64	Oak Square (Brighton) Central Square	Cambridge Street	15-20	1,270
66	Harvard Square Dudley Station	North Harvard Street	10	14,700
70	Cedarwood (Waltham) Central Square	Western Avenue	20	4,650
70A	North Waltham Central Square	Western Avenue	30	2,030
86	Sullivan (Somerville) Cleveland Circle	North Harvard Street & Western Avenue	15	5,140

Source: MBTA Ridership and Service Statistics (Thirteenth Edition, 2010).

The Harvard Square Station, which is one mile from Barry’s Corner, is the most significant regional transit facility near the IMP area. Red Line service provides

connections to the northwest and as far south as Braintree, as well as connections to the Orange Line, the Green Line and commuter and intercity rail at South Station. In addition to the Red Line, Harvard Square is a major bus facility that accommodates ten surface bus routes and four trolley-bus services.



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## Harvard Shuttle Service

Harvard University provides shuttle services to enhance connectivity between its Allston and Cambridge campuses. The Allston Express shuttle provides students and staff transportation throughout the year. Buses depart from the Cambridge Campus approximately every 15 minutes on weekdays with connections at Harvard Square, Harvard Kennedy School, Harvard Stadium, Harvard Business School (HBS), and Soldiers Field Park Garage. Headways are adjusted during other times of the year to reflect changes in demand. This route is illustrated on Figure 8.

Harvard has implemented a real-time vehicle location system and has recently developed a Shuttle Tracker iPhone App. The transit Visualization System™ (Shuttle Tracker) is available on desktop and mobile computers, handheld devices, and at strategically located displays. The availability of Shuttle Tracker helps reduce the potential wait times for shuttle passengers and increase their safety, and enables shuttle management to manage the transportation fleet with increased efficiency.

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## Crash Data

To identify potential vehicle crash trends and/or roadway deficiencies in the IMP study area, the most current vehicle crash data for the study area intersections were obtained from MassDOT for the years 2008 to 2010. MassDOT crash data is included in the Technical Appendix.

Crash rates are calculated based on the number of reported crashes at an intersection and the volume of traffic traveling through that intersection on a daily basis. Rates that exceed MassDOT's average for crashes at an intersection in the district in which the town or city is located (District 6 for Boston) could indicate safety or geometric issues for a particular intersection. The latest published crash rates by MassDOT in District 6 are 0.76 for signalized intersections and 0.58 for unsignalized intersections. These rates imply that, on average, 0.76 crashes occurred per million vehicles entering signalized intersections throughout District 6, and 0.58 crashes occurred per million vehicles entering unsignalized intersections in the District. None of the study area intersections exceed the MassDOT District 6 average crash rate values. This means that all the intersections in the study area operate as safely as – or safer than – other similar intersections in the same district. A summary of the study intersections' vehicle crash history and crash rate worksheets are presented in the Technical Appendix.

It should be noted that the crash rate could not be calculated for closely spaced intersections (such as intersections of North Harvard Street, Western Avenue, and Cambridge Street with Soldiers Field Road EB and WB ramps) since the crashes were combined for these locations due to limits in accuracy in the data reporting.

At the intersection of Soldiers Field Road and Everett Street there was a crash resulting in a fatality in 2008. A pedestrian was struck by a vehicle late on a weekend night with wet roadway conditions.

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## Parking

Figure 9 illustrates parking options within the study area, including both off-street institutional and on-street public spaces. These facilities are discussed in detail below.




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### Off-Street Institutional Parking

There are approximately 2,642 institutional parking spaces on Harvard’s Allston Campus. A summary of parking supply by location is presented in Table 3 and illustrated in Figure 9. There are an additional 510 non-institutional parking spaces on Harvard-owned property in the IMP area: 178 spaces at 114 Western Avenue, 102 spaces at 135 Western Avenue and 230 spaces at Charlesview.

**Table 3 Off-Street Institutional Parking Supply**

Location	Approximate Supply
219 Western Ave./175 N. Harvard St. <sup>a</sup>	120 spaces
Teele Hall	111 spaces
Athletics	241 spaces
Spangler Lot	675 spaces
Soldiers Field Park Garage	645 spaces
One Western Ave.	617 spaces
25 Travis St.	55 spaces
1230 Soldiers Field Road	58 spaces
i-lab	120 spaces
<b>Total</b>	<b>2,642 spaces</b>

<sup>a</sup> Supply includes 75 spaces to be relocated to 28 Travis Street.

All University parking is controlled and administered by the Harvard University Parking Office as a University-wide resource with a permitting system and specific parking lot assignments. Parking for eligible staff and faculty costs \$1,596 per year

for unreserved surface parking and \$1,704 per year for unreserved garage parking. Students living on-campus who park in the Soldiers Field Park Garage or One Western Avenue Garage pay \$3,192 per year for garage parking and \$3,000 for surface parking. These parking rates are for FY14.

Visitor parking is accommodated at the Spangler Lot through the use of daily permits, which currently cost \$14/day on weekdays and \$5/day after 5PM and on weekends. Short-term parking is permitted at designated multi-space meter locations that currently charge a fee of \$0.25/12 minutes for a maximum of four or six hours, depending on location.



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## On-Street Parking

Limited on-street parking is available along North Harvard Street, Western Avenue, and Cambridge Street within the study area, totaling approximately 271 spaces. The parking supply and regulations along these streets were inventoried and are summarized in Table 4 below.

**Table 4 On-Street Parking Supply and Regulations**

Roadway	Direction	Approximate Supply	Regulation
North Harvard St	Northbound	41 spaces	Unregulated
	(Cambridge St to Western Ave)	6 spaces	HP parking
	Northbound	20 spaces	Unregulated
	(Western Ave to Soldiers Field Rd)	5 spaces	2 hour limit
		4 spaces	HP parking
	Southbound	0 spaces	n/a
	(Soldiers Field Rd to Western Ave)		
	Southbound	35 spaces	Unregulated
	(Western Ave to Bayard St)	7 spaces	2 hour limit
Western Ave	Eastbound	3 spaces	Unregulated
	(Telford St to North Harvard St)	24 spaces	2 hour limit except with resident sticker
	Eastbound	50 spaces	Unregulated
	(North Harvard St to Soldiers Field Rd)		
	Westbound	0 spaces	n/a
(Soldiers Field Rd to North Harvard St)			
	Westbound	41 spaces	2 hour limit except with resident sticker
	(North Harvard St to Telford St)		
Cambridge Street	Eastbound	4 spaces	1 hour limit
	(Wilton St to North Harvard St)		
	Eastbound	0 spaces	n/a
	(North Harvard St to Windom St)		
	Westbound	14 spaces	Unregulated
	(Windom St to North Harvard St)		
	Westbound	17 spaces	2 hour limit
	(North Harvard St to Wilton St)		

Most of the adjacent neighborhood residential streets are unregulated with the exception of a limited number of streets east of North Harvard Street that have Resident Permit Parking: Kingsley, Rena, Hopedale, Seattle, Windom, Amboy and Sorrento Streets.



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## Transportation Demand Management

Harvard has an extensive Transportation Demand Management (TDM) program that is an important tool in managing vehicular travel to the campus. Key components of the program include:



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### Transit Passes

Harvard subsidizes 50 percent of MBTA monthly passes. Pre-tax savings on the purchase of private transit passes and commuter checks is offered as an added bonus for eligible faculty and staff. MBTA monthly pass sales can be conducted online to add the convenience of receiving a monthly pass at home. Further, employees must sign up only once to receive a pass in the mail every month. All of these benefits correspond to a sales average of 6,700 MBTA passes a month for Harvard employees<sup>1</sup>.



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### Marketing

Harvard maintains an extensive CommuterChoice website ([www.commuterchoice.harvard.edu](http://www.commuterchoice.harvard.edu)) which includes information regarding:

- Transit pass program;
- Public transportation options and Harvard shuttle services;
- Bicycling services such as safe cycling classes, repair clinic, the Hubway, and the departmental bike program;
- Ridesharing options;
- Walking maps; and
- Links to other references and resources.



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<sup>1</sup> Harvard University Cambridge Campus Parking and Transportation Demand Management Plan; 2012 Annual Progress Report.



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## Harvard Bicycle Program

The CommuterChoice program works to continually improve the cycling environment through marketing and education initiatives. Some examples of this include posting updated “Safer Bike Routes” and campus bike rack maps on the CommuterChoice program’s website, incorporating a safety video into the online bike registration system, offering bicycle safety training and classes, offering discounted bike helmets, and organizing a Harvard affiliates bike registration program in conjunction with the Harvard University Police Department. Harvard also participates in the Bicycle Benefit Act providing bicyclists up to \$240/year for bicycle expenses.



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## Hubway Bike-Share Program

In addition to sponsoring Hubway stations, Harvard provides employees a \$50 discounted annual membership in the Hubway bike sharing program. In August 2012, the Hubway program was expanded to include stations in Cambridge, facilitating the connection of Harvard’s three campuses (Cambridge, Allston, and Longwood). Harvard supports six stations in Cambridge and five stations in Boston, including one on the Longwood campus, and four in Allston at the Harvard Business School and along Western Avenue. Figure 6 depicts the location of the four Allston Hubway stations.



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## Carpool Discount

Harvard offers discounted and preferential carpool and vanpool parking in the largest garages and several surface lots and has arranged for additional carpool spaces as needed. Through the CommuterChoice program carpoolers receive a 50 percent discount on their annual parking permit if they carpool with one other employee, and a 75 percent discount off the cost of their annual parking permit if they travel with three or more people.



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## Rideshare Programs

Harvard has introduced a variety of programs to assist ride-sharers. Employees can register with CommuterChoice to receive information on carpools, vanpools, and car sharing, including assistance in vanpool formation, carpool partner matching and registration, and emergency ride home assistance. Zimride, an online ride sharing program introduced in 2010, helps Harvard affiliates locate other people with similar commuting patterns or travel needs and facilitates ridesharing. The RelayRides program matches people who are willing to lend or borrow vehicles from one another.



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## ZipCar

Harvard University currently provides ZipCar parking for six vehicles on the Allston Campus:

- Spangler Lot (2 spaces)
- Soldiers Field Park (East Drive Lot)
- 125 Western Avenue (Innovation Lab)
- 370 Western Avenue (Brighton Mills) (2 spaces)

In 2010, Harvard became the first University in the Greater Boston area to expand its ZipCar membership to include an 18+ age group and currently has approximately 10,000 members registered to participate in the program. Harvard provides a discounted annual ZipCar membership (\$25/year) to employees.



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## Preferred Parking

Approximately 26 preferred parking spaces are available, with the appropriate permit, for Low Emission Vehicles (LEV) at ten locations on the Cambridge and Allston campuses. Additionally, six Electric Vehicle Charging Stations are available at Harvard University; two of these stations are located on the Allston Campus at 125 Western Avenue (Innovation Lab).



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## Emergency Ride Home Program

Harvard participates in MassDOT's Emergency Ride Home Program. This program makes it easier to use transit, carpooling, vanpooling or other non-auto modes by allowing members to be reimbursed for up to four trips per year via taxi or rental car, in the event of a personal or family emergency.



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## Event Management

Harvard accommodates transportation demands related to athletic, commencement, and HBS events through police detail traffic control/management, parking demand management, temporary signage, etc.

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## Loading and Service

Figure 10 illustrates the location of the primary loading docks in the IMP area. These docks are located off City streets, allowing vehicles to make backing maneuvers within Harvard-owned property. They are accessed from campus streets that connect with either North Harvard Street or Western Avenue.

Two loading docks serve the Business School. The main loading dock is located off Batten Way next to the chilled water plant. This loading dock can accommodate single unit and tractor-trailer trucks. It is connected to a tunnel system that allows for distribution of goods and equipment throughout most of the Business School. A second loading dock is located at Kresge Hall and provides access to the building's kitchen.

Other existing loading docks are located at One Western and 219 Western Avenue. Goods delivery and service trucks also use campus streets to access campus buildings like Soldiers Field Park and athletics facilities.

# 3

## 2022 Future Conditions

To evaluate future roadway operations, traffic volumes in the study area were projected to the year 2022 (to reflect a 10-year planning horizon consistent with the IMP timeframe). The 2022 No-Build traffic volumes include all existing traffic, new traffic attributable to general background growth, and traffic generated by identified planned/approved developments in the area. Traffic volumes that are expected to be generated by the Ten-Year Plan were added to the No-Build traffic volumes to produce 2022 Build traffic volumes. In addition, roadway improvements currently under construction or planned to be completed within the planning horizon are taken into account when analyzing both future No-Build and Build Conditions.

Future pedestrian, bicycle, transit, parking, and loading/service improvements, both without and with the Ten-Year Plan are evaluated in detail below.

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### 2022 No-Build Conditions

The 2022 No-Build Condition includes planned roadway improvements in the study area, the projection of future traffic volumes, and future public transportation, pedestrian, bicycle, parking, and loading/service conditions not including the Ten-Year Plan projects and infrastructure improvements.



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### Vehicular Traffic

This section discusses the future conditions for vehicular traffic within the study area, independent of the Ten-Year Plan.

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## Planned Area Infrastructure Projects

There are several on-going or planned transportation improvement projects in the vicinity of Harvard's Allston Campus that will alter the existing infrastructure by 2022. These projects, and their potential impact on the future No-Build Condition, are described below. Where appropriate, improvements have been incorporated in the No-Build traffic analysis.

### Western Avenue at Telford Street

The proposed redevelopment of the Brighton Mills site includes reconfiguration of the existing driveways to accommodate the extension of Telford Street through the site. A traffic signal has been installed at the new four-way intersection of Western Avenue/Telford Street/Telford Street Extension and upon completion, the signal will be phased and timed to run as a coordinated system with an upgraded signal system at Western Avenue and Everett Street. These improvements have been incorporated in the existing conditions analysis as they were substantially complete at the time of this study's filing.

### MassDOT Accelerated Bridge Program (ABP) Improvements

As part of the MassDOT Accelerated Bridge Program, funding has been allocated to improving the conditions of seven structurally deficient bridges in the Lower Basin area of the Charles River, including three in the study area:

- **Anderson Memorial Bridge** – Rehabilitation of the Anderson Memorial Bridge is currently under construction and is scheduled to be complete in Fall 2014. Prior to the start of construction, the bridge provided two 10-foot lanes in each direction (northbound and southbound) and sidewalks on either side of the bridge. Based on the 100-percent design plans, the future cross-section will reduce the number of vehicle travel lanes to two lanes northbound and one lane southbound to provide 5-foot bicycle lanes in both directions. Additionally, all left-turns will be prohibited at the intersection of Anderson Memorial Bridge/JFK Street at Memorial Drive. Signal equipment will be upgraded and interconnections will be provided between the intersections. Signal timing/phasing improvements will be implemented on both sides of the bridge to accommodate the reduction in travel lanes and improve pedestrian conditions. Modifications to the delta islands and corner radii at the Soldiers Field Road intersections are also proposed to reduce pedestrian crossing times, enhance pedestrian access, and create larger waiting areas for pedestrians. To be consistent with the traffic analysis completed for the Functional Design Report (FDR)<sup>2</sup>, adjustments to the No-Build traffic volumes were made to account for



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<sup>2</sup> Rehabilitation of the Anderson Memorial Bridge Functional Design Report (FDR); Fay Spofford & Thorndike (FST); August 2010.



the left-turn restriction at Memorial Drive. No adjustments were made to the bridge volumes to account for the reduced southbound capacity and intersections were modeled as per the FDR analysis.

- **Western Avenue/River Street Bridges** - The Western Avenue Bridge is one-way westbound and provides three travel lanes of varying width and sidewalks on either side of the bridge. The River Street Bridge is one-way eastbound and provides three travel lanes of varying width and sidewalks on either side of the bridge. The future cross-section of both bridges will reduce the width of the three travel lanes to provide a 5-foot cycle track in the direction of travel. Signal equipment will be upgraded for all modes and signal timing/phasing improvements will be implemented on both sides of the bridges to improve coordination and operations, including interconnections among the intersections. The Western Avenue eastbound approach at the Soldiers Field Road eastbound off-ramp intersection will be reduced from two right-turn lanes to one right-turn lane to better direct vehicles and to improve pedestrian and bicycle refuge. Rehabilitation of these bridges is scheduled to be complete in Fall 2016.

### **Cambridge Street Bridge over I-90 Deck Reconstruction**

The Cambridge Street Bridge over I-90 is a median-divided two-way bridge with three vehicular lanes and seven to eight-foot sidewalks in each direction. MassDOT proposes to reconstruct the bridge deck and sidewalks. The final cross-section will include widened sidewalks, two vehicular lanes and a buffered bike lane in each direction from Linden Street to Lincoln Street. West of Linden Street, the westbound bicycle lane will transition to a shared use path. Eastbound bicycles will travel in a shared lane from Franklin Street/Harvard Avenue until the buffered bike lane begins east of Linden Street. Construction is anticipated to begin in Winter 2013/2014 and will last approximately two years.

### **Barry's Corner Residential and Retail Commons Project Site Access Improvements**

The Barry's Corner Residential and Retail Commons Project (RRCP) includes the construction of new roadways to provide site access and circulation:

- **"South Campus Drive"** - "South Campus Drive" (previously known as "Smith Field Drive" and "Smith Field Drive Extension") will be a one-way northbound street from Western Avenue to "Ivy Lane" and a secondary two-way driveway connection through the adjacent 175 North Harvard Street property to a full access intersection at North Harvard Street.
- **"Ivy Lane"** - "Ivy Lane" (previously known as "Grove Street") will be an east-west roadway between North Harvard Street and "South Campus Drive". Turns at the "Ivy Lane" intersection with North Harvard Street will be restricted to right-in/right-out operation to reduce conflicts at this location.

The design and operation of these roadways is consistent with the roadway network that is envisioned as part of Harvard's Ten-Year Plan for its campus in Allston (discussed below).

Additional improvements are proposed to the intersection of Western Avenue at North Harvard Street as part of the Barry's Corner RRCP:

- Lengthen the eastbound left-turn lane to 250 feet;
- Lengthen the southbound right-turn lane to 150 feet;
- Update the traffic signal timing, phasing and equipment at Barry's Corner;
- Convert exclusive pedestrian phasing to concurrent pedestrian crossings;
- Convert northbound left-turn phasing from permitted/protected to protected operation;
- Restrict southbound right from turning on red; and
- Provide vehicle detection on North Harvard Street approaches.

These improvements are reflected in the No-Build intersection analysis. Other pedestrian, bicycle, transit, and parking improvements included in the Barry's Corner RRCP mitigation commitments are discussed in detail in a subsequent section.

### **Franklin Street/Denby Road One-way Pair**

The creation of a one-way pair out of Denby Road and Franklin Street is included as part of mitigation for the New Brighton Landing redevelopment project. Franklin Street will be converted to one-way northbound from its intersection with Cambridge Street. This change to the roadway network is reflected in the No-Build analysis at the intersection of Cambridge Street at Franklin Street/Harvard Avenue.

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## **2022 No-Build Traffic Volumes**

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. A frequently used procedure is to estimate an annual percentage increase and apply that increase to study-area traffic volumes. An alternative procedure is to identify estimated traffic generated by specific planned major developments that would be expected to affect the IMP study area roadways. For the purpose of this assessment, *both* methods were utilized to provide a conservative estimate of future traffic conditions.



## Historical Traffic Growth

Through discussions with BTD and based on historical data, it was determined that a 0.25 percent annual growth rate would be appropriate for this area for a ten-year timeframe. This annual growth rate was applied to existing traffic volumes. Based on the seasonally adjusted data (provided in the Technical Appendix), peak hour traffic volumes grew, on average, by approximately 0.4 percent per year on study area roadways between 2008 and 2012, confirming this assumption. The annual growth rate is attributed to regional traffic volume increases and the possibility of traffic growth resulting from currently unknown developments in the next ten years.

## Site Specific Growth

In addition to accounting for historical background growth, traffic associated with the following planned and/or approved developments near the site were considered. The locations of these background projects are depicted graphically in Figure 11. Trip generation information for the background projects is included in the Technical Appendix.

- **Science Project (formally referred to as the Allston Science Complex)** – The previously approved Science Project includes approximately 500,000 – 600,000 square feet (sf) of scientific research and educational space, occupied by 1,000 employees. The site is located south of Western Avenue and approximately 500 feet east of Travis Street. Trip generation estimates for this project are based on information presented in the *Science Complex Draft Project Impact Report (DPIR)*, completed in September 2006.
- **Charlesview Redevelopment** – The project consists of the redevelopment of vacant retail space at the existing Brighton Mills development into 240 apartments, 20 condominiums, and 19,000 sf of mixed use space (retail, office, and community space); and the redevelopment of office space along Telford Street into 80 condominiums. The majority of the apartment units (213 out of 240 new) will be relocated from the existing Charlesview complex, currently located north of Western Avenue and east of North Harvard Street. Trip generation estimates for this project are based on information presented in the *Charlesview Redevelopment Complete Streets Analysis* memorandum, a supplemental document to the *Charlesview Redevelopment DPIR*, submitted in July 2009. Traffic associated with the existing Charlesview complex was removed from the existing network, while trips associated with the relocation/redevelopment project were added to the network.

- **New Brighton Landing (New Balance)** – This project consists of the redevelopment of existing office and industrial/warehouse space into a new world headquarters office building for New Balance, office, hotel, a sports complex, fitness club, medical office and supporting retail and restaurant space totaling approximately 1.4 million square feet. The site is located north and south of Guest Street, adjacent to the existing New Balance headquarters. Trip generation estimates for New Brighton Landing are based on information presented in the *New Brighton Landing Expanded PNF*, completed in May 2012.
- **Swiss Bakers** – This project consists of the redevelopment of 168 Western Avenue; the site was previously occupied by a car dealership. The project opened after the April 2012 data collection effort so trips associated with this site are not included in the Existing Conditions analysis. The redevelopment includes a 14,000 sf commercial bakery, of which approximately 12,000 sf is dedicated to bakery production activities and 2,000 sf is a café/retail bakery with 90-100 seats. Trip generation estimates for the redevelopment are based on standard Institute of Transportation Engineers (ITE) rates for a warehouse (bakery production component) and a high-turnover sit-down restaurant (café component).
- **Barry's Corner RRCP** – This project consists of the redevelopment of 219 Western Avenue, a Harvard University building into a mixed use development including approximately 325 residential apartment units and 45,000 square feet of retail space totaling approximately 350,000 square feet of space. Existing uses at the 219 Western Avenue site and the adjacent site also consisting of Harvard University offices will be relocated prior to construction of Barry's Corner RRCP. The majority of offices will be relocated to 28 Travis Street with the few remaining being relocated to 224 Western Avenue or other sites in Allston. Trip generation for this development is based on information presented in the *Barry's Corner Residential and Retail Commons Expanded PNF*, completed in December 2012.
- **28 Travis Street** – As mentioned previously, 28 Travis Street will accommodate Harvard uses displaced with the development of Barry's Corner RRCP at 219 Western Avenue and the adjacent site (141, 155, and 175 North Harvard Street). A total of approximately 61,000 square feet is being displaced and the vast majority of staff and employees from both sites will be relocated within the study area to 28 Travis Street. To account for this redistribution of traffic, peak hour site driveway counts and anticipated employment levels at 28 Travis Street were used to develop reasonable projections of potential traffic shifts. It should be noted that a small portion of staff/employees from the existing sites will be relocated to 224 Western Avenue or other facilities in Allston. Trips associated with these facilities would be minimal (less than 5 total peak hour trips) and therefore are not anticipated to impact peak hour traffic operations.

- **Tata Hall** – Tata Hall is currently under construction in the Allston campus and will support the Executive Education program. Comprising approximately 150,000 gross square feet and roughly 180 bedrooms at full build-out, the building will also include living group rooms as well as informal gathering spaces for socializing. Between 75-80 percent of Executive Education participants arrive on weekends, primarily on Sunday. The peak departure day is Friday between noon and 5PM. Weekday morning and evening peak hour trips associated with Tata Hall are expected to be minimal and therefore are not anticipated to impact peak hour traffic operations.

The 2022 No-Build traffic volumes were developed by applying the 0.25 percent annual growth rate over the ten-year study horizon to the 2012 Existing Conditions traffic volumes and adding the traffic volumes associated with the site-specific background projects. Figures 12 and 13 present the resulting 2022 No-Build peak hour traffic volumes.



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## Pedestrians

Improvements to the pedestrian environment within the study area are planned as part of four projects:

- **Barry's Corner RRCP** – As part of the Barry's Corner RRCP, sidewalks will be reconstructed along Western Avenue and North Harvard Street adjacent to the project site and new sidewalks provided along "Ivy Lane" and "South Campus Drive" enhancing pedestrian connectivity between Western Avenue, North Harvard Street and Smith Field.
- **MassDOT's ABP Improvements** – As part of MassDOT's ABP, the following improvements to the pedestrian network are planned:
  - **Anderson Memorial Bridge** – Rehabilitation of the Anderson Memorial Bridge includes reconstruction of the sidewalks and ramps from Soldiers Field Road to Memorial Drive. At the intersections on either side of the bridge, pedestrian signal equipment will be upgraded and signal timing/phasing improvements will include concurrent phasing, increased clearance intervals, and lead pedestrian intervals. Modifications to the delta islands and corner radii at the Soldiers Field Road intersections are also proposed to reduce pedestrian crossing times and enhance pedestrian access and corner storage.
  - **Western Avenue/River Street Bridges** –The Western Avenue and River Street Bridges project includes reconstruction of the sidewalks and ramps from Soldiers Field Road to Memorial Drive across both bridges. Signal equipment will be upgraded to provide countdown pedestrian timers at all intersections with concurrent pedestrian phasing and increased clearance

intervals. The project will also reduce curb radii at the River Street/Western Avenue intersections with Soldiers Field Road and Memorial Drive, improving pedestrian storage and access. Of note are the planned improvements at the intersection of Western Avenue and the Soldiers Field Road eastbound off-ramp discussed previously. To further improve bicycle and pedestrian conditions, the project includes the removal of one of the I-90 ramps at the corner of Cambridge Street and Soldiers Field Road and realignment of the I-90 on-ramp from Soldiers Field Road.

- **Cambridge Street Bridge over I-90** – The Cambridge Street bridge over I-90 project includes widened sidewalks from Franklin Street/Harvard Avenue to Lincoln Street.
- **Weeks Bridge** – Accessibility improvements and structural repairs to the Weeks Bridge are being planned by DCR. The repairs will improve conditions for pedestrians and include new approach paths, modification to the bridge profile, and accessibility-compliant railings. This project is anticipated to be complete in 2015.



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## Bicycles

Improvements to the bicycle environment within the study area are planned as part of several projects:

- **Barry's Corner RRCP** – As part of the Barry's Corner RRCP, bicycle accommodations will be provided along "South Campus Drive". Additionally, a westbound bicycle lane will be striped on Western Avenue from North Harvard Street to "South Campus Drive". Surface bicycle parking will be provided on site and the Hubway station will be relocated adjacent to the site.
- **Charlesview Redevelopment** – Bicycle accommodations are proposed along Western Avenue in the vicinity of the Brighton Mills redevelopment site. These improvements will be coordinated with the City as part of the proposed bicycle improvements on Western Avenue west of Barry's Corner.
- **MassDOT's ABP Improvements** – As part of MassDOT's ABP, the following improvements to the bicycle network are planned:
  - **Anderson Memorial Bridge** – Rehabilitation of the Anderson Memorial Bridge includes northbound and southbound bicycle lanes on the bridge and on the Soldiers Field Road overpass. These bike lanes will complement the existing bike lanes on North Harvard Street and the planned bike lanes on JFK Street by the City of Cambridge. At the completion of these projects, bicycles will have dedicated facilities from Allston to Harvard Square.

- **Western Avenue/River Street Bridges** –The Western Avenue and River Street Bridges project includes the construction of a 5-foot (minimum) off-street cycle track in the direction of travel across both bridges and on the Soldiers Field Road overpasses. An eastbound cycle track will also be provided on the Western Avenue Soldiers Field Road overpass (opposite the direction of vehicular travel) to facilitate connections to the Charles River path. A 2-foot wide buffer will separate bicyclists from vehicular traffic. The Western Avenue cycle track will supplement the existing westbound bicycle lane in Allston and the planned cycle track in Cambridge (currently under construction). The River Street cycle track will connect to a planned cycle track on Cambridge Street by the City of Boston (discussed below). On the Cambridge side of the river, the River Street cycle track will transition to a shared bicycle lane. MassDOT is considering installation of dedicated bicycle signals for cycle track users on both the Western Avenue and River Street Bridges.
  
- **Cambridge Street Bridge over I-90** – MassDOT proposes to reconstruct the bridge with two lanes in each direction, replacing two of the travel lanes with buffered bike lanes. The bike lanes will be six foot wide, with a three foot buffer between the bike lane and the travel lane from Linden Street to Lincoln Street. West of Linden Street, the westbound bicycle lane will transition to a shared use path. Eastbound bicycles will travel in a shared lane from Franklin Street/Harvard Avenue until the buffered bike lane begins east of Linden Street.
  
- **Weeks Bridge** – The planned repairs to the Weeks Bridge will improve conditions for bicyclists by reconstructing the approach paths and replacing the stairs with ramps that would facilitate bicycle access.
  
- **City of Boston Improvements** – Boston’s Bike Network Plan includes an array of proposed improvements to build on recent actions and create a robust and well-connected bike network. The following improvements to the bicycle network are planned by the City of Boston:
  - **Western Avenue** – During the upcoming construction season, the City plans to install bike lanes and “Sharrows” (i.e., shared lane markings) on Western Avenue west of Barry’s Corner where the roadway is not wide enough for bike lanes in both directions.
  - **Cambridge Street** – The City plans to install buffered bike lanes on Cambridge Street in coordination with the MassDOT bridge projects.
  - Other improvements proposed in the Bike Plan are an “advisory” lane on Everett Street, from North Beacon Street to Western Avenue and traffic calming and possible bike wayfinding signage on Franklin Street to upgrade it to a bicycle “Neighborway.”



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## Transit

There are several planned transit-related improvements within or adjacent to the study area, as described below.

- **MBTA Key Bus Routes Program** – The MBTA Key Bus Route Improvement Program seeks to improve the overall quality of service on 15 bus routes in the system, including Route 66 in the study area. Specific improvements include relocating or consolidating bus stops along the route, including stops in the vicinity of Barry’s Corner and along Cambridge Street, in an effort to improve operations. Implementation of these improvements is scheduled for Summer 2013. It is anticipated that improvements at Barry’s Corner as part of the Barry’s Corner RRCP will be coordinated with this MBTA program to achieve optimal bus stop locations.
- **New MBTA Commuter Rail Station** – As part of the New Brighton Landing redevelopment project, a new station will be constructed on the Framingham-Worcester commuter rail line adjacent to the project. The station will be accessible from Guest Street and Everett Street. Initial service plans include two inbound stops in the morning and two outbound stops in the evening. The station is anticipated to be open in 2014.



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## Parking

This section discusses changes to the off-street institutional and on-street parking supply under the 2022 No-Build Condition.

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### Off-Street Institutional Parking

There are two changes to Harvard’s off-street institutional parking supply under the No-Build Condition:

- **28 Travis Street** – Campus services functions and 75 institutional parking spaces will be relocated from 219 Western Avenue/175 North Harvard Street to 28 Travis Street.
- **219 Western Avenue** – As part of the Barry’s Corner RRCP, 45 spaces in the 219 Western Avenue lot will be relocated to the 175 North Harvard Street parking lot that was previously used by service vehicles.

- ▶ **Science Project** – This project was approved for the construction of a 350-space on-site parking garage and 150 spaces in an at-grade parking lot across Western Avenue.

With these modifications, the Harvard institutional parking supply will change from 2,642 spaces under Existing Conditions to 3,142 spaces under No-Build Conditions.

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## On-Street Parking

The Barry’s Corner RRCP includes modifications to the on-street parking supply within the study area. The project will provide approximately 41 public short-term parking spaces along “Ivy Lane” and “South Campus Drive”, south of “Ivy Lane”. Up to an additional 13 spaces will be provided on “South Campus Drive”, north of “Ivy Lane”. The project also proposes modifications to the on-street parking supply in the vicinity of Barry’s Corner.



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## Loading and Service

One change to institutional loading and service facilities is anticipated as part of the No-Build Condition. The 28 Travis Street facility will include loading and service operations that will be accommodated internal to the project site. Three off-street loading docks will be provided along the southern side of 28 Travis Street. One of the three docks will be able to accommodate a WB-50 truck. Trucks will access and egress the site via a driveway to Rotterdam Street and will make all loading maneuvers within the site.

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## 2022 Build Traffic Conditions

The 2022 Build Condition contains projections of future transportation conditions in the study area with transportation demands generated by the Ten-Year Plan. This section includes the proposed campus circulation and parking access; displacement of existing trips; the projection and distribution of site-generated traffic volumes associated with the Ten-Year Plan; and proposed parking, transit, pedestrian, bicycle, and loading/service conditions.



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## IMP Projects with Transportation Effects

For the transportation Build analysis, only the projects that generate traffic, shift traffic, alter access/egress patterns, or change parking demand/supply are considered. All nine Ten-Year Plan projects are illustrated in Figure 14 and

summarized in Table 5; the four projects anticipated to affect the transportation system are highlighted.

**Table 5 Ten-Year Plan Projects Summary**

Project	Description/Use	Notes
HBS Chao Center (Kresge Replacement)	Dining, Administrative, Classrooms	Replacement of existing use No new traffic generation assumed
HBS Burden Replacement	Academic	Replacement of existing use No new traffic generation assumed
HBS Faculty & Administrative Office Building	Administrative	Project generates new traffic
Harvard Stadium Addition/Renovation	Athletics	No new seats; amenity upgrades only No new traffic generation assumed
Mixed Use Facility & Basketball Venue	Athletics, Residential, Retail	Project generates new traffic
Gateway Project	Administrative, Retail	Project generates new traffic
Hotel & Conference Center	Hotel	Project generates new traffic
HBS Baker Hall Renovation	Executive Education Residence Hall	Renovation of existing use No new traffic generation assumed
Soldiers Field Park Renovation	Residential	Renovation of existing use No new traffic generation assumed

Note: Highlighted cells indicate projects anticipated to affect the transportation system  
HBS Harvard Business School  
ksf 1,000 square feet

The transportation effects of the HBS Faculty & Administrative Office Building, Mixed Use Facility & Basketball Venue, Gateway Project, and Hotel & Conference Center are discussed in detail in subsequent sections. The remaining Ten-Year Plan projects are replacement and renovation projects and, therefore not expected to generate new traffic or parking demand and therefore are not included in the transportation assessment.



## Campus Access and Circulation

The Ten-Year Plan includes four new streets: “South Campus Drive” (formerly known as “Smith Field Drive”), “Ivy Lane” (formerly known as “Grove Street”), “Academic Way,” and “Science Drive”, shown graphically in Figure 14.



Boston's Complete Streets Guidelines will inform the design of all of these new streets. The streets will create new connections to Barry's Corner, link the proposed Greenway and Smith Field, support shuttle bus operations, and provide access to the proposed projects in the Ten-Year Plan, particularly those projects located near Barry's Corner. In addition, on-street parking is proposed along one or both sides of these streets.

As discussed previously, to facilitate the Barry's Corner RRCP, Samuels and Associates will construct "South Campus Drive" and "Ivy Lane". After the Charlesview site is cleared, "Academic Way" will be constructed between North Harvard Street and Western Avenue. This new street will enable Harvard to extend its shuttle system into Barry's Corner and will create new vehicular circulation options to relieve congestion at the intersection of Western Avenue and North Harvard Street (Barry's Corner). The remainder of "Academic Way" south of Western Avenue and "Science Drive" will be constructed as part of the Science project.



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## Trip Generation

To assess the impacts of the Ten-Year Plan, person trip estimates were based on standard rates from the Institute of Transportation Engineers (ITE) *Trip Generation*<sup>3</sup> and Harvard empirical data, where appropriate. The appropriate trip generation methodology for each project included in the Ten-Year Plan is shown in Table 6 and discussed further below. Only those projects anticipated to generate new peak hour trips are included in Table 6. Trip generation calculations are presented in the Technical Appendix.



<sup>3</sup> Trip Generation; Ninth Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.



**Table 6 Trip Generation Methodology**

Project	Trip Generation Methodology	Independent Variable	Component Size
HBS Faculty & Administrative Office Building	ITE Standard Rates LUC 710 - General Office	Square Feet	110,000 sf
Mixed Use Facility & Basketball Venue: Residential Component	Harvard Empirical Rates	Beds	500 beds
Gateway project: Office Component	ITE Standard Rates LUC 710 - General Office	Square Feet	250,000 sf
Mixed Use Facility & Basketball Venue and Gateway Project: Retail Components	ITE Standard Rates LUC 820 – Shopping Center	Square Feet	65,000 sf (total in both sites)
Hotel & Conference Center	ITE Standard Rates LUC 310 – Hotel	Rooms	200 rooms

LUC ITE land use code  
sf square feet

- **Office - ITE LUC 710 “General Office”:** Initial person trip generation estimates for the HBS Faculty & Administrative Office Building and office component of the Gateway project were developed using ITE standard rates for a general office building. This approach was taken given the anticipated size and population of the projects.
- **Residential - Harvard Empirical Data:** The residential component of the Mixed Use Facility & Basketball Venue is anticipated to accommodate institutional affiliate/graduate student housing. Harvard empirical data regarding peak hour arrival/departure patterns for existing graduate students on the Allston campus was used to develop trip generation estimates for this facility.
- **Retail shops - ITE LUC 820 “Shopping Center”:** While the proposed street-oriented retail shops in the Mixed Use Facility & Basketball Venue and Gateway Project more closely match ITE’s definition of a “Specialty Retail Center” there are only limited data available for that land use code (LUC 814). Accordingly, initial trip generation estimates for the 65,000 sf of general retail space were conducted using ITE’s shopping center trip generation rates. Trips for both projects were generated together to account for the potential of shared trips between the retail uses on both sites.
- **Hotel - ITE LUC 310 “Hotel”:** Initial trip generation estimates for the Hotel & Conference Center were developed using ITE standard rates for a hotel. This approach was deemed appropriate given the anticipated size and operations of the proposed project.

## Mode Share and VOR

After the initial calculation of the person trip generation using ITE and Harvard empirical data, further adjustments were made to account for local mode share. These mode shares were derived following guidelines by the Boston Transportation Department for individual city zones, supplemented by Harvard empirical data where appropriate and noted. This mode-share calculation is critical to the evaluation of overall Plan-related transportation impacts as there will be a mixture of automobile travel to the Ten-Year Plan projects, along with residents, employees, and customers that utilize public transit or walk and/or bike. The Allston Campus lies within Zone 17 and, where appropriate, mode share data for this zone was utilized as shown in Table 7 below.

**Table 7 Mode Share Assumptions**

Time Period/Direction	Office <sup>a</sup>			Residential <sup>b</sup>			Retail <sup>a</sup>			Hotel <sup>a</sup>		
	Vehicle	Transit	Walk/ Bike	Vehicle	Transit	Walk/ Bike	Vehicle	Transit	Walk/ Bike	Vehicle	Transit	Walk/ Bike
Weekday Daily	69%	12%	19%	23%	39%	38%	52%	8%	40%	52%	8%	40%
Weekday Morning Peak Hour												
Enter	59%	18%	23%	23%	39%	38%	43%	11%	46%	43%	11%	46%
Exit	65%	12%	23%	23%	39%	38%	47%	7%	46%	47%	7%	46%
Weekday Evening Peak Hour												
Enter	65%	12%	23%	23%	39%	38%	47%	7%	46%	47%	7%	46%
Exit	59%	18%	23%	23%	39%	38%	43%	11%	46%	43%	11%	46%

a Access Boston Mode Share by Purpose and Time of Day for Area 17: Allston

b Harvard empirical data

Vehicle activity was further evaluated by considering local vehicle occupancy rates (VOR). The VOR were derived from the 2000 U.S. Census and the 2009 National Household Travel Survey, and are consistent with other recent studies in the area. A VOR of 1.1 was utilized for the office component and a VOR of 1.8 was utilized for the retail and hotel components of the Ten-Year Plan. For the residential component of the Mixed Use Facility & Basketball Venue, a VOR of 1.0 was assumed.

Table 8 summarizes the resulting gross trips, by mode for the Ten-Year Plan. The vehicle trip generation estimates shown in the table are before any credits are taken for shared or pass-by trips as discussed below.

**Table 8 Ten-Year Plan Gross Trip Generation by Mode**

Direction	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips
Weekday Daily <sup>1</sup>	14,890	5,660	2,160	4,970
Weekday Morning Peak Hour <sup>2</sup>				
Enter	780	350	135	225
Exit	<u>235</u>	<u>85</u>	<u>30</u>	<u>85</u>
Total	1,015	435	165	310
Weekday Evening Peak Hour <sup>2</sup>				
Enter	445	155	50	180
Exit	<u>860</u>	<u>360</u>	<u>140</u>	<u>285</u>
Total	1,305	515	190	465

1 expressed in trips per day

2 expressed in trips per hour

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## Shared Vehicle Trips

Given the mixed-use nature of projects in the Ten-Year Plan, there will be some degree of shared business between the components. While these shared trips represent new traffic to the individual uses, they would not show up as new vehicle trips on the surrounding roadway network. An example of this might be an employee of the office component of the Gateway project who shops at the retail component of that project on his or her lunch break. The trips between the office and the retail would be considered a new trip – but since it is contained within the site, there is no impact to the adjacent roadway system. Internal capture rates were developed based on recommended National Cooperative Highway Research Program (NCHRP)<sup>4</sup> guidelines for trips between the office component of the Gateway project and the retail components of the Ten-Year Plan. No shared trip credits were taken for the Hotel & Conference Center given its distance from the retail uses.

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## Pass-By Vehicle Trips

Not all of the traffic generated by the retail components of the Ten-Year Plan will be new to the area roadways. A portion of the vehicle-trips generated by the retail land uses will likely be drawn from those motorists already on the roadways adjacent to the sites that are ‘attracted’ to the services being offered at the sites as they are passing through the area. The primary origin and destination for these trips is elsewhere and the primary trip will be resumed following the visit to the retail



<sup>4</sup> NCHRP Report 684: Enhancing Internal Trip Capture Estimation for Mixed Use Developments; TRB; 2011.



components. For this evaluation, a 25-percent pass-by rate was assumed, though ITE data indicate that a greater occurrence of pass-by traffic is possible for retail uses.

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## Displaced Uses

The Basketball Venue & Mixed Use Project site is currently occupied by approximately 13,500 gross square feet of Harvard University uses in three separate buildings (i.e., 141, 155 and 175 North Harvard Street). The staff and employees from these sites and the adjacent 219 Western Avenue site are being relocated within the study area to 28 Travis Street as part of the development of 2022 No-Build traffic volumes. All trip associated with 28 Travis Street were redistributed to Academic Way to account for a revised driveway location under the 2022 Build Condition.

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## Science Project

Consistent with the Work Team recommendations of June 2011, the Science project is being re-designed to maximize available square footage for science. Currently, the University is advancing a program that includes the anchoring presence of the substantial majority of the School of Engineering and Applied Sciences, as well as a significant area of flexible lab space dedicated to cross-faculty collaborations and experiments. The building occupants will include faculty, students and staff of the School of Engineering and Applied Sciences (SEAS). There will be a larger teaching and undergraduate presence than was included in the previous project. The building will include a mix of wet and dry lab experimentalists, as well as applied mathematicians and theorists. The building at 114 Western Avenue may be used for SEAS offices and research space as well as other institutional offices and academic uses, including research, and activities similar to the i-lab. The existing 114 Western Avenue parking lots are planned to be expanded from 178 spaces to 210 spaces. The project may include below-grade parking.

To be conservative, the project was evaluated in its entirety, including a below-grade parking garage that would be comparable to the garage in the previously approved project (i.e., 350 parking spaces). In order to account for the change in program from the previously approved project, the following steps were taken to account for the Science project in the Build Condition:

- Trips associated with the previously approved Science project (discussed in detail previously) were removed from the traffic volume networks;
- Trips associated with the existing uses at 114 Western Avenue were removed from the network based on driveway counts conducted in June 2013 (included in the Technical Appendix); and
- Trips associated with the elements in the current Science project were generated and assigned to the network (as discussed below).



Trip estimates for the Science project were based on standard rates from the Institute of Transportation Engineers (ITE) *Trip Generation*<sup>5</sup> and Harvard empirical data, where appropriate:

- **Academic Component - Harvard Empirical Data:** The academic component of the Science project is anticipated to accommodate faculty/staff and graduate students. Harvard empirical data regarding peak hour arrival/departure patterns for existing faculty/staff and graduate students on the Allston campus were used to develop trip generation estimates for this component. Additionally, mode share data from the existing School of Engineering and Applied Sciences for each potential population were utilized to assign trips to the various modes.
- **Lab Space - ITE LUC 760 "Research & Development":** Initial trip generation estimates for the lab space component of the Science project were developed using ITE standard rates for a research and development facility. This approach was deemed appropriate given the anticipated size and population of this component. The mode shares presented in Table 7 for the office components of the Ten-Year Plan were deemed appropriate for this use and were used to assign trips to the various modes.

The resulting trip generation estimates for the Science project are included in the Technical Appendix. The current project is anticipated to generate approximately 2,110 weekday daily vehicle trips. Of this total, it is estimated that approximately 310 vehicle trips (270 entering/40 exiting) during the weekday morning peak hour and 310 trips (30 entering/ 280 exiting) during the weekday evening peak hour would be generated.

As discussed previously, the current Science project would displace existing 114 Western Avenue trips (approximately 80 weekday morning and 55 weekday evening vehicle trips). Therefore, the new peak hour vehicle trips generated by the current Science project are approximately 230 during the weekday morning and 255 during the weekday evening. This is comparable to the previously approved Science project which was projected to generate 230 weekday morning peak hour vehicle trips and 220 weekday evening peak hour vehicle trips.



<sup>5</sup> Trip Generation; Ninth Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.

## Trip Generation Summary

As shown in Table 9, the Ten-Year Plan and the Science project are estimated to generate approximately 7,410 weekday daily vehicle trips. Of this total, it is estimated that approximately 725 vehicle trips (610 entering/115 exiting) during the weekday morning peak hour; and 785 trips (165 entering/ 620 exiting) during the weekday evening peak hour would be generated. Not all of these trips will be new to the study area. As shown in Table 9, when adjusted for trips from the previously approved Science project and 114 Western Avenue, the net new trip generation is anticipated to be 415 weekday morning peak hour vehicle trips and 510 weekday evening peak hour vehicle trips.

**Table 9 Vehicle Trip Generation Summary**

	A	B	C = A + B	D	E	F = C - D - E
Direction	Ten-Year Plan Projects	Current Science Project	New Trips	Previous Science Project	114 Western Avenue	Net New Trips
Weekday Daily <sup>1</sup>	5,300	2,110	7,410	1,480	570 <sup>3</sup>	5,360
Weekday Morning Peak Hour <sup>2</sup>						
Enter	340	270	610	200	55	355
Exit	<u>75</u>	<u>40</u>	<u>115</u>	<u>30</u>	<u>25</u>	<u>60</u>
Total	415	310	725	230	80	415
Weekday Evening Peak Hour <sup>2</sup>						
Enter	135	30	165	20	15	130
Exit	<u>340</u>	<u>280</u>	<u>620</u>	<u>200</u>	<u>40</u>	<u>380</u>
Total	475	310	785	220	55	510

1 expressed in vehicle trips per day

2 expressed in vehicle trips per hour

3 Daily trip generation estimates for 114 Western Avenue based on ratio of daily and peak hour trip generation for ITE LUC 710



## Vehicular Traffic

This section discusses the distribution and assignment of vehicle trips to the study area network to develop the 2022 Build Condition traffic volumes. New streets included as part of the Ten-Year Plan have been discussed in a previous section.

## Vehicular Trip Distribution and Assignment

Due to the varying trip characteristics of the Ten-Year Plan uses – residential, Harvard-affiliated, and retail – each use is expected to experience a different distribution pattern. Thus, regional trip distribution percentages were calculated separately for each of the Ten-Year Plan projects based on anticipated population

characteristics. The more localized trip distribution (i.e., site access) was developed based on the anticipated parking and driveway access locations.

For residential and retail projects included in the Ten-Year Plan, Access Boston provides guidance regarding where area residents work and where area employees live to determine the directional distribution of the vehicular traffic approaching and departing the site. Using this data for Area 17, vehicle trips can then be assigned to the roadway network. This process was utilized to develop separate trip distribution patterns for residential and retail uses.

The populations of remaining projects in the Ten-Year Plan are anticipated to function similar to existing Harvard Allston employees. As such, vehicle trip distribution patterns for these uses were developed using 2012 employee zip code data for the Allston Campus provided by Harvard. The employee zip code data was adjusted for mode using data from the American Community Survey<sup>6</sup>, the 2010 DEP Rideshare Survey, and the 2012 PTDM Survey to derive automobile trips by town of origin. Each town of origin was assigned to a regional roadway and then to one of the campus gateways serving the study area. Employees assigned to each route were then aggregated to develop a vehicle trip distribution. Table 10 summarizes the vehicle trip generation methodology for each project in the Ten-Year Plan. A summary of the results is presented in Table 11, and is shown graphically in Figure 15. Trip distribution calculations are presented in the Technical Appendix.

**Table 10 Trip Distribution Methodology**

Project	Trip Distribution Methodology
HBS Faculty & Administrative Office Building	Harvard Empirical
Mixed Use Facility & Basketball Venue: Residential Component	Residential/Access Boston
Gateway project: Office Component	Harvard Empirical
Mixed Use Facility & Basketball Venue and Gateway project: Retail Components	Retail/Access Boston
Hotel & Conference Center	Harvard Empirical

▼  
<sup>6</sup> 2007-2011 American Community Survey 5-Year Estimate Means of Transportation (Mode Share) for home-based work trips



**Table 11 Vehicle Trip Distribution**

Roadway (from/to)	Trip Distribution		
	Residential <sup>1</sup>	Retail <sup>2</sup>	Harvard Empirical <sup>3</sup>
Western Ave (from west)	14%	15%	7%
Everett Street (from south)	12%	11%	5%
Cambridge Street (from west)	7%	7%	4%
Harvard Ave (from south)	6%	5%	3%
I-90 East	18%	21%	22%
I-90 West	6%	14%	16%
Soldiers Field Rd (from east)	14%	12%	15%
Western Ave (from east)	9%	5%	4%
North Harvard St (from north)	10%	5%	5%
Route 2 (from west)	<u>4%</u>	<u>5%</u>	<u>19%</u>
	100%	100%	100%

- 1 Based on Access Boston data for peak hour trips that begin in Zone 17 (residents)
- 2 Based on Access Boston data for peak hour trips that end in Zone 17 (workers)
- 3 Based on Harvard 2012 Employee Zip Code Data for the Allston Campus and 2007-2011 American Community Survey 5-Year Estimate Means of Transportation (Mode Share) for home-based work trips; Allston & Cambridge Mode Shares adjusted (2010 DEP Rideshare Survey & 2012 PTDM Survey data used, respectively)

Distribution of the Science project trips utilized Harvard empirical methodology given the nature of the anticipated uses.

The projected site-generated traffic volumes associated with the Ten-Year Plan and the re-envisioned Science project and the traffic shifts associated with the displacement of existing uses (discussed in a previous section) were added to/subtracted from the 2022 No-Build peak hour traffic volumes to develop the 2022 Build peak hour traffic volumes. The Ten-Year Plan and Science project site-generated traffic volume networks are presented in the Technical Appendix. The resulting 2022 Build traffic volumes are shown in Figures 16 and 17.




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## Pedestrians and Bicycles

This section discusses the future pedestrian and bicycle conditions in the study area inclusive of the Ten-Year Plan.

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### Pedestrian and Bicycle Improvements

As part of the Ten-Year plan, Harvard will continue to invest in new pedestrian and bike facilities that increase the density of the networks and improve the livability of

the area for residents, commuters and Harvard affiliates. In addition, the new facilities will improve pedestrian permeability in the IMP area, link people with open space, and provide new low-stress cycling options. The proposed elements include:

- A new multi-use path along South Campus Drive that will accommodate pedestrians and bikes. The path will create a new off-street cycling route around Barry's Corner with access to Smith Field. This facility will be constructed by Samuels and Associates in coordination with the Barry's Corner RRCP.
- Pedestrian and bicycle facilities on Academic Way that will link Rena Park with Smith Field. Academic Way will create another route option to cycle around Barry's Corner.
- Upgrades to the Barry's Corner pedestrian realm, including publicly accessible open spaces, wide sidewalks with trees and outdoor chairs and tables, elimination of the traffic island on the northeast corner, and ground floor uses that engage and create a destination for pedestrians.
- New multi-use paths in Rena Park that will create a gateway to the park and the future Greenway.
- Upgrades to Western Avenue that include sidewalk reconstruction and formalization of the existing cycle track. The reconstructed sidewalks will improve connections to the existing HBS pathway system. New projects on Western Avenue (e.g., Science) that are adjacent to the existing cycle track will move it from the street to a section that is separated by curbing from the parking lane.
- Expansion of the Hubway stations as demand increases.
- Provisions of covered off-street bike parking and accessible public spaces that are convenient to building entrances.

Figure 18 graphically depicts the future bicycle conditions within the study area, showing how the Ten-Year Plan improvements complement the existing and planned future bicycle facilities.

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## Pedestrian and Bicycle Trips

As shown in Table 12, the Ten-Year Plan is expected to generate totals of approximately 310 and 465 walk/bicycle trips to and from the sites during the morning and evening peak hours, respectively. Access Boston data was used to determine an appropriate split for these walk/bike trips (included in the Technical Appendix). Based on this data, approximately 45 percent of trips would be walk trips and the remaining 55 percent would be bike trips. Trips by each mode were distributed based on the characteristics of that mode, discussed below.

**Table 12 Walk / Bike Trip Generation Summary**

Direction	Ten-Year Plan Projects
Weekday Daily <sup>1</sup>	4,970
Weekday Morning Peak Hour <sup>2</sup>	
Enter	225
Exit	<u>85</u>
Total	310
Weekday Evening Peak Hour <sup>2</sup>	
Enter	180
Exit	<u>285</u>
Total	465

- 1 expressed in person trips per day  
2 expressed in person trips per hour

### Pedestrian Trip Assignment

Peak hour pedestrian trip distribution is based in part on Access Boston guidance for walk/bike trips from/to Area 17. This distribution was refined to reflect the Harvard University employee population towns of origin more closely, such as those commuting from neighboring communities within close proximity to the study area (i.e. Cambridge) and existing and proposed pedestrian facilities. Table 13 shows the anticipated peak hour (commuter) distribution of walk trips (also included in the Technical Appendix). As would be expected, a significant number of trips, approximately 44-percent, are anticipated to originate from the south (residential neighborhood) and 27-percent would originate from the north (Cambridge).

**Table 13 Peak Hour Walk Trip Distribution**

Direction	Potential Routes	Trip Distribution
From west	Western Avenue	18%
From south	Everett Street, Franklin Street, North Harvard Street	44%
From east	Western Avenue	11%
From north	North Harvard Street/Anderson Bridge, Eliot Bridge, Weeks Bridge	27%
Total		100%

Source: Access Boston and Harvard empirical data

### Bicycle Trip Assignment

Of the walk/bike trips shown in Table 14, it is expected that approximately 55 percent would be bike trips. This equates to approximately 170 and 255 bicycle trips during the morning and evening peak hours, respectively.

Peak hour bicycle trip distribution is based in part on Access Boston guidance for walk/bike trips from/to Area 17. The distribution was refined for two reasons. Similar to the pedestrian adjustments, the bicycle distribution was refined to more closely reflect the Harvard employee population commuting patterns, such as those commuting from neighboring communities within close proximity to the study area (i.e. Cambridge). Second, the bicycle trip distribution considers existing and future planned bicycle facilities and how they may impact travel decisions. For example, planned improvements to the John Weeks Bridge make this an additional bicycle route that is not included in the vehicle distribution. Table 14 shows the anticipated peak hour (commuter) bicycle trip distribution, also included in the Technical Appendix.

**Table 14 Peak Hour Bicycle Trip Distribution**

Route (Direction)	Trip Distribution
Western Avenue (from west)	20%
Everett Street (from south)	9%
Cambridge Street (from south)	15%
Soldiers Field Road multiuse path (from east)	9%
Western Avenue/River Street (from east)	3%
John Weeks Bridge (from east)	15%
North Harvard Street (from north)	9%
<u>Eliot Bridge (from west)</u>	<u>20%</u>
Total Bicycle Distribution	100%

Source: Access Boston and Harvard empirical data

Bicycle trips generated by the Ten-Year Plan were distributed across these routes for the morning and evening peak hours. Bicycle trips generated by the Barry’s Corner RRCP and the Science project were also distributed across these routes. Bicycle trips associated with other background projects are anticipated to be negligible within the study area. No-Build bicycle volumes were comprised of grown bicycle volumes and Barry’s Corner RRCP trips. Build volumes were comprised of No-Build volumes, Ten-Year Plan trips, and Science project trips. These future bicycle trips were used in the bicycle operations analysis discussed in a subsequent section.




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## Transit

This section discusses the future transit conditions in the study area with the Ten-Year Plan.

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## Transit Improvements

The Ten-Year Plan includes several improvements to transit and shuttle service within the study area. Consolidating and relocating bus stops helps to reduce delay, address bus bunching, and improve service reliability. The proposed relocation of



bus stops in Barry's Corner and the elimination of several stops next to the existing Charlesview site are consistent with this approach. The new stops will be located next to paths and crosswalks to facilitate connections to the campus and neighborhood.

The Ten-Year Plan includes expansion of Harvard's shuttle bus service into Barry's Corner and increased service between Harvard Square and Barry's Corner. The shuttle system will serve Harvard affiliates including undergraduates, graduate student, staff and faculty. Neighborhood residents and Barry's Corner RRCF employees will also be allowed to use the shuttle.

Today, Harvard's Allston Express operates as a one-way loop that originates at the Soldiers Field Park Garage and travels as far north as the North Campus in Cambridge. The construction of Academic Way creates the opportunity to extend the existing Allston Express service into Barry's Corner. The shuttle buses would no longer travel on Batten Way and Gordon Road. After leaving the Soldiers Field Park Garage stop, buses would travel on Western Avenue then turn onto Academic Way to a new Barry's Corner stop before continuing onto North Harvard Street.

As part of the Ten-Year Plan, the Allston Express service would be supplemented by a new shuttle bus route in Allston. The Harvard Square Express would travel along North Harvard Street, making stops at Barry's Corner, Cotting Hall, Eliot Street in Cambridge and Harvard Square., as shown in Figure 19. A new loop roadway would be created within the former Charlesview site to connect North Harvard Street with Academic Way and accommodate the shuttle route at Barry's Corner. The shuttle is anticipated to run at approximately 10-minute headways. This additional route will provide convenient travel between the Cambridge and Allston campuses and connect to additional transit routes in Harvard Square. The route adds transit capacity at a time when new transit trips are being generated on the Allston Campus. Additionally, as a benefit to the community, this shuttle will be available to Allston residents free of charge to provide transportation to Harvard Square and the MBTA Red Line.

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## Transit Trip Assignment

As discussed previously, the transit modes share presented in Table 7 are expected to account for a notable portion of trips for the projects included in the Ten-Year Plan. The Ten-year Plan program is expected to generate 165 new transit trips (135 entering, 30 exiting) during the AM peak hour and 190 new transit trips (50 entering, 140 exiting) during the PM peak hour as shown in Table 15.

**Table 15 Transit Trip Generation Summary**

Time Period/Direction	Ten-Year Plan Projects
Weekday Daily <sup>2</sup>	2,160
Weekday Morning Peak Hour <sup>3</sup>	
Enter	135
Exit	<u>30</u>
Total	165
Weekday Evening Peak Hour <sup>2</sup>	
Enter	50
Exit	<u>140</u>
Total	190

1 expressed in person trips per day  
 2 expressed in person trips per hour

Transit distribution was completed using 2012 employee zip code data for the Allston Campus provided by Harvard. Each town of origin was assigned to a MBTA regional transit route(s) and then to one of the five MBTA bus routes or two Harvard shuttle routes serving the study area. Employees assigned to each route were then aggregated to develop a transit trip distribution, shown in Table 16. This distribution includes both Harvard shuttles: Allston Express and Harvard Square Express. Transit trip distribution calculations are included in the Technical Appendix.

**Table 16 Transit Trip Distribution**

	Entering	Exiting
Route 66	29%	26%
Route 86	21%	18%
Route 70	16%	16%
Route 70A	10%	10%
Route 64	<1%	<1%
Allston Express	0%	7%
Harvard Square Express	23%	23%

Source: Based on Harvard 2012 Employee Zip Code Data for the Allston Campus

There is no clear route that serves a majority of trips to the study area. Route 66 and Route 86 each serve large segments of the Boston and Cambridge communities, which make them desirable transit options. The MBTA Red line is the closest subway stop to the study area. As such, it serves as the terminus for all subway and commuter rail trips to the study area, many of which will transfer to the Harvard Square Express to reach the study area. The Allston Express shuttle is not expected to serve as many trips as the Harvard Square Express shuttle due to the lower frequency of shuttles and the directionality of the route.

Transit trips generated by the Ten-Year Plan were distributed across these transit routes resulting in the trips shown in Table 17 for the morning and evening peak hours.

**Table 17 Project-Generated Transit Trips by Line**

	Morning Trips		Evening Trips	
	Entering	Exiting	Entering	Exiting
Route 66	39	8	15	36
Route 86	29	5	11	25
Route 70	21	5	8	22
Route 70A	14	3	5	14
Route 64	1	0	0	1
Allston Express	0	2	0	10
<u>Harvard Square Express</u>	<u>31</u>	<u>7</u>	<u>11</u>	<u>32</u>
<b>Total</b>	<b>135</b>	<b>30</b>	<b>50</b>	<b>140</b>

Transit trips generated by the Barry’s Corner RRCP and the Science project were also distributed across these routes. These projects would have direct impacts on ridership levels on the routes serving the IMP area. In addition to trips associated with specific projects, some existing trips generated by the Allston neighborhood may shift from the Route 66 or Route 86 MBTA bus service to the Harvard Square Express service, which will be available to the neighborhood free of charge. Based on MBTA ridership data, approximately 35-40 peak hour neighborhood transit trips could shift from the MBTA bus routes to the Harvard Square Express.




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## Parking

The Ten-Year Plan includes 3,807 off-street institution parking spaces, as summarized in Table 18 and in Figure 20. The new spaces will accommodate parking demand from four IMP projects: HBS Faculty & Administrative Office Building, Mixed Use Facility & Basketball Venue, Gateway project, and Hotel & Conference Center. Other uses in the Ten-Year Plan involve renovation and replacement projects that will not require new parking.

**Table 18 Future Off-Street Institutional Parking Supply**

Institutional Parking	Number of Spaces	
	Existing/Approved	Ten-Year Plan
219 Western Ave./175 N. Harvard St	45 spaces	
Teele Hall	111 spaces	111 spaces
Athletics	241 spaces	241 spaces
Spangler Lot	675 spaces	675 spaces
Soldiers Field Park Garage	645 spaces	645 spaces
One Western Ave.	617 spaces	617 spaces
25 Travis St.	55 spaces	55 spaces
1230 Soldiers Field Road	58 spaces	58 spaces
i-lab	120 spaces	120 spaces
28 Travis Street	75 spaces	75 spaces
Science <sup>1</sup>	500 spaces	350 Spaces
114 Western Avenue		210 spaces
Basketball Venue and Mixed Use Project		275 spaces
Future Academic District (surface lots) <sup>2</sup>		250 spaces
Hotel/Conference Center <sup>3</sup>		125 spaces
<b>Total Institutional Parking Supply</b>	<b>3,142 spaces</b>	<b>3,807 spaces</b>
Total Non-Institutional Parking Supply <sup>4</sup>	510 spaces	-
<b>Total</b>	<b>3,652 spaces</b>	<b>3,807 spaces</b>

1 Existing/Approved includes previously approved on-site and off-site parking; Ten-Year Plan includes previously approved on-site parking only.

2 Includes 150 surface spaces on the Charlesview site and 100 surface spaces on an Ohiri Field site next to HBS Central Loading.

3 These spaces may be non-institutional parking spaces depending on the hotel programming.

4 Includes 114 Western Avenue (178 spaces), Charlesview (230 spaces), and 135 Western Avenue (102 spaces).

In addition to off-street institutional parking, the Ten-Year Plan is anticipated to create approximately 50-60 new on-street parking spaces along Academic Way. Additionally, 40-50 on-street parking spaces could be realized related to potential improvements along North Harvard Street and/or Western Avenue. All new on-street parking would be designed in coordination with BTM.





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## Loading and Service

The IMP projects will include loading facilities to accommodate goods delivery and waste/recycling removal. It is anticipated that each building will have its own loading facility that will be accessed from a campus roadway. The proposed Business School projects are near the existing service tunnel system that is connected to the Central Loading Facility near Batten Way. To the extent practical, these Business School facilities will be connected to the tunnel system. Harvard will work with BTM to review loading facilities as the projects pass through the BRA's Article 80 review process.

# 4

## Transportation Operations Analysis

Measuring existing transportation demands and projecting future demands quantifies traffic within the study area. To assess quality of flow, transportation capacity analyses were conducted with respect to the 2012 Existing Conditions and projected 2022 No-Build and Build traffic volume conditions. Capacity analyses provide an indication of the adequacy of the transportation facilities to serve the anticipated demands. This transportation operations analysis is a multimodal analysis quantifying operations across modes for vehicles, pedestrians, bicycles, and transit routes serving the study area.

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### Vehicular Operations Analysis

Levels-of-service analyses were conducted for the 2012 Existing, 2022 No-Build, and 2022 Build Conditions for the signalized and unsignalized study-area intersections. Prior to conducting capacity analysis for the 2022 Build Condition, traffic signal warrant analyses were performed for the intersections of North Harvard Street at Academic Way and Western Avenue at Academic Way.



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### Signal Warrant Analyses

Two new intersections will be created as part of the Ten-Year Plan: North Harvard Street at Academic Way and Western Avenue at Academic Way. At each of these locations, a traffic signal warrant analysis was performed. The Manual on Uniform Traffic Control Devices (MUTCD)<sup>7</sup> lists specific criteria, or warrants, for the consideration of installation of a traffic signal at an intersection. The MUTCD also notes that, “the satisfaction of a traffic signal warrant or warrants shall not, in itself, require the installation of a traffic control signal.”



<sup>7</sup> MUTCD, Part 4 – Highway Traffic Signals, USDOT/FHWA, December 2009.



The MUTCD defines nine warrants that should be evaluated to determine if traffic signal installation could be appropriate. Given that these intersections are not existing locations, only Warrant 3: Peak Hour Volume was able to be fully evaluated. The results of this evaluation using the 2022 Build traffic volumes are summarized in Table 19. Signal warrant worksheets are included in the Technical Appendix.

**Table 19 Signal Warrant Analysis Summary**

Intersection	Warrant 3: Peak Hour Volume Met?	
	AM Peak Hour	PM Peak Hour
North Harvard Street at Academic Way	No	Yes
Western Avenue at Academic Way	No	No

Source: 2009 MUTCD

As shown in Table 19, the intersection of North Harvard Street at Academic Way meets Warrant 3 during the evening peak hour only under 2022 Build Conditions. If this intersection were unsignalized, the minor street approaches (Academic Way) would operate at LOS F during both peak hours. As such, it was modeled as a signalized intersection in the 2022 Build capacity analysis presented herein. Prior to installation of a traffic signal, the intersection would need to be fully evaluated with updated traffic volume data to confirm that warrant(s) were still met. In addition, the signal would require appropriate approvals from BTM prior to installation. The intersection of Western Avenue at Academic Way does not meet Warrant 3 and therefore was modeled as an unsignalized location in the 2022 Build Condition. In the future, with Academic Way constructed and operational, this intersection could be evaluated to determine whether it meets other warrants for signalization and could merit a traffic signal.



## Methodology

Consistent with BTM’s guidelines, *Synchro 6* software, based on the 2000 Highway Capacity Manual [HCM]<sup>8</sup>, was used to model level of service (LOS) operations at the study area intersections. The term LOS is used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers a number of factors including roadway geometry, speed, travel delay, and freedom to maneuver.

- Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service is derived directly from the delay calculation.



<sup>8</sup> Transportation Research Board, Highway Capacity Manual, Washington, D.C., 2000.

- Delay is a complex measure that depends upon a number of variables such as quality of signal progression, cycle length, allocation of green time, and volume-to-capacity (v/c) ratio. Of all the factors cited, v/c ratios have the least effect on delay. Thus, for any given v/c ratio, a range of delay values (and, therefore, levels of service) may result. Conversely, for a given level of service, the v/c ratio may lie anywhere within a broad range. Comparison of intersection capacity results therefore requires that *in addition to the LOS, the other measures of effectiveness (MOE) must also be considered.*

Level of service for signalized intersections is based on average delay for all vehicles entering the intersection, including initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For unsignalized intersections, level of service is based on stopped delay for vehicles on the side street approaches since the main street traffic is not affected by side street traffic. The level of service criteria for signalized and unsignalized intersections is presented in Table 20.

**Table 20**      **Vehicle Level of Service Criteria**

Level of Service	Signalized Intersection Stopped Delay (sec/veh)	Unsignalized Intersection Stopped Delay (sec/veh)
LOS A	≤ 10	0-10
LOS B	> 10-20	> 10-15
LOS C	> 20-35	> 15-25
LOS D	> 35-55	> 25-35
LOS E	> 55-80	> 35-50
LOS F	> 80	> 50

Source: 2000 HCM




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## Signalized Intersection Capacity Analyses

Adjustments were made to the Synchro model to include characteristics of each intersection, such as heavy vehicles, bus operations, parking activity, and pedestrian crossings. The LOS results of the signalized intersection analyses are summarized in Table 21 for the Existing, No-Build, and Build Conditions. Detailed results including delay by approach, queuing and volume to capacity ratios are presented in the Technical Appendix along with the detailed Synchro results.

**Table 21 Signalized Intersection Level of Service Summary**

Intersection	Lane Group	2012 Existing Conditions		2022 No-Build Conditions		2022 Build Conditions	
		Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening
Western Avenue at Telford Street/ Telford Street Extension	Western Ave. EB Approach	A	A	A	B	A	B
	Western Ave. WB L	A	A	A	A	A	A
	Western Ave. WB T/R	A	A	A	A	A	A
	Telford St. Ext. NB L/T	D	D	D	D	D	D
	Telford St. Ext. NB R	C	D	C	C	C	C
	Telford St. SB Approach	C	D	C	C	C	C
	<b>Overall</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>
Western Avenue at Everett Street	Western Ave. EB L/T	C	B	D	D	D	D
	Western Ave. EB R	A	A	B	B	B	B
	Western Ave. WB L	C	B	F	D	F	E
	Western Ave. WB T/R	B	C	B	D	B	D
	Everett St. NB Approach	F	F	F	F	F	F
	Everett St. SB Approach	E	D	F	F	F	F
	<b>Overall</b>	<b>E</b>	<b>D</b>	<b>F</b>	<b>E</b>	<b>F</b>	<b>F</b>
Soldiers Field Road at Everett Street	SFR EB T/R	D	B	D	B	D	B
	SFR WB T	A	B	A	B	A	B
	Everett St. NB Approach	C	D	D	F	D	F
	Everett St. SB L	B	B	B	B	B	B
	Everett St. SB T	C	C	C	C	C	C
	<b>Overall</b>	<b>C</b>	<b>B</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>C</b>
Western Avenue at North Harvard Street (Barry's Corner)	Western Ave. EB L	F	F	F	F	F	F
	Western Ave. EB T/R	D	C	D	C	D	D
	Western Ave. WB L	D	C	E	F	E	E
	Western Ave. WB T/R	D	D	E	F	E	F
	N. Harvard St. NB L	D	E	F	F	F	F
	N. Harvard St. NB T/R	D	D	C	C	D	C
	N. Harvard St. SB L/T	D	E	F	F	D	F
	N. Harvard St. SB R	C	D	C	C	C	C
<b>Overall</b>	<b>D</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>D</b>	<b>E</b>	
North Harvard Street at Franklin Street / Kingsley Street	Franklin St. EB Approach	D	D	E	D	E	D
	Kingsley WB Approach	D	D	D	D	D	D
	N. Harvard NB Approach	B	A	B	B	B	B
	N. Harvard SB Approach	B	A	B	B	B	B
	<b>Overall</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
Western Avenue at Hague Street/ Batten Way	Western Ave. EB L	C	B	B	A	F	C
	Western Ave. EB T/R	C	B	A	B	C	C
	Western Ave. WB L	B	B	-	-	C	C
	Western Ave. WB T/R	C	C	A	B	D	C
	Hague St. NB Approach	F	D	-	-	F	F
	Batten Way SB Approach	D	D	D	C	D	E
	<b>Overall</b>	<b>D</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>E</b>	<b>E</b>

Source: VHB, Inc. using Synchro 6 (Build 614) software.

LOS – Level of Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

**Table 21 Signalized Intersection Level of Service Summary (cont.)**

Intersection	Lane Group	2012 Existing Conditions		2022 No-Build Conditions		2022 Build Conditions	
		Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening
North Harvard Street at Soldiers Field Road EB	SFR EB L	D	D	E	D	E	D
	SFR EB L/T/R	D	D	D	D	E	D
	N. Harvard St. NB T/R	D	D	C	C	C	C
	N. Harvard St. SB L	D	D	D	D	D	E
	N. Harvard St. SB T	A	A	A	A	A	A
	<b>Overall</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>
North Harvard Street/ Anderson Memorial Bridge at Soldiers Field Road WB	SFR WB L/T	D	D	D	D	D	D
	SFR WB R	F	F	C	C	C	C
	N. Harvard St. NB L/T <sup>1</sup>	A	B	D	n/a	E	n/a
	N. Harvard St. NB L <sup>1</sup>	n/a	n/a	n/a	C	n/a	F
	N. Harvard St. NB T <sup>1</sup>	n/a	n/a	n/a	B	n/a	B
	Anderson Br. SB T/R	C	C	D	D	E	D
<b>Overall</b>	<b>D</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>E</b>	
Western Avenue at Soldiers Field Road EB	Western Ave. EB R	D	E	F	F	F	F
	Western Ave. WB L	A	A	A	A	A	A
	Western Ave. WB T	A	A	A	A	A	A
	SFR SB T/R	F	F	F	F	F	F
	<b>Overall</b>	<b>D</b>	<b>D</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
Western Avenue at Soldiers Field Road WB	Western Ave. WB T/R	E	D	E	F	E	F
	SFR NB L/T	C	D	C	C	C	C
	<b>Overall</b>	<b>E</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>E</b>	<b>F</b>
Cambridge Street at I-90 Ramp/Hotel Driveway	Cambridge St. EB L/T	F	E	F	F	F	F
	Cambridge St. WB T/R	A	A	A	A	A	A
	Hotel Dwy. NB Approach	E	F	F	F	F	F
	I-90 NEB L/R	C	C	D	D	D	D
	I-90 NEB R	C	C	D	D	D	D
	<b>Overall</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>F</b>	<b>D</b>	<b>F</b>
Cambridge Street at Soldiers Field Road EB	Cambridge St. EB T	B	C	B	B	B	B
	Cambridge St. EB R	E	E	D	D	D	D
	Cambridge St. WB L/T	A	A	A	B	A	B
	SFR SB L	F	E	F	F	F	F
	SFR SB L/T	n/a	n/a	F	E	F	F
	SFR SB T	F	F	n/a	n/a	n/a	n/a
	SFR SB R	D	D	D	D	D	D
	<b>Overall</b>	<b>E</b>	<b>D</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>
Cambridge Street at Soldiers Field Road WB	Cambridge St. EB L/T	A	A	A	A	A	A
	SFR NB L	F	F	F	F	F	F
	SFR NB L/T/R	F	F	F	F	F	F
	<b>Overall</b>	<b>D</b>	<b>D</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>

Source: VHB, Inc. using Synchro 6 (Build 614) software.

LOS – Level of Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

<sup>1</sup> The NB approach inner lane of N. Harvard Street at Soldiers Field Road WB operates as a defacto left turn lane during some conditions, not as a shared lane, and is analyzed as such.

**Table 21 Signalized Intersection Level of Service Summary (cont.)**

Intersection	Lane Group	2012 Existing Conditions		2022 No-Build Conditions		2022 Build Conditions	
		Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening
Cambridge Street at Windom Street	Cambridge St. EB L	A	A	B	A	B	A
	Cambridge St. EB T	A	A	A	A	A	A
	Cambridge St. WB T	B	B	C	B	C	B
	Cambridge St. WB R	A	A	A	A	A	A
	Windom St. SB L	D	E	D	E	D	E
	Windom St. SB R	D	D	D	D	D	D
	<b>Overall</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
Cambridge Street at North Harvard Street	Cambridge St EB L	E	E	E	E	E	E
	Cambridge St EB T	B	B	B	B	B	B
	Cambridge St WB U-Turn	C	E	C	D	C	E
	Cambridge St WB T	C	C	F	D	F	E
	Cambridge St WB R	C	A	C	B	C	B
	N. Harvard St. SB L	D	E	D	E	D	E
	N. Harvard St. SB R	B	C	B	B	B	B
<b>Overall</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>	
Cambridge Street at Franklin Street and Harvard Avenue	Cambridge St. EB Approach	B	C	E	F	E	F
	Cambridge St. WB L	A	B	C	F	C	F
	Cambridge St. WB T	A	A	A	A	A	A
	Cambridge St. WB R	A	A	A	A	A	A
	Harvard Ave. NB L/T	D	D	D	D	D	D
	Harvard Ave. NB R	D	D	C	C	D	C
	Franklin St. SB Approach	F	F	n/a	n/a	n/a	n/a
<b>Overall</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>F</b>	<b>C</b>	<b>F</b>	
Soldiers Field Road at Eliot Bridge	Eliot Bridge EB Approach	F	C	F	C	F	C
	SFR WB Approach	C	E	C	E	C	E
	SFR NB Approach	C	C	C	C	C	C
	<b>Overall</b>	<b>F</b>	<b>D</b>	<b>F</b>	<b>D</b>	<b>F</b>	<b>D</b>
North Harvard Street at Academic Way and South Campus Drive	S. Campus Dr EB Approach	n/a	n/a	n/a	n/a	D	C
	Academic Way WB App.	n/a	n/a	n/a	n/a	D	C
	N. Harvard St. NB Approach	n/a	n/a	n/a	n/a	A	A
	N. Harvard St. SB Approach	n/a	n/a	n/a	n/a	A	A
<b>Overall</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>B</b>	<b>A</b>	

Source: VHB, Inc. using Synchro 6 (Build 614) software.

LOS – Level of Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

Study area corridors process heavy traffic and pedestrians volumes during the commuter peak hours. At times, long queue lengths and high vehicle delays can be observed. The traffic model includes a conservative approach to future traffic trends by forecasting an increase in background traffic and assigning specific known development projects to the study area as required by BTM. Some locations in the study area show long delay and queues prior to the addition of project-generated trips.



The Western Avenue at Everett Street intersection currently operates at LOS E and LOS D during and is projected to degrade to LOS F and LOS E during the morning and evening peak hours, respectively, in the No-Build Condition. The intersection is projected to experience additional delay under the Build Condition and is projected to operate at LOS F under both peak hours. Exclusive pedestrian phasing and the resultant long cycle lengths coupled with high traffic demands negatively impact queues and delay at this location. Potential additional improvements for this location are discussed in Chapter 5.

At North Harvard Street at Western Avenue, Barry's Corner, level of service deteriorates from LOS D to LOS E and F and queues grow from 2012 Existing to 2022 No-Build Conditions during the morning and evening peak hours, respectively. The Build Condition includes signal optimization, coordination with the proposed signalized intersection of North Harvard Street at Academic Way, and additions to the roadway network (Academic Way) that reduce overall traffic volumes at Barry's Corner. As a result of these improvements, the intersection LOS improves and delays are reduced during both peak hours under the Build Condition. Additionally, queues are maintained or improved from the No-Build to the Build Condition. Chapter 5 describes additional proposed improvements at the Barry's Corner intersection focused on reducing delay and queuing at the intersection; improving progression along the two corridors, and upgrading communications and video monitoring equipment.

The intersection of Soldiers Field Road at Eliot Bridge operates at a LOS F during the morning peak hour under the Existing, No-Build and Build Conditions. Chapter 5 identifies improvements that could be considered in cooperation with DCR to improve operations at this location.

As described previously, the three Charles River bridges in the study area are in the process of being rehabilitated through the Accelerated Bridge Program (ABP): Anderson Memorial Bridge, Western Avenue Bridge, and River Street Bridge. The proposed final conditions of these bridges are reflected in No-Build and Build analysis. It should be noted that signal timing and coordination plans developed for the Anderson Memorial Bridge 100-percent design plans were based on different traffic volumes than what is being modeled in this report. It is anticipated that timings will be modified in the field to achieve the best operations for actual future volumes. As such, signal timings were optimized within the parameters of the design plans to accommodate projected demand under 2022 No-Build Conditions, as appropriate. These revised signal timings were also applied to the 2022 Build Condition.

ABP improvements on the Anderson Memorial Bridge are multimodal in nature and greatly improve pedestrian and bicycle safety and mobility. These improvements are accomplished, in part, by reducing vehicular capacity travelling southbound into Boston from 2-lanes to 1-lane. With the improvements and the signal timing



adjustments assumed, operations are anticipated to be comparable to Existing Conditions under both No-Build and Build Conditions, even with this reduction in lanes. Additionally, queues on the Soldiers Field Road off-ramps are projected to be contained within the available storage under all scenarios. One exception occurs during the evening peak hour when operations are projected to degrade from LOS D to LOS E under the Build Condition during the evening peak hour at the intersection of the Anderson Memorial Bridge at the Soldiers Field Road westbound off-ramp.

Similar to the Anderson Memorial Bridge, improvements at the Western Avenue and River Street bridge intersections are multimodal in nature. As traffic volumes grow in the future, operations at several of the intersections are projected to degrade from Existing Conditions, even with the proposed ABP improvements. Specifically, queues on the Soldiers Field Road eastbound off-ramp at Western Avenue and on the Soldiers Field Road westbound off-ramp at River Street are projected to exceed available storage during at least one peak hour under the No-Build and Build Conditions. Additionally, queues on Western Avenue eastbound at Soldiers Field Road are projected to be significant. Chapter 5 describes a potential revision to the ABP final condition plan to improve operations at this location.

The intersection of Western Avenue at Hague Street and Batten Way is projected to degrade to LOS E during both peak hours in the Build Condition. This is due to project-generated trips being added at this intersection during each of the peak hours. Chapter 5 describes potential improvement options to improve operations at this location.



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## Unsignalized Intersection Capacity Analyses

Table 22 presents a summary of the capacity analyses for the unsignalized intersections in the study area. The capacity analyses worksheets, detailing level of service, average delay, volume to capacity and 95th percentile queues, are included in the Technical Appendix.

Unsignalized intersections in the study area operate at an acceptable LOS during the Existing and No-Build Conditions. With the exception of the Western Avenue at Academic Way intersection, these same unsignalized intersections also operate at LOS C or better in the Build Condition. Critical movements all operate at LOS C or better during the morning and evening peak hours. As part of the Build Conditions, a new unsignalized intersection located at Western Avenue and Academic Way is created. This intersection provides access to proposed parking areas for many Plan-generated trips. As such, operations are poor, particularly in the evenings with LOS E and F on the minor street approaches. Chapter 5 discusses improvements that could improve traffic operations at this intersection.

**Table 22 Unsignalized Intersection Level of Service Summary**

Intersection	Critical Movement(s)	2012 Existing Conditions		2022 No-Build Conditions		2022 Build Conditions	
		Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening
North Harvard Street at Bertram Street/ Spurr Street	Bertram St. WB Approach	C	C	C	C	C	C
	Spurr St. EB L	C	C	C	C	C	C
	Spurr St. EB R	B	B	B	C	B	C
North Harvard Street Bayard Street / Rena Street	Bayard St. EB Approach	B	B	C	B	C	C
Western Avenue at Travis Street	Travis St. NB Approach	B	B	C	C	C	C
Hague Street at Rotterdam Street	Hague St. NB Approach	C	B	n/a	n/a	n/a	n/a
	Hague St. SB Approach	B	B	n/a	n/a	n/a	n/a
North Harvard Street at Gordon Road	Gordon Rd. WB Approach	C	B	C	C	C	C
North Harvard Street at S. Campus Drive	S. Campus Dr. EB App.	n/a	n/a	C	C	n/a	n/a
North Harvard Street at Ivy Lane	Ivy Lane EB Approach	n/a	n/a	B	B	B	B
Western Avenue at Academic Way	Academic Way NB App.	n/a	n/a	n/a	n/a	C	E
	Academic Way SB App.	n/a	n/a	n/a	n/a	D	F
Rotterdam Street at Science Drive	Science Dr. EB Approach	n/a	n/a	n/a	n/a	B	B

Source: VHB, Inc. using Synchro 6 (Build 614) software.

LOS – Level of Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound L = Left-turn; T = Through; R = Right-turn

## Pedestrian Operations Analysis

Pedestrian level of service (PLOS) at signalized intersections is dictated by the portion of the signal cycle dedicated to pedestrian crossings. The methodology used to complete this analysis is based on the 2000 Highway Capacity Manual. Similar to the vehicle LOS calculation, the approximate delay to pedestrians crossing the intersection correlates to a PLOS based on the criteria described in Table 23. Based on HCM methodology, increasing pedestrian volumes does not alter PLOS at signalized intersections; changing the signal timings does alter the PLOS.

**Table 23 Pedestrian Level of Service (PLOS) Criteria**

Pedestrian Level of Service (PLOS)	Pedestrian Delay (sec/ped)
PLOS A	0-10
PLOS B	≥10-20
PLOS C	> 20-30
PLOS D	> 30-40
PLOS E	> 40-60
PLOS F	> 60

Source: 2000 HCM

Pedestrian analysis was completed for each crosswalk at signalized study area intersections during the morning and evening peak hours under 2012 Existing, 2022 No-Build, and 2022 Build Conditions. The results of this analysis are presented in Table 24 and are included in the Technical Appendix.

**Table 24 Pedestrian Level of Service Summary**

Intersection	Crosswalk	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		2012 Existing	2022 No-Build	2022 Build	2012 Existing	2022 No-Build	2022 Build
Western Avenue at Telford Street and Telford Street Ext.	Western Ave. East	C	C	C	C	C	C
	Western Ave. West	C	C	C	C	C	C
	Telford St. North	A	A	A	A	A	A
	Telford Street Ext. South	A	A	A	A	A	A
Western Avenue at Everett Street	Western Ave. East	B	B	B	C	C	C
	Everett St. North	B	B	B	C	C	C
	Everett St. South	B	B	B	C	C	C
Western Avenue at North Harvard Street	Western Ave. East	E	B	B	E	B	C
	Western Ave. West	E	D	D	E	D	D
	N. Harvard St. North	E	C	C	E	C	C
	N. Harvard St. South	E	C	C	E	C	C
North Harvard Street at Kingsley Street/ Franklin Street	Kingsley St. East	D	D	D	D	D	D
	Franklin St. West	D	D	D	D	D	D
	N. Harvard St. North	D	D	D	D	D	D
	N. Harvard St. South	D	D	D	D	D	D
Western Avenue at Batten Way/Hague Street	Western Ave. East	D	D	D	C	C	C
	Western Ave. West	D	D	D	C	C	C
	Batten Way North	D	D	D	C	C	C
	Hague St. South	D	D	D	C	C	C
North Harvard Street at Soldiers Field Road EB	Soldiers Field Rd. East	C	D	D	C	D	D
	Soldiers Field Rd. West	A	A	A	A	A	A
	N. Harvard St. South	C	D	D	C	D	D
North Harvard Street at Soldiers Field Road WB	Soldiers Field Rd. East-right	A	n/a	n/a	A	n/a	n/a
	Soldiers Field Rd. East	A	B	B	A	A	A
	Soldiers Field Rd. West	B	D	D	B	D	D
	N. Harvard St. North	C	E	E	C	E	E
Western Avenue at Soldiers Field Road EB	Western Ave. West- through	C	C	C	C	D	D
	Western Ave. West- right	C	A	A	C	A	A
	Soldiers Field Rd. North	C	A	A	B	A	A
	Soldiers Field Rd. South	C	C	C	C	C	C
Western Avenue at Soldiers Field Road WB	Western Ave. East	C	B	B	C	B	B
	Soldiers Field Rd. North	C	C	C	C	D	D
	Soldiers Field Rd. South	C	A	A	C	A	A
Cambridge Street at I-90 ramps and Hotel driveway <sup>1</sup>	I-90 on-ramp North	n/a	C	C	n/a	C	C
	Hotel driveway South	n/a	A	A	n/a	A	A
	I-90 off-ramp Southwest	n/a	B	B	n/a	B	B
Cambridge Street at Soldiers Field Road EB <sup>1</sup>	Cambridge Street West	n/a	E	E	n/a	E	E
	Soldiers Field Rd. North	n/a	A	A	n/a	A	A
	Soldiers Field Rd. South	n/a	E	E	n/a	D	D
Cambridge Street at Soldiers Field Road WB <sup>1</sup>	Cambridge Street East	n/a	E	E	n/a	D	D
	Soldiers Field Rd. North	n/a	E	E	n/a	E	E
	Soldiers Field Rd. South	n/a	B	B	n/a	B	B

Source: 2000 HCM

n/a not applicable

1. Existing crossings at this intersection are not controlled by a pedestrian signal head

**Table 24 Pedestrian Level of Service Summary (cont.)**

Intersection	Crosswalk		Weekday Morning Peak Hour			Weekday Evening Peak Hour		
			2012 Existing	2022 No-Build	2022 Build	2012 Existing	2022 No-Build	2022 Build
Cambridge Street at Windom Street	Cambridge St.	West	D	D	D	D	D	D
Cambridge Street at North Harvard Street	Cambridge St.	West	C	C	C	D	D	D
	N. Harvard St.	North	B	B	B	B	B	B
	N. Harvard St.	South	B	B	B	B	B	B
Cambridge Street at Franklin Street and Harvard Avenue	Cambridge St.	East	D	D	D	D	D	D
	Cambridge St.	West	D	D	D	D	D	D
	Franklin St.	North	D	D	D	D	D	D
	Harvard Ave.	South	D	D	D	D	D	D
North Harvard Street at Academic Way and South Campus Drive	Academic Way	East	n/a	n/a	A	n/a	n/a	A
	S. Campus Drive	West	n/a	n/a	A	n/a	n/a	A
	N. Harvard Street	North	n/a	n/a	C	n/a	n/a	B
	N. Harvard Street	South	n/a	n/a	C	n/a	n/a	B

Source: 2000 HCM

n/a not applicable

1. Existing crossings at this intersection are not controlled by a pedestrian signal head

As shown in Table 24, existing pedestrian operations are generally acceptable throughout the study area, with the exception of Western Avenue at North Harvard Street. As part of the Barry's Corner RRCP, intersection improvements are proposed at this location, including revising the pedestrian accommodations from exclusive to concurrent phasing. This modification results in improved PLOS in the No-Build and Build Conditions.

Some noticeable changes to PLOS can be seen along the MassDOT bridge intersections with Soldiers Field Road associated with ABP improvements. ABP improvements were made to best serve all intersection users and to improve multimodal access and safety. The results of these improvements include:

- **North Harvard Street at Soldiers Field Road:** Impacts to pedestrians are mixed at these intersections. ABP improvements provide pedestrians with shorter, more efficient crossings while changes to signal timings may increase or reduce green times for pedestrian movements when compared to the Existing Conditions.
- **Western Avenue at Soldiers Field Road:** Signal timing improvements at these intersections generally yield improved PLOS. A reduction in LOS at Soldiers Field Road WB ramp towards the north is associated with a reduction in the corresponding green time.
- **Cambridge Street at Soldiers Field Road/I-90:** ABP improvements at these intersections include installing pedestrian signal heads, which are not currently provided.

## Bicycle Operations Analysis

An analysis of bicycle level of service (BLOS) at signalized intersections is also based on the methodology presented in the 2000 Highway Capacity Manual. Similar to pedestrian analysis, BLOS at signalized intersections is dictated by the portion of the signal cycle on each approach. However, unlike pedestrian analysis, bicycle volumes play a role in this level of service calculation. The criteria that equate control delay for bicycles at signalized intersections to BLOS are presented in Table 25.

**Table 25 Bicycle Level of Service Criteria**

Bicycle Level of Service	Control Delay (sec/bicycle)
BLOS A	0-10
BLOS B	≥10-20
BLOS C	> 20-30
BLOS D	> 30-40
BLOS E	> 40-60
BLOS F	> 60

Source: 2000 HCM

Bicycle analysis was completed for each approach at signalized study area intersections during the morning and evening peak hours under 2012 Existing, 2022 No-Build, and 2022 Build Conditions. The results of this analysis are presented in Table 26 and are included in the Technical Appendix. In the future conditions, general bicycle volume growth and future trips in the study area associated with specific projects were considered. These trips were assigned to roadways serving the study area, as discussed previously.

**Table 26 Bicycle Level of Service Summary**

Intersection	Crosswalk		Weekday Morning Peak Hour			Weekday Evening Peak Hour		
			2012 Existing	2022 No-Build	2022 Build	2022 No-Build	2012 Existing	2022 Build
Western Avenue at Everett Street	Western Ave.	Eastbound	A	A	A	A	A	A
	Western Ave.	Westbound	A	A	A	A	A	A
	Everett St.	Northbound	C	C	C	C	C	C
	Everett St.	Southbound	C	C	C	C	C	C
Western Avenue at North Harvard Street	Western Ave.	Eastbound	D	C	C	C	C	C
	Western Ave.	Westbound	D	C	C	C	C	C
	N. Harvard St.	Northbound	C	B	B	C	C	B
	N. Harvard St.	Southbound	D	D	D	D	D	D
North Harvard Street at Kingsley Street/ Franklin Street	Franklin St.	Eastbound	E	E	E	E	E	E
	Kingsley St.	Westbound	E	E	E	n/a	n/a	n/a
	N. Harvard St.	Northbound	A	B	B	A	A	A
	N. Harvard St.	Southbound	A	B	B	A	B	B
Western Avenue at Batten Way/Hague Street	Western Ave.	Eastbound	B	A	C	B	A	C
	Western Ave.	Westbound	B	A	C	B	A	C
	Hague St.	Northbound	D	n/a	D	D	n/a	D
	Batten Way	Southbound	n/a	n/a	n/a	D	D	D
North Harvard Street at Soldiers Field Road EB	N. Harvard St.	Northbound	D	C	B	D	C	C
	N. Harvard St.	Southbound	B	A	A	B	A	A
North Harvard Street at Soldiers Field Road WB	N. Harvard St.	Northbound	C	B	B	C	B	B
	N. Harvard St.	Southbound	C	B	B	C	B	B
Western Avenue at Soldiers Field Road EB	Western Ave.	Eastbound	C	C <sup>1</sup>	C <sup>1</sup>	C	C <sup>1</sup>	C <sup>1</sup>
	Western Ave.	Westbound	A	A <sup>1</sup>	A <sup>1</sup>	A	A <sup>1</sup>	A <sup>1</sup>
Western Avenue at Soldiers Field Road WB	Western Ave.	Eastbound	n/a	A <sup>1</sup>	A <sup>1</sup>	n/a	A <sup>1</sup>	A <sup>1</sup>
	Western Ave.	Westbound	C	D <sup>1</sup>	D <sup>1</sup>	B	D <sup>1</sup>	D <sup>1</sup>
Cambridge Street at I-90 ramps/Hotel driveway	Cambridge St.	Eastbound	E	D <sup>1</sup>	D <sup>1</sup>	E	C <sup>1</sup>	C <sup>1</sup>
	Cambridge St.	Westbound	n/a	n/a	n/a	B	B	B
	Hotel Driveway	Northbound	n/a	n/a	n/a	n/a	n/a	n/a
Cambridge Street at Soldiers Field Road EB	Cambridge St.	Eastbound	B	E <sup>1</sup>	E <sup>1</sup>	C	E <sup>1</sup>	E <sup>1</sup>
Cambridge Street at Soldiers Field Road WB	Cambridge St.	Eastbound	A	D <sup>1</sup>	D <sup>1</sup>	A	D <sup>1</sup>	D <sup>1</sup>
Cambridge Street at Windom Street	Cambridge St.	Eastbound	A	A	A	A	A	A
	Cambridge St.	Westbound	A	A	A	A	A	A
	Windom Street	Southbound	C	D	D	D	E	E
Cambridge Street at North Harvard Street	Cambridge St.	Eastbound	A	B	B	A	B	B
	Cambridge St.	Westbound	B	B	B	B	B	B
	N. Harvard Street	Southbound	C	C	C	D	D	D

Source: 2000 HCM

Note: Analysis assumes that bicycles sharing the road with automobiles will bypass the automobile queue and wait at the stop bar, eliminating the queue delay. Bicycle volumes used in calculations are total approach volumes.

1 Bicycle volumes on this approach are controlled by a bicycle signal, effective green times are determined using the bicycle signal timings.

n/a Approach is not observed to serve bicycle volumes in the given condition.

**Table 26 Bicycle Level of Service Summary (cont.)**

Intersection	Crosswalk	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		2012 Existing	2022 No-Build	2022 Build	2022 No-Build	2012 Existing	2022 Build
Cambridge Street at Franklin Street/ Harvard Avenue	Cambridge St. Eastbound	B	B	B	B	B	B
	Cambridge St. Westbound	A	A	A	A	A	A
	Harvard Ave. Northbound	D	D	D	D	D	D
	Franklin St. Southbound	D	n/a	n/a	D	n/a	n/a
North Harvard Street at Academic Way/South Campus Drive	S. Campus Dr. Eastbound	n/a	n/a	E	n/a	n/a	B
	Academic Way Westbound	n/a	n/a	E	n/a	n/a	B
	N. Harvard St. Northbound	n/a	n/a	A	n/a	n/a	A
	N. Harvard St. Southbound	n/a	n/a	A	n/a	n/a	A

Source: 2000 HCM

Note: Analysis assumes that bicycles sharing the road with automobiles will bypass the automobile queue and wait at the stop bar, eliminating the queue delay. Bicycle volumes used in calculations are total approach volumes.

1 Bicycle volumes on this approach are controlled by a bicycle signal, effective green times are determined using the bicycle signal timings.

n/a Approach is not observed to serve bicycle volumes in the given condition.

As shown in Table 26, the majority of approaches are operating at acceptable levels of service during the morning and evening peak hours under all conditions, with the following exceptions:

- Weekday Morning
  - Franklin Street eastbound at North Harvard Street (Existing, No-Build and Build Conditions)
  - Kingsley Street westbound at North Harvard Street (Existing, No-Build, and Build Conditions)
  - Cambridge Street eastbound at I-90 ramps (Existing Condition)
  - Cambridge Street eastbound at Soldiers Field Road EB ramp (No-Build and Build Conditions)
  - South Campus Drive eastbound (Build Condition)
  - Academic Way westbound (Build Condition)
  
- Weekday Evening
  - Franklin Street eastbound at North Harvard Street (Existing, No-Build and Build Conditions)
  - Cambridge Street eastbound at I-90 ramps (Existing Condition)
  - Cambridge Street eastbound at Soldiers Field Road EB ramp (No-Build and Build Conditions)
  - Windom Street southbound at Cambridge Street (No-Build and Build Conditions)



Bicycle operations are dictated largely by the proportion of green time available to the bicycle movement, which varies in each condition due to the changing vehicle volumes in each condition. At actuated signals, as vehicle volumes on an approach increases the proportion of green time demanded on that approach will vary. For this reason, there are some slight shifts in BLOS at intersections that do not have specific signal timing improvements under future conditions.

At the approaches to Soldiers Field Road listed as operating at unacceptable level of service, new bicycle signals installed with the ABP have changed the proportion of green time allocated to bicycles on these approaches and increased clearance times to improve bicycle safety. This also results in higher bicycle delay and consequently lower BLOS.

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## Transit Operations Analysis

The following section presents the capacities of the various MBTA and Harvard owned transit serving the study area. The first step in analyzing the transit system is to quantify the capacity of existing transit services. The second step then adds the Plan-generated trips to the system. Results of the transit analysis are included in the Technical Appendix.



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### MBTA Bus System Capacity

Bus route capacity is a function of vehicle size and frequency of service. The peak hour capacities estimated in this table are based on a bus capacity of 60 passengers for a standard MBTA bus, though, crush capacities are higher. The service rush-hour frequencies presented in Table 27 are based on the most current schedules.

Load profiles by bus route collected in Fall 2012 were provided by the MBTA. These load profiles detail the passenger loads by bus and by stop over a typical day. These bus loads are shown in Table 27. This table also presents ridership and utilization (percent occupancy).

**Table 27 MBTA Bus Route Peak Hour Utilization (2012 Existing Condition)**

Route and Direction	Frequency (buses/hr)	Capacity (buses/hr)	Hourly Ridership		V/C Ratio (Utilization)	
			Arriving	Leaving	Arriving	Leaving
<i>Morning Peak</i>						
64 Inbound	4	240	160	160	0.67	0.67
64 Outbound	4	240	120	120	0.50	0.50
66 Inbound	7	420	100	120	0.24	0.29
66 Outbound	7	420	280	285	0.67	0.68
70 Inbound	4	240	130	135	0.54	0.56
70 Outbound	3	180	90	90	0.5	0.5
70A Inbound	2	120	70	70	0.58	0.58
70A Outbound	2	120	65	75	0.54	0.63
86 Inbound	5	300	110	105	0.37	0.37
86 Outbound	5	300	210	230	0.70	0.77
<i>Evening Peak</i>						
64 Inbound	3	180	55	55	0.31	0.31
64 Outbound	4	240	125	125	0.52	0.52
66 Inbound	7	420	270	265	0.64	0.63
66 Outbound	7	420	230	220	0.55	0.52
70 Inbound	4	240	135	135	0.56	0.56
70 Outbound	4	240	160	160	0.67	0.67
70A Inbound	2	120	80	75	0.67	0.63
70A Outbound	2	120	85	85	0.71	0.71
86 Inbound	4	240	185	180	0.77	0.75
86 Outbound	4	240	125	130	0.52	0.54

Ridership based on MBTA Bus Route operations 2012

As shown in Table 27, the existing bus services have a volume-to-capacity ratio well under 1.0 with the Route 86 bus outbound having the highest morning v/c ratio of 0.77 and the inbound service having the highest evening utilization with a v/c ratio of 0.77 as well.

It should be noted that transit services that run at high frequencies may be subject to bunching. Bunching is caused when transit vehicles, in this case shuttles or buses, incur delay along a route and headways between vehicles are impacted and reduced. This results in congestion at transit stops, crowding on the lead transit vehicle, or conversely, subsequent transit vehicles running well under capacity. High frequency routes, specifically Route 66, are likely subject to bunching resulting in individual buses with higher v/c ratios than the average hourly v/c ratio shown in the figures above. The MBTA's Key Bus Route program, which includes the Route 66, seeks to address the bunching issue by consolidating and relocating bus stops to reduce delay and improve service reliability.




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## Harvard Shuttle Capacity

Harvard University offers shuttle services to help connect destinations across its campuses. The Allston Express shuttle route is a loop that connects the Allston campus to Harvard Square and major schools throughout the Cambridge campus. The Harvard Shuttle capacity is 32 seats with higher crush capacity. During weekdays during the school year the shuttle runs at 15-minute headways. Estimated ridership shown in Table 28 is based on information provided by Harvard University for the 2012 school year.

**Table 29 Harvard Shuttle Peak Hour Utilization (2012 Existing Condition)**

Route and Direction	Frequency (buses/hr)	Capacity (riders/hr)	Estimated Peak Hour Ridership <sup>a</sup>	Estimated v/c ratio (utilization)
Morning – Allston Campus Express	4	128	64	0.5
Evening – Allston Campus Express	4	128	64	0.5

<sup>a</sup> Harvard University –2012




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## Future Capacities

The 2022 Build trips were assigned to the MBTA bus routes and Harvard shuttle routes serving the study area, as shown previously in Table 17. In addition to the Ten-Year Plan project-generated trips, Barry’s Corner RRCP and Science project trips were assigned to the transit network. These projects would have direct impacts on ridership levels on the routes serving the IMP area. Additionally, some existing trips by neighborhood residents were assigned to the Harvard Square Express service.

The transit trips by line were added to the existing route volumes and are shown in Tables 29 and 30. As shown, the additional transit trips added to each line do not result in any line operating over capacity.

With the exception of Route 64, where few trips are added, all MBTA routes see some increase in volume-to-capacity ratio due to the Plan-generated trips. Route 66 and Route 86 ridership growth is offset slightly by accommodation of Allston residents on the Harvard shuttle service. Ridership also grows on Routes 70 and 70A as these routes continue to be the best options for traveling between Central Square and Allston. The Route 66 bus outbound service has the highest morning v/c ratio of 0.87 and the Route 70A inbound and the Route 86 inbound service have the highest evening utilization with v/c ratios of 0.83.

**Table 29 MBTA Bus Route Peak Hour Utilization (2022 Build Condition)**

Route and Direction		Frequency (buses/hr)	Capacity (buses/hr)	Hourly Ridership		V/C Ratio (Utilization)	
				Arriving	Leaving	Arriving	Leaving
<i>Morning Peak</i>							
64	Inbound	4	240	160	160	0.67	0.67
	Outbound	4	240	120	120	0.50	0.50
66	Inbound	7	420	125	120	0.30	0.30
	Outbound	7	420	365	290	0.87	0.69
70	Inbound	4	240	140	145	0.58	0.60
	Outbound	3	180	140	90	0.78	0.50
70A	Inbound	2	120	80	75	0.67	0.63
	Outbound	2	120	100	75	0.83	0.63
86	Inbound	5	300	160	105	0.53	0.35
	Outbound	5	300	235	230	0.78	0.77
<i>Evening Peak</i>							
64	Inbound	3	180	55	55	0.31	0.31
	Outbound	4	240	125	125	0.52	0.52
66	Inbound	7	420	275	325	0.65	0.77
	Outbound	7	420	245	240	0.58	0.57
70	Inbound	4	240	140	175	0.58	0.73
	Outbound	4	240	175	170	0.73	0.71
70A	Inbound	2	120	80	100	0.67	0.83
	Outbound	2	120	95	90	0.79	0.75
86	Inbound	4	240	195	200	0.81	0.83
	Outbound	4	240	130	160	0.54	0.67

The Allston Express service does not exceed capacity with the additional Plan-generated trips. The evening peak hour volume-to-capacity ratio is estimated to be 0.70. Future ridership on the Harvard Square Express is anticipated to make up approximately half of the future capacity, with volume-to-capacity ratios of approximately 0.55 and 0.44 in the peak direction during the morning and evening peak hour, respectively. Estimates in Table 30 include both Plan-generated trips and trips by Allston residents using the Harvard shuttle.

**Table 30 Harvard Shuttle Peak Hour Utilization (2022 Build Condition)**

Route and Direction	Frequency (buses/hr)	Capacity (riders/hr)	Estimated Peak Hour Ridership	Estimated v/c ratio (utilization)
Morning Peak				
Allston Campus Express	4	128	70	0.55
Harvard Square Express				
Northbound	6	192	45	0.23
Southbound	6	192	105	0.55
Evening Peak				
Allston Campus Express	4	128	90	0.70
Harvard Square Express				
Northbound	6	192	85	0.44
Southbound	6	192	50	0.26

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## Proposed Improvements

Proposed improvements are focused on improving multimodal access within the IMP study area. Specific roadway and intersection improvements have been identified that further this goal and are sufficient to reduce and manage the traffic impacts expected from the Ten-Year Plan. The proposed improvements are consistent with the City's Complete Streets guidelines and emphasize accommodation of pedestrians and bicycles within the street environment.

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### Transportation Demand Management

Harvard has an extensive Transportation Demand Management (TDM) program that is an important tool in managing vehicular travel to the campus, details of which are described in the body of the IMP. Harvard is committed to maintaining and enhancing this program with respect to the Ten-Year Plan. The existing and envisioned continued expansion of the TDM program will support alternative modes as a major component of day-to-day transportation operations supporting the IMP development program.

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### Roadway and Intersection Improvements

The improvements discussed below seek to improve multimodal operations and mobility at study area intersections and along study area roadways. The improvements are summarized graphically in Figure 21. The operational results of these improvements are summarized in Table 31.



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#### Barry's Corner

The Barry's Corner RRCP includes improvements to Barry's Corner and the Ten-Year Plan builds on these improvements. The inclusion of Academic Way in the roadway network has a significant and positive impact on Barry's Corner. This new roadway



allows traffic to avoid Barry's Corner and creates the opportunity to improve pedestrian crossings by eliminating the traffic island on the northeast corner and extending the curb into the intersection. The presence of Academic Way will also allow a "No Left Turn" restriction to be installed for the North Harvard Street southbound approach. This peak-hour restriction will improve progression of the southbound through traffic through the intersection.

Additional proposed mitigation includes signal optimization and coordination of Barry's Corner with the proposed signalized intersection of North Harvard Street at Academic Way to the north and North Harvard Street at Franklin Street/Kingsley Street to the south. Coordination with these locations will improve progression and better manage queues along the North Harvard Street corridor. As shown in Table 31, under 2022 Build with Mitigation Conditions, Barry's Corner improves from LOS E in the 2022 No-Build morning peak hour to LOS D and from LOS F in the 2022 No-Build evening peak hour to LOS E. Additionally, queues are maintained or improved from the No-Build to the Build with Mitigation Condition.

In addition, two bus stops- one on North Harvard Street northbound and one on Western Avenue westbound - will be relocated away from the intersection. These improvements will further simplify operations and traffic flow at the intersection. Improvements to communications and installation of video monitoring equipment are discussed in a subsequent section.



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## Circulation Options

Circulation options could be used to encourage the use of Academic Way northbound as a means to egress 28 Travis Street and the Science project. This approach would result in increased traffic volumes on the northbound approach of Academic Way at Western Avenue. As such, installation of a signal was considered. MUTCD Warrant 3: Peak Hour Volume was evaluated for the 2022 Build with Mitigation traffic volumes for Academic Way at Western Avenue. Based on the projected volumes, the intersection meets Warrant 3 during the evening peak hour only under 2022 Build with Mitigation Conditions. However, based on the total delay component of Warrant 3 (which needs to be met in conjunction with the volume component discussed above), the signal does not fully meet warrants. Prior to installation of any traffic signal, the intersection would need to be fully evaluated with updated traffic volume data to confirm that warrant(s) are fully met. In addition, the signal would require appropriate approvals from BTM prior to installation. Harvard is committed to installing a traffic signal at this location and coordinating it with Barry's Corner if/when it is fully warranted under future conditions. As such, Table 31 summarizes the operational impacts of a signal at this intersection. As shown, the signalized intersection of Academic Way at Western Avenue is projected to operate at LOS A and LOS B during the morning and evening peak hours, respectively.



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## Western Avenue at Everett Street

At the intersection of Western Avenue at Everett Street, a “No Left Turn” restriction is proposed for the Western Avenue eastbound approach. This measure, which could be implemented during the morning and evening peak hours, will reduce eastbound queues on the Western Avenue eastbound approach and results in a small improvement in level of service, as summarized in Table 31.



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## Signal Timing Optimization

With additional traffic associated with the Ten-Year Plan, several intersections in the study area would benefit from signal timing optimization. Signal timing optimization and the previously described signal coordination are aimed at improving the overall level of service at intersections and traffic progression along corridors. As seen in the level of service summary table below, some individual movements have shifts to lesser level of service criteria while the overall level of service improves. These improvements could be accomplished without physical changes to the signal controller.

- **Soldiers Field Road at Eliot Bridge** – Signal timing modifications are proposed that will improve operations from LOS F to LOS C during the morning peak hour.
- **Western Avenue at Hague Street and Batten Way** – Signal timing modifications are proposed that will improve operations from LOS E to LOS D during the morning peak hour.
- **North Harvard Street at Kingsley Street/ Franklin Street** – Signal timing modifications are proposed that will increase the available green interval for the Franklin Street eastbound approach reducing delays and improving LOS from E to D for vehicles and bicycles on this approach.

It should be noted that the current traffic signal at Western Avenue at Hague Street and Batten Way is an interim signal. As part of the Long-Range Plan, Harvard envisions realignment of the Hague Street approach opposite Batten Way and installation of a permanent traffic signal, as likely warranted by traffic volumes associated with future development.



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## MassDOT Bridge Intersections

The Anderson Memorial Bridge, Western Avenue Bridge, and River Street Bridge, and adjacent intersections, are being reconstructed as part of MassDOT’s Accelerated Bridge Program. Improvements to signal timing and coordination are planned at all locations.



One additional improvement has been identified for the intersection of Western Avenue and the Soldiers Field Road westbound off-ramp. The proposed MassDOT design eliminates one of the eastbound approach lanes on Western Avenue, resulting in significant queues on Western Avenue. Restoring this approach lane with a No Turn on Red restriction at the intersection approach will significantly reduce queuing and overall intersection delay. Minor signal timing adjustments are also proposed. Harvard will work with MassDOT to assess this traffic mitigation within the context of improving pedestrian and bicycle accommodations at the intersection, and Harvard will continue to work with MassDOT to modify signal timings as appropriate at these locations to best accommodate future traffic volumes.

**Table 31 Signalized Intersections with Mitigation Improvements Level of Service Summary**

Intersection	Lane Group	2022 No-Build Conditions		2022 Build Conditions		2022 Build w/ Mitigation	
		Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening
Western Avenue at Everett Street	Western Ave. EB L/T	D	D	D	D	n/a	n/a
	Western Ave. EB T	n/a	n/a	n/a	n/a	C	B
	Western Ave. EB R	B	B	B	B	B	A
	Western Ave. WB L	F	D	F	E	F	E
	Western Ave. WB T/R	B	D	B	D	B	D
	Everett St. NB Approach	F	F	F	F	F	F
	Everett St. SB Approach	F	F	F	F	F	F
	<b>Overall</b>	<b>F</b>	<b>E</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>E</b>
Western Avenue at North Harvard Street (Barry's Corner)	Western Ave. EB L	F	F	F	F	F	F
	Western Ave. EB T/R	D	C	D	D	E	E
	Western Ave. WB L	E	F	E	E	D	D
	Western Ave. WB T/R	E	F	E	F	E	F
	N. Harvard St. NB L	F	F	F	F	E	F
	N. Harvard St. NB T/R	C	C	D	C	C	B
	N. Harvard St. SB L/T	F	F	D	F	D	F
	N. Harvard St. SB R	C	C	C	C	C	D
<b>Overall</b>	<b>E</b>	<b>F</b>	<b>D</b>	<b>E</b>	<b>D</b>	<b>E</b>	
North Harvard Street at Franklin Street / Kingsley Street	Franklin St. EB Approach	E	D	E	D	D	D
	Kingsley WB Approach	D	D	D	D	D	D
	N. Harvard NB Approach	B	B	B	B	B	B
	N. Harvard SB Approach	B	B	B	B	A	A
	<b>Overall</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
Western Avenue at Hague Street/ Batten Way	Western Ave. EB L	B	A	F	C	F	C
	Western Ave. EB T/R	A	B	C	C	C	D
	Western Ave. WB L			C	C	C	C
	Western Ave. WB T/R	A	B	D	C	D	C
	Hague St. NB Approach			F	F	F	F
	Batten Way SB Approach	D	C	D	E	D	E
<b>Overall</b>	<b>B</b>	<b>B</b>	<b>E</b>	<b>E</b>	<b>D</b>	<b>D</b>	
Western Avenue at Soldiers Field Road EB	Western Ave. EB R	F	F	F	F	F	F
	Western Ave. WB L	A	A	A	A	A	A
	Western Ave. WB T	A	A	A	A	A	A
	SFR SB T/R	F	F	F	F	F	F
	<b>Overall</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
Western Avenue at Soldiers Field Road WB	Western Ave. WB T/R	E	F	E	F	E	F
	SFR NB L/T	C	C	C	C	C	C
	<b>Overall</b>	<b>E</b>	<b>F</b>	<b>E</b>	<b>F</b>	<b>D</b>	<b>F</b>

Source: VHB, Inc. using Synchro 6 (Build 614) software.

LOS – Level of Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

**Table 31 Signalized Intersection with Improvements Level of Service Summary (cont.)**

Intersection	Lane Group	2022 No-Build Conditions		2022 Build Conditions		2022 Build w/ Mitigation	
		Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening	Weekday Morning	Weekday Evening
Soldiers Field Road at Eliot Bridge	Eliot Bridge EB Approach	F	C	F	C	C	D
	SFR WB Approach	C	E	C	E	D	D
	SFR NB Approach	C	C	C	C	D	D
	<b>Overall</b>	<b>F</b>	<b>D</b>	<b>F</b>	<b>D</b>	<b>C</b>	<b>D</b>
North Harvard Street at Academic Way and South Campus Drive	S. Campus Dr EB Approach	n/a	n/a	D	C	D	B
	Academic Way WB App.	n/a	n/a	D	C	D	B
	N. Harvard St. NB Approach	n/a	n/a	A	A	A	A
	N. Harvard St. SB Approach	n/a	n/a	A	A	A	A
<b>Overall</b>	<b>n/a</b>	<b>n/a</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>B</b>	
Western Avenue at Academic Way	Western Ave. EB Approach	n/a	n/a	n/a	n/a	A	A
	Western Ave. WB Approach	n/a	n/a	n/a	n/a	A	B
	Academic Way NB App.	n/a	n/a	n/a	n/a	B	B
	Academic Way SB App.	n/a	n/a	n/a	n/a	B	C
	<b>Overall</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>A</b>	<b>B</b>
Western Avenue at Academic Way <sup>2</sup>	Academic Way NB App.	n/a	n/a	C	E	n/a	n/a
	Academic Way SB App.	n/a	n/a	D	F	n/a	n/a

Source: VHB, Inc. using Synchro 6 (Build 614) software.

Note: Shaded cells denote LOS E/F conditions.

LOS – Level of Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

Western Avenue at Academic Way operates as an unsignalized intersection during No-Build Condition and signalized during Build Conditions.

## Pedestrian and Bicycle Enhancements

As elaborated on in the IMP, Harvard’s Long-Term Vision for the Allston Campus seeks to extend walkable patterns south into new areas of campus and the residential neighborhood in North Allston by creating a pedestrian-scale block pattern. The goal is to strengthen connections to adjacent neighborhoods by bridging areas that are currently mostly impenetrable to pedestrians. For bicycles, the Long-Term Vision builds on recent public investments and includes new north-south (Stadium Way and Longfellow Path) and east-west (the Greenway) bicycle links. The Ten-Year Plan begins to establish these pedestrian and bicycle connections, accomplished through the following key enhancements:

- A new multi-use path along South Campus Drive that will accommodate pedestrians and bikes. The path will create a new off-street cycling route around Barry’s Corner with access to Smith Field. This facility will be constructed by Samuels and Associates in coordination with the Barry’s Corner RRCP.



- Pedestrian and bicycle facilities on Academic Way that will link Rena Park with Smith Field. Academic Way will create another route option to cycle around Barry's Corner.
- Upgrades to the Barry's Corner pedestrian realm, including publicly accessible open spaces, wide sidewalks with trees and outdoor chairs and tables, elimination of the traffic island on the northeast corner, and ground floor uses that engage and create a destination for pedestrians.
- New multi-use paths in Rena Park that will create a gateway to the park and the future Greenway.
- Upgrades to Western Avenue that include sidewalk reconstruction and formalization of the existing cycle track. The reconstructed sidewalks will improve connections to the existing HBS pathway system. New projects on Western Avenue (e.g., Science) that are adjacent to the existing cycle track will move it from the street to a section that is separated by curbing from the parking lane.
- Expansion of the Hubway stations as demand increases.
- Provisions of covered off street bike parking and accessible public spaces that are convenient to building entrances.
- Signal timing adjustments at North Harvard Street at Franklin Street and Kingsley Street that will reduce delay and provide acceptable LOS for all users.

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## Transit and Shuttle Improvements

The Ten-Year Plan includes several improvements to transit and shuttle service within the study area:

- **MBTA Bus Stop Consolidation** – Consolidating and relocating bus stops helps to reduce delay, address bus bunching, and improve service reliability. The proposed relocation of bus stops in Barry's Corner and the elimination of several stops next to the existing Charlesview site are consistent with this approach. The new stops will be located next to paths and crosswalk to facilitate connections to the campus and neighborhood.
- **Allston Express Shuttle Enhancements**- The construction of Academic Way creates the opportunity to extend the existing Allston Express service into Barry's Corner. The shuttle buses would no longer travel on Batten Way and Gordon Road. After leaving the Soldiers Field Park Garage stop, buses would travel on Western Avenue then turn onto "Academic Way" to a new Barry's Corner stop before continuing onto North Harvard Street.

- ▶ **New Shuttle Service** – The Allston Express service would be supplemented by a new Barry’s Corner to Harvard Square service that would travel along North Harvard Street to Harvard Square. The service would operate on ten minute headways on weekdays year round. The shuttle system will serve Harvard affiliates including undergraduates, graduate student, staff and faculty. Neighborhood residents and Barry’s Corner RRCPC employees will also be allowed to use the shuttle.

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## Intelligent Transportation Systems (ITS)

An evaluation of the feasibility of connecting the existing traffic signal at Western Avenue at North Harvard Street to the BTDCentral computer system and providing real time video monitoring of the intersection at the BTDCentral Traffic Management Center (TMC) at Boston City Hall was conducted. This Traffic Signal Communications Study is included in the Technical Appendix.

Based on this study, existing system interconnection was identified in proximity to Barry’s Corner and existing interconnection was identified from the TMC to the traffic signal control cabinet at Cambridge Street at North Harvard Street. The existence of this BTDCentral interconnection eliminates the need to install a conduit system across the Massachusetts Turnpike to support system data communications or video monitoring of the Barry’s Corner intersection. The following improvements are proposed and are summarized in Figure 21:

- ▶ Installation of video monitoring equipment (camera, required cabling and cabinet communication equipment) at the Barry’s Corner intersection.
- ▶ Installation of video monitoring equipment at the Cambridge Street and North Harvard Street intersection.
- ▶ Installation of video monitoring equipment at the Cambridge Street and Harvard Avenue intersection.
- ▶ Installation of new aerial communication cable on North Harvard Street between Cambridge Street and Easton Street as well as between Franklin Street and Barry’s Corner to complete the interconnection from Barry’s Corner to the TMC.
- ▶ Installation of communication cable in North Harvard Street and Western Avenue between Barry’s Corner and Academic Way to allow interconnection of the three signal systems.

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## Mobility Hubs

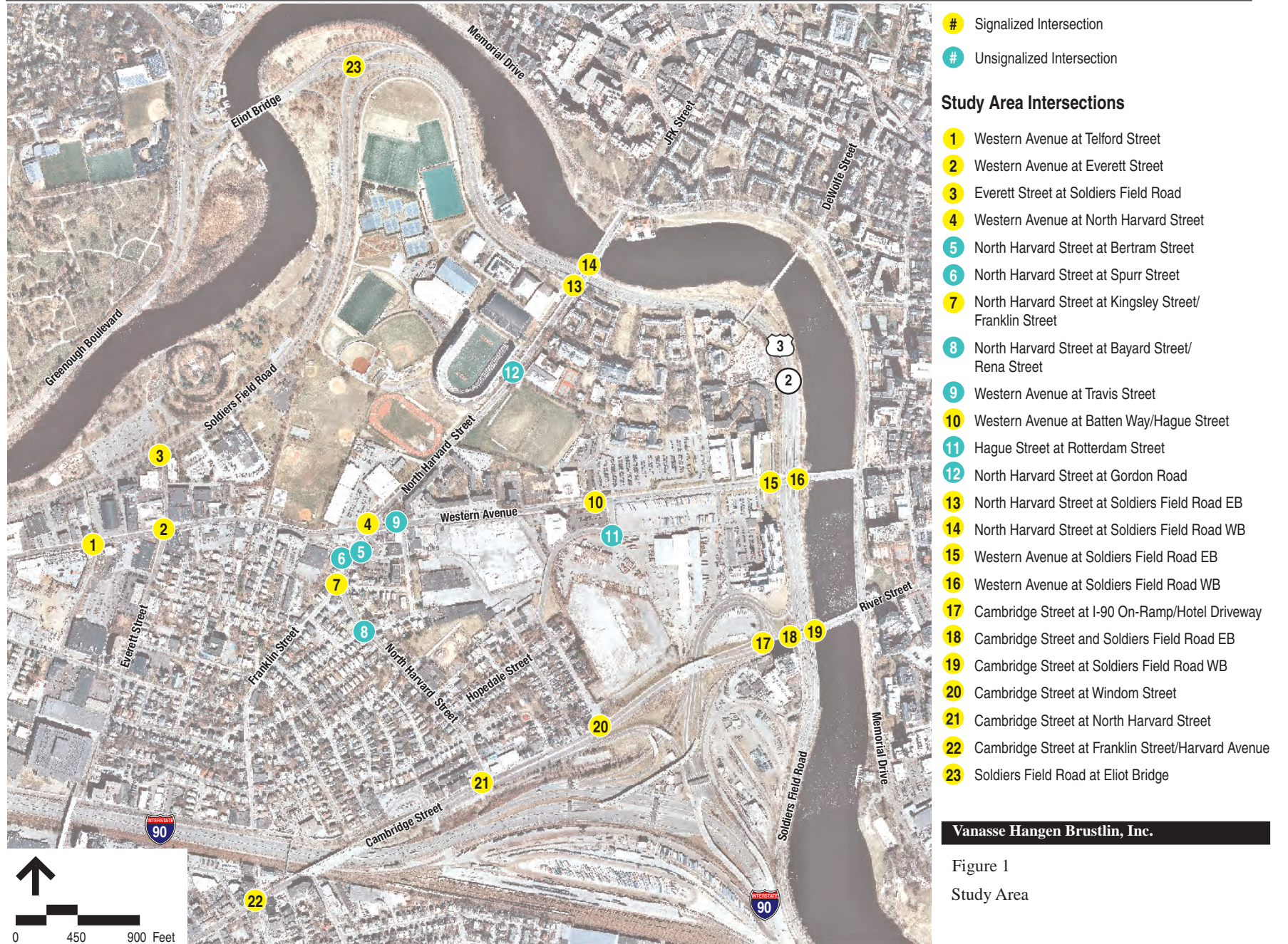
The future transportation system on the Allston Campus will be organized around “Mobility Hubs”. Mobility Hubs are points of multimodal access that provide a range of transportation options for travelers as part of a larger interconnected network. These facilities do not rely on the construction of significant transportation infrastructure. Instead, the focus is on providing different mode options and organizing them to provide information and convenient use to accommodate transfers between modes. In this way, the Mobility Hub network will provide a virtual structure to facilitate the use of non-auto modes and environmentally sensitive vehicles as the IMP area is developed.

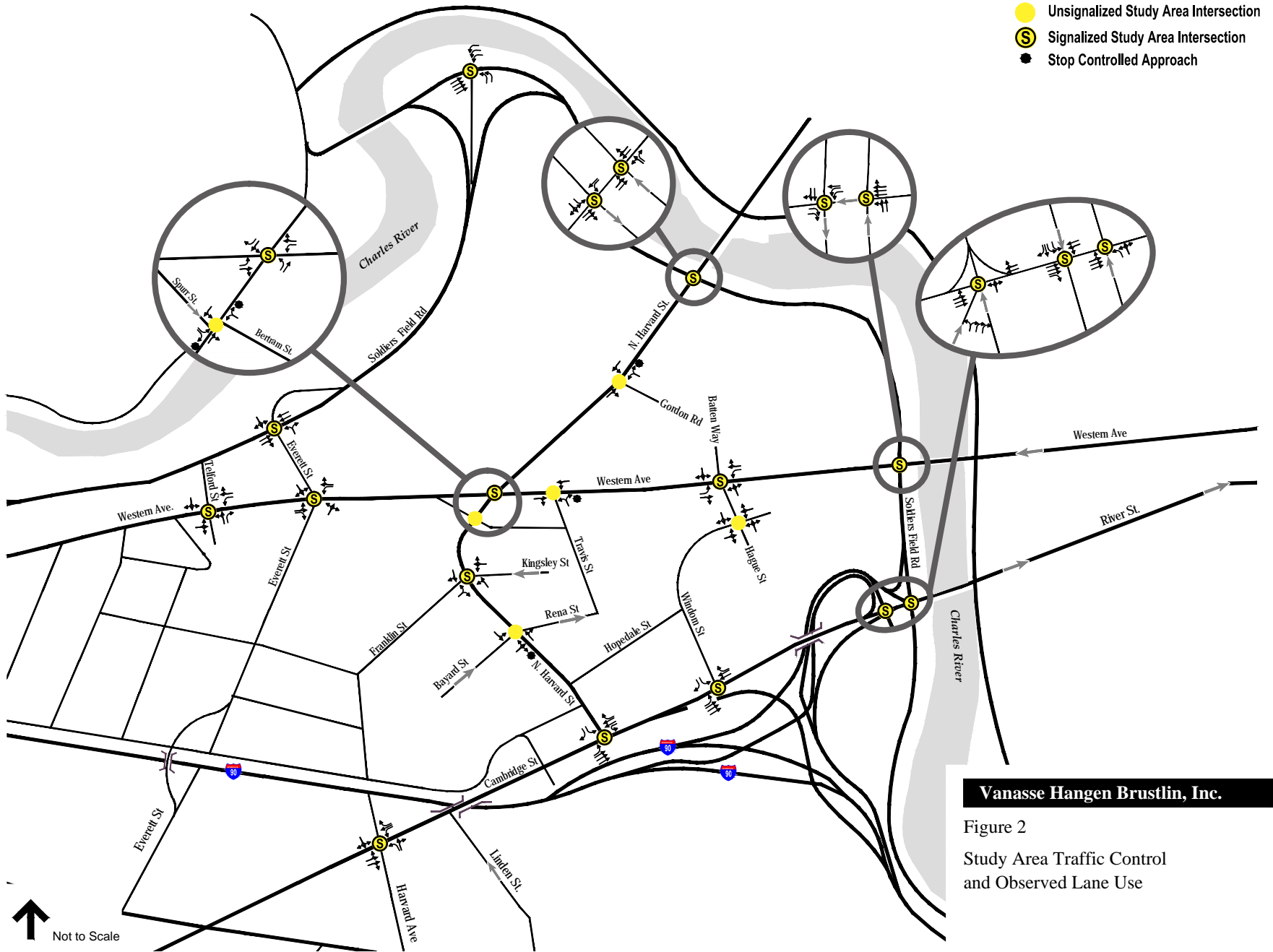
The Ten-Year Plan identifies five Mobility Hub locations in Allston: four locations are in the IMP area and one is at Brighton Mills, as illustrated in Figure 22. Each Mobility Hub is on one or two MBTA bus routes and four are located along Harvard shuttle routes. In addition to bus stops, Mobility Hubs can include Hubway stations, electric car charging stations, and carsharing services (e.g., Zipcar). Many of these elements are in place; others will be added or expanded as new projects are constructed.

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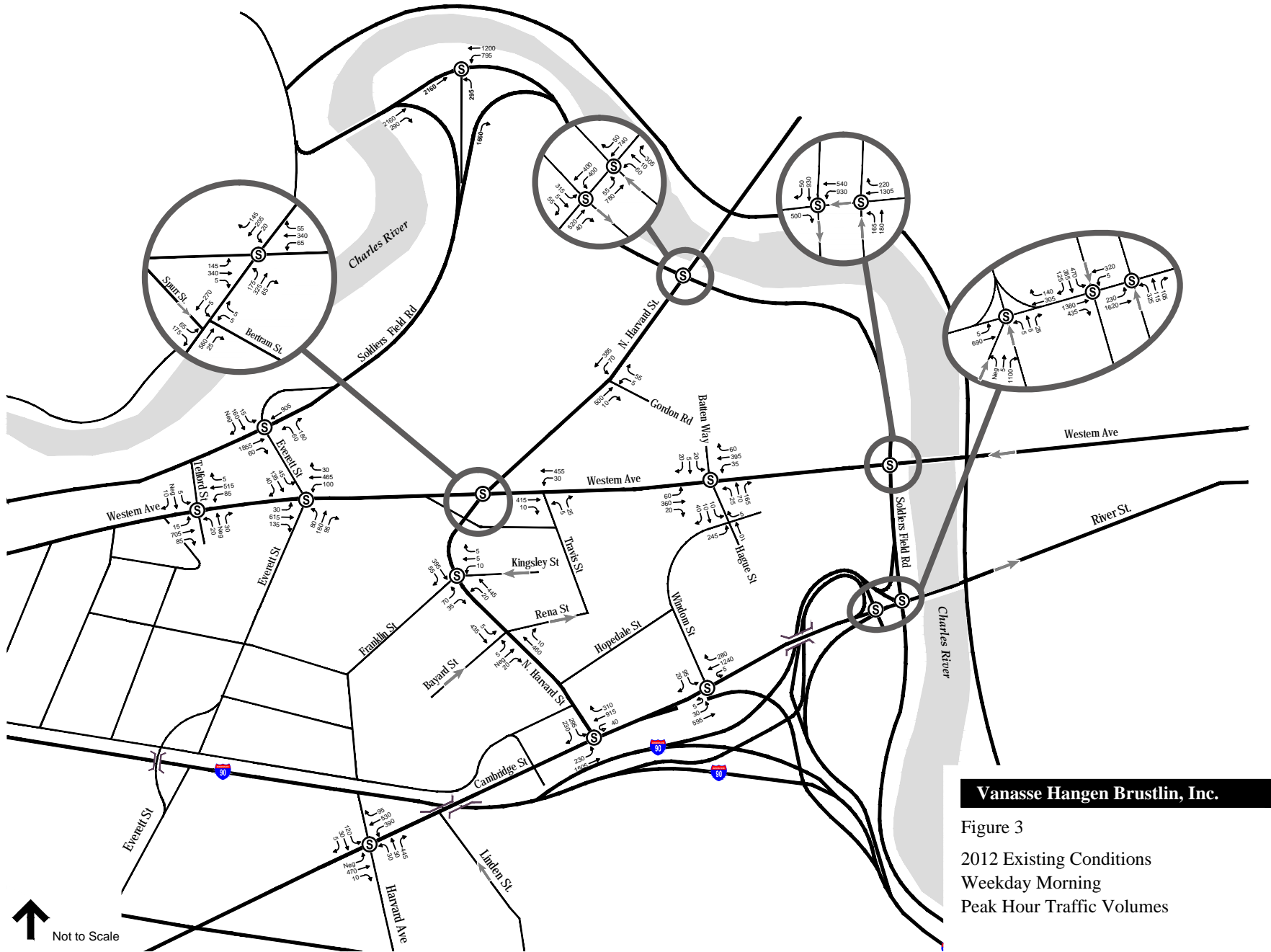
## Event Management

The proposed increase to the institutional parking supply along with the new pedestrian paths and streets will also improve Harvard’s ability to manage events at its athletic facilities and other venues, particularly at times when multiple events are occurring on the campus. Harvard currently uses a “shared parking” approach to accommodate event-related parking demand. These events typically occur at night and on weekends when commuter parking demand is low. The Harvard commuter-oriented parking in the Ten-Year Plan is particularly well suited to accommodate parking demand for athletic events, relieving pressure on the Spangler parking lot.



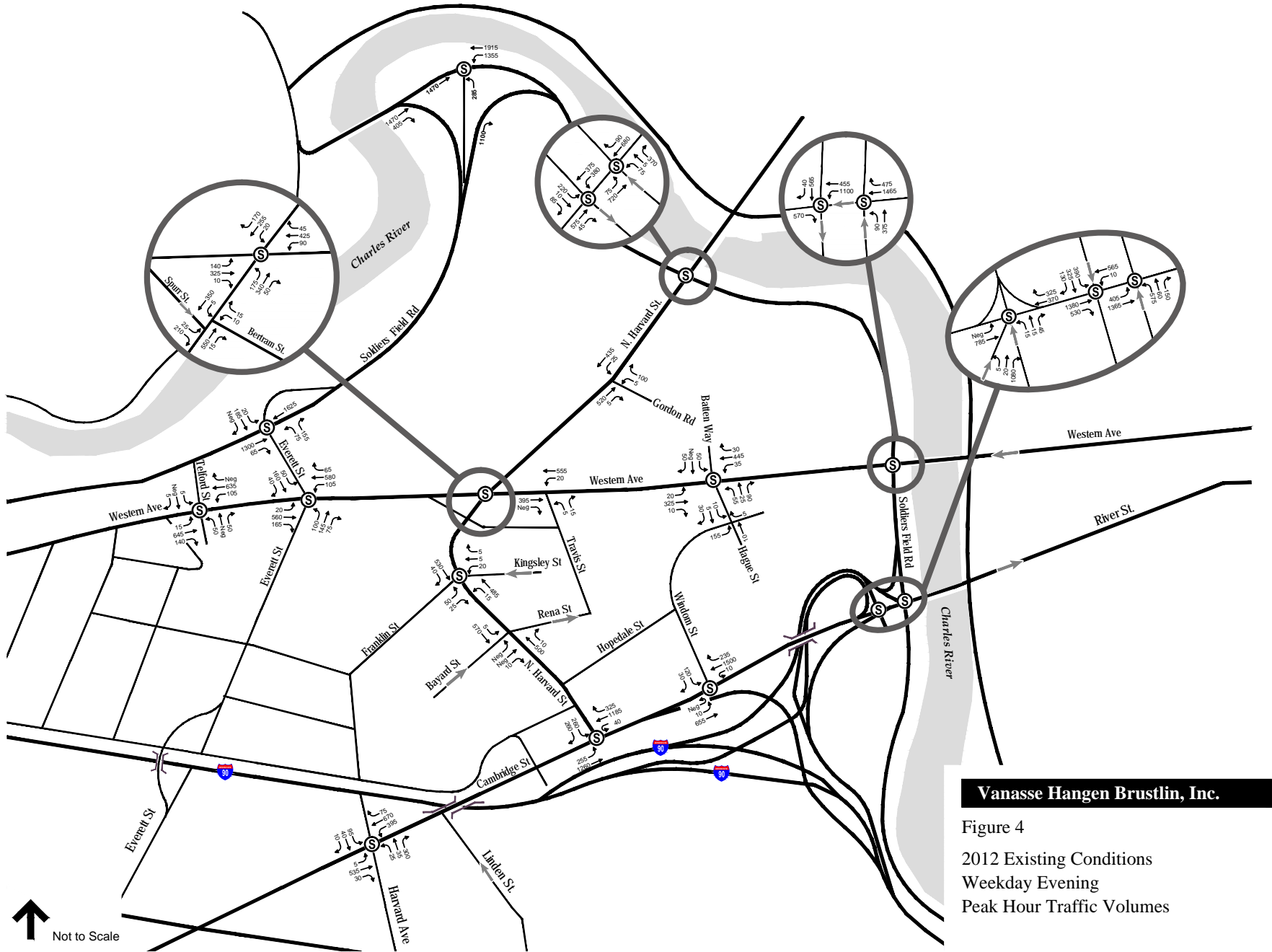






**Vanasse Hangen Brustlin, Inc.**

Figure 3  
2012 Existing Conditions  
Weekday Morning  
Peak Hour Traffic Volumes



**Vanasse Hangen Brustlin, Inc.**

Figure 4  
 2012 Existing Conditions  
 Weekday Evening  
 Peak Hour Traffic Volumes



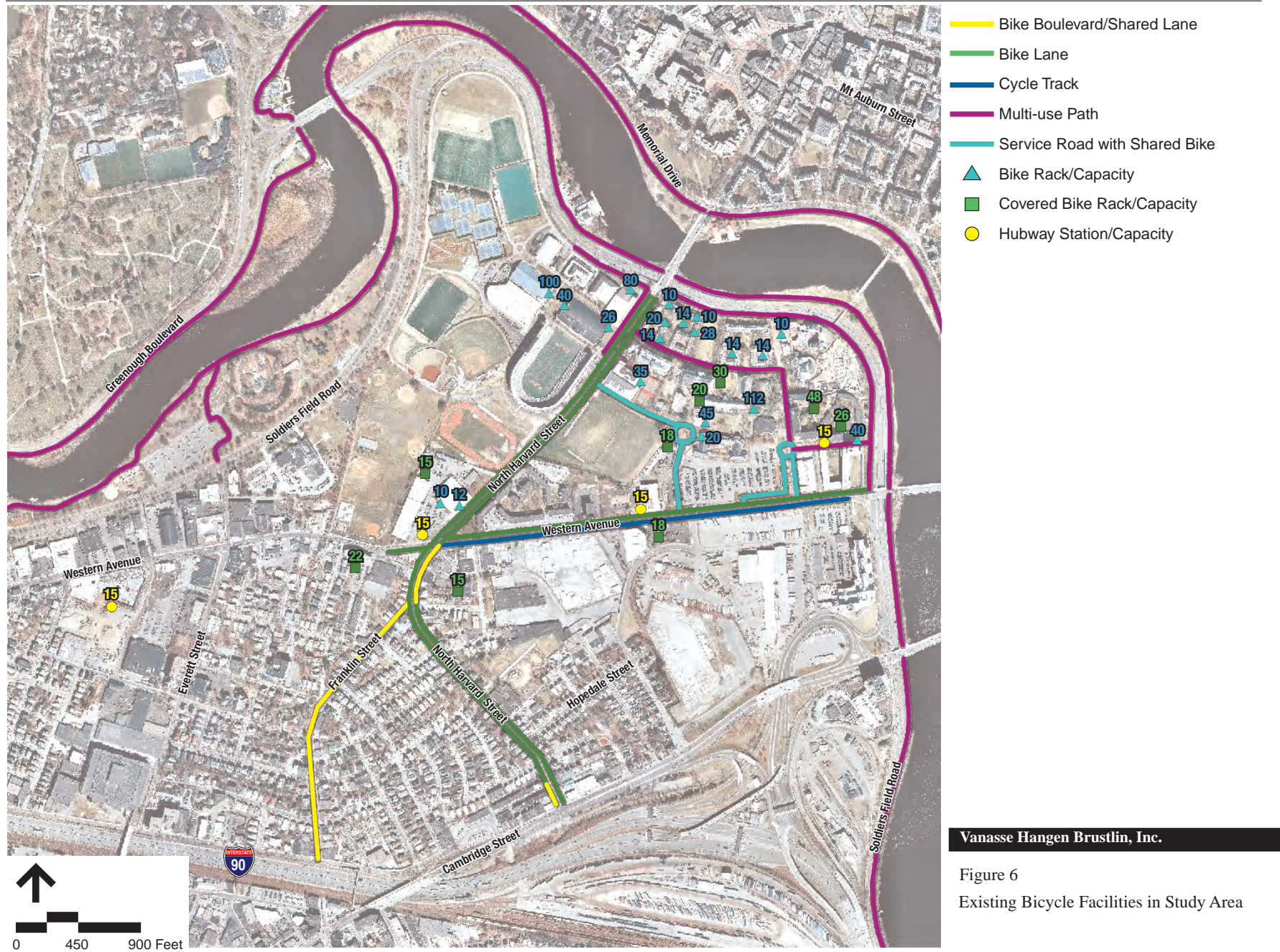
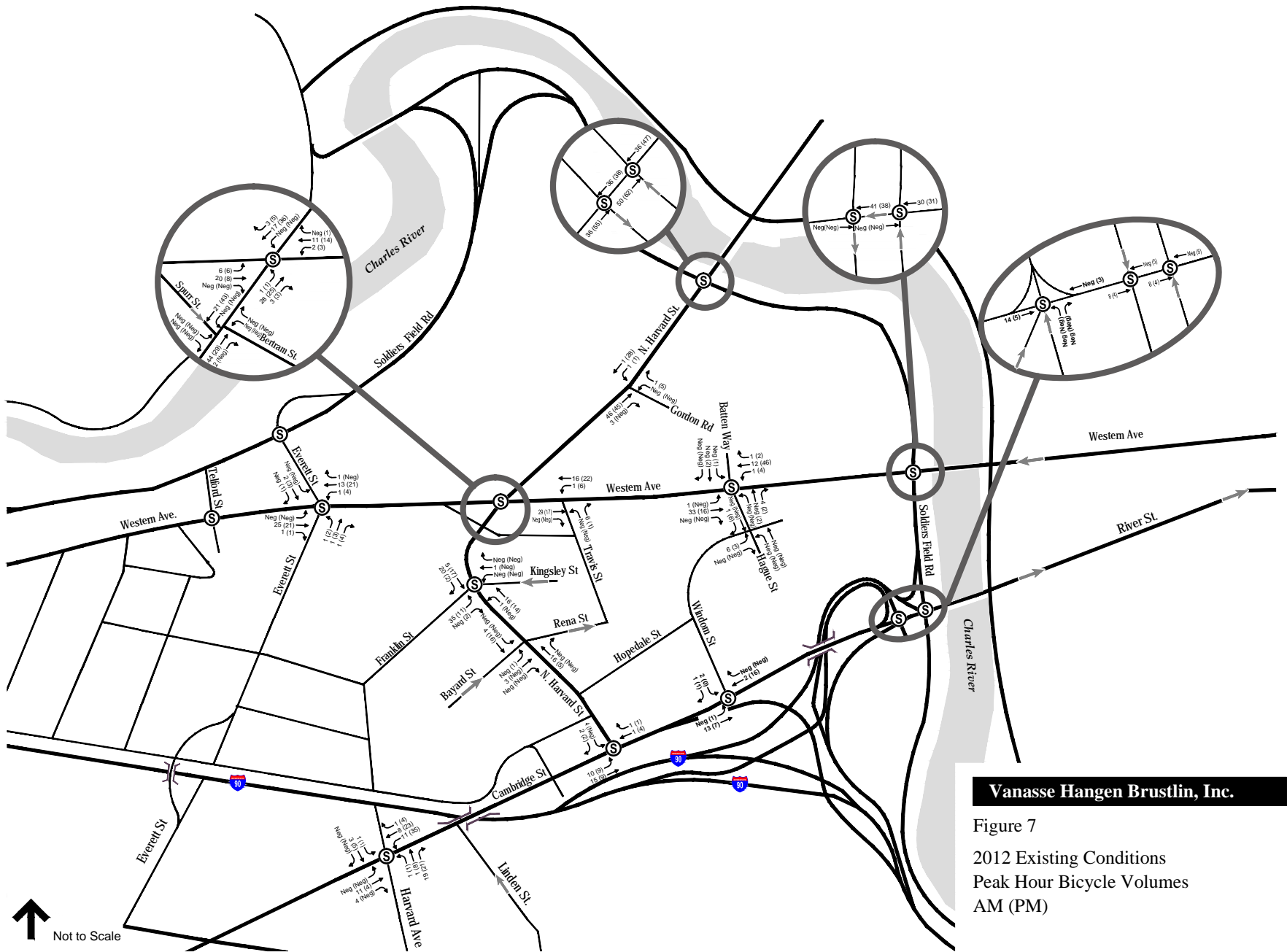


Figure 6  
Existing Bicycle Facilities in Study Area







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Figure 9  
Existing Institutional and  
On-Street Parking Inventory



● Loading Facilities

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Figure 10  
Existing Loading Docks

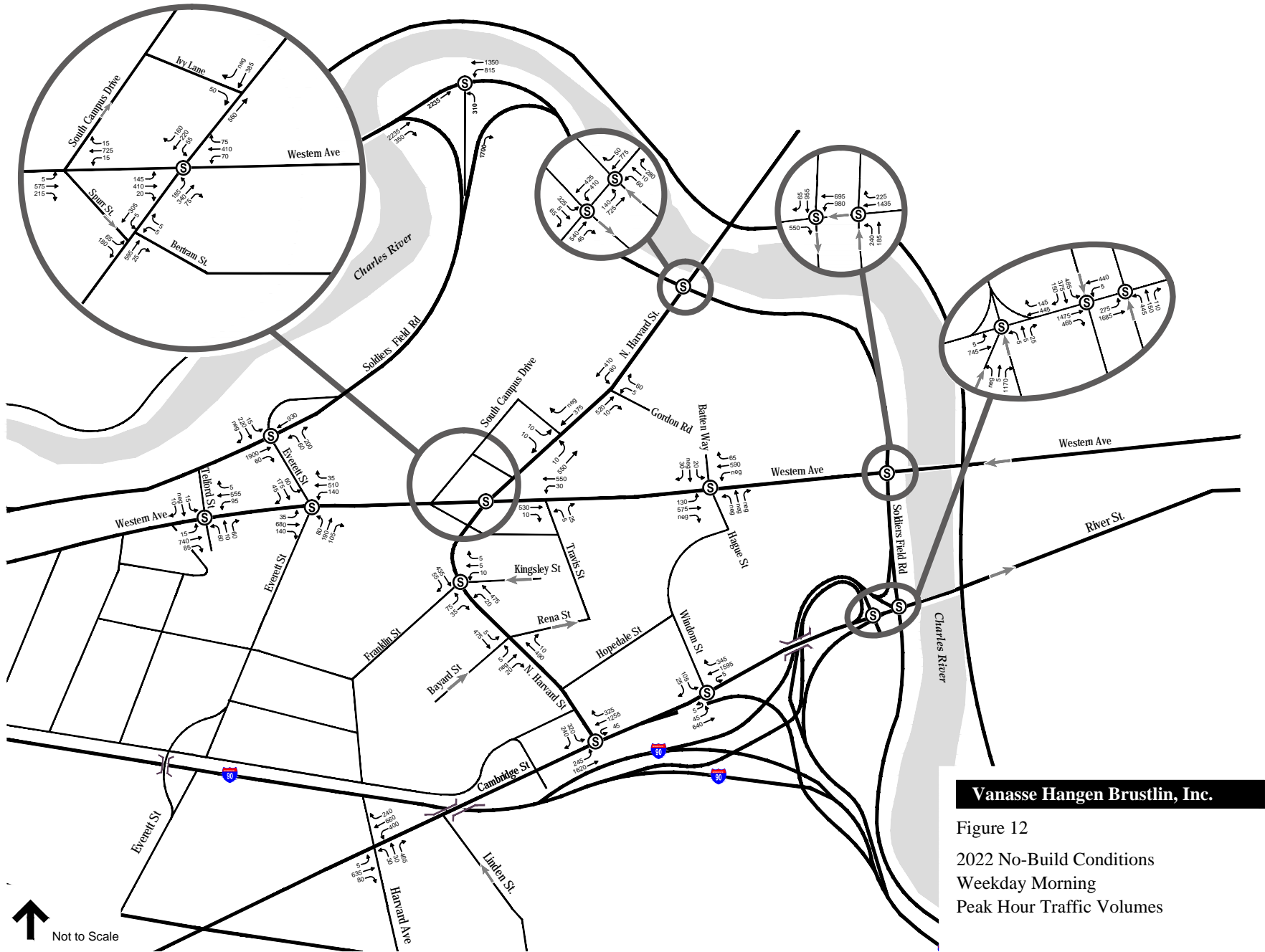


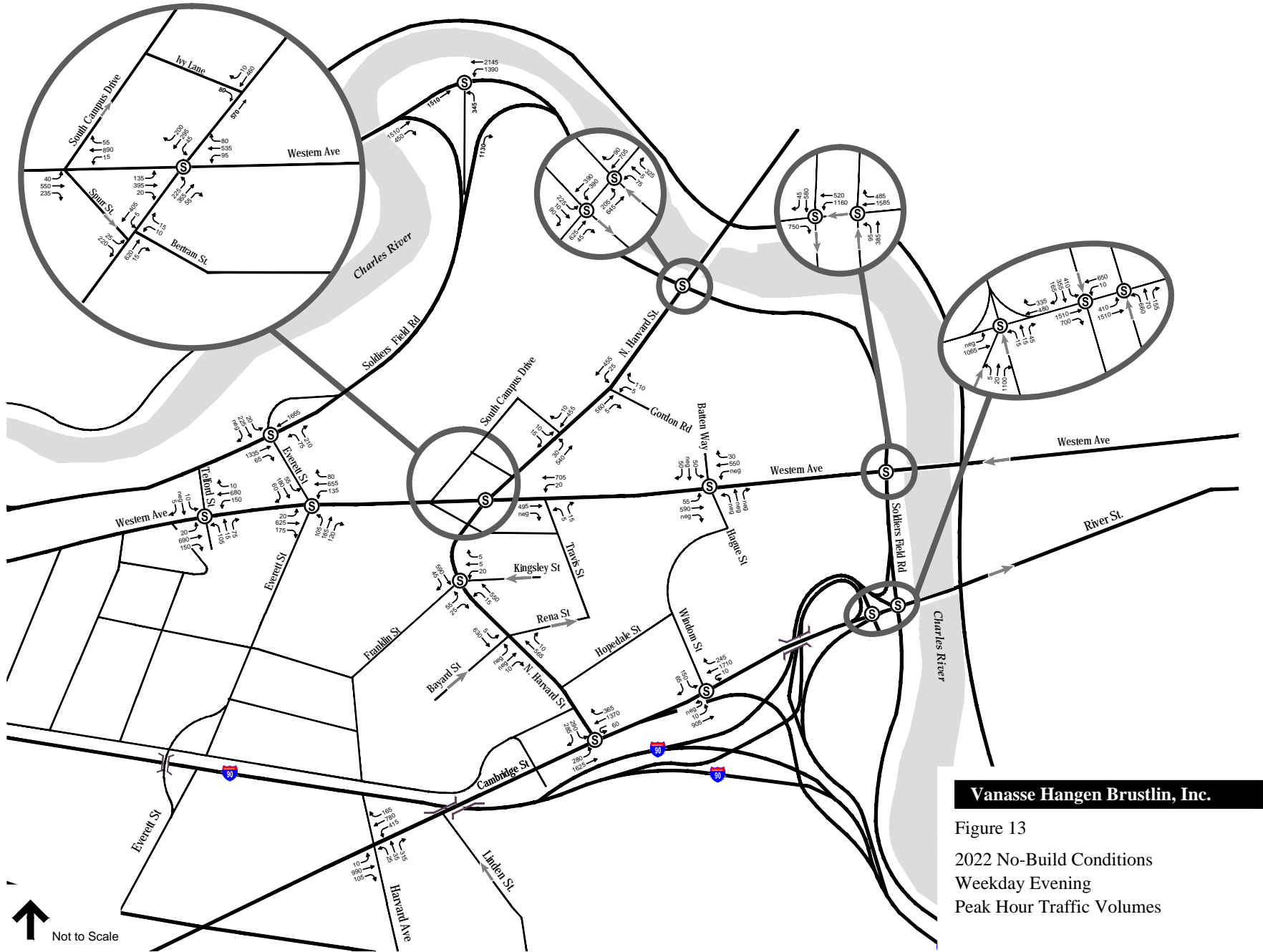


- 1 Science
- 2a Existing Charlesview Demolition
- 2b Charlesview Redevelopment
- 3 New Brighton Landing
- 4 Swiss Bakers
- 5 Barry's Corner RRCP
- 6 28 Travis Street
- 7 Tata Hall

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Figure 11  
Background Projects





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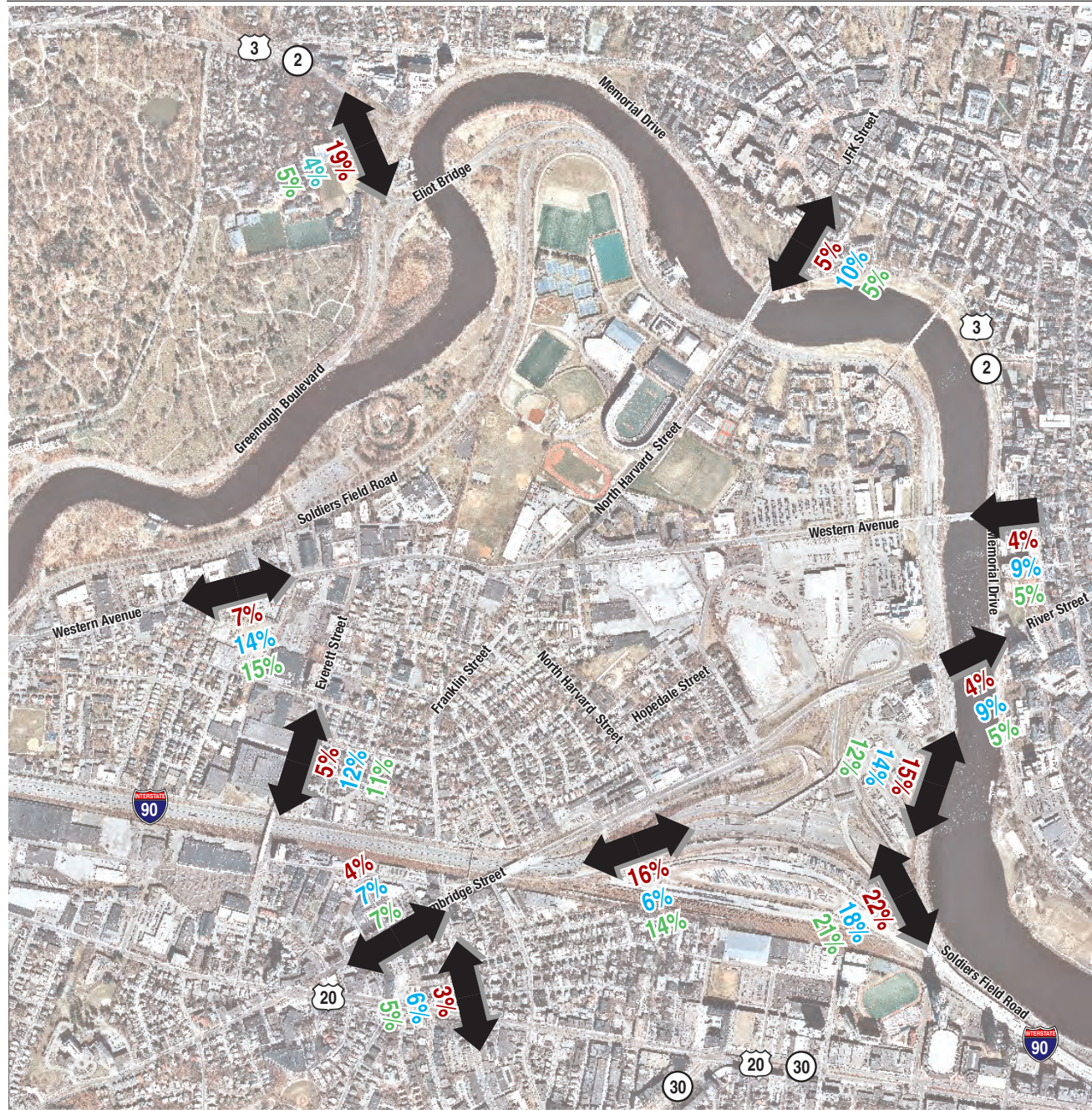
Figure 13  
2022 No-Build Conditions  
Weekday Evening  
Peak Hour Traffic Volumes



- ① Harvard Business School Chao Center (Kresge Hall Replacement)
- ② Harvard Business School Burden Hall Replacement
- ③ Harvard Business School Faculty & Administrative Office Building
- ④ Harvard Stadium Addition/Renovation
- ⑤ Mixed Use Facility & Basketball Venue
- ⑥ Gateway Project
- ⑦ Hotel & Conference Center
- ⑧ Harvard Business School Baker Hall Renovation (to be renamed Estevez Hall)
- ⑨ Soldiers Field Park Housing Renovation
  
- Ⓐ Science Project
- Ⓑ Barry's Corner Residential & Retail Commons
- Ⓒ 224 Western Avenue
- Ⓓ 28 Travis Street
- Ⓔ Tata Hall
- Ⓕ Bright Hockey/Gordon Track

**Vanasse Hangen Brustlin, Inc.**

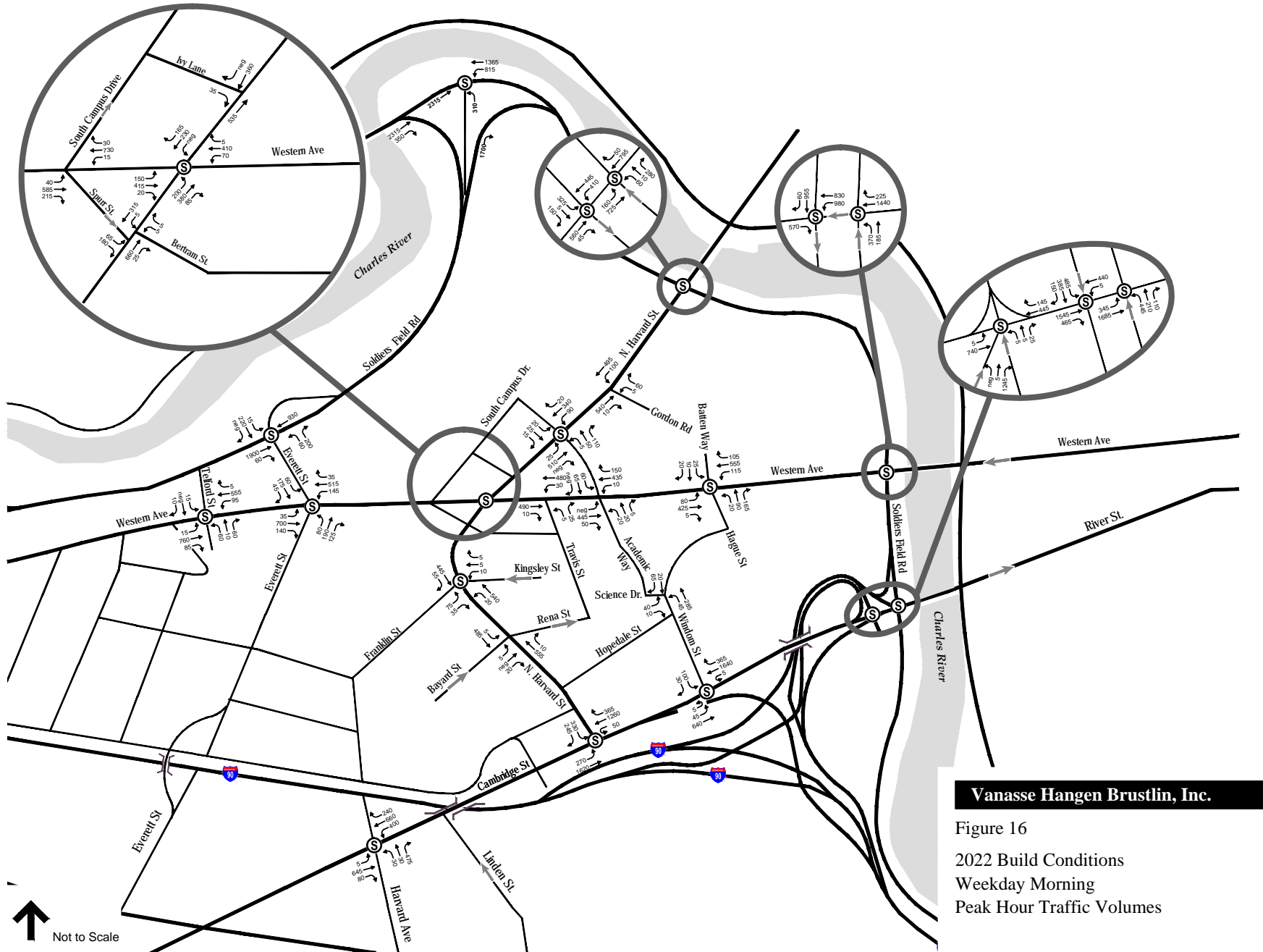
Figure 14  
Ten-Year Plan



- #% Harvard Affiliated
- #% Residential
- #% Retail

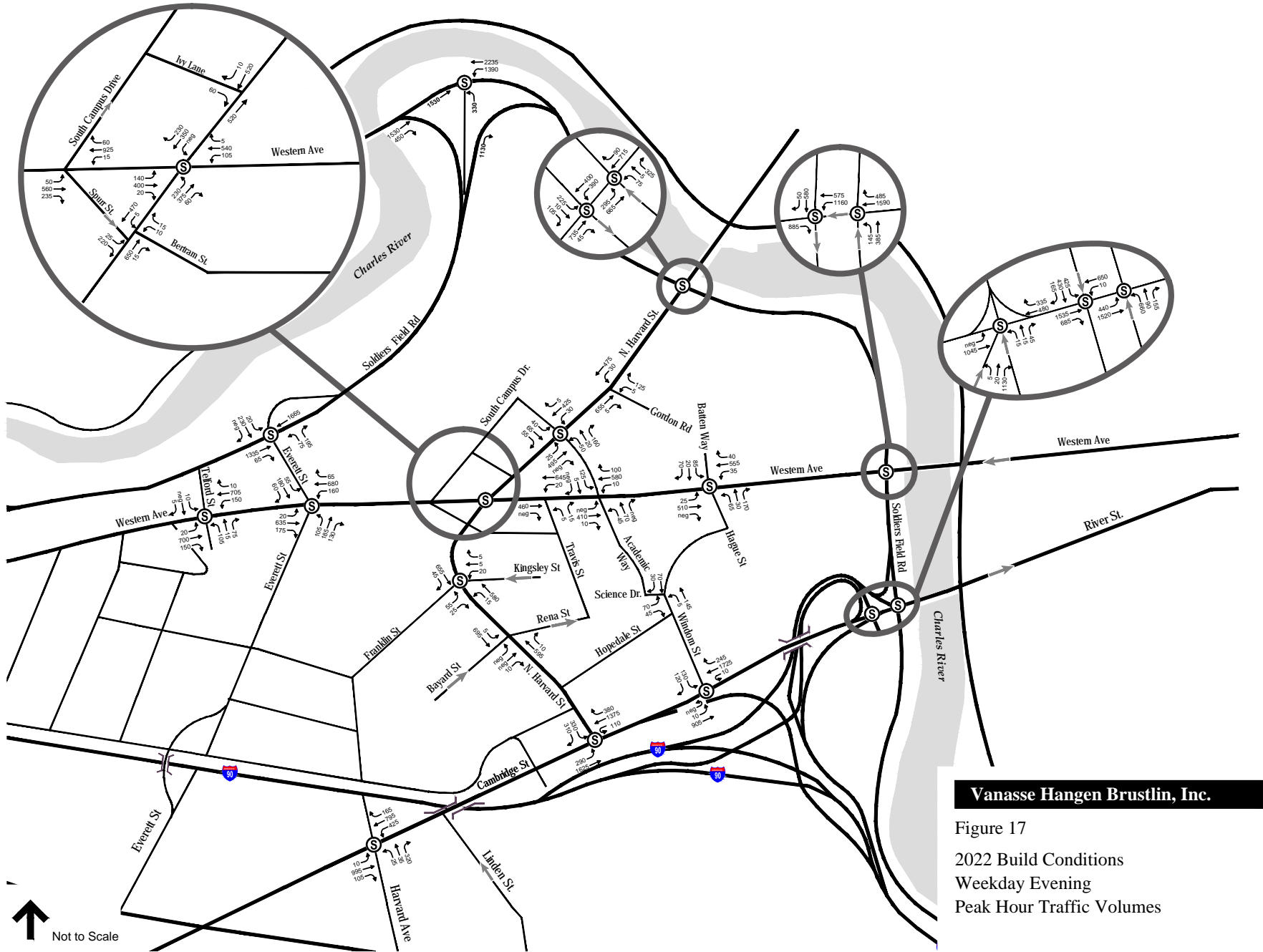
Vanasse Hangen Brustlin, Inc.

Figure 15  
Vehicular Trip Distribution



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Figure 16  
2022 Build Conditions  
Weekday Morning  
Peak Hour Traffic Volumes



**Vanasse Hangen Brustlin, Inc.**

Figure 17  
2022 Build Conditions  
Weekday Evening  
Peak Hour Traffic Volumes



**Existing Facilities**

- Bike Boulevard/Shared Lane
- Bike Lane
- Cycle Track
- Multi-use Path
- Service Road with Shared Bike
- Hubway Station/Capacity

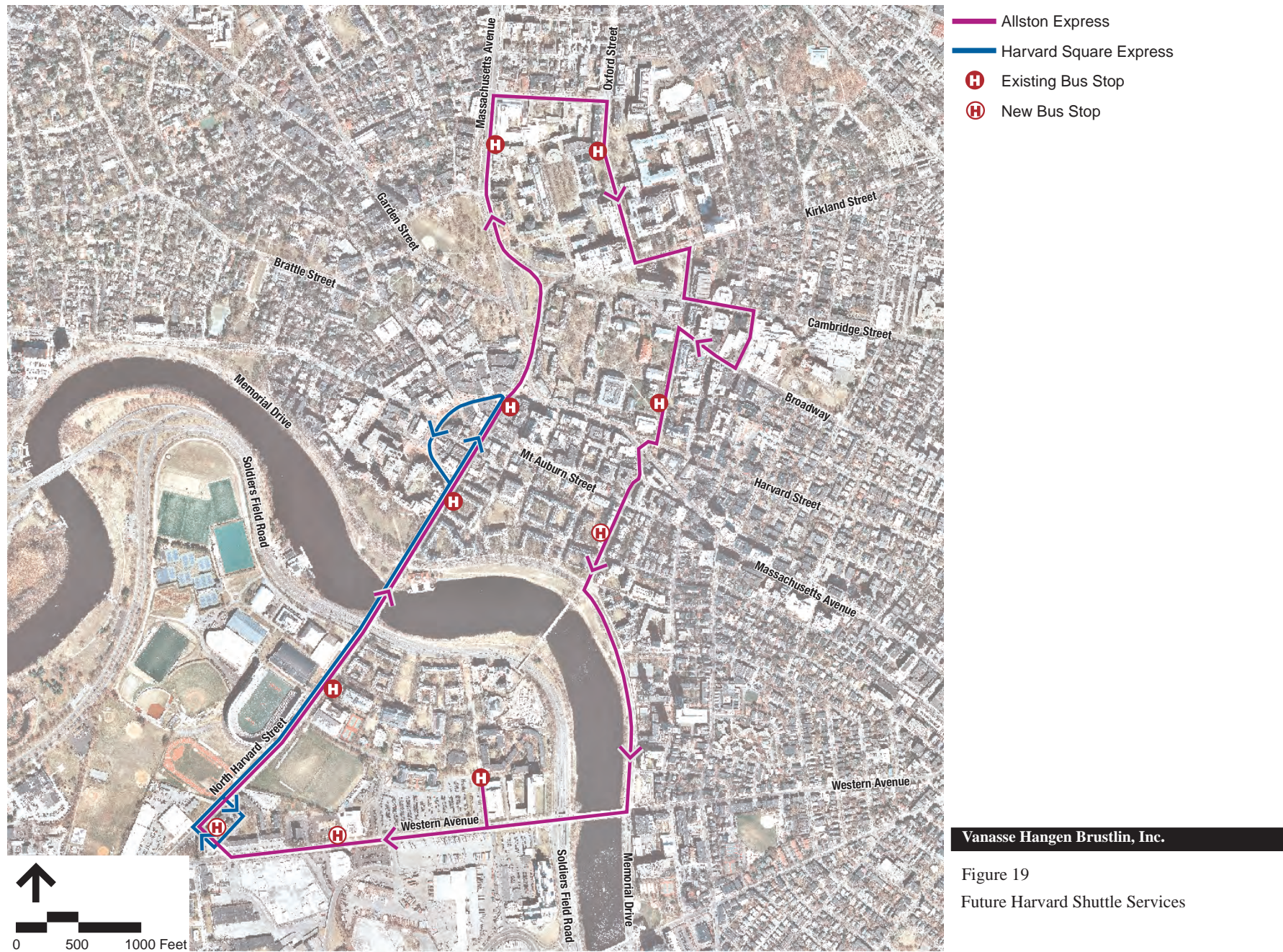
**Future Facilities**

- - - Bike Boulevard/Shared Lane
- - - Bike Lane
- - - Cycle Track
- - - Multi-use Path
- - - Service Road with Shared Bike

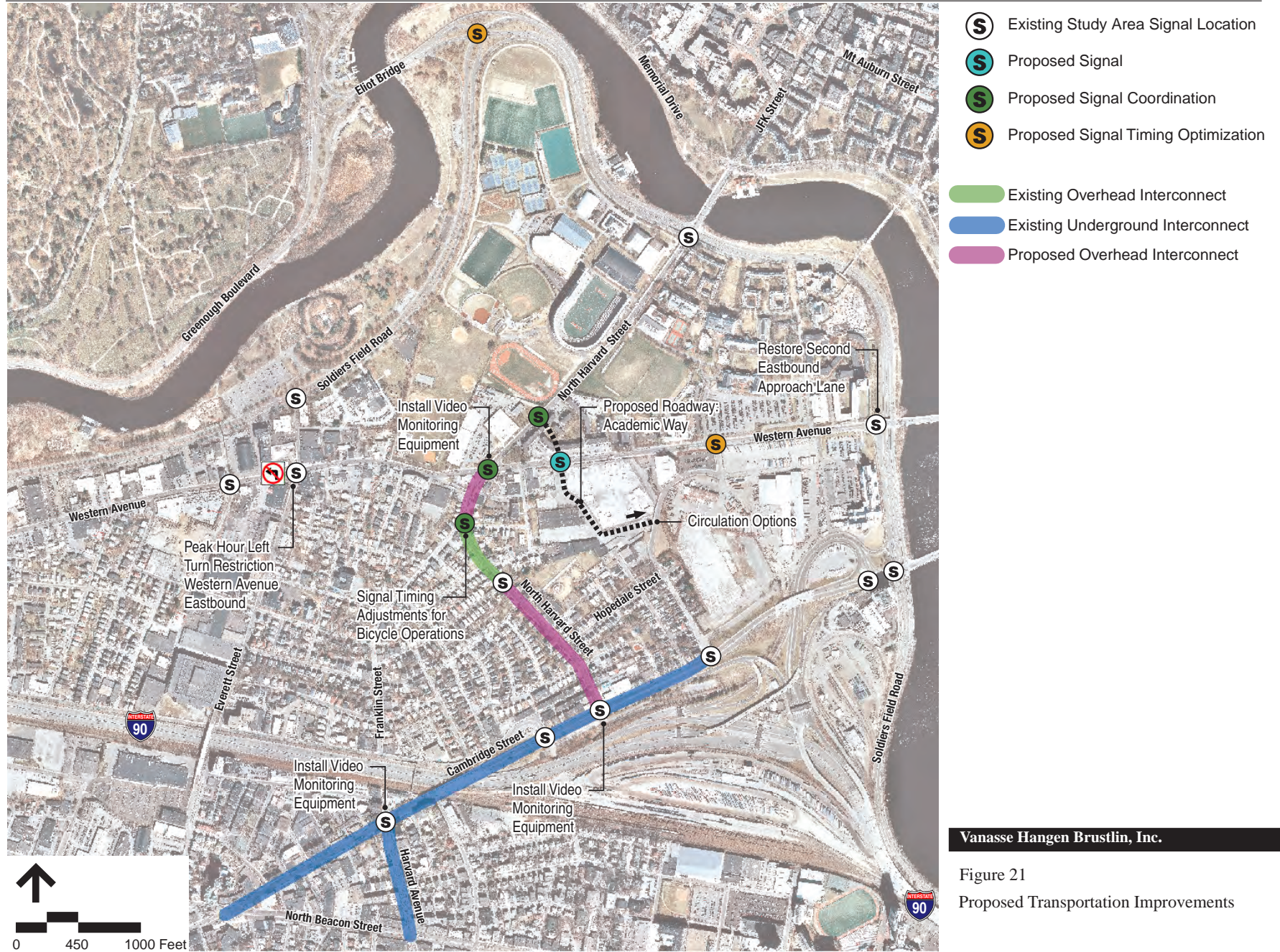
**Vanasse Hangen Brustlin, Inc.**

Figure 18  
Future Bicycle Connectivity Plan



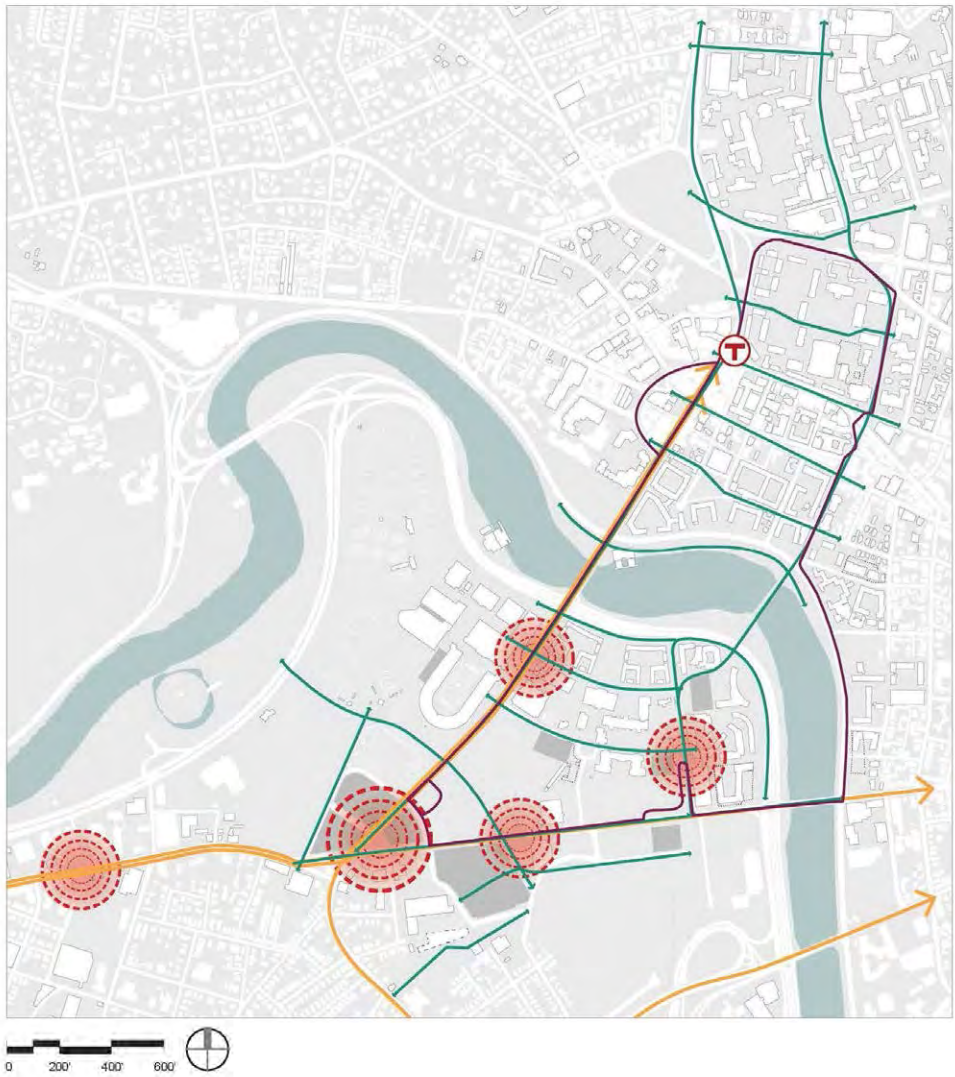






Vanasse Hangen Brustlin, Inc.

Figure 21  
Proposed Transportation Improvements



-  Hubway
-  MBTA Bus Stop
-  Harvard Shuttle Stop
-  Electric Charging Station
-  Zipcar Location

-  MBTA Bus Routes
-  Harvard Shuttle Route
-  "Ladder" Pedestrian Connection
-  Mobility Hub
-  Harvard MBTA Station
-  IMP Boundary

**Vanasse Hangen Brustlin, Inc.**

Figure 22  
Ten-Year Plan  
Mobility Hubs

# Harvard University Institutional Master Plan Transportation Study Technical Appendix

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Available Upon Request

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