Institutional Master Plan / Project Notification Form

IMP / PNF

Berklee college *of* music

Submitted to:
Boston Redevelopment Authority
One City Hall Square
Boston, Massachusetts 02201

Submitted by:
Berklee College of Music
1140 Boylston Street, MS-1140 OP
Boston, Massachusetts 02215

Prepared by:
Epsilon Associates, Inc.
3 Clock Tower Place, Suite 250
Maynard, Massachusetts 01754

In association with:
Goody Clancy
Goulston & Storrs, P.C.
William Rawn Associates, Architects, Inc.
Lee Kennedy Co., Inc.
LeMessurier Associates, Inc.
Rist-Frost-Shumway Engineering, P.C.
Schwartz Silver Architects
Vanasse Hangen Brustlin, Inc.
Haley & Aldrich, Inc.
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Rowan Williams Davies and Irwin Inc.

February 18, 2011 ***Revised May 10, 2011***

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Table of Contents

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

Table of Contents (Continued)

Table of Contents (Continued)

Table of Contents (Continued)

List of Appendices

List of Figures

List of Figures (Continued)

List of Figures (Continued)

List of Tables

List of Tables (Continued)

Chapter 1.0

Introduction / Mission and Objectives

1.0 INTRODUCTION/MISSION AND OBJECTIVES

1.1 Introduction

Boston's Berklee College of Music (Berklee), the world's leading independent music college for the study of contemporary music, as well as the world's largest music college, is pleased to provide this Institutional Master Plan (IMP) as a framework for its campus planning initiatives and development strategies through the next decade. Berklee alumni have won a total of approximately 200 Grammy Awards and 19 winners of 54 Latin Grammy Awards. Musicians such as Quincy Jones, John Mayer, Branford Marsalis, Diana Krall, and over 30,000 other career musicians and music professionals started their career trek at Berklee. The college now seeks the City of Boston's support to guide its much needed campus expansion.

Berklee has an enrollment of approximately 4,000 full time equivalent (FTE) on-campus students (as defined in Section 3.1.1), with approximately 1,000 coming from 79 countries outside the United States. Approximately 800 students are currently housed in dormitories on campus. Berklee employs approximately 1,100 faculty and staff, 30% of whom are Boston residents. Berklee contributes approximately $3.25 million annually to the City of Boston via PILOT, property taxes, and community service programs.

The projects included in the IMP, as well as potential future projects, will supplement Berklee's approximately 785,000 square feet (sf) presently owned and leased in the Back Bay, Fenway and one building in Allston/Brighton. Creating new space will also enable Berklee to address present critical space shortages, meet new needs for its increasingly technology-based curriculum and create a better sense of campus community for both its students and its neighbors.

The college has been encouraged by the Boston Redevelopment Authority (BRA), its own team of experienced advisors, and the Berklee College of Music Community Task Force (the Task Force) to develop its campus plans in a flexible and open manner so as to integrate the needs of the City and the college early in the IMP process. Berklee has voluntarily worked with city agencies and neighborhood groups for the past four years in advance of this submission to accomplish this goal.

Berklee's plans include three larger construction projects and a number of smaller campus improvement projects (IMP Projects or Proposed Institutional Projects). The IMP Projects include the following three projects:

- 168 Massachusetts Avenue, an approximately 155,000 sf[1] building with dormitory housing (approximately 370 beds), a new dining hall and student performance venue, music technology space, retail space, and common space;

- 161-171 Massachusetts Avenue, which includes the renovation of existing space and an approximately 20,280 sf addition to the building to be used for academic and administrative space; and

- Berklee Crossroads, an approximately 290,000 sf building at the corner of Massachusetts Avenue and Boylston Street with dormitory housing, theatre space and student life and academic space.

The IMP Projects also include smaller projects and campus improvements, as well as future space needs for which specific projects are not yet proposed as described in Chapter 5.

Berklee is submitting this 10-year IMP to allow for improved academic facilities, an increase in college-owned residential space, and an increase in space to meet other demands of the Berklee community while also decreasing the constraints that currently exist.

Berklee filed an Institutional Master Plan Notification Form (IMPNF) in January 2009. A Scoping Determination was issued by the BRA on April 6, 2009, providing the information required for the IMP. Due to the acquisition of the 168 Massachusetts Avenue site, Berklee filed a Notice of Project Change (NPC) to the BRA on December 7, 2010 adding the proposed project on the 168 Massachusetts Avenue site to the IMPNF and requesting a revised Scoping Determination. The BRA issued a letter revising the Scoping Determination for the IMP on December 24, 2010. The Scoping Determination and the letter in response to the NPC are provided in Appendix A.

With this IMP, Berklee is also submitting a Project Notification Form (PNF) for the 168 Massachusetts Avenue project (see Chapter 12). This project includes the construction of a new building with a dormitory, dining hall, academic and retail space. Please see Chapter 12 for further details on the 168 Massachusetts Avenue project and a discussion of impacts. A subsequent PNF will be submitted for Berklee Crossroads as the design is further defined.

1.2 Campus Location

The heart of Berklee's campus is in the vicinity of the corner of Massachusetts Avenue and Boylston Street, between two neighborhoods within the City of Boston, the Fenway and the Back Bay, and adjacent to a mixed-use district surrounding the Prudential Center (see Figure 1-1). The neighborhoods reflect differences in character and demographics, but they remain two of Boston's most desirable neighborhoods for residents, retailers and companies

[1] Square footages provided for the proposed projects represent square feet of Gross Floor Area as defined by the Boston Zoning Code.

Figure 1-1
Campus Location and Neighborhood Context

seeking office space. Each neighborhood sustains a variety of uses, a strong sense of history and is home to many of Boston's finest cultural, entertainment and sports venues. Both neighborhoods are products of visionary planning. Architect Arthur Gilman is credited with designing the filled lands of the Back Bay, and Fredrick Law Olmsted's Emerald Necklace created the green spine for the Fenway neighborhood.

Berklee College of Music is located within an area rich with public resources and private institutions that have a public mission. Resources contributing to the public realm that are located within a ten-minute walk of campus include the green space at Charlesgate, the Back Bay Fens portion of the Emerald Necklace, the Charles River Esplanade, the Commonwealth Avenue Mall, Hynes Convention Center, and the Boston Public Library. Private institutions with a public mission include The First Church of Christ, Scientist, the Boston Symphony Orchestra, Northeastern University, The Boston Conservatory, New England Conservatory of Music, the Massachusetts Historical Society, the Museum of Fine Arts, Isabella Stewart Gardner Museum, and Fenway Park.

1.3 History of Berklee College of Music

With an enrollment of approximately 4,000 FTE on-campus students, Berklee College of Music is the world's largest independent music college and the premier institution for the study of contemporary music. Berklee was founded by pianist/arranger and MIT-trained engineer Lawrence Berk in 1945 as Schillinger House of Music. Berk changed the name to Berklee School of Music in 1954, and the school granted its first bachelor of music degrees in 1966. In 1973, Berklee obtained accreditation and changed its name to Berklee College of Music. In 2004, the college inaugurated Roger Brown as its third president and announced a new vision for its future focused on the student experience.

Berklee was founded on two revolutionary ideas: that musicianship could be taught through the music of the time; and that the college's students need practical, professional skills for successful, sustainable music careers. While that bedrock philosophy has not changed, the music around Berklee has and requires that the college evolve with it.

For more than half a century, Berklee has demonstrated its commitment to its philosophy by wholeheartedly embracing change. The college continually updates its curriculum and technology to make them more relevant, and to attract diverse students who reflect the multiplicity of influences in today's music. To assure that Berklee continually attracts an ever-widening audience, the college strives to develop new initiatives that reflect the contemporary music component of its curriculum.

More than a college, Berklee has become the world's premiere learning lab for the music of today—and tomorrow. As a microcosm of the music world, Berklee reflects the interplay between music and culture in an environment where aspiring music professionals learn how to integrate new ideas, adapt to changing musical genres, and showcase their distinctive skills in an evolving community. The college is at the center of a widening network of industry professionals who use their openness, virtuosity, and versatility to take music in surprisingly new directions.

1.3.1 Berklee's Role in Boston's Music Culture

Berklee, founded on jazz and popular music rooted in the African cultural diaspora, offers a comprehensive curriculum that is distinctly contemporary in its content and approach embracing the principal musical movements of the time. As such, the college is a vital Boston cultural component that aids the City in its efforts to be an energetic, diverse, and welcoming place for its residents and businesses. More specifically, Berklee voluntarily provides significant community benefits, as detailed in Chapter 11, and takes an active role in promoting cultural arts directly, as well as through its consortium membership in the Fenway Cultural District.

The Back Bay and Fenway neighborhoods have long been known as cultural foci in the City of Boston. Berklee embraces the continuing opportunity to promote cultural arts within the city and immediate neighborhoods. In conjunction with its civic mission, Berklee is committed to enhancing its facilities and programs in order to augment vitality and civic life in Boston. Berklee also seeks to further Boston's strong cultural image with its future world-class music instructional space, as well as new performance spaces.

Approximately 28,000 Berklee graduates contribute significantly to the entertainment industry and cultural network in Boston, thereby fostering economic growth. Locally, Berklee communicates with approximately 6,000 Berklee graduates who reside in Massachusetts. While most are performers, many of them are active in the full range of the growing entertainment industry, as well as non-music professions.

1.3.2 Existing Programs of Study and Degrees

Berklee College of Music prepares students for careers as instrumentalists, writers, arrangers, composers, engineers, producers, and teachers, as well as for careers in music therapy and music business management. Berklee offers programs leading to the degree of Bachelor of Music or the Diploma in Professional Music. The degree program combines general education courses with the study of music, while the diploma program is an all-music program. In either program, students may select a major in the disciplines listed below. Degree candidates may also undertake a five-year dual major combining music education with one of the other single majors. Dual majors are also available in various combinations. Currently, approximately 85 percent of the student body is enrolled in the degree program, an increase from approximately 75 percent nine years ago.

Berklee offers student musicians courses of study toward a fully accredited four-year baccalaureate degree or diploma in the following:

- Composition
- Contemporary Writing and Production
- Electronic Production and Design
- Film Scoring
- Jazz Composition
- Music Business/Management
- Music Education
- Music Production and Engineering
- Music Therapy
- Performance
- Professional Music
- Songwriting

In addition to programs on campus, the college offers an extensive array of international programs in a variety of its areas of study. The Berklee International Network includes 15 partner schools in 13 countries where Berklee conducts student and faculty exchanges and annual information sessions, auditions and interviews. Students may also participate in Berklee study abroad programs in Freiburg, Germany and Athens, Greece; student exchange programs in Nancy, France and Kobe and Nagoya, Japan; and a number of other programs through collaborations with other colleges and universities. Berklee's on-campus summer program also includes the International Musicians' English Language Institute (IMELI); workshops for guitar, percussion, voice, songwriting, and strings; and professional development opportunities for teachers already in the classroom. A significant number of participants from these workshops have subsequently enrolled as full-time students at Berklee.

1.4 Mission and Objectives

1.4.1 Mission

The mission of Berklee College of Music is "to educate, train, and develop students to excel in music as a career."

Developing the musicianship of all its students is the foundation of its curriculum. Berklee believes that the lessons and qualities derived from that work—the self-discipline needed for excellence, the empathy required of music making and the openness and inquisitiveness essential to creativity—are critical to achievement in any pursuit, musical or otherwise; and that music is a powerful catalyst for personal growth that is central to any collegiate experience.

The comprehensive curriculum Berklee provides is distinctly contemporary in its content and approach, and covers the principal musical movements of our time. Through a course of scholarly and practical learning experiences integrating performance and writing, the college's curriculum covers the variety of influential styles, relevant technologies, and career opportunities open to today's music professional.

1.4.2 Objectives

Berklee has a number of objectives related to its students, its campus and its community as described below:

- To define and refine the individual talents of students by providing a broad range of major programs offered by a distinguished faculty, and to prepare them for careers in music that reflect the diversity of expression and opportunities that define music today;
- To enable students to employ their musical educations in a global society by providing a coherent liberal arts curriculum that informs their thinking about issues that have shaped the present;
- To encourage students to appreciate and apply music's enormous force for the enrichment of society and intercultural understanding;
- To cultivate a supportive learning environment by actively promoting a climate of respect for personal and cultural differences, and by offering a range of services and activities to support the needs of the student musicians who come to Berklee from around the world;
- To maintain the vitality of Berklee's community by encouraging and supporting continuing professional development for all its members;
- To provide an environment in which all know that they are full and valued members of the community;
- To value ethical behavior in all aspects of personal and professional life by establishing a community that values integrity in all relationships; and
- To retain the college's leadership position in music education and ensure that the curriculum remains relevant by pledging to value academic freedom and innovation.

1.5 Needs of the Institution

Berklee's growth has been accommodated by purchasing nearby properties as they become available, and leasing properties as needed and available. However, Berklee's student body grew to approximately 4,000 FTE on campus without a proportional increase in available facilities. This has resulted in overcrowded academic and administrative spaces, as well as an increased student population that can not be accommodated in Berklee-owned dormitories. Berklee has only 800 beds of dormitory housing available on campus, resulting in the college being unable to accommodate all entering students in dormitory housing.

Increasing the number of available dormitories on campus will improve retention rates, increase the quality of life for Berklee students, and strengthen collaboration and community building within a highly diverse student body. More on-campus housing will also make the college more attractive to international students and female students. Developing new dormitories also will diminish the Berklee students' likelihood of occupying privately-owned apartments in Boston neighborhoods, thereby effectively increasing the supply of neighborhood resident housing. College officials, neighbors, and the City of Boston have agreed that Berklee should strive to house approximately half of its students; accomplishing this will require accommodations for an additional 1,200 people.

At the same time that enrollment has grown, technology has become an increasingly integral component of contemporary music and music education, creating a greater need and demand for state-of-the-art studios and equipment. In order to maintain its competitive edge as the premier undergraduate institution for contemporary music education, it is crucial that Berklee build additional music technology space and update its existing facilities. In addition, a reliance on leased property to meet the college's space needs is unsustainable in the long-term.

In summary, the campus needs guiding this IMP include the following:

- Create more student housing (approximately 1,200 beds);
- Improve the campus life experience for students;
- Upgrade academic facilities and enhance technology spaces;
- Reduce overcrowding in academic and administrative spaces;
- Accommodate prior growth in student enrollment;
- Reduce reliance on leased space and consolidate departments;
- Create a unique, contemporary campus building that signifies Berklee's stature;

- Improve performance facilities to better serve today's music; and

- Improve the Berklee Performance Center.

In furtherance of the foregoing, Berklee now proposes three projects totaling approximately 500,000 sf of net new space (including student housing). Chapter 5 provides a description of these IMP Projects.

The projects proposed in the IMP will improve the functionality of the Berklee campus, enrich the student experience, and enable the college to make great strides towards satisfying the space needs that have been expressed. The three Proposed Institutional Projects will also enable many students living in apartments in Boston's neighborhoods to occupy college-managed housing and to otherwise help enhance the environment around the Berklee campus.

1.6 Institutional Master Plan Summary

The proposed IMP Projects are 168 Massachusetts Avenue, 161-171 Massachusetts Avenue, and the Berklee Crossroads, as shown in Figure 1-2 along with the other campus improvements projects and leased space described in Section 5.2.4.

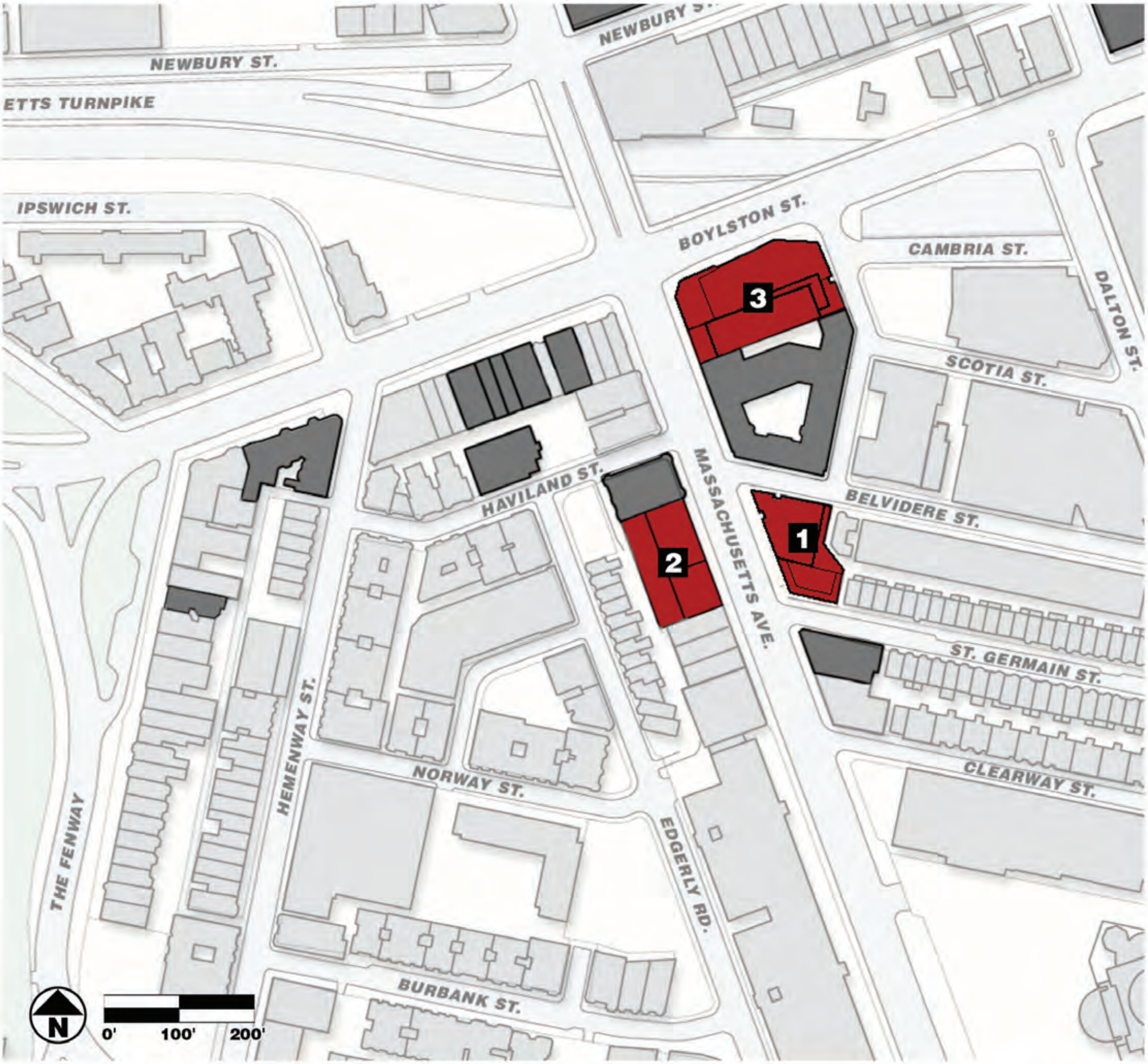
- 168 Massachusetts Avenue, an approximately 155,000-sf building with an approximately 370-bed dormitory, an approximately 400-seat dining hall and student performance venue, approximately 19,000 sf of music technology space, approximately 5,000 sf of retail space, and common space that includes a lobby, interior loading area, and mechanical space. The project also includes a roof deck and green roof open to use.

- 161-171 Massachusetts Avenue, which includes the renovation of existing space and an approximately 20,280-sf addition to the building to be used for academic and music technology space.

- Berklee Crossroads, an approximately 290,000 sf building at the corner of Massachusetts Avenue and Boylston Street will include an approximately 450-bed dormitory, approximately 65,000-sf theatre space to replace the existing Berklee Performance Center, and approximately 45,000 sf of student life and academic space.

The other campus improvement projects and leased space include the following:

- The demolition of a previously constructed addition to the 150 Massachusetts Avenue building and the widening and landscaping of the Belvidere Street sidewalk near Massachusetts Avenue.



PROPOSED IMP PROJECTS

1 168 Massachusetts Avenue
RESIDENCE HALL, DINING, STUDENT LIFE, MUSIC TECHNOLOGY/ACADEMIC SPACE

2 161–171 Massachusetts Avenue
ACADEMIC

3 The Berklee Crossroads
NEW BERKLEE PERFORMANCE CENTER, RESIDENCE HALL, STUDENT LIFE/ACADEMIC SPACE

Figure 1-2
Proposed IMP Projects

- Creation of a new entrance and circulation improvements related to 150 Massachusetts Avenue.
- The conversion of dining hall space in 150 Massachusetts Avenue to academic space.
- Renovations at 22 The Fenway including the conversion of administration space to classroom space.
- Interior renovations to college-owned buildings located at 155 Massachusetts Avenue, 1100 Boylston Street and 1108 Boylston Street.

1.7 Community Benefit Summary

During the period between July 1, 2009 and June 30, 2010, Berklee paid $270,304 to the City via Payments in Lieu of Taxes, approximately $760,000 in property taxes, and also provided an estimated value of $2.2 million in community programs financial support. The President's Office of Education Outreach supports the college in its commitment to cultural, artistic, and educational development through partnerships, programming, scholarships, and public service through music. Berklee's 2010 PILOT report is included in Appendix A.

Berklee City Music

Berklee City Music is the college's strategic initiative to engage musically talented urban students, grades 6 through 12, in a yearlong curricular music education program, offered at no cost to students or their families. To prepare students for entry, Berklee City Music facilitates an outreach initiative that starts at grade four. As they receive the finest contemporary music education available to young people, participants are poised for acceptance and scholarships to Berklee College of Music and other institutions of higher education.

The Office of Community Affairs and Campus Engagement

Berklee's Office of Community Affairs and Campus Engagement manages a variety of programs that engage the college with communities in the Boston area. The office works in partnership with public schools, community-based organizations, and municipal agencies to implement programs that enrich the college and include Berklee students, faculty, and staff in the development and empowerment of local neighborhoods. Partners include Inquilinos Boricuas en Acción; the Mayor's Office of Arts, Tourism, and Special Events; Sociedad Latina; Music and Youth Initiative; Boston Public Schools; Boys & Girls Clubs; Boston Parks and Recreation Department; Hyde Square Task Force; Museum of Fine Arts; Neighborhood Association of the Back Bay; Fenway Civic Association; Fenway Alliance; Fenway CDC; and many more.

Berklee City Music National

Berklee City Music National manages a consortium of community organizations across the United States committed to delivering high-quality contemporary music instruction to underserved youth. Member sites plug into a virtual network that gives them instant access to Berklee's online music resources. The Berklee PULSE Music Method—based on the Berklee City Music curriculum and a library of popular r&b, rock, hip-hop, and jazz songs—teaches music theory, ear training, and performance. Webcasting and videoconferencing provide face-to-face interaction between Berklee City Music National students at member sites and faculty and students at Berklee's Boston campus.

1.8 Public Participation

The Berklee College of Music Community Task Force was initiated by the City of Boston in September 2006 to build a mutual understanding of college and neighborhood needs with community stakeholders. This open process, encouraged by the BRA and supported by Berklee's Trustees and Administration in advance of the IMPNF filing, fostered discussions of campus planning initiatives that Berklee was preparing to undertake. To date, Berklee representatives have engaged in a process that began four years ago. The campus plans, shared with the Task Force, serve as a roadmap for the future of the college and the development strategies that comprise the road map are the subject of this IMP. As part of the Task Force review process, Berklee has presented and discussed future development plans with community leaders and stakeholders during the following Task Force meetings. These meetings also included a walking tour of buildings on the campus and in surrounding neighborhoods.

Monday, September 18, 2006	Thursday, September 25, 2008
Friday, September 29, 2006	Monday, October 20, 2008
Monday, October 30, 2006	Thursday, November 20, 2008
Tuesday, December 5, 2006	Thursday, December 11, 2008
Tuesday, February 6, 2007	Monday, February 2, 2009
Tuesday, March 6, 2007	Thursday, May 14, 2009
Tuesday, April 10, 2007	Tuesday, June 16, 2009
Tuesday, May 1, 2007	Wednesday, August 12, 2009
Tuesday, June 5, 2007	Monday, November 29, 2009
Tuesday, September 11, 2007	Monday, December 20, 2010
Tuesday, October 2, 2007	Monday, January 10, 2011
Tuesday, December 11, 2008	Monday, January 24, 2011
Tuesday, April 28, 2008	Monday, February 7, 2011

Berklee is committed to an open, inclusive, and transparent campus planning process via the Task Force. The Task Force process has been a positive experience for Berklee that has helped the college develop a shared vision about the kind of place Berklee could become. With the assistance of city and state representatives in the Back Bay and Fenway area, the following members of the community were invited to be the Task Force:

Susan Ashbrook	Neighborhood Association of the Back Bay
Tim Horn	Fenway Civic Association
Valerie Hunt	Area Resident – Boylston Street
Gail Korn	Area Resident – Newbury Street
Meg Mainzer-Cohen	President and Executive Director, Back Bay Association
Kelly Brilliant	Executive Director, Fenway Alliance
Richard Pendleton	Fenway CDC
Karla Rideout	149 Massachusetts Avenue Co-operative resident
Ellen Shortell	Neighborhood Association of the Back Bay
Barbara Brooks Simons	Acting President, Symphony United Neighbors
Randy Kreie	Area Resident – St. Stephen Street, Fenway

In addition, elected officials who have participated throughout the Task Force process include City Councilor Michael Ross, State Representative Byron Rushing and State Representative Marty Walz.

During of the preparation of a draft of its IMPNF in 2007, Berklee proposed its Crossroads project, a development plan for its 130-136 Boylston Street properties located at the intersection of Massachusetts Avenue and Boylston Street. The college had, and still has, few alternatives in terms of sites on which to accommodate many of its facilities needs in a newly constructed building. The proposal brought forward at that time envisioned a mixed-use development of approximately 445,000 sf, including a new 1,600 seat performance venue; a smaller, 400 seat venue; 100,000 sf of academic and student life space; and 600 dormitory beds. This proposed project would have had a maximum height of 35 stories, and a Floor Area Ratio (FAR) of approximately 20.

Berklee discussed the proposed master plan, including the proposed Crossroads project, with the Task Force before its planned filing of the IMPNF in November, 2007. The Task Force reviewed the draft IMPNF, and a majority of the members expressed support for Berklee's desire to grow to meet the needs of its students, including the desire to create a better center for student life, the goal to house 50 percent of Berklee students in campus housing and the intention to create student housing in the Fenway area. The Task Force also expressed support for incorporating the portion of Cambria Street between Massachusetts Avenue and Saint Cecilia Street into the Crossroads project. The Task Force expressed concerns regarding the scale and density of the Crossroads project as proposed, and encouraged Berklee to continue its efforts to acquire additional property on which to accommodate a portion of its facilities needs, thereby enabling the college to propose a project having less density and less height.

In preparation for the submission of its IMPNF to the BRA in January, 2009, Berklee revised its proposal to reduce the density and height of the proposed Crossroads project in response to the concerns expressed. The density of the proposed project was reduced from 450,000 sf to 300,000 sf, and the height was reduced from 35 stories to 29 stories. The number of dormitory beds was reduced from 600 beds to 450 beds as a consequence. Therefore, at the time of the filing of the IMPNF, Berklee had identified projects that would have achieved only 38 percent of its identified goal of creating 1,200 new beds of student housing.

In April, 2009, Berklee acquired 168 Massachusetts Avenue. The acquisition of the 168 Massachusetts Avenue property has enabled Berklee to propose the construction of a new building on the site that, together with the proposed Crossroads project, will enable the college to achieve two-thirds of its student housing creation goal. As described in Section 1.6 and Chapter 5, 168 Massachusetts Avenue will create approximately 370 new beds which, when combined with the approximately 450 beds now proposed in the Crossroads project, will enable Berklee to create approximately 820 new beds of its expressed need of approximately 1,200 new beds. In addition, 168 Massachusetts Avenue will include additional student life, ground floor retail and music technology space.

In the past several years, Berklee has also pursued other acquisition opportunities and upgrades to space. These actions are described in Section 1.9.

With the acquisition of 168 Massachusetts Avenue and feedback from the Task Force and BRA officials, Berklee has once again re-evaluated its proposed Crossroads development. Berklee now believes it can accommodate the needed program elements in a building of lower overall height than originally proposed.

As further described in subsequent chapters, Berklee has strategically reduced the setbacks from the base of the Crossroads building, as well as reduced the amount of program space allocated to new student life facilities. These changes have enabled Berklee to reduce the height it seeks to build for this project, and to develop a massing concept in consultation with the BRA's urban design staff and the Task Force that is responsive to and respectful of its neighbors. At the same time, the revised proposal preserves the most essential program components.

Berklee appreciates the time and attention devoted to Berklee's proposed master plan by the dedicated volunteers on the Task Force, and trusts that Task Force members will find that Berklee has been responsive to their expressed concerns.

1.9 Recent Acquisitions and Upgrades

Berklee has succeeded in acquiring additional properties recently, investing approximately $40 million, including two sites of proposed IMP Projects (161 – 171 Massachusetts Avenue and 168 Massachusetts Avenue). The investment also includes the purchase and recently completed conversion of the former Fenway Community Health Center at 7 Haviland Street into classrooms and faculty offices. The adjacent lot was also developed into a landscaped open space, enhancing the college's presence on the street and creating additional public space for use by neighborhood residents and the college community.

In addition, Berklee recently acquired two properties on Boylston Street between Massachusetts Avenue and Hemenway Street. The property at 1096 Boylston Street features ground-floor retail, second-floor office space, and a residential apartment on the third floor. Berklee invested approximately $650,000 in the ground floor of the building to create a "vanilla box" retail space to be occupied by the current tenant, the very popular Pavement Coffee House. The second floor, previously used for storage, also was renovated and is now being used as administrative space. The property at 1108 Boylston Street is a commercial building, the upper floors of which are leased to two musical instrument retailers and The Boston Conservatory. Berklee plans to occupy and renovate this building, as well as portions of its building located at 155 Massachusetts Avenue, during the term of the IMP to accommodate certain institutional uses displaced by the Proposed Institutional Projects.

1.10 Institutional Master Plan Team

Proponent:	Berklee College of Music 1140 Boylston Street Boston, MA 02215 (617) 266-1400 Roger H. Brown, President Michael R. Eisenson, Trustee and Chair of the Campus Planning Committee William D. Whitney, Vice President
Master Planning Consultant:	Goody Clancy 420 Boylston Street Boston, MA 02116 (627) 262-2760 David Dixon, FAIA, Principal David Grissino, AIA, LEED, Senior Urban Designer

Legal Counsel:	Goulston & Storrs 400 Atlantic Avenue Boston, MA 02110 (617) 574-6597 Matthew J. Kiefer, Esq. Kevin Renna, Esq.
Permitting Consultant:	Epsilon Associates, Inc. 3 Clock Tower Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Cindy Schlessinger, Principal Geoff Starsiak, Project Manager
168 Massachusetts Avenue Architect:	William Rawn Associates, Architects Inc. 10 Post Office Square, Suite 1010 Boston, MA 02109 (617) 423-3470 William L. Rawn, FAIA, LEED AP, Principal Clifford Gayley, AIA, LEED AP, Principal Samuel Lasky, AIA, LEED AP, Senior Associate
168 Massachusetts Avenue Construction Manager:	Lee Kennedy Co., Inc. 122 Quincy Shore Drive Quincy, MA 02171 (617) 825-6930 Lee Michael Kennedy, President Bob O'Leary, Vice President, Academic and Institutional Allan Fiddes, MRICS, LEED AP, Chief Estimator Chris Pennie, LEED AP, Vice President, Construction
168 Massachusetts Avenue Structural Engineer:	LeMessurier Consultants 675 Massachusetts Avenue Cambridge, MA 02139 (617) 868-1200 Peter J. Cheever, P.E., Executive Vice President

168 Massachusetts Avenue MEP/FP Engineer:	Rist-Frost-Shumway 71 Water Street Laconia, NH 03246 (603) 524-4647 Chris Shumway, P.E., President Theodore Lempka, P.E., Senior Mechanical Engineer Philip Whitton Jr., P.E., LEED AP, Manager, Electrical Engineering
161-171 Massachusetts Avenue Architect:	Schwartz Silver Architects 75 Kneeland Street Boston, MA 02111 617-542-6650 Robert Silver, FAIA, LEED AP, Founding Principal Jon Traficonte, AIA, Principal
Transportation Consultant:	Vanasse Hangen Brustlin 99 High Street Boston, MA 02110 (617) 728-7777 R. David Black, Senior Project Manager Meghan E. Miller, Project Engineer
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Wind Consultant:	Rowan Williams Davies and Irwin Inc. 650 Woodlawn Road West Guelph, Ontario N1K 1B8 (519) 823-1311 Ray Sinclair, Ph.D., Principal/Project Director Sonia Beaulieu, M.Sc., P.Eng., ing., Senior Project Manager / Associate
Studio Designer:	Walters-Storyk Design Group 262 Martin Avenue Highland, New York 12528 (845) 691-9300 John Storyk, Founding Partner Romina Larregina, Project Manager

Chapter 2.0

Existing Campus

2.0 EXISTING CAMPUS

2.1 Introduction

This chapter presents a summary of the history of Berklee College of Music and its campus, a description of its existing facilities, including owned and leased properties, as well as a description of properties not included in the IMP.

2.2 Campus Description

2.2.1 Campus

Berklee has never occupied a defined and consolidated campus. It has filled its space needs reactively, leasing or buying as opportunities have arisen in the open market. This approach has fundamentally shaped the way the campus has developed. The heart of the campus is in the vicinity of the corner of Massachusetts Avenue and Boylston Street (see Figure 1-1). Many campus uses are found along Massachusetts Avenue in the four blocks south of the intersection, and much of the remainder lies within the first few blocks of Boylston Street to the intersection's east and west. In aggregate, the college owns and leases approximately 765,000 sf of space in the Fenway and Back Bay neighborhoods, and owns a 20,000-sf dedicated practice/rehearsal building in Allston/Brighton for a total of approximately 785,000 sf. Berklee's residence halls house approximately 800 students. The college also operates a 250-seat dining hall and provides limited student life space.

Highlights among the existing academic facilities include 13 professionally equipped recording studios, 250 workstations and hundreds of synthesizers in the Learning Center and the Electronic Production and Design Labs, the Professional Writing Lab, the Professional Education Technology Lab, and the Professional Performance Technology Lab. The Film Scoring Department houses five fully equipped film/videoscoring and editing labs. The recently completed renovation at 7 Haviland Street has also provided the college with dedicated space for a Writing Center, English as a Second Language instruction, Africana Studies, and a home for Heavy Rotation Records, a Berklee music label operated by Music Business majors at the college.

The college presents more than 1,000 faculty and/or student concerts annually in three recital halls, plus more than 150 student and/or faculty concerts in the 1,200-seat Berklee Performance Center. The performance center also hosts approximately 100 high-profile shows produced by major concert promoters each year. Café 939, a student-run venue, books approximately 200 shows per year including performances by students, faculty, staff, alumni, local artists, and national touring acts. In addition, the Berklee cafeteria is host to three or four "caf shows" per week, which are performances by students that are open to the public.

Berklee students have access to 40 ensemble rooms and more than 250 private practice rooms, including approximately 50 rooms in Allston/Brighton at 25 Fordham Road.

The Genko Uchida Building at 921 Boylston Street, to date Berklee's only "purpose-built" facility, houses many student-service functions, classrooms, and a recital venue. Administrative and faculty offices (including the President's Office on the sixth floor of 1140 Boylston Street) are accommodated where and as space has become available in the three clusters described above, i.e., the Boylston Street/Massachusetts Avenue intersection, along Massachusetts Avenue in the blocks immediately south of the intersection, and along Boylston Street in the blocks just east and west of the intersection.

2.2.2 Facilities

Berklee owns 15 buildings that are proximate to the intersection of Boylston Street and Massachusetts Avenue, as well as one building in Allston/Brighton. Berklee also leases space in a number of properties in Boston. Figure 2-1 identifies buildings that are owned by Berklee and buildings where Berklee leases space. These locations are described further below.

2.2.2.1 Owned Facilities

At present, Berklee College of Music owns 16 buildings consisting of approximately 700,000 sf. Table 2-1 provides information about each building.

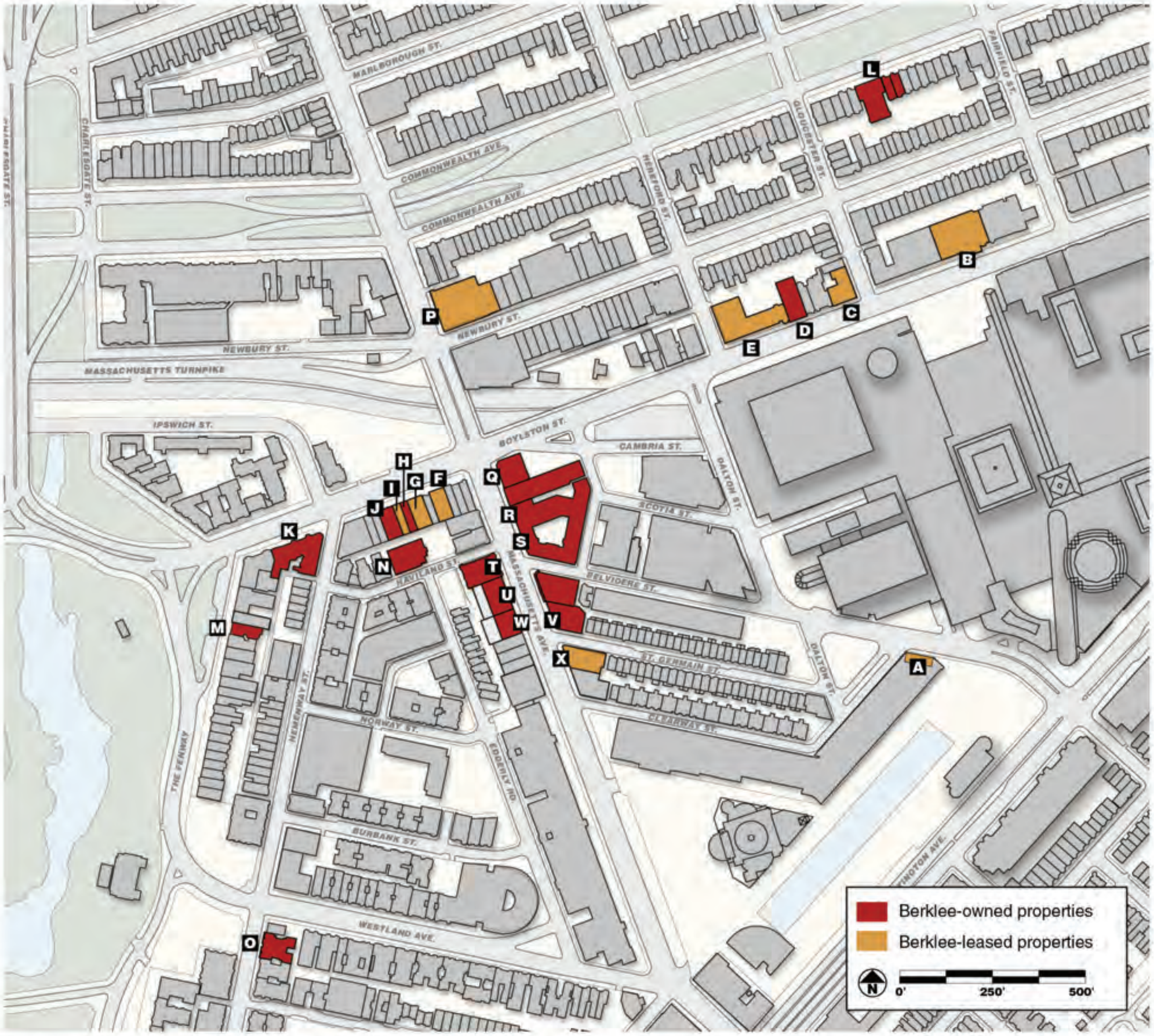
Loading and Trash Facilities

Berklee does not currently have off-street loading facilities. For deliveries to 130, 136, and 150 Massachusetts Avenue, trucks either pull up into a designated loading zone on Saint Cecilia Street, or onto the southern side of Belvidere Street next to 168 Massachusetts Avenue. Smaller facilities are serviced by adjacent commercial loading areas or alleys.

The largest trash storage facility at Berklee currently is located on Cambria Street behind 130 Massachusetts Avenue, where there are dumpsters, a trash compactor, and recycling bins. The trash compactor is emptied one to two times per week. Smaller facilities have dedicated trash dumpsters located in public alleys.

Parking

Berklee currently provides only a small number of parking spaces for its executives in a variety of locations around campus. Berklee has no other dedicated parking. Other staff who wish to park in the neighborhood typically use commercial garages near the Prudential Center and Symphony Hall.



A 101 Belvidere Street
GENERAL EDUCATION
1,680 SF

B 855 Boylston Street
ADMINISTRATION, MEDIA, OFFICE
11,616 SF (4TH AND 7TH FLOORS)

C 899 Boylston Street
ADMINISTRATION, FACULTY OFFICE
7,109 SF (2ND AND 3RD FLOORS)

D 921 Boylston Street (Uchida Building)
ADMINISTRATION, INSTRUCTION, RECITAL
58,000 SF

E 939 Boylston Street
ADMINISTRATION, STUDENT LIFE, COFFEE HOUSE
13,720 SF (1ST AND 2ND FLOOR ONLY)

F 1080 Boylston Street
RETAIL, STORAGE
5,700 SF

G 1090 Boylston Street
BERKLEE BOOKS
5,325 SF

H 1096 Boylston Street
ADMINISTRATION, RETAIL, APARTMENT
6,636 SF

I 1100 Boylston Street
RETAIL
1,650 SF

J 1108 Boylston Street
ADMINISTRATION, CLASSROOMS, STUDENT LIFE, RETAIL (PRESENTLY LEASED TO OTHERS)
21,000 SF

K 1140 Boylston Street
ADMINISTRATION, INSTRUCTION, RECITAL
80,000 SF

L 264–266–270 Commonwealth Avenue
HOUSING
60,000 SF

M 22 The Fenway
ADMINISTRATION, INSTRUCTION, RECITAL
15,000 SF

N 7 Haviland Street
INSTRUCTION, ADMINISTRATION
18,000 SF

O 98 Hemenway Street
HOUSING
35,000 SF

P 100 Massachusetts Avenue
BAC CLASSROOMS LEASED FROM BAC MONDAY–FRIDAY, 10–4
4,800 SF

Q 130 Massachusetts Avenue
ADMINISTRATION, INSTRUCTION
20,000 SF

R 136 Massachusetts Avenue
CONCERT HALL, INSTRUCTION, PRACTICE
37,560 SF

S 150 Massachusetts Avenue
ADMINISTRATION, DINING, INSTRUCTION, HOUSING
240,000 SF

T 155 Massachusetts Avenue
RETAIL, ADMINISTRATION, INSTRUCTION
26,564 SF (2ND, 3RD AND 4TH FLOORS)

U 161 Massachusetts Avenue
RETAIL, COMMERCIAL, ADMINISTRATION
30,283 SF

V 168 Massachusetts Avenue
RETAIL, ADMINISTRATION, INSTRUCTION
15,000 SF

W 171 Massachusetts Avenue
RETAIL, COMMERCIAL, PRACTICE ROOMS
18,970 SF (1ST FLOOR/BASEMENT)

X 180–186 Massachusetts Avenue
IT DEPARTMENT
17,000 SF (2ND FLOOR/BASEMENT)

25 Fordham Road*
PRACTICE ROOMS
20,000 SF

** 25 Fordham Road is located in Allston and thus outside the immediate area of the Berklee campus.*

Revised May 10, 2011

Figure 2-1
Owned and Leased Properties

Table 2-1 Berklee-Owned Facilities

Berklee-owned Facilities	Year Built	Tenure	Principal Uses	Floors Above / Below Grade	Square Feet	Parking	Condition	Proposed Action
130 Massachusetts Avenue	1902	1982	Administration, classrooms	2/2	20,000	0	Good	See Proposed Institutional Projects
Berklee Performance Center-136 Massachusetts Avenue	1915	1974	Concert hall, classrooms, ensemble rooms, studios	4/2	37,560	0	Good	See Proposed Institutional Projects
150 Massachusetts Avenue	1920	1972	Administration, library, dining hall, academic, residential	6/2	240,000	0	Good/Fair	Convert existing cafeteria to additional music technology space
921 Boylston Street	1994	1994	Classrooms, performance space, administration	6/1	58,000	0	Good	No Proposed Action
1108 Boylston Street	1915	2007	Administration, classrooms, student life, retail (presently leased to others)	3/2	21,000	3	Fair	Occupy upper floors and convert basement to institutional uses
1140 Boylston Street	1901	1965	Administration, classrooms, recital halls	6/1	80,000	0	Good	No Proposed Action
22 The Fenway	1900	1986	Administration, classrooms, recital hall	4/2	15,000	2	Fair	Convert administrative space into two new classrooms
264-266-270 Commonwealth Avenue	1882, 1883, 1896	1990	Residential	6/1	60,000	6	Fair	No Proposed Action
25 Fordham Road*	Unknown	2000	Practice rooms	2/0	20,000	5	Good	No Proposed Action
98 Hemenway Street	1910	1970	Residential	5/1	35,000	0	Good	No Proposed Action

Table 2-1 Berklee-Owned Facilities (continued)

1096 Boylston Street	1915	2007	Administration, retail, apartment	3/1	6,636	1	Good	No Proposed Action
155 Massachusetts Avenue	1900	2008	Retail, administration, classrooms	4/1	26,564	0	Good	Convert basement to institutional uses
161 Massachusetts Avenue	1915	2008	Retail, leased commercial	4/1	30,283	0	Fair	See Proposed Institutional Projects
171 Massachusetts Avenue	1915	2008	Retail, practice rooms, leased commercial	3/1	18,970	3	Fair	See Proposed Institutional Projects
7 Haviland Street	1990	2010	Classrooms and faculty offices	3/0	18,000	0	Good	Completed conversion to academic uses
168 Massachusetts Avenue/9 Belvidere Street	1962	2009	Retail, administration, classrooms	1/1	15,000	0	Fair	See Proposed Institutional Projects
TOTAL					702,013	20		

*25 Fordham Road is located in Allston and thus outside the immediate area of the Berklee campus. Berklee owns only 15 parking spaces in the Back Bay and Fenway neighborhoods.

2.2.2.2 Leased Facilities

At present, Berklee College of Music leases approximately 83,000 sf in nine buildings. Table 2-2 provides information on leased space.

Table 2-2 Leased Space

Address	Uses	Square Feet	Tenure	Lease Expiration
100 Massachusetts Avenue	General education	3,476	9/30/08	5/6/11
180-186 Massachusetts Avenue	Administration	17,623	1/1/06	12/31/25
855 Boylston Street	Administration	28,178	1/1/05	12/31/14
899 Boylston Street	Administration	7,109	12/1/02	6/30/14
939 Boylston Street	Administration, academic, retail	13,720	8/1/06	7/31/16
1080 Boylston Street	Retail	5,700	12/1/93	11/30/18
1090 Boylston Street	Bookstore	5,325	4/1/08	7/31/19
1100 Boylston Street	Retail	1,650	2/1/08	1/31/18
101 Belvidere Street	General education	1,680	9/18/07	7/31/13
Total Leased Space		82,781		

Chapter 3.0

Institutional Demographics

3.0 INSTITUTIONAL DEMOGRAPHICS

3.1 Current and Future Student Population

The Berklee student is on average older with more life experience than a typical college student. Current student demographics provide a foundation to create the housing program of the future. The average age of the Berklee student is approximately 22 years old, while the average age of entering college students at Berklee is approximately 20 years old (see Table 3-1 for a breakdown of students by age).

Berklee College of Music is committed to creating housing facilities and a housing program that meets the needs of entering and continuing students. Providing student housing for all first-semester students is a priority for the college. Berklee aims to provide new and different housing options for upper-semester students allowing them to remain in college housing. With additional and improved facilities, the college seeks to be more proactive and visionary regarding student housing. Providing state-of-the-art housing and programs for entering students will help increase retention of the undergraduates, and will increase student satisfaction with the overall Berklee experience. It is also consistent with the City's goal of moving more students from neighborhood residences to college-controlled facilities, thereby addressing the need for more affordable neighborhood housing (see Chapter 6 for more information about Berklee's housing plan).

Increased student housing at Berklee also will help to address traditional student behavior issues. While Berklee's Student Affairs departments have actively addressed any such issues directly, such problems at Berklee have a much lower rate of occurrence than at other colleges—perhaps due to the age of Berklee students and to their career focus.

Table 3-1 Berklee Student Age Demographics as of September 2010

Student Age	Current Number of Students
17 or under	56
18-19	1,282
20-21	1,370
22-24	864
25-29	529
30-34	121
35-39	29
40-49	15
50-64	9
65 and over	0
Total	**4,275***

*Includes part-time students, off-site work study students and students studying abroad. Full Time Equivalent (FTE) on-campus total is approximately 4,000 students.

3.1.1 Enrollment

Student enrollment for the past five years, including fall, spring and summer semester registrations, is listed in Table 3-2. Full-time enrollment has increased by approximately 11 percent, and total enrollment by approximately 10 percent over the five-year period. During the same five-year period, summer enrollment in the 12-week program has not changed significantly.

While enrollment often varies within a range of approximately five percent from semester to semester due to numbers of matriculations of accepted students, the IMP does not anticipate any sizeable growth above that level in its undergraduate program. The college may at some point during the term of the IMP establish a focused graduate program for up to an estimated 100 to 200 students.

Berklee enrolls students only on a full-time basis in its accredited Degree Program and its all-music Diploma Program. Full-time status is generally defined as taking 16 credits in the Degree Program and 12 credits in the Diploma Program. Due to Berklee's credit transfer procedures, some full-time students occasionally choose to attend on a part-time basis during the summer 12-week semester to achieve a dual major, to complete graduation requirements, or to participate in an off-campus program/internship. In any one semester, up to 10 percent of the total head count frequently attends on a less than full-time basis. While there are various ways to count these less than full-time students, generally Berklee has found it most appropriate to count each as one third of a full-time equivalent (FTE) student. Thus, in this IMP, student enrollment is stated as approximately 4,000 FTE on-campus undergraduate students.

Table 3-2 On-Campus Enrollment by Academic Year

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Full-time Students	3,521	3,739	3,746	3,800	3,875
Part-time Students	373	351	308	345	308
Total Students	3,894	4,090	4,054	4,145	4,183
Full-time Equivalent (FTE)	3,645	3,856	3,849	3,915	3,978
12-week Summer Program	1,601	1,581	1,456	1,460	1,607

Berklee also has a five-week, non-credit Summer Performance Program that attracts college-age and high school music students. It provides an opportunity for potential students to experience the Berklee atmosphere. In 2010, 1,017 students participated in this program representing 60 different countries including the United States.

Berklee is a major draw for international students. Approximately 25 percent of the student body originates from 79 different countries outside the United States.

3.2 Current Employee Population

During the academic year 2009-2010, Berklee College of Music employed 554 faculty members and professionals who served as chairs or assistants for the college's instructional departments. Of the 554 faculty/chairs, 239 were full-time faculty, 315 were part-time faculty and 39 were chairs/assistant chairs. Berklee also employs 470 staff members and 33 executive personnel. Additionally, Berklee employs approximately 25 contract employees.

Table 3-3 Faculty and Staff as of September 2010

	Full-time	Part-time	Total
Faculty/Chairs	239	315	554
Staff	440	30	470
Executive	33	0	33
Contract Employees	25	n/a	25
Total			1,082

Approximately half of the college's courses are offered by full-time faculty. In the fall of 2008, 80 percent of the classes had 15 or fewer students. Many Berklee faculty members currently are employed as music professionals in the city and region, while others are traditional, academically trained faculty. Currently, approximately 30 percent of Berklee faculty and staff members live in the City of Boston.

The college also offers on-campus resident and visiting artist programs that bring additional music professionals to Berklee to offer extensive interaction between visiting professionals and the college's students and faculty. In recent years, Berklee has hosted clinics featuring such artists as Paul Simon, Linda Ronstadt, and James Taylor, among many others.

3.3 Future Employee Population

The IMP Projects will require additional employees to manage dormitories, staff the larger dining hall, monitor and maintain the music technology spaces, and provide security and maintenance for the buildings.

At 168 Massachusetts Avenue, the approximately 370 new beds of student housing is expected to require, in addition to the existing Housing staff, one full-time Resident Director, one full-time clerical assistant, and 12 undergraduate Resident Assistants (one per floor of housing). The new space will also require two additional full-time equivalents in maintenance staff and eight additional full-time equivalents in security personnel.

The new dining hall at 168 Massachusetts Avenue will be larger than Berklee's existing cafeteria, with 400 seats instead of 250. The hours of operation are also expected to lengthen, providing a more convenient setup for late dining. As a result, the space is expected to generate a need for six part-time employees, all contracted through Berklee's dining services provider. Depending on how heavily the space is used for performances, certain other adjustments in staffing may be necessary, but this scenario needs to be further developed to determine if any additional jobs will be created.

At the Berklee Crossroads, the 450 new beds of student housing are expected to require, in addition to the existing Housing staff, two full-time Resident Directors, one full-time clerical assistant, and 20 undergraduate Resident Assistants (one per floor of housing). The new space will also require three additional full-time equivalents in maintenance staff and 11 additional full-time equivalents in security personnel.

No additional staffing is expected for the Proposed Institutional Project at 161-171 Massachusetts Avenue.

All three IMP Projects represent a total estimated increase in staffing of 35 full-time staff, 32 student employees, and six contract employees. Employment levels are anticipated to remain the same throughout the rest of the campus.

Chapter 4.0

Planning and Urban Design Framework

4.0 PLANNING AND URBAN DESIGN FRAMEWORK

4.1 Introduction

Chapter 4 includes a description of the context of the area surrounding the campus, the planning and urban design principles, and the future development strategy.

4.2 Existing Context

As previously described in Chapter 1, the heart of Berklee's campus is in the vicinity of the corner of Massachusetts Avenue and Boylston Street, between two neighborhoods within the City of Boston, the Fenway and the Back Bay, and a mixed-use district surrounding the Prudential Center. The neighborhoods reflect differences in character and demographics, but they remain two of Boston's most desirable neighborhoods for residents, retailers and companies seeking office space. Each neighborhood sustains a variety of uses and a strong sense of history, and each is home to many of Boston's finest cultural, entertainment and sports venues. Both neighborhoods are products of visionary planning; architect Arthur Gilman is credited with designing the filled lands of the Back Bay, and Fredrick Law Olmsted's Emerald Necklace created the green spine for the Fenway neighborhood.

Berklee College of Music is located within an area rich with public resources and private institutions that have a public mission. Resources contributing to the public realm that are located within a ten-minute walk of campus include the green space at Charlesgate, the Back Bay Fens portion of the Emerald Necklace, the Charles River Esplanade, the Commonwealth Avenue Mall, the Hynes Convention Center, and the Boston Public Library. Private institutions with a public mission include The First Church of Christ, Scientist, the Boston Symphony Orchestra, Northeastern University, The Boston Conservatory, New England Conservatory of Music, the Massachusetts Historical Society, the Museum of Fine Arts, Fenway Park and the Isabella Stewart Gardner Museum. See Figure 1-1.

4.2.1 Adjacent Land Use

As noted above, Berklee sits at the crossroads of two great Boston neighborhoods, the Fenway and the Back Bay, a situation that has shaped the campus in several ways. The economic, cultural, social and political qualities of both neighborhoods have influenced campus life and character, and Berklee recognizes that, in turn, it has a significant impact on its neighbors. The college's location at the juncture of the two neighborhoods also affects and is affected by land use, real estate prices, size of properties, and the appropriateness of institutional use on any given parcel of land or within any given building.

4.2.1.1 East Fens Neighborhood

The residents of the East Fens neighborhood are Berklee's neighbors to the south and west. Shops and restaurants along Boylston Street and Massachusetts Avenue serve as key commercial enterprises for the East Fens and the Berklee community alike. Businesses in the two blocks of Massachusetts Avenue immediately south of Boylston Street including coffee shops, fast food restaurants, and music stores count Berklee students as an especially high proportion of their trade. The East Fens embodies one of the youngest populations in Boston, reflecting a concentration of students clustered around Northeastern University, the New England Conservatory, The Boston Conservatory, and Berklee College of Music. The neighborhood also is home to world-famous cultural institutions including the Boston Symphony Orchestra, the Museum of Fine Arts and the Isabella Stewart Gardner Museum. Berklee owns a number of facilities in the East Fens neighborhood, including 1096, 1108 and 1140 Boylston Street, 7 Haviland Street, 98 Hemenway Street, 22 The Fenway, and the recently acquired 155, 161 and 171 Massachusetts Avenue. The college also leases space in 1080, 1090 and 1100 Boylston Street.

The Berklee community uses Haviland Street as a pedestrian way between the college's buildings on Massachusetts Avenue and 1140 Boylston Street. On this pedestrian way, Berklee has created a new landscaped open space at its building at 7 Haviland Street, enhancing the college's presence on the street and creating additional public space for use by neighborhood residents and the college community.

To revitalize the formerly moribund block of Boylston Street between Massachusetts Avenue and Hemenway Street that included several vacant storefronts, Berklee master-leased the ground floors of the 1080, 1090 and 1100 Boylston Street properties, and has been filling these storefronts with quality new retailers, including the Berklee bookstore. In addition, Berklee improved its 1096 Boylston Street building and leased the ground floor for an attractive and successful new retail use (Pavement Coffee House). Finally, Berklee, in partnership with the City of Boston and other property owners, effected major improvements to the public realm in this area, resulting in a vibrant, attractive new neighborhood destination (see Section 5.4).

The Back Bay Fens, designed by Frederick Law Olmsted, is the neighborhood's most important open space resource. It defines the western edge of the East Fens. All of Berklee's facilities in the neighborhood lie less than five minutes by foot from this beautiful park. During the summer, Berklee and the Fenway Civic Association co-sponsor a three- or four-part evening concert series featuring Berklee faculty and students at Mother's Rest Park across from 22 The Fenway. Berklee uses the park for occasional permitted events, and has participated with neighborhood and other city-sponsored clean-up efforts. Berklee also is supporting the efforts of the Fenway Civic Association and the Emerald Necklace Conservancy in reintroducing native plant species in Mother's Rest Park.

4.2.1.2 Back Bay

The Back Bay is an historic neighborhood to the north and east of Berklee. This neighborhood's predominantly 19th-century townhouses, occasional 20th-century apartment buildings, carefully tended Commonwealth Avenue central mall, and high-end shopping area symbolize Boston for many people around the world. Within this neighborhood are the college's 921 Boylston Street building, its 264-270 Commonwealth Avenue dormitory, and several leased spaces along Boylston Street, including the recently completed Café 939 offering food, beverages and live music to the neighborhood and college communities alike.

The college also sub-leases space from the Boston Architectural College at 100 Massachusetts Avenue during daytime hours on weekdays in order to help accommodate its continuing needs for classroom space. The Back Bay stretch of Boylston Street is home to many Berklee academic and administrative spaces. It functions as the neighborhood's main commercial street, as do the commercial blocks of Massachusetts Avenue in the East Fens. The Back Bay's distinctive urban character is a strong asset for the college, and the college likewise enlivens upper Boylston Street and its environs.

4.2.1.3 Prudential Area

Berklee's largest facility is comprised of three interconnected buildings, 130, 136 and 150 Massachusetts Avenue; located between Boylston and Belvidere Streets. The college also recently acquired 168 Massachusetts Avenue from an affiliate of The First Church of Christ, Scientist that is located between Belvidere and Saint Germain Streets.

Immediate institutional neighbors to these facilities have also exerted a strong influence on the Berklee experience. They include:

- The **Hynes Convention Center** brings more than 200,000 visitors to the Back Bay each year. The proximity of the Hynes Convention Center to Berklee facilities provides the college with a venue for special events and its students, a visibility that few institutions enjoy. The college and the Hynes Convention Center have informally enjoyed a synergistic relationship with college concerts often being popular among conference attendees. Berklee used the Convention Center for its 2004 inauguration of President Roger Brown and several other times for Berklee career festivals and commencement ceremonies. Additionally, Berklee leases the Convention Center annually for its High School Jazz Festival, the largest of its kind in the country. Berklee has enjoyed its working relationship with the Hynes Convention Center, and looks forward to future opportunities to collaborate.

- The **Prudential Center** is an early air rights project built above the Massachusetts Turnpike. It is nearing the end of a long transformation from a windswept, suburban-style mall to a welcoming retail destination, employment center and residential community that enhances the character of the area around it and contributes to neighborhood street life. The shops and restaurants in the Prudential Center add value to campus life and activities for the Berklee community, as well as for visitors to the Berklee campus. Parking at the Prudential Center serves some Berklee faculty and staff, as well as patrons of the Berklee Performance Center.

- **The First Church of Christ, Scientist** controls a significant amount of property near Berklee and draws large numbers of visitors to the area, including the Christian Science Plaza, the world headquarters for the Church. Berklee and the Church have a history of collaboration on real estate issues, and Berklee currently leases space from an affiliate of the Church at 186 Massachusetts Avenue. The Christian Science Plaza, which includes a large stretch of lawn and a vast plaza with reflecting pool and seasonal fountain, provides wonderful open space for the neighborhood and the Berklee community. Both organizations are members of the Fenway Alliance. The Church is also currently undertaking its own physical planning process in the area.

- **Saint Cecilia Church**, which opened in 1894 and is located at 30 Saint Cecilia Street, continues to attract parishioners and visitors to the area. The Church underwent a massive renovation project in 1954 for its 60th anniversary and is in the process of another comprehensive renovation. Berklee students are involved with many Church programs. The college previously shared Church classroom space during the week at 20 Belvidere Street. Berklee and Saint Cecilia Parish may revisit the possibility of shared space once the Church's renovation project is complete.

4.3 Context for Planning / Consistency with Other Plans

During the process of understanding its own internal goals and visions for the future, Berklee spent considerable time investigating the past planning efforts of its neighbors and surrounding institutions so that their thoughts and aspirations could be recognized and inform Berklee's own process. Among these efforts were The Civic Vision for Turnpike Air Rights (2002), the Emerald Necklace Master Plan (early 1990's), Principles and Guidelines for Development in the Back Bay, The Prudential Center Development, and a recently completed zoning initiative in the Fenway neighborhood which embodies the concept of a Fenway Cultural District.

4.3.1 The Civic Vision for Turnpike Air Rights

In 1998, responding to public concern regarding a proposal to build a 59-story tower over the Massachusetts Turnpike at Massachusetts Avenue, Mayor Thomas Menino appointed a Citizens Advisory Committee to examine the issues raised by building on "air rights" above the Turnpike. Earlier in the 1950s, the state had exempted turnpike air rights development from Boston zoning—the only such exemption along the highway—in an effort to promote nearby development. The study committee suggested that development projects built above the Turnpike offered the potential for reconnecting neighborhoods that had long been divided, first by railroad rights-of-way and subsequently by the Turnpike, which was built along the pre-existing rights-of-way. Four air-rights parcels lie immediately adjacent to Berklee buildings, including two that were included in the controversial 1998 development proposal. The study committee's vision for these parcels stated that the

> *"air rights should be devoted to uses that foster a lively, pedestrian-friendly public realm along Massachusetts Avenue and Boylston Street, draw diverse residents to the neighborhoods, and minimize traffic. Parcel 14 is too small to be developed on its own and should be included in any redevelopment of the Berklee College of Music or in conjunction with development on Parcel 15."*

Much of the controversy surrounding the 1998 proposal focused on height and massing. An alternative approach considered by the study committee proposed reserving Parcels 12 and 13 for mid-rise buildings and placing a tower considerably higher than 15 stories on Parcel 15. This arrangement moved the tallest structure closer to the 53-story Prudential tower. Berklee itself offered the committee an alternative plan to distribute the mass and height of the 59-story building among air rights parcels and adjacent college parcels on its terra firma. Please see Figures 4-1 and 4-2, which include graphics from the Civic Vision for the Air Rights Parcels, for the location of each air rights parcel.

Any future development of Air Rights Parcels 12-15 is important to Berklee's future, not only because it would profoundly alter the college's environment, but also because these buildings conceivably could meet some of the college's longer term student housing, and possibly other space needs. See Section 4.8 for further discussion regarding Berklee's interest in future air rights development.

4.3.2 Emerald Necklace Master Plan

The Emerald Necklace is a series of interconnected parks and boulevards, including the Boston Common, Commonwealth Avenue Mall, Back Bay Fens, Jamaica Way, Arnold Arboretum and Franklin Park, that forms the principal network of open space in Boston and serves significant areas of Brookline as well. The Emerald Necklace has earned national and international recognition for its landscape design and value to its urban context. Conceived and implemented in the years 1878 to 1895 by Frederick Law Olmsted Sr.'s firm, it was one of the largest projects ever undertaken by the City of Boston and the Town of Brookline. When built, Olmsted's Emerald Necklace was linked by parkways meant as leisurely affairs whose sole purpose was to take one on scenic excursions within the city. However, this aim, along with the continuity and quality of the system, suffered from its original intent during the next 100 years. In 1981, spurred by research in other cities where Olmsted contributed significant projects, the Massachusetts Association of Olmsted Parks was founded. Their first order of business was to survey those parks created by Olmsted's

Source: Civic Vision for Turnpike Air Rights

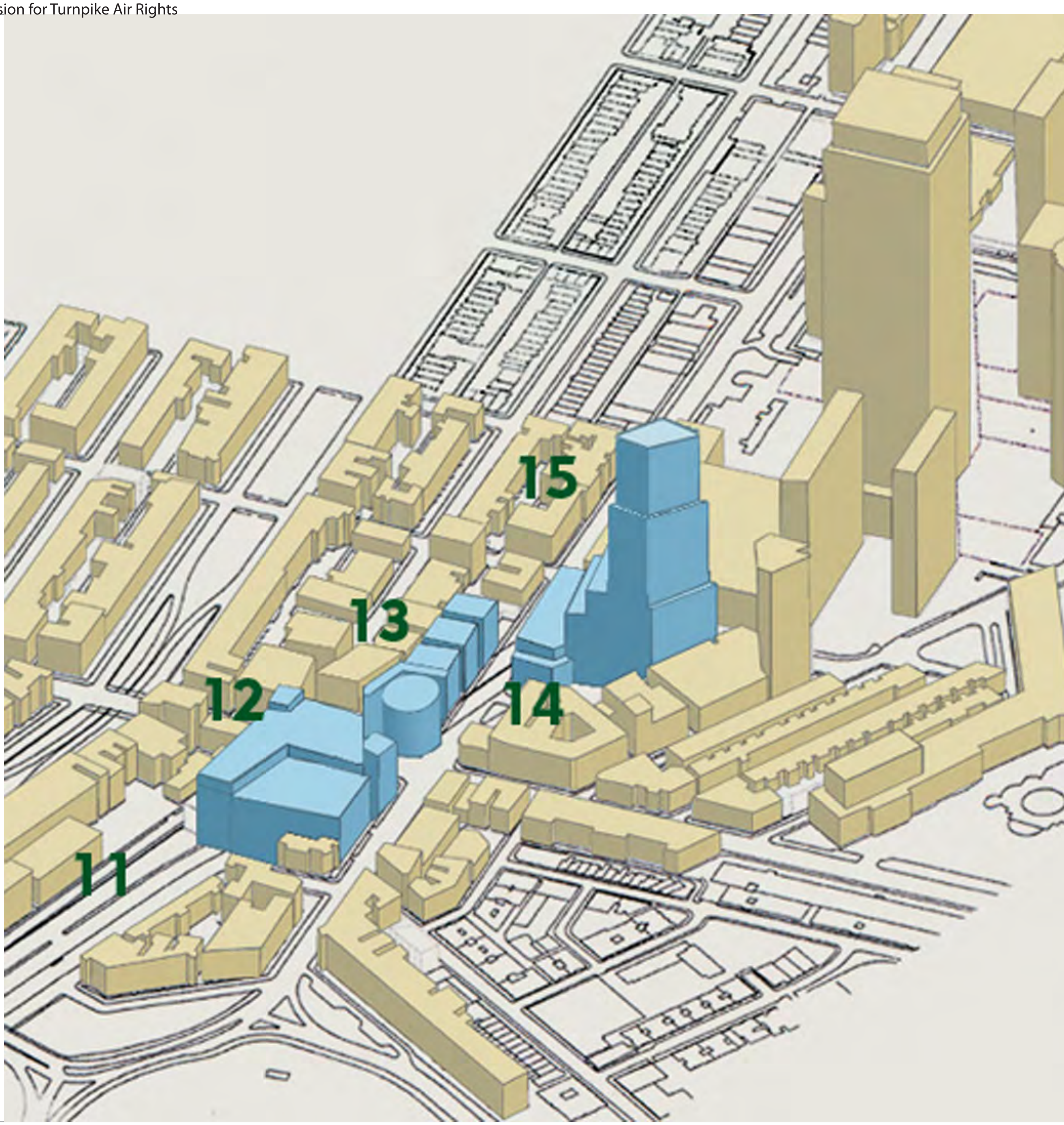
Berklee college of music

Institutional Master Plan

Figure 4-1
Turnpike Air Rights Plan

Goody Clancy ARCHITECTURE PLANNING PRESERVATION

Source: Civic Vision for Turnpike Air Rights



Berklee college of music

Institutional Master Plan

Figure 4-2
Turnpike Air Rights - Proposed Massing

GOODY CLANCY
ARCHITECTURE PLANNING PRESERVATION

firm. They found that Olmsted's Emerald Necklace had been encroached upon, altered, and broken up by politics, nature, and time. This survey led to Massachusetts becoming the first state in the nation to enact a program to restore, protect, and enhance Olmsted's parks for the sake of future generations.

In 2001, the Emerald Necklace Master Plan was updated and set out to clearly define an action plan for each portion of the park system. In the Berklee area, the Back Bay Fens portion of the Necklace is of utmost importance and serves as a large amenity for the college. Located within walking distance of the college, it makes up the majority of easily accessible green space for Berklee students and faculty. Within it are opportunities for active and passive recreation, as well as gardening at the Fenway Victory Gardens. The Emerald Necklace Master Plan seeks to further enhance the Back Bay Fens by restoring healthy environmental conditions and most importantly restoring its links, such as the one to the Charles River Esplanade. With successful implementation of that plan, Berklee will have access to a superb open space that will serve as a gateway to green space in and around Boston. Having the Back Bay Fens in Berklee's "backyard" enhances the Berklee experience, and serves as a magnet for students seeking a unique urban environment in which to study. Berklee will continue to support the parks through neighborhood concerts and volunteer clean-up efforts. Berklee also currently partners with the ParkARTS program of the Parks Department to coordinate the college's Summer Concert Series in various public locations around the city each year. The IMP fosters and encourages the opportunity to increase its partnership with the Boston Parks Department and the community for active community uses.

4.3.3 Principles and Guidelines for Future Development of the Back Bay

Principles and Guidelines for Future Development of the Back Bay was prepared by the Neighborhood Association of the Back Bay (NABB) to provide a framework and basic principles for future development within the Back Bay. The report outlines "the community's vision of a healthy neighborhood in a thriving city, incorporating important values of urbanism, diversity, density, complexity, spontaneity and sustainable economic growth, while protecting community cohesion, stability, continuity and pedestrian scale."

Other key concepts of the report are: "to combat community deterioration in the Back Bay; to preserve and protect the architectural beauty of the Back Bay; and to further the residential character of the Back Bay" as well as "to enhance the character and livability of the Back Bay by protecting the physical fabric of the historic neighborhood as future development occurs, and by maintaining a healthy balance in the unique mix of residential, commercial, cultural, and institutional uses that enrich Back Bay residential life." Key elements of the guidelines foster:

- The appropriate scale and density for each part of the neighborhood;
- Transitions between different areas;

- Building materials; and
- Environmental concerns (light, air, open space, trees, etc.).

4.3.4 Fenway Rezoning

In 2000, the BRA launched a review of zoning in the Fenway. The BRA worked with the Boston Transportation Department (BTD) and with residents and businesses to identify land-use, transportation, and urban-design goals for both the East Fens and the West Fens. The effort produced recommendations for new zoning that would replace the patchwork of regulation that had accumulated since the 1950s.

The BRA adopted Article 66, Fenway Neighborhood District zoning, in October 2004. The zoning incorporated mechanisms intended to encourage pedestrian-focused, mixed-use development, particularly in the West Fens, where large surface parking lots define an auto-oriented landscape. The new zoning for the East Fens, where several Berklee facilities are located, also encourages mixed uses, but in general guides new development toward heights, massing, and uses that reflect an existing compact urban fabric. The new zoning generally requires that buildings should be five to six stories tall, and contain active ground-floor uses along main streets.

The West Fens zoning recommendations included two major components: a transportation plan and land use and urban design guidelines for two special study areas (Brookline Avenue/Lansdowne Street and Boylston Street). The Boylston Street special study area, site of several surface lots mentioned above, will have a significant impact on Berklee's planning, notwithstanding the absence of college facilities there. The college regards this area as an appropriate place in which to consider the possible creation of student housing in addition to that contemplated in two of the three projects discussed in Chapter 5 of this IMP.

New Fenway zoning also includes a section known as the "Establishment of Gateway Development Area Overlay Districts." The purpose of the Gateway Development Area Overlay Districts is to provide zoning regulations that allow for the development of architecturally distinctive civic landmarks at major entrances to the Fenway neighborhood. Two areas within the Fenway Neighborhood District were identified as "Gateway Development Areas": the Fenway Triangle Gateway Area and the North Boylston Gateway Area. The Fenway Triangle Gateway Development Area is located at the intersection of Brookline Avenue and Boylston Street, extending to Kilmarnock Street. The North Boylston Gateway Development Area is located along Ipswich Street, extending from Charlesgate West/Bowker Overpass to the corner property at Ipswich Street opposite Lansdowne Street. Table 4-1 provides dimensional information for each.

Table 4-1 Gateway Development Area Overlay Districts

	Fenway Triangle Gateway Area*	North Boylston Gateway Area*
Building Height (As-of-Right)	135 feet	95 Feet
Floor Area Ratio	7.0	5.0
Building Height (Permitted subject to Large Project Review)	250 feet	135 Feet
Floor Area Ratio	12.0	9.0

* Proposed Projects within a Gateway Development Area Overlay District are not eligible for the Residential Development Incentives Building Height or FAR bonuses established by Section 66-35 of the Boston Zoning Code.

A discussion of the IMP Projects' compliance with zoning is included in Chapter 5.

4.3.5 The Prudential Center Redevelopment

The transformation of the Prudential Center is currently nearing completion. Outlined in its establishment as a Planned Development Area in 1990, the redevelopment of the site has proceeded in five phases. It began with improvements to the Huntington Avenue portion of the site followed by addressing development along Boylston Street. The primary purpose of this significant effort has been to establish the area as a center of activity for businesses and residents that is physically integrated with the fabric of the city and its surrounding neighborhoods. Throughout this process, the Prudential Project Advisory Committee (PruPAC), a task force of neighborhood and advocacy groups established by Mayor Flynn in 1988, has overseen each development project.

The recent projects at Lord and Taylor and the Mandarin-Oriental Hotel create a more continuous, active and vibrant streetscape along Boylston Street, helping to connect the Berklee campus to Copley Square through an enhanced public realm. Retail additions to the base of the Hynes Convention Center are under construction, further enhancing the area as a pedestrian-friendly district. The Prudential Center also plays a vital role in the skyline of Boston, with several tall buildings contributing to the image of the city discussed earlier while also serving as the western gateway to the city and its neighborhoods.

4.3.6 The First Church of Christ, Scientist

The First Church of Christ, Scientist submitted a plan for the revitalization of the Christian Science Plaza in November 2010. Berklee communicates regularly with this institutional neighbor and will continue to communicate with them as the planning processes for the Plaza and Berklee's IMP continue.

4.4 Future Needs and Objectives

Although the size of Berklee's student body is projected to remain relatively stable over the coming years, the enrollment growth in previous years has placed pressure on the existing campus facilities, obliging the college to continually evaluate the uses in its many diverse spaces. Evolving teaching methods and technological advancements for instruction also create the need to renovate aging facilities, some of which are in leased property. Locating a higher percentage of Berklee students in on-campus housing will not only benefit the surrounding neighborhoods, but also will help foster an enhanced sense of campus community and enrich the student experience.

These issues were discussed during the campus master planning process and had a direct impact on the determination of needs Berklee anticipates during the ten-year term of the IMP. Some long-term needs also are addressed to illustrate how the campus development strategies relate to a vision of the future that emerged during the planning process.

Many of the projected needs that will enable Berklee to improve the overall academic experience demand spaces that are purpose-built, such as performance spaces, teaching labs, and student housing. However, Berklee's location in the densely built Back Bay/Fenway environment suggests that even as the college consolidates its campus and constructs new space, it will need to accommodate some future needs within existing space. This balanced approach will allow Berklee to maintain stewardship of the many existing buildings it occupies and to develop new facilities that respond to the college's program needs.

The proposed future development program that will meet the future needs and objectives of Berklee are provided in Table 4-2.

Table 4-2 Proposed and Potential Future Development Program

Building Use	Proposed IMP Projects[1]	Potential Future Projects
Student Housing	820 beds/270,000 sf[1]	Approx. 400 beds/140,000 sf[2]
Public Assembly/Campus Life Space	43,000 sf	
Theater Space	63,000 sf[3]	
Music Technology and Studio Space	19,000 sf[4]	
General Academic/Administrative Space	42,460 sf	58,000 sf
Dining Hall	23,000 sf[5]	
Retail	23,060 sf	
Practice Rooms	11,670 sf	
Common Space	7,000 sf	
Total	**502,190**	**198,000**

[1] Square footages represent the total square footage of the proposed projects, rather than the net new square footages. Chapter 5 includes additional information on net new sf.
[2] Based on 350 sf per student bed.
[3] New theater space need is an approximately 1,200-seat theater to replace or upgrade Berklee's 1,200-seat theater existing at 136 Massachusetts Avenue and associated theater support spaces.
[4] Excludes new music technology space to be located in 150 Massachusetts Avenue upon dining hall relocation.
[5] To replace dining hall that will be eliminated at 150 Massachusetts Avenue.

4.4.1 Student Housing

The major component of the campus development program is student housing (see Table 4-3). Conceptually, Berklee is striving to create new housing facilities that can be efficiently operated and supervised to create a better sense of community, and, through inclusion of amenities important to music students, to attract a wider range of student age groups. Keeping the campus housing affordable and attractive to a variety of ages is important to Berklee and the learning communities it is looking to create. In general, the following descriptions are the student age groups and the percentage of on-campus housing Berklee proposes to provide.

Table 4-3 Berklee On-Campus Housing Goal

Student Age	Number of Students as of September 2010	Proposed Number of Students Living On-Campus (%)
19 or less	1,338	1,150 (85%)
20-21	1,370	685 (50%)
22-24	864	175 (20%)
Ages not provided	703	15 (2%)
Total*		2,025

*Includes part-time students, off-site work study students and students studying abroad. Full Time Equivalent (FTE) total is approximately 4,000 students on-campus.

- **Students 19 years old and under** – Students entering at a traditional college age typically benefit from residential space that is highly structured to foster a community atmosphere, i.e., students sharing doubles in a residence hall setting, with shared baths and a rich amount and mix of common space. This housing ideally would be centrally-located, at or near the campus core.

- **Students aged 20-21** – After their first-year experience transitioning to Berklee, students of all ages typically are interested in a more independent living arrangement that approximates what they will have as adults in a post-college world. These students typically are interested in suite or apartment configurations after their first-year experience—usually with single bedrooms (although some students, to reduce their cost, prefer to share a double room within a suite or apartment). Units could include common space (e.g., a living/dining space) and possibly a kitchen or kitchenette, depending on their location. These students should be accommodated within reasonable walking distance to the campus core.

- **Students aged 22-24** – These students are similar to the 20-21 age group as they prefer a more independent living arrangement that is within reasonable walking distance to the campus core. These students also prefer suite-style living.

The proposed program for approximately 820 additional student beds (approximately 370 at 168 Massachusetts Avenue and 450 at the Crossroads) is critical to Berklee's goal of eventually housing roughly 2,000 students—i.e. 50% of the college's full time, on campus students—in student housing. Adding approximately 820 new student beds will accomplish two-thirds of the goal of creating approximately 1,200 additional beds and bring the total housing inventory to approximately 1,600 beds.

Student housing specific to the proposed IMP Projects and the overall Student Housing Plan are further addressed in Sections 5.2.1 and 5.2.3 and Chapter 6.

4.4.2 Public Assembly/Campus-Life Space

Berklee's long-term goal for additional campus-life space includes providing additional areas designed for students to relax, study, or socialize. These include dining facilities, a lounge, and meeting spaces for student clubs. Such space would include fitness and wellness facilities to help members of the campus community develop healthier life habits. In addition, such facilities would provide space for instruction on movement as it pertains to musical performance. Ideally, these spaces would be co-located within a mixed-use project also containing student housing and performance spaces. The synergies between all these activities can provide opportunities to enhance the overall student experience.

Berklee's proposals in regard to campus-life space are further addressed in Section 5.2.3.

4.4.3 Theatre Space

As the world's leader in the teaching of contemporary music, Berklee should have a state-of-the-art performance venue optimally sized for student and faculty performances, designed for performer and audience comfort and accessibility, and acoustically engineered for amplified music. A key element of a new proposed 1,200 seat theater will be an appropriately-sized and configured stage that will be capable of accommodating orchestras.

The Berklee Performance Center, designed in 1915 as a movie theatre, has a very small stage that is inadequate to meet Berklee's needs. Its limited stage size makes accommodating larger student bands and performance groups difficult, and its comparatively long and narrow shape makes hearing and seeing performers on stage difficult for many audience members.

The location of the new theater will also provide Berklee the opportunity to increase its physical and symbolic connection with the surrounding community.

Berklee's proposals pertaining to new performance space are further addressed in Section 5.2.3.

4.4.4 Academic and Studio Space

New academic and studio space will help to balance demand for, and supply of, instructional space and recording capacity. Many classroom spaces are not large enough to accommodate current class sizes. Additional and larger recording studios are a primary goal to meet the needs of both those students enrolled in the popular technology majors, as well as others who need to have recordings made of their compositions, arrangements and performances. Berklee's program is distinctive in that every student takes music technology course work, and all students have laptops with a suite of professional music software that is applied in their studies. Unlike other production and engineering programs, Berklee technology majors take private instrumental lessons, perform in ensembles, and complete a core music curriculum. Berklee-educated producers, engineers, and sound designers are musicians and Berklee alumni are employed in every aspect of the music industry.

Berklee has a vision of an incomparable, highly integrated music technology program that prepares its students to be leaders and innovators in the new music economy. All enrolled students should be able to pursue this career path, but the college cannot meet the demand for technology programs. Students in all majors need increased access to studios to gain true professional experience. Berklee studios have produced countless student productions and a series of more than 40 Berklee CDs, but many projects cannot be accomplished with 24/7 demand for studio time.

Generally speaking, Berklee's present studios are too small, insufficient in number, and/or in need of updates to incorporate state-of-the-art technology. In addition, certain of the existing studios are located beneath the 136 Massachusetts Avenue building, the site of one of Berklee's IMP Projects described in Chapter 5. Berklee intends to take advantage of the recently acquired 168 Massachusetts Avenue property to address a significant portion of the long-expressed need for new technology space. This component of the 168 Massachusetts Avenue project, combined with converting the current cafeteria at 150 Massachusetts Avenue into additional music technology studios and associated spaces after completion of 168 Massachusetts Avenue, will serve a range of the college's technology needs expanding and centralizing its various studio and other related music technology facilities. New music technology facilities are essential to maintain Berklee's leadership and to pave the way for future building projects.

Berklee's proposals in regard to academic and studio space are addressed further in Sections 5.2.1 and 5.2.2.

4.4.5 Parking

Historically, the Berklee College of Music campus has required a negligible amount of parking as most students, faculty and staff arrive via public transportation, park in nearby garages, or walk/bike to campus. As described in Chapter 7, the campus is ideally situated for transit access, and nearby off-site parking facilities serve the campus and its facilities well. Due to the nature of music education and equipment needs, the number of students walking to campus is and will remain relatively high. Student housing, one of the main areas of the proposed program, does not require new parking facilities as the college continues to discourage students from bringing vehicles to campus. Furthermore, due to the scheduling of classes during non-peak travel times, the demand for parking in the area is relatively low. Other than parking related to the internal servicing of new development, the need for new parking facilities is and will remain relatively low, thus the college does not anticipate the construction of any significant new parking facilities as part of the proposed future program.

4.5 Zoning Buildout Analysis

In response to the IMPNF Scoping Determination, an analysis of Berklee's underutilized zoning capacity on all properties it owns was undertaken to determine how much of its program need could be accommodated without additional land acquisition. The analysis used assessor's records to identify the total area of each parcel and the Boston Zoning Code to identify the maximum total square footage for a structure based on the dimensional regulations and as-of-right Floor Area Ratio (FAR) for the site. This number was then compared to the square footage of the existing buildings on each parcel. The calculations can be found in Figure 4-3.

The analysis revealed that Berklee's current campus has approximately 105,000 sf of underutilized zoning capacity, far short of its identified program need. Some of Berklee's facilities in older buildings that pre-dated the adoption of the Zoning Code have a total square footage already in excess of the site's capacity that decreases the overall zoning capacity of the campus. Other sites, however, are currently underutilized and fall far short of the allowable buildable area. For example, 136 Massachusetts Avenue has unutilized capacity of approximately 38,355 sf and 1108 Boylston Street is approximately 4,200 sf above capacity; the total capacity of the two sites combined is approximately 34,155 sf. The greatest concentration of underutilized zoning capacity (approximately 150,000 sf) occurs on the three sites that are those proposed for the IMP Projects (see Figure 4-4).

The analysis shows that Berklee's overall growth strategy that focuses new development at the area near Massachusetts Avenue and Boylston Street and away from existing established neighborhoods is consistent with those areas that contain underutilized sites. It also shows that the amount of area required to enable Berklee to accommodate its program needs exceeds what can be built on currently owned properties if developed to their as-of-right limits.

4.6 Planning and Urban Design Principles and Goals

The Berklee IMPNF introduced preliminary development concepts to translate Berklee's program needs into a proposed building program that is consistent with a master planning framework and achievable within an approximate ten-year time frame.

	PROPERTY	Existing GSF	FAR Maximum GSF	Unused Zoning Capacity
1	264-266 Commonwealth Avenue	16,540	18,672	2,132
2	268 Commonwealth Avenue	45,752	28,008	(17,744)
3	921 Boylston Street	58,000	72,576	14,576
4	130 Massachusetts Avenue	20,000	37,490	17,490
5	Cambria Street Parcel	0	43,708	43,708
6	136 Massachusetts Avenue	37,560	75,915	38,355
7	150 Massachusetts Avenue	240,000	222,446	(17,554)
8	155 Massachusetts Avenue	26,564	23,844	(2,720)
9	161 Massachusetts Avenue	30,283	35,248	4,965
10	168 Massachusetts Avenue	13,353	53,412	40,059
11	171 Massachusetts Avenue	18,970	26,064	7,094
12	1096 Boylston Street	6,636	8,400	1,764
13	1108 Boylston Street	21,000	16,800	(4,200)
14	1140 Boylston Street	80,000	53,272	(26,728)
15	7 Haviland Street	19,767	26,356	6,589
16	22 The Fenway	15,000	16,000	1,000
17	25 Fordham Road (Allston)	20,000	16,906	(3,094)
	TOTAL	**669,425**	**775,117**	105,692

Figure 4-3
Zoning Capacity Table

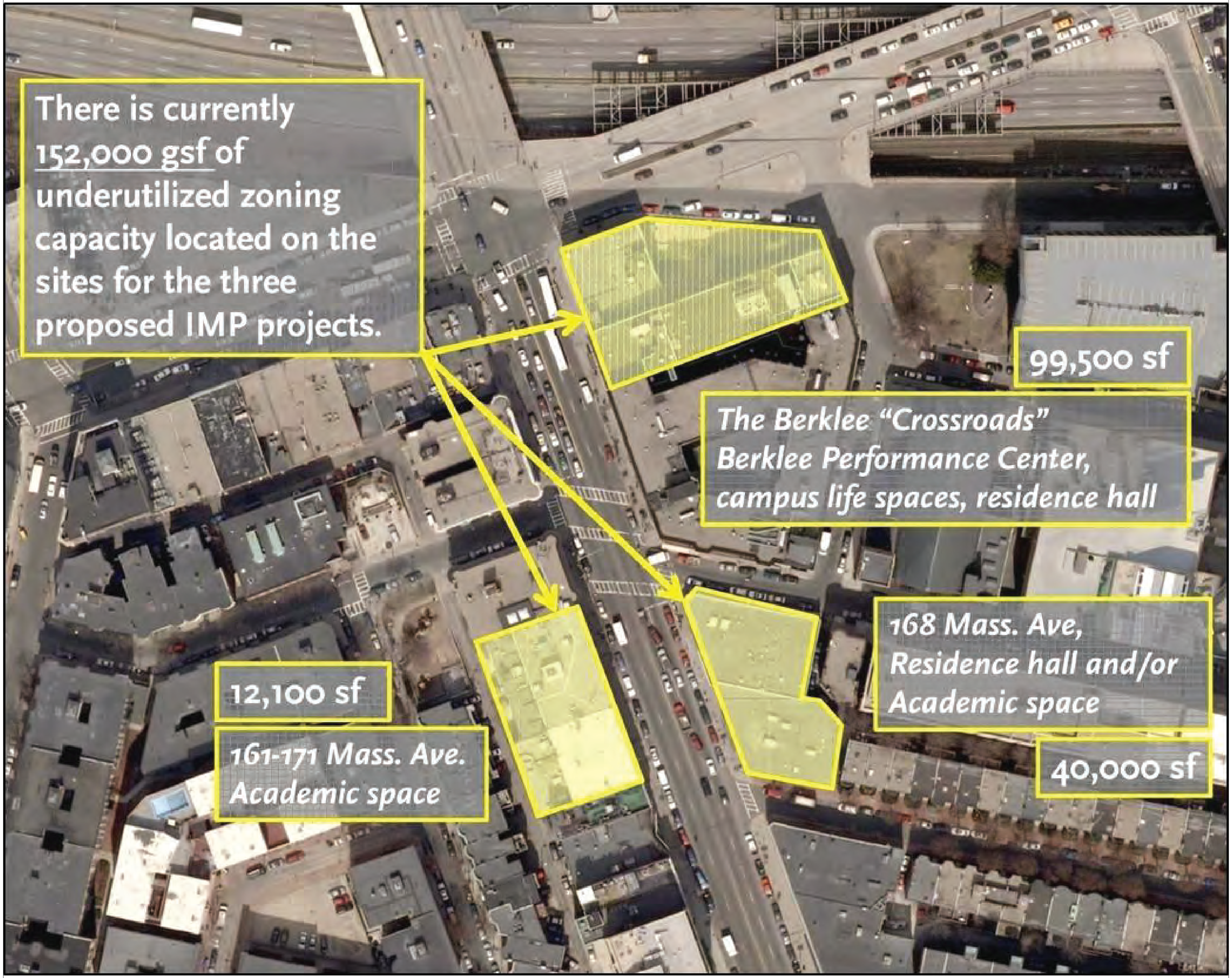


Figure 4-4
Zoning Capacity on IMP Project Sites

The following section describes the campus planning framework which emerged from the lengthy planning process with the Berklee community, and highlights the major strategies that have guided the evolution of the physical plan for the campus. This section also describes the urban design principles that have been developed to help shape the approach to the proposed projects outlined in Chapter 5. Chapter 5 includes a discussion of height and massing, uses, relationship to street, and the response to the existing context.

4.6.1 Campus Planning Framework

Institutional growth in established urban settings demands an approach to development that looks holistically at the economic, cultural, and civic value, as well as the impacts of its presence in its home community. Although Berklee is a relatively young institution by Boston standards, its impact on the local cultural landscape is profound and its international reputation as one of the world's finest schools of contemporary music has brought the City increased global recognition.

Berklee has achieved its significant position by being a resourceful steward of many existing older buildings scattered throughout the Back Bay and Fenway neighborhoods in structures never conceived for their current use at the cutting edge of contemporary music education. In the future, Berklee hopes to remain an important part of its community, but is faced with pressing needs to provide appropriate teaching, practicing, and performing facilities to attract and retain the best and brightest music students from across the globe. As discussed above, Berklee also feels a great responsibility to house more of its students in on-campus housing.

This growth can take different forms, including a scattered-site approach which spreads development over a larger geographic area (and most likely a larger time frame), a highly concentrated approach which uses one site to accommodate a large amount of program, or a balanced approach which selects a few sites to distribute growth to a limited area.

The scattered-site approach to institutional facilities growth would likely entail acquisition by the college of more properties presently on the tax roles than the other two models, arguably might involve the displacement of existing neighborhood residential units, and almost certainly would occur over a longer period of time. This would result in continuing construction/conversion disruption, and would extend the period of student tenancies in neighborhood apartments.

A highly concentrated approach would likely require the acquisition of a very large site, and would entail the construction of a building of a scale that would overwhelm and thus relate poorly to its context.

Berklee has opted for the more balanced approach of developing a handful of sites that will be either proximate to or within reasonable walking distance of its core campus, including the two proposed IMP projects containing student housing that will be built on the already tax-exempt properties the college presently owns. A more detailed comparison of issues related to these growth models can be seen in Figure 4-5. As noted on the table, a multiple site, mid-size development approach is the preferred scenario.

To achieve its goals as an institution, the college has elected not to pursue an opportunistic acquisition strategy characterized by the above-described scattered site approach in favor of a more deliberate and balanced approach. Aggregating many of the college's uses brings people closer together in order to achieve a stronger sense of identity and to support the culture of collaboration that is so central to music education. It has the substantial corollary of diminishing the college's presence in established residential areas.

Early proposals reviewed by the Berklee Task Force placed a significant amount of academic, residential and other program at a single location and raised many concerns with both residents and City agencies. The Task Force's recommendations that Berklee seek to better distribute its program space were catalytic to the college's acquisition of such comparatively recently purchased properties as its holdings on Boylston Street, the former Fenway Community Health Center located at 7 Haviland Street, the 155, 161 and 171 Massachusetts Avenue properties, and the 168 Massachusetts Avenue location.

The planning process undertaken by Berklee in consultation with the Task Force and the Boston Redevelopment Authority has resulted in a vision of an expanded and enhanced campus that is part of and contributes affirmatively to the larger, lively public realm of the streets of Boston. Berklee's campus will have many of its core instructional facilities at or near the intersections of Massachusetts Avenue with Boylston and Belvidere/Haviland Streets in the Fenway Cultural District. The heart of the new Berklee campus will combine top-flight performance venues with facilities that not only support "urban campus life," but also enhance its best qualities. Berklee-managed housing for at least half of Berklee students will be within reasonable walking distance of the core facilities, thereby diminishing the likely number of students residing in neighborhood housing stock.

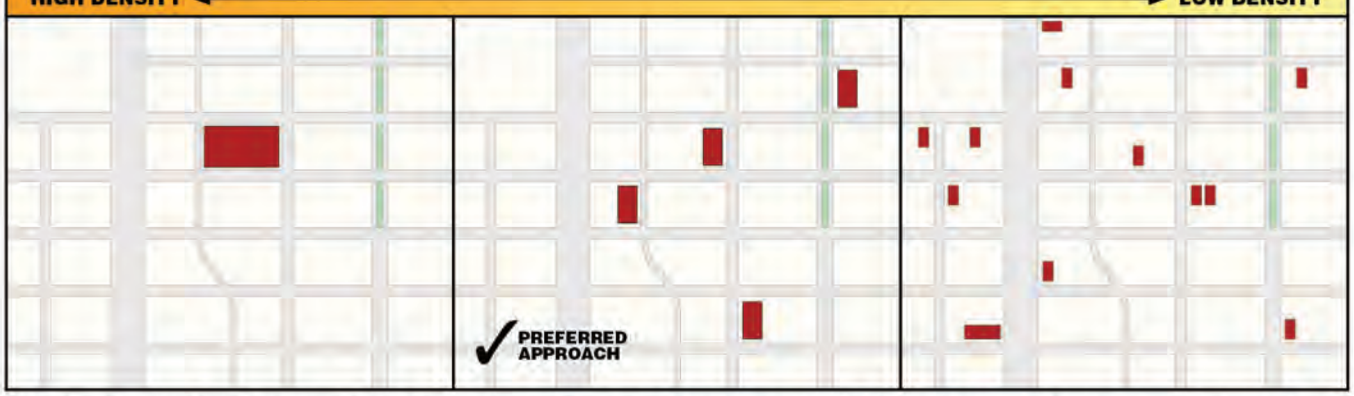
The collaborative nature of creating music relies on a network of professionals who work collectively toward a common vision. Teaching and fostering this process, whether onstage or in a dormitory, is Berklee's primary function. A major goal of Berklee's master plan effort is to provide facilities that support music instruction and nurture student creativity.

The following have shaped Berklee's planning goals, and provide a blueprint for the subsequent stages of the campus planning efforts:

- Berklee's internal strategic planning process;
- Immediate urban context and existing conditions;
- Recommended development program; and
- Berklee's mission and vision.

SINGLE SITE APPROACH	MULTIPLE MID-SIZE APPROACH	SCATTERED APPROACH
Limited land needed—Berklee owns all land and can commit resources to high-quality design and construction	Limited land needed—Berklee owns most land and can commit resources to high-quality design and construction	Would require expanded land acquisition—costly, unpredictable, and opportunistic in terms of timing and choice
Critical mass of residents supporting area businesses and activity on street; strong sense of academic community	Critical mass of residents supporting area businesses and activity on street; strong sense of academic community	Students spread throughout larger area, potentially away from other students, classrooms, and retail opportunities
Major landmark with city-wide presence for institution	Enhanced presence and visibility in focused area of development	Increased presence and visibility within established neighborhoods
With current owned properties, most new student residences would not be located in area neighborhoods	With current owned properties, most new student residences would not be located in area neighborhoods	Increased likelihood that most students will be located in new or converted student housing within area neighborhoods
Mixed-use site approach supports citywide urban design goals for Massachusetts Avenue	Mixed-use site approach supports citywide urban design goals for Massachusetts Avenue	Sites away from established mixed-use areas will limit possibilities for uses other than student housing
Requires greatest heights in order to accommodate program need on minimal number of development sites	Building heights can be more modest due to multiple sites to accommodate program need	Lowest potential building heights due to locations within historic neighborhoods or existing housing to be converted to student use
Northeastern University	Suffolk University	Current Berklee

HIGH DENSITY ← → **LOW DENSITY**



Note: *The Berklee Task Force and Boston Redevelopment Authority did not support early highly concentrated proposals which located a great deal of program at the "Crossroads" site (Mass. Ave. and Boylston Street) and encouraged Berklee to seek additional sites on which to accommodate its program need*

Figure 4-5
Development Strategies for Student Housing

The IMP projects are based on a framework that has a core of performance venues and critical campus-life facilities at or near the intersections of Massachusetts Avenue and Boylston and Belvidere/Haviland Streets. These facilities are planned to include academic, administrative, and other campus-related functions radiating out from the intersection along both streets. The goal is to concentrate supporting activities on the periphery of the core, and to locate higher-profile performance and academic activities at the heart of the campus. This will complement the uses that define Berklee as a gateway to the Fenway Cultural District. The facilities are also planned to be mixed-use with ground-floor retail space to ensure an active and vibrant streetscape.

Berklee's recently completed building projects (see Section 5.4), the IMP Projects, and potential future development concepts all take into account the college's mission and vision, demographic and physical characteristics of host neighborhoods, public policies about institutional growth and ideas and aspirations expressed by the Berklee community during this process. These concepts set the stage for a campus with a rich mix of academic, administrative activities, student-life, student housing and pubic performance uses that will improve quality of life for the Berklee community, the adjacent neighborhoods, and the city as a whole. The campus development concepts that follow have been presented to the Berklee Task Force (also see Figure 4-6).

4.6.2 Campus Development Concepts

Focus new academic growth near the Massachusetts Avenue Corridor between Boylston and Saint Germain Streets

The Berklee-owned property in this area has the potential to become the central hub of the campus, embodying the excitement, dynamism, and commitment to excellence that are central to the Berklee experience. The area is planned to accommodate newly constructed projects with a range of uses, creating opportunities for students, faculty, administrators, and the public to meet each other at the "crossroads" of the campus. Housing more students at this central location and other locations within reasonable walking distance will assist Berklee in building a sense of campus identity and benefit the community by drawing students out of neighborhood housing.

The area also provides the opportunity to present Berklee's distinctive cultural presence in the surrounding community and the city at large. The location lies along the view corridors leading west along Boylston Street from the Back Bay to the Fenway, from Huntington Avenue heading north toward the Turnpike, and from the base of the Massachusetts Avenue bridge as one enters the City of Boston.

The site of the proposed Crossroads project described in Chapter 5 is currently occupied by two buildings; the former State Street Bank branch and the former Fenway Theater (currently home to the Berklee Performance Center). The site also includes a portion of the

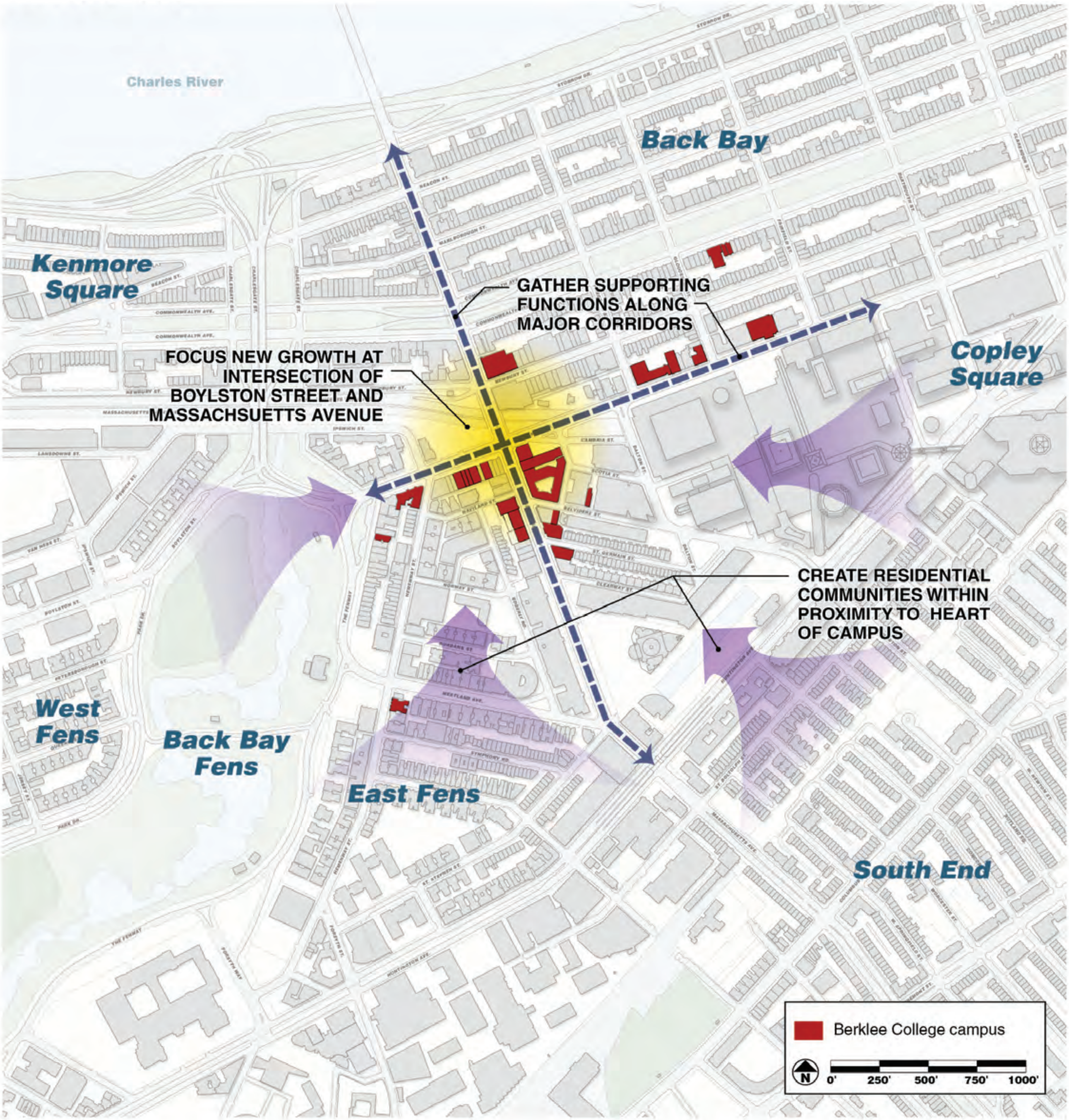


Figure 4-6
Planning Framework

Cambria Street right-of-way. While these buildings do not meet the stringent standards established for local landmark designation, Berklee nonetheless is committed to a good faith exploration of alternate means for incorporating significant building elements, notably the buildings' principal facades, into the Crossroads development project. Final design decisions concerning the incorporation of the existing facades will be made when the selected project architect has been retained in consultation with the Boston Redevelopment Authority, the Boston Landmarks Commission and the Boston Preservation Alliance.

Gather supporting functions in proximity to the campus

The area around the Massachusetts Avenue and Boylston Street intersection and along such smaller nearby streets as Haviland Street, Saint Cecilia Street, and Belvidere Street holds great promise to contain instructional and supporting facilities for academic, administrative, and campus-life programs. As previously described in this section, Berklee has leased and acquired properties on the south side of Boylston Street west of Massachusetts Avenue, the 7 Haviland Street property and buildings on the east and west sides of Massachusetts Avenue (155, 161 and 171 Massachusetts Avenue and 168 Massachusetts Avenue, respectively), all of which are located in this area. The college looks to guide the use and possible redesign of these properties within their neighborhood environment as well as upgrade their functionality and appearance.

Within this defined area, building and land uses have been and will be designed and planned to enhance the dynamic urban environment within the Fenway and Back Bay neighborhoods. Ground-floor uses could enliven the public realm, relate to the life of the neighborhoods, and draw people to the campus from the adjacent neighborhoods and elsewhere in the city. Academic space could be located throughout the campus, with the most specialized spaces located in build-to-suit facilities within or near the core. Instructional departments could also be located within buildings with teaching spaces to facilitate faculty and student interaction or as close together as possible to the core.

Student services spaces should be located in the core and designed for use throughout the day. Remote practice and rehearsal space has been developed at Berklee's Fordham Road facility in Allston to help meet the needs of large concentrations of off-campus students.

Create residential communities within reasonable walking distance to the core

The entire Berklee community need not be housed immediately around the core. Many Berklee students, especially those in their third and later years of study, may prefer a more independent life and remain less connected to the college core. In order to meet its goal of housing the remainder of the 50 percent of its students not accommodated in existing dormitories and the two IMP projects containing new student housing, Berklee may seek opportunities to create residential communities in appropriate locations within reasonable walking distance of the campus core (see Figure 4-7). Berklee will also seek to promote such independence in facilities that support these students' continued academic and creative success, and help sustain the sense of a Berklee community.

Other facilities within a convenient walking distance of the campus core to help reinforce a sense of community could include additional practice and ensemble space and group gathering spaces. It is important to the college that such facilities be reachable by safe, well-designed, and well-lit pedestrian walkways.

4.6.3 Urban Design Vision and Principles

With the exception of Berklee's sole purpose-built classroom and administration building at 921 Boylston Street, the Berklee campus has developed in many existing buildings in the Back Bay and Fenway neighborhoods. At this moment in the evolution of the campus, Berklee has the opportunity to think broadly about a new vision and image of the campus that centers on a significant, exceptionally well-designed project at the intersection of Boylston Street and Massachusetts Avenue. Such an undertaking, as well as the many other projects that will support it, needs to be guided by sound urban design principles which will enable this new vision and direction for the college to peacefully co-exist with the rest of the campus and the host communities in which it is historically bound.

Among the most important principles of the college's plan for development is that Berklee **remain a good "citizen" and a good neighbor**. In addition to maintaining the strong links to the surrounding community through its outreach programs, Berklee will carefully consider and seek to mitigate environmental impacts that construction of new facilities may create. Berklee must also take a proactive role in developing strategies to have spaces within the ground floor areas of the buildings that are welcoming to the general public. Enabling spaces that can become a true crossroads of the academic community, neighbors, and visitors will help deepen the role Berklee plays in the cultural landscape of greater Boston. Siting program elements such as lobbies, lounges, and other active spaces along major streets, and restricting loading and service areas to secondary streets and block-interior locations can also assist in having new construction or renovation participate more fully in the life of the street.

Visual connection of these spaces to the street will **allow the activity of the interior to become part of the streetscape experience** and showcase the incredible talent and energy of the Berklee population, a condition particularly exciting with the creation of a new performance venue that could be located at the corner. Having as many doors as possible along the street edges will add to the sense of a welcoming and inviting campus. Through the strategy which **co-locates programs, activities, and student beds for younger students in a centralized location**, Berklee has the chance to create a nearly continuous edge of activity along Massachusetts Avenue in which all these elements can work together to enhance the public realm.

Source: Civic Vision for Turnpike Air Rights

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Figure 4-7
Areas within which Future IMP Projects Could be Located

Goody Clancy
Architecture Planning Preservation

In addition to creating welcoming spaces at the ground floor of buildings, there are other ways in which Berklee can help **support an active and vibrant urban environment**. New buildings on either side of the existing building at 150 Massachusetts Avenue have the potential to become home to a large number of students who may currently reside within the Back Bay and Fenway residential communities. Having those students out of the neighborhoods and onto campus will add vitality to the street at all hours of the day and support a range of ground floor retail uses that will also be open to the public. New development on the campus can also create a gateway visible from many vantage points throughout the Back Bay, Fenway, and South End. This development concept also promoted the upgrading of that portion of Boylston Street between Massachusetts Avenue and Hemenway Street with new retail space serving the neighborhood and campus communities. Replacement of the badly sloping old sidewalks with new terraces and ADA-compliant sidewalks, mature street trees, enhanced storefronts, a new Berklee Bookstore and restaurants with upgraded signage and awnings have added life to this formerly barren streetscape of Boylston Street (see Figure 4-8).

4.6.4 Vision for Physical Identity

4.6.4.1 Relationship with the Public Realm

Despite nearly all of its facilities being located in buildings not designed for institutional use and spread randomly throughout the surrounding area, Berklee has been committed to establishing and maintaining a strong connection between its properties and the broader public realm. This connection enables students to feel a part of the vibrant city around them and for local residents to feel welcome to the many offerings a cultural institution like Berklee provides. Recent improvements to significant portions of Boylston Street west of Massachusetts Avenue are evidence of Berklee's commitment.

New facilities envisioned in the IMP will enable Berklee to build on this commitment and strengthen the connections to the public realm infrastructure. Both the Crossroads and 168 Massachusetts Avenue projects envision significant portions of the ground floor to be publically accessible, both physically through the programming of special music performance spaces and visually through the use of large areas of transparent glass.

As it has done on Boylston Street, Berklee's stewardship of the sidewalks on both sides of upper Massachusetts Avenue will improve the pedestrian experience between the Avenue of the Arts and the Back Bay area, as well as provide Berklee Performance Center patrons a safe and attractive experience in the city. Improvements to Boylston Street as part of the Crossroads project will help fill the significant gap in the public realm infrastructure between the Hynes Convention Center and the recently improved section between Massachusetts Avenue and Hemenway Street. Please see Figure 4-9.

Before

After

Figure 4-8
Boylston Street
Before and After

In light of the geographic dispersal of the campus buildings, on-campus pedestrian flow presents a fairly complex pattern, although most buildings are within a five-minute walk of each other. As a result, there are many alternate pedestrian routes, and pedestrian volumes are dispersed and diluted accordingly. However, the concentration of existing buildings and the IMP Projects in the vicinity of the Massachusetts Avenue/Boylston Street intersection, result in a concentration of pedestrian volumes on the sidewalks and crosswalks in that area. Indeed, the east side of Massachusetts Avenue south of Boylston Street is referred to as the "Berklee Beach" because many students congregate there during good weather. Pedestrian activity is further concentrated along Massachusetts Avenue by the location of the MBTA Green Line stations at Hynes Convention Center and Symphony. Existing pedestrian volumes at intersections in the study area are presented in Chapter 7.

It is anticipated that there will be some change in pedestrian patterns with the IMP, mainly as a result of providing more student accommodations on-campus. The proposed widened sidewalks at the corner of Massachusetts Avenue and Belvidere Street and at 168 Massachusetts Avenue will provide a new location for students to congregate, reducing the tendency to gather at Berklee Beach. In general, although there will be an increase in pedestrian circulation between the new dorms and other buildings, there will be a decrease in pedestrian trips to and from the campus by commuting students, both walking to campus and walking from transit.

As described in the Urban Design Section 5.2.7, the proposed facilities dedicated to student use in the Crossroads project will likely draw pedestrian traffic into the building away from Berklee Beach. Additional mitigation along the west side of Massachusetts Avenue is discussed in Section 4.7. More information about pedestrian circulation along Massachusetts Avenue and around 168 Massachusetts Avenue and 150 Massachusetts Avenue can be found in Sections 4.7, 5.2.4.1, 5.2.7.1 and 5.2.7.2.

4.6.4.2 Signage Plan

Berklee currently uses a certain style of banner and font to designate its buildings within the neighborhood and will continue to use those identifiers in the near term. A more comprehensive examination of the college's campus identity and how best to express it in the public realm will determine if any significant changes will be made to the external signage scheme in the future.

4.6.5 Summary

The planning framework and urban design principles are based on the desire for Berklee to better function as a premier institute of learning, enrich the academic experience for its students, faculty, and staff, and become a more active and welcoming part of the community of which it is a part. Development of purpose-built spaces gives Berklee the chance to do all these things while redefining the image of the campus to the broader community.

Figure 4-9
Activity Centers and Pedestrian Routes

As illustrated in the following sections, these aspirations will require zoning that addresses uses and dimensions that can enable Berklee to achieve these goals. It is important to note that the campus' growth will not impact the transportation network negatively and will consider the historic resources of the Back Bay and Fenway as part of any future development.

4.7 Public Realm

Unlike a traditional college campus, Berklee's location in and among area commercial properties, multifamily residential structures, other institutional buildings and civic uses creates challenges and opportunities that such other colleges as Emerson College and Suffolk University experience elsewhere in the City. Unlike these institutions, however, Berklee's open space possibilities do not extend to adjacent large civic spaces such as the Boston Common.

As noted previously, Berklee students enjoy the use of Mother's Rest in the Fens on selected special occasions. The college has contributed to the effort led by the Emerald Necklace Conservancy on behalf of the Fenway Civic Association to eliminate invasive plant species, and to re-introduce native species into Mother's Rest. The recent development of the open space at 7 Haviland Street is another example of how the college created an attractive, appropriately lighted outdoor gathering area for neighborhood residents and the college community where such possibilities rarely exist.

Another successful effort to provide for shared neighborhood and college shared outdoor space was the development of new outdoor dining terraces on the south side of Boylston Street west of Massachusetts Avenue. Consistent with that collaborative project between the City of Boston and private property owners, Berklee and other participants in the East Fenway Improvement Committee have worked together to advocate for new City-provided and Berklee-installed bike racks along Massachusetts Avenue, Haviland Street and Boylston Street.

In order to help mitigate sidewalk congestion when classes are in session along the east side of Massachusetts Avenue near the Belvidere Street intersection (i.e., Berklee Beach), plans call for the removal of the single story addition along the Belvidere Street elevation of the 150 Massachusetts Avenue mixed-use building. By restoring the original façade of that structure, the sidewalk on the north side of Belvidere Street can be expanded and landscaped, providing a more immediate and appropriate visual and pedestrian connection of the recently refurbished Saint Cecilia Church to Massachusetts Avenue. See Figures 4-10 and 4-11.

One of the IMP projects, the 168 Massachusetts Avenue mixed-use development, includes a 20-foot-wide (rather than the present 15-foot-wide) sidewalk on Massachusetts Avenue to allow passersby to more comfortably and directly walk between the proposed new building and the planned bike racks, street trees, possible bus stop and other fixtures.

In addition, the proposed IMP Project at 168 Massachusetts Avenue will allow the college to create a small "green roof" above a portion of the dining hall for use by students. Berklee continues to support the stewardship of local parkland with financial contributions and community service. GraceNotes, the Berklee staff and faculty volunteer group, regularly conducts cleanups of recreational spaces such as Edgerly Playground and Mother's Rest Park.

As other such opportunities are identified, Berklee is committed to explore these in collaboration with abutting property owners and the City of Boston.

4.8 Future Development Strategy

As noted in Section 4.4 (above), the three projects proposed in this IMP will accommodate many of Berklee's facilities needs presently envisioned. However, assuming the addition of the approximately 820 new student beds envisioned in the proposed IMP Projects, Berklee will still be approximately 400 beds short of its long-term goal to house 2,000 students, or approximately 50% or its student population, in campus housing. In light of the college's decision to pursue a balanced development approach as discussed in Section 4.6 and as illustrated in Figure 4-5, the college anticipates developing a third new student housing facility of approximately 400 or so beds as a future project not presently proposed given that a site for such a development has not yet been identified. Berklee is not seeking to acquire additional project sites at this time, preferring instead to advance the three IMP projects described in Chapter 5.

Consistent with the campus development concepts discussed in Section 4.6.2 earlier in this section, the additional approximately 400 or so beds need not be located in immediate proximity of the Massachusetts Avenue and Belvidere/Haviland intersection. Other sites that may become available that would be within reasonable walking distance, e.g. the western part of Boylston Street, could possibly accommodate the balance of the IMP student housing units. While practice rooms and study areas will almost certainly become part of the program for any additional student housing development, the need for additional dining facilities is unclear and would be dependent on a number of factors, including the future building site, scale of development and characteristics of the student population that would reside in such a development.

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Figure 4-10
150 Massachusetts Avenue
Existing Conditions

Epsilon
ASSOCIATES INC.

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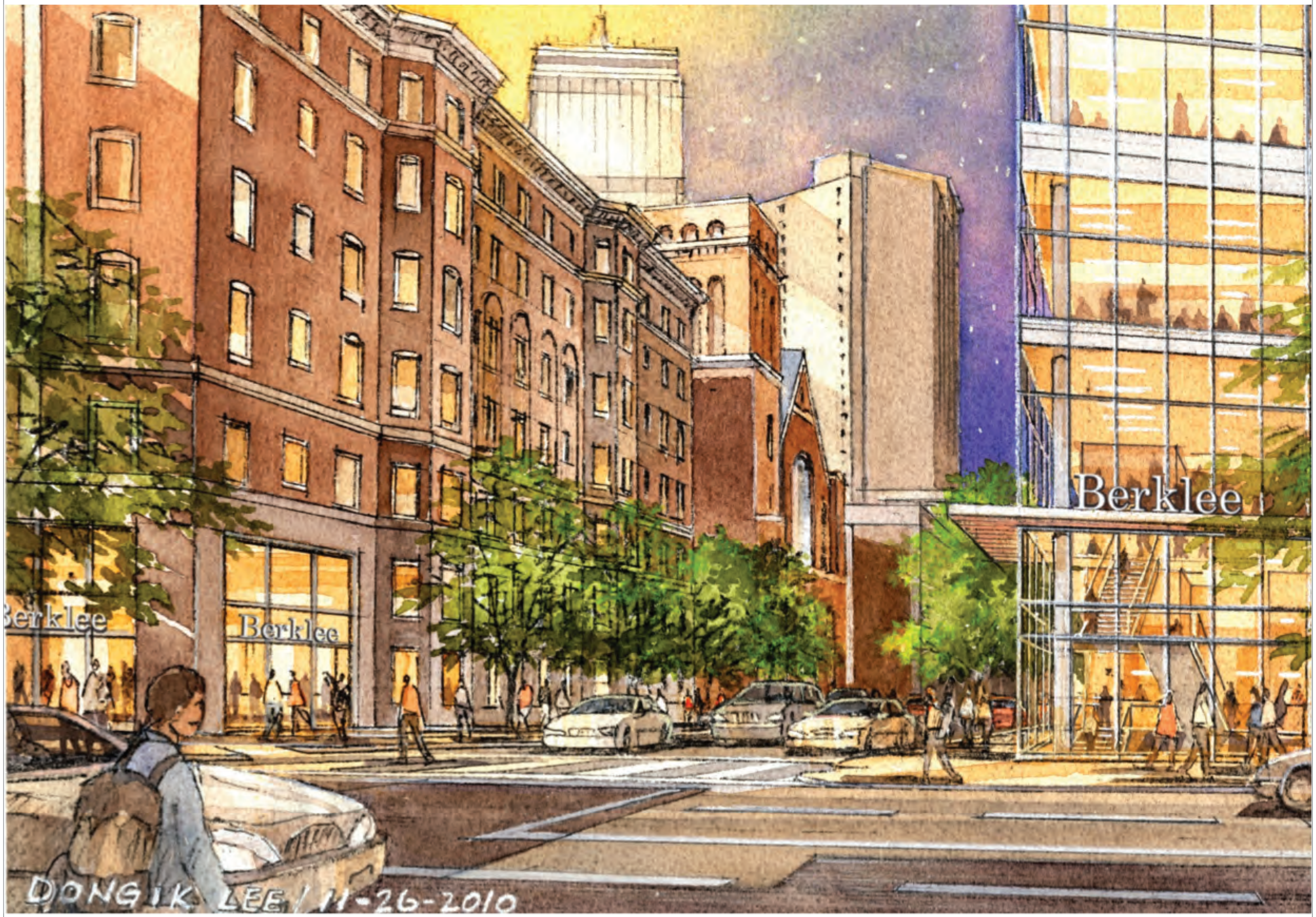

Figure 4-11
150 Massachusetts Avenue Rendering

William Rawn Associates,
Architects, Inc.
Boston, MA

Berklee recognizes that its growth and the physical image of its campus and surrounding neighborhood will be influenced by any future development on Massachusetts Turnpike Authority Air Rights Parcels 12, 13, and 15 (see Figures 4-1 and 4-2). Another possible location for future student housing beyond that contemplated in the IMP projects described in Chapter 5 might be within developments on one or more of these parcels by working in partnership with the private developer(s) ultimately designated by the Massachusetts Department of Transportation. Obviously, such an arrangement would need to be mutually acceptable to the designated developer and the college. It would also need to be affordable to Berklee, and to be delivered to the college in a timely fashion. In view of the complexities and expected premium costs associated with air rights projects, it would be imprudent for Berklee to rely on such a possibility as the means of accommodating its near term program needs. It is conceivable, however, that one of the air rights parcels could perhaps be the site of a future phase of the college's student housing development efforts beyond the IMP projects described herein. Prospectively, therefore, the college would consider available properties in the areas generally identified on Figure 4-7 for future IMP project(s).

4.9 Property Disposition

At the present time, Berklee has no immediate plans to dispose of properties it previously acquired. One property that likely would be disposed of in the future is the present 98 Hemenway Street dormitory. Having a capacity of only 100 beds, the building cannot be operated as efficiently or economically as other college-owned dormitories in view of the need for a full-time, on-site resident director, 24-hour security, etc. Spreading these fixed operating costs over a larger number of beds would be more cost effective.

Given the critical importance of providing sufficient housing for all incoming students, it is inadvisable for the college to dispose of this property until the approximately 370 beds proposed as part of the 168 Massachusetts Avenue mixed-use project are completed, and additional beds developed as part of the proposed Berklee Crossroads project. Cognizant of the preference of area elected officials and community residents that the property ultimately revert to a neighborhood residential use, Berklee commits to first discuss the disposition of this property with local parties experienced in the conversion of such properties for residential reuse.

Chapter 5.0

Proposed IMP Projects

5.0 PROPOSED IMP PROJECTS

5.1 Rationale for Proposed Projects

As mentioned in Section 4.4, the enrollment growth in previous years has placed pressure on the existing campus facilities, demanding that the college continually evaluate the uses in its many diverse spaces. Evolving teaching methods and technological advancements for instruction also create the need to renovate aging facilities, many of which are in leased property. Berklee also believes that locating a higher percentage of its students in on-campus housing will not only benefit the surrounding neighborhoods, but help foster a sense of campus community and enrich the student experience. Berklee seeks to improve the academic experience while meeting the projected demands of the future. Doing so will require a balance between efficient utilization of existing space and the creation of purpose-built facilities.

5.2 Proposed IMP Projects

The IMP includes three proposed projects as previously mentioned: 168 Massachusetts Avenue (primarily a dormitory, dining hall and academic space), the Crossroads building at 130-136 Massachusetts Avenue (primarily housing, performance center and student life and academic space), and 161-171 Massachusetts Avenue (primarily academic space) along with a number of smaller IMP campus improvement projects. No proposed parking is associated with the IMP Projects. Table 5-1 shows the proposed program for each of the projects.

Table 5-1 Program for IMP Projects

168 Massachusetts Avenue	
Student Housing	100,000 sf / 370 beds
Dining Hall	24,000 sf / 400 seats
Retail	5,000 sf
Music Technology	19,000 sf
Common Space/Mechanical	7,000 sf
Total	**155,000 sf**
161-171 Massachusetts Avenue	
Practice Rooms/Other	11,670 sf
Academic/Administrative	42,460 sf
Retail	18,060 sf
Total	**72,190 sf**
Berklee Crossroads	
Student Housing	180,000 sf / 450 beds
Performance Center	65,000 sf / ~1,200 seats
Student Life/Academic Space	45,000 sf
Total	**290,000**

5.2.1 168 Massachusetts Avenue

Acquired in the spring of 2009 from The First Church of Christ, Scientist, the buildings at 154-174 Massachusetts Avenue (with approximately 15,000 sf of existing space) provide an opportunity for Berklee to address some of its housing and academic needs in the near future. Referred to collectively as 168 Massachusetts Avenue, this is the site for a proposed 155,000 sf mixed-use building that will accommodate a new approximately 370-bed residence hall, 400-seat campus dining and student performance facility, music technology spaces, and ground floor retail. Bounded by Belvidere Street to the north and Saint Germain Street to the south, the 168 Massachusetts Avenue project will embrace a number of urban design and massing principles to help integrate it into the surrounding urban fabric, as described in Section 5.2.5. Figure 5-1 shows the proposed ground floor plan and Figure 5-2 shows a rendering of the project. Additional figures showing the project are included in Chapter 12.

The 168 Massachusetts Avenue project falls within the Massachusetts Avenue/Belvidere Street Protection Area of the Huntington Avenue/Prudential Center District. The as-of-right maximum height is set at 75 feet with Large Project Review, and the maximum FAR is set at 4.0 with Large Project Review. The 168 Massachusetts Avenue project is proposed at a zoning height of approximately 192 feet. The total anticipated FAR for the project is approximately 11.4.

A discussion of urban design related to the 168 Massachusetts Avenue project and pedestrian circulation is provided in Section 5.2.7.1 and Section 12.8. A discussion of changes to zoning is provided in Section 5.6.2.

5.2.2 161-171 Massachusetts Avenue

Acquired in 2008, the two buildings at 161-171 Massachusetts Avenue will allow Berklee not only to increase its presence on Massachusetts Avenue, but also to make a significant new investment in these older structures. Berklee proposes to substantially rehabilitate these two existing masonry buildings by developing a new vertical central circulation core and new restroom facilities within the existing structures, and to link these buildings internally through the common party wall.

Presently, these two buildings do not extend to the full depth of their lots, with the exception of single story, ground floor additions that extend to the alley west of these structures. Berklee plans to demolish these single story ground floor additions, and build a new, four-story, steel-frame addition in their place at a height approximately that of the 161 Massachusetts Avenue building. In so doing, Berklee will create approximately 20,280 net new square feet to be used for modern new classroom and other academic facilities at this location (see Figures 5-3 and 5-4). Table 5-2 shows a breakdown of the existing building space and the proposed program for the new addition and rehabilitate space.

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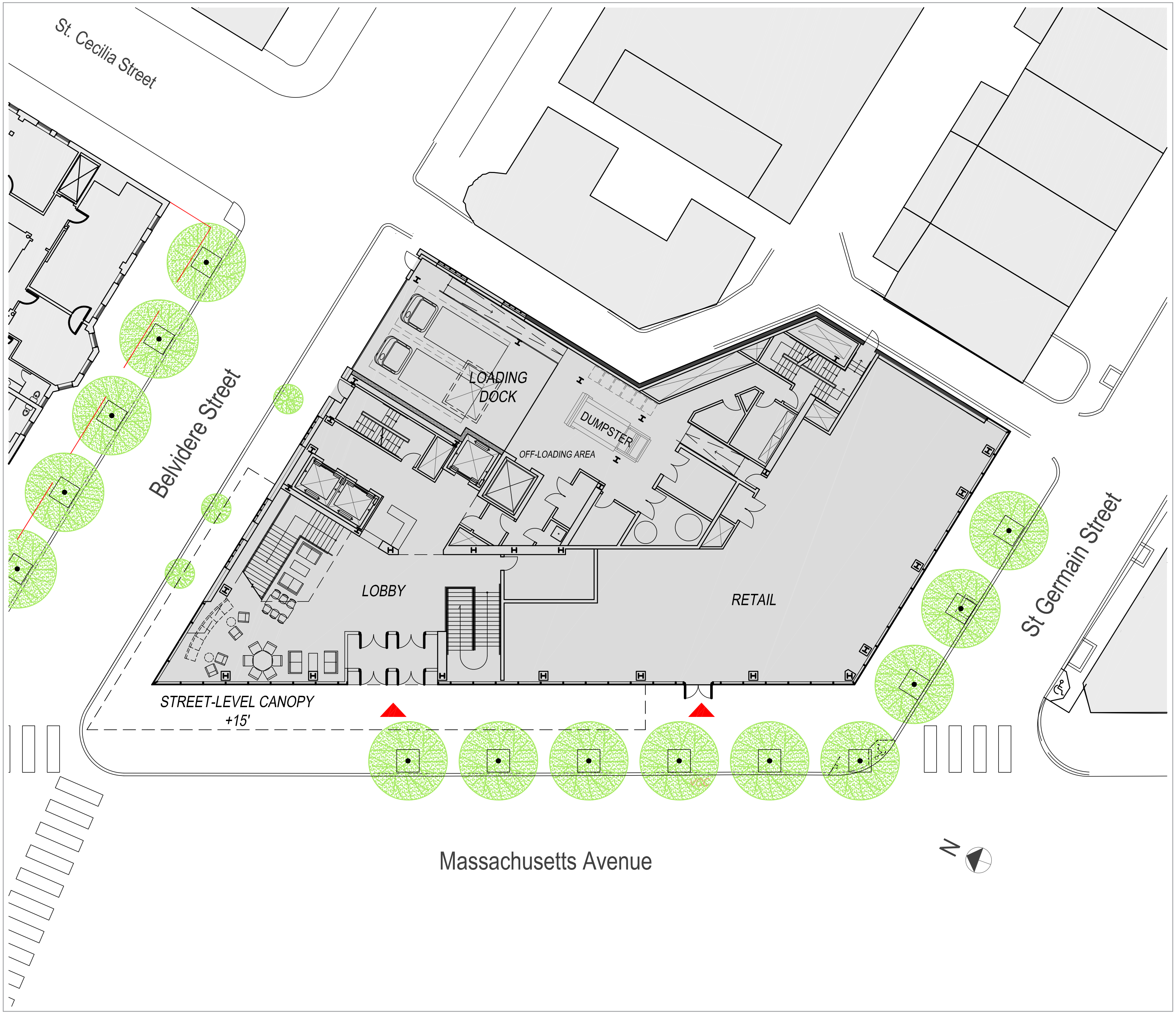

Figure 5-1
168 Massachusetts Avenue Site Plan

William Rawn Associates
Architects, Inc.
Boston, MA

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Figure 5-2
Street Rendering

William Rawn Associates
Architects, Inc.
Boston, MA

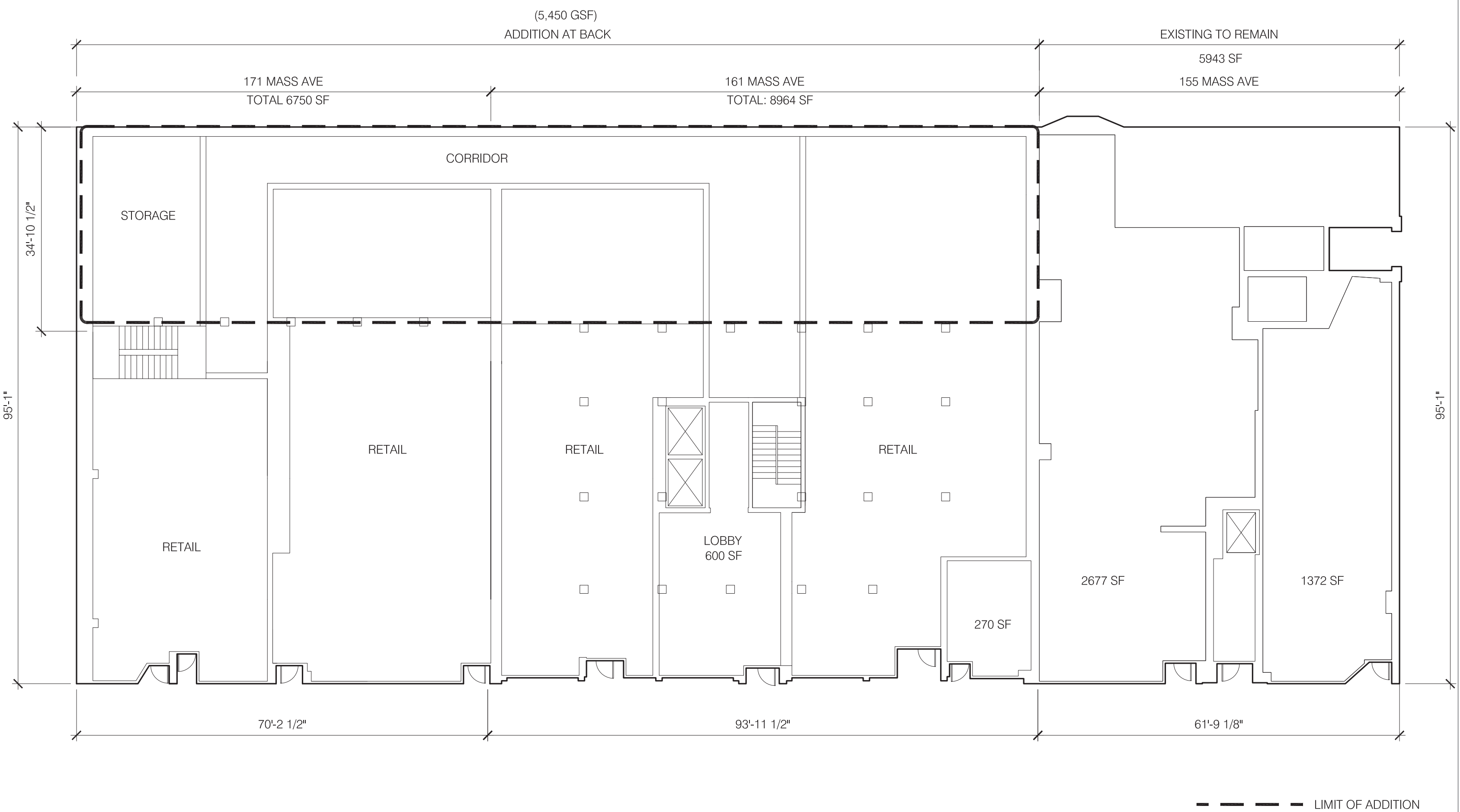

Figure 5-3
161-171 Mass Ave
Ground Floor Plan

Schwartz/Silver Architects

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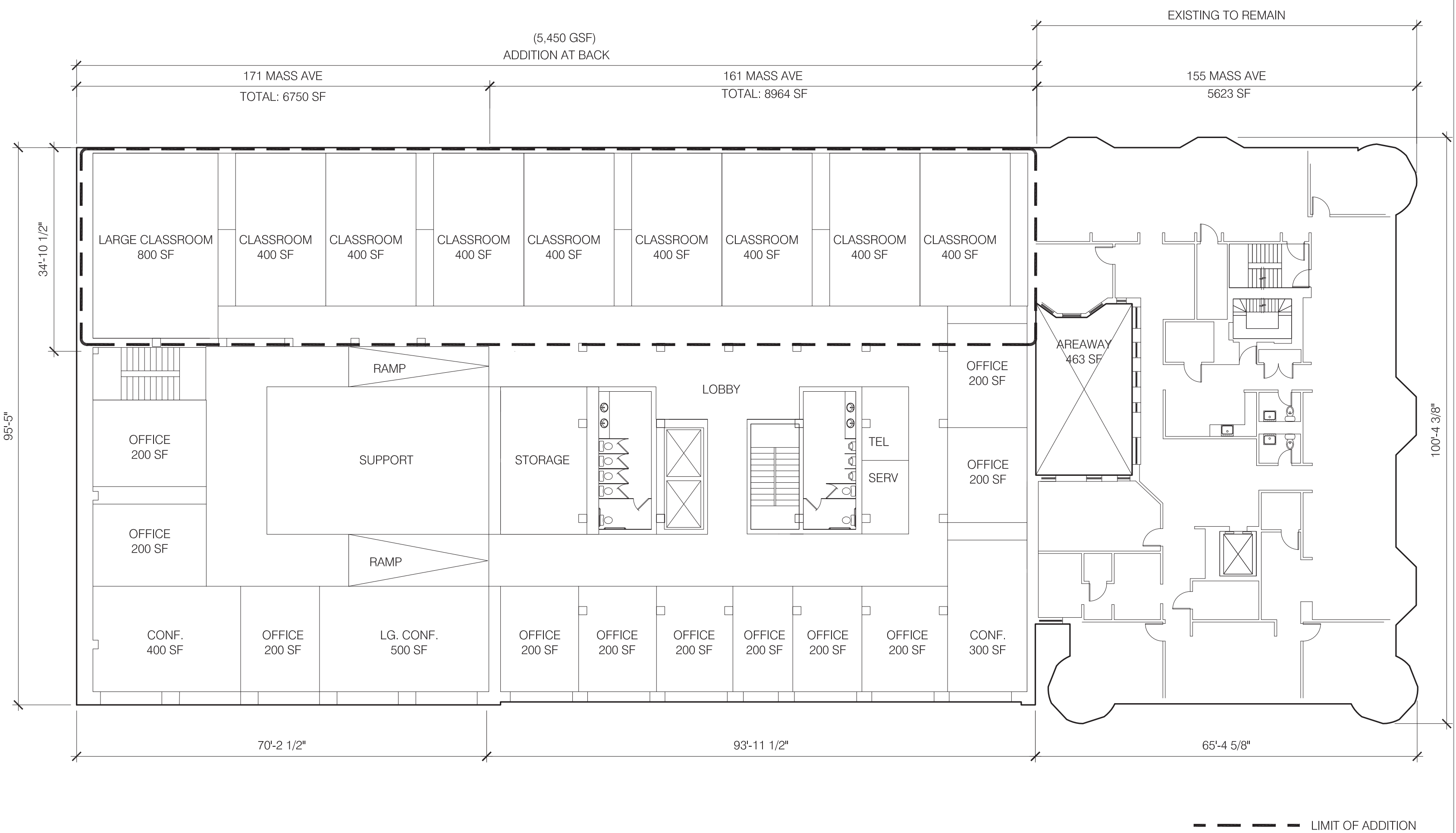


Figure 5-4

161-171 Mass Ave
Typical Upper Floor Plan

Schwartz/Silver Architects

Table 5-2 161-171 Massachusetts Avenue Program

Use	Existing sf	Proposed sf	New New sf
Practice Rooms/Other	13,661	11,670	-1,991
Retail	12,050	18,060	6,010
Commercial	26,199	0	-26,199
Academic/Administrative	0	42,460	42,460
Total	**51,910**	**72,190**	**20,280**

5.2.3 The Berklee Crossroads Project

The Berklee Crossroads project will be located on the southeast corner of Massachusetts Avenue and Boylston Street. The site includes buildings owned by Berklee and a portion of Cambria Street (see Figures 5-5 through 5-7). The existing buildings on the site include the 1,200-seat Berklee Performance Center and approximately 20,000 sf of academic space. The approximately 57,560 sf of existing space will be replaced by a new approximately 290,000-sf building that will include an approximately 450-bed dormitory, new approximately 65,000-sf Berklee Performance Center, and approximately 45,000 sf of student life/academic space. Figures 5-6 and 5-7 show the roof plan and tower plan, respectively. The dormitory will most likely be suite style and may include kitchenettes, and is anticipated to appeal to older students. The dormitory will complement those within the 168 Massachusetts Avenue project.

A number of massing alternatives have been studied for the Crossroads project, and the IMPNF included a proposal for a 330-foot tall building with approximately 295,000 sf. In response to comments from the Berklee Task Force and the acquisition of 168 Massachusetts Avenue, which allows for some uses proposed in the Crossroads to be located there, the height and density of the building have been decreased. The currently proposed project has a height of approximately 290 feet, and a total building area of approximately 290,000 sf. Section 5.2.3.1 provides additional information on alternatives studied.

5.2.3.1 Alternatives

As previously described, the currently proposed Crossroads project is a lower height alternative than was proposed in the IMPNF. The changes were made in response to Task Force suggestions regarding the reduction of height and the availability of the 168 Massachusetts Avenue site for development. The acquisition of 168 Massachusetts Avenue enables Berklee to relocate music technology space out of 136 Massachusetts Avenue,

Figure 5-5
Crossroads Ground Plan

Figure 5-6
Crossroads Roof Plan

Figure 5-7
Crossroads Tower Plan

making way for future development of the Crossroads project. In addition, 168 Massachusetts Avenue will help Berklee achieve its goal of housing approximately 1,200 students.

If Berklee is not able to proceed with the proposed Crossroads project, Berklee will acquire other properties as they became available. Although such properties have not yet been identified, it is anticipated that at least some of these acquisitions would remove taxable properties from the tax base and would further institutional expansion into the neighborhoods around the college. In addition, if existing residential properties were acquired to be converted to dormitory space, existing housing stock could be reduced.

Zoning Alternative

Existing zoning at 130-134 Massachusetts Avenue defines a maximum zoning height of 100 feet and an FAR no greater than 7. It requires no setback from the street edge to a height of 65 feet, above which a five-foot sky plane setback is required. Within this envelope, it is theoretically possible to create a new Berklee Performance Center and student life spaces, but the allowed envelope creates significant challenges for the creation of a residence hall component. Due to the height requirements of the performance space at approximately 60 feet, two stories would be available for student life and academic spaces (which would roughly satisfy the program need) and two stories would be available for student housing (not a critical mass to create a residence hall), and at 350 sf required per bed, the existing zoning would allow for the provision of only minimal beds toward the college's goal of creating approximately 1,200 new beds of student housing. The student housing component of such a development would not be financially viable.

Additional Alternatives

The IMPNF proposed a project at the Crossroads site that was 330 feet tall and included a residence hall, performance venue, and student life areas. Today, these same needs are accommodated in a project that is only 290 feet tall. While the base containing the Berklee Performance Center and student life spaces remains virtually unchanged, the tower has become slightly wider to reflect a suite-style configuration and lower due to the increased number of beds per floor (approximately 24 beds). For a full description of the project, please see Section 5.2.3, above.

Alternatives Only on Property Owned by Berklee

While prior versions of the Crossroads project assumed the use of Parcel 14 and the partial closure of Cambria Street, the current IMP project has been reduced in size to limit the need for Parcel 14. The current proposal will limit new construction to terra-firma and not require structural decks to be built over occupied space within the building. Cambria Street and Parcel 14 will need to be reconfigured in order to allow for vehicular and pedestrian circulation to occur around the site and provide access to the Hynes Convention Center and Saint Cecilia Street.

Alternatives that Preserve Historic Buildings

Berklee is committed to investigating the opportunity to preserve the historic facades located at 130 and 134 Massachusetts Avenue. Throughout the development of the master plan and community process with the Berklee Task Force, alternatives have been presented which clearly show that the program needs can be accommodated on the Crossroads site while maintaining a minimum of a 15-foot set back from the streetwall of the existing facades. This dimension will allow the facades to appear more independent when experienced from the street level, maintain their historic integrity, and continue to provide a pedestrian scaled experience along the Massachusetts Avenue and Boylston Street sidewalks.

The opportunity to preserve portions of these buildings will ultimately depend on several technical factors that will be fully explored when the Crossroads project undergoes Large Project Review through the Article 80 process. These include an evaluation of the structural integrity of the existing masonry and wall systems, detailed review of the building foundations, and a clearer understanding of the physical connections between new construction and the existing building.

5.2.4 Other Campus Improvement Projects and Leased Space

5.2.4.1 150 Massachusetts Avenue

A number of changes are planned for 150 Massachusetts Avenue, a home to many different Berklee uses. The entry to the building is slated for renovation to improve accessibility, and the college plans to remove the single-story addition on the north side of Belvidere Street and to restore the original building façade. Two existing classrooms are being removed and relocated to another Berklee building in order to make space for additional restrooms. Options for replacing the building’s steam absorption chiller are also being investigated. See Figures 5-8 and 5-9.

The removal of the addition will allow for the current 6.5 foot-wide sidewalk along Belvidere Street to be expanded to approximately 16 feet, creating a pedestrian walkway and active edge along the south façade of 150 Massachusetts Avenue. In conjunction with a planned new entry facing the proposed 168 Massachusetts Avenue project, this widened sidewalk will provide additional outdoor space for students to gather during good weather, and will facilitate pedestrian flow along Belvidere Street, including to and from the recently renovated Saint Cecilia Church. Streetscape improvements such as site lighting, street trees, bike racks, and accessible terraces could also be included as part of this project.

Upon completion of the Proposed Institutional Project at 168 Massachusetts Avenue, Berklee plans to convert the current cafeteria at 150 Massachusetts Avenue into additional music technology studios and associated spaces.

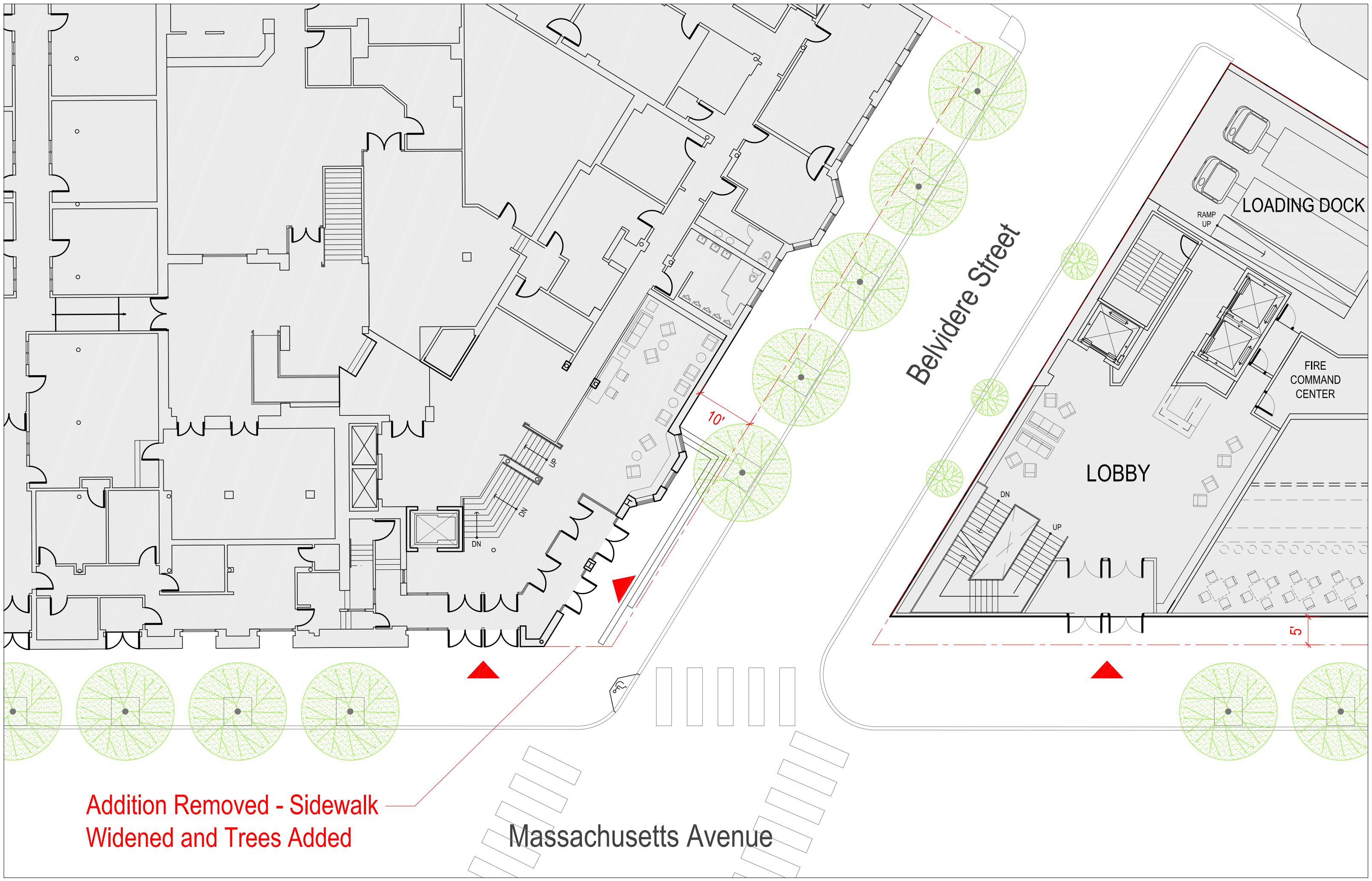


Figure 5-8
150 Mass Ave
Site Plan

William Rawn Associates
Architects, Inc.
Boston, MA

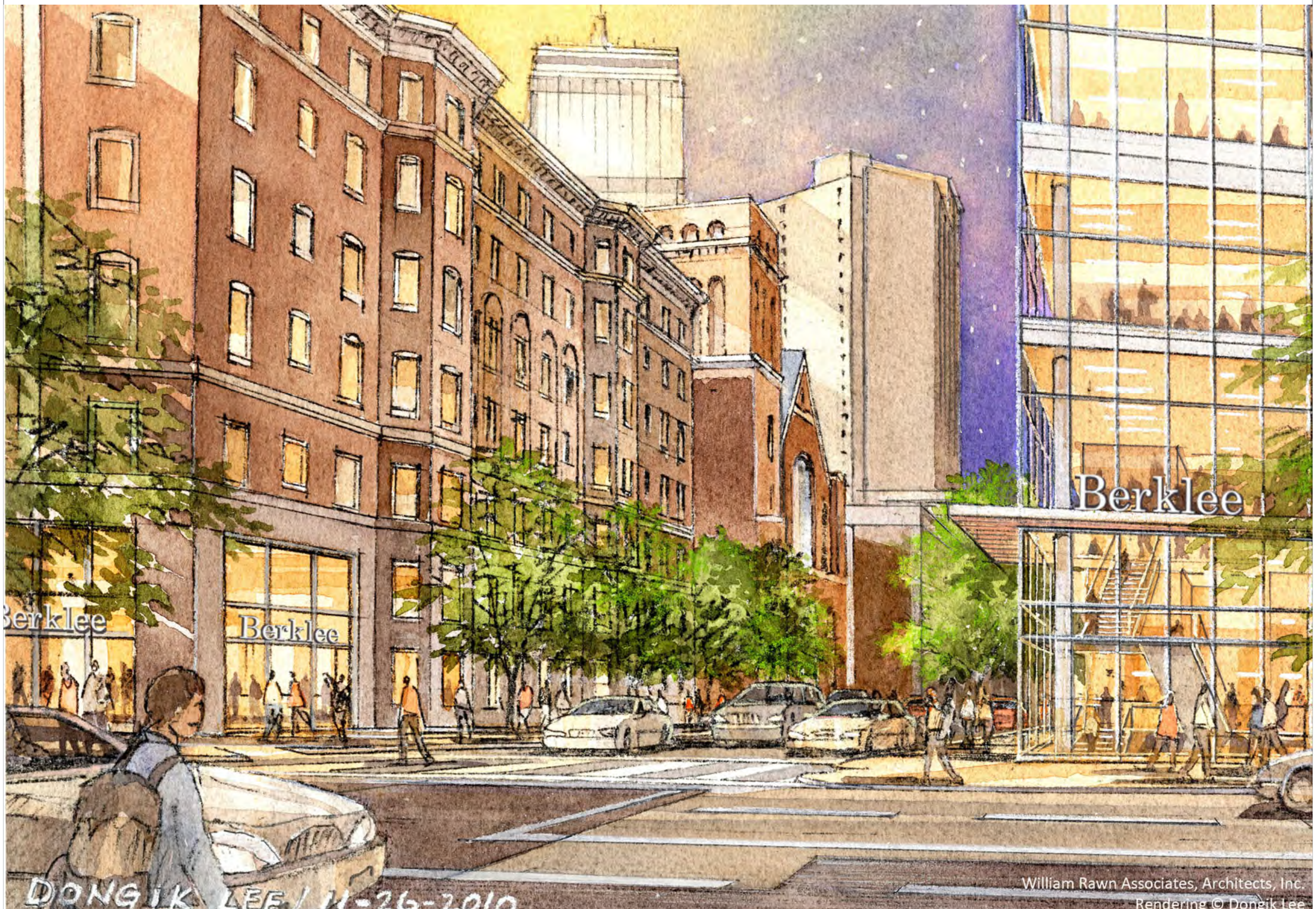


Figure 5-9
150 Mass Ave
Rendering

William Rawn Associates
Architects, Inc.
Boston, MA

Due to their small size, the following projects are exempt from IMP review, but Berklee has elected to include such projects in this IMP pursuant to Section 80D-2(5) of the Code.

5.2.4.2 22 The Fenway

This 16,000-square-foot, townhouse-style building (four stories, plus basement and sub-basement) was acquired by the college in 1986. It houses the Professional Education Division, department offices for Music Education and Professional Music, faculty offices, and several classrooms. A lecture/recital hall, equipped for special events requiring advanced music technology applications, is on the first floor of the building. Berklee is replacing the front windows of the building, renovating one existing classroom and converting two former administrative office spaces to additional classrooms. These new classrooms will replace the two classrooms lost in the upcoming bathroom installation at 150 Massachusetts Avenue.

5.2.4.3 153-157A Massachusetts Avenue

In connection with renovations to 153-157A Massachusetts Avenue, currently unoccupied building mechanical and support space in the building's basement will be converted to usable academic and rehearsal space. As a result, the Gross Floor Area of 153-157A Massachusetts Avenue will increase by up to 5,400 square feet.

5.2.4.4 1100 Boylston Street

In connection with renovations to 1100 Boylston Street, currently unoccupied building mechanical and support space in the building's basement will be converted to usable storage and receiving space. As a result, the Gross Floor Area of 1100 Boylston Street will increase by up to 800 sf.

5.2.4.5 1108 Boylston Street

In connection with renovations to and occupancy of the upper floors of 1108 Boylston Street, currently unoccupied building mechanical and support space in the building's basement will be converted to usable academic and rehearsal space. As a result, the Gross Floor Area of 1108 Boylston Street will increase by up to 2,600 square feet.

5.2.4.6 Saint Cecilia Parish

Berklee will be leasing from the Saint Cecilia Parish approximately 2,000 square feet of Gross Floor Area of classroom space (to be used on a shared basis with the Saint Cecilia Parish), to be developed in the basement of 18 Belvidere Street in connection with the Parish's planned renovations.

5.2.4.7 Other Leased Space

Berklee is pursuing other leasing opportunities, totaling (A) up to 20,000 sf of Gross Floor Area in the aggregate (exclusive of future leased space otherwise allowed under Section 5.5.2 of this IMP), in buildings which Berklee currently leases space, and (B) an additional up to 10,000 sf of Gross Floor Area in the aggregate (exclusive of future leased space otherwise allowed under Section 5.6.2 of this IMP), to satisfy particular operational needs within: (i) the Huntington Avenue/Prudential Center District's Saint Cecilia Special Study Area, Massachusetts Avenue/Belvidere Street Protection Area and Christian Science Institutional Area; (ii) the Fenway Neighborhood District's Massachusetts Avenue Neighborhood Shopping-1 subdistrict, Massachusetts Avenue Neighborhood Shopping-2 subdistrict and Institutional subdistrict; and (iii) the B-8-120b district along Massachusetts Avenue and B-8-120a, B-8-120c and H-3 districts along Boylston Street.

5.2.5 Environmental Impacts

The wind and shadow analyses included the potential air rights developments on Parcels 12 and 15 as shown in *The Civic Vision for Turnpike Air Rights*. The development on Parcel 13 is also included, but the massing has been updated to reflect the proposal from Trinity Financial. The analyses also include the proposed developments on the Christian Science Plaza.

5.2.5.1 Wind

An analysis of the long-term wind data in the Boston area indicates that the prevailing winds originate from the west-northwesterly directions throughout the year. The northeasterly winds are also strong during storms in the spring and winter seasons. In the summer, the southwesterly winds are most frequent, but are typically of low speeds.

Buildings on and around the Berklee campus are generally low, with several taller buildings to the east as one moves toward downtown Boston. Existing wind conditions in the neighborhood are generally comfortable, with wind speeds that are appropriate for walking or standing on Massachusetts Avenue, while streets perpendicular to Massachusetts Avenue tend to have wind speeds more comfortable for sitting or standing. East of Clearway Street along Massachusetts Avenue, there are some existing uncomfortable wind conditions. These windier conditions remain constant regardless of the proposed buildings or phasing of development.

Of Berklee's three proposed IMP Projects, only two are expected to affect wind conditions (the Crossroads project and 168 Massachusetts Avenue). The project at 161-171 Massachusetts Avenue does not significantly alter the height of the existing structure, so its wind effects are expected to be negligible.

The proposed structure at 168 Massachusetts Avenue will generate some windier conditions on- and off-site. Wind speeds are expected to increase at the corners of Massachusetts Avenue and Belvidere Street, and at the intersection of Massachusetts Avenue and Saint Germain Street. These conditions will be addressed with proper mitigation techniques. Off-site, though winds are predicted to be slightly higher along Massachusetts Avenue and along Belvidere Street, conditions are expected to remain suitable for sitting, standing or walking on an annual basis.

The addition of the Crossroads project is expected to increase pedestrian level winds to the west and east of the building. Increased wind speeds to the east may result from winds being channeled between the Crossroads building and a future Air Rights development project on Parcel 15. Increased winds to the west will result from prevailing winds downwashing off the proposed tower to ground level. As the Crossroads development is studied in more detail, mitigation options will be studied and implemented to maintain suitable pedestrian level winds where necessary.

In addition to Berklee's Proposed Institutional Projects, there are a number of other development projects planned for the area, including certain Air Rights development parcels and the Christian Science Plaza Revitalization projects. These buildings are expected to have localized effects, but such effects are not expected to extend to Massachusetts Avenue.

5.2.5.2 Shadow

Shadow analyses were prepared to indicate shadow impacts from the proposed IMP Projects and from as-of-right buildouts of the IMP Project sites at 9:00 am, 12:00 pm and 3:00 pm on the 21st of March, June, September and December. Shadow impacts were also studied at 6:00 pm on the 21st of June and September. As noted above, the background conditions include the potential Turnpike Air Rights proposals. Areas of particular note include the Edgerly Road Playground, the open space at 7 Haviland Street, and Saint Cecilia Church. Impacts on Commonwealth Avenue are also described. Graphics showing the net new shadow from the as-of-right buildout and the proposed IMP Projects are included in Appendix C.

New shadows from the proposed IMP Projects, beyond the shadow of the as-of-right build condition of each site, are generally cast onto portions of the sidewalks of the surrounding streets, including Massachusetts Avenue, Boylston Street, Saint Cecilia Street, and Belvidere Street. No net new shadows from the proposed IMP projects will be cast on the Edgerly Road Playground in 11 of the 14 time periods studied. New shadow will be cast from the 161-171 Massachusetts Avenue project onto the Edgerly Road Playground during the morning hours of March, June and September. Appendix C includes additional studies showing the shadow effects of the proposed IMP project at 161-171 Massachusetts Avenue that were performed at the request of the City of Boston Parks Department after the initial submission of the IMP on February 18, 2011. Shadow and other project impacts will be reviewed as the project goes through design review.

No net new shadows from the proposed IMP projects will be cast on the 7 Haviland Street open space during 13 of the 14 time periods studied. New shadow will be cast on the open space at 9:00 am in September.

No net new shadow falls on Saint Cecilia Church during eight of the 14 time periods studied. Shadow is cast on the Church six of the 14 time periods studied, generally in the late afternoon.

During the morning of winter months when shadows are at their longest, the December 21st 9:00 am time revealed that the shadows from the Crossroads proposal reach the area surrounding the intersection of Massachusetts Avenue and Commonwealth Avenue. For a brief period, shadows occur in an area dominated by auto ramps and other areas non-accessible to pedestrians immediately east and west of Massachusetts Avenue. There are also minimal impacts to the sidewalks along Massachusetts Avenue between roughly 9:00 am and 9:30 am.

5.2.6 Infrastructure

Berklee will provide additional information regarding water use, wastewater generation and stormwater runoff as each project subject to Article 80B undergoes Large Project Review, including the capacity of the surrounding infrastructure. Information will also be provided, as required, to the Boston Water and Sewer Commission for review and approval. Specific information regarding infrastructure related to the 168 Massachusetts Avenue project is provided in Section 12.10.

5.2.7 Urban Design

5.2.7.1 168 Massachusetts Avenue

Berklee brings vitality to Massachusetts Avenue on a daily basis while benefitting from the vibrant energy of the area's street life. The 168 Massachusetts Avenue project can help define a new center of gravity for the college, creating an urban campus on Massachusetts Avenue that connects students, faculty, and their city. The building will also contribute to a neighborhood context that can guide subsequent development, providing a transition for the future iconic Crossroads project proposed at Massachusetts Avenue and Boylston Street.

The ground-level retail proposed for the 168 Massachusetts Avenue project will enliven the streetscape and strengthen Massachusetts Avenue as a "two-sided" retail street. It will also support the surrounding neighborhood and help draw people to the campus from adjacent areas in the city, just as the Boylston Street retail improvements have reinforced a link to the Fenway neighborhood. The building will be set back five feet from the property line along Massachusetts Avenue to promote an active pedestrian experience along the 20-foot-wide sidewalk, preserving a continuous street edge while allowing for greater student and community circulation. The wider sidewalk will also create additional outdoor gathering space and likely relieving some of the current pedestrian congestion between Belvidere and Boylston Streets, with sufficient depth to provide streetscape enhancements such as site lighting, street trees, bike racks, and the possibility of outdoor patio seating if part of the retail component is a restaurant. Additional two- to four-foot setbacks on Belvidere and Saint Germain Streets will also improve pedestrian accommodations.

As part of the 168 Massachusetts Avenue project, Berklee looks to establish a more transparent and interactive presence within the city by locating a large dining and informal performance space on the second and third floors. Highly visible from the street, the glass-enclosed space will serve as a beacon for campus life and celebrate Berklee as a showcase for music. It will replace the current 250-seat facility in 150 Massachusetts Avenue and act as the new venue for Berklee's nightly "caf shows"—student performances popular with the Berklee community that are also open and free to the public. Berklee subsequently plans to reallocate the existing dining space in 150 Massachusetts Avenue as additional academic music technology facilities.

The residence hall program of the project, which includes practice rooms and a small fitness center in addition to student lounges and laundry facilities, sits above the 55-foot high "podium" portion of the proposed 168 Massachusetts Avenue building. Establishing a podium in scale with existing buildings adjacent to and on the opposite side of Massachusetts Avenue helps define the public realm, visually delineating the more public retail and dining/performance functions from the housing component above. A canopy along much of Massachusetts Avenue at the second floor line is also anticipated to provide scale and shelter to the pedestrian experience, and to help mitigate wind impacts at street level.

Responding to the street edge and restrictive site, the upper residential floors are concentrated in a tower element on the north side, diminishing the perception of a "wall" on Massachusetts Avenue. This major setback from the more residential Saint Germain Street allows for maximizing sunlight and views of the sky on Massachusetts Avenue, while also providing the opportunity for a "green roof" or open space at the southern portion of the fourth floor. Double-height student lounges at the northwest corner of the tower create a special glass element that helps lighten the building mass and celebrates Berklee's presence within the city.

5.2.7.2 Berklee Crossroads

The location of the Crossroads site is the keystone to Berklee achieving the goals and aspirations outlined in the planning process. It presents the opportunity to tangibly define a core campus. The new Crossroads project will become a landmark for contemporary music, demonstrating the best contemporary design and creating a mixed-use building that supports a vibrant, creative and successful community of learners. It will become the college's actual and figurative center and a gateway to the Fenway Cultural District. A new building at this location will introduce an architectural statement at the intersection of Massachusetts Avenue and Boylston Street that celebrates Berklee as a community of creative musicians. It will capture and concentrate the energy of the city's streets, and stress architectural transparency to embody Berklee's continual contribution to and strengthening of its host communities and the city itself.

This site is part of a complex area in the overall urban form of Boston, one that transitions from the tall buildings located in and around the Prudential Center to the lower-scale residential neighborhoods of the Fenway and Back Bay. Development of this site will recognize both of these conditions and respond with a massing strategy which respects the quality of the street-level experience and locates an appropriate amount of density in the center of the Berklee campus, at the confluence of many modes of public transit.

As mentioned above, as a result of comments by the Task Force and the acquisition of 168 Massachusetts Avenue, the Crossroads project has evolved and been reduced in scale. The proposed massing establishes a "base" portion of the building with an overall height of approximately 80 feet, with the upper portion of the building set back from the base. The distinct base gives Berklee the opportunity to create an easily identifiable architectural statement for the new Berklee Performance Center which would be housed in the lower three floors. The height of the base portion will allow this building element to relate well to the adjacent 150 Massachusetts Avenue building and the 360 Newbury Street building across Boylston Street. The proposed base and setbacks at Boylston Street will help to create a defined street wall for a part of Boylston where none exists today.

The potential ground floor layout would ideally include the entrance and lobby for the new Berklee Performance Center at the Boylston Street/Massachusetts Avenue corner of the site. When not being used as a lobby space for a performance, this space could become a multi-use space that is open to the public. It could contain a café or small food stand, be used for impromptu performances by students, allow students and faculty to meet before or after class, or even become part of an internal connector between Massachusetts Avenue and Saint Cecilia Street. Access to the residence hall and student life areas could be located on Massachusetts Avenue, keeping the sidewalk active throughout the day and evening. Loading and service areas could be located off Saint Cecilia Street, and the ability to have off-street facilities will be investigated.

The upper levels of the base portion would contain such academic and student life spaces as a fitness/wellness center and practice rooms. This component will provide a transition between the Berklee Performance Center and the residence hall in the tower.

The residence hall portion of the project would begin at the upper levels of the base and extend upward in a slender tower which is set back approximately 70 feet from Boylston Street, approximately 20 feet from Massachusetts Avenue, and approximately 20 feet from Saint Cecilia Street. By setting back the tower, which is now shorter than originally proposed, from all sides of the lower base, the impacts, both visual and environmental, will be less than those for the previously proposed massing. This portion of the project could include approximately 450 beds in a 19-story residence hall atop the previously described base, and would help Berklee move toward its planning goal of creating approximately 1,200 more student beds on or near campus, thus relieving pressure from the surrounding neighborhoods.

This concept envisions the need to incorporate the part of Cambria Street between Boylston Street and Saint Cecilia Street into the corner site. The proposal anticipates realignment of the Boylston Street/Cambria Street intersection to ensure smooth operation of service while providing access to and egress from the Hynes Convention Center. As the project moves forward, the college will work with the Massachusetts Convention Center Authority to mitigate potential disruptions to their Hynes Convention Center loading area.

This active and important cultural venue unique to the Berklee and at such a prominent corner in the city will benefit from a ground floor expression that is open and welcoming, as well as an interior space that can become a true crossroads of the community. Maintaining the integrity of the streetwall while allowing for variations in the materials and rhythms of the building will help the base of the building echo the patterns of place and become a natural part of the surrounding city fabric.

It is anticipated that the new activity patterns of this development will be comparable to other, extant uses elsewhere at the college. For example, the new Berklee Performance Center will be comparable in size to its predecessor and should experience use patterns consistent with utilization of the present Berklee Performance Center. In like fashion, the student housing component will function in much the same way as current and other planned Berklee student housing. The newly created "hang space" and facilities dedicated to student use will likely draw pedestrian traffic into the building and away from the currently crowded Berklee Beach in front of 150 Massachusetts Avenue.

It is also anticipated that the proposed 168 Massachusetts Avenue project will create additional pedestrian traffic across Belvidere Street and possibly Massachusetts Avenue, with the introduction of the new mixed-use building. Although both 150 and 168 Massachusetts Avenue projects have proposed areas of wider sidewalks and located adjacent main entries to help ameliorate congestion, possible crosswalk and intersection improvements to improve pedestrian safety and circulation could also be studied (see Figures 5-1, 5-2, 5-8 and 5-9).

Chapter 7 includes a more detailed pedestrian analysis.

More detailed design review for the IMP Projects will occur during Large Project Review as each project subject to Article 80B moves forward.

5.2.7.3 View Corridors

A view corridor analysis was completed to study how the proposed IMP Projects will fit into the existing surroundings, and the impact they will have on major view corridors. Figures 5-10 through 5-20 shows the results of the view corridors and a discussion of each viewing location.

Area Views - Projects Included in Study

168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

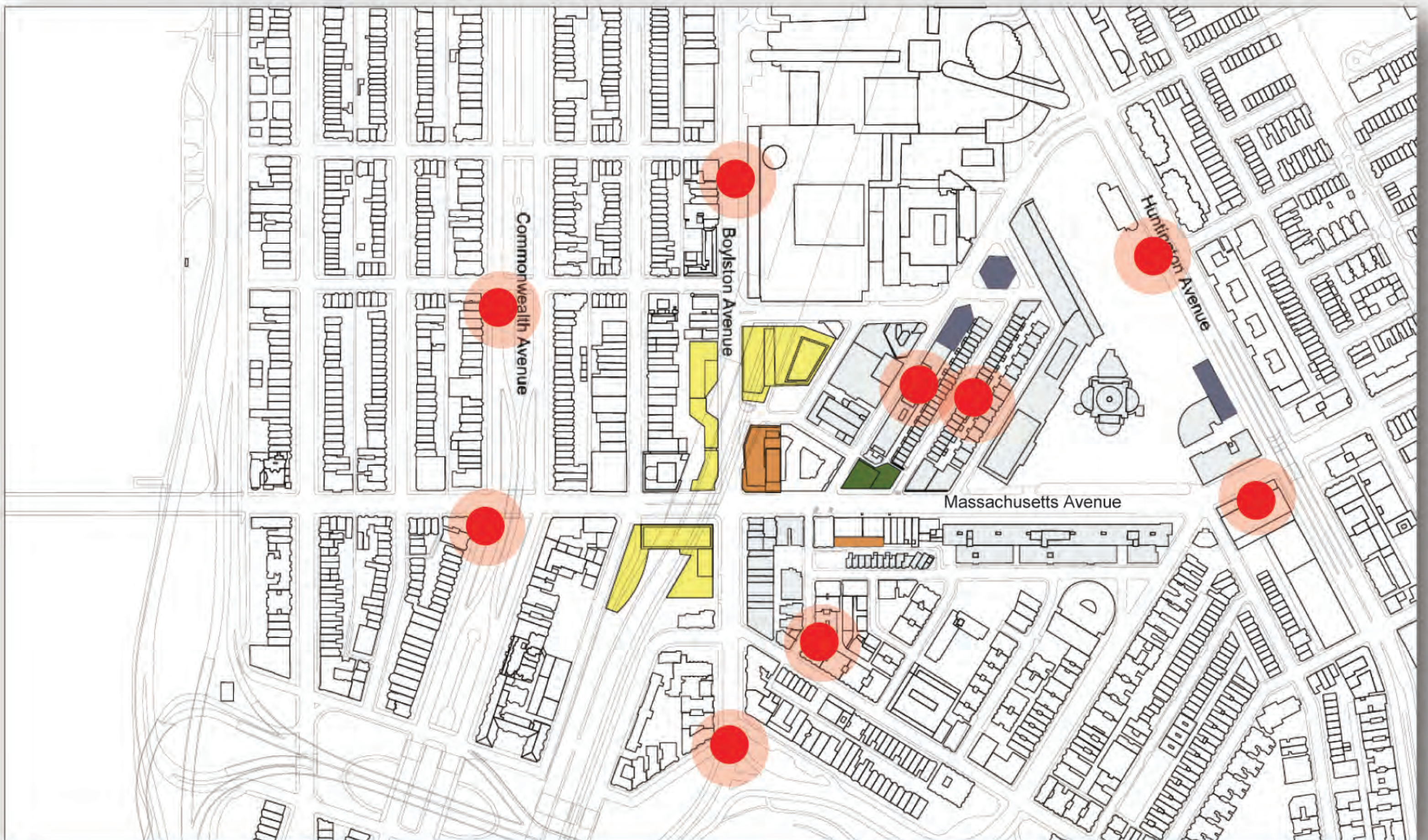
Christian Science Plaza Developments

Figure 5-10

Berklee
college of
music

Institutional
Master Plan

Viewpoint Locations



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

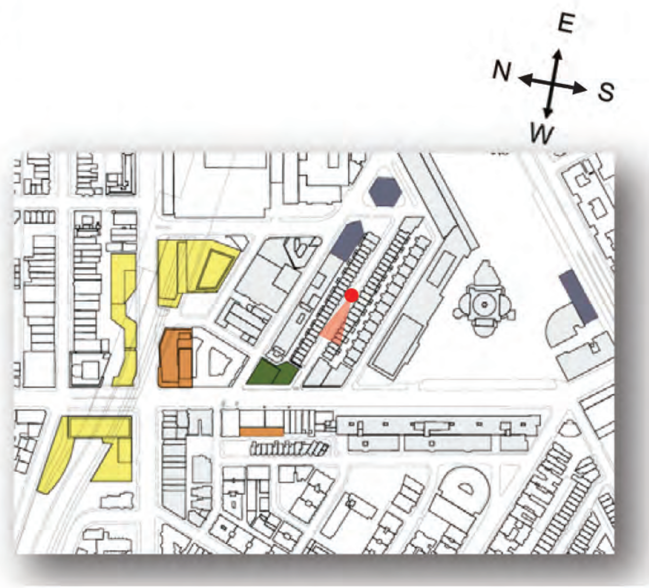
Christian Science Plaza Developments

Figure 5-11

William Rawn Associates
Architects, Inc.
Boston, MA

View from St. Germain between Mass Ave and Dalton Street Looking West

Taken from the south side of Saint Germain Street at mid-block, this winter photograph illustrates that the 168 Massachusetts Avenue building will generally be hidden behind tree canopies during the summer and fall months from the sidewalk. As one moves to the north side of the street, the top of the building will recede behind the roofline of the opposite townhouses.



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

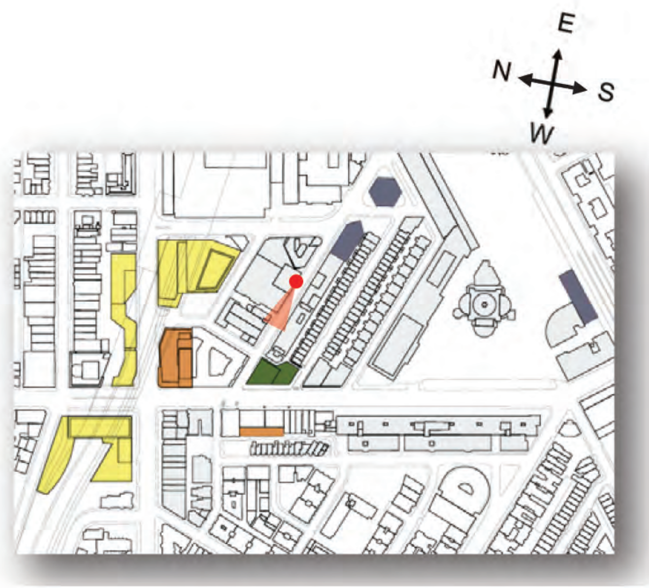
Other Development

Christian Science Plaza Developments

Figure 5-12

View from Belvidere Street Between Mass Ave and Dalton Street Looking West

Taken from the middle of Belvidere Street, this winter photograph illustrates that a portion of the 168 Massachusetts Avenue building will be hidden behind the gray Verizon utility building on the left side. Belvidere Street is generally not residential in nature, with the Hilton Hotel tower anchoring the east end of the street.



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

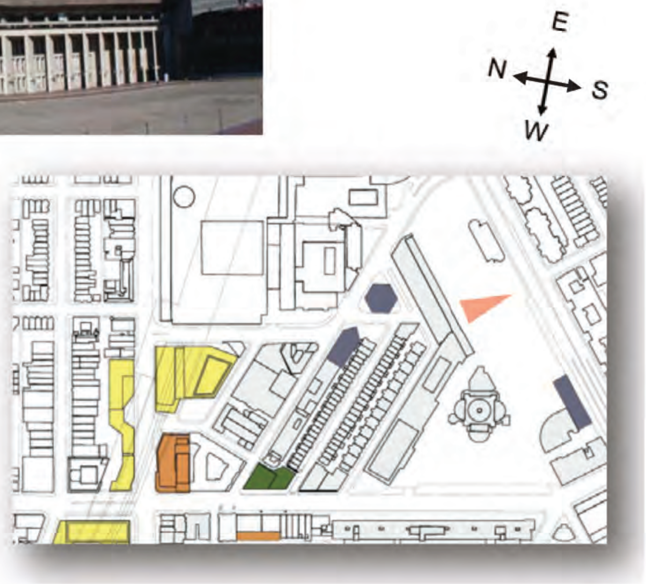
Christian Science Plaza Developments

Figure 5-13

William Rawn Associates
Architects, Inc.
Boston, MA

View from Huntington Ave Looking North At Christian Science Plaza

Taken from the south side of the Christian Science Plaza, this winter photograph illustrates that the Crossroads and 168 Massachusetts Avenue buildings will generally be hidden behind the proposed Christian Science Plaza Development in the foreground and the Hilton Hotel tower behind in the center.



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

Christian Science Plaza Developments

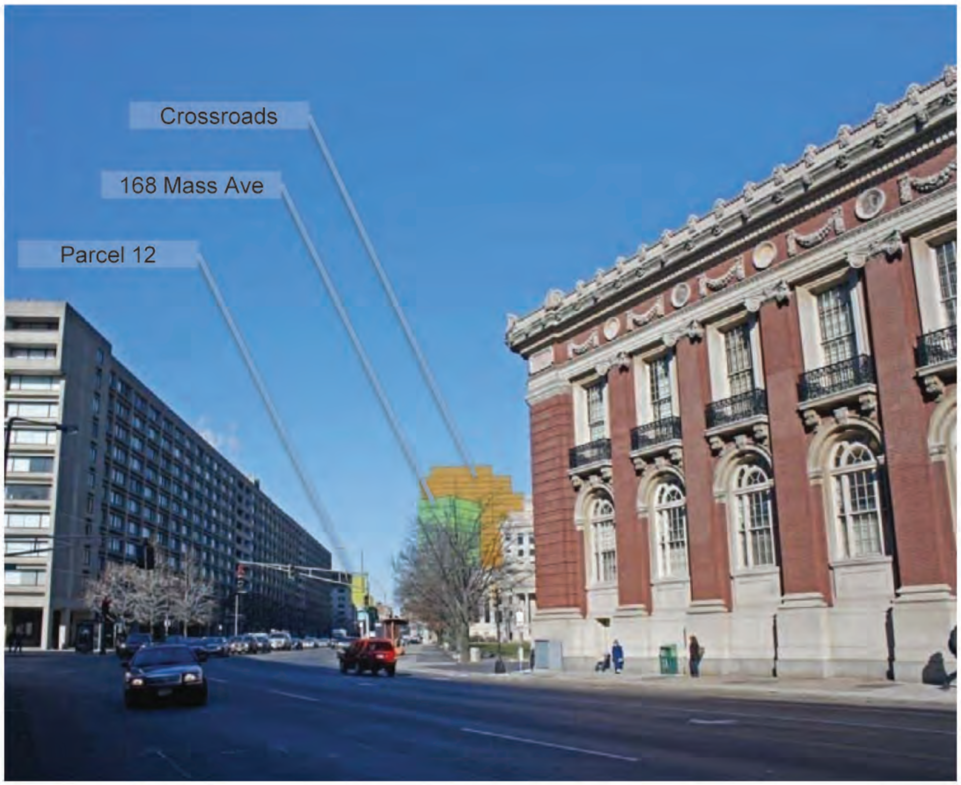
Berklee college of music

Institutional Master Plan

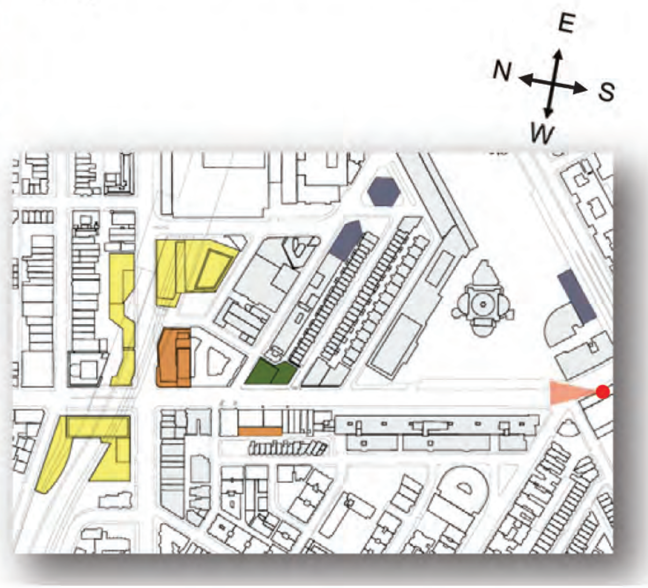
Figure 5-14

William Rawn Associates
Architects, Inc.
Boston, MA

View from Corner of Mass Ave and Westland Ave Looking North At Mass Ave Entry to Symphony Hall



Taken in front of Symphony Hall with the Horticulture building in the foreground, this winter photograph illustrates that the 168 Massachusetts Avenue building will partially hide the tower portion of the Crossroads when viewed from the south. The Berklee Crossroads will also provide a landmark at the other end of this section of Massachusetts Avenue, linking the Berklee Performance Center and Symphony Hall as two centers of music in the city.



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

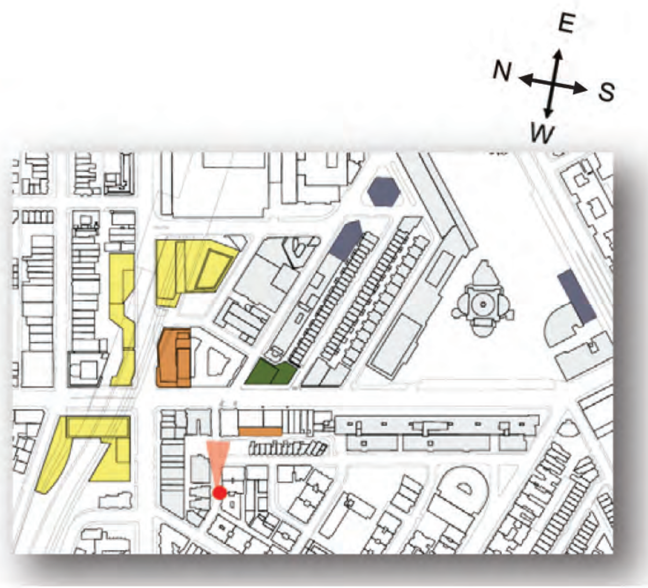
Christian Science Plaza Developments

Figure 5-15

William Rawn Associates
Architects, Inc.
Boston, MA

View from Haviland St. Between Edgerly Rd. and Hemenway St. Looking East

Taken from the north side of Haviland Street, this winter photograph illustrates that view corridors along streets from this neighborhood do not generally include the Crossroads or 168 Massachusetts Avenue buildings.



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

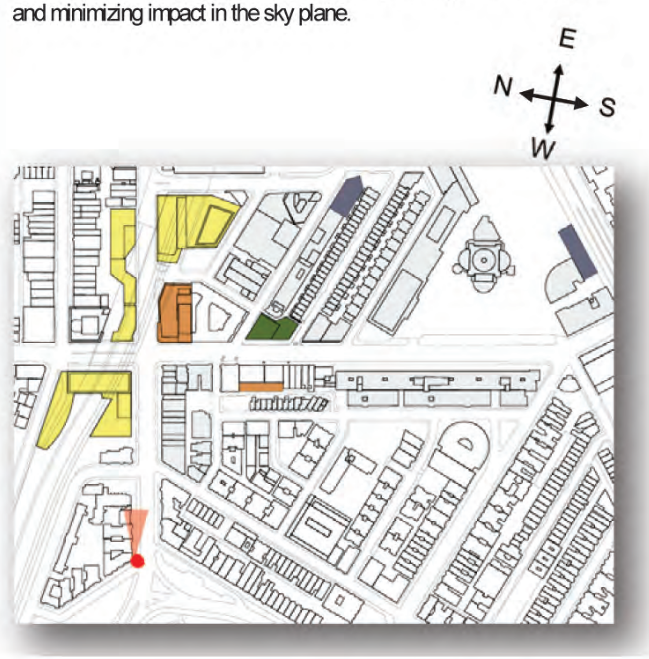
Other Development

Christian Science Plaza Developments

Figure 5-16

View from Corner of Boylston St and Charlesgate St Looking East

Taken from the north side of Boylston Street looking east, this winter photograph illustrates how the mass of the Crossroads buidling is set back from the street wall. Along Boylston Street, the Berklee Performance Center in the base of the Crossroads maintains a similar height as the surrounding urban fabric. The narrow end of the residence hall faces this direction in long east-west views, creating a slender tower and minimizing impact in the sky plane.



168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

Christian Science Plaza Developments

Figure 5-17

View from Corner of Boylston St. and Gloucester St. Looking West

Taken from the south side of Boylston Street looking west, this winter photograph illustrates how the mass of the Crossroads buidling is set back from the street wall. The narrow end of the residence hall faces this direction in long east-west views along Boylston Street, creating a slender tower and minimizing impact in the sky plane.

168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

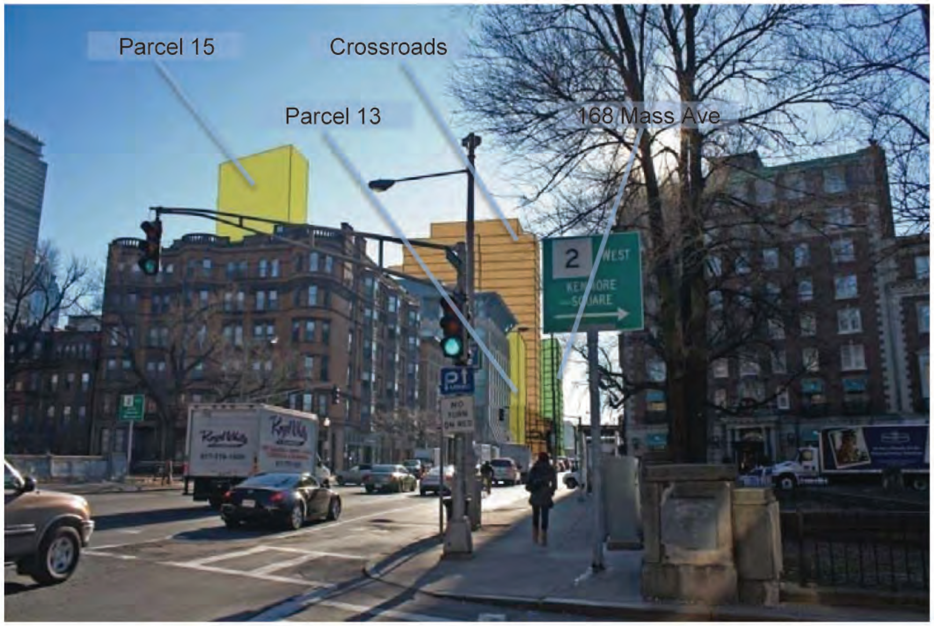
Other Development

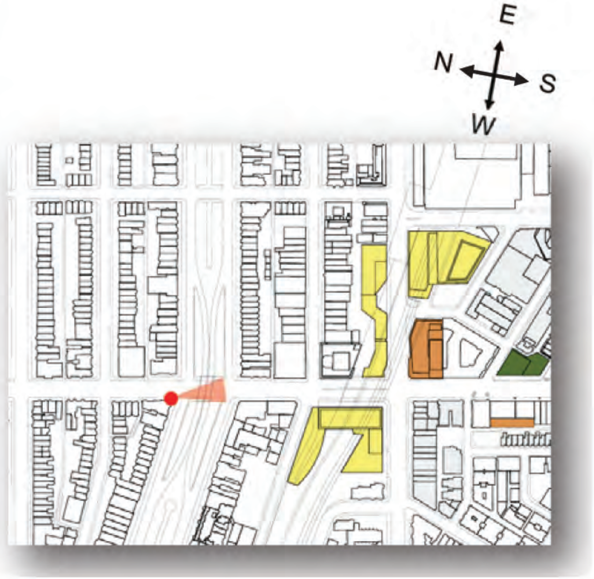
Christian Science Plaza Developments

Figure 5-18

View from Corner of Mass Ave and Commonwealth Ave Looking South

Taken from the north side of the Commonwealth Avenue Mall, this winter photograph illustrates the stepping down of the sky-line from the Prudential Tower at the left to the Parcel 15 Civic Vision and Crossroads to the right. The larger buidlings in this area of Massachusetts Avenue also help mitigate the relative perceived height of the taller buildings in the background.





168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

Christian Science Plaza Developments

Figure 5-19

View from Corner of Hereford St. and Commonwealth Ave Looking Southwest

Taken from the north side of the Commonwealth Avenue Mall, this winter photograph illustrates that the Crossroads building will generally be hidden behind tree canopies during the summer and fall months from the sidewalk. As one moves south into the center of the Mall, the top of the building will recede behind the roofline of the opposite townhouses.

168 Massachusetts Avenue

Berklee-Crossroads and 161-171 Project

Other Development

Christian Science Plaza Developments

5.2.8 Schedule of IMP Projects

The first IMP Project scheduled for construction is 168 Massachusetts Avenue, with the other two projects following. Table 5-3 shows the proposed development schedule.

Table 5-3 Development Schedule

Project	Start	Completion
168 Massachusetts Avenue	2011	2013
161-171 Massachusetts Avenue*	2014	2015
Berklee Crossroads*	2017	2019

*Schedule is preliminary and subject to change.

5.3 Recently Completed Campus Improvements

Berklee has made an effort to improve many of its existing buildings, including cosmetic improvements, such as painting, energy efficiency improvements, installing "cool" roofs, and other renovations. Table 5-4 provides a description of recently completed improvements.

Table 5-4 Recently Completed Improvements

Property	Description of Work Recently Completed
136 Massachusetts Avenue	Replacement of elevator and addition of card reader for specific floor access
150 Massachusetts Avenue	Renovation of roof/substructure and installation of "cool" roof for increased energy efficiency Repainting of dormitory rooms, dormitory corridors, and internal courtyard Installation of energy-saving thermostats on all dormitory floors
155 Massachusetts Avenue	Replacement of roof and installation of "cool" roof for increased energy efficiency
4 Haviland Street (rear of 155 Massachusetts Avenue)	Renovation of existing space to accommodate lockers for students who live off campus
264/266/270 Commonwealth Avenue	Replacement of roof and installation of "cool" roof for increased energy efficiency Replacement of front windows and screens Repainting of all rooms and corridors
98 Hemenway Street	Repainting of all rooms and basement corridors
921 Boylston Street	Renovation and updating of first and sixth floor administrative spaces to accommodate new departments

5.4 Recently Completed Campus Development Projects

Berklee has completed several minor renovation projects described below. These projects either received necessary zoning approval or did not require any such approval. The projects evidence Berklee's effort to implement the overall strategy of clustering campus facilities in the area surrounding Boylston Street and Massachusetts Avenue.

5.4.1 7 Haviland Street

Located on Haviland Street west of Massachusetts Avenue, 7 Haviland Street was previously owned and occupied by the Fenway Community Health Center. The 18,000 sf building was acquired by Berklee in 2009. The building underwent renovations that same year and reopened in January of 2010 as an academic building with eight classrooms and faculty and departmental offices for Berklee's Liberal Arts, Music Business and Music Therapy departments.

Other improvements to the property included enhancing the adjacent open space facing toward Haviland Street. This open space provides a welcoming space for students, faculty, and area residents to enjoy (see Figure 5-21). Zoning relief necessary for the 7 Haviland Street renovation project was approved by the Boston Board of Appeal following a hearing on November 25, 2008.

5.4.2 155 Massachusetts Avenue

After being a tenant for many years on the third and fourth floors of this four-story building located at the corner of Massachusetts Avenue and Haviland Street, Berklee acquired this and the two adjacent properties, 161-171 Massachusetts Avenue, in February, 2008. The previously leased second floor office space was converted to academic uses, including two classrooms and faculty offices for the Professional Writing division. This building is seen as having a relationship with the renovation and expansion of 161-171 Massachusetts Avenue, as Berklee hopes to eventually provide a shared core with access to all three buildings. Zoning relief necessary for the 155 Massachusetts Avenue renovation project also was the subject of a hearing by the Boston Board of Appeal on November 25, 2008, and was approved by the Board.

5.4.3 Boylston Street Neighborhood Retail

Berklee has maintained a presence on the section of Boylston Street between Massachusetts Avenue and Hemenway Street as discussed in more detail in Chapter 4. In the summer and fall of 2009, the college worked with the City of Boston and two other property owners to replace what had been poorly maintained, steeply sloped sidewalks with new, accessible sidewalks while providing terraces for outdoor dining opportunities. Concurrently with this work, Berklee expanded and relocated its bookstore from 1080 Boylston Street to 1090

Before

After

Figure 5-21
7 Haviland Street Before and After

Boylston Street, and has master leased a number of spaces to exciting new retail presences on the block. Among the implemented improvements to spaces leased and owned by Berklee are façade improvements, attractive signage, and outdoor seating to complement the new sidewalks and street trees. The project also received a grant from the ReStore Boston initiative towards the installation of new decorative railings.

5.5 Zoning

5.5.1 Current Zoning

As noted previously, Berklee's current leased and owned facilities are clustered at the corner of Massachusetts Avenue and Boylston Street (at the juncture of the Huntington Avenue/Prudential Center District, the Fenway Neighborhood District and the Back Bay neighborhood), with Berklee facilities extending outward from that corner along Massachusetts Avenue and Boylston Street. In the Huntington Avenue/Prudential Center District, Berklee's facilities fall within the Saint Cecilia Special Study Area and the Massachusetts Avenue/Belvidere Street Protection Area. In the Fenway Neighborhood District, Berklee's facilities fall within the Massachusetts Avenue Neighborhood Shopping-1, Institutional and Multifamily Residential-1 subdistricts, and the Neighborhood Design and Greenbelt Protection overlay districts. In the Back Bay neighborhood, Berklee's facilities fall within the B-8-120a, B-8-120b and H-3- 65 districts, and partially within the Downtown Interim Planning Overlay District. Berklee's entire campus also falls within the Groundwater Conservation Overlay District, and the portion of Berklee's campus east of Massachusetts Avenue falls within the Restricted Parking Overlay District.

Berklee also owns 25 Fordham Road, an approximately 20,000 sf, one story practice facility that falls within the Allston-Brighton Neighborhood District's 3-F-4000 subdistrict. 25 Fordham Road was constructed pursuant an IMP approved by the BRA on September 29, 1998, and a corresponding certification of consistency issued by the BRA on May 12, 2000. The IMP will include the facility and supersede 25 Fordham Road's 1998 IMP.

College or university uses are generally conditional in the above zoning subdistricts (but allowed in the Fenway Institutional subdistrict and forbidden in Allston-Brighton's 3-F-4000 subdistrict), although high impact subuses, such as dormitories, are forbidden in certain subdistricts. Maximum heights in the above subdistricts generally range between 45 feet and 120 feet, and maximum FARs range between 2.0 and 8.0.

168 Massachusetts Avenue Existing Zoning

Underlying zoning at 168 Massachusetts Avenue establishes a maximum building height of 75 feet with Large Project Review (or 45 feet without Large Project Review) and a maximum Floor Area Ratio of 4.0 with Large Project Review (or 2.0 without Large Project Review). Certain street wall height, setback and rear yard requirements also apply at 168 Massachusetts Avenue.

161-171 Massachusetts Avenue Existing Zoning

Underlying zoning at 161-171 Massachusetts Avenue establishes a maximum building height of 75 feet or six stories, and a maximum Floor Area Ratio of 4.0. Certain street wall height, setback and yard requirements also apply at 161-171 Massachusetts Avenue.

Crossroads Existing Zoning

Underlying zoning for the portion of the Crossroads project site that falls within the Saint Cecilia Special Study Area of the Huntington Avenue/Prudential Center District establishes a maximum building height of 100 feet with Large Project Review (or 65 feet without Large Project Review), and a maximum Floor Area Ratio of 7.0 with Large Project Review (or 4.0 without Large Project Review). Underlying zoning for the portion of the Crossroads project site that falls within the B 8-120c District establishes a maximum building height of 120 feet and a maximum Floor Area Ratio of 8.0. Certain street wall height, setback and rear yard requirements also apply at the Crossroads project site.

5.5.2 Future Zoning Controls

5.5.2.1 IMP Projects

168 Massachusetts Avenue Future Zoning Controls

168 Massachusetts Avenue will include first floor retail use along with basement, first floor and upper floor College or University Uses, including music technology use, an up to 400-seat cafeteria and an approximately 370-bed dormitory. 168 Massachusetts Avenue will reach a maximum height of 195 feet and will contain up to 160,000 square feet of Gross Floor Area, resulting in a Floor Area Ratio of up to 11.4 on the property's 14,141 square feet of lot area (including the portion of 168 Massachusetts Avenue that falls within the abutting private passageway). The building will be set back at least three feet from the property line along Massachusetts Avenue and Saint Germain Street, and set back at least 45 feet from the property line along Saint Germain Street above the building's 55-foot high base (but will otherwise extend to, or near to, the property line). The building will include two loading bays and no off-street parking spaces.

161-171 Massachusetts Avenue Future Zoning Controls

161-171 Massachusetts Avenue will include first floor retail use along with basement, first floor and upper floor College or University Uses, including classrooms and other academic facilities. 161-171 Massachusetts Avenue will extend, or near to, the property line on all sides, reach a maximum height of four stories and 52 feet and contain up to 73,000 square feet of Gross Floor Area, resulting in a Floor Area Ratio of 4.7 on the property's 15,560 square feet of lot area. The building will include no loading bays or off-street parking spaces.

Crossroads Future Zoning Controls

The Crossroads project will include College or University uses, including approximately 45,000 square feet of academic space and student life space, an approximately 65,000 square feet of Gross Floor Area auditorium and associated space, and an approximately 450-bed dormitory. The building will reach a maximum height of 290 feet and will contain up to 290,000 square feet of Gross Floor Area. The building will extend to, or near to, the property line, includes a portion of Cambria Street, and will be set back at least 70 feet from Boylston Street, 20 feet from Massachusetts Avenue and 20 feet from Saint Cecilia Street above the building's 80-foot high base. The building will have loading facilities sufficient to meet the building's demand and no off-street parking spaces.

5.5.2.2 Effect of Approval

Upon approval of this IMP by the BRA and the Boston Zoning Commission, all existing uses and structures described in this IMP, and all Proposed Institutional Projects consistent with the provisions of this IMP, will be deemed to be in compliance with the use, dimensional, parking and loading and other requirements of underlying zoning (including special purpose overlay districts) and may be reconstructed after casualty, notwithstanding any provision of underlying zoning to the contrary and without the requirement of further zoning relief or Institutional Master Plan approval, subject to the BRA design approval process.

For any such existing uses or structures and Proposed Institutional Projects located on multiple contiguous parcels or lots, any yard, setback or other dimensional requirements shall be measured at the exterior property lines of the IMP Area, and shall not apply to any interior lots that may exist or be created within the IMP Area. Height shall be measured from grade to the top of the last occupied floor. Gross Floor Area and Floor Area Ratio shall be calculated as provided in Article 2A of the Code.

Groundwater Conservation Overlay District

The IMP Area falls within the Groundwater Conservation Overlay District governed by Article 32 of the Code. All Proposed Institutional Projects and other projects approved under this IMP that exceed Article 32 jurisdictional thresholds will incorporate systems that meet the groundwater conservation standards set forth in Article 32. Berklee will obtain a written determination from the Boston Water and Sewer Commission as to whether said standards are met and will provide a copy of this letter to the BRA and the Boston Groundwater Trust prior to the issuance of a Certificate of Consistency for any Proposed Institutional Project. Accordingly, Berklee will not be required to obtain a Groundwater Conservation Overlay District conditional use permit from the Board of Appeal for any Proposed Institutional Project.

Future Building Renovation and Maintenance Projects

Throughout the term of the IMP, Berklee anticipates conducting ongoing building alteration or renovation projects (including the conversion of currently unoccupied building mechanical and support space to usable College and University Use) and other campus improvements that may consist of an erection or extension of an Institutional Use but which may be below the threshold for IMP Review or Large Project Review. So long as each such alteration, project or improvement is below 20,000 square feet of Gross Floor Area, such work may be conducted without amendment of the IMP and the IMP's dimensional requirements shall be deemed adjusted accordingly.

Future Leased or Purchased Space

From time to time during the term of the IMP, Berklee may purchase or lease facilities located outside of the IMP Area. Any such facility, regardless of whether it exceeds IMP exemption thresholds, will not require an amendment to the IMP as long as the use category of the underlying zoning that most closely describes the use of such facility is either allowed as-of-right by the underlying zoning or is allowed by zoning relief obtained by the property owner (including in an Institutional Master Plan). This will give Berklee the flexibility needed to meet its space needs.

Future Transfers of Space

During the term of the IMP, Berklee may transfer property described in the IMP, in which event Berklee may, by written notice to the BRA, elect to remove such property from the IMP and/or the IMP Area, whereupon such transferred properties, and all remaining uses and structures described in the IMP, to the extent that they do not conform to the underlying zoning, shall be deemed to be lawful prior nonconforming uses and structures notwithstanding the creation of a new lot or lots as a result of such transfer.

Future Reallocation of College or University Subuses

From time to time during the term of the IMP, Berklee may reallocate Gross Floor Area among the various College or University Subuses, including all High Impact Subuses. Any such reallocation will not require an amendment to the IMP. This will give Berklee the flexibility needed to meet its operational needs.

Other Required Permits and Approvals

The Berklee Crossroads project and Berklee's other Proposed Institutional Projects will require various additional zoning reviews and approvals, potentially including: (i) Article 80B Large Project Review, for projects exceeding 50,000 square feet of new construction or 100,000 square feet of substantial rehabilitation (such as the Berklee Crossroads project) and requiring, among other things, linkage payments (where required under Section 80B-7 of the Code) and eligibility for "green building" certification; (ii) Article 80E Small Project

Review, for most projects exceeding 20,000 square feet of Gross Floor Area; (iii) Boston Civic Design Commission review, for any new construction or substantial rehabilitation of more than 100,000 square feet of Gross Floor Area, or projects of special urban design significance; and (iv) Boston Landmarks Commission demolition delay review under Article 85 of the Code.

The Berklee Crossroads project and Berklee's other Proposed Institutional Projects will also require various additional non-zoning reviews and approvals, potentially including: (i) Massachusetts Environmental Policy Act (MEPA) review, for projects within MEPA jurisdiction (e.g., those aspects of a project that are within the subject matter of any required state permit) and with respect to which a review threshold is met or exceeded; and (ii) Massachusetts Historic Commission review, for projects that could adversely affect districts or properties listed on the State Register of Historic Places or for projects requiring federal permits and that could adversely affect properties listed on the National Register of Historic Places.

The Berklee Crossroads project also envisions the City's abandonment of Cambria Street between Boylston Street and Saint Cecilia Street. This will require discussion with the Massachusetts Convention Center Authority, and approval by the Public Improvement Commission and the Boston Transportation Department. A more detailed list of required permits and approvals will be provided in the Large Project Review filings for each Proposed Institutional Project subject to Large Project Review.

5.6 Campus Expansion and Potential Future Projects

The proposed projects will meet much of the expressed need for space, but will not completely satisfy the desired program. If all proposed projects are completed, Berklee will still have a need for approximately 400 additional beds in order to bring the total on-campus housing capacity to approximately 2,000 students, as well as a projected need for approximately 58,000 sf of general academic/administrative space.

The portion of Berklee's required additional space not included in the proposed IMP Projects will be satisfied through potential future development consistent with Berklee's development priorities of gathering supporting facilities along major corridors near the core, creating residential communities within a reasonable walking distance to the core as described in Section 4.6.2, and participating in air rights development, if feasible, as described in Section 4.8. Such future development will likely involve the rehabilitation of, or addition to, existing buildings and new construction, and may involve Berklee directly acquiring properties, leasing properties or entering into joint ventures with property owners or developers. Berklee continues to assess the potential real estate opportunities in the area to meet its need for residential and academic space. Berklee will seek to meet its needs as opportunities arise.

Chapter 6.0

Student Housing Plan

6.0 STUDENT HOUSING PLAN

6.1 Current Student Housing Use

Berklee does not require that students live in campus housing during their tenure at the college, though certain financial aid packages include dormitory housing. All Berklee-owned housing is dormitories.

Table 6-1 provides a breakdown of students living in Berklee-owned or operated housing (also see Figure 6-1).

Table 6-1 Berklee-owned Dormitories

Facility	Type	Owned/ Operated	Beds
264-270 Commonwealth Avenue	Doubles and triples with shared baths	Berklee	250
150 Massachusetts Avenue	Doubles and triples with ensuite baths	Berklee	450
98 Hemenway Street	Singles and doubles with shared baths	Berklee	100

Once students are accepted to the college and have submitted their deposits, they have the option to apply for Berklee housing. Housing is quite limited; in fact, the student housing website actively encourages students to consider off-campus options (see Figure 6-2 for a distribution of Berklee students in the surrounding area). If students still choose to apply for dormitory space, they will be entered into a lottery that is affected by certain parameters, such as the date the deposit was submitted, or if the student was previously accepted to the school and unable to attend.

6.2 Future Housing Plans

Berklee's plan for a successful residential-life program includes:

- Allowing greater ability to support improved student behavior;
- Returning more housing to the city inventory for non-student residents;
- Enriching the overall student experience;

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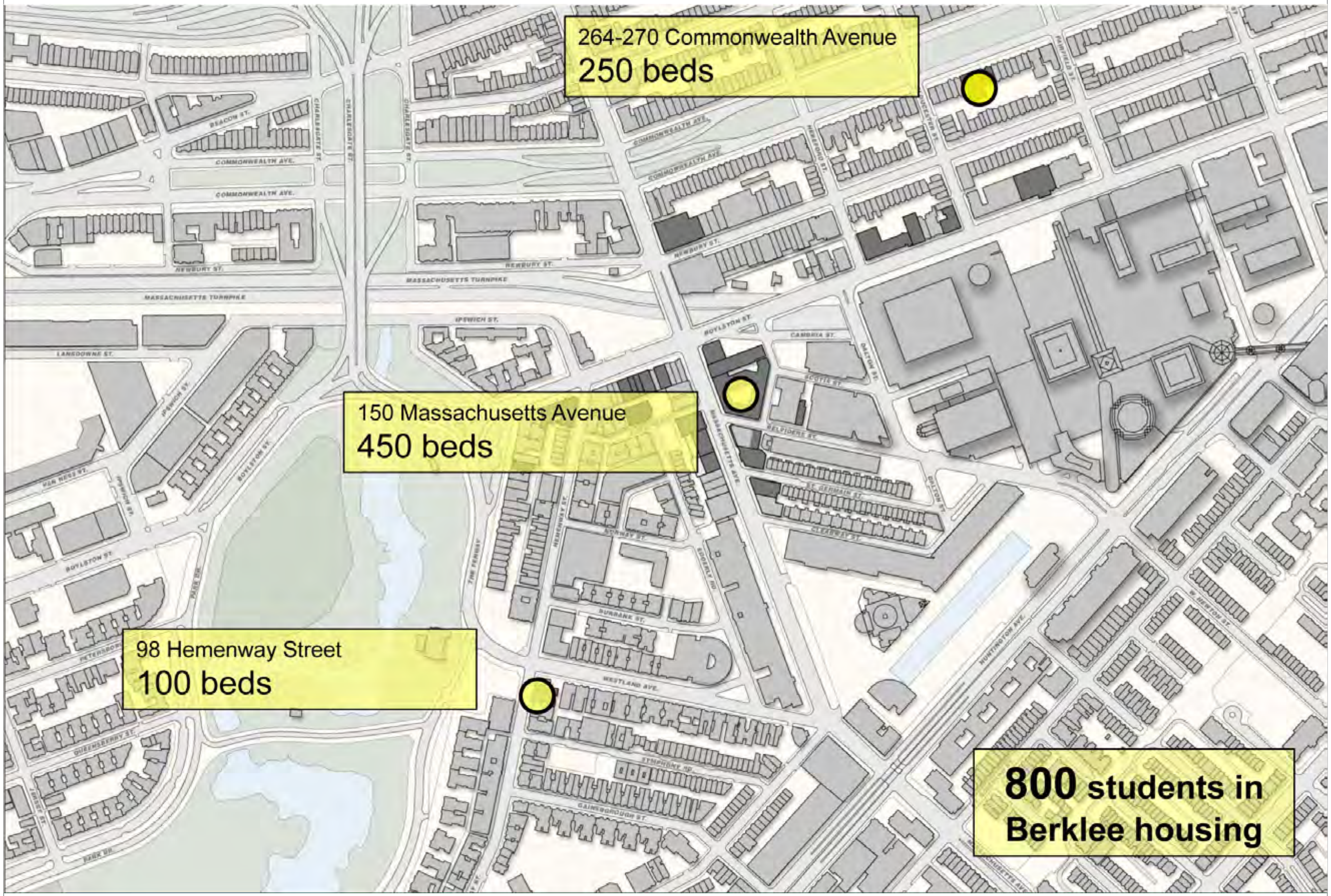

Figure 6-1
Existing Berklee Housing

Goody Clancy
Architecture Planning Preservation

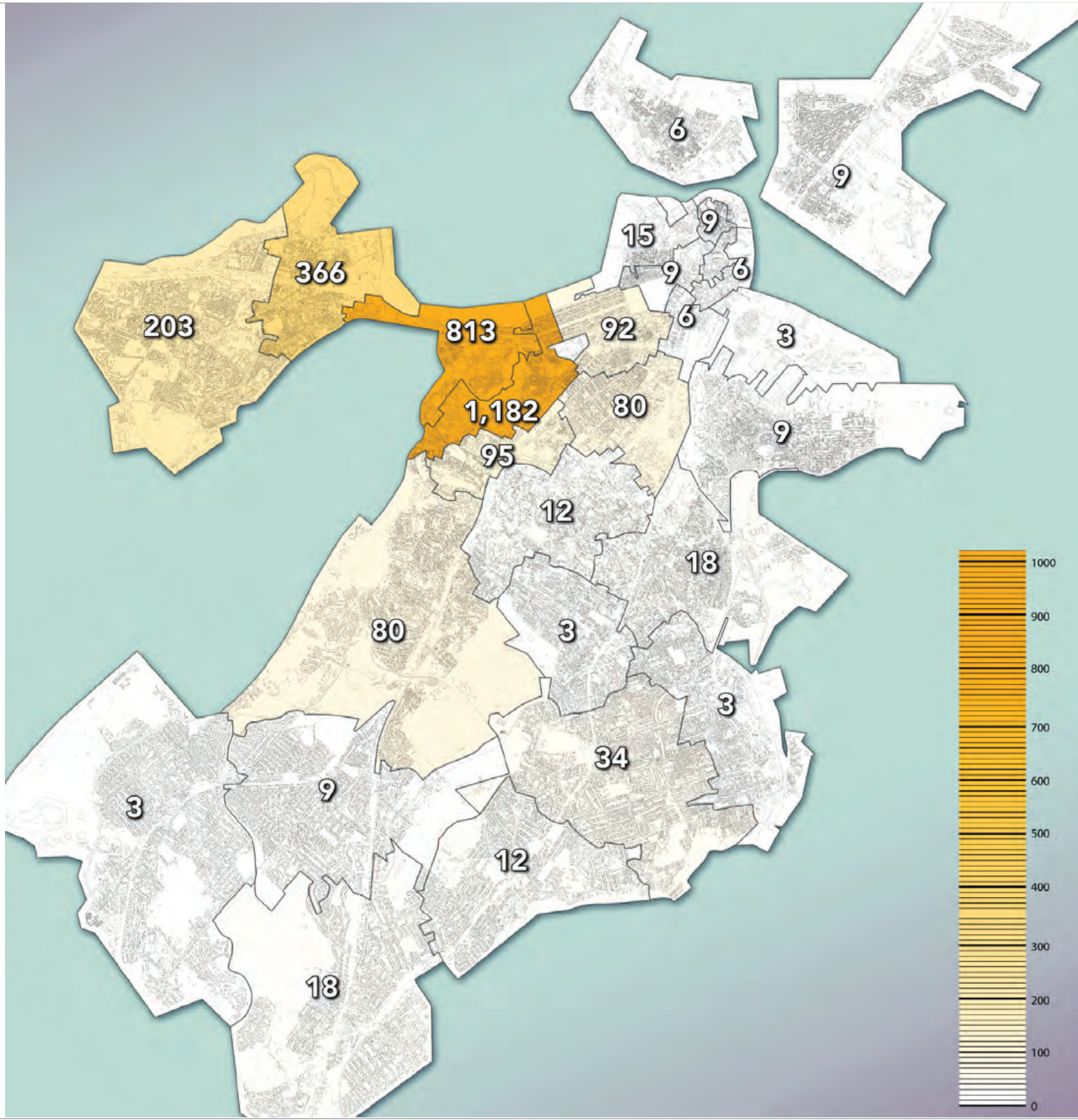

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Figure 6-2
Berklee Student Housing Distribution

Goody Clancy Architecture Planning Preservation

- Placing students in closer proximity to other collaborative campus resources and services; and

- Creating more opportunities for social interaction off the street (Berklee Beach).

During the term of the IMP, the proposed projects at 168 Massachusetts Avenue and the Berklee Crossroads will create approximately 820 additional beds of on-campus housing. Given the high concentration of Berklee students who live in rental housing in neighborhoods proximate to campus, in particular the Fenway/Kenmore Square areas, the new projects are anticipated to return a significant number of rental units to the city inventory. Both of these projects will house a variety of functions, placing student housing in close proximity to student life space, dining, and academic space.

Since Berklee will still have a need for approximately 400 additional beds of student housing in addition to the IMP Projects, the college will continue to investigate local possibilities for the creation of additional dormitories.

6.3 Impact of Student Housing on Local Housing Supply

With a planned stable enrollment over the next ten years and the goal of creating approximately 1,200 new beds, Berklee will have a much higher percentage of its students in college housing (approximately 50 percent) as opposed to neighborhood housing than it currently does today. The creation of college housing will enable more families and non-students to occupy neighborhood residential units no longer rented to students. The method of calculation used by the BRA to determine how many private units are freed up by on-campus housing is to count one apartment for every four dormitory beds created. Thus, approximately 1,200 new beds of on-campus housing at Berklee are expected to return the equivalent of roughly 300 apartments to the local neighborhood inventory.

Chapter 7.0

Transportation

7.0 TRANSPORTATION

7.1 Introduction

This chapter presents a comprehensive evaluation of the transportation aspects of the Berklee College of Music Institutional Master Plan (IMP), including the transportation network supporting the campus and the surrounding Back Bay and Fenway neighborhoods. In addition to site-specific conditions, the analysis describes vehicle traffic volumes and access, on- and off-street parking, available public transportation options, the pedestrian environment, bicycle amenities, and loading/service activities.

Both existing and projected future conditions (with and without implementation of the IMP) are addressed. The primary purpose of these analyses is to evaluate the transportation impacts, both positive and negative, that are expected in the future with the proposed IMP Projects in place, along with any anticipated growth in the student and faculty/staff populations. In addition, the analyses identify potential improvements and mitigation strategies necessary to minimize any negative transportation impacts of the IMP and enhance the supporting transportation system.

7.1.1 Project Summary

Berklee's plans include three larger construction projects and a number of smaller campus improvement projects (IMP Projects or Proposed Institutional Projects). The three large IMP Projects, described in detail in Chapter 5, are as follows:

1. 168 Massachusetts Avenue, an approximately 155,000 sf building with dormitory housing (approximately 370 beds), dining hall, music technology space, retail space, and common space.

2. 161-171 Massachusetts Avenue, which includes the renovation of existing space and an approximately 20,280 sf addition to the building to be used for academic and music technology space.

3. Berklee Crossroads, an approximately 290,000 sf building at the corner of Massachusetts Avenue and Boylston Street with dormitory housing, theatre space and student life and academic space.

The IMP also includes smaller projects and campus improvements, as well as future space needs, again described in detail in Chapter 5. The intent of the IMP is to give Berklee the ability to meet its need for space by creating more and improved facilities to comfortably accommodate the college's current program and enrollment. While some increase in employees is expected to support the new buildings, no substantial increases in student enrollment or faculty are anticipated.

The transportation characteristics of the IMP Projects are described in detail in Section 7.3 (Future Conditions) later in this chapter, although the level of detail presented in the IMP reflects the current conceptual nature of those projects. The transportation component of the Project Notification Form (PNF) for the 168 Massachusetts Avenue Project, incorporated as Chapter 12 of this submittal, includes a more detailed evaluation of that project.

7.1.2 Methodology

The transportation analysis presented in this chapter is based on the Boston Transportation Department (BTD) "Transportation Access Plans Guidelines", and responds to the Berklee IMP Scoping Determination issued by the Boston Redevelopment Authority (BRA) on April 6, 2009, which in turn incorporates the BTD's comment letter dated March 11, 2009. Since the original scope was issued, Berklee and its consultants have met with BTD to discuss and clarify the focus and specific details of the IMP transportation analysis.

As noted previously, the transportation study evaluates both existing and future conditions. For existing conditions, surveys and compilation of existing transportation conditions within the study area include the following:

- An inventory of the transportation infrastructure within the IMP study area (see Figure 7-1);
- Transportation characteristics of the Berklee campus, including access, parking, loading and move-in/move-out activities;
- Geometric and operational characteristics of study area roadways and intersections;
- Existing traffic volumes and control at study area intersections (*i.e.*, traffic signalization, stop signs, one-way streets, etc.);
- Area off-street and on-street parking supply;
- An inventory of study area sidewalks and crosswalks;
- Pedestrian activity along study area roadways, and at study area intersections;
- Bicycle accommodation in the study area and activity at study area intersections; and
- Public transportation options within the study area.

To facilitate the evaluation of any potential long-term impacts, future transportation conditions were analyzed within the IMP study area. The future condition was analyzed based on projections of other planned projects and background growth, and with the changes in travel demand and activity associated with the IMP.

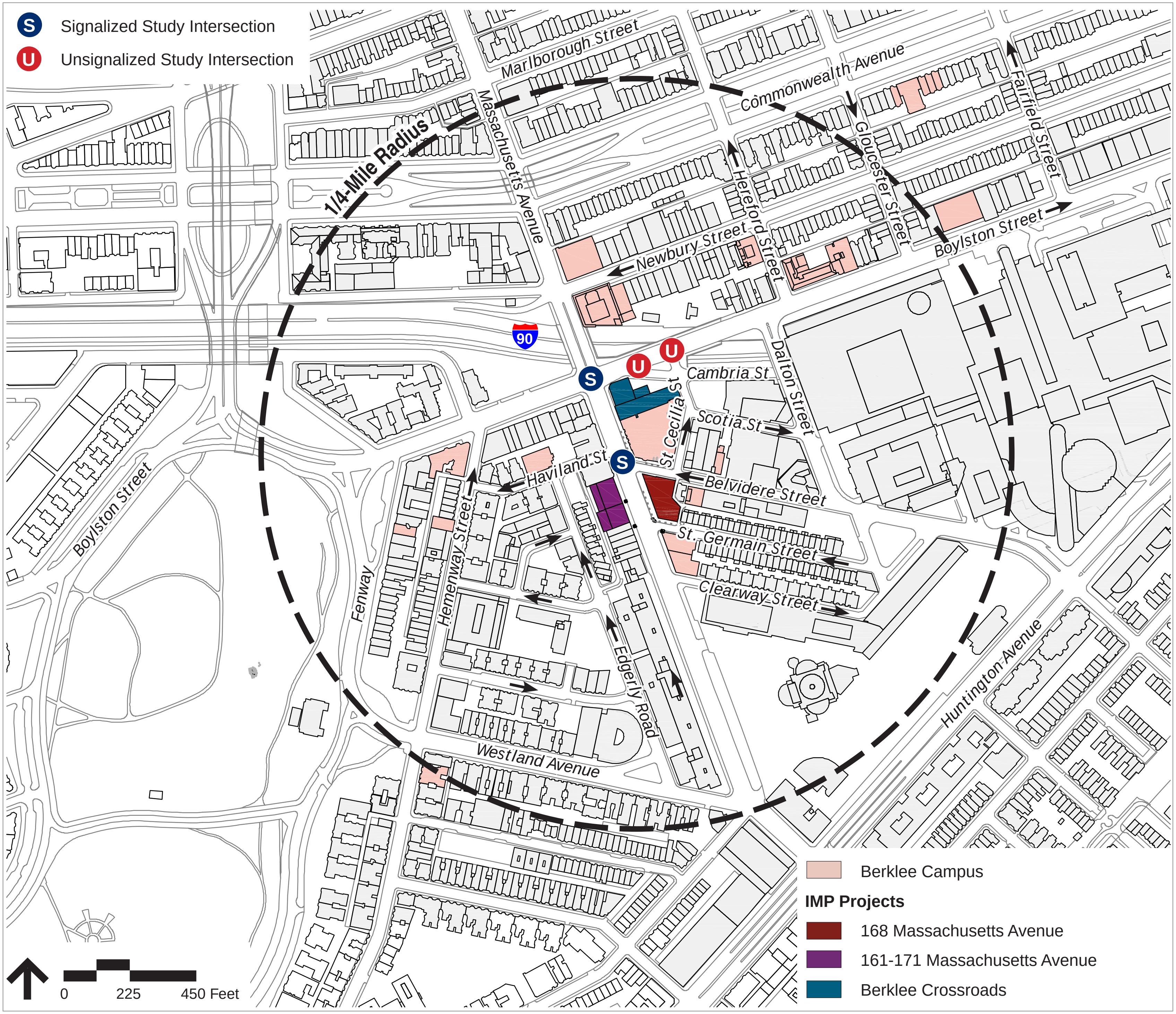

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Figure 7-1
Study Area

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As discussed later in this chapter, the vehicular trip generation associated with the IMP, including the three IMP Projects, is expected to be minimal. Accordingly, the future No-Build (without implementation of the IMP) and Build (with implementation of the IMP) traffic volume projections are effectively the same. Traffic conditions were analyzed for the morning and evening peak commuter periods (based on the typical five-year analysis horizon required by BTD) for the following scenarios:

- Existing Condition (2011)
- Future No-Build Condition (2016)
- Future Build Condition (2016)

Finally, the transportation analysis identifies potential improvements and mitigation strategies to minimize any negative transportation impacts of the IMP and enhance the supporting transportation system. This includes a discussion of Transportation Demand Management (TDM) strategies for the IMP to supplement and complement TDM initiatives currently implemented by Berklee.

In the PNF for the 168 Massachusetts Avenue project (Chapter 12), the transportation analysis, or Transportation Action Plan (TAP), will serve as the basis for a Transportation Access Plan Agreement (TAPA) to be executed by Berklee and the BTD for that project. In turn, a Construction Management Plan (CMP) will be developed to address the Project's short-term construction impacts. Similar analyses for the other IMP Projects will be included in filings for those projects as and when their respective designs are advanced.

7.2 Existing Conditions

7.2.1 Existing Campus and Study Area

A detailed description of the existing Berklee College of Music campus is presented in Chapter 2. As shown in Chapter 2, the campus is concentrated in the vicinity of the corner of Massachusetts Avenue and Boylston Street. Several campus buildings are located along Massachusetts Avenue in the first four blocks south of Boylston Street and a few additional building are located along Boylston Street. In aggregate, the college owns and leases approximately 765,000 sf of space in the Fenway and Back Bay neighborhoods, and owns a 20,000-sf dedicated practice/rehearsal building in Allston/Brighton for a total of approximately 785,000 sf.

There are approximately 4,200 students enrolled at Berklee (including full-time, part-time, and internship students), representing approximately 4,000 full-time equivalent (FTE) on-campus students, along with just over 1,600 students enrolled in the 12-week Summer

Program. Currently approximately 20 percent of students (800) live on-campus, and are served by a 250-seat dining hall and a variety of student life spaces. The non-student population comprises approximately 554 faculty members and professionals, 470 staff, and 33 executive personnel.

7.2.2 Traffic and Roadway Access

7.2.2.1 Roadway Network

Primary access to Berklee College of Music is provided by Massachusetts Avenue and Boylston Street, both of which are major urban arterial roadways. Massachusetts Avenue is a two-way street running in the northbound/southbound direction and carries approximately 40,000 vehicles on an average weekday. Boylston Street has two lanes running in the eastbound/westbound direction from the Fenway to Dalton Street, carrying approximately 24,000 vehicles on a typical weekday.

In addition to these major corridors, the Berklee campus is generally bounded by Newbury Street to the north, the Fenway to the west, Huntington Avenue to the south, and Dalton/Hereford Streets to the east. Newbury Street is a two-lane, one-way street running in the westbound direction. The Fenway is a four-lane, two-way street where it borders the Berklee campus. Dalton Street has two lanes, and runs in the northbound and southbound direction, while Hereford Street is one-way northbound. Regional traffic access is provided by Storrow Drive located approximately one half mile north of the campus. Storrow Drive provides connections with I-93 and Route 1 (Tobin Bridge) to the east, and I-90 (Massachusetts Turnpike) and Route 2 to the west. In addition, I-90 westbound can be accessed from Massachusetts Avenue at Newbury Street and at Copley Square, where there is also an exit from I-90 eastbound.

7.2.2.2 Study Area Intersections

Three key intersections in the IMP study area are identified in the BTD's Scoping Determination. These intersections, identified in the context of the study area in Figure 7-1, are as follows:

- *Boylston Street at Massachusetts Avenue* – The intersection of Boylston Street at Massachusetts Avenue is a four-legged signalized intersection. The northbound approach contains three general purpose travel lanes. The southbound approach has an exclusive left-turn lane and two general purpose travel lanes. The eastbound approach has two lanes, although left-turns are not permitted onto Massachusetts Avenue. The westbound approach contains two lanes, one of which is an exclusive right-turn lane. The signal provides three phases with a lead phase in the Massachusetts Avenue southbound approach. Metered parking is provided on both sides of Boylston Street and on the southbound departure of Massachusetts Avenue. Crosswalks with pedestrian signals are provided across all four legs. The pedestrian signals provide concurrent crossings.

- *Massachusetts Avenue at Haviland Street/Belvidere Street* – The intersection of Belvidere Street at Massachusetts Avenue is a three legged signalized intersection which includes a fourth leg, Haviland Street, that departs the intersection in the westbound direction, offset to the north of the intersection. Belvidere Street is one-way in the westbound direction and approaches Massachusetts Avenue with a single general purpose lane with metered parking on both sides of the approach. Massachusetts Avenue has two lanes in the north and southbound direction with metered parking on both sides of the roadway. The signal provides three phases including an exclusive pedestrian phase. Crosswalks with pedestrian signals are provided across Belvidere Street and across Massachusetts Avenue. Pedestrian signals are not provided at the crosswalk across Haviland Street.

- *Boylston Street at Saint Cecilia Street* – The intersection of Boylston Street at Saint Cecilia Street is a three legged, un-signalized intersection. The intersection is dominated by large triangular island which effectively provides a free right-turn lane to Saint Cecilia Street from Boylston Street eastbound via a short length of Cambria Street. Boylston Street approaches the intersection with two general purpose travel lanes in the eastbound direction and one lane in the westbound direction. Saint Cecilia Street operates under stop control while Boylston Street runs freely. Metered parking is provided along the north side of Boylston Street and the south side of Boylston Street east of Saint Cecilia Street, while no parking is permitted at the Saint Cecilia Street approach. There are no crosswalks provided across any of the approaches. However, pedestrians may walk to either of the adjacent signalized intersection to cross Boylston Street at Massachusetts Avenue or Dalton Street.

7.2.2.3 Traffic Data Collection/Study Intersection Volumes

The BTD Scoping Determination calls for peak period vehicle, bicycle and pedestrian counts at all three study intersections. In addition, pedestrian and bicycle volumes were collected at the intersection of Boylston Street at Hemenway Street. Traffic count data sheets are included in Appendix D.

Peak Hour Traffic Volumes

Manual turning movement counts (TMCs) conducted in late May and early June 2009 for The First Church of Christ, Scientist Planning Study are available for the intersections of Massachusetts Avenue at Boylston Street and Massachusetts Avenue at Belvidere Street/Haviland Street. Additional turning movement counts were conducted at the intersection of Boylston Street at Saint Cecilia Street on December 8, 2010. As required by BTD, weekday TMCs were conducted from 7:00 am to 9:00 am and 4:00 pm to 6:00 pm to enable the actual peak hour to be identified within each peak period.

The turning movement counts were adjusted to reflect an existing (2011) study year by applying a growth rate of 0.5 percent per year. The intersection turning movement counts were used to establish traffic networks for the Existing (2011) Condition for the morning and evening peak hours. The study area's overall morning peak hour was determined to occur between 8:00 am and 9:00 am, and the study area's overall evening peak hour was determined to occur between 5:00 pm and 6:00 pm. Existing (2011) Condition morning and evening peak hour traffic volumes are shown in Figures 7-2 and 7-3.

Existing (2011) capacity/level of service (LOS) analysis was performed for each study intersection indicating generally good or acceptable operations at those locations, although interference between intersections on the Massachusetts Avenue corridor due to queuing was observed in the field. The results of the analysis are presented and discussed in detail alongside the corresponding results for future (2016) No-Build and Build conditions in Section 7.4.

7.2.3 Parking

7.2.3.1 Off-Street Parking

Berklee College of Music owns virtually no off-street parking spaces, and, to the extent that it needs commuter parking, relies upon public off-street parking facilities in the area. There are a large number of public parking lots and garages in the area, many within a five-minute walk of most Berklee buildings. Public and private off-street parking facilities in the area are shown in Figure 7-4, and the capacities of public facilities are summarized in Table 7-1.

Table 7-1 Existing Public Off-Street Parking Facilities in Study Area

Map Key	Parking Facility	Address	Capacity
1	Danker and Donohue Garage Corp.	341 Newbury Street	250
2	Auditorium Garage/Pilgrim Parking	50 Dalton Street	501
3	Back Bay Hilton Parking Garage	40 Dalton Street	256
4	Fitz Inn Parking Systems	53 Belvidere Street	47
5	Sheraton Boston Hotel Parking Garage	39 Dalton Street	*
6	Greenhouse Garage	150 Huntington Avenue	210
7	Colonnade Hotel Parking Garage	120 Huntington Avenue	275
8	Prudential Center Parking Garage	800 Boylston Street	2,067
9	Westland Avenue Garage	Westland Avenue	*
10	1085 Boylston Lot	1085 Boylston Street	*
11	Somerset Garage	425 Newbury Street	*
12	Patriot Parking Garage	Haviland Street	*

* Data not available

7.2.3.2 On-Street Parking

On-street parking spaces are provided on most streets in the vicinity of the Berklee campus, generally operating between 8:00 am and 8:00 pm, Monday - Saturday. Many of these spaces are metered with a two-hour time limit, although some have been converted to "pay-and-display" zones with similar restrictions. Generally, residential/neighborhood streets are protected by Resident Parking programs, requiring the display of a sticker issued by the City of Boston. Proof of residency and registration of the vehicle at a corresponding address in Boston are pre-requisites for obtaining a resident sticker.

General curbside regulations and parking control in the study area are presented in Figure 7-5. More detailed information for the streets in the vicinity of the 168 Massachusetts Avenue project is presented in the PNF section for that project (Chapter 12).

7.2.4 Public Transportation

Berklee College of Music is well served by public transportation with many high-frequency services available within a five-minute walking distance of the campus. Berklee's campus is located adjacent to the Massachusetts Bay Transportation Authority (MBTA) Hynes Convention Center station, which is served by the B, C, and D branches of the MBTA's Green Line. The E branch of the Green Line stops at the Prudential Center, approximately three blocks east of the center of campus; Symphony Station, approximately three blocks south of the center of campus on Huntington Avenue; and the Massachusetts Avenue stop on the Orange Line, five blocks south of the center of campus. Back Bay Station, an Orange Line and commuter-rail station, lies ten minutes from campus by foot—a walk that can be accomplished almost entirely indoors through Copley Place and the Prudential Center. The Yawkey Station Commuter Rail stop also is within a 15-minute walk of the college.

Berklee subway riders can transfer to the Red and Orange Lines at Park Street Station or the Blue Line at Government Center Station. Passengers entering the subway system at Hynes Convention Center can take a single seat ride to North Station (serving major points north of Boston), or transfer at Park Street to access South Station (for commuter rail service south and west of the city).

Three of the MBTA's most frequent bus lines run through the campus. Bus Route 1 connects Dudley Square in Roxbury with Harvard Square in Cambridge; the CT1 Bus Route connects Central Square in Cambridge with the Boston University Medical Center in the South End; and Bus Route 39 connects Forest Hills and Copley Square, providing service to Jamaica Plain, Mission Hill, and the Back Bay. A smaller feeder, Bus Route 55, connects the residential areas of the West Fenway with Copley Square (night and weekends) and Park Street Station (weekdays).

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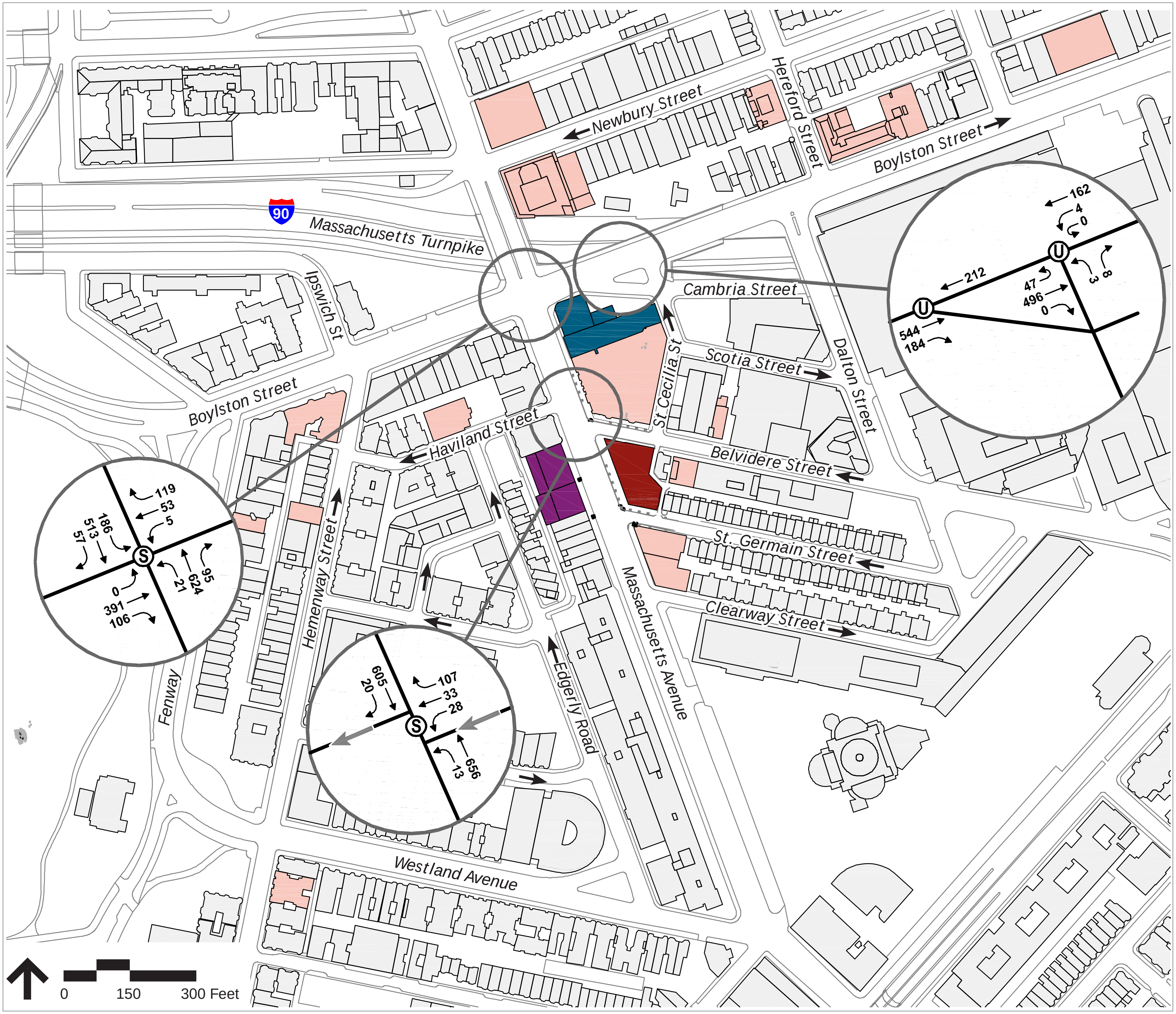

Figure 7-2
Existing (2011)
Morning Peak Hour
Traffic Volumes

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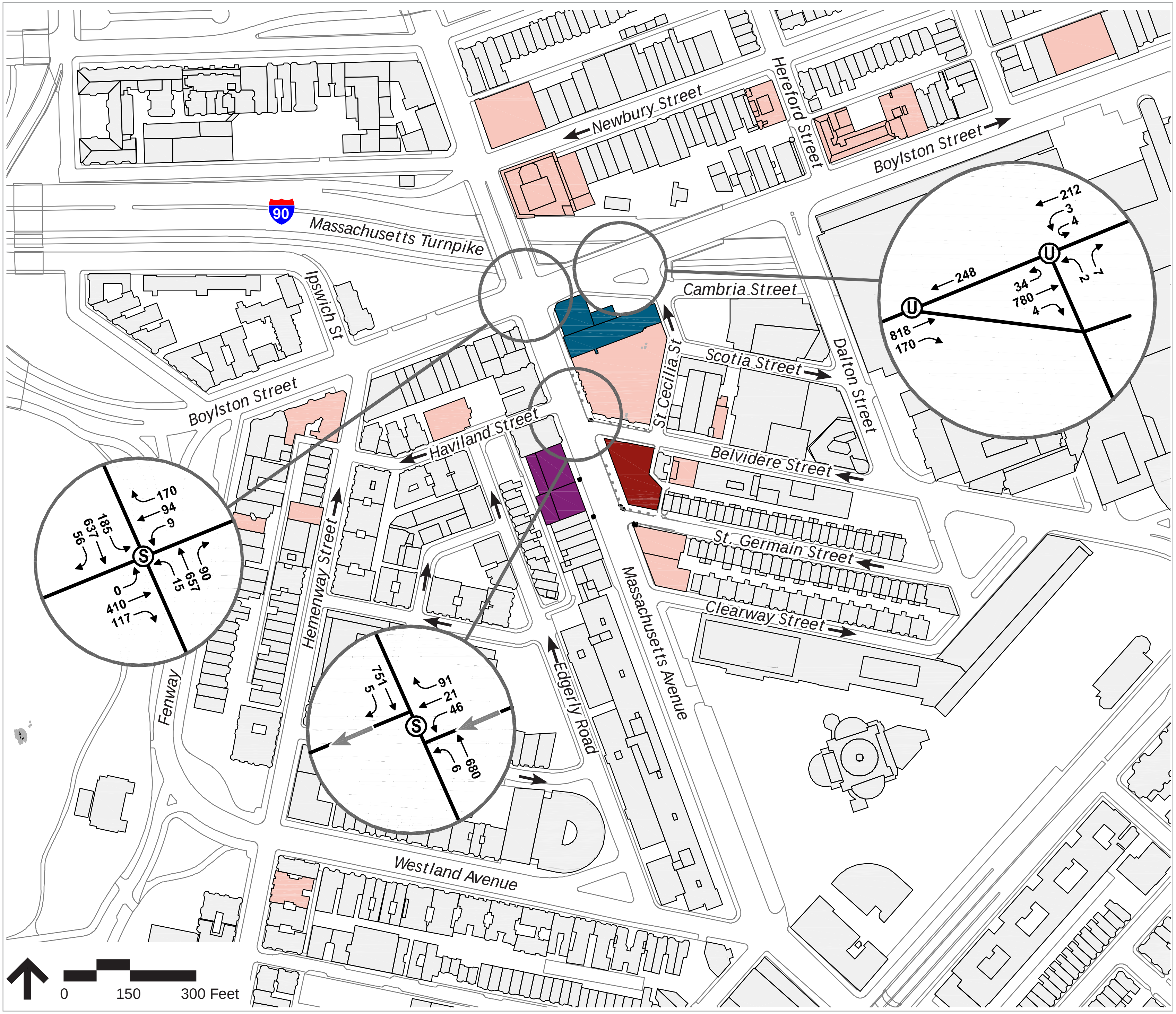

Figure 7-3
Existing (2011)
Evening Peak Hour
Traffic Volumes

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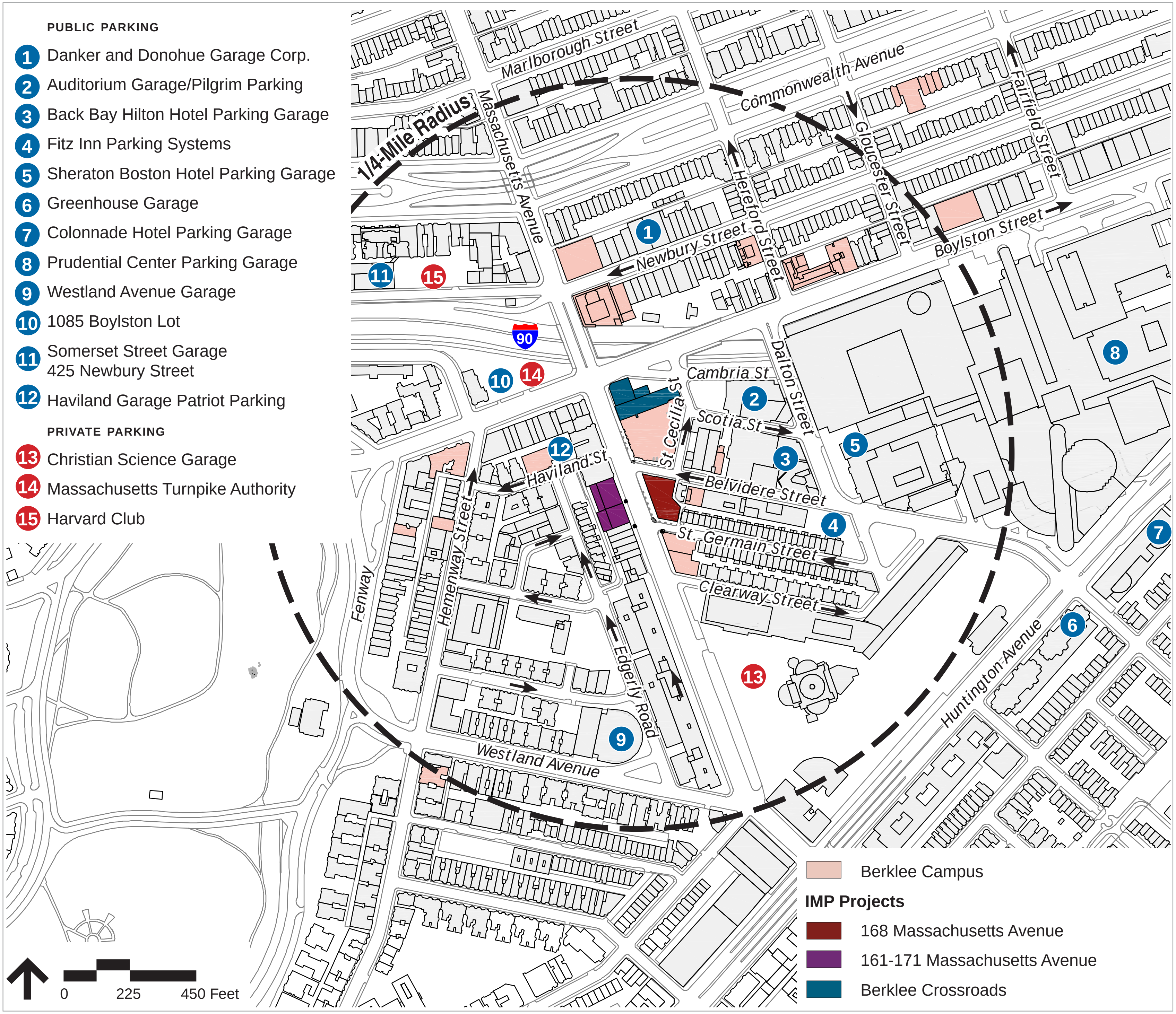

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Figure 7-4
Major Off-Street Parking Facilities

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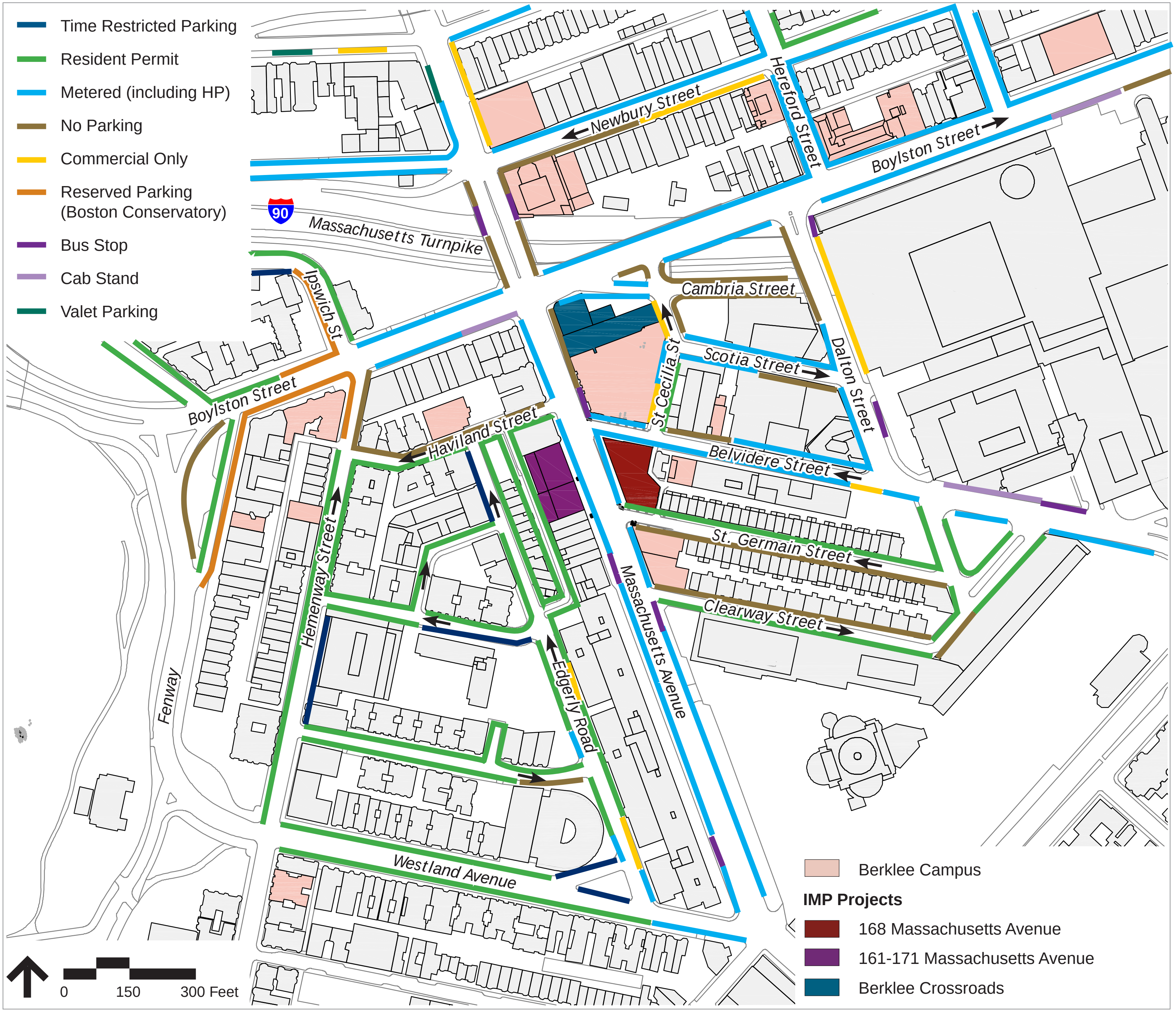

Figure 7-5
Curbside Regulations

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The range of existing transit services available to Berklee's faculty, staff, and students is illustrated in an extract from the MBTA system map, presented in Figure 7-6. Each service is described in more detail in the following sections.

7.2.4.1 Subway

Berklee is located near the Hynes Convention Center Station, where it is served by three Green Line branches.

- Green Line B branch – The Boston College branch (B-line) runs from Government Center in Boston to Boston College in Brighton and provides service at seven-minute intervals along Commonwealth Avenue to where it joins the MBTA C-line and D-line branches at Kenmore Station. The B-line runs daily from 5:01 am to 12:47 am. This line serves Berklee's practice facilities in Allston-Brighton at 25 Fordham Road.

- Green Line C branch – The Cleveland Circle branch (C-line) runs from North Station in Boston to Cleveland Circle in Brookline and provides service at seven-minute intervals during peak hours, servicing Copley Station, Kenmore Station, Coolidge Corner Station and Washington Square Station, before reaching its final stop at Cleveland Circle. The C-line runs daily from 5:01 am to 12:46 am.

- Green Line D branch – The D (or Riverside) branch of the Green Line runs on five-minute intervals during peak hours. The line runs above ground on a dedicated right-of-way from Riverside Station in Newton, serving multiple stations in Newton, Brookline, and Boston, before turning north along the Riverway and joining the main below-grade Green Line east of Fenway Station. The main line continues through the subway system to Government Center. The D-line runs from 4:56 am to 12:45 am on weekdays.

7.2.4.2 Bus

The MBTA also operates eleven bus routes that provide service within a 10-minute walk of the Berklee campus:

- Route 1 runs between Harvard/Holyoke Gate and Dudley Station on 10-minute intervals during the weekday morning and weekday evening peak commuter periods. This route also serves Massachusetts Avenue Station on the Orange Line, operating between the hours of 4:37 am and 1:34 am during the weekday. The closest stop to Berklee is in front of 150 Massachusetts Avenue.

- Route 8 operates between Kenmore Square and the University of Massachusetts,

Source: MBTA

Figure 7-6
Public Transportation

Epsilon
ASSOCIATES INC.

- Boston, with high-frequency service between Kenmore Square and the Ruggles Street MBTA Orange Line/Commuter Rail Station during peak commuter periods. It operates on 13-minute intervals during the morning peak hours and on 20-minute intervals during evening peak hours. This route stops at Kenmore Station. Service is provided between 5:15 am to 1:34 am on weekdays.

- Route 9 runs from City Point to Copley Square, with a connection to the Orange Line, on 10-minute peak hour intervals. The route services Broadway Station as well during its operating hours between 5:13 am and 1:12 am on weekdays.

- Route 19 operates on 12-minute intervals during the morning peak and 20-minute intervals during the evening peak hours between Fields Corner Station and Kenmore Station via Ruggles Station on the Orange Line. This route stops at Kenmore Station and is in service between the hours of 6:08 am and 6:47 pm during the weekday.

- Route 39 serves as a connection between Forest Hills and Back Bay Stations. The route runs from Forest Hills in the south, along Centre Street and South Huntington Avenue, then turns northeast running along Huntington Avenue. The route then serves the Back Bay and terminates at Back Bay Station. Buses run on six-minute intervals during peak hours and operate Monday to Saturday from 4:42 am to 1:28 am, and on Sundays from 5:45 am to 1:23 am. In the vicinity of the college, stops serviced by this route include Dalton Street at Boylston Street and Huntington Avenue/Massachusetts Avenue.

- Route 55 provides service between Queensberry and Copley Square or Park Street Station, and operates on 17-minute intervals during the morning peak hours, 30-minute intervals during evening peak hours and 60-minute intervals during off-peak hours. This route services the Boylston Street/Massachusetts Avenue stop, and Boylston Street/Saint Cecilia Street stop. The route runs from 6:00 am to 11:00 pm on weekdays, from 6:00 am to 11:00 pm on Saturday and from 8:15 am to 11:00 pm on Sunday.

- Route 57 operates on six to ten-minute intervals during peak commuter periods between Watertown Yard and Kenmore Station between the hours of 4:33 am and 1:18 am on weekdays.

- Route 60 provides service between Chestnut Hill in Newton and Kenmore Square via Brookline Village Station on the Green Line D branch, and operates on 24-minute intervals during morning peak hours, 27-minute intervals during evening peak hours and 30-minute intervals during off-peak hours. Service is provided between the hours of 5:15 am to 12:21 am on weekdays.

- Route 65 provides service between Brighton Center and Kenmore Square via Washington Street Station on the Green Line B branch, Washington Square Station on the Green Line C branch, and Brookline Village Station on the Green Line D branch between 6:20 am and 8:29 pm on weekdays.

- Route CT1 provides service between Central Square in Cambridge and Boston University. Medical Center/Boston Medical Center via M.I.T. on 20-minute intervals during morning and evening peak hours. It stops at Massachusetts Avenue/Newbury Street, near the Berklee campus. The operating hours are between 6:30 am and 7:40 pm, with no service on weekends or holidays.

7.2.4.3 Commuter Rail

Connection to the Worcester/Framingham Commuter Rail is available at Yawkey Station or Back Bay Station. Ruggles Station and Back Bay Station offer connections to the Attleboro/Stoughton, Needham, and Franklin Commuter Rail Lines, serving points south and west of Boston.

7.2.5 Pedestrian Access

Student activity and pedestrian circulation is facilitated primarily by the public sidewalks and crosswalks on streets in and around the Berklee campus. Because most Berklee facilities are located within a ten-minute walk of each other, and many much closer, there is steady pedestrian traffic among them throughout the day.

Due to the concentration of the college's facilities along Boylston Street and Massachusetts Avenue south of Boylston Street, sidewalks along these streets are heavily used by the Berklee community. East of Massachusetts Avenue on Boylston Street, the campus route adheres to the north side of the street, while to the west of Massachusetts Avenue the route shifts to the south side of the street. Recently, Berklee has been successful in providing for shared neighborhood and college outdoor space through the development of new outdoor dining terraces on this section of Boylston Street.

There is also a heavily used pedestrian route to and from the MBTA's Hynes Convention Center Station crossing the Boylston Street/Massachusetts Avenue intersection. The relatively narrow sidewalks around the entrance to the station have limited ability to fully accommodate the volume of local pedestrians. In addition, this is a transfer point for two major MBTA bus routes discharging and picking up passengers directly in front of the station.

The first two blocks of Massachusetts Avenue south of Boylston Street are heavily traveled, particularly the block in front of 150 Massachusetts Avenue and the Berklee Performance Center at 136 Massachusetts Avenue. Known to students as the "Berklee Beach," this is a popular location where students gather during good weather.

The Berklee campus is well served by pedestrian routes connecting it with the immediate neighborhoods and the rest of the city. According to the Massachusetts Department of Environmental Protection Rideshare Report for 2010, walking is the preferred travel mode for approximately 46 percent of Berklee's student population and five percent of the staff/faculty. Thirty percent of the College's employees are Boston residents.

Pedestrian facilities in the study area include sidewalks that vary in width from seven feet to over 20 feet, crosswalks at major intersections, and accessible access ramps in most locations. An inventory of pedestrian accommodations in the vicinity of the Berklee campus, including sidewalk widths and crosswalk locations, is presented in Figure 7-7.

Several deficiencies in pedestrian accommodations were noted in the field. At the intersection of Boylston Street at Massachusetts Avenue, there is no pedestrian ramp serving the Massachusetts Avenue north crosswalk on the northeast side of the intersection. Field observations also indicated a difficult pedestrian route along the south side of Boylston Street in the eastbound direction departing the intersection at Massachusetts Avenue. There is a long crossing distance of approximately 80 feet across the departure leg of Cambria Street at Boylston Street and no pedestrian ramps or crosswalks present. Vehicles take this one-way departure street from Boylston Street at a high speed and often conflict with pedestrians trying to walk along Boylston Street at this location. There are no crosswalks or pedestrian ramps at the T intersection of Saint Cecilia Street with Boylston Street. The island between the two Saint Cecilia intersections provides a bus shelter but does not contain pedestrian ramps or crosswalks connecting it to the sidewalks along Boylston Street.

Pedestrian turning movement counts were conducted at the three study area intersections as well as the intersection of Boylston Street at Hemenway Street. Figure 7-8 provides a summary of the Existing (2011) condition morning and evening peak hour pedestrian counts. A pedestrian level of service (PLOS) analysis, which measures delay experienced by pedestrians waiting to cross, was performed for crosswalks at all signalized study intersections. The PLOS criteria, based on the 2000 Highway Capacity Manual (HCM) are presented in Table 7-2, and the results are presented in Table 7-3. It should be noted that the HCM methodology and criteria do not apply to un-signalized crosswalks because Massachusetts law requires vehicles to yield to pedestrians in a crosswalk.

Table 7-2 Pedestrian Level of Service Criteria

Level of Service	Signalized Intersection Pedestrian Delay (sec/ped)
LOS A	≤10
LOS B	10 to 20
LOS C	21 to 30
LOS D	31 to 40
LOS E	41 to 60
LOS F	> 60

Source: 2000 HCM

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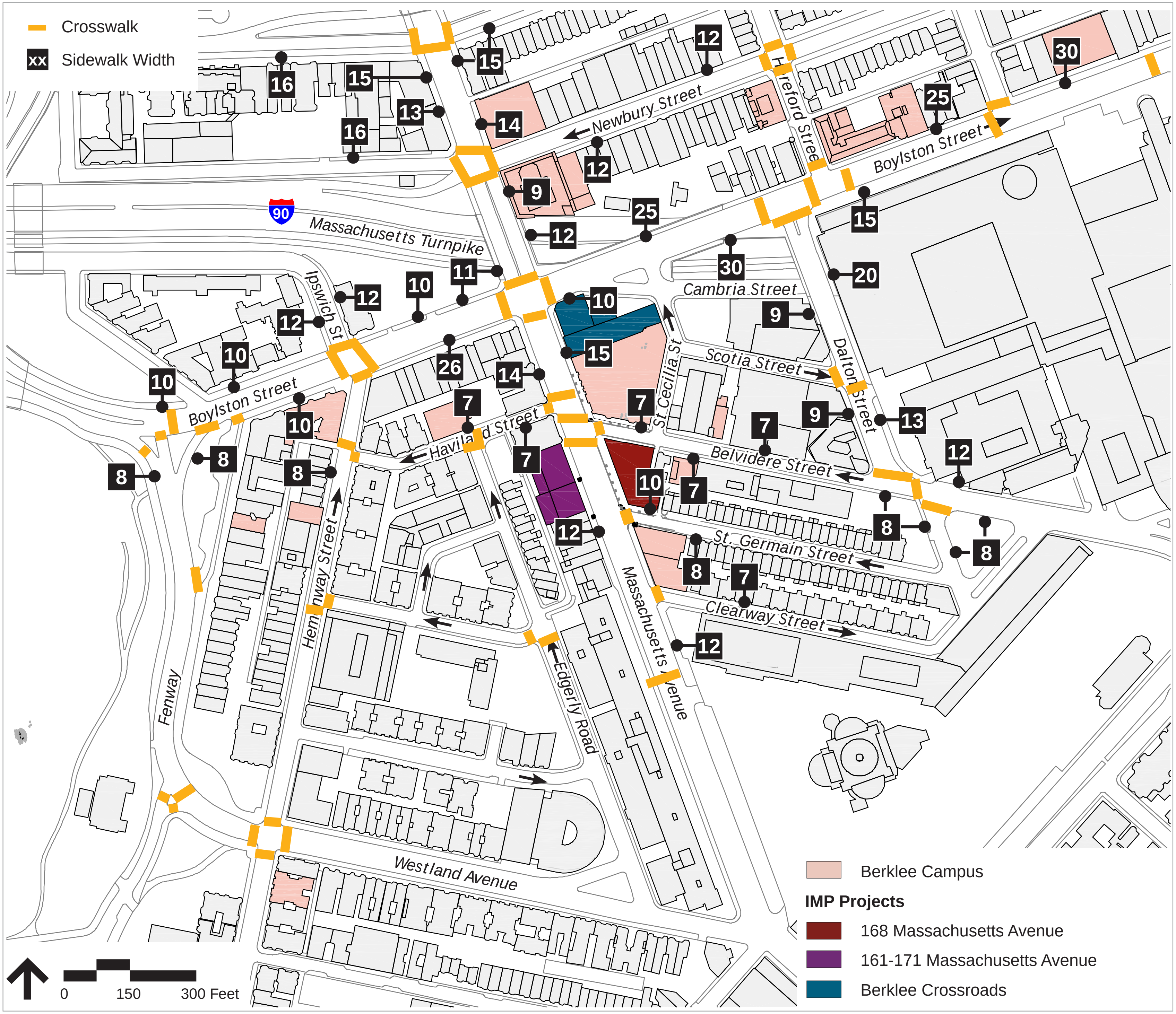

Figure 7-7
Sidewalk and
Crosswalk Inventory

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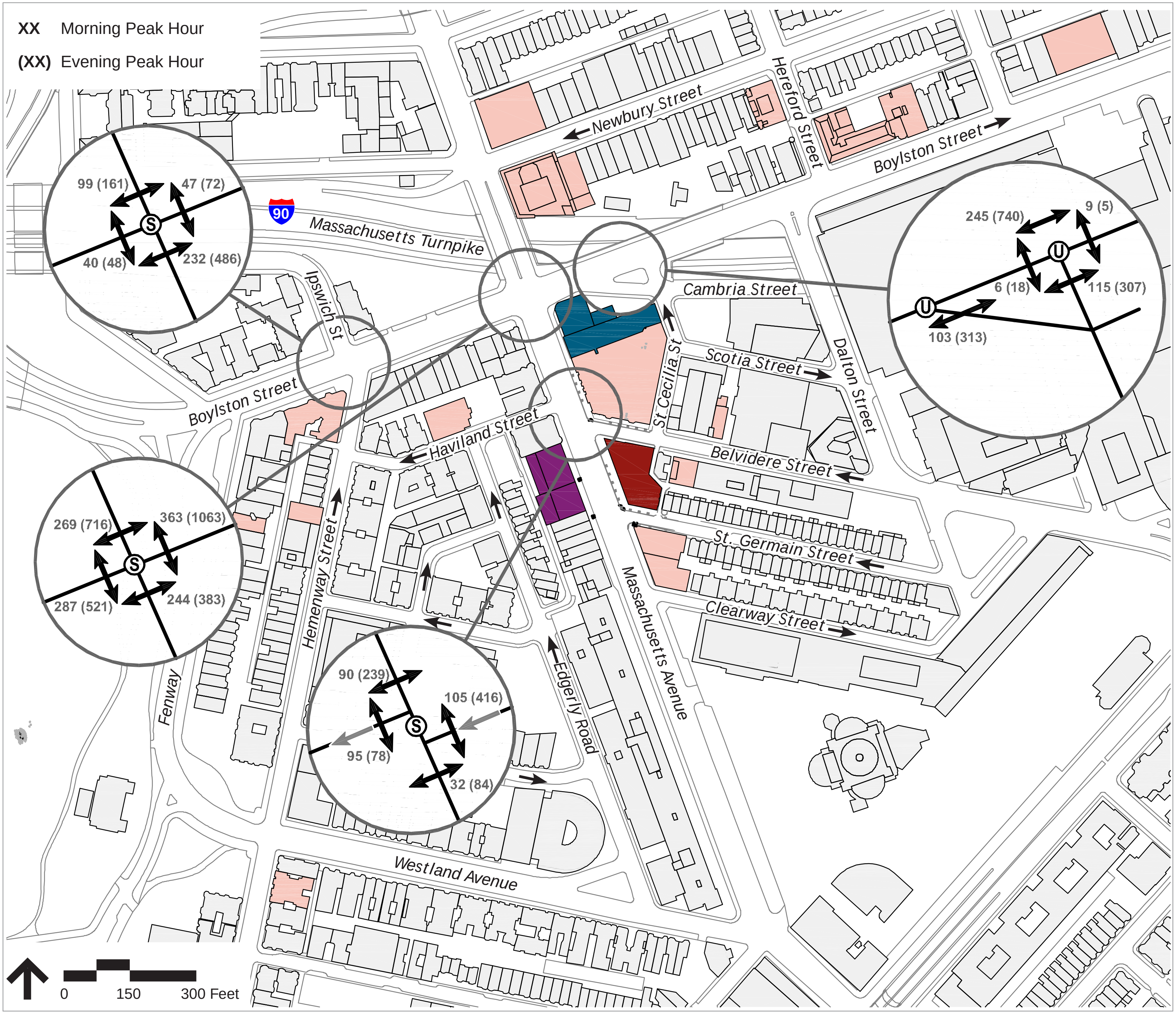

Figure 7-8
Existing (2011)
Peak Hour
Pedestrian Volumes

Table 7-3 Pedestrian Level of Service at Signalized Study Intersections

Intersection	Crosswalk	Morning Peak Hour		Evening Peak Hour	
		Average Delay (seconds)	PLOS	Average Delay (seconds)	PLOS
Massachusetts Avenue/Boylston Street	Massachusetts Avenue north	43.2	E	48.2	E
	Boylston Street east	38.7	D	43.7	E
	Massachusetts Avenue south	41.4	E	46.4	E
	Boylston Street west	40.5	E	45.5	E
Massachusetts Avenue/Belvidere Street/Haviland Street	Massachusetts Avenue north	42.3	E	47.3	E
	Belvidere Street east	33.6	D	38.5	D
	Massachusetts Avenue south	42.3	E	47.3	E
	Haviland Street west	No pedestrian signals provided			

The PLOS results indicate that pedestrians experience generally poor levels of service in crossing the major streets, in most cases reflecting the competing demand with vehicles for time during the traffic signal phasing. At the Massachusetts Avenue/Boylston Street intersection, the situation is exacerbated by long crosswalks. Further, it is noted that the crosswalk at Haviland Street is not provided with pedestrian signals, despite the fact that it is located within a signalized intersection. This results in a hazardous situation where many pedestrians assume that drivers will yield to pedestrians in the crosswalk.

The pedestrian environment is discussed in more detail in relation to future conditions in Section 7.4.

7.2.6 Bicycle Accommodations

Although bicycling is a popular travel mode for students, the 2010 Rideshare report indicates that only about five percent of the Berklee population commutes to the campus by bike. However, it is worth noting that this bicycle mode share is higher than is typical for the general commuting population in Boston.

Bicycle racks are provided in various locations throughout the campus. In combination, there are currently more than 130 bicycle racks on Berklee property and nearby on city sidewalks. Indeed, Berklee recently collaborated with the Boston Bikes program and invested $5,000 to install approximately 30 new bicycle racks on City sidewalks around the campus. Bicycle parking locations in the vicinity of the Berklee campus are shown in Figure 7-9. Observations of the bicycle racks indicate heavy usage, particularly in front of the Berklee Performance Center at 136 Massachusetts Avenue, evidenced by bicycles often being locked to railings and street furniture.

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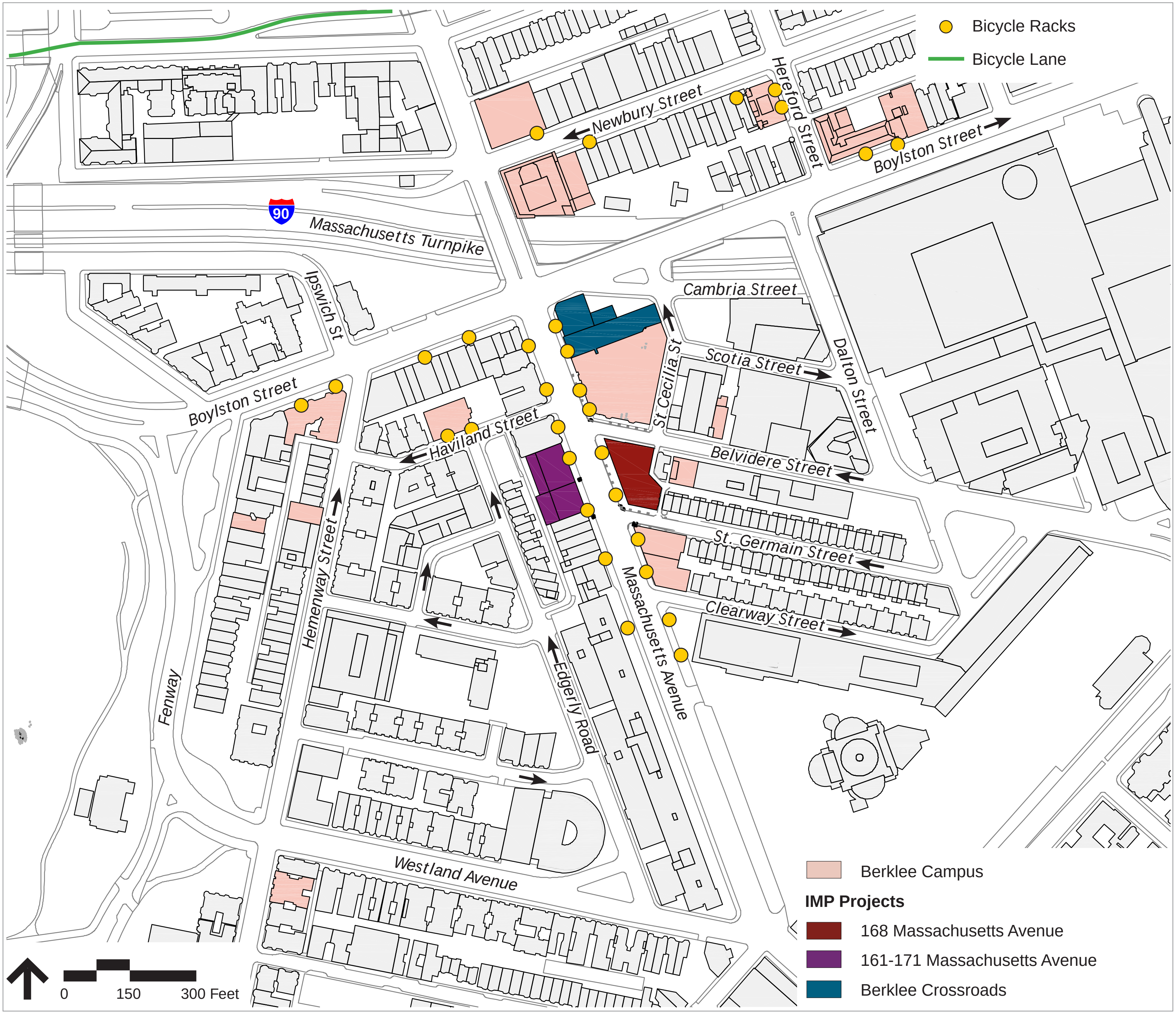

Figure 7-9
Bicycle Accommodations

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Peak period bicycle turning movement counts were conducted at the three study area intersections and at the intersection of Boylston Street at Hemenway Street. The existing (2011) peak hour bicycle turning movement volumes for the am and pm peak hours are presented in Figure 7-10. The results indicate high bicycle volumes on Massachusetts Avenue, and significant volumes on Boylston Street to the west of Massachusetts Avenue. To the west of Massachusetts Avenue, bicycle volumes on Boylston Street are significant only in the am peak and only in the eastbound direction, likely reflecting the fact that Boylston Street is one-way eastbound beyond Dalton Street.

Currently there are no on-street bicycle lanes in the immediate vicinity of the Berklee campus, although the BTD has recently installed bike lanes on Commonwealth Avenue, and there are plans to install bike lanes on Boylston and other streets.

7.2.7 Loading and Service Activities

Loading and service activities for Berklee are generally handled on-street at most buildings on the campus, and there are very limited off-street accommodations for deliveries or loading. The highest concentration for deliveries is at 150 Massachusetts Avenue, where the existing dining hall is located; food deliveries, including large trucks, park on street to un-load. This activity is largely concentrated in the early- to mid-morning period, and generally takes place outside of the peak traffic hours. Similarly, large trucks are involved in servicing the Berklee Performance Center, again staging on street, albeit not on a day-to-day basis.

For trash collection, the bulk pick-up location on Cambria Street accommodates a full-size compactor off-street which is emptied daily. Waste collection typically occurs between 8:00 am and 11:00 am, with varying frequency by location. The waste service locations and their capacities and frequency of collection are summarized in Table 7-4.

Table 7-4 Waste Service Locations

Location	Container Size	Pickup Frequency
Cambria Street Dumpster	10 yards	6 times per week
Cambria Street/Belvidere Street	Bulk Pickup	7 times per week
270 Commonwealth Avenue	6 yards	6 times per week
1140 Boylston Street	2 yards	5 times per week
921 Boylston Street	2 yards	5 times per week
1108 Boylston Street	2 yards	1 time per week

Source: Waste Management via Aramark

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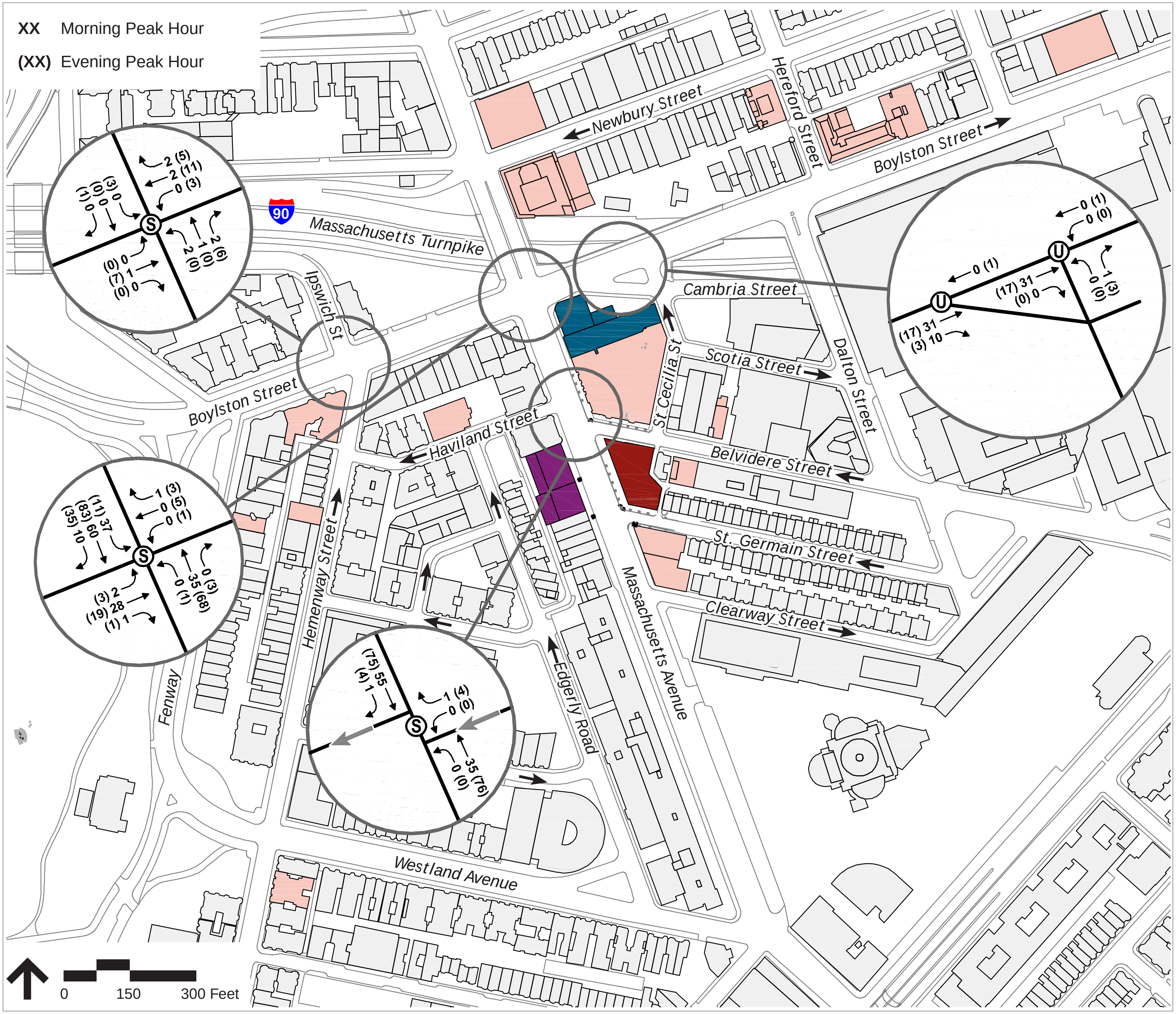

Figure 7-10
Existing (2011)
Peak Hour
Bicycle Volumes

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7.3 Institutional Master Plan Travel Demand Characteristics

This section examines the travel demand aspects of the IMP, and identifies trip generation and characteristics by all modes of transportation as a basis for the Future (2016) analysis presented in Section 7.4.

7.3.1 Institutional Master Plan Program

The goals of the IMP are to allow for improved facilities, an increase in college-owned residential space, and an increase in space to meet the demands of the Berklee community, while also decreasing the constraints that currently exist. In accomplishing these goals, the IMP does not seek to materially expand Berklee's enrollment. Although some increase in employees is expected to support the new buildings, no significant increases in student enrollment or faculty are anticipated.

To determine the travel demand implications of the IMP program, it is necessary to examine the individual uses within each project and consider the use of those facilities by the Berklee student, faculty and staff populations. The specific IMP projects are as follows:

7.3.1.1 168 Massachusetts Avenue

This project is located on southeast corner of Belvidere Street at Massachusetts Avenue and will provide a total of approximately 155,000 sf. The project includes an approximately 370-bed residence hall and 400-seat dining hall, as well as approximately 5,000 sf of ground floor retail/restaurant space. The project also includes approximately 7,000 sf of common lobby and loading type space, while the remaining approximately 19,000 sf will provide students with new music technology space including classrooms, and recording studios, etc.

7.3.1.2 161 -171 Massachusetts Avenue

Located on the western side of Massachusetts Avenue, this project comprises approximately 20,280 sf of net new space. Upon completion, 161-171 Massachusetts Avenue will total approximately 72,190 sf, and will continue to provide storage and retail space; however, existing commercial space on upper floors will be replaced by academic/administrative uses.

7.3.1.3 The Berklee Crossroads

This project is located on the southeast corner of Boylston Street at Massachusetts Avenue and will provide an additional 450 beds in the proposed residence hall. The existing performance center will be replaced with an enhanced and enlarged facility, but will continue to provide approximately 1,200 seats. Approximately 25,000 sf of net new student life, academic, fitness, classroom type space will also be provided in the proposed project. The project will comprise a total of approximately 290,000 sf.

Table 7-5 presents a breakdown of the larger IMP Projects by use and floor area, along with a comparison with the existing buildings which they will replace, and the net changes in use and floor area. While not an IMP Project, 150 Massachusetts Avenue is included in the table to account for the relocation of the existing dining hall to 168 Massachusetts Avenue, the re-use of that space, and the removal of a first floor addition to the building on the former Belvidere Street sidewalk. The other campus improvement projects and leased space will add up to 8,800 sf of Gross Floor Area to be occupied by Berklee and up to 12,000 sf of Gross Floor Area of new leased space. Based on the analysis below, such increase will have an immaterial impact.

Table 7-5 IMP Projects, Use and Floor Area Summary

Project	Existing	Proposed	Net New
168 Massachusetts Avenue	15,000 sf	155,000 sf	140,000 sf
Residence Hall	0 sf	100,000 sf (370 beds)	100,000 sf (370 beds)
Dining Hall	0 sf	24,000 sf (400 seats)	24,000 sf (400 seats)
Retail	4,700 sf	5,000 sf	300 sf
Academic and Administrative	10,300 sf	0 sf	-10,300 sf
Music Technology	0 sf	19,000 sf	19,000 sf
Building Common (includes lobby, loading, etc.)	0 sf	7,000 sf	7,000 sf
150 Massachusetts Avenue*	15,300 sf	14,000 sf	-1,300 sf
Dining Hall	14,000 sf (250 seats)	0 sf	-14,000 sf (-250 seats)
Academic	0 sf	14,000 sf	14,000 sf
Removal of First Floor Addition	1,300 sf	0 sf	-1,300 sf
161-171 Massachusetts Avenue	51,910 sf	72,190 sf	20,280 sf
Academic/Administrative	0 sf	42,460 sf	42,460 sf
Retail	12,050 sf	18,060 sf	6,010 sf
Practice Rooms/Other	13,661 sf	11,670 sf	-1,991 sf
Commercial	26,199 sf	0 sf	-26,199 sf

Table 7-5 IMP Projects, Use and Floor Area Summary (Continued)

Berklee Crossroads	57,560 sf	290,000 sf	222,440 sf
Theater	37,560 sf (12,000 seats)	65,000 sf (1,200 seats)	27,440 sf (0 seats)
Academic/Student Life	20,000 sf **	45,000 sf	25,000 sf
Residence Hall	0 sf	180,000 sf (450 beds)	180,000 sf (450 beds)
Grand Total	139,770 sf	526,190 sf	386,420 sf

* Excludes existing academic and dormitory space unaffected by IMP project.

** Academic space only; no student life space in current facility

While it is important to consider each project individually as and when their designs are developed, their aggregate impact to travel demand is relevant in the context of the IMP itself. Table 7-6 presents a summary of the net changes by use and floor area for all the IMP Projects combined, with a total addition of approximately 386,500 sf.

Table 7-6 Proposed Projects Summary

Use/Function	Existing	Proposed	Net New
Student Housing (Beds)	0	820	820
Student Housing (sf)	0	280,000	280,000
Dining Hall (seats)	250	400	150
Dining Hall (sf)	14,000	24,000	10,000
Academic and Administrative Functions (sf)	45,261	137,130	91,869
Performance Center (seats)	1,200	1,200	0
Performance Center (sf)	37,560	65,000	27,440
Retail (sf)	16,750	23,060	6,310
Commercial (sf)	26,199	0	-26,199
Total (sf)	**139,770**	**529,190**	**389,420**

As shown in Table 7-6, and as described in detail elsewhere, the net changes for the Berklee campus under the IMP comprise the following:

- ♦ Student Housing — Addition of approximately 820 beds (280,000sf)
- ♦ Dining Hall — Addition of 150 seats (10,000 sf)

- Academic/Administrative Addition of 91,870 sf
- Performance Center Addition of 27,440 sf /No additional seating capacity
- Retail Addition of 6,310 sf
- Commercial Reduction of 26, 200 sf

7.3.2 IMP Student Enrollment and Employees

As noted previously, no substantial change in student enrollment at Berklee is anticipated, other than the possible addition of up to 100-200 FTE graduate students, representing less than a 2.5-5.0 percent increase. It is possible that there will be a small corresponding increase in the faculty population, and overall staff numbers are projected to increase by approximately 40, reflecting also the additional administrative, operational and maintenance needs associated with the IMP Projects. The existing and projected future IMP populations are summarized in Table 7-7.

Table 7-7 Projected Student Enrollment and Faculty/Staff Growth

Population Group	2010-2011	IMP	Change
Students full time and part time- on campus	4,200	4,200	0
Full-Time-Equivalent on-campus Students (FTE)	4,000	4,000	0
Faculty/Staff	1,082	1,123	41

7.3.3 Mode Share

The 2010 Berklee College of Music Rideshare report provides extensive information about commuting modes of travel for both students and faculty/staff (combined). This information is summarized in Table 7-8.

Table 7-8 Mode Share

Mode	Staff/Faculty	Students
Drive Alone	18.8%	3.0%
Carpool	4.3%	0.5%
Public Transportation	53.8%	39.7%
Bicycle	5.5%	5.7%
Walk	5.1%	46.1%
Other*	12.6%	4.9%
Total	**100.0%**	**100.0%**

*Includes work-at-home and days not on campus

As expected, there is a significant difference between the commuting modes for staff and faculty compared to students. Only 3.5 percent of students access the campus by car (three percent drive-alone) compared to over 23 percent of staff/students (almost 19 percent drive-alone). However, even the 23 percent auto mode-share for staff and faculty is significantly lower than general commuter mode share of 37 percent for this section of Boston based on BTD data. It is likely that the fact that Berklee does not provide parking for staff and faculty is a significant reason for the relatively low auto mode-share.

Faculty and staff also make greater use of transit as a commuting mode, almost 54 percent compared to approximately 40 percent for students. However, the most significant difference between students and staff/faculty commuting modes is the walk mode-share, at 46 percent and five percent, respectively. The substantial walk mode-share for students likely reflects the fact that a large proportion live relatively close to the campus. When combining walk and transit modes, over 86 percent of students arrive on campus on-foot, compared to 59 percent of faculty and staff. Bicycle mode share is about the same for both groups at 5.5 to 6 percent.

Another pertinent aspect of Berklee's commuter trip generation revealed by the 2010 Rideshare Report is that approximately 54 percent of faculty and staff arrive at the campus during the morning peak hour, compared to only 43 percent of students. This represents a spreading of commuter activity beyond the traditional traffic peak hours.

7.3.4 Trip Generation

Trip generation for colleges and universities is essentially a function of the campus population, as reflected in the Institution of Traffic Engineers (ITE) Trip Generation manual, combined with the mode shares for different user groups (primarily students and faculty/staff). Accordingly, the size (or square footage) of academic and administrative facilities does not in itself generate trips, albeit that the geographic location of facilities, class schedules and activities, etc., significantly influences the movement of people over the course of the day. For Berklee, although campus buildings are somewhat dispersed, the vast majority of such internal trips are almost exclusively accomplished by walking or bicycle.

By contrast, non-academic/administrative space generates trips based on the traditional parameters of floor area, capacity, etc. For the IMP, there are several such types of uses, including the Berklee Performance Center, on-campus student housing and dining, and commercial retail and office space leased out by Berklee, as presented in Tables 7-4 and 7-5. In the context of the IMP, each of these uses has different trip-generating characteristics, as follows:

- Although there will be some increase in the floor area of the **Berklee Performance Center** to enhance stage size and support facilities, the actual capacity of the theater is not expected to change materially, and therefore trip generation for performances will not change significantly.

- Bringing **student housing** and increased **dining** onto the campus will in fact reduce commuter trips to and from the campus, but will increase pedestrian activity in the immediate vicinity of those buildings. These changes will be considered in the design of such buildings, as and when they are developed, in the same way that the 168 Massachusetts Avenue project is considered in Chapter 12.

- **Retail and office space** owned by Berklee, but leased commercially, generates trips in the same way as most non-college land uses.

For the purposes of the traffic analysis, it is the weekday morning and evening peak hours that are analyzed. An analysis of trip generation for the IMP was performed based on the uses/activities presented in the preceding Sections 7.3.1 and 7.3.2, the mode split characteristics presented in Section 7.3.3, and the characteristics discussed in this section. For the retail and office uses, the corresponding ITE trip generation rates were applied, along with BTD mode share characteristics for this location in Boston. The results of this analysis are presented in Tables 7-9a and 7-9b for the morning and evening peak hours, respectively.

Table 7-9a IMP Commuter Trip Generation, Morning Peak Hour

IMP Change*		Trip Generation					
		Person	Auto	Transit	Bicycle	Walk	Other
Student Enrollment	0	0	0	0	0	0	0
Staff/Faculty	41	22	4	12	1	1	3
Sub-Total	**41**	**22**	**4**	**12**	**1**	**1**	**3**
Retail	6.3 ksf	28	6	4	16		
Office	-26.2 ksf	-49	-15	-19	-12		
Sub-Total	**-19.9 ksf**	**- 21**	**-9**	**-15**	**4**		
Total		**1**	**-5**	**-3**	**2**	**2**	**5**

*Refer to Table 7-6

Table 7-9b IMP Commuter Trip Generation, Evening Peak Hour

IMP Change*		Trip Generation					
		Person	Auto	Transit	Bicycle	Walk	Other
Student Enrollment	0	0	0	0	0	0	0
Staff/Faculty	41	17	5	12	1	1	3
Sub-Total	**41**	**17**	**4**	**12**	**1**	**1**	**3**
Retail	6.3 ksf	21	4	3	12		
Office	- 26.2 ksf	- 47	- 14	-1 8	- 12		
Sub-Total	**- 19.9 ksf**	**- 26**	**- 10**	**- 15**	**0**		
Total		**- 9**	**- 6**	**- 3**	**1**	**1**	**3**

*Refer to Table 7-6

As shown by the analysis, a negligible increase, or very limited decrease in peak period trip generation is projected for the IMP for the morning and evening peak hours, respectively, reflecting the limited increase in campus population, and the fact that there will be a net reduction of approximately 20,000 sf in commercially leased space. With regard to traffic, there will be a limited decrease in peak period auto and transit trip generation as a result of the IMP, but some modest increase in bicycle and walk trips.

A further pertinent aspect of the IMP trip generation is that the creation of student housing on the campus will in fact reduce commuter trips by students, albeit that in terms of auto trips, the Berklee student population exhibits an extremely low auto trip generation rate. Again, however, despite such reductions, it is important to consider the dynamics of the IMP's non-auto trip generation, particularly outside of the traditional commuting peaks and specifically in the planning and design of the IMP Projects themselves.

7.4 Future Conditions

7.4.1 Future Traffic Volumes

The future (2016) conditions were developed and analyzed to evaluate future transportation conditions in the study area, based on a five-year horizon from existing conditions, as required by BTD guidelines. Under the No-Build (2016) Future Condition, anticipated increases in traffic activity are expected on study area roadways due to continued general area-wide traffic growth; approved developments in the area that are currently under construction; and other ongoing projects that have had, at a minimum, either a Project Notification Form (PNF) or an Institutional Master Plan Notification Form (IMPNF) filed on their behalf with the BRA, formally initiating the City of Boston Article 80 Development Review process for their respective project(s).

To develop the future (2016) traffic network volumes, BTD asked that a 0.5 percent background growth rate be used, and that the analysis should include all of the planned projects assumed for the nearby Christian Science Plaza development. Planned projects included in the future (2016) analyses for the IMP include the following:

- Christian Science Plaza Developments
- 350 Boylston Street
- Clarendon Project (already complete)
- Prudential Center/888 Boylston

While some changes in the roadway network are expected as a result of the Symphony Streetscape project, there are no planned roadway improvements in the immediate vicinity of the Berklee Campus. Therefore, no significant diversions of background traffic are expected for the future (2016) conditions.

Finally, it should be noted that, because no meaningful change in auto trip generation is projected under the IMP, the Future (2016) No-Build (without IMP) and Future (2016) Build (with IMP) traffic networks are essentially the same.

Figures 7-11 and 7-12 present the Future (2016) No-Build and Build Condition traffic volume networks for the morning and evening peak hours, respectively.

7.4.2 Intersection Operations/Level of Service

Level of service (LOS) is the term used to denote the different operating conditions that occur on a given roadway or intersection under various volume loads. It is a quantitative measure of the effect of roadway/intersection geometry, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway or intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Highway Capacity Manual (HCM) evaluation criteria are different for signalized and for un-signalized intersections. Consistent with BTD's guidelines, *Synchro 7* software was used to model LOS operations at the study area intersections. Table 7-10 below presents the LOS delay threshold criteria as defined in the HCM.

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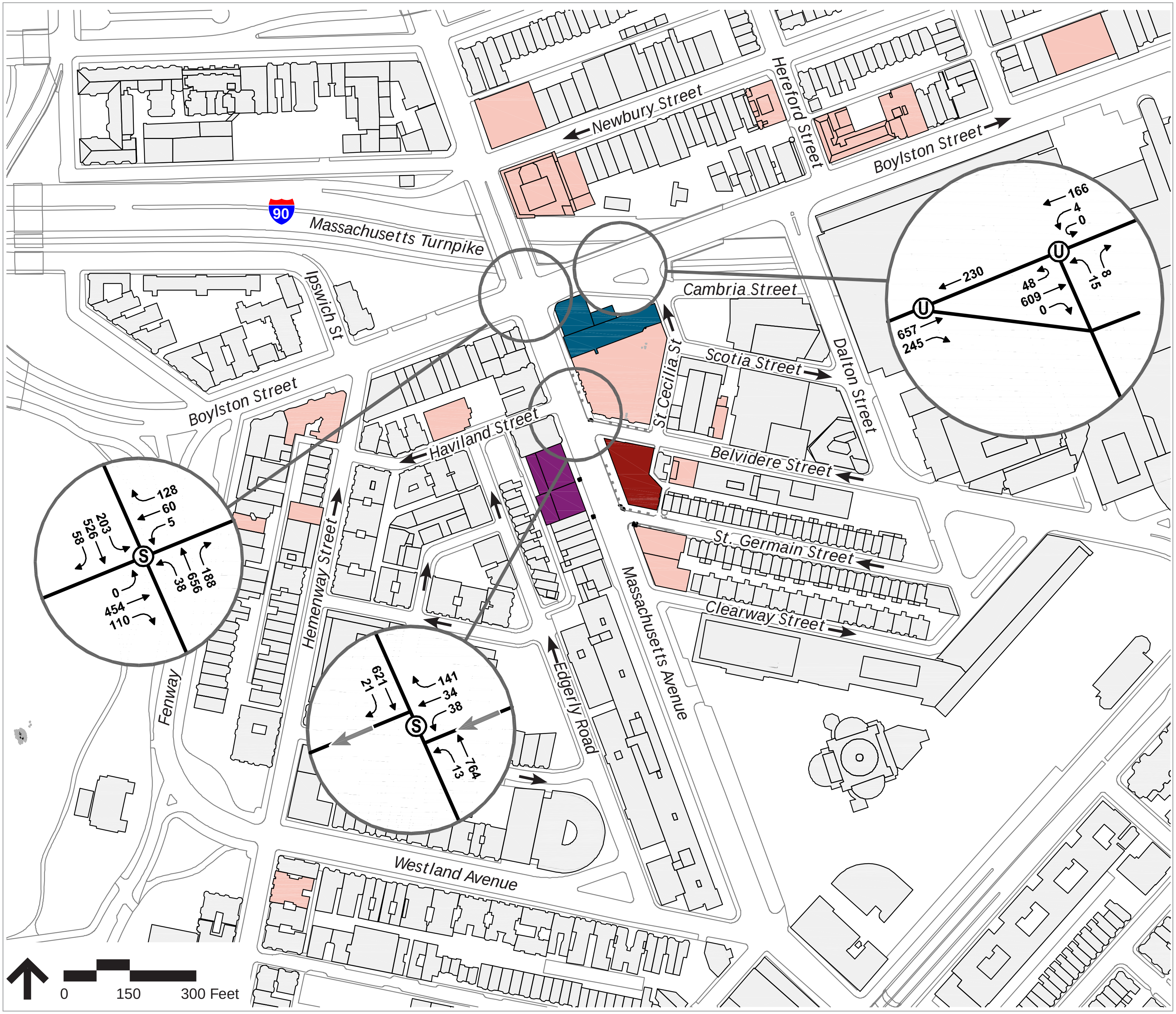

Figure 7-11
Future (2016)
No-Build and Build
Morning Peak Hour
Traffic Volumes

VHB *Vanasse Hangen Brustlin, Inc.*

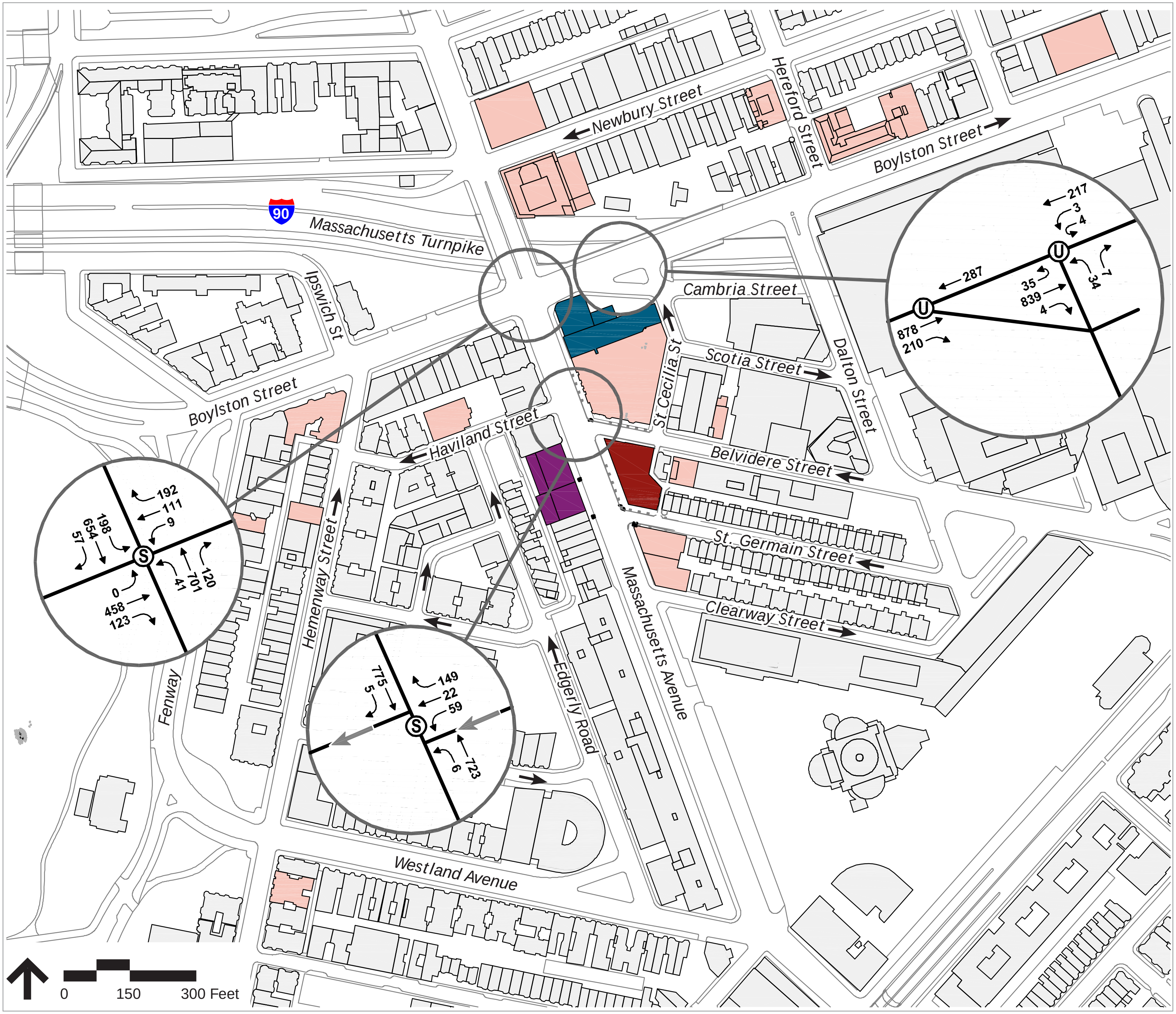

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Figure 7-12
Future (2016)
No-Build and Build
Evening Peak Hour
Traffic Volumes

VHB Vanasse Hangen Brustlin, Inc.

Table 7-10 Level of Service Criteria

Level of Service	Signalized Intersection Control Delay (sec/veh)	Un-signalized Intersection Control Delay (sec/veh)
LOS A	≤10	≤ 10
LOS B	>10 to 20	> 10 to 15
LOS C	>20 to 35	> 15 to 25
LOS D	>35 to 55	> 25 to 35
LOS E	>55 to 80	> 35 to 50
LOS F	> 80	> 50

Source: 2000 HCM

Capacity analyses were conducted for the intersections within the study area for Existing (2011), as discussed briefly in Section 7.2 of this chapter, and Future (2016) No-Build and Build Conditions. Results of these analyses for signalized intersections are presented in Tables 7-11a and 7-11b for the morning and evening peak hours, respectively. Similarly, the results of the analyses for the un-signalized intersection are presented in Tables 7-12a and 7-12b for the morning and evening peak hours, respectively. The *Synchro* analysis worksheets are included in Appendix D, and electronic *Synchro* files are being provided to the BTD with this IMP submission.

Both signalized intersections in the study area are expected to operate at an overall LOS C or better during both peak periods during the Existing (2011) and Future (2016) No-Build and Build conditions.[1] All movements operate at a LOS D or better with the exception of the Belvidere Street at Massachusetts Avenue intersection westbound movement. This movement operates at a LOS E during both peak hour periods, for both Existing and Future No-Build and Build analysis scenarios.

There is no increase in delay or decline in LOS grade under Future Build conditions as a result of the IMP, again because of the negligible change in vehicular trip generation. Similarly, the background growth in the study area has the same limited impact to No-Build and Build conditions, independent of the IMP.

1 It is important to note that field observations in the pm peak period indicate that queues extend in the northbound direction along Massachusetts Avenue south of Boylston Street due to upstream congestion at Newbury Street. Therefore the *Synchro* analysis yields better queuing and delay than exists in the field.

Table 7-11a Signalized Intersection Capacity Analysis Summary, Weekday Morning Peak Hour

Intersection Location	Movement	Existing (2011)				Future (2016) No-Build				Future (2016) Build			
		v/c[1]	Delay[2]	LOS[3]	Queue[4]	v/c[1]	Delay[2]	LOS[3]	Queue[4]	v/c[1]	Delay[2]	LOS[3]	Queue[4]
Boylston Street at Massachusetts Avenue	Boylston St EB thru/right	0.80	43.1	D	208	0.87	48.9	D	263#	0.87	48.9	D	263#
	Boylston St WB thru/left	0.20	33.0	C	63 m	0.22	31.9	C	68 m	0.22	31.9	C	68 m
	Boylston St WB right	0.25	15.3	B	69 m	0.28	15.6	B	73 m	0.28	15.6	B	73 m
	Mass Ave NB left/thru/right *	0.64	20.3	C	241	0.83	24.4	C	294 m	0.83	24.4	C	294 m
	Mass Ave SB left	0.61	42.5	D	211#	0.69	47.5	D	240#	0.69	47.5	D	240#
	Mass Ave SB thru/right	0.34	8.1	A	108	0.35	8.6	A	112	0.35	8.6	A	112
	Overall Intersection	**0.68**	**24.0**	**C**	n/a	**0.80**	**27.6**	**C**	n/a	**0.80**	**27.6**	**C**	n/a
Massachusetts Avenue at Belvidere/ Haviland Streets	Belvidere St WB left/thru/right	0.85	59.7	E	169	0.93	69.4	E	232#	0.93	69.4	E	232#
	Mass Ave NB left/thru	0.58	19.6	B	253 m	0.72	24.8	C	321 m	0.72	24.8	C	321 m
	Mass Ave SB thru/right	0.54	14.8	B	261	0.59	17.5	B	268 m	0.59	17.5	B	268 m
	Overall Intersection	**0.66**	**23.0**	**C**	n/a	**0.79**	**28.9**	**C**	n/a	**0.79**	**28.9**	**C**	n/a

1 Volume-to-capacity ratio
2 Average delay expressed in seconds per vehicle.
3 Level of Service.
4 95th Percentile Queue Length expressed in feet.
95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

* It is important to note that field observations in the pm peak period indicate that queues extend in the northbound direction along Massachusetts Avenue south of Boylston Street due to upstream congestion at Newbury Street. Therefore the *Synchro* analysis yields better queuing and delay than exists in the field.

Table 7-11b Signalized Intersection Capacity Analysis Summary, Weekday Evening Peak Hour

Intersection Location	Movement	Existing (2011)				Future (2016) No-Build				Future (2016) Build			
		v/c[1]	Delay[2]	LOS[3]	Queue[4]	v/c[1]	Delay[2]	LOS[3]	Queue[4]	v/c[1]	Delay[2]	LOS[3]	Queue[4]
Boylston Street at Massachusetts Avenue	Boylston St EB thru/right	0.82	46.9	D	253	0.88	51.1	D	306#	0.88	51.1	D	306#
	Boylston St WB thru/left	0.35	35.0	D	111 m	0.39	34.8	C	126 m	0.39	34.8	C	126 m
	Boylston St WB right	0.36	17.6	B	110 m	0.41	18.2	B	123 m	0.41	18.2	B	123 m
	Mass Ave NB left/thru/right *	0.62	37.8	D	276	0.77	42.5	D	308	0.77	42.5	D	308
	Mass Ave SB left	0.58	44.7	D	204	0.64	48.2	D	221#	0.64	48.2	D	221#
	Mass Ave SB thru/right	0.39	9.6	A	146	0.40	10.2	B	151	0.40	10.2	B	151
	Overall	**0.67**	**30.9**	**C**	n/a	**0.77**	**34.2**	**C**	n/a	**0.77**	**34.2**	**C**	n/a
Massachusetts Avenue at Belvidere/ Haviland Streets	Belvidere St WB left/thru/right	0.81	61.4	E	181	0.91	71.5	E	311#	0.91	71.5	E	311#
	Mass Ave NB left/thru	0.52	16.3	B	279	0.62	21.9	C	305	0.62	21.9	C	305
	M ass Ave SB thru/right	0.52	12.0	B	187	0.60	15.7	B	195 m	0.60	15.7	B	195 m
	Overall	**0.59**	**18.8**	**B**	n/a	**0.71**	**25.9**	**C**	n/a	**0.71**	**25.9**	**C**	n/a

1 Volume-to-capacity ratio
2 Average delay expressed in seconds per vehicle.
3 Level of Service.
4 95th Percentile Queue Length expressed in feet.
95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

* It is important to note that field observations in the pm peak period indicate that queues extend in the northbound direction along Massachusetts Avenue south of Boylston Street due to upstream congestion at Newbury Street. Therefore the *Synchro* analysis yields better queuing and delay than exists in the field.

Table 7-12a Un-signalized Intersection Capacity Analysis Summary, Weekday Morning Peak Hour

Intersection Location	Movement	Existing (2011)				Future (2016) No-Build				Future (2016) Build			
		v/c[1]	Demand[2]	LOS[3]	Queue[4]	v/c[1]	Demand[2]	LOS[3]	Queue[4]	v/c[1]	Demand[2]	LOS[3]	Queue[4]
Boylston Street at Saint Cecilia Street	Boylston St EB u-turn/thru/left	0.21	543	A	0	0.26	657	A	0	0.26	657	A	0
	Boylston St WB left/thru	0.01	166	A	0	0.01	166	A	1	0.01	166	A	1
	St. Cecilia Street NB left/right (Critical Move)	0.03	11	B	2	0.11	23	C	9	0.11	23	C	9

1 Volume-to-capacity ratio
2 Demand expressed in # of vehicles per hour.
3 Level of Service.
4 95th Percentile Queue Length expressed in feet.

Table 7-12b Un-signalized Intersection Capacity Analysis Summary, Weekday Evening Peak Hour

Intersection Location	Movement	Existing (2011)				Future (2016) No-Build				Future (2016) Build			
		v/c[1]	Demand[2]	LOS[3]	Queue[4]	v/c[1]	Demand[2]	LOS[3]	Queue[4]	v/c[1]	Demand[2]	LOS[3]	Queue[4]
Boylston Street at St. Cecilia Street	Boylston St EB u-turn/thru/left	0.33	818	A	0	0.35	878	A	0	0.35	878	A	0
	Boylston St WB left/thru	0.01	219	A	1	0.01	224	A	1	0.01	224	A	1
	St. Cecilia Street NB left/right (Critical Move)	0.15	9	D	12	1.32	41	F	228	1.32	41	F	228

1 Volume-to-capacity ratio
2 Demand expressed in # of vehicles per hour.
3 Level of Service.
4 95th Percentile Queue Length expressed in feet.

The un-signalized intersection of Boylston Street at Saint Cecilia Street is expected to operate at an acceptable level of service during the morning peak hour, but with the addition of background growth in the Future No-Build Condition, the northbound Saint Cecilia approach is expected to decline to LOS F due to the addition of left-turning vehicles and through volumes on Boylston Street. However, observations in the field indicate that this move operates much better in practice, and it is likely that the *Synchro* analysis is over-penalizing the impact of conflicting pedestrians and/or under-estimating the benefit of the platoon traffic flow from the up-stream traffic signal.

Again, under the Future Build Condition, there is no increase in delay or decline in LOS grade at un-signalized intersections as a result of the IMP.

7.4.3 Parking

Berklee owns or provides virtually no parking on campus today, and there are no plans to provide parking as part of the IMP. Parking, therefore, will not to be an issue in the future, as the increase in parking demand under the IMP will be negligible. The relatively small proportion of commuters to the campus who drive today will likely continue to rely upon public parking in the area and is unlikely to grow in number, particularly as the absence of parking provided by the college likely limits commuting by auto as a mode choice.

7.4.4 Public Transportation

As noted in the discussion of trip generation, the IMP will result in a reduction of students commuting to the campus, with a corresponding reduction in transit use. This is a peak hour phenomenon, and in the off-peak periods there will likely be some increase in transit ridership associated with resident students leaving campus for non-academic related trips. The campus will continue to be well-served by the multiple existing transit services described in Section 7.2. Future public transportation improvements, such as the MBTA's Green Line Extension, may benefit and likely increase ridership by Berklee students, faculty, and staff, resulting in fewer vehicles from the campus area.

7.4.5 Pedestrians

While the number of pedestrians traveling to and from the campus is not expected to change significantly, and indeed may even decrease as a result of the provision of student housing on campus, the synergy of pedestrian movement between the campus buildings will continue. Further, pedestrian activity in the vicinity of some buildings will increase, in particular where student housing and expanded dining facilities are located. Therefore, the IMP anticipates increased pedestrian activity, but also presents an opportunity to address existing constraints.

The pedestrian network supporting the campus is almost entirely within the public realm. Berklee recognizes the importance of the pedestrian environment, and streetscape design is a major priority of the IMP. Specifically, the design for each IMP project will fully explore the opportunities for increased sidewalk widths, pedestrian crossing accommodations, locations for pedestrian entries that enhance circulation, and service entries that minimize impact to pedestrian movement. Pedestrian safety is a top priority throughout the design process for the IMP Projects.

Berklee has already implemented streetscape and sidewalk improvements on Boylston Street between Hemenway Street and Massachusetts Avenue, transforming the pedestrian environment along that key pedestrian route. Other specific constraints and issues that have been identified include the following:

- The crowding of the sidewalk at the Berklee Beach (in front of 130, 136 and 150 Massachusetts Avenue) by students, and its impact to pedestrian flow.
- Poor pedestrian crossing accommodations and level of service for pedestrians at key intersections on Massachusetts Avenue – at Boylston Street and at Belvidere Street/Haviland Street.
- Discontinuity/vehicular impact to the pedestrian route on the south side of Boylston Street between Massachusetts Avenue and Dalton Street created by the Saint Cecilia Street intersection.
- Constrained sidewalk accommodations on the route between the core of the Berklee campus and the MBTA Hynes Convention Center Station.
- Safety concerns associated with intersection at Boylston Street and Saint Cecilia Street.

Section 7.5.1 includes a discussion of proposed pedestrian improvements.

7.4.6 Bicycle Accommodations

The significant bicycle volumes in the area, the demand for bicycle parking and the heavy use of bike racks, previously described in Section 7.2.6, are expected to continue. As the City of Boston continues to add bike lanes, bike racks and other bicycle accommodations around the city, bicycle use by the Berklee community and others in the immediate neighborhood may increase in the future. In addition, the provision of student housing on-campus will introduce a need for bike storage for resident students.

Section 7.5.2 includes a discussion of proposed bicycle accommodations.

7.4.7 Loading and Servicing

As discussed in Section 7.2, Berklee is largely dependent on on-street loading and servicing today. However, with the exception of the IMP Projects themselves, it is not anticipated that there will be any overall increase in loading and servicing needs for the campus. For the IMP Projects, where additional floor area and uses will be added, the following general changes in loading and servicing needs are expected:

- For the **168 Massachusetts Avenue** project, there will be increased maintenance, delivery (goods, food supplies and mail) and trash removal needs associated with the new residential tower and the relocated and expanded dining facilities.

- Similarly, for the **Berklee Crossroads** project, there will be increased maintenance, delivery (building supplies and mail) and trash removal needs associated with the new residential component. Loading needs for the Berklee Performance Center are not expected to change significantly as the theater's capacity will be similar to the existing capacity.

- While there will be some increase in building floor space for the **161-171 Massachusetts Avenue** project, any associated increase in servicing and loading needs is likely to be off-set by the expected reduction in loading and servicing needs associated with the existing multi-tenant commercial space. Because that space will be occupied by only Berklee administrative/academic uses, it will be much more efficiently serviced as compared with the current multiple individual businesses.

Section 7.5.3 includes a discussion of proposed loading and servicing.

7.5 Project Mitigation and Transportation Improvements

In response to both existing transportation conditions and future needs, Berklee has developed a comprehensive package of mitigation and transportation improvements as part of this IMP submission. This section describes these proposals and strategies organized under the following four categories:

- Transportation infrastructure and operational improvements;

- Transportation demand management (TDM);

- Loading, servicing and operational management; and

- Short term impacts/construction management.

7.5.1 Transportation Infrastructure and Operational Improvements

Based on the evaluation of existing and future conditions for the IMP, it is apparent that the IMP and its specific projects are relatively traffic-neutral, and no adverse traffic impacts have been identified. The focus of transportation infrastructure and operational improvements is therefore on pedestrian and bicycle access and accommodations. Most of these improvements will be specific to individual IMP Projects, and therefore will be developed in conjunction with the development of each design and detailed during Large Project Review for each project subject to Article 80B (see Chapter 12 for improvements proposed as part of the 168 Massachusetts Avenue project).

In the context of the entire IMP, Berklee will explore the following categories of improvements in coordination with the BTD:

1. Widening and enhancement of sidewalks abutting or in close proximity to each project.

   There are many opportunities to enhance the pedestrian environment and alleviate existing constraints, including Berklee plans to widen sidewalks in front of 168 Massachusetts Avenue and adjacent to 150 Massachusetts Avenue. The removal of the addition to 150 Massachusetts Avenue will allow for the current 6.5 foot wide sidewalk along Belvidere Street to be expanded to approximately 16 feet, creating a pedestrian walkway and active edge along the south façade of 150 Massachusetts Avenue. These expansions of the sidewalk will provide a new location for students to congregate, likely reducing the concentration of gathering at the Berklee Beach. Also, as described in the Urban Design Section 5.2.7, the proposed facilities dedicated to student use in the Crossroads project will likely draw pedestrian traffic into the building away from new Berklee Beach and, when not in use, the lobby of the proposed Berklee Performance Center will be available for use by students, relieving congestion outside of 136 Massachusetts Avenue.

2. Improvement of pedestrian-related accommodations to improve safety and enhance the pedestrian environment.

   Berklee has recently been successful in efforts to provide shared neighborhood and college outdoor space through the development of new outdoor dining terraces on the south side of Boylston Street west of Massachusetts Avenue. Berklee's continuing stewardship in this regard will support further pedestrian and safety improvements in other areas of the campus.

3. Specific pedestrian improvements for the three study intersections.

   The Massachusetts Avenue/Belvidere Street/Haviland Street intersection will be studied as part of the 168 Massachusetts Avenue project, in particular the unprotected crosswalk on Haviland Street (See Chapter 12). Opportunities for improved pedestrian accommodations, both physical and operational, at the Massachusetts Avenue/Boylston Street intersection (and its connection to the Hynes Convention Center station) and the Boylston Street/Saint Cecelia Street intersection will be explored in conjunction with the Crossroads project. Also, as described previously in the Urban Design Section 5.2.7, the Crossroads project includes the realignment of the Boylston Street/Cambria Street intersection. Improved safety will be an integral part of the design of this project.

4. Enhancement of the pedestrian connection between the Berklee campus and the Hynes Convention Center MBTA station.

   In general, although there will be an increase in pedestrian circulation between the new dorms and other buildings, there will be a decrease in pedestrian trips to and from the campus by commuting students, both walking to campus and walking from transit. However, as noted previously, improvements of the Massachusetts Avenue sidewalk connection to the station, and the crossing of Boylston Street, will be explored as part of the Crossroads project, and the proposed facilities dedicated to student use in the Crossroads project and the lobby of the Berklee Performance Center are expected to draw pedestrian traffic into the building away from that section of sidewalk along Massachusetts Avenue.

5. Exploration of potential on-street bicycle lanes or other bicycle accommodations.

6. Provision of additional bicycle parking within public realm in the vicinity of each project.

   Consistent with its on-going collaboration between the City of Boston, private property owners, and the East Fenway Improvement Committee, Berklee will continue to work together to advocate for new City-provided and Berklee-installed bike racks at key locations. (See Chapter 12 for specific proposals for the 168 Massachusetts Avenue project).

7. Potential opportunities for locating a bicycle-sharing program facility.

7.5.2 Transportation Demand Management

Berklee actively supports efforts to reduce auto use by faculty and students traveling to the college campus. Because of Berklee's limited parking supply, space constraints, and close proximity to public transportation, the institution has already implemented a number of Transportation Demand Management (TDM) strategies. Berklee's policy of not providing parking for students or employees acts as the school's primary auto trip-reduction strategy, supported by commuter services and incentives that help commuters access the most cost-effective and efficient commuting modes. Specific initiatives to support this goal are actively implemented by the college, including the following:

- On-Site Transit Pass Program – Berklee provides the sale of MBTA transit passes on-site through payroll deduction, which enables employees to take advantage of the federal pre-tax benefits. Offering transit passes through payroll deduction enables employees to set aside pre-tax dollars under Section 132 toward their transit costs through the federal Commuter Choice Initiative. Based on the 2010 Rideshare Report, almost 54 percent of Berklee employees choose public transportation as their primary mode to work (up from 46 percent in 2006).

  Berklee provides a $15 per month or $180 per year transit pass subsidy as a pre-tax benefit to encourage staff to use public transportation options for commuting. All full-time staff (including directors, chairs, and President's Council members) are eligible for this benefit. Berklee staff members who sign up for the benefit will receive the subsidy only when they purchase their transit passes. The employee pays the difference between the cost of the pass and the subsidy with pre-tax dollars up to the IRS maximum and any additional cost with post-tax money. In addition to the transit pass subsidy for its employees, the college offers a transit pass subsidy of 10 percent for its students. The pass program is marketed via the college's website and orientation materials.

- Ride matching – Berklee offers a formal ride matching program through MassRIDES for commuters who are interested in carpooling. Ridesharing requests are entered into MassRIDES' database, where commuters are matched according to work schedule, degree of flexibility, and desired participation (i.e. ride only, drive only or share driving). The college promotes carpooling at student and employee orientations in order to recruit new registrants into the database and improve the likelihood of finding an appropriate match. According to Berklee's 2010 Rideshare Report, over 4 percent of faculty/staff car-pool, up from 2 percent in 2006.

- Bicycling incentives and amenities – Berklee provides bicycle racks in various locations throughout the campus and relies partially on racks installed in City-owned sidewalks proximate to its facilities. Berklee recently collaborated with the Boston Bikes program and invested $5,000 to install approximately 30 new bicycle racks on City sidewalks around the campus. In combination, there are currently more than 130 bicycle racks on Berklee property and nearby on city sidewalks.

- Information dissemination - Employees and students have access to transit schedules and routes using Berklee's intranet website. For route planning, commuters are directed to the MBTA's website, which assists potential transit users to identify the appropriate buses, commuter rail or subway lines for their commute. The college also distributes a listing of transit options during orientations and maintains a supply of schedules for all modes of public transportation in the Bursar's Office.

Berklee will continue to promote and improve its TDM program to benefit its faculty, staff and students. In an effort to discourage single-occupancy vehicle use, Berklee will continue to encourage commuters to use alternative modes of transportation, including public transit, carpooling, bicycling and walking. As no new parking will be provided as part of the IMP, and no material increase in auto-trip generation is expected, the benefits of TDM programs will continue to reduce Berklee-related traffic already on the local roadway network, yielding further improvements in mode choice as have been accomplished over the past five years or so.

7.5.3 Loading and Servicing

Berklee continually seeks opportunities to improve loading and servicing for its buildings throughout the campus, particularly in light of its heavy reliance on on-street facilities. However, specific attention will be given to the loading and servicing needs of the individual IMP Projects. In so doing, Berklee will explore opportunities for off-street loading and trash collection, and will employ management strategies to control the frequency and times of these activities.

The specific loading design and operation for each IMP Project depends substantially on the design of each project. It is not possible therefore to define specific proposals in the context of the entire IMP. Rather, opportunities and solutions must be explored as and when the specific design for each project is advanced. As the design of the 168 Massachusetts Avenue project is now moving forward, and a PNF is being submitted with this IMP submission, specific loading and servicing improvements are described for that project in the PNF, Chapter 12, including the provision of off-street, internal loading.

7.5.3.1 Move-in/Move-out Traffic Management

A new loading need will be introduced with the provision of student housing on the Berklee campus. Move-in activity typically occurs during Labor Day weekend at the beginning of September while move-out activity occurs more spread out during early May as students have completed their final examinations. Again, specific plans will be developed for each new residential location, as described in the PNF for the 168 Massachusetts Avenue project in Chapter 12. In general, during move-in/move-out operations, Berklee will rent parking meters spaces in the vicinity of the specific building for the two or three days during the school year when move-in/move-out occurs. Move-in/move-out will be restricted to certain times of day, depending on day-of-week. Campus security details will be on duty and the front of the buildings will be kept clear for move-in/move-out operations. Students will be required to find street or garage parking once their vehicle has been unloaded into the residence hall.

7.5.4 Construction Impacts and Mitigation

Berklee will develop a detailed evaluation of potential short-term construction-related transportation impacts, including construction vehicle traffic, parking supply and demand, and pedestrian access to the campus at the appropriate time for each of the IMP Projects. A detailed Construction Management Plan will be developed and submitted to the BTD for its approval at that time. The CMP will incorporate and define the following general procedures:

7.5.4.1 Construction Vehicle Traffic

Construction vehicles will be necessary to move construction materials to and from project sites. Berklee recognizes that construction traffic is a concern to area residents, other institutions, and to the college itself. Every effort will be made to mitigate noise, control fugitive dust, and minimize other disturbances associated with construction traffic. It is anticipated that Massachusetts Avenue and Boylston Street will most likely serve as the principal construction traffic routes to the Berklee campus, and that major scheduled deliveries will be routed to avoid nearby residential areas. Truck staging and lay-down areas for any projects will be carefully planned. The need for street occupancies to support future construction activities is not known at this stage.

7.5.4.2 Construction Parking

Contractors will be encouraged to devise access plans for their personnel that de-emphasize auto use (such as seeking off-site parking, providing transit subsidies, etc.). Construction workers will also be encouraged to use public transportation to access the project site because off-street parking will not be provided for them. Berklee will work with the BTD and the Boston Police Department to ensure that parking regulations in the area and in designated residential parking areas are strictly enforced.

7.5.4.3 Pedestrian Access during Construction

During construction periods, pedestrian access on Berklee's campus may need to be re-routed around the construction zones. A variety of measures will be considered and implemented to protect the safety of pedestrians traversing those portions of the campus affected by construction. Where necessary, protective barriers around the construction sites, replacement of walkways, appropriate lighting, and new directional and informational signage to direct pedestrians around the construction sites will be provided. After construction is complete, finished pedestrian sidewalks will be permanently reconfigured around the new facilities to connect to other parts of the Berklee campus and the neighborhood. This reconfiguration of pedestrian paths will be carefully considered as the design of each project proceeds.

7.5.4.4 Construction Monitoring

As the project progresses, Berklee will work with representatives of the City of Boston, its assigned Task Force and other neighborhood groups and organizations to develop and ensure the effectiveness of the measures to minimize short-term, construction-related transportation impacts.

Chapter 8.0

Historic Resources

8.0 HISTORIC RESOURCES

This chapter completed by Goody Clancy provides a discussion of historic resources in the vicinity of the Berklee campus and impacts to historic resources from Berklee's proposed IMP Projects.

8.1 Introduction

For the purposes of determining impact of the Berklee campus expansion on the neighborhood historic resources, it was first necessary to identify and inventory these resources. To accomplish this task, an area of approximately one-half mile radius was demarcated around the Berklee campus core (intersection of Massachusetts Avenue and Boylston Street) and a variety of historic resources (districts, buildings, landscapes, elements, etc.) were identified in this area. These resources have a variety of formal designations—some are recognized at the national level, some at the local level. Additionally, some are listed as historic districts, while some are listed as individual properties and others are included in Inventory of Historic and Archaeological Assets of the Commonwealth.

A Preservation Plan and Inventory Forms for Berklee's historic properties are including in Appendix E.

8.2 Historic Resources

The extents and locations of all the designated national, state and local historic districts are shown in Figure 8-1. Additional information about the districts can be found in Table 8-1.

8.2.1 Designated Historic Districts

Following is a brief discussion, in the context of the Berklee Campus, of the 15 districts that lie within/ intersect the one-half mile radius.

8.2.1.1 National Register of Historic Places (NHRP) Districts

There are eight districts in the one-half mile area that are on the National Register, namely:

Back Bay Historic District (designated 8/4/1973): The Berklee Campus abuts this District on the southwest and owns two buildings within it, namely 921 Boylston Street and 264-270 Commonwealth Avenue dormitory.

Fenway-Boylston Street Historic District (designated 9/4/1984): This district lies to the west of the campus core. Two Berklee-owned buildings are located here, namely, 1140 Boylston Street and 22 The Fenway.

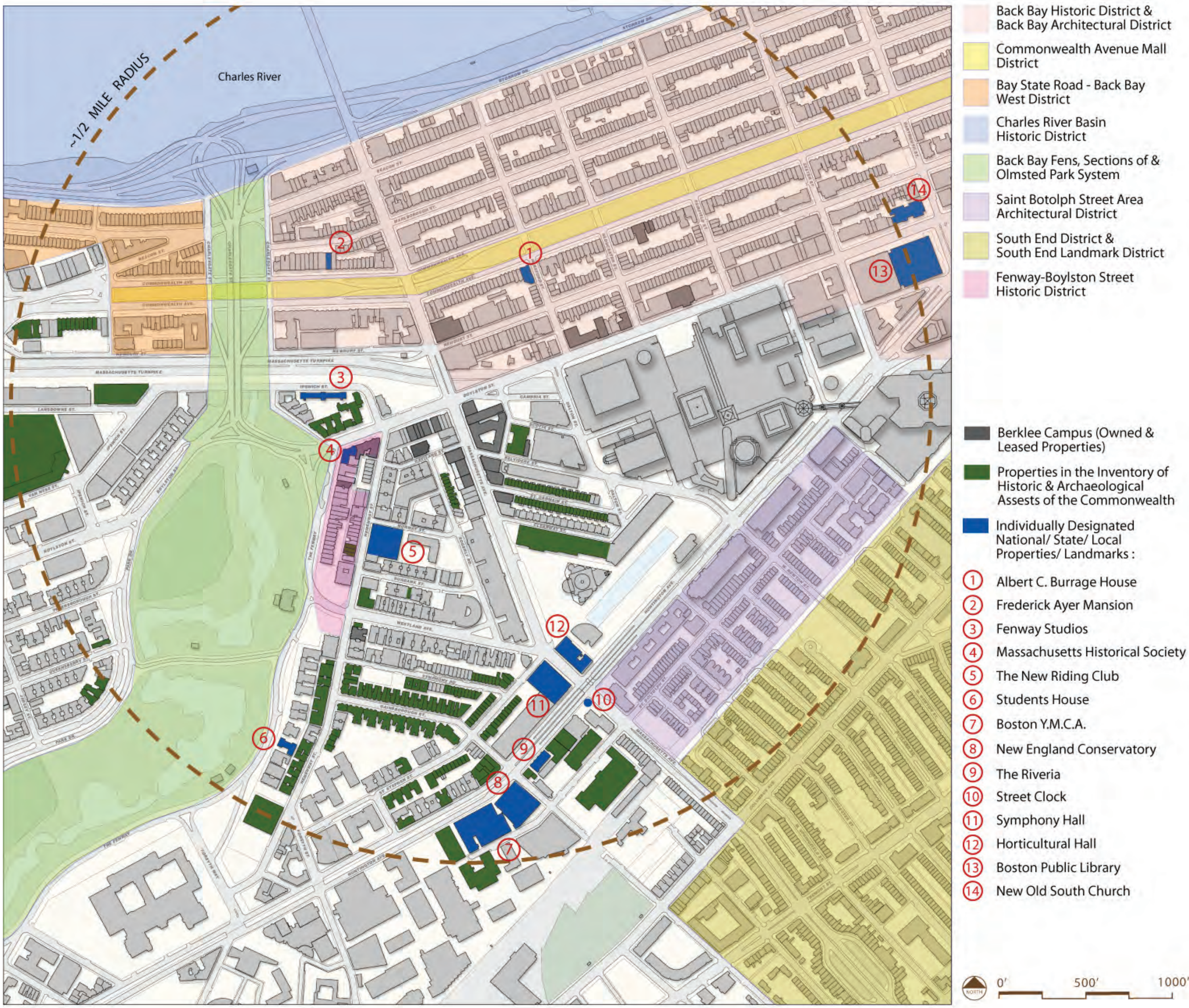

Figure 8-1
Historic Resources Within One-Half Mile Radius

Table 8-1 Designated Historic Districts within 1/2 Mile Radius

	Resource Name	Designation Type	Designation	Date of Designation	MHC Inventory ID
1	Back Bay Historic District	District	National Register of Historic Places	8/14/1973	BOS.BT
2	Back Bay Architectural District	District	Local Historic District	9/3/1966	BOS.BW
3	Commonwealth Avenue Mall	District	National Register of Historic Places	8/14/1973	BOS.BX
4	Commonwealth Avenue Mall	Individual	Local Landmark	4/25/1978	BOS.BX
5	Commonwealth Avenue Mall	District	Local Historic District	9/3/1966	BOS.BX
6	Charles River Basin Historic District	District	National Register of Historic Places	12/22/1978	BOS.CA
7	Bay State Road - Back Bay West Architectural	District	Local Historic District	11/8/1979	BOS.JC
8	Saint Botolph Street Area Architectural District	District	Local Historic District	11/10/1981	BOS.BV
9	Saint Botolph Street Area Architectural District	District	National Register of Historic Places DOE	9/5/1984	BOS.BV
10	South End Landmark District	District	Local Historic District	11/14/1983	BOS.AC
11	South End District	District	National Register of Historic Places	5/8/1973	BOS.AB
12	Back Bay Fens, Sections of	Individual	Local Landmark	11/1/1983	BOS.JD
13	Back Bay Fens, Sections of	District	National Register of Historic Places	12/8/1971	BOS.JD
14	Olmsted Park System- Emerald Necklace	District	National Register of Historic Places	12/8/1971	BOS.IO
15	Fenway - Boylston Street Historic District	District	National Register of Historic Places	9/4/1984	BOS.JF

Commonwealth Avenue Mall (designated 8/14/1973): The Mall is one of the principal urban landscape features of the Back Bay and the proximity of the Berklee Campus.

Charles River Basin Historic District (designated 12/22/1978): This district covers the Charles River and its related features such as the Esplanade.

Saint Botolph Street Area Architectural District (designated 9/5/1984): This district lies to the south-east of the Berklee campus core. Berklee does not own any properties within this district.

South End District (designated 07/1969): This district lies almost at the periphery of the one-half mile radius to the south-east of the Berklee Campus. Currently Berklee does not own any buildings that lie within the district.

Olmsted Park System (designated 12/8/1971): This district refers to the city-wide system of urban parks designed by renowned landscape designer Frederick Law Olmsted. The section that lies within the one-half mile radius of the Berklee campus is the Back Bay Fens discussed below.

Sections of Back Bay Fens (designated 12/8/1971): The Berklee campus is within a five minute walk of this historic park.

8.2.1.2 Local Historic Districts (LHD)

There are five local historic districts in the one-half mile area, namely:

Back Bay Architectural District (designated 9/3/1966): While it roughly covers the same area as the National Register district, the exact boundaries of the local district are slightly different. Both the Berklee-owned buildings (921 Boylston Street and 264-270 Commonwealth Avenue) lie within the local district.

Commonwealth Avenue Mall (designated 9/3/1966): The description of the local historic district is the same as of the National Register District in Section 8.2.1.1.

Bay State Road- Back Bay West Architectural (designated 11/8/1979): This district lies to the northwest of the Berklee campus core. Currently Berklee does not own any buildings that lie within the district.

Saint Botolph Street Architectural District (designated 11/10/1981): The description of the local historic district is the same as of the National Register District in Section 8.2.1.1.

South End Landmark District (designated 11/14/1983): The description of the local historic district is the same as of the National Register District in Section 8.2.1.1.

8.2.1.3 Local Landmark District

There are two districts that are also designated as local landmarks in the one-half mile area, namely:

Commonwealth Avenue Mall (designated 4/25/1978): The description of the local landmark district is the same as of the National Register and Local Historic District above.

Sections of Back Bay Fens (designated 11/1/1983): The description of the local landmark district is the same as of the National Register and Local Historic District above.

8.2.2 Designated Individual Historic Resources

Within a one-half mile radius of the Berklee campus core, there is a variety of cultural and natural features that are individually designated either as National Historic Landmarks, or as individual properties on the State and National Register of Historic Places, or as Local Landmarks. Notable among these is the Massachusetts Historical Society Building which is directly adjacent to the Berklee-owned building at 1140 Boylston Street.

All the individually designated historic resources are shown in Figure 8-1. Additional information about the resources can be found in Table 8-2.

8.2.3 Inventory of Historic and Archaeological Assets of the Commonwealth

In addition to the resources listed above, there are a number of other buildings and features in the one-half mile radius around the Berklee campus that are included in the MHC Inventory of the Historic and Archaeological Assets of the Commonwealth. All these historic resources are shown in Figure 8-1. Additional information about these resources can be found in Table 8-3.

8.3 Impact Assessment on Neighborhood Historic Resources

As indicated in the preceding section, there are a number of significant historic resources in the vicinity of Berklee. As the college expands, it is important to assess the impact (demolition, visual and shadow impacts, etc.) of this expansion and any new proposed development on the existing historic resources. The proposed development does not lead to the physical demolition or alteration of any components of the historic districts or individually listed properties within a one-half mile radius.

Within the scope of this IMP, Berklee has no plans to demolish or significantly alter any of its properties aside from those identified as proposed IMP Projects. As has been the case for all of its existing properties, Berklee remains committed to maintaining and upgrading its facilities and their surroundings to make them a valued part of the community.

Table 8-2 Individually Designated Resources Within 1/2 Mile

	Resource Name		Address	Neighborhood	Date of Const.	Designation Type	Designation	Date of Designation	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name											
1	Burrage, Albert C. House	Boston Evening Clinic	314 Commonwealth Ave	Back Bay	1899	Individual	Local Landmark	1/28/2003	Brigham, Charles A		Single Family Dwelling House	Architecture (Interior?)	BOS.3626
2	Frederick Ayer Mansion	Bayridge Residence and Cultural Center	395 Commonwealth Ave	Back Bay	1899	Individual	National Historic Landmark	4/5/2005	Manning, Alfred J.; Tiffany, Louis Comfort	Classical Revival	Business Office; Chapel; Doctor Or Dentist Office; Dormitory; Other Cultural; Single Family Dwelling House	Architecture; Art; Commerce; Health Medicine; Religion	BOS.3663
						Individual	Preservation Restriction	4/13/1999					
3	Fenway Studios Building		30 Ipswich St	East Fens; Fenway	1906	Individual	National Historic Landmark	8/5/1998	Parker and Thomas; Wells Brothers Company	Craftsman	Apartment House; Photography Or Art Studio	Architecture; Art; Commerce; Education	BOS.7500
						Individual	National Register Individual Property	9/13/1978					
						Individual	Preservation Restriction	7/27/2000					
4	Massachusetts Historical Society Building		1154 Boylston St	East Fens; Fenway	1899	Individual	National Historic Landmark	10/15/1966	Wheelwright, Edmund March	Colonial Revival	Library; Museum	Architecture; Education; Social History	BOS.7352
						Individual	National Register Individual Property	10/15/1966					
						Individual	Preservation Restriction	6/27/1997					
5	The New Riding Club	Badminton and Tennis Club	52 Hemenway St	East Fens; Fenway	1891	Individual	National Register Individual Property	8/20/1987	Sears, Willard T.; Woodbury and Leighton	English Revival	Abandoned or Vacant; Apartment House; Athletic Field Or Court; Clubhouse; Out Building; Sports Arena	Architecture; Recreation; Social History	BOS.7466

Table 8-2 Individually Designated Resources Within 1/2 Mile (Continued)

	Resource Name												
	Historic Name	Common Name	Address	Neighborhood	Date of Const.	Designation Type	Designation	Date of Designation	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
6	Students House	Northeastern University - Kerr, Harold H. Hall	96 The Fenway	East Fens; Fenway	1913	Individual	National Register Individual Property	9/11/1997	Kilham and Hopkins; Root, William A. & Henry A.	Colonial Revival	Clubhouse; Dining Hall; Dormitory	Architecture; Religion; Social History	BOS.7404
7	Boston Young Men's Christian Association Building	Boston Y. M. C. A. Building	312-320 Huntington Ave	East Fens; Fenway	1911	Individual	National Register Individual Property	8/20/1998	Shepley, Rutan and Coolidge; Woodbury and Leighton	Craftsman	Administration Office; Apartment House; Athletic Field Or Court; Auditorium; Chapel; Classroom; Clubhouse; Dormitory; Military Other; Sports Facility	Architecture; Education; Military; Recreation; Religion; Social History	BOS.7491
8	New England Conservatory of Music	Jordan Hall	290 Huntington Ave	East Fens; Fenway	1903	Individual	National Historic Landmark	4/19/1994	Starrett, Thompson Company; Wheelwright and Haven	Renaissance Revival	Auditorium; Private School	Architecture; Education; Music	BOS.7490
						Individual	National Register Individual Property	5/14/1980					
						Individual	Preservation Restriction	11/14/1995					
9	Riviera, The		270 Huntington Ave	East Fens; Fenway	1923	Individual	National Register Individual Property	12/7/1995	Coleman and Gilbert; Norcross, Frederick A	Classical Revival	Apartment House; Commercial Block	Architecture; Commerce; Community Planning	BOS.7489
10	Street Clock	Sidewalk Clock	333 Massachusetts Ave	East Fens, Fenway	?	Individual	Local Landmark	11/1/1983			Other Governmental or Civic; Other Road Related	Transportation	BOS.9297

Table 8-2 Individually Designated Resources Within 1/2 Mile (Continued)

	Resource Name												
	Historic Name	Common Name	Address	Neighborhood	Date of Const.	Designation Type	Designation	Date of Designation	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
11	Symphony Hall		301 Massachusetts Ave	East Fens; Fenway	1900	Individual	National Historic Landmark	1/20/1999	Caproni, Pietro; McKim, Mead and White; Norcross Brothers; Sabine, Wallace Clement	Classical Revival	Auditorium; Other Cultural	Architecture; Art; Engineering; Music; Performing Arts; Recreation	BOS.7524
						Individual	National Register Individual Property	5/30/1975					
						Individual	Preservation Restriction	3/26/2003					
12	Horticultural Hall		300 Massachusetts Ave	East Fens; Fenway	1901	Individual	National Register Individual Property	5/30/1975	Dodge, Charles A. Company; Wheelwright and Haven	Classical Revival	Library; Meeting Hall; Other Cultural	Architecture; Community Planning; Education; Engineering; Landscape Architecture; Recreation; Social History	BOS.7521
						Individual	Preservation Restriction	4/27/1978					
13	Boston Public Library		700 Boylston St	Back Bay	1888	Individual	Local Landmark	12/12/2000	Abbey, Edwin Austin; Abbott; de Chavannes, Puvis; French, Daniel Chester; LeMessurier Engineering; MacMonnies, Frederick; McKim, Charles Follen; McKim, Mead and White; Mora, Domingo; Saint-Gaudens, Augustus; Saint-Gaudens, Louis; Sargent, John Singer; Shepley, Bulfinch, Rutan	Renaissance Revival	Library	Architecture; Art; Community Planning; Education	BOS.2624
						Individual	MA Archaeo/Historic Landmark	1/16/1973					
						Individual	National Historic Landmark	2/24/1986					
						Individual	National Register Individual Property	5/18/1973					
						Individual	Preservation Restriction	1/16/1973					
						Individual	Preservation Restriction	2/25/1999					
						Individual	Preservation Restriction	12/1/2006					

Table 8-2 Individually Designated Resources Within 1/2 Mile (Continued)

	Resource Name		Address	Neighborhood	Date of Const.	Designation Type	Designation	Date of Designation	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name											
14	New Old South Church		635-645 Boylston St	Back Bay	1874	Individual	National Historic Landmark	12/30/1970	Clayton and Bell; Collens, Willis and Beckonert; Cummings and Sears; Ellis Company; McCreery and Theriault; Salviati and Company	High Victorian Gothic	Church	Architecture; Art; Religion	BOS.2653
						Individual	National Register Individual Property	12/31/1970					

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius

Address	Resource Name		Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name							
14-18 Belvidere St	Saint Cecilia Roman Catholic Church		East Fens; Fenway	c 1888	Bateman, Charles J.	Romanesque Revival	Church; Church Hall; Rectory	Architecture; Ethnic Heritage; Religion	BOS.7350
20 Belvidere St	Saint Cecilia's Roman Catholic Church Rectory		East Fens; Fenway	1914	Griffin, John F. Company; Sheehan, T. Edward	English Revival	Meeting Hall; Rectory	Architecture; Religion	BOS.15233
1103 Boylston St	Church of the Redemption (Universalist)	Saint Clement's Roman Catholic Church	East Fens; Fenway	1923	Allen and Collens; Soule, L. P.	Neo Gothic Revival	Church; Church Hall	Architecture	BOS.7353
1109-1111 Boylston St	Fenmore Apartments		East Fens; Fenway	1914	Ball, James T.; Bronstein, Morris; Tilden, Harry	Classical Revival	Apartment House	Architecture	BOS.7354, BOS.7355
58 Burbank St	Bawford, A. J. Store	Northeastern University Building	East Fens; Fenway	1915	Donahue, Peter; Stebbins and Watkins	Not researched	Abandoned or Vacant; Other Commercial	Architecture; Commerce	BOS.15525

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name		Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name							
504 Commonwealth Avenue	Vorenberg, S. House		Back Bay West	1897	Kelley, J. S.	Not researched	Single Family Dwelling House; Undetermined	Architecture	BOS.7271
506-508 Commonwealth Avenue	Jenkins, C. E. Row House		Back Bay West	1898	Peters and Rice; Willcutt, Lyman Davis	Colonial Revival; Row House	Apartment House; Other Commercial; Single Family Dwelling House	Architecture; Commerce	BOS.7272 , BOS.7273
510-524 Commonwealth Avenue	Fay, Eugene H. Row House		Back Bay West	1892	Fay, Eugene H.; Kelley, Samuel Dudley	Queen Anne; Row House	Apartment House; Other Commercial; Single Family Dwelling House	Architecture; Commerce	BOS.7274 to BOS.7281
536 Commonwealth Ave	Charlesview, The		Kenmore Square; Fenway	c 1910	Unknown	English Revival	Apartment House; Other Commercial; Restaurant	Architecture; Commerce	BOS.7368
542-548 Commonwealth Ave	Commonwealth Improvement Company Building	Shawmut Bank Branch Office	Kenmore Square; Fenway	c 1922	Unknown	Classical Revival	Bank; Commercial Block; Sports Facility	Architecture; Commerce; Economics	BOS.7369
12-30 Edgerly Road (even street nos. only)	Webber, John P. Row House		East Fens; Fenway	1893	Eaton, John F.; Wilde and Lord	Classical Revival; Queen Anne; Row House	Single Family Dwelling House	Architecture	BOS.7371 to BOS.7380
69-115 Gainsborough St (odd street nos. only)	Thomas - Pierce Apartment Building		East Fens; Fenway	1900	Clark, Edward W.; Vinal, Arthur Hoard	Colonial Revival	Apartment House	Architecture	BOS.7443 to BOS.7471
76-110 Gainsborough St (even street nos. only)	Thomas, Washington B. Apartment Building		East Fens; Fenway	1902	Clark, Edward W.; Vinal, Arthur Hoard	Colonial Revival	Apartment House	Architecture	BOS.7424 to BOS.7441
57, 59, 61 Hemenway Street	Thomas, David W. Row House		East Fens; Fenway	1895	Thomas, David W.	Colonial Revival; Row House	Single Family Dwelling House	Architecture	BOS.7477, BOS.7478, BOS.7479

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name		Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name							
109 Hemenway St	Gilligan, James T. Town House		East Fens; Fenway	1898	Gilligan, James T.; Watson, Robert A.	Colonial Revival; Queen Anne	Single Family Dwelling House	Architecture	BOS.7481
115 Hemenway St	Belgrade, The Apartments	Northeastern University - Kennedy Hall	East Fens; Fenway	1911	Altman, Cantor; Norcross, Frederick A.	Classical Revival	Apartment House; Dormitory	Architecture; Education	BOS.15514
114, 116, 118, 120 Hemenway St	Thomas, Washington B. Apartment Building		East Fens; Fenway	1900	Clark, Edward W.; Vinal, Arthur Hoard	Classical Revival	Apartment House	Architecture	BOS.7467, BOS.7468, BOS.7469, BOS.7470
119 Hemenway St	Euclid, The Apartments	Northeastern University - Kennedy Hall	East Fens; Fenway	1912	Norcross, Frederick A.	Classical Revival	Apartment House; Dormitory	Architecture; Education	BOS.15515
125-131 Hemenway St	New England Conservatory of Music Dormitory	Northeastern University - Smith, William L. Hall	East Fens; Fenway	1902	Abbott; Barker, Edward T.; Coolidge, Shepley, Bulfinch	Classical Revival	Barracks; Dining Hall; Dormitory	Architecture; Education; Military	BOS.15516
128 Hemenway St	Thomas, Washington B. Apartment Building		East Fens; Fenway	1902	Clark, Edward W.; Vinal, Arthur Hoard	Classical Revival	Apartment House	Architecture	BOS.7442
142-148 Hemenway St	Bowes, John W. Apartment House	Northeastern University Dormitory	East Fens; Fenway	1896	Bowes, John M.; Murray, James	Classical Revival	Apartment House; Dormitory	Architecture; Education	BOS.15517
153 Hemenway St	Bryant, The Apartments	Northeastern University - Loftman, Kenneth Hall	East Fens; Fenway	1910	Broomfield, Philip; Norcross, Frederick A.	Classical Revival	Apartment House; Dormitory	Architecture; Education	BOS.15518

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name: Historic Name	Resource Name: Common Name	Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
157-175 Hemenway St	Coleman - Gilbert Apartment House - Lincoln Hall	Northeastern University - Loftman Hall	East Fens; Fenway	1907-1909	Coleman and Gilbert; Coleman, Harry; Norcross, Frederick A.	English Revival	Apartment House; Dormitory	Architecture	BOS.7482, BOS.7483, BOS.7484, BOS.7485, BOS.7486
256-258 Huntington Ave	Boston University Theatre Production Centre	Childs Dining Hall Company - Back Bay Post Office	East Fens; Fenway	c 1915	Unknown	Classical Revival	Business Office; Commercial Block; Other Educational; Post Office; Restaurant; Theater	Architecture; Commerce; Education; Music; Politics Government	BOS.7487
264 Huntington Ave	Jewett Repertory Theatre	Boston Univ - Huntington Theater Co.	East Fens; Fenway	1924	Beal, John Williams and Sons; Shapiro, J. and Son	Classical Revival	Theater	Architecture; Education; Music; Performing Arts; Recreation	BOS.7488
288 Huntington Ave	YMCA Vocational Building - Botolph Building	Northeastern University - Cullinane Hall	East Fens; Fenway	1911	Unknown	Classical Revival	Administration Office; Classroom; Laboratory - Research Facility; Maintenance Facility; Printing Shop	Architecture; Education; Science	BOS.15513
291-301 Huntington Ave	Free Surgical Hospital for Women	Hotel Bartol - Gainsborough Building	East Fens; Fenway	1886	Appleton and Stephenson; Keeney, J. M. Company	Queen Anne	Business Office; Commercial Block; Food Processing and Packaging; Hospital; Hotel or Inn; Laboratory - Research Facility	Architecture; Commerce; Health Medicine; Industry; Science	BOS.7492

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name		Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name							
319 Huntington Ave	Hampton Hall Apartments		East Fens; Fenway	c 1915	Norcross, Frederick A	Classical Revival	Apartment House; Dormitory; Other Commercial	Architecture; Commerce; Education	BOS.15512
324 Huntington Ave	Northeastern University - Dodge, Robert G. Library		East Fens; Fenway	1950	Abbott; Coolidge, Shepley, Bulfinch; Sasaki Associates		Administration Office; Classroom; Dining Hall; Library	Architecture; Education	BOS.15511
330 Huntington Ave	Northeastern University - Science Hall	Northeastern University - Mugar Life Science Bldg	East Fens; Fenway	1941	Abbott; Coolidge, Shepley, Bulfinch; McCutcheon Company		Classroom; Laboratory - Research Facility	Architecture; Education; Science	BOS.15510
337 Huntington Ave	Coleman, Harry - Gilbert, Bernard Apartment House	Northeastern University Dormitory	East Fens; Fenway	1923	Norcross, Frederick A.	Classical Revival	Administration Office; Apartment House; Dormitory; Restaurant; Speciality store	Architecture; Commerce; Education	BOS.15509
346 Huntington Ave	Northeastern University - Student Center	Northeastern University - Ell, Carl Stephens Hall	East Fens; Fenway	1947	Abbott; Carlhian, Jean Paul; Coolidge, Shepley, Bulfinch		Auditorium; Chapel; Classroom; Community Center; Dance Hall; Dining Hall; Other Commercial	Architecture; Commerce; Education; Recreation; Religion	BOS.15508
360 Huntington Ave	Northeastern University - West Hall	Northeastern University - Richards Hall	East Fens; Fenway	1937	Abbott; Coolidge, Shepley, Bulfinch		Administration Office; Classroom; Dining Hall; Laboratory - Research Facility	Architecture; Education; Science	BOS.15507

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name: Historic Name	Resource Name: Common Name	Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
370 Huntington Ave	Northeastern University - Hayden Hall		East Fens; Fenway	1955	Abbott; Coolidge, Shepley, Bulfinch		Administration Office; Classroom; Laboratory - Research Facility	Architecture; Education; Science	BOS.15505
145-151 Ipswich St	Park Riding School	O'Brien, William Warehouse - Buck Printing Company	West Fens; Fenway	1900	Wheelwright and Haven	Victorian Eclectic	Printing Shop; Private School; Restaurant; Sports Arena; Sports Facility; Warehouse	Architecture; Education; Recreation	BOS.7501
210 Massachusetts Ave	The First Church of Christ, Scientist	Christian Science Plaza	East Fens; Fenway	1894		Classical Revival	Church		None
1 Norway St / Clearway Street	Christian Science Publishing Society Building	Christian Science Mapparium	East Fens; Fenway	1932	Churchill, Chester Lindsay	Classical Revival	Newspaper Office; Other Educational; Publishing Company	Architecture; Art; Communications; Religion; Social History	BOS.7532
61 Park Drive	Fen Drive Apartment Building		West Fens; Fenway	1920	Glazer, Barney; Jacobs, George Nelson	Classical Revival	Apartment House	Architecture	BOS.7552
65 Park Drive	Nashdome Apartment Building		West Fens; Fenway	1920	Glazer, Barney; Jacobs, George Nelson	Classical Revival	Apartment House	Architecture	BOS.7553
1 Queensberry St	Paine, Robert Treat Jr. Town House	Boston Vedanta Center	West Fens; Fenway	1901	Cummings, Charles Kimball	Colonial Revival	Monastery; Multiple Family Dwelling House; Single Family Dwelling House	Architecture; Philosophy; Religion	BOS.7585
238-262 Saint Botolph St	Boston Arena - Boston University Gymnasium	Northeastern University - Matthews Arena	East Fens; Fenway	c 1901	Funk and Wilcox		Barracks; Business Office; Police Station; Sports Arena	Architecture; Law; Politics Government; Recreation	BOS.15498

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name: Historic Name	Resource Name: Common Name	Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
241 Saint Botolph St	Industrial School for Crippled & Deformed Children	Cotting School for Handicapped Children	East Fens; Fenway	1903	McNeil Brothers; Peabody and Stearns; Stone & Webster Engineering Co	Classical Revival	Classroom; Printing Shop; Private School	Architecture; Education; Social History	BOS.7587
8-65 Saint Germain St	White, Thomas R. Row House (Varies)		East Fens; Fenway	1892-1897	varies	Queen Anne; Row House	Single Family Dwelling House	Architecture	BOS.7588 to BOS.7638
23, 25, 27 Saint Stephen St	Thomas, David W. Apartment Building	Tirrell, Jesse Apartment Building	East Fens; Fenway	1886	Thomas, David W.	Romanesque Revival	Apartment House	Architecture	BOS.7665 , BOS.7665, BOS.7667
28 - 86 Saint Stephen St	Whitney, Henry M. Row House		East Fens; Fenway	1884-1893	varies	Queen Anne; Romanesque Revival; Row House	Single Family Dwelling House	Architecture	BOS.7641 to BOS.7663
77 Saint Stephen St	Church of Messiah Protestant Episcopal Church	Saint Anne's Roman Catholic Church	East Fens; Fenway	1890	Grant, Melville; Plummer, R. T.; Rotch and Tilden	Victorian Gothic	Church	Architecture; Religion	BOS.7681
88 Saint Stephen St	Wood, B. F. Wood Music Company Building	National Braille Press Building	East Fens; Fenway	1920	Berry, James Lawrence	Classical Revival	Business Office; Furniture Factory; Printing Shop; Speciality store	Architecture; Commerce; Communications; Industry	BOS.7664
97 Saint Stephen St	Berenson, Maisha Apartment Building		East Fens; Fenway	1912	Abrams, Max; Silverman Engineering Company	Colonial Revival	Apartment House	Architecture	BOS.7682

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name: Historic Name	Resource Name: Common Name	Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
106-122 Saint Stephen St	Opera, The Apartments	Northeastern University - Levine Hall	East Fens; Fenway	1923	Norcross, Frederick A.	Classical Revival	Apartment House; Business Office; Dormitory	Architecture; Education	BOS.15496
1-1A Symphony Rd	Thomas, David W. Apartment Building	Tirrell, Jesse Apartment Building	East Fens; Fenway	1886	Thomas, David W	Romanesque Revival	Apartment House	Architecture	BOS.7668
3-15 Symphony Rd (odd street nos. only)	Thomas, David W. Row House	varies	East Fens; Fenway	1886	Thomas, David W	Queen Anne; Row House	Single Family Dwelling House	Architecture	BOS.7699 to BOS.7705
4-22 Symphony Rd (even street nos. only)	Tirrell, Jesse Row House (varies)	varies	East Fens; Fenway	1885	Lord and Fuller; Smith, William H.	Queen Anne; Row House	Single Family Dwelling House	Architecture	BOS.7686 to BOS.7695
32-42 Symphony Rd	Haynes, A. S. Apartment Building		East Fens; Fenway	1897	Cotter, Charles; Jones, T. E.	Queen Anne	Apartment House	Architecture	BOS.7696 to BOS.7698
74 Symphony Rd	Thomas, Washington B. Apartment Building		East Fens; Fenway	1900	Clark, Edward W.; Vinal, Arthur Hoard	Classical Revival	Apartment House	Architecture	BOS.7472

Table 8-3 Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth Within 1/2 Mile Radius (Continued)

Address	Resource Name		Neighborhood	Date of Const.	Architect(s)	Arch. Style	Use	Significance	MHC Inventory ID
	Historic Name	Common Name							
140 The Fenway	Forsyth Dental Infirmary for Children	Forsyth Dental Center	East Fens; Fenway	1914	Burnham, Roger N.; Graham, Edward Thomas Patrick; Hepburn, Andrew H.; Root, William A. & Henry A.	Classical Revival	College or University; Hospital; Laboratory - Research Facility; Private School	Architecture; Art; Community Planning; Education; Health Medicine; Science; Social History	BOS.7406
90 Westland Ave	Page, Charles J. Town House	Partridge Home Studio	East Fens; Fenway	1887	Page, Charles J.; Warren, Herbert Langford	Queen Anne; Romanesque Revival	Apartment House; Other Commercial; Photography Or Art Studio; Single Family Dwelling House	Architecture; Art; Commerce	BOS.7707
91 Westland Ave	Hemenway Chambers - Hotel Hemenway		East Fens; Fenway	1900	Lavalle, John; Robbins, Frank S.	Classical Revival; Colonial Revival	Apartment House; Other Commercial	Architecture	BOS.7708
24 Yawkey Way	Fenway Park		West Fens, Fenway	1912		Craftsman	Clubhouse; Sports Arena	Architecture; Recreation	BOS.7709

Pedestrian level view studies show that the proposed IMP Projects are visible from limited portions of the surrounding neighborhood districts and are seen as elements that visually step down in scale from points east to points west. Along the Boylston Street view corridor, the narrow dimension of the Crossroads building and significant setback from the streetwall help the project sit comfortably within its context and relate well to other buildings along Massachusetts Avenue

In terms of shadow impacts, studies were conducted to review the incremental shadows attributable to the 1) buildings built to the as-of-right zoning on the sites of the three Berklee IMP Projects, and 2) the proposed IMP Projects. Generally, the identified shadow impacts were localized, resulting in some incremental shadows to the west in the mornings and to the east at certain times of the year in the afternoon.

Impacts on Historic Districts

Some incremental shadows will be cast on the roofs of existing structures in the Back Bay Historic District up to Fairfield Street, and there are limited new shadows on the streets or sidewalks. The December shadow analysis revealed very limited impacts on the Commonwealth Avenue Mall District near the intersection of Massachusetts Avenue and Commonwealth Avenue. The shadows primarily impact the auto ramps and inaccessible grass medians for about one hour in winter mornings. A minimal area of the east and west sidewalks on either side of Massachusetts Avenue are similarly impacted during the same hour on winter mornings.

Impacts on Inventoried Properties

Nearly all of the Inventoried properties not within historic districts lie to the south of the proposed IMP Projects and therefore during most time periods studied, new shadow from the IMP Projects is not cast on inventoried properties in the area. New shadow from the 161-171 Massachusetts Avenue project does not impact inventoried properties during 12 of the 14 time periods studied. New shadow is cast on the rear portions of the inventoried properties on Edgerly Road during the mornings of March and June.

No new shadow from the 168 Massachusetts Avenue project and Crossroads project is cast on Saint Cecilia Church during nine of the 14 time periods studied. New shadow is cast on Saint Cecilia Church during the afternoon and evenings during five of the time periods studied. The Crossroads project is not expected to result in other shadow impacts on inventoried properties.

The inventoried properties on Saint Germain Street are free from new shadow during 10 of the 14 time periods studied. During three of the four time periods studied that indicate additional new shadow, the proposed project as well as a project built as-of-right on the 168 Massachusetts Avenue site would cast similar shadow on the Saint Germain Street properties, mostly the rooftops. The 6:00 pm time period in June is the only time period studied that the proposed 168 Massachusetts Avenue project will create new shadow beyond the as-of-right shadow on the Saint Germain Street properties. During this time period, as-of-right shadow and new shadow from 168 Massachusetts Avenue would be cast on the rear sides and rooftops of some of the properties on the north side of Saint Germain Street.

Chapter 9.0

Sustainability

9.0 SUSTAINABILITY

9.1 Introduction

Berklee College of Music shares the City of Boston's strong commitment to the principles of sustainable development and aims to incorporate a wide variety of sustainable initiatives in all its future projects. Berklee will consult with the BRA, the City of Boston Environment Department, and others to set environmental sustainability goals in the design of future campus projects.

Berklee values sustainability and environmental stewardship. One of the fastest growing sectors in the sustainability movement has been within the architecture and building trades. Likewise, Berklee's future projects aim to be environmentally conscious in design, construction and operation. The college's Physical Plant Department is actively involved in investigating and implementing environmentally responsible initiatives.

9.2 Article 37 – Green Building

During the past few years Berklee has researched and implemented sustainable practices, such as increased recycling and the incorporation of technologies to improve energy efficiency. The Physical Plant Department researches each sustainable strategy before implementation to understand the environmental and economic costs and benefits.

The college plans to measure its success in tangible terms, and through the framework of US Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. Berklee will use indicators such as reduced energy consumption, improved stormwater management, reduction in water usage, improved indoor air quality, and use of sustainable materials where possible to evaluate performance.

As required under Article 37 of the Boston Zoning Code – Green Building, the college intends to use the LEED checklist as a guidance document and consult with the Boston Redevelopment Authority in developing a sustainability plan for future campus projects at Berklee. Details on how the Berklee Crossroads project will comply with Article 37 will be provided in its Large Project Review documentation. Details on how 168 Massachusetts Avenue will comply with Article 37 are described in Section 12.7.

9.3 Recycling

Berklee currently recycles campus-wide, collecting mixed paper, plastics, glass, metal, cardboard, and surplus property. The college participates in several programs to pick up and measure its recyclable materials.

Save That Stuff

Berklee's cardboard recycling is collected weekly by Save That Stuff, Inc. Save That Stuff (www.savethatstuff.com) is a leading waste management company that helps New England businesses and institutions safely and efficiently get rid of paper recyclables and a wide variety of other recoverable scrap materials, while measuring the output of material by each participating client. Berklee is thus able to measure its cardboard output from month to month and year to year. In 2010, Berklee recycled 32 tons of cardboard.

Capital Paper Recycling (CPR)

For all recyclable materials except cardboard, Berklee contracts with Capital Paper Recycling, Inc. in Weymouth, MA. Berklee receives monthly reports from CPR detailing the amount of each material collected from the college.

Institution Recycling Network (IRN)

Berklee participates in the Institution Recycling Network's (IRN) Surplus Property program. IRN Surplus (www.irnsurplus.com) works with corporations and education and healthcare institutions across the country to redeploy surplus furniture, office and school furnishings, scientific and medical equipment, and building materials. The organization's mission is to match usable surplus of all sorts with charitable organizations that use it in disaster relief and development projects.

Berklee completed the first sweep of its storage facilities in early 2010, donating three trucks' worth of furniture and one truck's worth of electronics. The college intends to participate annually in the program, thereby reducing its need for storage of unused furniture.

Tork

Berklee purchases only Tork towel and tissue products, which are 100% recycled, Green Seal and EcoLogo-certified.

Single-Stream Recycling

Berklee plans to roll out single-stream recycling campus-wide in April, 2011. This will allow a single bin to accommodate non-soiled paper, cardboard, plastics #1-7, glass and metals. Trash will still be placed in a separate bin. Berklee anticipates that by making it easier for the community to recycle, more people will do so.

9.4 Energy Management Program

Berklee's Physical Plant office and the Sustainability Committee, a cross-departmental group of staff, work together to improve Berklee's use of resources by educating the Berklee community and researching and implementing sustainability initiatives. Over the past several years, Berklee has added automatic controls for heating, ventilation, and air conditioning equipment, updated lighting systems, and installed more efficient appliances, such as washers and dryers for the dorms. The college has reduced yearly energy usage by a third since the upgrades began in 2006.

Retrofit Program

The Mass Save Retrofit Program is a collaboration among Massachusetts energy providers to help commercial and industrial customers to replace aging, inefficient equipment and systems with energy-efficient technologies. Berklee has been participating in the Lighting Systems and Controls aspect of the program, having outfitted 150 Massachusetts Avenue and 1140 Boylston Street with sensor-operating lighting systems. The college intends to continue retrofitting its existing facilities with these lights to increase energy savings.

Computerized Maintenance Management System (CMMS)

Berklee uses a central control facility to control heating and air conditioning in many of its facilities. By operating these controls from a central source, the college maximizes the efficiency of its heating and cooling systems. Facilities that cannot be connected to the CMMS are outfitted with programmable thermostats that automatically revert to lower energy usage when spaces are not in use.

Berklee outsourced the measurement of its energy management initiatives from 2007 to 2009 (see Table 9-1). According to the results, Berklee achieved nearly $1.25 million in energy savings during those three years. Results illustrate a dramatic savings from improved control and scheduling of HVAC equipment, especially exhaust fans. The results also point to significant savings due to aggressive shutdown of facilities during the school break. Berklee's future efforts will focus on improving and scheduling controls in all major campus buildings. Building system improvements that Berklee has completed are included in Table 9-2.

Table 9-1 Estimated Energy Savings (2007-2009)

Year	Estimated Energy Savings	Estimated Cost Savings
2007	26,590 MMBTU	$346,000
2008	31,596 MMBTU	$485,000
2009	26,029 MMBTU	$410,000
Total 3-Year Savings	84,215 MMBTU	$1,241,000

Table 9-2 Building System Improvements

Campus Property	Completed Improvements
150 Massachusetts Avenue Complex (130, 136, & 150)	Kitchen exhaust fans operation automated to shut down at night. Twist timer control added to Berklee Performance Center (BPC) stage exhaust fan. De-lamping in dorm corridors corrected over-lighting, reduced energy use. Lobby lighting upgraded. Main Burners- Modulating Burner retrofit completed. Demand controlled ventilation and chilled water controls upgrade at BPC completed. Occupancy sensors installed in all dorm practice booths to control lights and fans.
155 and 168 Massachusetts Avenue	Installed programmable thermostats.
171 Massachusetts Avenue	New high efficiency rooftop unit replaced existing. Removed controls from occupants, optimized schedules. Occupancy sensors to be installed in practice booths to control lights and fans (planned or in progress).
921 Boylston Street	Revised and reprogrammed control systems to schedule each department according to occupancy. Scheduled all exhaust fans. Removed control of common area temperatures from occupants. Upgrades scheduled for summer include Vacuum Fluorescent Displays (VFDs) on hot water pumps and occupancy sensors for 20 VAV boxes serving the larger ensemble rooms (planned or in progress).
22 The Fenway	Scheduled replacement of rooftop units changed to high efficiency.
98 Hemenway	Installation of a new domestic hot water mixing valve. Motion Activated thermostats (planned or in progress).
899 Boylston Street and 25 Fordham Road	Removed control of space temperature from occupants, changed schedules.

Table 9-2 Building System Improvements (continued)

Campus Property	Completed Improvements
1140 Boylston Street	Replaced and upgraded selected controls, repaired OA dampers, installed override systems. Changed schedules and procedures to match occupancy and reduce equipment operating time. Installed time clocks on exhaust fans. Installed programmable thermostats on sixth floor equipment.
264-270 Commonwealth Avenue	Rebuilt steam traps. Mixing valve on domestic hot water. Miscellaneous insulation repairs and new insulation installation. Revised selected building control system components. Occupancy sensors installed in practice booths to control lights and fans.

9.5 Potential Future Sustainability Programs and Plans

Heating and Cooling

In 2010, Berklee hired The Fulcrum Group to do a comprehensive study of the college's facilities in terms of efficiency and energy use. The resulting report has provided the college with guidelines for updating campus efficiency by identifying "high-potential" facilities where upcoming capital investments have the maximum potential to improve energy efficiency in the future.

One such opportunity is the planned replacement of the existing gas-fired, single-stage steam absorption chiller that provides air conditioning to the 130/136/150 Massachusetts Avenue complex. Given the comparatively low efficiency and consequently high cost of operating this equipment that is approaching the end of its useful life, the college is investigating a more energy-efficient replacement system.

The installation of water-cooled modular electric chillers presently is being examined for not only the 130/146/150 Massachusetts Avenue complex, but also for the planned 168 Massachusetts Avenue development. Studies are ongoing to determine whether it is cost-effective, from both first-cost and operating cost perspectives, to consider development of consolidated cooling and possibly heating systems to serve both developments.

Wastewater

Berklee is currently testing low-flow showerheads to reduce water consumption and plans to install them in all existing and planned dormitories. The change would save an estimated 5,168 gallons of water per year.

White Roofs

Under Berklee's capital renewal program, three roofs of existing buildings have been replaced with energy-efficient "cool" white roofing. As more facility roofs need replacement, the college intends to continue the practice of installing cool roofs where possible.

Solid Waste

The college anticipates that its solid waste will be reduced in three main ways in the future:

- Implementation of single-stream recycling will increase the amount of recycling on campus, thus decreasing the amount of solid waste generated.
- The new dining hall at 168 Massachusetts Avenue is expected to incorporate the use of a pulper to extract water from the waste generated, thus reducing the volume of remaining solid waste.
- Berklee is currently investigating the possibility of composting all food waste. In this case, a vendor would pick up the compost several times a week for reuse as fertilizer.

9.6 Performance Standards and Indicators

As mentioned in Sections 9.3 and 9.4 above, Berklee works with a number of companies to quantify how much it recycles and the impact of its energy efficiency programs and efforts. Berklee will continue to work with these companies to help guide its future programs and to monitor its sustainability efforts.

Chapter 10.0

Economic Development

10.0 ECONOMIC DEVELOPMENT

10.1 Workforce Development

Berklee Employment

Berklee estimates that it employs a total of 286 residents of the City of Boston, including 170 staff, 109 faculty, and seven executives.

Berklee offers a number of programs in professional development for its workforce. An internal leadership development series is designed to give managers at Berklee the tools and skills they need to be effective.

Tuition assistance is provided for all full-time staff who have been employed by Berklee for more than six months. Berklee-provided programs are conducted on campus, and Berklee sponsorship for off-campus training such as conferences is available. Staff can also receive 75% tuition assistance up to an annual maximum for job-related courses with external education providers such as the Harvard Extension school. Berklee will provide 100% of the tuition for staff to take up to one Berklee course per semester.

Berklee is also a member of the ProArts Consortium, an association of six neighboring Boston institutions of higher education dedicated to the visual and performing arts. Its members include Berklee College of Music, the Boston Architectural College, The Boston Conservatory, Emerson College, Massachusetts College of Art, and the School of the Museum of Fine Arts. These institutions came together to form ProArts to promote the interconnectivity of the arts through expanded opportunities for its members and for the community. Students, staff, and faculty of the participating schools may enroll for free in courses provided by other members of the consortium.

Berkleemusic.com

Berkleemusic, the online extension school offered by Berklee College of Music, offers college-credit certificate programs which include over 50 different study options available in subjects including: songwriting, music production, arranging, theory, harmony, ear training, electronic music production, guitar, bass, keyboard, music theory, contemporary writing, home recording, and music business. Nearly 80 different instructor-led credit and non-credit courses are offered at Berkleemusic. Students may take individual classes or complete certificate programs.

The school also offers a job exchange in partnership with Billboard.com, featuring hundreds of music-related jobs and gigs available for search by the Berklee campus community and online students.

Chapter 11 includes a description of the Berklee City Music program and other School/College partnerships.

10.2 Creative Economy

Local Retail

The local economy in the immediate neighborhood of the Berklee campus is unique in its engagement with the life of the college. Several music-related businesses thrive on a clientele including students, faculty, and staff. Some of these include Bristol Studios, a recording facility; Upton Bass String Instrument Co., a double bass sales and repair shop; Daddy's Junky Music, a musical instrument and supply store; and Broken Neck Guitar Repair.

Other local businesses engage with the community as well. A great number of restaurants in the area accept the "Berklee card," the debit card used by students for off-campus meals and other expenses. One local chiropractor works with Berklee students on posture and alignment and offers special discounts to Berklee-affiliated clients.

Many of Berklee's properties contain ground-floor retail spaces, and the college continues to make efforts to attract businesses that enliven the street and add to the neighborhood. In the summer and fall of 2009, the college worked with the City of Boston and two other property owners to replace what had been poorly maintained, steeply sloped sidewalks with new, accessible sidewalks while providing terraces for outdoor dining opportunities. Concurrently with this work, Berklee expanded and relocated its bookstore from 1080 Boylston Street to 1090 Boylston Street, and has master leased a number of spaces to exciting new retail presences on the block. Among the implemented improvements to spaces leased and owned by Berklee are façade improvements, attractive signage, and outdoor seating to complement the new sidewalks and street trees. The project also received a grant from the ReStore Boston initiative towards the installation of new decorative railings.

Local Vendors

Berklee has contracts with two Boston-based vendors for maintenance, including Jet-A-Way Recycling and Waste Disposal (Roxbury) and Save That Stuff Inc. (Charlestown), as well as 13 additional vendors in the greater Boston area.

In addition, in Berklee's fiscal year 2010 (June 1, 2009 through May 31, 2010), academic and administrative departments spent an estimated $526,000 on college-related purchases from Boston retailers.

Berklee Performance Center

The most obvious of Berklee's business-generating cultural contributions to the neighborhood is the Berklee Performance Center (BPC), Berklee's flagship performance space and one of the most prestigious performance halls in Boston. The BPC seats 1,200 and hosts approximately 200 events per year, including concerts by talented students, faculty, and visiting artists, as well as a wide variety of productions presented by outside promoters, arts presenters, and community organizations. Events at the BPC span every musical genre and represent a broad range of countries and cultures, from traditional artists to contemporary innovators defining the future of music. Because of the large number of performances occurring at this venue, there is consistent demand for retail dining in the area, and new restaurants continue to enter the market in this neighborhood to cater to the Berklee community during the day and BPC patrons in the evening.

Recording Studios

The proposed project at 168 Massachusetts Avenue includes a number of new recording studios that will be added to the Berklee inventory. The college intends to make these spaces available for rent during times when they are not in use for educational purposes. In doing so, Berklee hopes to attract area musicians to take advantage of state-of-the-art recording facilities and to interact with the college community.

Innovative Partnerships

Berklee will continue to explore opportunities with the City of Boston in support of its multi-faceted efforts to help build and expand a competitive and sustainable local economy. Berklee graduates have great potential to contribute creatively to the diverse array of innovative businesses in the Boston area. The college intends to encourage collaboration among Berklee students and alumni and relevant entrepreneurial avenues in the ever-changing music industry, as well as in other key areas of music technology innovation such as video game production and scoring.

Chapter 11.0

Community Benefits

11.0 COMMUNITY BENEFITS

11.1 Introduction

Berklee College of Music's 4,000 FTE on-campus students and approximately 500 faculty members function in an environment designed to provide the most complete learning experience possible, including innumerable opportunities and challenges presented by a career in the contemporary music industry. Among these challenges is the need to develop an appreciation and understanding of the value of musical service to community and culture. The President's Office of Education Outreach was established in 1990 to buttress the community service aspect of the college's mission and to provide meaningful programs for student participation. Berklee has a rich tradition of voluntary financial and professional support of community programs within the Back Bay and Fenway neighborhoods, as well as the entire city, and of providing the City with Payment in Lieu of Taxes (PILOT) and property taxes for its citywide use. This chapter provides an overview of how Berklee's mission supports the City of Boston with a wide array of successful initiatives.

11.2 Community Programs Financial Support

Tables 11-1 and 11-2 contain breakdowns of cash and in-kind contributions that Berklee made to municipal and community-based non-profit organizations in Boston. The first table summarizes contributions made in the period of July 1, 2009 through June 30, 2010. The second summarizes total contributions since 1990. The programs featured in the tables are described in detail within this chapter. This current level of support is well beyond (more than 20 times) the service contribution required of the college in its PILOT agreements.

Table 11-1 Community Programs Financial Support for FY 2010 (July 1, 2009 – June 30, 2010)

Community Program	Financial Support
Scholarships	$1,524,784
Community Grant Program	$31,000
Community & Educational Services	$510,136
Instrument and Equipment Donation Program	$63,288
Community Service Work-Study Program	$85,346
Total	**$2,214,554**

Table 11-2 Community Programs Financial Support Since 1990

Community Program	Financial Support
Scholarships	$11,101,470
Community Grant Program	$434,624
Community & Educational Services	$1,739,486
Instrument and Equipment Donation Program	$674,855
Community Service Work-Study Program	$610,086
Total	**$14,560,521**

11.3 Financial Payments to the City of Boston

In addition to financial support provided by Berklee though its community programs, the college has a history of making voluntary Payment in Lieu of Taxes payments on its buildings, and Berklee makes property tax payments on commercial property it owns and leases (see Table 11-3). The college has been recognized regularly by the City for its commitment to the PILOT program. Neighborhood groups, including the Task Force, have recognized Berklee's efforts that, on a per square foot basis, are at the highest level of any college in Boston. Furthermore, the college makes property tax payments on space it leases through applicable property owners. Berklee pays additional property tax payments to the City for some uses of its space that are deemed by the City's Assessing Department to be taxable, such as a portion of the use of the Berklee Performance Center by external groups and a small retail space in the 150 Massachusetts Avenue building currently used by the college's contracted security firm.

Table 11-3 Property Taxes and PILOT for FY 2010

	Amount
Berklee-Owned Properties	
PILOT Payments	$270,304
Property Taxes – Commercial Use	$255,679
Berklee-Leased Properties	
Property Taxes Paid by Berklee	$214,186
Property Taxes Paid by Owner (estimate)	$291,993
Total	**$1,032,162**

11.4 Berklee City Music Program

Berklee City Music (BCM) is a nonprofit education program that harnesses the energy of contemporary music to reach underserved 4th to 12th graders. Students dedicate themselves to building their musical talent, their self-confidence and, in the long run, the strength of their communities.

City Music is available at no cost to youth in Boston, Cambridge, Chelsea, Lawrence, Lynn, and Somerville. With year-round instruction, expert faculty, individualized mentoring, and a comprehensive curriculum, students are set up for success. Berklee City Music combines a breadth of resources, facilities, and available scholarships with an environment of attention and encouragement. Kids get the tools and support they need to flourish as students, musicians, and individuals ready to shape their world. Berklee City Music has demonstrated, through 20 years of caring instruction and thousands of success stories, that it quite literally has the power to change lives.

Over 2,100 youth have participated in the Berklee City Music Program, over 80 percent of whom are from Boston. Since its launch in 1991, BCM has grown with inspiring vigor, establishing a continuum of learning that comprises the Music Mentoring Program, City Music Preparatory Academy, City Music High School Academy, the Summer Scholarship, City Music College Scholarship, Faculty Outreach Program, and the City Music Network.

Music Mentoring Program

The City Music Mentoring Program provides music theory classes and one-on-one instrumental and vocal coaching to students in grades 7 through 12 and helps foster confidence and discipline throughout the school year. All programming takes place on the Berklee campus after school hours on weekdays. Students who are active in the mentoring program often continue their studies in the Berklee Five-Week Summer Performance Program.

City Music Preparatory Academy

The City Music Preparatory Academy is a more comprehensive program for students in grades 4 through 8, combining the PULSE music curriculum with activities that introduce students to both the college experience and the High School Academy. Programming takes place at the Boston Arts Academy on Saturdays.

City Music High School Academy

The City Music High School Academy is an advanced, intensive program for continuing City Music students. It brings the Berklee experience into the lives of promising young musicians in grades 9 through 12. Most graduating seniors go on to study at various institutions around the country, including Berklee College of Music.

City Music Summer Scholarship

City Music Summer Scholarship gives students in the Berklee City Music program an opportunity for a full scholarship to the Berklee Five-Week Summer Performance Program, where they get a leg up on their musical and college pursuits.

City Music College Scholarships

The City Music College Scholarship gives Berklee City Music graduates an opportunity for a full scholarship to attend Berklee College of Music. The scholarship is an opportunity for students to pursue their dreams and aspire to excel in music as a career. In the summer of 2010, full-tuition Continuing Scholarships were awarded to 14 graduating high school seniors in the City Music program, nine of whom are from Boston.

Faculty Outreach Program

City Music places faculty members at select Boston Public Schools (BPS) partner-sites to support BPS resident music instructors and provide supplemental music instruction for the schools' students. Eighteen faculty positions currently provide 89 hours of instruction per week at five schools: Orchard Gardens K-8 Pilot School, Roland Hayes School of Music, Boston Arts Academy, Charles Sumner Elementary School, and the William Ohrenberger Elementary School.

Berklee City Music Network

The Berklee City Music Network connects Berklee City Music in Boston with like-minded programs all over the country, including Washington, D.C., Los Angeles, New Orleans, and Seattle. The goal of the network is to provide youth with every opportunity to see their musical potential. This includes teaching and mentoring by Berklee graduates who live in their city, opportunities to study with peers in Boston, and scholarships to continue their studies at Berklee.

City Music continues to be an avenue for Boston high school students to attend Berklee College of Music and to pursue their dreams of becoming musicians, teachers, arrangers, composers—wherever their talent takes them.

Since its establishment in 1990, the program has awarded over $11 million in student scholarships to Boston resident musicians. It is proud to have played a role in the lives of this select group of talented youth and will continue helping them fulfill their dreams. This entails not only providing them with an education in their passion, but also demonstrating how this passion can fuel a career. With each new year, the office is able to help growing numbers of young and talented musicians attain successful careers in the music industry. And once scholarship recipients take the first step—a college education—they can take off and soar.

11.5 School/College Partnerships

11.5.1 Boston Arts Academy/Pro Arts Consortium

The Boston Arts Academy (BAA) located at 174 Ipswich Street, within walking proximity to Berklee's campus, is a collaborative project of the Boston Public Schools and the Professional Arts (Pro Arts) Consortium. The Pro Arts Consortium is a group of six Boston institutions committed to advancing arts education in the public schools. Among its members are Berklee College of Music and five other arts-related institutions of higher education.

The Boston Arts Academy, the only public school of its kind in the Boston metropolitan area, offers high-level training in visual and performing arts. Since opening its doors in August 1998, the Academy and its faculty have received numerous awards and accolades. Berklee College of Music provides on-going programmatic support by hosting the BAA Winter Festival at the Berklee Performance Center, providing instrument and equipment donations, scholarships and cross-registration to BAA students, advising, faculty, and work-study employees. In addition, Berklee's City Music Saturday Preparatory School for grades 6 through 8 has been housed at the Academy since its inception in the year 2000. Berklee is one of the founding institutions of this high-profile educational jewel.

11.5.2 Roland Hayes Division of Music

Roland Hayes Division of Music serves students of Madison Park Vocational High School and the John D. O'Bryant School of Math and Science. Berklee has had a close relationship with the school since its inception. Berklee's founder and first president, Lawrence Berk, advised Boston Public Schools on the design of the Roland Hayes facility which was the first step in the development of a long standing relationship. Over the years, Berklee has partnered on teacher training programs, grant acquisitions, curriculum development and the provision of scholarships to Roland Hayes students. In addition, the school is one of the sites for both the City Music Faculty Outreach Program and the Community Service Work-Study Program. Berklee regularly hosts students from Roland Hayes for concerts, clinics, and other music related educational programs.

11.5.3 Boston Public Schools Arts Department

Berklee partners with the Boston Public Schools Arts Department for a variety of programs. Every year, the college hosts the BPS Instrumental Festival, provides the opportunity for BPS bands to perform in the Berklee High School Jazz Festival and the pre-festival workshop, develops special events, donates equipment and advises on program development. In addition, the BPS Arts Department helps to identify sties for the placement of student teachers from Berklee's Department of Music Education.

11.6 Office of Community Affairs and Campus Engagement

The Office of Community Affairs and Campus Engagement (CACE) manages Berklee's institutional partnerships and programs that contribute to the cultural, educational, and artistic development of the Boston area. These efforts are based on the principle that institutions of higher education realize their greatest potential when they serve as fully committed members of the local community.

Berklee encourages its students to appreciate and apply music as a force for the enrichment of society and intercultural understanding, and CACE provides a vehicle for musicians to put this philosophy into practice. CACE aligns the college with local residents, municipal and state agencies, non-profit organizations, businesses, property owners, and other cultural and educational institutions. Through these partnerships, member organizations share stewardship of the community, provide music education programming for local youth, present musical performances in public parks, and include Berklee students, faculty, staff and alumni in the empowerment of Boston area neighborhoods.

Through the following CACE programs, Berklee and Boston residents have the distinct privilege of co-creating a city, a culture, and an institution that are vitalized by the integration of music into daily life.

Community Service Work-Study Program

The Community Service Work-Study Program is the most highly engaging student-centered outreach initiative of the college. The college developed this program to provide meaningful off-campus employment through which students gain valuable professional experience and educational enrichment while earning much needed income. Partner organizations benefit also via the provision of staff and the transfer of skills that occurs between the student-employees and the community members participating in the on-site programs. In 2010, Berklee donated $85,346 of workstudy time through this program.

Neighborhood Improvement Committee

In addition to facilitating community building and youth enrichment programs throughout the Boston area, the Office of Community Affairs and Campus Engagement manages various relationships with the City of Boston and residents of the Fenway and Back Bay. This work reflects the commitment to actively serve as a resource for the well-being of the neighborhood that Berklee calls home. Recently, Berklee facilitated the creation of an East Fenway neighborhood group including local residents, organizations, and businesses to collaborate on issues affecting the immediate area, and the college continues to host ongoing meetings of this group.

Neighborhood Youth Music Consortium

The Office of Community Affairs and Campus Engagement partners with the Music and Youth Initiative and several other youth development organizations in Boston to provide free neighborhood-based music education programming for youth of ages 6 to 18. Berklee and its partners contribute the financial and human resources needed to serve over 500 young people every week at the Blue Hill Boys & Girls Club (Dorchester), West End House Boys & Girls Club (Allston), the Hyde Square Task Force (Jamaica Plain), Sociedad Latina (Mission Hill), The Yawkey Club of Roxbury (Roxbury), and the Boys & Girls Clubs of Dorchester (Dorchester).

Urban Outreach Performance Program

Through the Urban Outreach Performance Program, the college's Ensemble Department and the Performance Division bring educational concerts to local public schools and community centers. Performances are designed to stimulate interest in the study of music, encourage local youth to consider higher education, and inform them about opportunities to enroll in the college's award-winning youth program, City Music. Participating Berklee students work closely with faculty to experiment with repertoire, sharpen performance skills, and prepare for careers as professional musicians.

Community Concert Series

The Community Concert Series has two components designed to create public access to professional musical performances. Through the first component, Berklee collaborates with community agencies and the City of Boston to produce concerts in neighborhood parks and other free public venues. Productions include the Tito Puente Latin Music Series, Jazz at the Fort, and Swingin' in Mother's Rest. The second component donates tickets to public schools, neighborhood residents and non-profit organizations for performances at the renowned Berklee Performance Center, Café 939 and other campus venues.

Community Grant Program

The Community Grant Program opens Berklee's doors to organizations dedicated to providing public service through the arts. In-kind grants are awarded to subsidize rental fees, enabling recipient organizations to hold events at Berklee's world-class venues such as the Berklee Performance Center, Café 939 and the David Friend Recital Hall. In 2010, Berklee awarded the equivalent of $31,000 through this program.

Berklee Instrument and Equipment Donation Program (BID/BED)

The BID/BED Program provides quality computer hardware, musical instruments and production equipment to the music education programs of public schools and partner-organizations. To maximize community impact, donations are most often made to sites where Berklee work-study employees, faculty and alumni serve in outreach positions. Berklee estimates that the value of its 2010 contributions totaled $63,288.

The Movement @ Berklee

The Public Service Through Music Program facilitates student, faculty, staff and alumni volunteer initiatives that feature music as a medium for social change. Volunteers collaborate with partner organizations to conduct a broad range of activities including youth mentorship, performance outreach, and musical instruction.

11.7 Gifts and Donations

In addition to the many items that are donated, Berklee also provides monetary gifts and contributions to local organizations. Recipients include the Fenway Community Development Corporation, the Health Careers Academy, Dimock Community Health Center, ABCD Parker Hill/Fenway, Children's Hospital, Boston Arts Academy, Boston Chinatown Neighborhood Center, Our Place Theatre Project and sister institutions such as Roxbury Community College and Massachusetts College of Art. The college recently supported the effort to re-introduce native plant species in Mother's Rest led by the Greenway Conservancy on behalf of the Fenway Civic Association. Such gifts typify Berklee's ongoing commitment to investing in its community.

11.8 Music Therapy Senior Outreach Initiative

The Music Therapy Senior Outreach Initiative was established as a community service learning (CSL) project by the Peterborough Senior Center, the Fenway Community Development Corporation, and Berklee's Music Therapy Department. Every Thursday during the academic year, students enrolled in the Music Therapy Department work with local seniors to produce what participants warmly refer to as "The Berklee Sing Along". In reality, the events are far more than casual sing-alongs. Rather, they are directly tied to the coursework of the students and are a means to promote meaningful relationships and social engagement for local seniors.

11.9 Berklee BeanTown Jazz Festival

The ever-expanding Berklee BeanTown Jazz Festival stretches over several days in September and features 20 bands and 130 musicians on 10 stages. While the ticketed concerts attracted large crowds, the free outdoor portion of the festival along Columbus Avenue draws an estimated 80,000 attendees and praise from local news sources. In 2010, $258,567 went toward the production of free music and activities for the free outdoor portion of the Festival.

11.10 Berklee Presents: Summer in the City

Each summer, Berklee's Office of External Affairs collaborates with local organizations to produce free concerts in public venues. Each concert showcases high quality musical artists and draws Boston's residents and visitors to some of the City's unique locales such as Spectacle Island, Georges Island, Jamaica Pond, and the Institute of Contemporary Art. Berklee's contribution to produce the 2010 series totaled over $9,000.

11.11 Linkage

Berklee College will make linkage payments as applicable pursuant to Article 80B-7.

Chapter 12.0

168 Massachusetts Avenue

12.0 168 MASSACHUSETTS AVENUE

12.1 Project Description

As noted in Chapter 1, increasing the number of available dormitories on campus will improve retention rates, enhance the quality of life for Berklee students, and strengthen collaboration and community-building within a highly diverse student body. More on-campus housing will also make the college more attractive to international students and female students. College officials, neighbors, and the City of Boston have agreed that Berklee should strive to house approximately half of its students; accomplishing this goal will require accommodations for an additional approximately 1,200 people.

In an effort to begin to address this goal, Berklee is proposing the 168 Massachusetts Avenue project. This chapter includes a description of the project site, its surroundings and the environmental impacts of the project.

12.1.1 Project Site

As previously described, acquired in the spring of 2009 from an affiliate of The First Church of Christ, Scientist, the buildings at 154-174 Massachusetts Avenue (with approximately 15,000 sf of existing space) provide an opportunity for Berklee to address its most pressing housing and academic needs. The site is bounded by Belvidere Street to the north, Saint Germain Street to the south, Massachusetts Avenue to the west, and an alley to the east. The site is approximately 14,141 sf and currently includes a McDonalds, another restaurant and administration and classroom space for the college. The existing buildings will be demolished to allow construction of the new project.

12.1.2 Development Program

Referred to collectively as 168 Massachusetts Avenue, the project proposes an approximately 155,000-sf mixed-use building that will accommodate a new approximately 370-bed residence hall, 400-seat campus dining facility and student performance venue, music technology spaces, and ground floor retail. The building will be approximately 192 feet tall. Information about the urban design aspects of the project can be found in Section 5.2.5. Figures 12.1-1 to 12.1-6 show renderings and elevations of the project. Preliminary floor plans are provided in Appendix F.

Berklee
college *of*
music

Institutional
Master Plan

Figure 12.1-1
Rendering
Looking South

William Rawn Associates
Architects, Inc.
Boston, MA

Berklee
college of
music

Institutional
Master Plan

Figure 12.1-2
Rendering
Looking North

William Rawn Associates
Architects, Inc.
Boston, MA

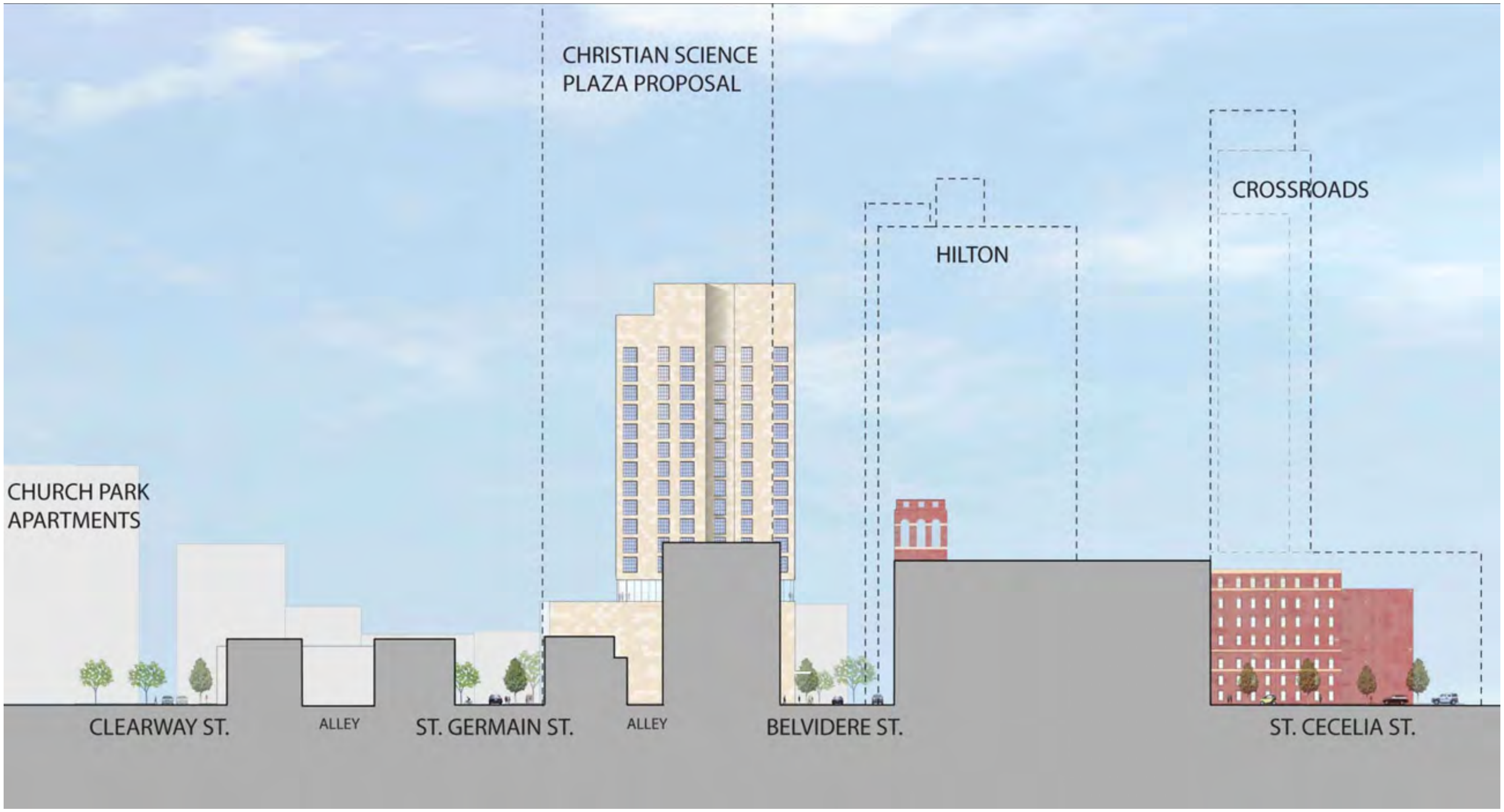

Figure 12.1-3
East Elevation

William Rawn Associates
Architects, Inc.
Boston, MA

Berklee college of music

Institutional Master Plan

Figure 12.1-4
North Elevation

William Rawn Associates
Architects, Inc.
Boston, MA

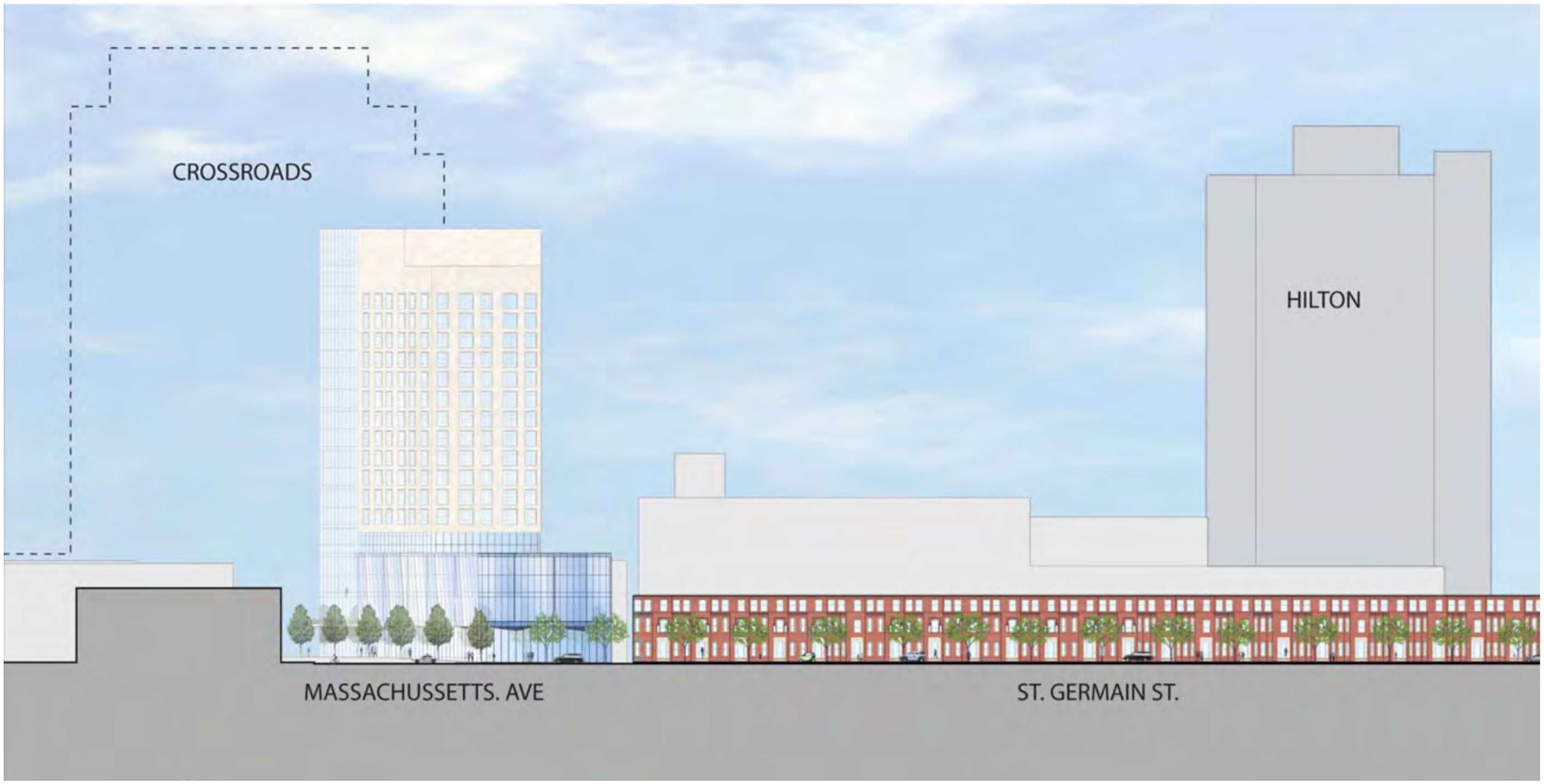

Figure 12.1-5
South Elevation

William Rawn Associates
Architects, Inc.
Boston, MA

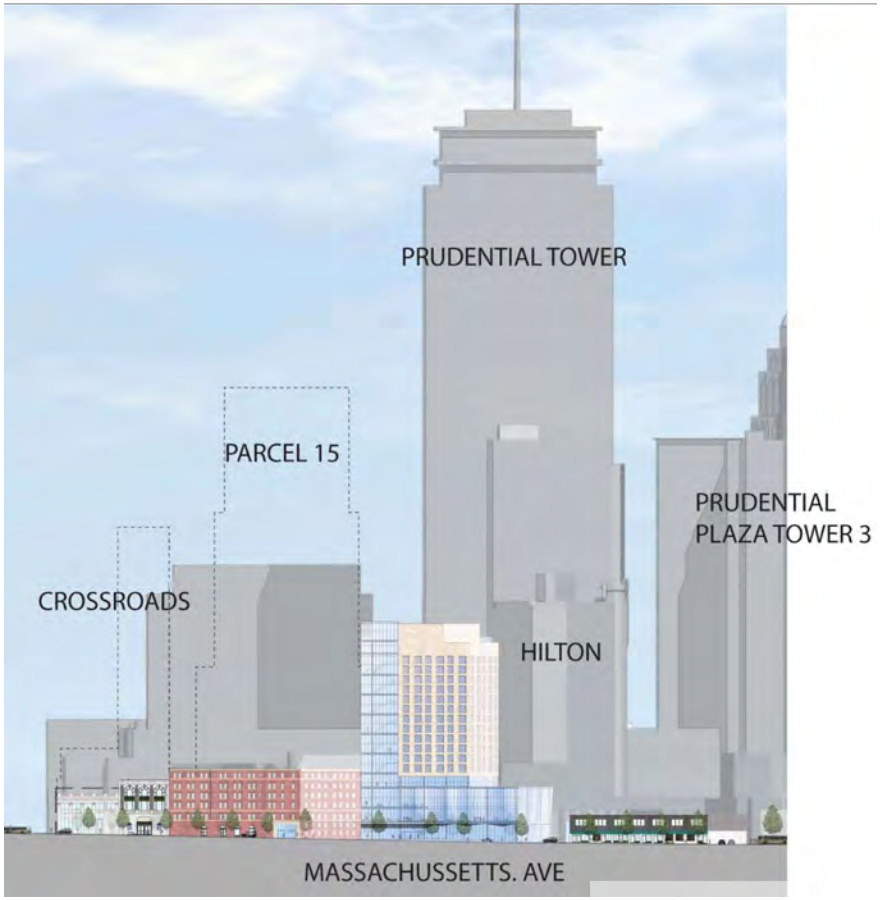

Figure 12.1-6
West Elevation

William Rawn Associates
Architects, Inc.
Boston, MA

12.2 Legal Information

12.2.1 Legal Judgments Adverse to the Proposed Project

Berklee is unaware of any legal judgments or actions pending that concern the project.

12.2.2 History of Tax Arrears on Property

Berklee is not in tax arrears in connection with any property owned within the City of Boston.

12.2.3 Evidence of Site Control/Nature of Public Easements

By deed dated April 16, 2009, recorded at the Suffolk County Registry of Deeds in Book 44815, Page 48, Berklee College of Music, Inc. acquired fee title to the project site from the Church Realty Trust.

Based on the completed survey of the project site, there are no public easements into, through, or surrounding the project site.

12.2.4 Consistency with Zoning Regulations

Large Project Review

Because the project involves new construction in excess of 50,000 square feet of Gross Floor Area, the project is subject to Large Project Review. Under the Mayor's Executive Order dated October 10, 2000, and amended on April 3, 2001, regarding mitigation for development projects, the Mayor may appoint an Impact Advisory Group to advise the BRA on mitigation measures for projects undergoing Large Project Review. In connection with the project's Large Project review, the project will also be subject to: (i) Boston Civic Design Commission review; (ii) the green building requirements of Article 37 of the Code; and (iii) Groundwater Conservation Overlay District requirements.

Zoning District

The project site is located within the Massachusetts Avenue/Belvidere Street Protection Area (the "Mass Ave Protection Area") of the Huntington Avenue/Prudential Center District (Map 1D), and also within the Restricted Parking Overlay District and the Groundwater Conservation Overlay District. Zoning relief will be required in connection with the project, and is anticipated to be obtained via approval of Berklee's Institutional Master Plan.

Uses

Pursuant to the Code's Section 41-17 and Appendix B to Article 41: (i) the project's first floor retail uses are either allowed as-of-right or conditional (with respect to certain restaurant uses); and (ii) the project's music technology, cafeteria and dormitory uses are conditional college or university uses. The project's uses will accordingly require zoning relief. Although the project site is located within the Restricted Parking Overlay District, the project will include no off-street parking spaces and therefore requires no Restricted Parking Overlay District conditional use permit.

Building Dimensions

Within the Mass Ave Protection Area, the maximum building height is 75 feet with Large Project Review and the maximum Floor Area Ratio ("FAR") is 4.0 with Large Project Review. Certain street wall height, setback and rear yard requirements also apply within the Mass Ave Protection Area. At approximately 192 feet and with an FAR of up to 11.4, the project will require relief from these dimensional requirements.

Other Requirements

The project will be designed to comply with requirements for work in the Groundwater Conservation Overlay District and will be subject to BRA design review and to the Code's signage requirements.

12.2.5 MEPA Review

The project exceeds no MEPA review thresholds and accordingly will not trigger MEPA review.

12.3 Regulatory Controls and Permits

Table 12.3-1 presents a preliminary list of permits and approvals from governmental agencies that are expected to be required for the project, based on currently available information. It is possible that only some of these permits or actions will be required, or that additional permits or actions will be required.

Permits and approvals that may be required for the Project are as follows:

Table 12.3-1 Anticipated Permits, Reviews and Approvals

AGENCY	PERMIT
FEDERAL	
Federal Aviation Administration	Determination of No Hazard to Air Navigation (if required)
STATE	
Department of Environmental Protection	Notice of Demolition/Construction/Fossil Fuel (if required)
CITY OF BOSTON	
Boston Redevelopment Authority	Article 80B Large Project Review/Article 80D Institutional Master Plan Review

Table 12.3-1 Anticipated Permits, Reviews and Approvals (continued)

AGENCY	PERMIT
Boston Transportation Department	Construction Management Plan/Transportation Access Plan Agreement
Boston Landmarks Commission	Demolition Delay Review
Public Improvement Commission	Specific Repairs/ Licenses/Discontinuances (if required)
Boston Water and Sewer Commission	Site Plan Review/General Service Application/Water and Sewer Connection Permits
Public Works Department	Curb Cut Permit(s)
Joint Committee on Licenses	Flammable Storage License (if required)
Inspectional Services Department	Demolition/Building Permits

12.4 Schedule

Demolition and site work is anticipated to begin in September 2011. The project will be substantially complete by August 2013.

12.5 Transportation

The overall transportation analysis for the Berklee IMP is presented previously in Chapter 7, comprising an evaluation of the transportation network supporting the Berklee campus, including vehicle traffic volumes, operations and access, on- and off-street parking, available public transportation options, the pedestrian environment, bicycle amenities, and loading/service activities. Both existing and projected future conditions (with and without implementation of the IMP) are addressed, and any potential transportation impacts, both positive and negative, that are expected in the future with the proposed IMP Projects in place, are identified. In addition, potential improvements and mitigation strategies necessary to minimize any negative transportation impacts of the IMP and enhance the supporting transportation system are described, including Transportation Demand Management (TDM) strategies for the IMP to supplement and complement TDM initiatives currently implemented by Berklee.

This section reviews the IMP transportation findings pertinent to the 168 Massachusetts Avenue project, and presents more detailed examination of transportation aspects that are specific to the project, its design and its operation. The project is located on the southeast corner of Belvidere Street at Massachusetts Avenue and will provide a total of approximately 155,000 sf. The project includes an approximately 370-bed residence hall and 400-seat dining hall and student performance space, as well as approximately 5,000 sf of ground floor retail/restaurant space. The project also includes approximately 7,000 sf of common lobby and loading type space, while the remaining approximately 19,000 sf will be new music technology spaces.

Due to its location on Massachusetts Avenue, between Belvidere Street and Saint Germain Street, the project abuts the Massachusetts Avenue/Belvidere Street/Haviland Street intersection, one of the three study intersections identified in the BTD Scoping Determination. Therefore, the PNF analysis focuses on the roadway and sidewalk conditions in the vicinity of the intersection, as well as the sections on Massachusetts Avenue, Belvidere Street, Saint Germain Street and Saint Cecelia Street serving the project site.

12.5.1 Mode Share and Trip Generation

Only 3.5 percent of students access the campus by car (three percent drive-alone) compared to over 23 percent of staff/faculty (almost 19 percent drive-alone). Faculty and staff also make greater use of transit as a commuting mode at almost 54 percent, compared to approximately 40 percent of students. However, 46 percent of students walk to the campus, compared to 5 percent of staff/faculty. When combining walk and transit modes, over 86 percent of students arrive on campus on-foot, compared to 59 percent of faculty and staff. Bicycle mode share is about the same for both groups at 5.5 to 6 percent.

For the 168 Massachusetts Avenue project, the addition of student housing and dining on the site will reduce commuter trips by students, although there will be an increase in non-auto trips over the course of the day in the vicinity of the site. These trips will comprise trips between other buildings and land uses on- and off-campus, which will be accomplished largely on-foot. There will also be a small increase in the number of staff related to the building, causing only a negligible change in trip generation.

12.5.2 Vehicular Traffic Operations

The future traffic projections and level of service analysis are presented in detail in Sections 7.4.1 and 7.4.2 of the IMP, respectively. Because there will be no meaningful change in auto trip generation under the IMP, and because the impact of other planned projects and background growth is the same with or without implementation of the IMP, the Future 2016 No-Build (without IMP) and Future 2016 Build (with IMP) traffic volumes are essentially the same. Accordingly, there is no increase in delay or decline in LOS grade under Future conditions as a result of the IMP, and the 168 Massachusetts Avenue project will have no meaningful traffic impact.

The Massachusetts Avenue/Belvidere Street/Haviland Street intersection, immediately adjacent to the 168 Massachusetts Avenue project, currently operates at overall LOS B and C in the morning and evening peak hours, respectively, and is expected to operate at LOS C during both peaks under the Future 2016 No-Build and Build conditions. All movements will continue to operate at LOS C or better, with the exception of the Belvidere Street approach which is expected to continue to operate at LOS E during both peak periods, for both Existing and Future No-Build and Build analysis scenarios.

In conjunction with the development of potential pedestrian improvements at this location, described in Section 12.5.5, Berklee will evaluate the traffic signal phasing and timing in coordination with BTD to identify potential enhancements of traffic operations.

12.5.3 Parking

Berklee owns or provides virtually no parking on campus today. The 168 Massachusetts Avenue project does not include any new parking, and the project will continue to sustain the relatively low auto mode-share of staff and faculty and the negligible parking demand by students.

As discussed in Section 12.5.7, some limited changes in curbside regulations and parking control on Belvedere Street abutting the project are proposed to facilitate the provision of off-street loading and alleviate traffic flow in that area.

12.5.4 Public Transportation

As described in detail in Section 7.2.4 of the IMP, the project is very well served by public transportation, with numerous high-frequency services available within a five-minute walking distance of the site. Because the project will house approximately 370 students on campus, it will result in a reduction of students commuting to the campus, with a corresponding reduction in transit use. This is largely a peak hour phenomenon, and in the off-peak periods it is expected that there will be some increase in transit ridership associated with resident students leaving 168 Massachusetts Avenue for non-academic related trips. Current transit service is more than adequate to meet any related change in demand.

12.5.5 Pedestrian Access

Walking is the preferred commuting mode for approximately 46 percent of Berklee's student population and five percent of the staff/faculty, and, when combined with commuters using transit, over 86 percent of students arrive and depart the campus on foot. Because most Berklee facilities are located within a ten-minute walk of each other, and many are much closer, there is steady pedestrian traffic among them throughout the day. Student activity and pedestrian circulation is facilitated primarily by the public sidewalks and crosswalks on streets in and around the Berklee campus.

While the number of pedestrians traveling to and from the campus is not expected to change significantly, and indeed will likely decrease as a result of the provision of student housing on campus, the synergy of pedestrian movement between the campus buildings will continue. Therefore, because of its student housing and dining components, pedestrian activity over the course of the day in the vicinity of the project will likely increase.

The site plan for the project is presented in Figure 12.5-1. The building will be accessed via the sidewalks on streets abutting the site, in particular Massachusetts Avenue, Belvidere Street and Saint Germain Street, and their connecting crosswalks. The residence hall, dining hall and music technology space will be served by a single lobby located on the Massachusetts Avenue frontage, towards the Belvidere Street end, and the entrance doorways will be sheltered by a street-level canopy. The doorway for the retail unit will also be located on the Massachusetts Avenue frontage, towards the Saint Germain Street end.

As noted in Section 7.2.5 of the IMP, the concentration of the college's facilities along Boylston Street and Massachusetts Avenue south of Boylston Street results in heavy use of sidewalks along these streets by the Berklee community. The first two blocks of Massachusetts Avenue south of Boylston Street are heavily traveled, particularly the block in front of 150 Massachusetts Avenue and the Berklee Performance Center at 136 Massachusetts Avenue. This is a popular gathering location during good weather, known to students as the Berklee Beach.

These crowded conditions will be significantly relieved by the construction of the project, owing to the setback of the new building from the existing back of sidewalk. The existing 15-foot wide sidewalk along the Massachusetts Avenue frontage will be widened to 20 feet; the barely 7-foot sidewalk on the Belvidere Street frontage will be widened to 9 feet, and the existing 10-foot sidewalk on Saint Germain Street will be widened to 12 feet. These expansions of the sidewalk area will not only enhance the pedestrian environment for users of the new building and passers-by, but will also provide alternative locations to relieve the crowding at Berklee Beach.

In addition, although not part of the project itself, the removal of the first floor addition on the Belvidere Street frontage of 150 Massachusetts Avenue will re-capture the original sidewalk on that side of Belvidere Street, providing a width varying from 12 to 16 feet. This change will realize a substantial improvement to the pedestrian environment in the vicinity, and will afford significant relief to pedestrian accommodations at the corners of the blocks and in the vicinity of the relevant crosswalk waiting areas.

Berklee has already implemented streetscape and sidewalk improvements on Boylston Street between Hemenway Street and Massachusetts Avenue, transforming the pedestrian environment along that key pedestrian route. The sidewalk improvements associated with the project reflect Berklee's on-going commitment to the pedestrian environment, which will be further explored as and when each of the other IMP project designs are advanced.

As pedestrian safety is a top priority for the IMP, pedestrian improvements at adjacent study intersections will be explored in association with each IMP project. For the 168 Massachusetts Avenue project, a range of potential pedestrian and safety improvements have been identified for the Massachusetts Avenue/Belvidere Street/Haviland Street intersection. As discussed in Section 7.2.5 of the IMP, pedestrian level of service (PLOS) at this location is PLOS E for the Massachusetts Avenue crosswalks and PLOS D for the Belvidere Street crosswalk, reflecting average delays of 30 to 60 seconds for pedestrians. Further, it is noted that the crosswalk at Haviland Street is not provided with pedestrian

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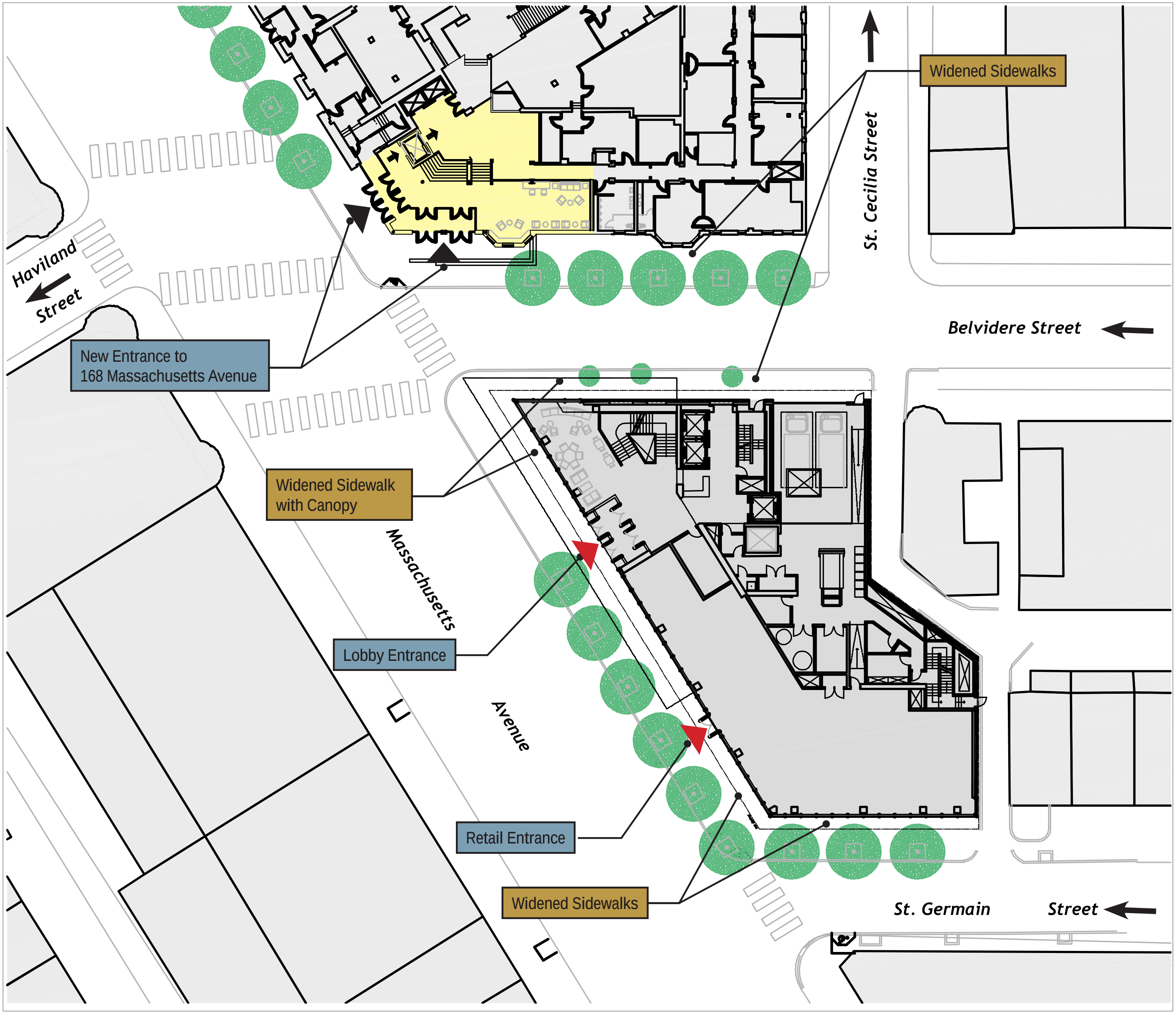

Figure 12.5-1
168 Massachusetts Ave
Site Plan

VHB Vanasse Hangen Brustlin, Inc.

signals, despite the fact that it is located within a signalized intersection. This results in a hazardous situation where many pedestrians assume that drivers will yield to pedestrians in the crosswalk.

Potential improvements at this location that could be considered in coordination with the BTD and, where appropriate, the MBTA, are illustrated in Figure 12.5-2, and include the following:

1. Consider evaluation of signal timing/phasing for potential efficiencies, potentially reducing vehicle and pedestrian delays.

2. Consider pedestrian signal heads at the Haviland Street crosswalk and incorporate in the pedestrian phase to provide control of that crosswalk.

3. Consider displaying Walk signals for Belvidere Street and Haviland Street crosswalks concurrently with Massachusetts Avenue vehicle Green phase, as well as including them in the existing exclusive pedestrian phase, to improve PLOS.

4. Consider curb extensions to enlarge pedestrian waiting areas, reduce crosswalk lengths and improve visibility and safety for pedestrians.

5. Consider realigning the Massachusetts Avenue crosswalks on the north and south sides of the intersection to a perpendicular orientation to provide increased coverage of pedestrian desire lines, and also shorten crosswalk.

6. Consider expanding and repositioning the existing northbound bus stop on Massachusetts Avenue to eliminate the current overlap with the Massachusetts Avenue crosswalk at Belvidere Street.[1]

All sidewalks abutting and in the immediate vicinity the 168 Massachusetts Avenue site will be reconstructed at the completion of project construction.

Further pedestrian and safety improvements will be explored in association with other IMP projects, including opportunities for widened sidewalks. In relation to the Crossroads project, several potential improvements have been identified at the Massachusetts Avenue/Boylston Street and Boylston Street/Saint Cecilia intersection. At the former intersection, potential improvements include signal timing/phasing changes to reduce vehicle and pedestrian delays, and the provision of curb extensions at selected locations to enlarge pedestrian waiting areas, reduce crosswalk lengths and improve visibility and safety

[1] The MBTA is currently performing an evaluation of potential improvements to the #1 bus route, which may include consolidation and/or relocation of bus stops.

Berklee college of music

Institutional Master Plan

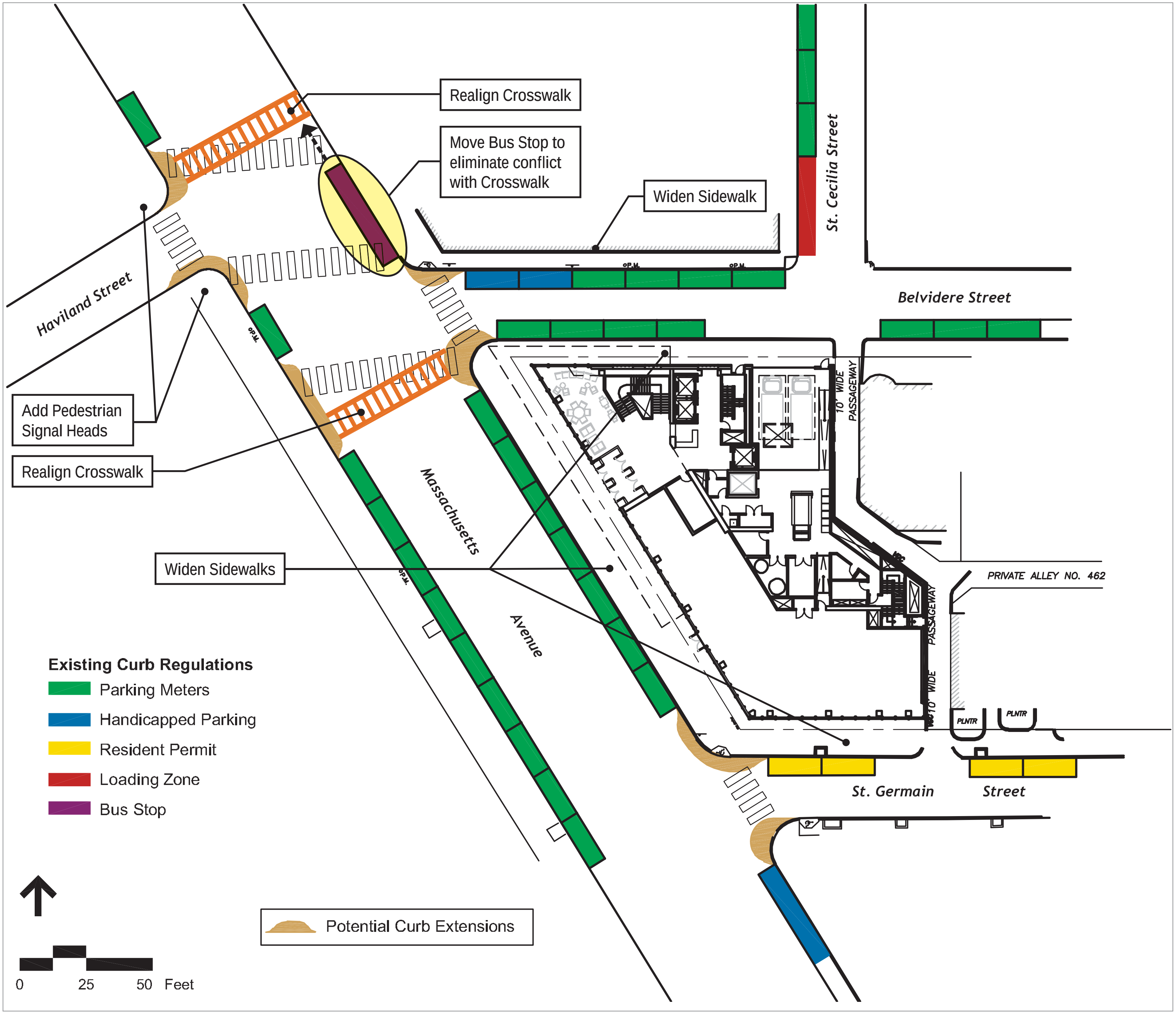

Figure 12.5-2
168 Massachusetts Ave
Potential Pedestrian Improvements

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for pedestrians. At the latter intersection, potential improvements include the closure of the initial section of Cambria Street to eliminate the existing pedestrian island and consolidate the existing two pedestrian crossings into one ADA compliant crosswalk.

12.5.6 Bicycle Accommodations

Bicycle racks are provided in various locations throughout the campus. In combination, there are currently more than 130 bicycle racks on Berklee property and nearby on City sidewalks. Indeed, Berklee recently collaborated with the Boston Bikes program and invested $5,000 to install approximately 30 new bicycle racks on City sidewalks around the campus. However, observations of the bicycle racks indicate heavy usage, particularly in front of the Berklee Performance Center at 136 Massachusetts Avenue, evidenced by bicycles often being locked to railings and street furniture.

New bicycle racks will be provided on the sidewalks in the vicinity of the project to provide for the short-term parking needs of the new building and to relieve the heavy existing demand in nearby locations. The substantial widening of the sidewalks around the project will yield significantly increased space for these racks, and Berklee will work with the BTD and BRA to identify specific locations.

In addition, Berklee is planning to build a centralized secure outdoor bike storage area for approximately 125 bicycles, located just east of and behind the existing 130 Massachusetts Avenue building. The facility would be fenced-in and have card access.

12.5.7 Loading and Servicing

There will be some increased delivery and trash removal needs associated with the new residential tower and the relocated and expanded dining facilities at the project. Servicing needs in the vicinity of the project site, based on existing delivery characteristics, are summarized in Table 12.5-1, including frequency, time of day, truck type, and current on-street loading location.

Table 12.5-1 Servicing Summary for the Project

Existing On-Street Location	Vehicle Type	Frequency	Time
Cambria Street	Trash Compactor	1 per week	
Belvidere Street	SYSCO Tractor-Trailer	4 per week	12-1 pm (Monday) 6-7 am (rest of week)
Saint Cecilia Street	Hood Box Truck	3 per week	5 -6 am
Saint Cecilia Street	Sid Warner	Daily	6-7 am

Table 12.5-1 Servicing Summary for the Project (continued)

Existing On-Street Location	Vehicle Type	Frequency	Time
Saint Cecilia Street	Bread van/small truck	Daily	
Saint Cecilia Street	Uniform van/small truck	1 per week	4 am (Wednesday)
Saint Cecilia Street	Pepsi small truck	1 per week	
Massachusetts Avenue	Pepsi truck for vending	3 per week	

As shown in the site plan (Figure 12.5-1), the project will include an enclosed, off-street loading dock, which will eliminate the majority of on-street loading activity, with the exception of food deliveries by SYSCO tractor-trailer trucks. In such constrained urban situations, it is rarely possible to accommodate tractor-trailer trucks off-street, and indeed the limited frequency of such deliveries at this location does not warrant the inefficiency of providing off-street accommodation, even if it could be accommodated physically.

The loading dock will include two bays, capable of accommodating two 30-foot single unit trucks simultaneously, albeit that both bays will be occupied at the same time on only limited occasions. The loading dock will be more than adequate to accommodate the majority of servicing needs, although deliveries and pick-up by USPS, UPS and FedEx small trucks and vans are expected to continue to be made on-street, consistent with current practice throughout the downtown area. The SYSCO tractor-trailer will continue to stage deliveries on Belvidere Street at the eastern end of the site frontage, as it does today.

Maneuvering needs for trucks entering and leaving the loading dock are illustrated in Figures 12.5-3, 12.5-4 and 12.5-5. Figure 12.5-3 shows pick-up by a 35-foot trash truck, while Figures 12.5-4 and 12.5-5 show 30-foot single unit trucks using both loading dock bays. As shown, to accommodate truck maneuvers, it will be necessary to eliminate three existing parking meter spaces on the north side of Belvidere Street. In addition, it is recommended that one parking meter space be eliminated on the south side of Belvidere Street to provide additional length for a tractor-trailer truck to stage deliveries on-street without encroaching on the entrance to the alley at the rear of the building.

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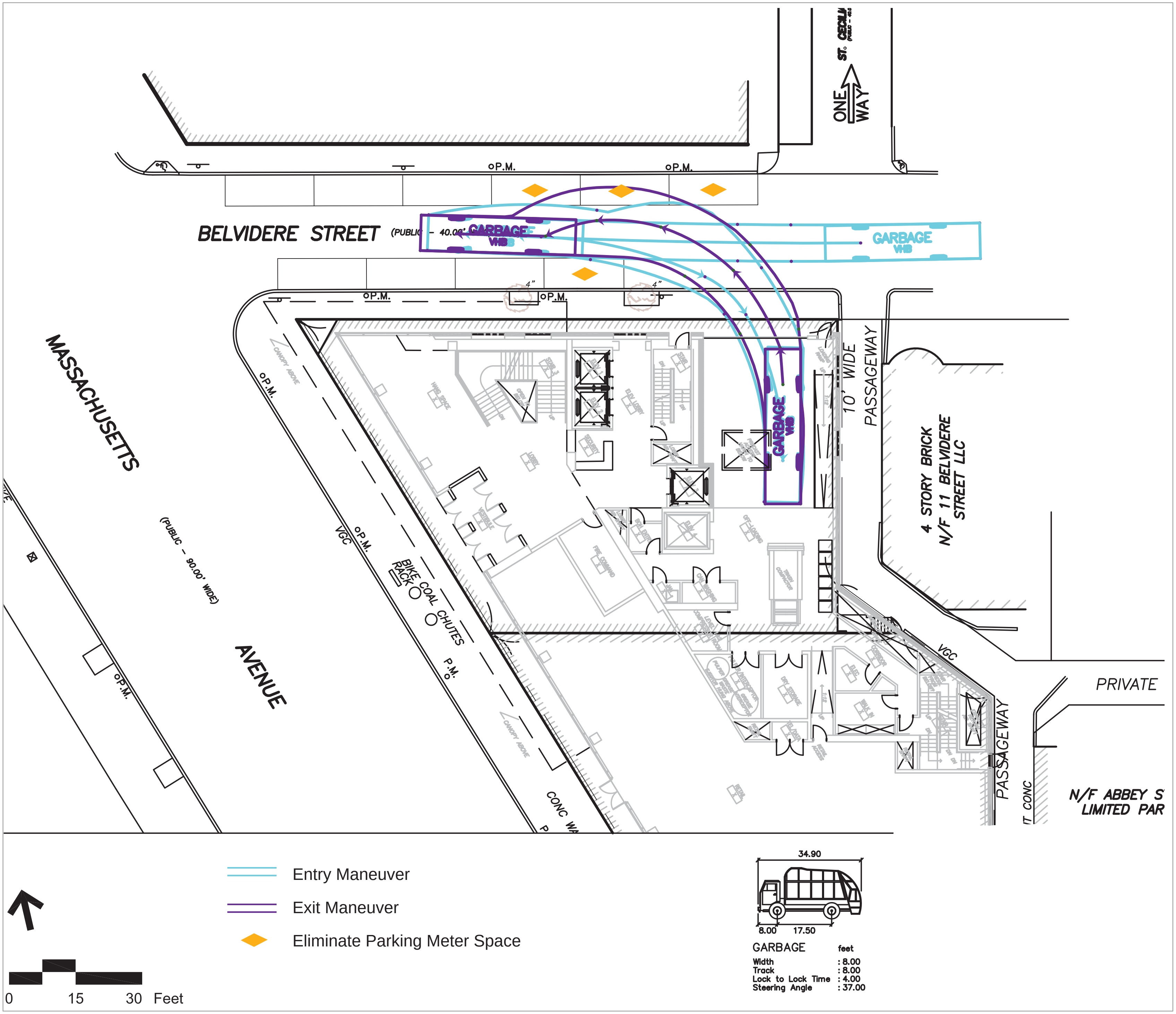

Figure 12.5-3
168 Massachusetts Ave
Loading Truck Maneuvers
Garbage Truck

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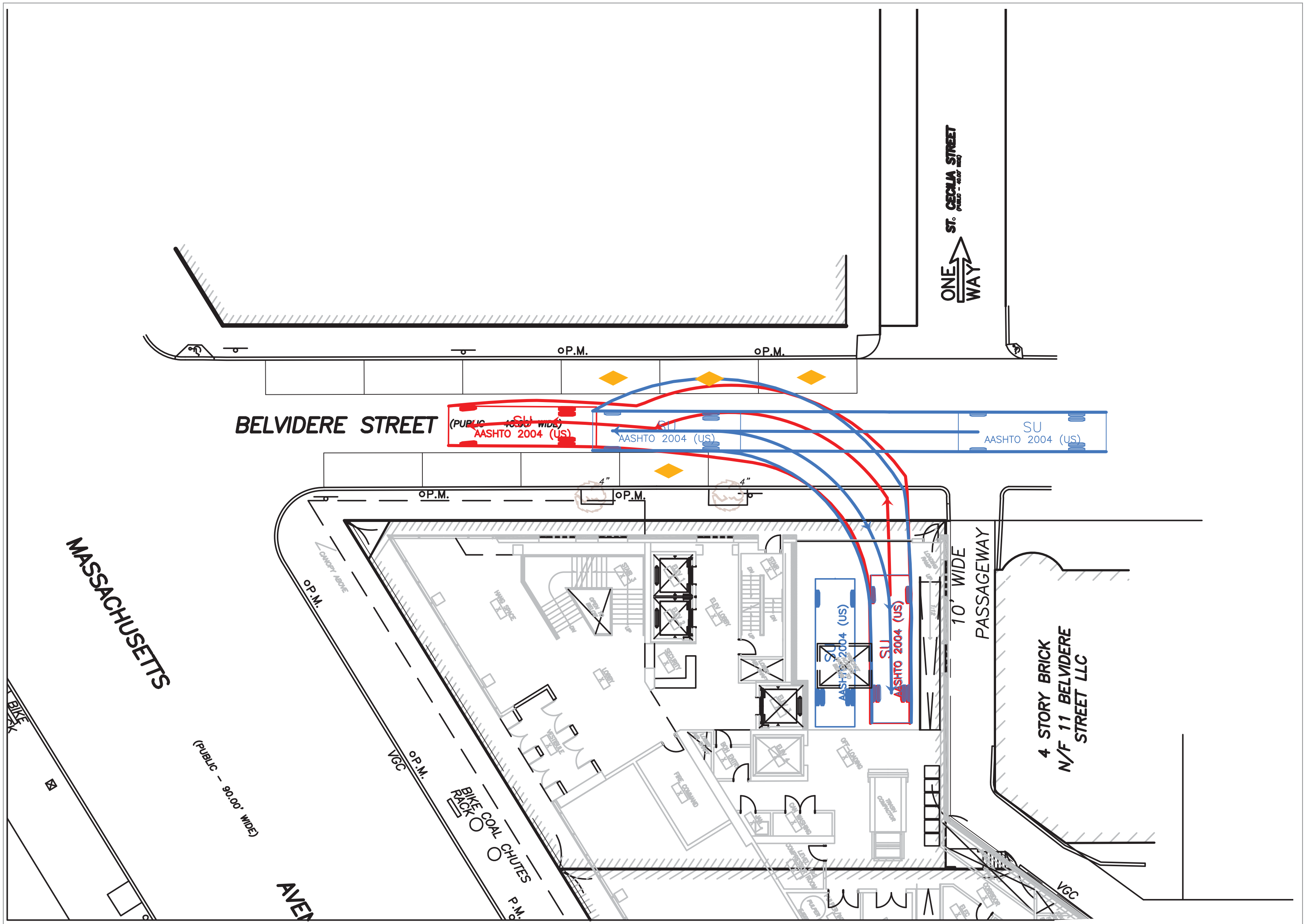
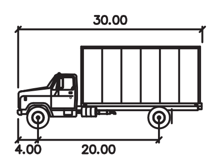


Entry Maneuver

Exit Maneuver

Eliminate Parking Meter Space

0 15 30 Feet



SU feet

Width : 8.00
Track : 8.00
Lock to Lock Time : 6.00
Steering Angle : 31.80

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Figure 12.5-4
168 Massachusetts Ave
Loading Truck Maneuvers
Single Unit Truck-Bay 1

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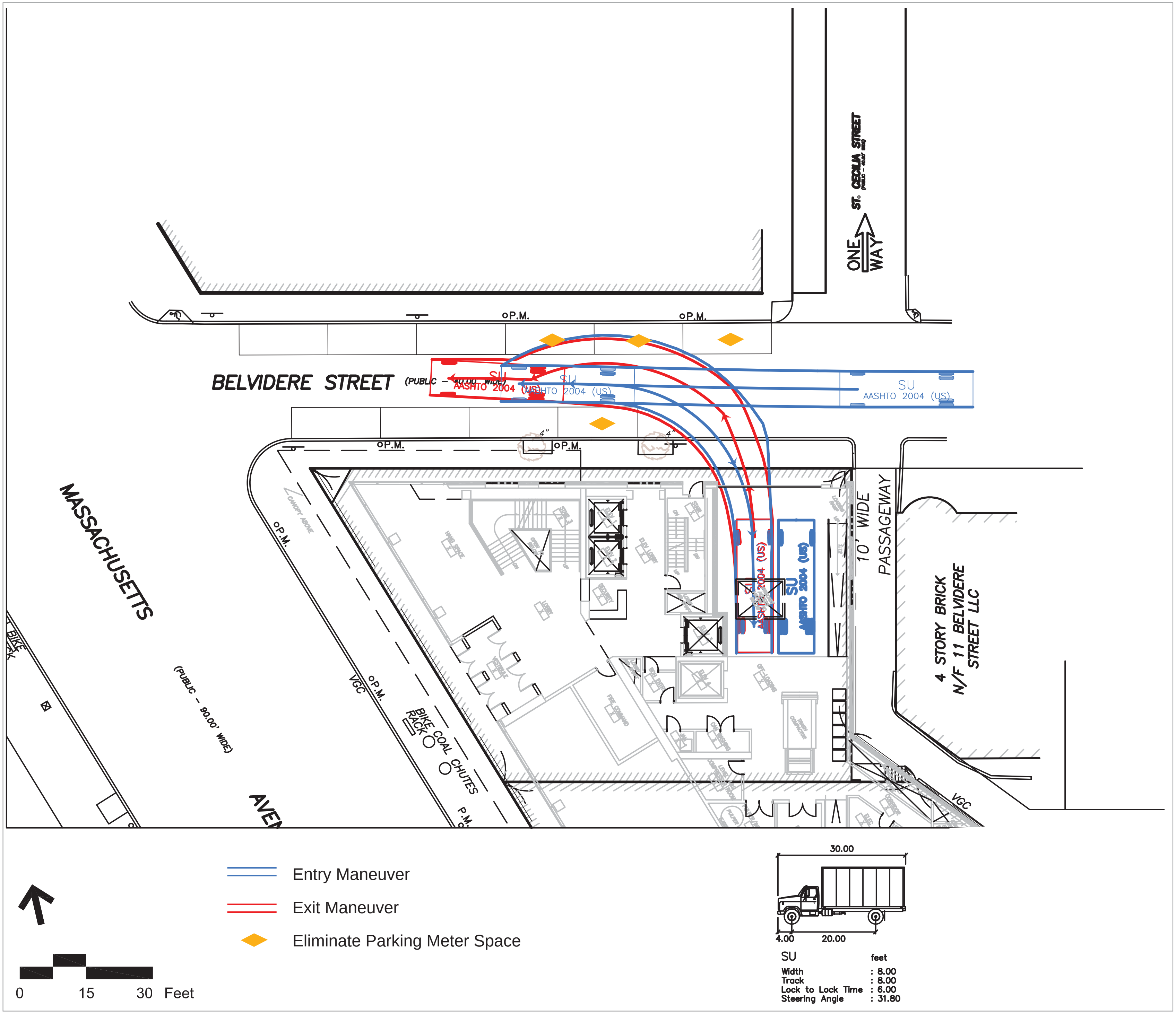

Figure 12.5-5
168 Massachusetts Ave
Loading Truck Maneuvers
Single Unit Truck-Bay 2

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Finally, the project will introduce move-in/move-out activity associated with the new student residences. As described in Section 7.5.3.1 of the IMP, move-in activity typically occurs during Labor Day weekend at the beginning of September, while move-out activity occurs more spread out during early May as students have completed their final examinations. A specific plan will be developed for the project to manage these operations and minimize the impact to local streets. It is anticipated that Berklee will rent parking meters spaces in the vicinity of the building for the two or three days during the school year when move-in/move-out occurs. Move-in/move-out will be restricted to certain times of day, depending on day-of-week. Campus security details will be on duty, and the front and side of the building will be kept clear for move-in/move-out operations. Students will be required to find street or garage parking once their vehicle has been unloaded into the residence hall.

12.5.8 Transportation Demand Management

Berklee's current Transportation Demand Management (TDM) initiatives are described in Section 7.5.2 of the IMP. Berklee will continue to promote and improve its TDM program to benefit its faculty, staff and students. In an effort to discourage single-occupancy vehicle use, Berklee will continue to encourage commuters to use alternative modes of transportation, including public transit, carpooling, bicycling and walking. As no new parking will be provided as part of the IMP, and no material increase in auto-trip generation is expected, the benefits of TDM programs will continue to reduce Berklee-related traffic already on the local roadway network, yielding further improvements in mode choice as have been accomplished over the past five years or so. This on-going strategy will apply to and will benefit the project as it does for the entire IMP.

12.6 Environmental Protection Component

12.6.1 Wind

12.6.1.1 Introduction

A pedestrian wind study was conducted on the proposed project.

The study involved wind simulations on a 1:400 scale model of the proposed building and surroundings. These simulations were conducted in one of RWDI's boundary-layer wind tunnels for the purpose of quantifying local wind speed conditions and comparing to appropriate criteria for gauging wind comfort in pedestrian areas. The criteria recommended by the Boston Redevelopment Authority were used in this study. The following paragraphs include a description of the methods and the results of the wind tunnel simulations.

The wind analysis shows that wind conditions with and without the project are similar and are generally suitable for walking, standing or sitting. With the construction of the project, annual winds will not worsen at any location to uncomfortable or dangerous.

12.6.1.2 Overview

Major buildings, especially those that protrude above their surroundings, often cause increased local wind speeds at the pedestrian level. Typically, wind speeds increase with elevation above the ground surface, and taller buildings intercept these faster winds and deflect them down to the pedestrian level. The funneling of wind through gaps between buildings and the acceleration of wind around corners of buildings may also cause increases in wind speed. Conversely, if a building is surrounded by others of equivalent height, it may be protected from the prevailing upper-level winds, resulting in no significant changes to the local pedestrian-level wind environment. The most effective way to assess potential pedestrian-level wind impacts around a proposed new building is to conduct scale model tests in a wind tunnel.

The consideration of wind in planning outdoor activity areas is important since high winds in an area tend to deter pedestrian use. For example, winds should be light or relatively light in areas where people would be sitting, such as outdoor cafes or playgrounds. For bus stops and other locations where people would be standing, somewhat higher winds can be tolerated. For frequently used sidewalks, where people are primarily walking, stronger winds are acceptable. For infrequently used areas, the wind comfort criteria can be relaxed even further.

12.6.1.3 Methodology

Information concerning the project site and surroundings was derived from: site photographs; information on surrounding buildings and terrain; and site plans and elevations of the proposed development provided by representatives of William Rawn Associates Architects. The following configurations were simulated:

- No Build: includes future surroundings with existing buildings on the 168 Massachusetts Avenue site; and
- Build: includes the proposed 168 Massachusetts Avenue and future surroundings.

As shown in Figures 12.6-1 and 12.6-2, the wind tunnel model included the proposed development and relevant surrounding buildings and topography within a 1,600-foot radius of the study site. As requested by the BRA, the surrounding buildings include the proposed Christian Science Plaza developments, the Civic Vision massing for Air Rights Parcels 12 and 15, the current Trinity proposal for Parcel 13, and the proposed IMP massing of the other two Berklee IMP Projects (Crossroads and 161-171 Massachusetts Avenue).

The mean speed profile and turbulence of the natural wind approaching the modeled area were also simulated in RWDI's boundary layer wind tunnel. The scale model was equipped with 71 specially designed wind speed sensors that were connected to the wind tunnel's data acquisition system to record the mean and fluctuating components of wind

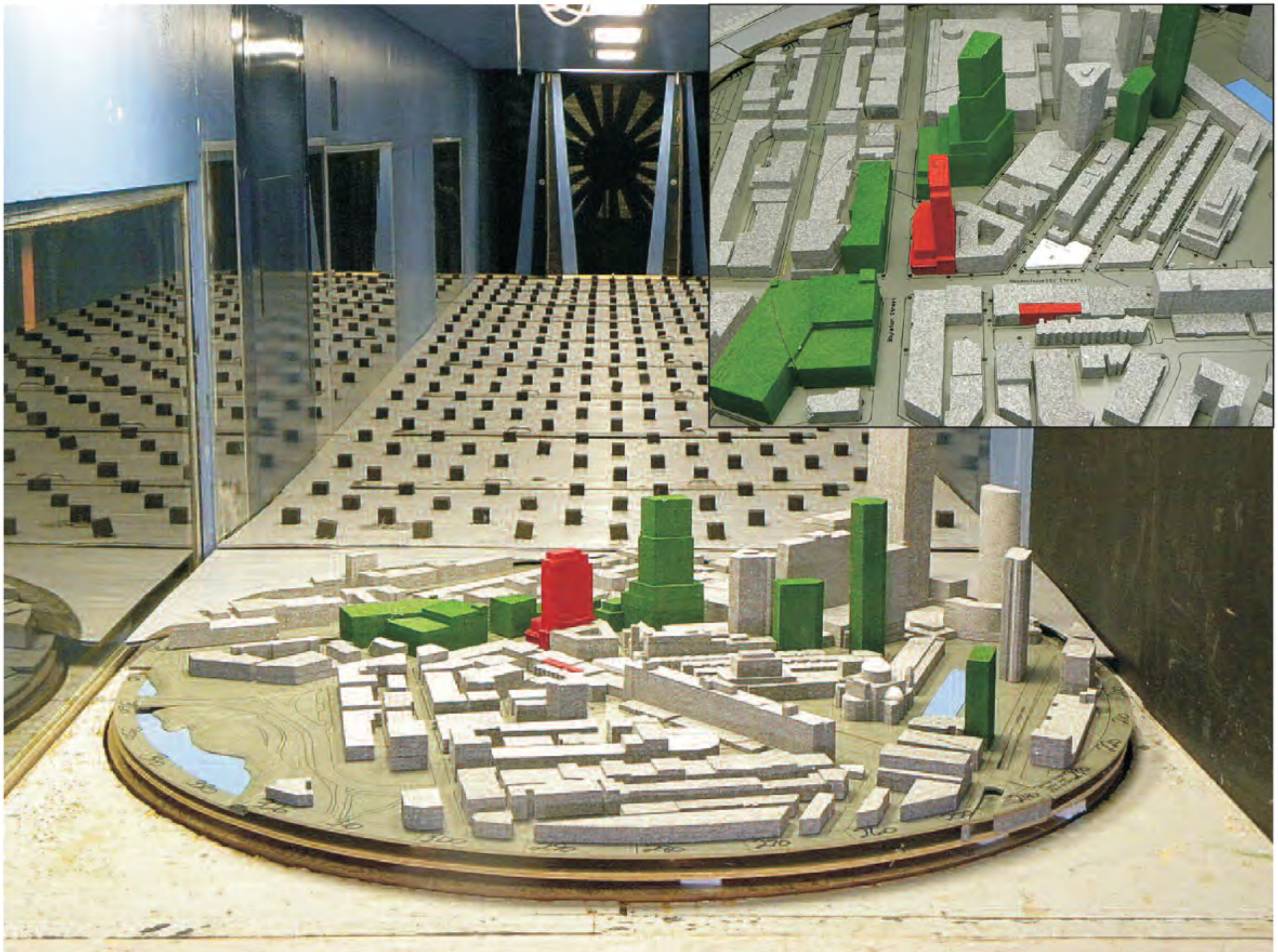

Figure 12.6-1
Wind Tunnel Study Model - No Build

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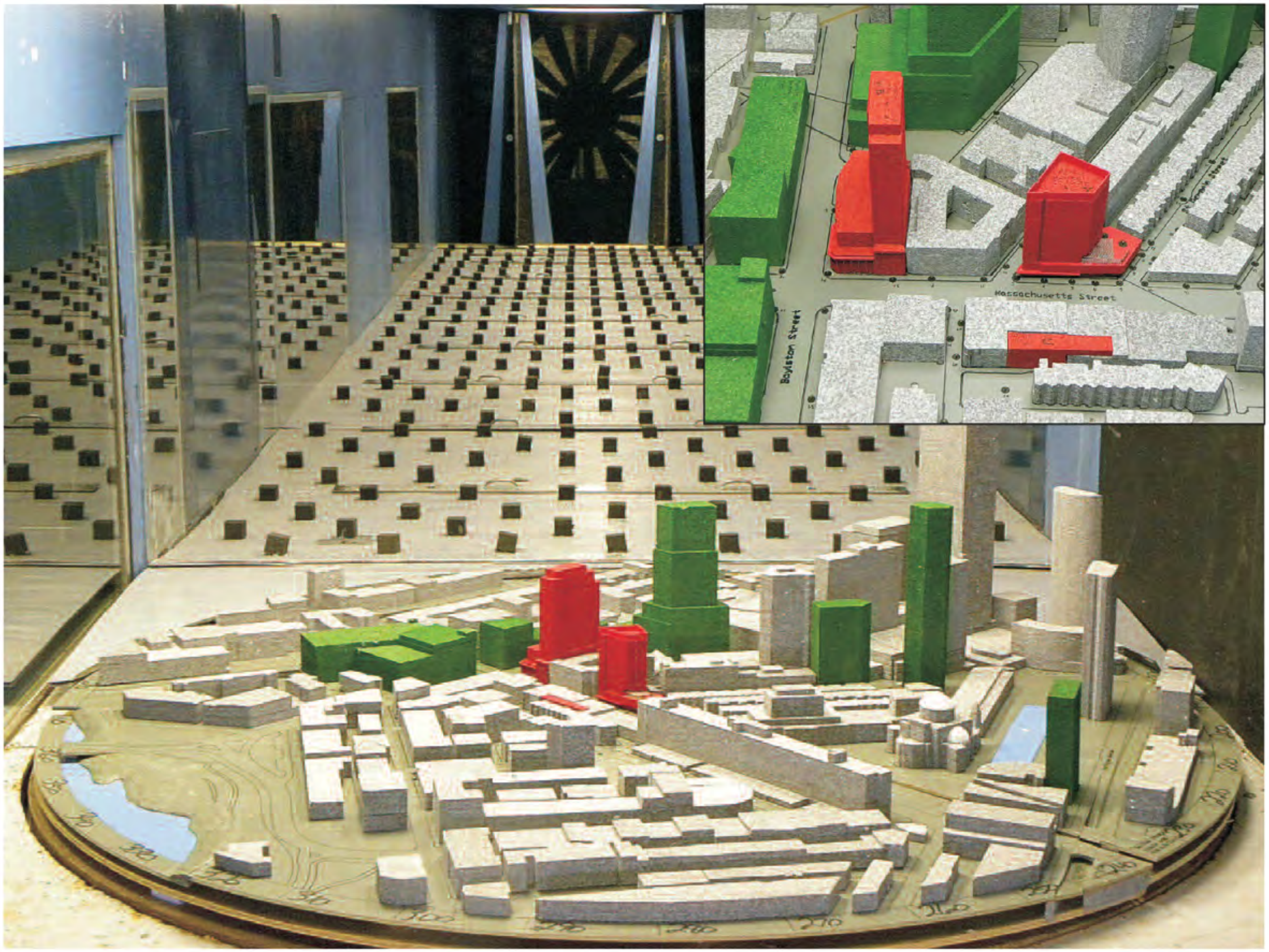


Figure 12.6-2
Wind Tunnel
Study Model - Build

CONSULTING ENGINEERS
& SCIENTISTS

speed at a full-scale height of five feet above grade in pedestrian areas throughout the study site. Wind speeds were measured for 36 wind directions, in 10 degree increments, starting from true north. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the reference wind speed in the free stream above the model. The results were then combined with long-term meteorological data, recorded during the years 1973 to 2008 at Boston's Logan International Airport, in order to predict full scale wind conditions. The analysis was performed separately for each of the four seasons and for the entire year, as required by the BRA.

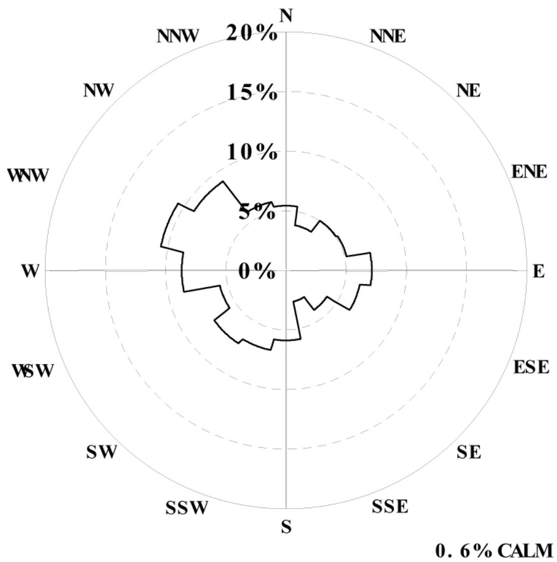
Figures 12.6-3, 12.6-4 and 12.6-5 present "wind roses", summarizing the annual and seasonal wind climates in the Boston area, based on the data from Logan Airport. The left-hand wind roses, in Figures 12.6-3 and 12.6-4, are based on all observed wind readings for the given season, while the right-hand wind roses are based on strong winds for one percent of the time. The upper wind roses in Figure 12.6-3, for example summarize the spring (March, April, and May) wind data. In general, the prevailing winds at this time of year are from the west-northwest, northwest, west, southwest and east. In the case of strong winds, however, the most common wind direction is northeast and west.

On an annual basis (Figure 12.6-5), the most common wind directions are those between southwest and northwest. Winds from the east and east-southeast are also relatively common. In the case of strong winds, northeast and west-northwest are the dominant wind directions.

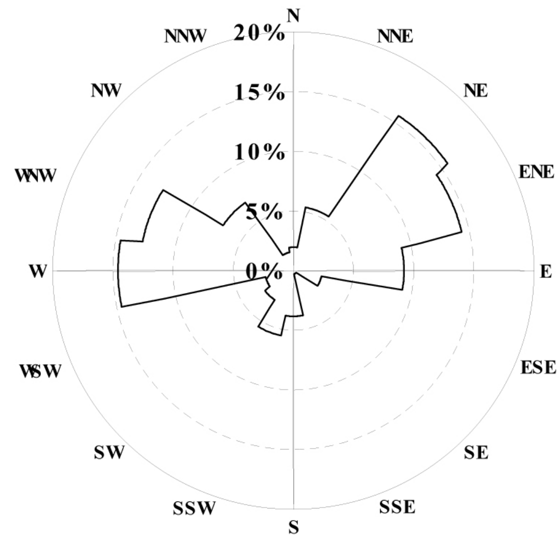
This study involved state-of-the-art measurement and analysis techniques to predict wind conditions at the study site. Nevertheless, some uncertainty remains in predicting wind comfort. For example, the sensation of comfort among individuals can be quite variable. Variations in age, individual health, clothing, and other human factors can change a particular response of an individual. The comfort limits used in this report represent an average for the total population and are typically used for BRA required wind studies as described below. Also, unforeseen changes in the project area, such as the construction or removal of buildings, can affect the conditions experienced at the site. Finally, the prediction of wind speeds is necessarily a statistical procedure. The wind speeds reported are for the frequency of occurrence stated (one percent of the time). Higher wind speeds will occur but on a less frequent basis.

12.6.1.4 Pedestrian Wind Comfort Criteria

The BRA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BRA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-square wind speed) of 31 mph should not be exceeded more than one percent of the time. The second set of criteria used by the BRA to



ALL SPRING WINDS



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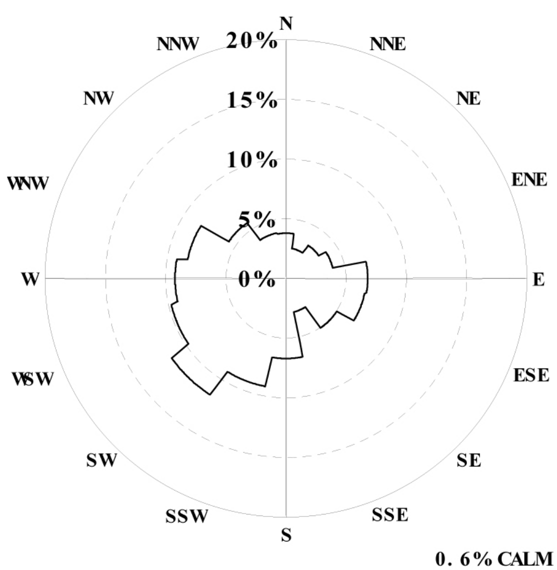
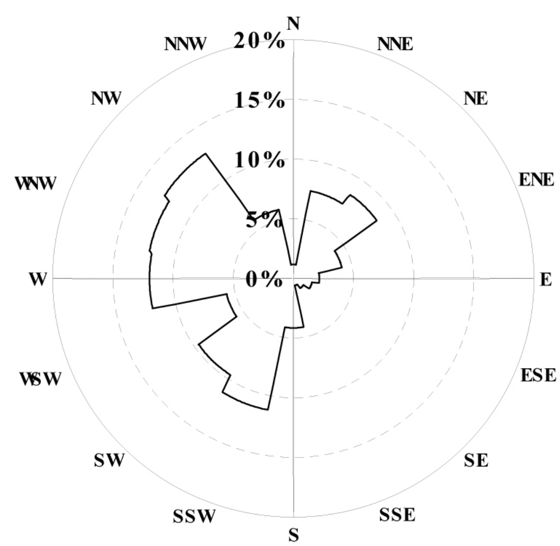


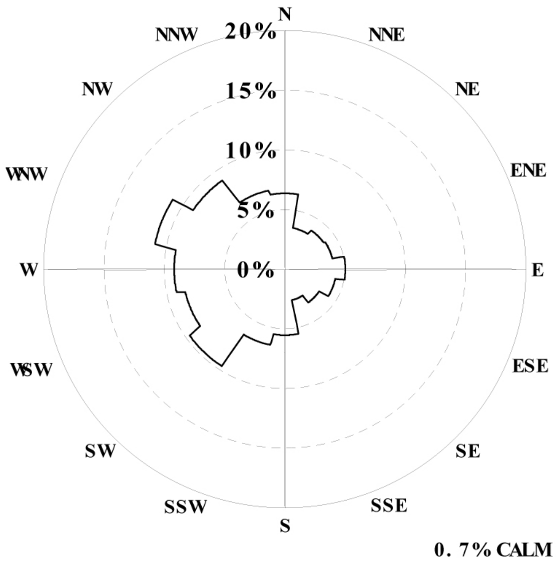
ALL SUMMER WINDS



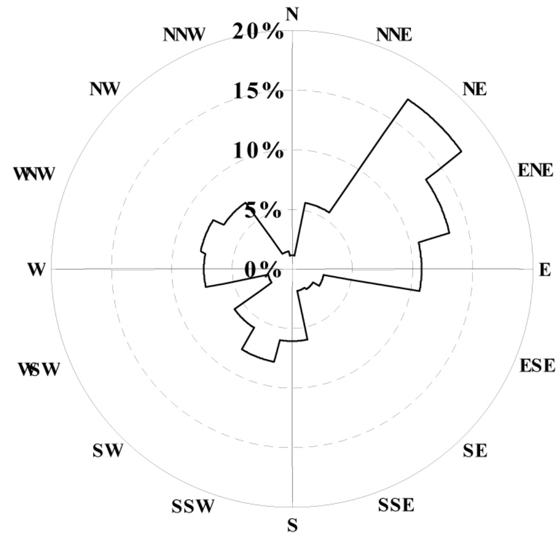
STRONG SUMMER WINDS

RWDI

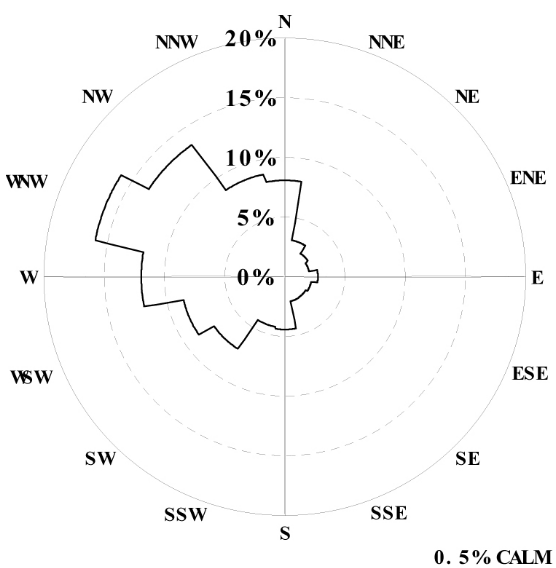
Figure 12.6-3
Directional Distribution of Spring and Summer Winds – Logan International Airport (1945-1998)



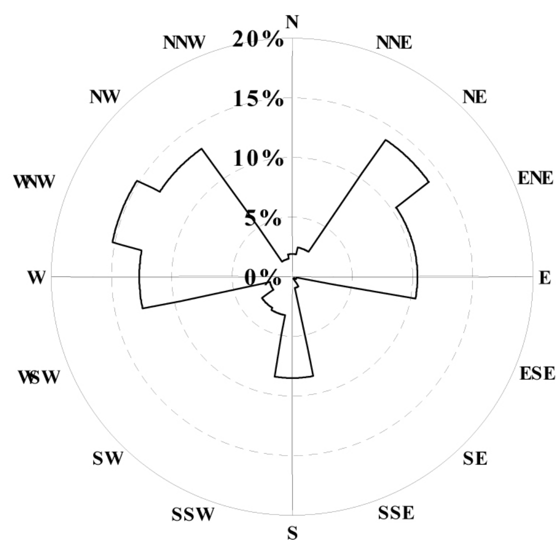
ALL FALL WINDS



STRONG FALL WINDS



ALL WINTER WINDS

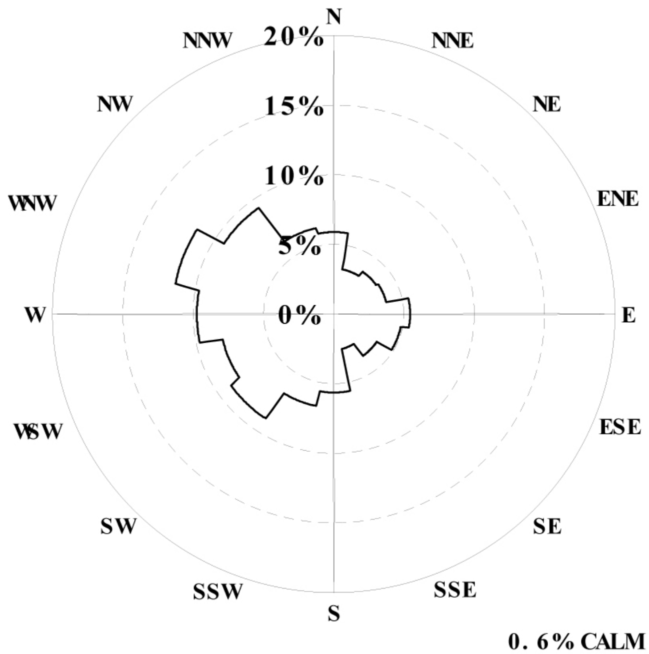


STRONG WINTER WINDS

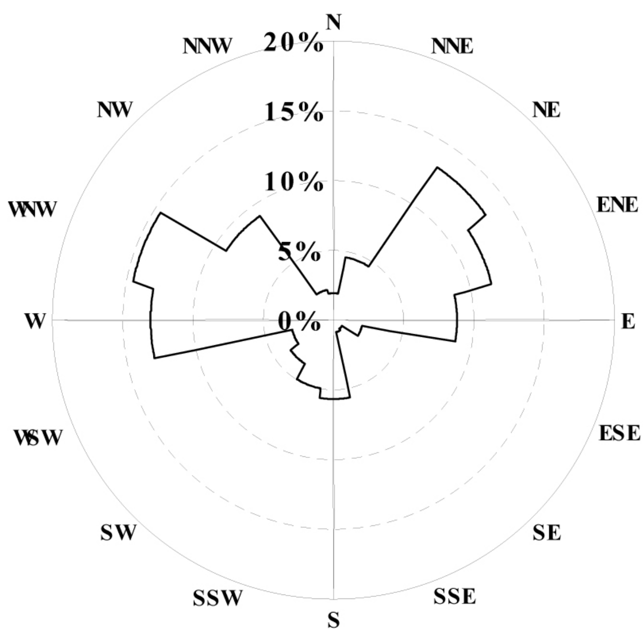
RWDI

Figure 12.6-4

Directional Distribution of Fall and Winter Winds – Logan International Airport (1945-1998)



ALL ANNUAL WINDS



STRONG ANNUAL WINDS

Figure 12.6-5
Directional Distribution of Annual Winds – Logan International Airport (1945-1998)

determine the acceptability of specific locations is based on the work of Melbourne[2]. This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking (see Table 12.6-1). The criteria are expressed in terms of benchmarks for the one-hour mean wind speed exceeded one percent of the time (i.e., the 99-percentile mean wind speed).

Table 12.6-1 BRA Mean Wind Criteria*

Dangerous	> 27 mph
Uncomfortable for Walking	>19 and ≤ 27 mph
Comfortable for Walking	> 15 and ≤ 19 mph
Comfortable for Standing	> 12 and ≤ 15 mph
Comfortable for Sitting	< 12 mph

* Applicable to the hourly mean wind speed exceeded one percent of the time.

The wind climate found in a typical downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares and meets the BRA effective gust velocity criterion of 31 mph. However, without any mitigation measures, this wind climate is frequently unsuitable for more passive activities such as sitting.

12.6.1.5 Test Results

Appendix G presents the mean and effective gust wind speeds for each season as well as annually. Figures 12.6-6 and 12.6-7 shows the wind comfort conditions at each wind measurement location based on the annual winds. In Boston, the summer and fall winds tend to be more comfortable than the annual winds, while the winter and spring winds are less comfortable than the annual winds. The following summary of pedestrian wind comfort is based on the annual winds for each configuration tested, except where noted below in the text.

The wind analysis shows that wind conditions with and without the project are similar and are generally suitable for walking, standing or sitting. With the construction of the project, annual winds will not worsen at any location to uncomfortable or dangerous. The uncomfortable wind conditions at Locations 13, 14, 17, 18, 24, 29, 47 and 58 are anticipated to exist in both the No Build and Build conditions without any mitigation measures designed into nearby buildings.

[2] Melbourne, W.H., 1978, "Criteria for Environmental Wind Conditions", Journal of Industrial Aerodynamics, 3 (1978) 241 - 249.

Figure 12.6-6
Pedestrian Wind Conditions - Build

RWDI
CONSULTING ENGINEERS & SCIENTISTS

Figure 12.6-7
Pedestrian Wind Conditions - No Build

RWDI CONSULTING ENGINEERS & SCIENTISTS

Project Entrances and Sidewalks (Locations 1 through 7)

No Build

With the existing building in place (at the project site), wind conditions were predicted to be suitable for standing at Locations 1 through 5 and suitable for sitting at Locations 6 and 7 on an annual basis (see Figure 12.6-6).

The effective gust criterion was not exceeded annually or for any season.

Build

With the proposed 168 Massachusetts Avenue project in place, wind conditions on an annual basis at Locations 1 through 7 were suitable for walking or better. Specifically, wind conditions at the entrances (Locations 2 and 4) were predicted to be suitable for standing or walking on an annual basis at the project site. Wind conditions along the sidewalks (Locations 1, 3, 5, 6 and 7) were suitable for walking or better on an annual basis.

The effective gust criterion was not exceeded annually or for any season.

Crossroads Entrances and Sidewalks (Locations 8 through 19)

No Build

Wind conditions at the entrances (Locations 13 and 14) to the future Crossroads building were predicted to be uncomfortable on an annual basis without the construction of the 168 Massachusetts Avenue project (assuming no mitigation measures being employed). Wind conditions were predicted to be suitable for sitting or standing at Locations 9, 10, and 15 on an annual basis (see Figure 12.6-6). Locations 8, 11, 12, 16 and 19 were suitable for walking and Locations 17 and 18 were predicted to be uncomfortable on an annual basis, respectively.

The effective gust criterion was exceeded at Location 18 annually, and during the spring and winter seasons, at Location 17 in the winter only (see Appendix G).

Build

Pedestrian level wind conditions are similar for both the No-Build and Build conditions. The construction of the 168 Massachusetts Avenue project does not cause additional uncomfortable or unacceptable pedestrian wind conditions on an annual basis.

Wind conditions along the sidewalks (Locations 8 through 12, 15, 16 and 19) were suitable for walking or better annually. Wind conditions were predicted to remain uncomfortable at Locations 13, 14, 17 and 18, and suitable for sitting, standing or walking annually at Locations 8 through 12, 15, 16, and 19 on an annual basis (see Figure 12.6-7).

The effective gust criterion was exceeded at Location 14 during the winter and at Locations 17 and 18 during the winter and spring (see Appendix G) without specific mitigation.

Massachusetts Avenue and Boylston Street (Locations 20, 21, 22, 40, 41, 42, 45 through 63)

No Build

Wind conditions were generally suitable for sitting, standing or walking annually, with the exception of Locations 47 and 58 along Massachusetts Avenue, which were overall predicted to be uncomfortable except during the summer without specific mitigation.

Unacceptable gust wind speeds were predicted for Location 47 during the winter (see Appendix G).

Build

Similar to the No Build conditions, with the construction of the 168 Massachusetts Avenue project, winds generally suitable for sitting, standing or walking were predicted annually, with the exception of Locations 47 and 58, which were predicted to be uncomfortable on an annual basis.

The effective gust criterion was exceeded at Location 47 during the winter, similar to the No Build conditions, without specific mitigation.

Off-site Walkways (Locations 23 through 39, 43, 44, 64 through 71)

No Build

Annual wind conditions were generally suitable for sitting, standing or walking in the surrounding area. The exceptions were along Scotia and Belvidere Streets (Locations 23, 24 and 29), where uncomfortable winds were predicted annually and/or during the spring and winter seasons.

Unacceptable gust wind speeds were predicted for Locations 23 and 24 during the winter season without specific mitigation.

Build

Wind conditions for the Build scenario were similar to the No Build conditions, and were generally suitable for sitting, standing or walking on an annual basis. The exceptions were Locations 24 and 29 where uncomfortable winds conditions were predicted on an annual basis, which is similar to the conditions without the 168 Massachusetts Avenue project. Wind conditions at Location 23 were predicted to be uncomfortable during the spring and winter, but suitable for walking annually.

The project improved wind conditions at Locations 23 and 24 for all seasons for the equivalent gust criterion, an improvement from the No Build conditions.

12.6.1.6 Summary

Wind conditions at the project were predicted to be suitable for walking or better on an annual basis. The design team has included a canopy which extends beyond the tower in some areas, improving pedestrian wind conditions. In addition to the horizontal canopies, a setback (at Locations 2 and 4) has been included in the current design to help reduce horizontal winds on the entrances along Massachusetts Avenue.

The wind analysis shows that wind conditions with and without the project are similar and are generally suitable for walking, standing or sitting. With the construction of the project, annual winds will not worsen at any location to uncomfortable or dangerous.

In addition, the annual gust speed will not worsen to unacceptable at any of the studied locations. The annual gust speed will improve from unacceptable to acceptable at one location.

12.6.2 Shadow

12.6.2.1 Introduction and Methodology

As is typically required by the BRA, a shadow impact analysis was conducted to investigate shadow impacts from the project during three time periods (9:00 am, 12:00 noon, and 3:00 pm) during the summer solstice (June 21), autumnal equinox (September 21), vernal equinox (March 21), and the winter solstice (December 21). In addition, shadow studies were conducted for the 6:00 pm time period during the summer solstice and autumnal equinox.

The shadow analysis presents the existing shadow and new shadow that would be created by a building constructed as-of-right on the site, as well as net new shadow beyond the as-of-right shadow from the proposed project, illustrating the incremental impact of the project. The analysis focuses on public open spaces, adjacent neighbors such as Saint Cecilia Church, and the sidewalks adjacent to and in the vicinity of the project site. As the project will create a new, taller structure that is different from what currently exists on the site, new areas of shadow are inevitable. Shadows have been determined using the applicable Altitude and Azimuth data for Boston, as is typically requested by the BRA.

As requested by the BRA, the base "existing condition" includes buildings proposed on the Turnpike Air Rights parcels and those proposed on the Christian Science Plaza.

Figures showing the as-of-right shadow and net new shadow from the project are provided in Appendix C.

12.6.2.2 Vernal Equinox (March 21)

At 9:00 am, shadow will be cast in a northwesterly direction. As-of-right shadow cast from 168 Massachusetts Avenue will be cast onto portions of Massachusetts Avenue and Belvidere Street and their sidewalks. The net new shadow extends beyond the as-of-right shadow and is cast onto a portion of Massachusetts Avenue and its western sidewalk, as well as a small portion of Haviland Street. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 12:00 pm, shadows will be cast in a northerly direction. As-of-right shadow is cast across a portion of Belvidere Street and its sidewalks, and a minor portion of Saint Cecilia Street and its western sidewalk. Net new shadow from the building will generally be cast onto the Berklee-owned 150 Massachusetts Avenue building. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 3:00 pm, shadows will be cast in a northeasterly direction. As-of-right shadow will be cast across a minor portion of Belvidere Street and its northern sidewalk, a small portion of Saint Cecilia Street and its sidewalks, as well as a portion of Saint Cecilia Church. Net new shadow will be cast onto minor portions of Belvidere Street and its sidewalks, Saint Cecilia Street and its sidewalks, and portions of Saint Cecilia Church. No new shadow will be cast on open spaces in the surrounding area.

12.6.2.3 Summer Solstice (June 21)

At 9:00 am, shadows will be cast in a westerly direction. As-of-right shadow and net new shadow will be cast across Massachusetts Avenue and its sidewalks. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 12:00 pm, shadows will be cast in a northerly direction. As-of-right shadow will be cast across a minor portion of Belvidere Street and its southern sidewalk. Net new shadow will be cast across Belvidere Street and its northern sidewalk, as well as a portion of Massachusetts Avenue's eastern sidewalk in front of the building. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 3:00 pm, shadows will be cast in a northeasterly direction. As-of-right shadow will be cast across a small portion of Belvidere Street and its southern sidewalk. Net new shadow will be cast across a portion of Belvidere Street and its northern sidewalk, as well as a minor portion of Saint Cecilia Street and its sidewalks. Net new shadow may also be cast onto a portion of the southern façade of Saint Cecilia Church. No new shadow is cast on open spaces in the surrounding area.

At 6:00 pm, shadows will be cast in an easterly direction. As-of-right and net new shadow will be cast onto a portion of Belvidere's Street southern sidewalk. Additional shadow will generally fall onto nearby rooftops. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

12.6.2.4 Autumnal Equinox (September 21)

At 9:00 am, shadows will be cast in a northwesterly direction. As-of-right shadow will be cast across Massachusetts Avenue and its sidewalks. Net new shadow will be cast across Massachusetts Avenue and its sidewalks, a minor portion of Haviland Street, and a portion of the open space at 7 Haviland Street. No new shadow will be cast on Saint Cecilia Church.

At 12:00 pm, shadows will be cast in a northerly direction. As-of-right shadow will be cast across a portion of Belvidere Street and its northern sidewalk. Net new shadow will only fall on the roof of 150 Massachusetts Avenue. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 3:00 pm, shadows will be cast in a northeasterly direction. As-of-right shadow will be cast across a minor portion of Belvidere Street and its northern sidewalk, a small portion of Saint Cecilia Street and its sidewalks, as well as a portion of Saint Cecilia Church. The as-of-right shadows will be extended in these same areas with the net new shadow. No new shadow will be cast on open spaces in the surrounding area.

At 6:00 pm, most of the area will be in shadow. As-of-right and net new shadow will fall across rooftops in the surrounding area, including a small portion of Saint Cecilia Church. No new shadow will be cast on open spaces in the surrounding area.

12.6.2.5 Winter Solstice (December 21)

The winter solstice creates the least favorable conditions for sunlight in New England. The sun angle during the winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 am during the winter solstice, as-of-right shadow will be cast onto Massachusetts Avenue and its sidewalks. Net new shadow will be cast onto small portions of Belvidere Street and Boylston Street, as well as their sidewalks. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 12:00 pm, shadows will be cast in a northerly direction. As-of-right shadow will be cast onto small portions of Belvidere Street and its northern sidewalk, and Saint Cecilia Street and its northern sidewalk. Net new shadow will only fall onto the rooftop of 150 Massachusetts Avenue. No new shadow is cast on open spaces in the surrounding area or Saint Cecilia Church.

At 3:00 pm, much of the site and surrounding area is already in existing shadow. As-of-right shadow will be cast onto the rooftops immediately east of the project, as well as a minor portion of Saint Cecilia Church. Net new shadow will be cast onto rooftops, including 150 Massachusetts Avenue and Saint Cecilia Church. No new shadow is cast on open spaces in the surrounding area.

12.6.2.6 Conclusions

The shadow analysis looked at the shadow created from a building on the project site built as-of-right, as well as the proposed building. No new shadow will be cast onto surrounding open spaces during 13 of the 14 time periods studied, or on Saint Cecilia Church during nine of the 14 time periods studied.

For both conditions, new shadow was cast onto the surrounding streets and their sidewalks. Shadow is cast onto Saint Cecilia Church five of the 14 time periods studied by a building built as-of-right as well as by the proposed project building. Shadow from the proposed project will cast a shadow on the Berklee-owned open space at 7 Haviland Street during one of 14 time periods studied.

12.6.3 Daylight

12.6.3.1 Introduction and Summary of Analysis

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and the sidewalks in the immediate vicinity of the project site. As is typically required by the BRA, the daylight analysis for the project considers both existing and proposed daylight conditions as well as those of the surrounding area.

The project site is currently occupied by two buildings and the site abuts existing buildings. Although the development of the project will result in increased daylight obstruction at the site over existing conditions, the resulting conditions are typical of a densely developed area and are similar to daylight obstruction values associated with other existing buildings in the vicinity of the project site.

12.6.3.2 Methodology

The daylight analysis was performed using the Boston Redevelopment Authority Daylight Analysis (BRADA) computer program. This program measures the percentage of sky-dome that is obstructed by a project, and is a useful tool in evaluating the net change in obstruction from existing to build conditions at a specific site.

Using BRADA, a silhouette view of the building is taken at ground level from the middle of the adjacent city streets centered on the proposed building. The façade of the building facing the viewpoint, including heights, setbacks, corners and other features, is plotted onto a base map using lateral and elevation angles. The two-dimensional base map generated by BRADA represents a figure of the building in the "sky dome" from the viewpoint chosen. Due to the constraints of the BRADA program, the setbacks of the building may be simplified or the building may be divided into sections in some cases. The BRADA program calculates the percentage of daylight that will be obstructed on a scale of 0% to 100% based on the width of the view, the distance between the viewpoint and the building, and the massing and setbacks incorporated into the design of the building; the lower the number, the lower the percentage of obstruction of daylight from a given viewpoint.

As mentioned, the BRA typically requests that the analysis treats the following elements as controls for data comparison:

- Existing Conditions;
- Proposed Conditions; and
- The Context of the Area.

Viewpoints were chosen along Belvidere Street (Viewpoint 1), Massachusetts Avenue (Viewpoint 2), and St. Germain Street (Viewpoint 3). The daylight analysis examined daylight obstruction from the three locations for the existing and proposed conditions. Additionally, this study considered area context points to provide a basis of comparison to existing conditions in the surrounding area. These area context viewpoints were taken along Belvidere Street (AC1) looking north; Massachusetts Avenue (AC2 and AC3) looking west; and St. Germain Street (AC4) looking north. The viewpoints are illustrated on Figure 12.6-8.

12.6.3.3 Daylight Analysis Results

The results for each viewpoint under each alternative condition are described in Table 12.6-2. Figures 12.6-9 through 12.6-11 illustrate the BRADA results for each analysis and are located at the end of this section.

Table 12.6-2 Viewpoint Locations

Viewpoint Locations		Existing Conditions	Proposed Conditions
Viewpoint 1	Belvidere Street looking south	48.4%	76.0%
Viewpoint 2	Massachusetts Avenue looking east	25.7%	68.5%
Viewpoint 3	St. Germain Street looking north	40.7%	72.3%
Area Context Points			
AC1	Belvidere Street looking north	80.4%	
AC2	Massachusetts Avenue looking west	57.2%	
AC3	Massachusetts Avenue looking west	64.2%	
AC4	St. Germain Street looking north	53.3%	

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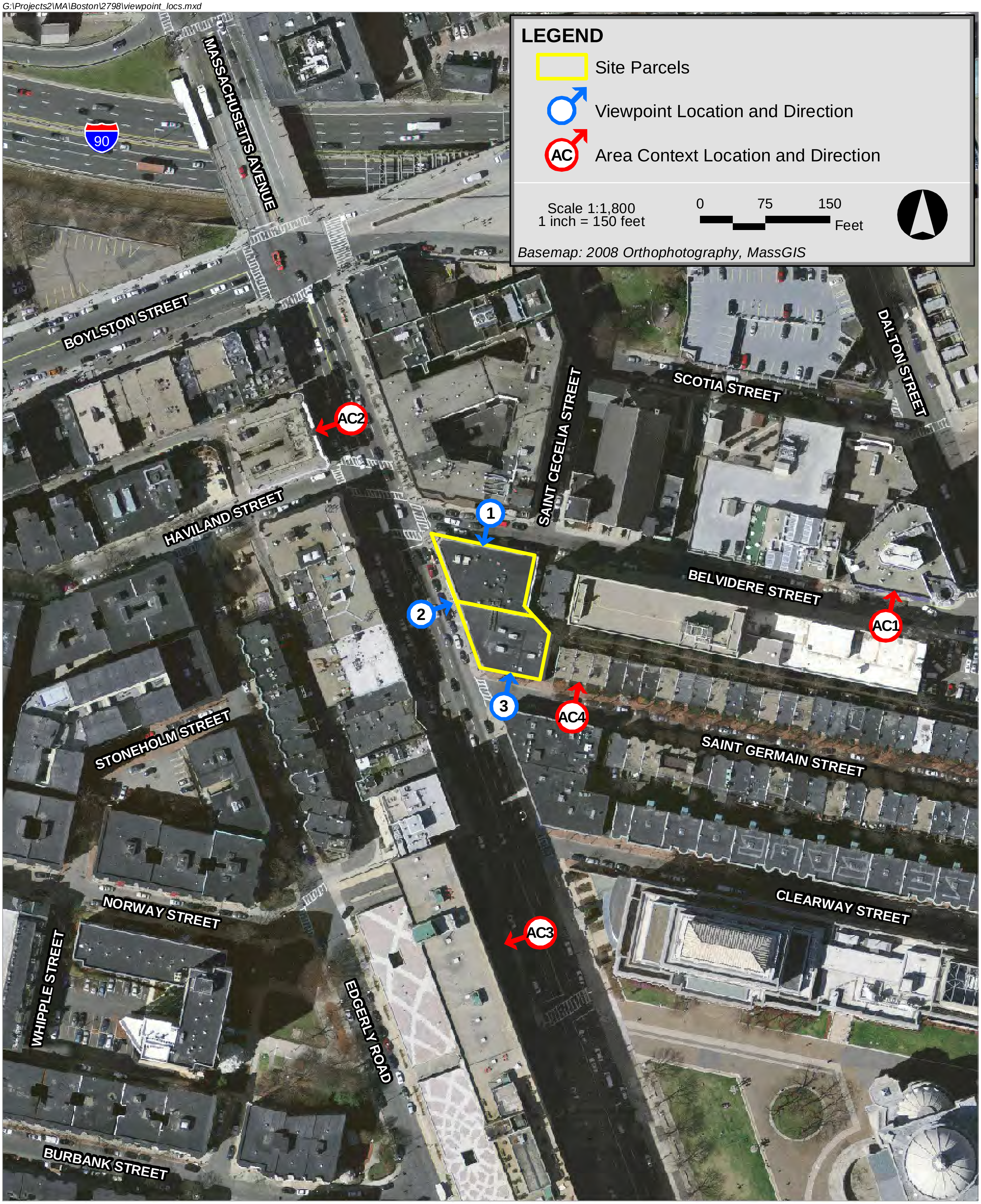
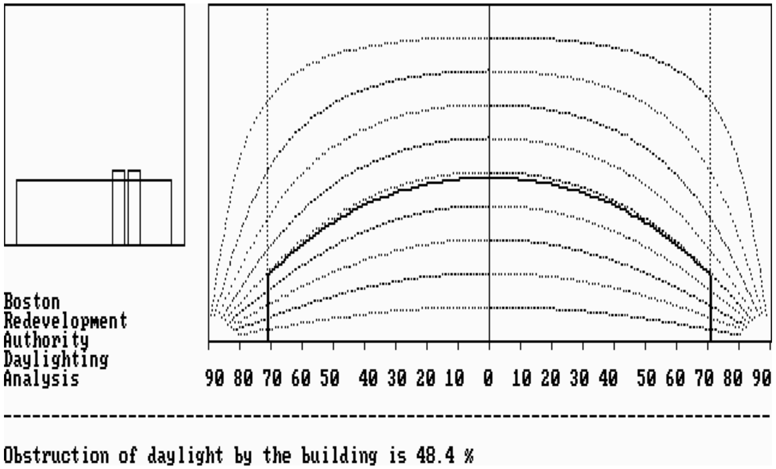
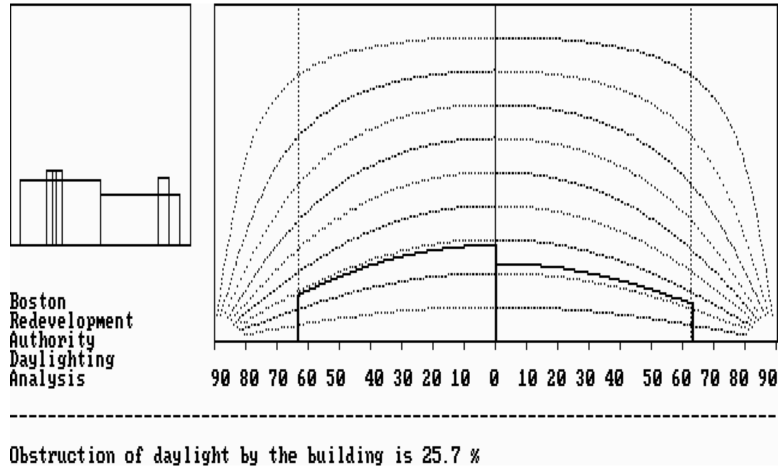


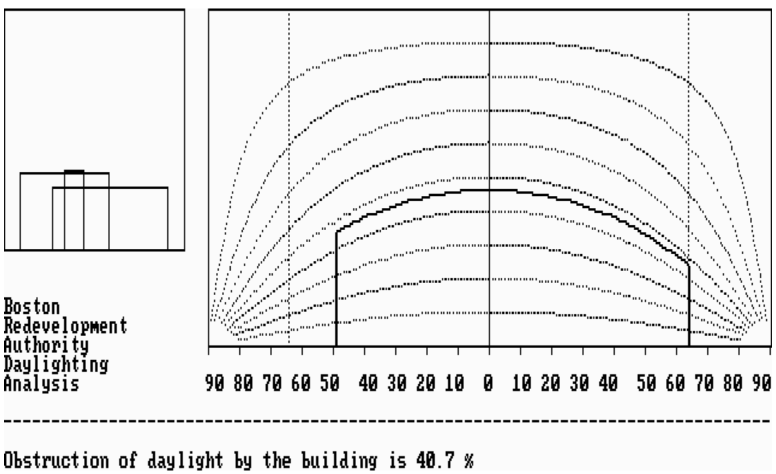
Figure 12.6-8
Daylight Analysis, Viewpoint Locations



Viewpoint 1 – Existing Site from Belvidere Street facing south



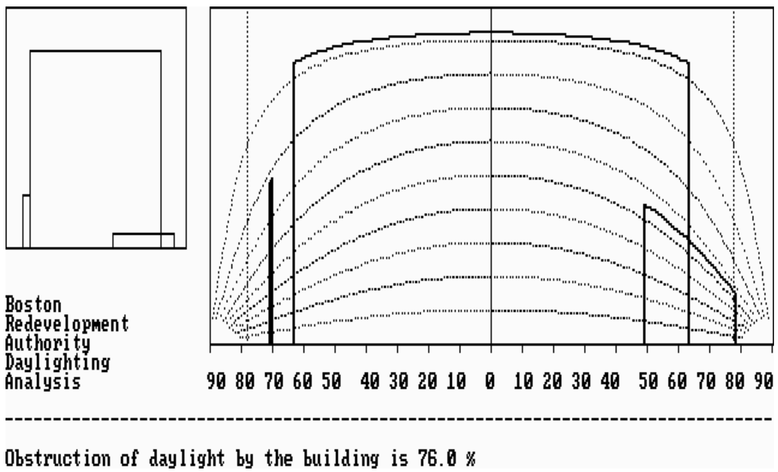
Viewpoint 2 – Existing Site from Massachusetts Avenue facing east



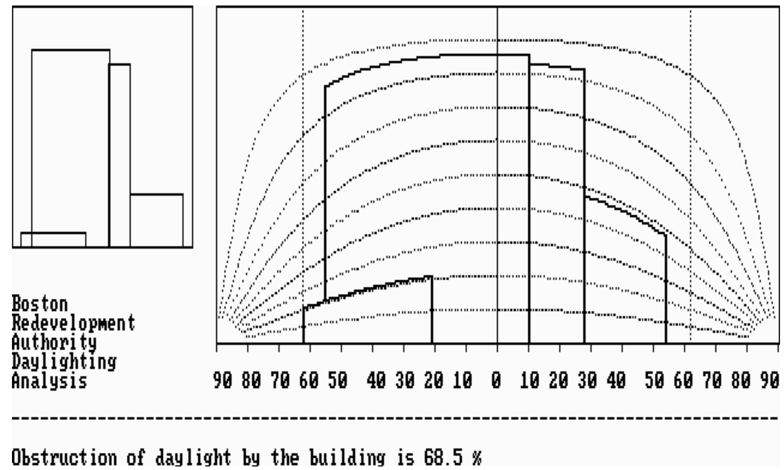
Viewpoint 3 – Existing Site from St. Germain facing north

Figure 12.6-9

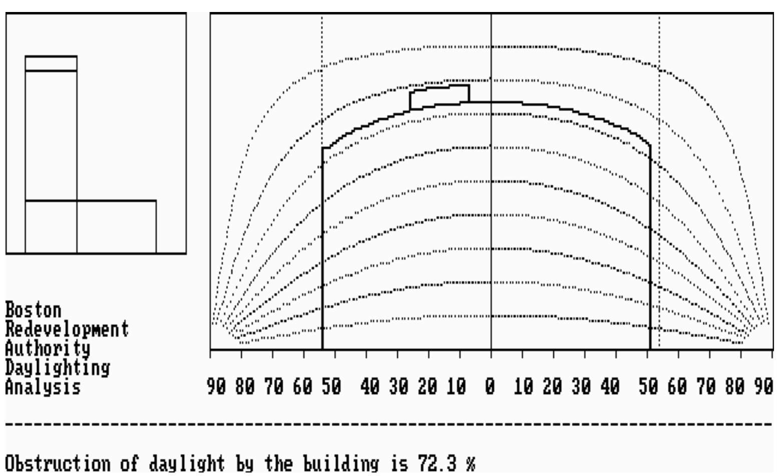
Daylight Analysis
Existing Viewpoints
1, 2, 3



Viewpoint 1 – Proposed Site from Belvidere Street facing south



Viewpoint 2 – Proposed Site from Massachusetts Avenue facing east

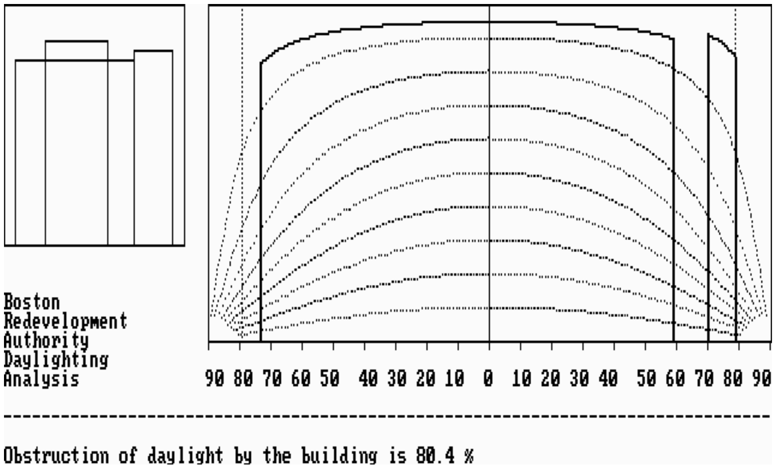


Viewpoint 3 – Proposed Site from St. Germain facing north

Figure 12.6-10

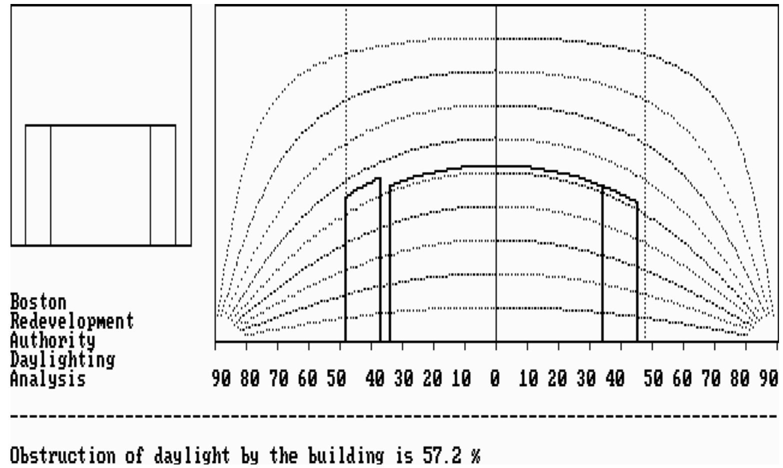
Daylight Analysis
Proposed Viewpoints
1, 2, 3

AC1 (Hilton on Belvidere Street)



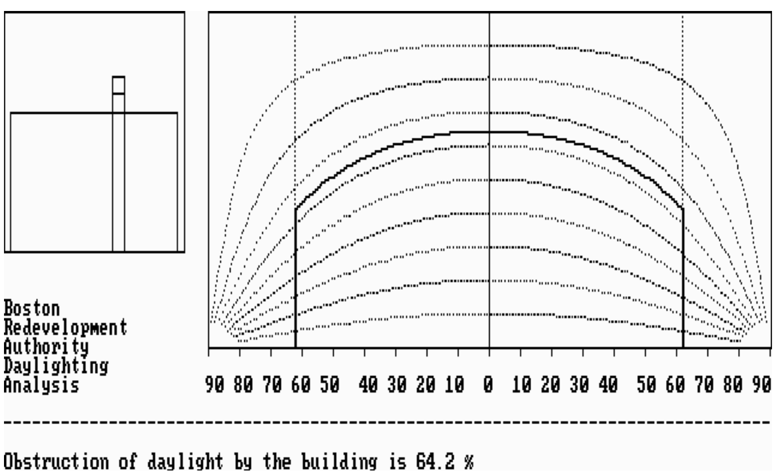
Area Context 1 – Belvidere Street facing north

AC2 (Massachusetts Avenue)



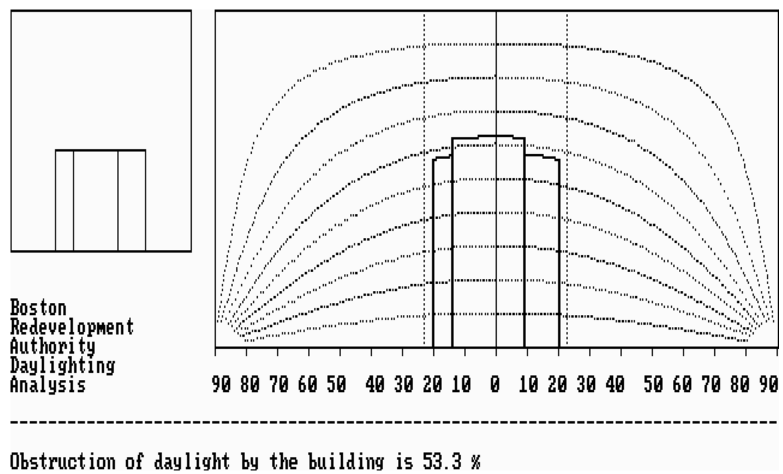
Area Context 2 – Massachusetts Avenue facing west

AC3 (Massachusetts Avenue)



Area Context 3 – Massachusetts Avenue facing west

AC4 (Residence on St. Germain Street)



Area Context 4 – St. Germain Street facing north

Figure 12.6-11

Daylight Analysis
Area Context
Viewpoints

Belvidere Street – Viewpoint 1

Belvidere Street runs along the northern edge of the project site. Viewpoint 1 was taken from the center of the street looking south. The existing daylight obstruction value is 48.4%. With the development of the project the daylight obstruction value will increase to 76.0%, which is similar to daylight obstruction values found in the surrounding area and typical of dense urban areas. The daylight obstruction value is higher than the other viewpoints due to the narrow street and minimal setback of the tower portion of the proposed building.

Massachusetts Avenue – Viewpoint 2

Massachusetts Avenue runs along the western edge of the project site. Viewpoint 2 was taken from the center of Massachusetts Avenue looking east at the site. The existing daylight obstruction value at the site is 25.7% due to the large width of the street and the short heights of the existing buildings. The development of the project will increase the daylight obstruction value at the site to 68.5%, which is similar to daylight obstruction values found in the surrounding area.

St. Germain Street – Viewpoint 3

St. Germain Street runs along the southern edge of the project site. Viewpoint 3 was taken from the center of the street looking north at the project site. The existing daylight obstruction value at the site is 40.7%. The development of the project will increase daylight obstruction values at the site to 72.3% due to the narrow width of the street and the proposed streetwall, but this higher percentage is comparable to daylight obstruction values found in the surrounding area and is typical of dense urban areas.

Area Context Views

The project site is located between two areas with contrasting building heights. To the east of the project site, the area is characterized by taller high-rise existing buildings such as the Hilton Hotel, the Sheraton Hotel, the Prudential Building, and Christian Science Administration Building. To the north, west, and south of the project site are lower rise buildings and residential buildings. The project's daylight obstruction values are similar to the daylight obstruction values in the area.

To provide a larger context for a specific comparison of daylight conditions, obstruction values were calculated from four area context points. The daylight conditions ranged from 53.3% on St. Germain Street between Massachusetts Avenue and Dalton Street (AC4) to 80.4% at the Hilton Hotel on Belvidere Street (AC1). In comparison, daylight obstruction values for the project range from 68.5% to 76.0%.

12.6.3.4 Conclusions

The daylight analysis conducted for the project describes existing and proposed daylight obstruction conditions at the project site and in the surrounding area. The project design sets some taller portions of the building back from the streets, thus reducing the impact on pedestrian's views of the sky. The results of the BRADA analysis indicate that while the development of the project will result in increased daylight obstruction at the site over existing conditions, the resulting conditions generally will be consistent with the area context.

12.6.4 Solar Glare

At this time, it is anticipated that the facades of the project will not be primarily of highly reflective materials that would result in adverse impacts from reflected solar glare.

12.6.5 Air Quality

12.6.5.1 Introduction

An air quality analysis was conducted to determine the impact of pollutant emissions from combustion and mobile source emissions generated by the project. A microscale analysis is typically performed to evaluate the potential air quality impacts of carbon monoxide (CO) due to traffic flow around the project area. In addition, for stationary sources (i.e. combustion stacks, and garage vents), United States Environmental Protection Agency (EPA) approved air dispersion models were used to estimate ambient concentrations of nitrogen oxides (NOx), particulate matter (PM-10 and PM-2.5), and sulfur dioxide (SO_2), in addition to CO. The impacts were added to monitored background values and compared to the Federal National Ambient Air Quality Standards (NAAQS). The standards were developed by EPA to protect the human health against adverse health effects with a margin of safety.

The modeling methodology was developed in accordance with the latest Massachusetts Department of Environmental Protection (MassDEP) modeling policies and Federal modeling guidelines.[3] The air quality analysis results show that CO, NOx, PM-10, PM-2.5, and SO_2 concentrations at all receptors studied are well under NAAQS thresholds.

The analysis shows that impacts from the Project are under NAAQS thresholds. Modeling assumptions and backup data for results presented in this section are provided in Appendix H.

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[3] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005

12.6.5.2 Methodology

Microscale Analysis

For projects in Boston, the BRA typically requires the analysis of the effect on air quality of the increase in traffic generated by the project. The Proponent is required to analyze local effects of the potential increase in traffic on ambient air quality near specific intersections. This "microscale" analysis is required for the project at intersections where 1) project traffic would impact intersections or roadway links currently operating at Level of Service (LOS) D, E, or F or would cause LOS to decline to D, E, or F; 2) project traffic would increase traffic volumes on nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour); or, 3) the project will generate 3,000 or more new average daily trips on roadways providing access to a single location.[4] The microscale analysis involves modeling of carbon monoxide (CO) emissions from vehicles idling at and traveling through both signalized and unsignalized intersections. Predicted ambient concentrations of CO for the build and no-build cases are compared with federal (and state) ambient air quality standards for CO.

The microscale analysis typically examines ground-level CO impacts due to traffic queues in the immediate vicinity of a project. CO is used in microscale studies to indicate roadway pollutant levels since it is the most abundant pollutant emitted by motor vehicles and can result in so-called "hot spot" (high concentration) locations around congested intersections. NAAQS have been established by the EPA for CO to protect the public health (known as primary standards). These standards do not allow ambient CO concentrations to exceed 35 parts per million (ppm) for a one-hour averaging period and 9 ppm for an eight-hour averaging period, more than once per year at any location. The widespread use of CO catalysts on late-model vehicles has reduced the occurrences of CO hotspots. Air quality modeling techniques (computer simulation programs) are typically used to predict CO levels for both existing and future conditions to evaluate compliance of the roadways with the standards. The analyses followed the procedure outlined in the EPA's intersection modeling guidance.[5]

The microscale analysis has been conducted using the latest versions of EPA MOBILE6.2, CAL3QHC, and AERMOD to estimate CO concentrations at sidewalk receptor locations.

Baseline (2010) and future year (2015) emission factor data calculated from the MOBILE6.2 model, along with traffic data, were input into the CAL3QHC program to determine CO concentrations due to traffic flowing through the selected intersections. AERMOD was used

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4 BRA, Development Review Guidelines, 2006.

5 U.S. EPA, Guideline for Modeling Carbon Monoxide from Roadway Intersections; EPA-454/R-92-005, November 1992.

to estimate potential ground-level impacts due to emissions from the loading dock vent and combustion sources.

CAL3QHC and AERMOD results were then added to background CO values of 1.7 ppm (one-hour) and 1.3 ppm (eight-hour), as provided by MassDEP, to determine total air quality impacts due to the project. This value was compared to the NAAQS for CO of 35 ppm (one-hour) and 9 ppm (eight-hour).

Intersection Selection

An analysis of the intersections from the traffic study was conducted (see Chapter 7, Transportation). Microscale modeling was performed for the intersections included in the traffic analysis:

- the intersection of Massachusetts Avenue and Boylston Street, and Cambria and Boylston Street (analyzed together); and

- the intersection of Massachusetts Avenue, Haviland Street, and Belvidere Street.

As described in Chapter 7, the 2016 No Build and Build traffic conditions are essentially the same.

Emissions Calculations (MOBILE6.2)

The EPA MOBILE6.2 computer program was used to estimate motor vehicle emission factors on the roadway network. Emission factors calculated by the MOBILE6.2 model are based on motor vehicle operations typical of daily periods. The Commonwealth's statewide annual Inspection and Maintenance (I&M) program was included, as well as the state specific vehicle age registration distribution. The input files for MOBILE6.2 for the existing (2011) and build year (2016) are provided by MassDEP. As is typical, minor edits to the files were necessary to allow the program to output emission factors for the various speeds used in the analyses.

The current version of MOBILE6.2 does not explicitly calculate idle emissions. However, idle emissions can be obtained from a vehicle speed of 2.5 miles per hour (mph) (the lowest speed MOBILE6 will model). The resulting emission rate given in (grams/mile) is then multiplied by 2.5 mph to estimate idle emissions (in grams/hour). Moving emissions are calculated based on actual speeds at which free-flowing vehicles travel through the intersections. A speed of 30 mph is used for all free-flow traffic. Speeds of 10 and 15 mph were used for right (and U-turns) and left turns, respectively.

Winter CO emission factors are typically higher than summer for CO. Therefore winter vehicular emission factors were conservatively used in the microscale analyses.

Receptors & Meteorology Inputs

Sets of up to 90 receptors were placed in the vicinity of each of the modeled intersections. Receptors extended approximately 100 to 200 feet on the sidewalks along the roadways approaching the intersection. The roadway links and receptor locations of the modeled intersections are presented in Figures 12.6-12 and 12.6-13.

For the CAL3QHC model, limited meteorological inputs are required. Following EPA guidance[6], a wind speed of one meter per second, stability class D (4), and a mixing height of 1,000 meters were used. To account for the intersection geometry, wind directions from 0° to 350°, every 10° were selected. A surface roughness length of 321 cm corresponding to "City Land Use – Central Business District" was selected.[7]

Impact Calculations (CAL3QHC)

The CAL3QHC model predicts one-hour concentrations using queue-links at intersections based on worst-case meteorological conditions and traffic input data. The one-hour concentrations were scaled by a factor of 0.7 to estimate 8-hour concentrations.[8] The CAL3QHC methodology was based on EPA CO modeling guidance. Signal timings were provided directly from the traffic modeling runs. Travel speeds were estimated based on field observations, traffic data, and queue links at the intersections. The CAL3QHC input parameters are described in Appendix H.

Stationary Source Analysis

AERMOD Modeling Methodology

The most recent version of the EPA AERMOD refined dispersion model (Version 09292) was selected to predict concentrations from the stationary sources related to the project. AERMOD is the EPA's preferred model for regulatory applications. The use of AERMOD provides the benefits of using the most current algorithms available for steady state dispersion modeling.

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[6] U.S. EPA, *Guideline for Modeling Carbon Monoxide from Roadway Intersections.* EPA-454/R-92-005, November 1992.

[7] U.S. EPA, *User's Guide for CAL3QHC Version 2: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections*. EPA –454/R-92-006 (Revised), September 1995

[8] U.S. EPA, Screening Procedures for Estimating the Air Quality Impact of Stationary Sources; EPA-454/R-92-019, October 1992

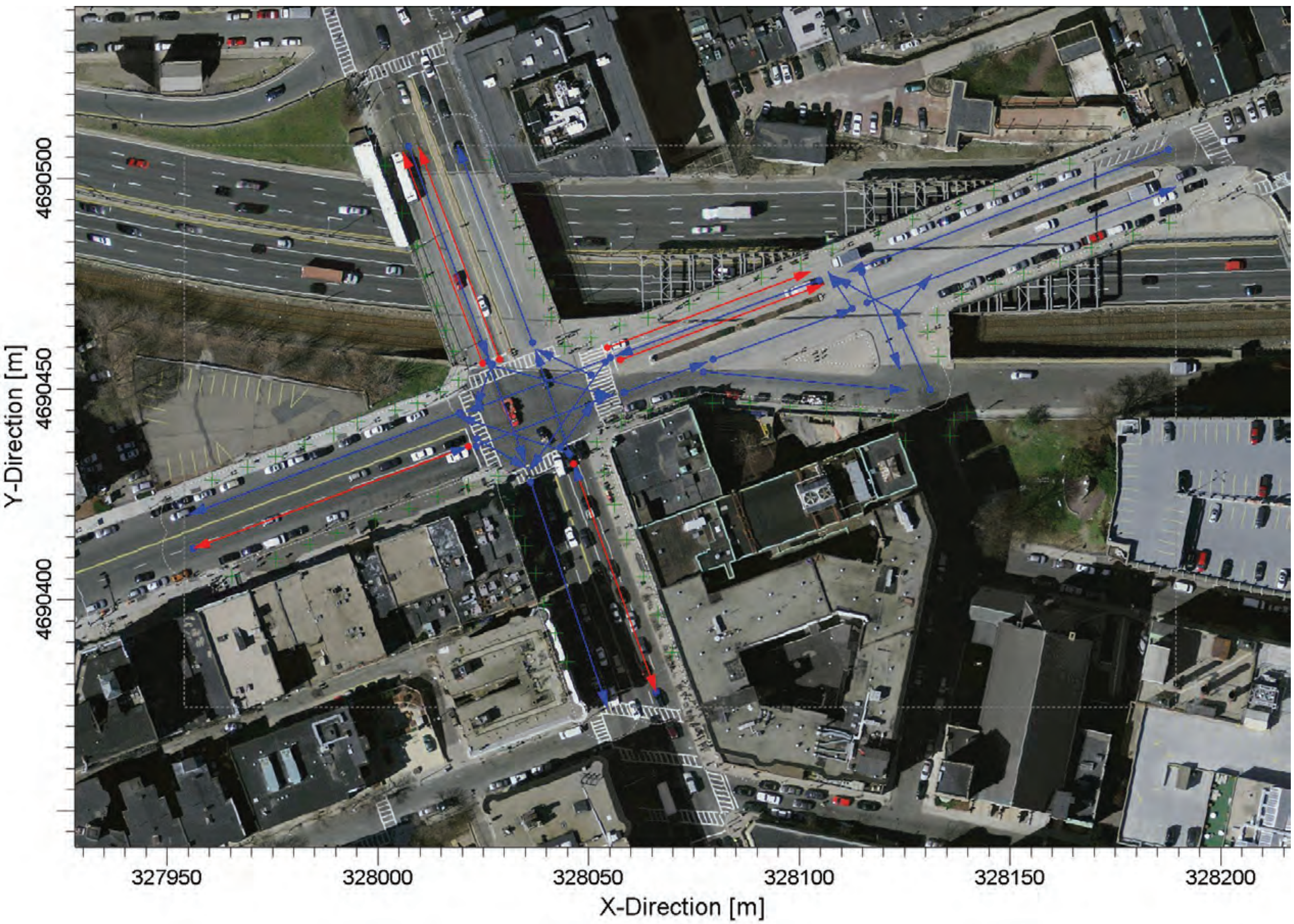

Figure 12.6-12

Link and Receptor Locations for CAL3QHC modeling of Intersection 1: the intersection of Massachusetts Avenue, Boylston Street, and Cambria Street

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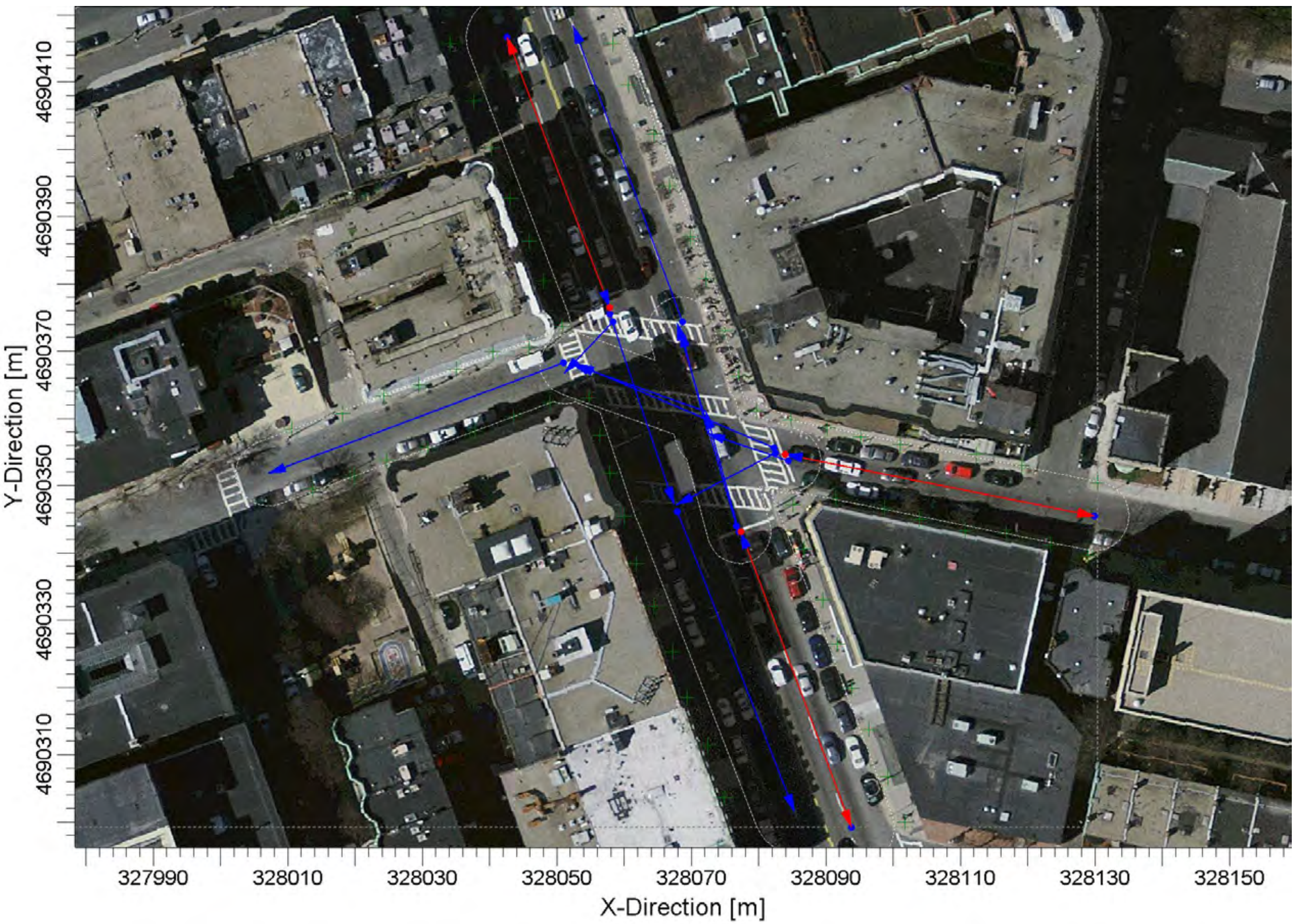

Figure 12.6-13

Link and Receptor Locations for CAL3QHC modeling of Intersection 2: the intersection of Massachusetts Avenue, Haviland Street, and Belvidere Street

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The ISC-AERMOD View graphical user interface (GUI) Version 6.7.1, created by Lakes Environmental, was used to facilitate model setup and post-processing of data. The AERMOD model was selected for this analysis for the reasons listed below:

- it is the required EPA model for all refined regulatory analyses for receptors within 50 km of a source;
- it is a refined model for facilities with multiple sources, source types, and building-induced downwash;
- it uses actual representative hourly meteorological data;
- it incorporates direction-specific building parameters which can be used to predict impacts within the wake region of nearby structures;
- it allows the modeling of multiple sources together to predict cumulative downwind impacts;
- it provides for variable emission rates;
- it provides options to select multiple averaging periods between one-hour and one year (scaling factors can be applied to adjust the one-hour impact to a peak impact less than one-hour); and
- it allows the use of large Cartesian and polar receptor grids, as well as discrete receptor locations.

Regulatory default options adopted for the model include:

- *Use stack-tip downwash (except for building downwash).* Stack-tip downwash is an adjustment of the actual stack release height for conditions when the gas exit velocity is less than 1.5 times the wind speed. For these conditions, the effective release height is reduced a bit, based on the diameter of the stack and the wind and gas exit velocity. This option applies to point sources only, such as emergency generators, cooling towers, boiler units and garage vents.
- *Use the missing data and calms processing routines.* The model treats missing meteorological data in the same way as the calms processing routine, i.e., it sets the concentration values to zero for that hour, and calculates the short term averages according to EPA's calms policy, as set forth in the Guideline. Since only one-hour averages are being used, concentrations predicted with calm or missing data would not affect model results.

Non-default options were used to model horizontally emitting sources, such as garage vents. Additionally, the non-default conversion of NOx to NO_2 using the Plume Volume

Molar Ratio Method was selected. This option utilizes actual coinciding hourly ozone data to accurately model the chemical transformation of NOx to NO_2. Hourly ozone data from the nearest monitor location at Harrison Avenue were used.

The AERMOD model is able to assign sources to a rural or urban category to allow specified urban sources to use the effects of increased surface heating under stable atmospheric conditions. The urban dispersion classification was selected based on a visual inspection of the area within a three kilometer radius of the project site. A population estimate of 645,000 was obtained from the U.S. Census website (www.census.gov) and is used in the AERMOD model to estimate the urban boundary layer height.

The regional meteorology in Boston is best approximated with meteorological data collected by the nearby Boston Logan International Airport in East Boston, MA. The station is located approximately three miles (5.1 km) to the east-northeast of the project site at an elevation of 15 feet (4.6 m) above mean sea level. This station is the closest site for which extensive meteorological data are available which are representative of similar topographic influences that affect the proposed site. Five years (2005-2009) of hourly surface data collected at the station include wind speed and direction, temperature, cloud cover and ceiling height. Upper air data from Gray, Maine was processed along with the surface data. The processed meteorological files for use in AERMOD were provided by MassDEP. These files have been used on other AERMOD applications in the area for review by MassDEP and are presumed to be of sufficient quality for regulatory applications.

A network of 1,572 receptors was used for the refined AERMOD modeling analysis. A nested grid of Cartesian receptors centered on the project was used. The entire modeling domain encompassed 16 square kilometers. The spacing of the receptors was as follows:

- An area 200 meters by 200 meters with receptors spaced every 20 meters.
- An area 500 meters by 500 meters with receptors spaced every 50 meters.
- An area 1.0 kilometers by 1.0 kilometers with receptors spaced every 100 meters.
- An area 2.0 kilometers by 2.0 kilometers with receptors spaced every 200 meters.

Terrain data were obtained from the U.S.G.S National Map Seamless Server (www.seamless.usgs.gov) according to guidance set forth by EPA.[9] Source, building, and receptor elevations were processed using the AERMAP processor by way of the Lakes AERMOD View interface. Figure 12.6-14 presents the source and receptor locations, as well as the buildings used in the GEP stack height/downwash analysis described below.

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9 U.S. EPA, AERMOD Implementation Guide, March 19, 2009.

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Figure 12.6-14

AERMOD Stationary Source, Receptor, and Building Locations

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Stationary Sources

Stationary sources of air pollution are typically units that combust fuel. In this case, these sources consist of heating units, electrical generating units, etc.

Heating Equipment

There are two current design alternatives for the heat/hot water boilers. The preferred option is for six 2 MMBTU/hr heating/hot water boilers to be installed on the new building. The alternative design is for eight 3 MMBTU/hr units. All units will be natural gas-fired and located in a mechanical area on the roof of the building. The units are expected to be exhausted through individual stacks.

The boilers will be either within or well below the requirements of MassDEP's Environmental Results Program (ERP) since individual estimated heat inputs are within or below the 10 to 40 MMBtu/hour ERP range. However, emissions were conservatively estimated for each boiler based on the MassDEP Boiler ERP program emission limits. Dispersion modeled impacts from the heating units were estimated from exhaust stacks 10 feet above the individual building roof heights above ground level, or as determined by the architect. For all impacts, the heating equipment is assumed to be in operation 24 hours per day, seven days per week. Detailed calculations and stack parameters are presented in Appendix H.

All boilers are expected to be below the ERP limits of 10 MMBtu/hour. Therefore, registration with MassDEP would not be required.

Emergency Generator

Current design plans are for one 800-kilowatt emergency generator to be installed on the building to be constructed. The unit will provide life safety and standby emergency power to the building. The unit will be diesel-fired and located in a mechanical area on the roof of the building. The generator is assumed to be designed such that its exhaust stack extends at least 10 feet above the individual building roof height above ground level.

Typically, the generator will operate for approximately one hour each month for testing and general maintenance. The ERP regulation applies to new emergency generators greater than 37 kW. The regulation is similar to the boiler ERP in that new engines are subject to emission standards, recordkeeping, certification, and compliance with the MassDEP noise policy. Since the generator maximum rating capacity is greater than the ERP limit of 37 kW, it will be subject to the new ERP program. Per the ERP, the generator owner will limit operation of the generator to less than 300 hours per year and submit a certification form to MassDEP within 60 days of installation.

Emissions were estimated for the emergency generator based on vendor supplied data. Comparable equipment was assumed where not provided by the MEP engineers. The generator is assumed to operate 300 of 8,760 hours per year in the modeling for annual averaging times. Detailed calculations and stack parameters are presented in Appendix H.

Cooling Towers

There are two current design alternatives for the heat/hot water boilers. The preferred design is for a single-cell cooling tower, capable of providing 400 tons of cooling, to be installed on the building to be constructed. The alternative design is for a dual-cell cooling tower, capable of 800 tons of cooling. These units will remove the excess heat generated by the building's mechanical equipment. All units will be located on the roof of the building.

Only emissions of particulate matter are assumed to be produced by the cooling tower cells. The cooling towers are assumed to operate at 100% capacity for 8,760 hours per year. Emissions of all other pollutants from the cooling towers are expected to be negligible.

Emissions and exhaust parameters were based on vendor supplied data and/or engineering judgment. Detailed calculations are presented in Appendix H.

Loading Dock Exhaust Vent

A dual bay loading dock with mechanical ventilation will be part of the proposed building. Carbon monoxide monitors are typically installed within enclosed areas idling vehicles to insure that levels of CO do not exceed health standards. At this time, it is unclear if monitors will be used to control abatement ventilation when necessary.

Emissions from the loading dock were calculated using MOBILE6.2 and an estimate of the total idling time permitted under Massachusetts law (90 MGL Section 16A). It was conservatively assumed that the dock would be 100% utilized from 7:00 am to 4:00 pm and that trucks would idle for five minutes per hour, the Massachusetts legal limit.

To provide a conservative assumption for emissions from the loading dock, an emission rate from MOBILE6.2 of 2.5 mph was conservatively assumed for a midpoint year of 2013. As is accepted, the 2.5 mph emission rate in gram/mile is multiplied by 2.5 mph to get an idling emission rate in mass/time. The higher of the summer or winter factors were used, depending on pollutant. Additionally, emission factors were weighted such that only factors for heavy duty gasoline and heavy duty diesel vehicle classes (MOBILE6.2 designations HDGV and HDDV) were used for dock emissions.

High velocity air intake louvers and the dock entry will supply make-up air for the dock's ventilation systems. Based on mechanical estimates, a total ventilation air requirement of 5,600 cubic feet per minute per square foot was used. A single vent is expected to be exiting vertically at four feet above the roofline and is assumed to be 30″x20″ or 4.2 sf in area.

Detailed calculations, assumptions, and exhaust parameters are presented in Appendix H.

GEP Stack Height Analysis

The Good Engineering Practice (GEP) stack height evaluation of the facility has been conducted in accordance with the EPA revised Guidelines for Determination of Good Engineering Practice Stack Height (EPA, 1985). A GEP stack is sufficiently high to avoid aerodynamic downwash effects from nearby buildings or structures. As defined by the EPA guidelines, the formula for computing GEP stack height is the greater of:

1. 65 meters, or
2. for stacks constructed after January 12, 1979,

$$H_{GEP} = H_b + 1.5L$$

where H_{GEP} = GEP stack height,

H_b = Height of adjacent or nearby structures,

L = Lesser of height or maximum projected width of adjacent or nearby building (*i.e.*, the critical dimension), and nearby is within 5L of the stack from downwind (trailing edge) of the building.

The GEP formula was applied to the project. Facility grade is approximately at mean sea level. The EPA's Building Profile Input Program Prime Version (BPIP-Prime) was run to confirm the GEP height and to calculate building dimensions for use in AERMOD.

The point sources subject to building influences are the boiler stacks, dock vents, the cooling towers, and the emergency generator stacks.

The proposed boiler stacks, the cooling towers, dock vents, and emergency generator stacks are all below GEP height; therefore, building downwash effects were considered in the air quality modeling. The AERMOD model determines when and if to include downwash in its calculations. In addition, if downwash applies, the AERMOD downwash algorithm will be used to estimate concentrations in the building cavity areas.

12.6.5.3 Background Concentrations

To estimate background pollutant levels representative of the area, the most recent air quality monitor data reported on the EPA's AIRData website (http://www.epa.gov/air/data) was obtained for 2007 to 2009. MassDEP guidance specifies the use of the latest three years of available monitoring data from within 10 km of the project site.

The Clean Air Act allows for one exceedance per year of the CO and SO_2 short-term NAAQS per year. The highest second-high accounts for the one exceedance. Annual NAAQS are never to be exceeded. The 24-hour PM-10 standard is not to be exceeded more than once per year on average over three years. To attain the 24-hour PM-2.5 standard, the three-year average of the 98th percentile of 24-hour concentrations must not exceed 35 $\mu g/m^3$. For annual PM-2.5 averages, the average of the highest yearly observations was used as the background concentration. A new one-hour NO_2 standard was recently promulgated. To attain this standard, the three-year average of the 98^{th} percentile of the maximum daily one-hour concentrations must not exceed 188 $\mu g/m^3$.

Background concentrations were determined from the closest available monitoring stations to the proposed development. The closest monitor is less than one mile away at Kenmore Square. A summary of the background air quality concentrations are presented in Table 12.6-3.

Table 12.6-3 Observed Ambient Air Quality Concentrations and Selected Background Levels

Pollutant	Averaging Period	Station	2007	2008	2009	Background Level	NAAQS
SO_2 ($\mu g/m^3$)	1-Hour (a)	BOS	93.6	75.4	65.0	93.60	195
	3-Hour	BOS	88.4	62.4	49.4	88.40	1,300
	24-Hour	BOS	52.0	46.8	23.4	52.00	365
	Annual	BOS	10.9	10.4	6.5	10.92	80
CO ($\mu g/m^3$)	1-Hour	BOS	1824.0	1938.0	1596.0	1938.00	40000
	8-Hour	BOS	1482.0	1482.0	1254.0	1482.00	10000
NO_2 ($\mu g/m^3$)	1-Hour (b)	BOS	126.0	133.5	112.8	133.48	188
	Annual	BOS	38.7	41.4	37.8	41.36	100
PM-10 ($\mu g/m^3$)	24-Hour	BOS	40.0	53.0	69.0	69.00	150
	Annual	BOS	21.6	23	20.6	23.00	50
PM-2.5 ($\mu g/m^3$)	24-Hour (c)	BOS	31.7	26	19.1	25.60	35
	Annual (d)	BOS	11.43	11.14	8.98	10.52	15

Notes:
(a) Background level for one-hour SO_2 is the three-yr maximum of the average one-hour values.
(a) Background level for one-hour NO_2 is the three-yr maximum of the average one-hour values.
(c) Background level for 24-hour PM-2.5 is the average concentration of the 98th percentile for three years.
(d) Background level for Annual PM-2.5 is the average concentration of three years.
BOS = Kenmore Square, Boston, MA
SO_2 reported in PPM. Converted using one ppm = 2600 $\mu g/m^3$.
NO_2 reported in PPM. Converted using one ppm = 1880 $\mu g/m^3$.
CO reported in PPM. Converted using one ppm = 1140 $\mu g/m^3$.

For use in the microscale analysis, background concentrations of CO in ppm were required. The corresponding maximum background concentrations in ppm were 1.7 ppm for one-hour and 1.3 ppm for eight-hour CO.

12.6.5.4 Air Quality Results

Microscale Analysis

The results of the maximum one-hour predicted CO concentrations from CAL3QHC are provided in Tables 12.6-4 and 12.6-5 for the 2011 and 2016 scenarios. Eight-hour average concentrations are calculated by multiplying the maximum one-hour concentrations by a factor of 0.7.[10]

Table 12.6-4 Summary of Microscale Modeling Analysis (Existing 2011)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
One-Hour					
Massachusetts Ave. / Haviland St. / Belvidere St.	AM	0.90	1.7	2.6	35
	PM	1.20	1.7	2.9	35
Massachusetts Ave. / Boylston St. / Cambria St.	AM	1.60	1.7	3.3	35
	PM	1.60	1.7	3.3	35
Eight-Hour					
Massachusetts Ave. / Haviland St./Belvidere St.	AM	0.63	1.3	1.93	9
	PM	0.84	1.3	2.14	9
Massachusetts Ave. / Boylston St / Cambria St.	AM	1.12	1.3	2.42	9
	PM	1.12	1.3	2.42	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.7.					

[10] U.S. EPA, Screening Procedures for Estimating the Air Quality Impact of Stationary Sources; EPA-454/R-92-019, October 1992

Table 12.6-5 Summary of Microscale Modeling Analysis (No-Build and Build 2016)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
One-Hour					
Massachusetts Ave./Haviland St./Belvidere St.	AM	1.10	1.7	2.8	35
	PM	1.10	1.7	2.8	35
Massachusetts Ave./Boylston St. / Cambria St.	AM	1.30	1.7	3	35
	PM	1.40	1.7	3.1	35
Eight-Hour					
Massachusetts Ave. / Haviland St. / Belvidere St.	AM	0.77	1.3	2.07	9
	PM	0.77	1.3	2.07	9
Massachusetts Ave. / Boylston St. / Cambria St.	AM	0.91	1.3	2.21	9
	PM	0.98	1.3	2.28	9

Notes:

CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.7.

The results of the one-hour and eight-hour maximum modeled CO ground-level concentrations from CAL3QHC were added to EPA supplied background levels for comparison to the NAAQS. These values represent the highest potential concentrations at the intersection as they are predicted during the simultaneous occurrence of "defined" worst case meteorology. The highest one-hour traffic-related concentration predicted in the area of the project, for the modeled conditions (1.6 ppm) plus background (1.7 ppm), is 2.3 ppm for the 2011 case (at Massachusetts Avenue and Boylston Street). The highest eight-hour traffic-related concentration predicted in the area of the project for the modeled conditions (1.1 ppm) plus background (1.3 ppm) is 2.4 ppm for the 2011 case. Both concentrations are well below the one-hour NAAQS of 35 ppm and the eight-hour NAAQS of 9 ppm.

When adding the high-second highest AERMOD-predicted one-hour CO concentrations from the stationary sources for the future build case (79 $\mu g/m^3$, 0.07 ppm), the one-hour modeled concentration from moving vehicles (1.6 ppm) plus background (1.7 ppm) is 2.4 ppm. The total future build concentration includes the highest second-high predicted concentrations from AERMOD for the loading dock exhaust vent, the heating boilers, and the emergency generators. This combined value is also well below the one-hour NAAQS standard of 35 ppm.

Similarly, when adding the high-second highest AERMOD-predicted eight-hour CO concentrations from the stationary sources for the future build case (42 $\mu g/m^3$, 0.04 ppm), the eight-hour modeled concentration from moving vehicles (1.1 ppm) plus background (1.3 ppm) is 2.4 ppm. These values are also below the eight-hour NAAQS standard of 9.0 ppm.

This is a highly conservative estimate, since the added values are irrespective of time and space (i.e., the modeled and background concentrations occur at different times and at different locations).

It would be expected that any other mitigation measures implemented to improve traffic flow at any of the modeled intersections would result in further improved air quality impacts.

Stationary Source Analysis

In addition to the microscale analysis, a cumulative impact analysis was also conducted for comparison to the NAAQS for SO_2, NOx, PM-10, and PM-2.5. This analysis addresses emissions from the project's heating boilers, emergency generators, cooling towers, and the loading dock vent.

Since there were preferred and alternative configurations of the boilers and cooling towers, four combinations of sources were included:

- Preferred: Preferred boiler configuration (six), preferred cooling tower (single cell), emergency generator, and loading dock vent;
- Alternative: Alternative boiler configuration (eight), alternative cooling tower (dual cell), emergency generator, and loading dock vent;
- Mixed 1: Alternative boiler configuration (eight), preferred cooling tower (single cell), emergency generator, and loading dock vent; and
- Mixed 2: Preferred boiler configuration (six), alternative cooling tower (dual cell), emergency generator, and loading dock vent.

Worst case maximum predicted impacts from these source groups were added to monitored background values obtained from the EPA AIRData website and MassDEP and compared to the NAAQS.

Table 12.6-6 presents the cumulative modeling results for the stationary sources plus monitored background values. The total impacts when combined with background are below the NAAQS for all pollutants and averaging periods.

12.6.5.5 Conclusions

Using conservative estimates, the CO concentrations at the nearest receptors for impacts from the intersection, the heating boilers, and emergency generator units, plus monitored background values, are well under the CO NAAQS thresholds. In addition, maximum cumulative impacts from the heating boilers, loading dock vent, cooling towers, and emergency generators plus monitored background values are also below the NAAQS thresholds for SO_2, NOx, PM-10, and PM-2.5.

Table 12.6-6 Summary of NAAQS Stationary Source Modeling Analysis

Preferred Configuration (6 Boilers, 1 Cooling Tower, Emergency Genset, Loading Dock Vent)

AMBIENT AIR QUALITY STANDARDS								
Pollutant	Avg Time	H/ H2H	Max. Modeled Conc. (μg/m^3)	Back-ground Conc.(5) (μg/m^3)	Total (μg/m^3)	MAAQS/ NAAQS (μg/m^3)	Year	% of AAQS
SO_2	1-HR (1)	H	0.43	93.60	94.03	195	05-09	48%
	3-HR	H2H	0.37	88.40	88.77	1300	2009	7%
	24-HR	H2H	0.20	52.00	52.20	365	2006	14%
	ANN	H	0.03	10.92	10.95	80	2007	14%
CO	1-HR	H2H	42.24	1938.00	1980.24	40000	2009	5%
	8-HR	H2H	26.17	1482.00	1508.17	10000	2005	15%
NO_2	1-HR (2)	H	149.69	(6)	149.69	188	05-07	80%
	ANN	H	3.08	41.36	44.44	100	2009	44%
PM_{10}	24-HR	H2H	2.18	69.00	71.18	150	2006	47%
	ANN	H	0.55	23.00	23.55	50	2007	47%
$PM_{2.5}$	24-HR (3)	H	2.30	25.60	27.90	35	05-09	80%
	ANN (4)	H	0.54	10.52	11.06	15	05-09	74%

Table 12.6-6 Summary of NAAQS Stationary Source Modeling Analysis (continued)

Alternative Configuration (8 Boilers, 2 Cooling Towers, Emergency Genset, Loading Dock Vent)

AMBIENT AIR QUALITY STANDARDS								
Pollutant	Avg Time	H/ H2H	Max. Modeled Conc. (μg/m³)	Back-ground Conc.(5) (μg/m³)	Total (μg/m³)	MAAQS/ NAAQS (μg/m³)	Year	% of AAQS
SO_2	1-HR (1)	H	0.61	93.60	94.21	195	05-09	48%
	3-HR	H2H	0.51	88.40	88.91	1300	2006	7%
	24-HR	H2H	0.28	52.00	52.28	365	2006	14%
	ANN	H	0.06	10.92	10.98	80	2007	14%
CO	1-HR	H2H	79.30	1938.00	2017.30	40000	2009	5%
	8-HR	H2H	42.09	1482.00	1524.09	10000	2005	15%
NO_2	1-HR (2)	H	152.06	(6)	152.06	188	05-07	81%
	ANN	H	4.54	41.36	45.90	100	2009	46%
PM_{10}	24-HR	H2H	3.61	69.00	72.61	150	2006	48%
	ANN	H	0.98	23.00	23.98	50	2007	48%
$PM_{2.5}$	24-HR (3)	H	3.78	25.60	29.38	35	05-09	84%
	ANN (4)	H	0.97	10.52	11.49	15	05-09	77%

Mixed Configuration 1 (8 Boilers, 1 Cooling Tower, Emergency Genset, Loading Dock Vent)

AMBIENT AIR QUALITY STANDARDS								
Pollutant	Avg Time	H/ H2H	Max. Modeled Conc. (μg/m³)	Back-ground Conc.(5) (μg/m³)	Total (μg/m³)	MAAQS/ NAAQS (μg/m³)	Year	% of AAQS
SO_2	1-HR (1)	H	0.61	93.60	94.21	195	05-09	48%
	3-HR	H2H	0.51	88.40	88.91	1300	2006	7%
	24-HR	H2H	0.28	52.00	52.28	365	2006	14%
	ANN	H	0.06	10.92	10.98	80	2007	14%
CO	1-HR	H2H	79.30	1938.00	2017.30	40000	2009	5%
	8-HR	H2H	42.09	1482.00	1524.09	10000	2005	15%
NO_2	1-HR (2)	H	152.06	(6)	152.06	188	05-07	81%
	ANN	H	4.54	41.36	45.90	100	2009	46%
PM_{10}	24-HR	H2H	3.54	69.00	72.54	150	2006	48%
	ANN	H	0.97	23.00	23.97	50	2007	48%
$PM_{2.5}$	24-HR (3)	H	3.74	25.60	29.34	35	05-09	84%
	ANN (4)	H	0.96	10.52	11.47	15	05-09	76%

Table 12.6-6 Summary of NAAQS Stationary Source Modeling Analysis (continued)

Mixed Configuration 2 (6 Boilers, 2 Cooling Towers, Emergency Genset, Loading Dock Vent)

AMBIENT AIR QUALITY STANDARDS								
Pollutant	Avg Time	H/ H2H	Max. Modeled Conc. ($\mu g/m^3$)	Back-ground Conc.[5] ($\mu g/m^3$)	Total ($\mu g/m^3$)	MAAQS/ NAAQS ($\mu g/m^3$)	Year	% of AAQS
SO_2	1-HR [1]	H	0.43	93.60	94.03	195	05-09	48%
	3-HR	H2H	0.37	88.40	88.77	1300	2009	7%
	24-HR	H2H	0.20	52.00	52.20	365	2006	14%
	ANN	H	0.03	10.92	10.95	80	2007	14%
CO	1-HR	H2H	42.24	1938.00	1980.24	40000	2009	5%
	8-HR	H2H	26.17	1482.00	1508.17	10000	2005	15%
NO_2	1-HR [2]	H	149.69	[6]	149.69	188	05-07	80%
	ANN	H	3.08	41.36	44.44	100	2009	44%
PM_{10}	24-HR	H2H	2.25	69.00	71.25	150	2006	47%
	ANN	H	0.57	23.00	23.57	50	2007	47%
$PM_{2.5}$	24-HR [3]	H	2.36	25.60	27.96	35	05-09	80%
	ANN [4]	H	0.56	10.52	11.08	15	05-09	74%

Notes:

(1) Form of one-hour SO_2 NAAQS is the three-year average of the 99th percentile of the maximum daily one-hour concentrations. Five year average can be used as a surrogate value (EPA, 2010)

(2) Form of one-hour NO_2 NAAQS is the three-year average of the 98th percentile of the maximum daily one-hour concentrations. Five year average can be used as a surrogate value (EPA, 2010)

(3) Form of 24-hour PM-2.5 NAAQS is the three-year average of the 98th percentile of the daily average concentrations. Five year average of the maximum 24-hour concentrations at each receptor is used to meet this standard. (EPA, 2010)

(4) Form of annual PM-2.5 NAAQS is the annual average concentration. The five-year average of the maximum annual concentrations at each receptor is used to meet this standard. (EPA, 2010)

(5) Background concentrations and selection are presented in Table 12.6-3.

(6) NO_2 background concentrations are added to modeled concentrations on an hour-by-hour basis. Thus background is included in the modeled value.

12.6.6 Noise

12.6.6.1 Introduction

This section includes a noise analysis for the project, including a noise-monitoring program to determine existing noise levels and an estimate of future noise levels when the project is in operation. The scope of the analysis is consistent with BRA requirements for noise studies.

The analysis indicates that predicted noise levels from project mechanical equipment with appropriate noise mitigation will be below the most stringent City of Boston Noise Zoning requirements for nighttime and daytime residential zones.

12.6.6.2 Noise Terminology

There are several ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The following information defines the noise measurement terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a three-decibel increase (to 53 dB), not a doubling to 100 dB. Thus, every three dB change in sound levels represents a doubling or halving of sound energy. Related to this is the fact that a change in sound levels of less than three dB is imperceptible to the human ear.

Another property of decibels is that if one source of noise is 10 dB (or more) louder than another source, then the total sound level is simply the sound level of the higher source. For example, a source of sound at 60 dB plus another source of sound at 47 dB is 60 dB.

The sound level meter used to measure noise is a standardized instrument. It contains "weighting networks" to adjust the frequency response of the instrument to approximate that of the human ear under various circumstances. One network is the A-weighting network (there are also B- and C-weighting networks). The A-weighted scale (dBA) most closely approximates how the human ear responds to sound at various frequencies. Sounds are frequently reported as detected with the A-weighting network of the sound level meter. A-weighted sound levels emphasize the middle frequency (i.e., middle pitched – around 1,000 Hertz sounds), and de-emphasize lower and higher frequency sounds.

Because the sounds in our environment vary with time, they cannot simply be described with a single number. Two methods are used for describing variable sounds. These are exceedance levels and the equivalent level, both of which are derived from a large number of moment-to-moment A-weighted sound level measurements. Exceedance levels are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Exceedance levels are designated L_n, where n can have a value of 0 to 100 percent. For example:

- L_{90} is the sound level in dBA exceeded 90 percent of the time during the measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent noise sources.

- L_{50} is the median sound level: the sound level in dBA exceeded 50 percent of the time during the measurement period.

- L_{10} is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The L_{10} is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles.

- L_{max} is the maximum instantaneous sound level observed over a given period.

L_{eq}, the equivalent level, is the level of a hypothetical steady sound that would have the same energy (i.e., the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. The equivalent level is designated L_{eq} and is also A-weighted. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with linear mean square sound pressure values, the L_{eq} is mostly determined by occasional loud, intrusive noises.

By using various noise metrics, it is possible to separate prevailing, steady sounds (the L_{90}) from occasional, louder sounds (L_{10}) in the noise environment or combined average levels (L_{eq}). This analysis of sounds expected from the project treats all noises as though they will be steady and continuous and hence the L_{90} exceedance level was used. In the design of noise control treatments, it is essential to know something about the frequency spectrum of the noise of interest. Noise control treatments do not function like the human ear, so simple A-weighted levels are not useful for noise-control design. The spectra of noises are usually stated in terms of octave band sound pressure levels, in dB, with the octave frequency bands being those established by standard. To facilitate the noise-control design process, the estimates of noise levels in this analysis are also presented in terms of octave band sound pressure levels.

Baseline noise levels were measured in the vicinity of the proposed buildings and were compared to predicted noise levels that were derived based on information provided by the manufacturers of representative mechanical equipment or estimated from the equipment's capacity.

12.6.6.3 Noise Regulations and Criteria

The primary set of regulations relating to the potential increase in noise levels is the City of Boston Zoning District Noise Standards (City of Boston Code – Ordinances: Section 16–26 Unreasonable Noise and City of Boston Air Pollution Control Commission Regulations for the Control of Noise in the City of Boston). Results of the baseline ambient noise level survey and the modeled noise levels were compared to the City of Boston Zoning District Noise Standards. Separate regulations within the Standard provide criteria to control different types of noise. Regulation 2 is applicable to the effects of the completed proposed buildings and was considered in this noise study. Table 12.6-7 includes the Zoning District Standards.

The Massachusetts Department of Environmental Protection (MassDEP) regulates community noise by its Noise Policy: DAQC policy 90-001. The MassDEP policy limits source sound levels to a 10-dBA increase in the ambient measured noise level (L_{90}) at the project property line and at the nearest residences. The policy further prohibits pure tone conditions—when any octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by three decibels or more.

Table 12.6-7 City of Boston Zoning District Noise Standards, Maximum Allowable Sound Pressure Levels

Octave Band Center Frequency (Hz)	Residential Zoning District Daytime (dB)	Residential Zoning District All Other Times (dB)	Residential-Industrial Zoning District Daytime (dB)	Residential-Industrial Zoning District All Other Times (dB)	Business Zoning District Anytime (dB)	Industrial Zoning District Anytime (dB)
32	76	68	79	72	79	83
63	75	67	78	71	78	82
125	69	61	73	65	73	77
250	62	52	68	57	68	73
500	56	46	62	51	62	67
1000	50	40	56	45	56	61
2000	45	33	51	39	51	57
4000	40	28	47	34	47	53
8000	38	26	44	32	44	50
A-Weighted (dBA)	60	50	65	55	65	70

Notes:
- Noise standards are extracted from Regulation 2.5, City of Boston Air Pollution Control Commission, "Regulations for the Control of Noise in the City of Boston", adopted December 17, 1976.
- All standards apply at the property line of the receiving property.
- dB and dBA based on a reference pressure of 20 micropascals.
- Daytime refers to the period between 7:00 am and 6:00 pm daily except Sunday.

12.6.6.4 Baseline Noise Environment

An ambient noise level survey was conducted to characterize the existing "baseline" acoustical environment in the vicinity of the project. The proposed project is located at 168 Massachusetts Avenue near its intersection with Belvidere Street. Existing noise sources in the vicinity of the project include: vehicular traffic (including trucks) on the local roadways; nearby construction activity (daytime only); pedestrian traffic; mechanical equipment located on the surrounding buildings; and the general din of the city.

12.6.6.5 Noise Measurement Locations

The selection of the sound monitoring receptor locations was based upon a review of the current land use in the area of the project site. Four noise-monitoring locations were selected as representative locations to obtain a sampling of the ambient baseline noise environment. The measurement locations are depicted in Figure 12.6-15 and are described below.

- Location M1 is on Massachusetts Avenue, across the street from the project site.
- Location M2 is on Edgerly Road between Haviland Street and Stoneholm Street, across from a playground.
- Location M3 is next to the entrance of the Saint Cecilia Church on Saint Cecilia Street.
- Location M4 is on Saint Germain Street between Massachusetts Avenue and Dalton Street.

12.6.6.6 Noise Measurement Methodology

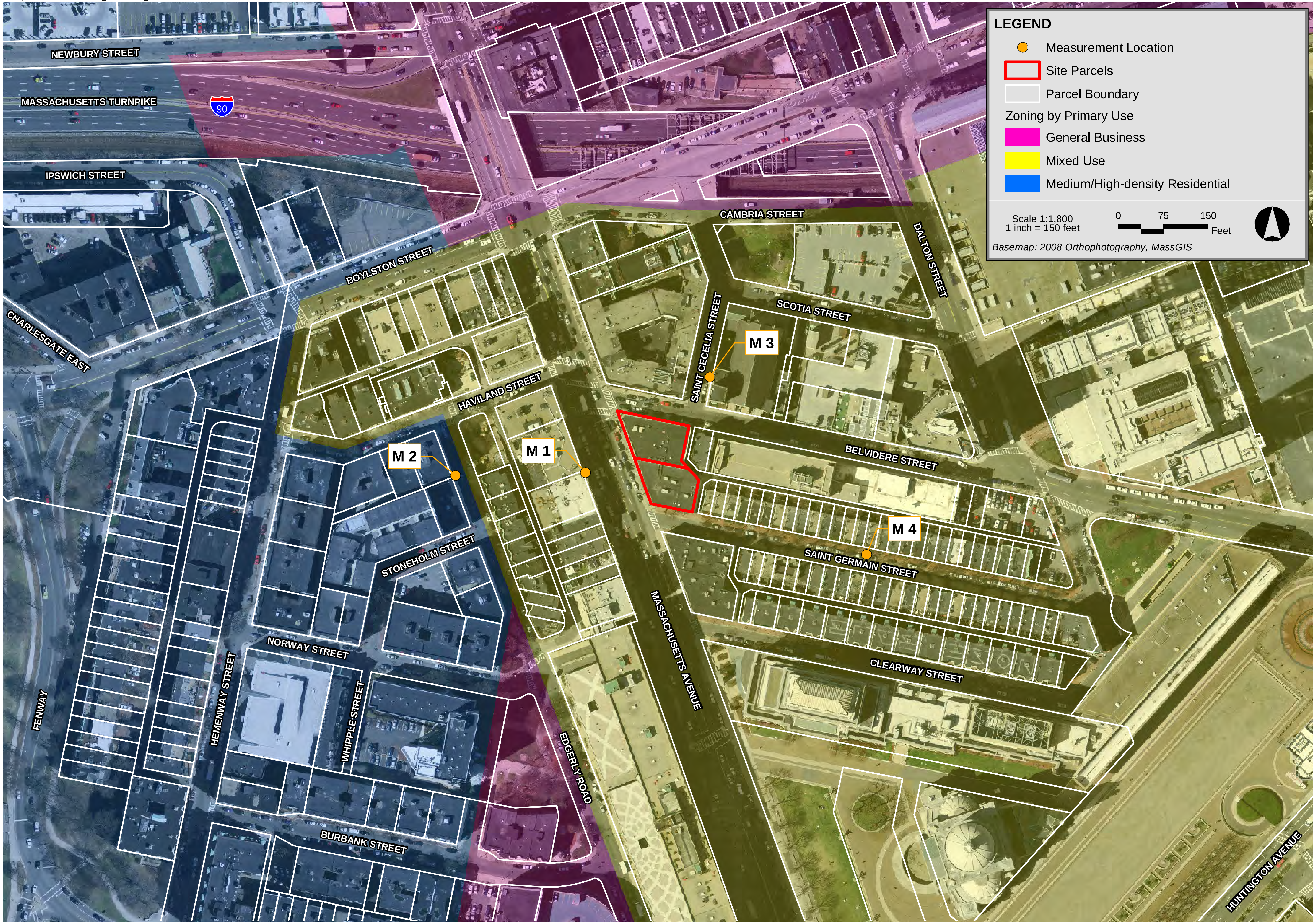
Sound level measurements were taken for 20 minutes per location during the daytime (12:30 pm to 3:30 pm) on December 30, 2010, and during nighttime hours (12:00 am to 2:00 am) on December 31, 2010. Since noise impacts are greatest at night when existing noise levels are lowest, the study was designed to measure community noise levels under conditions typical of a "quiet period" for the area. Daytime measurements were scheduled to exclude peak traffic conditions.

The sound levels were measured at publicly accessible locations at a height of five feet above the ground. The measurements were made under low wind conditions and roadway surfaces were either dry or slightly moist due to melting snow. Unofficial observations about meteorology, including wind speed, temperature, and humidity, as well as land use in the community, were made solely to characterize the existing sound levels in the area and to estimate the noise sensitivity at properties near the proposed project.

12.6.6.7 Measurement Equipment

A Larson Davis Model 831 sound level meter was used to collect ambient sound pressure level data. This instrumentation meets the "Type 1 - Precision" requirements set forth in American National Standards Institute (ANSI) S1.4 for acoustical measuring devices. The microphone was tripod-mounted at a height of five feet above ground and statistical descriptors (L_{eq}, L_{90}, etc.) were calculated for each 20-minute sampling period. Octave band levels for this study correspond to the same data set processed for the broadband levels. The measurement equipment was calibrated in the field before and after the surveys with an acoustical calibrator which meets the standards of IEC 942 Class 1L and ANSI S1.40-1984.

G:\Projects2\MA\Boston\2798\noise_measurement_locs.mxd



Berklee college of music

Institutional Master Plan

Figure 12.6-15
Sound Level Measurement Locations

Epsilon Associates Inc.

12.6.6.8 Baseline Ambient Noise Levels

The existing ambient noise environment is impacted primarily by vehicular traffic on nearby roadways, building exhaust systems, construction (daytime only), and pedestrian activity. Baseline noise monitoring results are presented in Table 12.6-8, and summarized below.

- The daytime residual background (L_{90}) measurements ranged from 48 to 58 dBA;
- The nighttime residual background (L_{90}) measurements ranged from 47 to 54 dBA;
- The daytime equivalent level (L_{eq}) measurements ranged from 52 to 67 dBA; and
- The nighttime equivalent level (L_{eq}) measurements ranged from 49 to 69 dBA.

12.6.6.9 Overview of Potential Project Noise Sources

The primary sources of sound exterior to the proposed buildings will be cooling towers, condensing units (chillers), water pumps, and air handling units. The analysis considered the possibility of a "Central Plant" that could provide sufficient heating and cooling load for both the proposed 168 Massachusetts Avenue and the existing 150 Massachusetts Avenue buildings. Such an assumption would generate worst-case scenarios for noise emissions. It should be noted that a Central Plant is being studying by Berklee as an option, but is not part of the proposed project at this time. A summary of the major mechanical equipment proposed for the project is presented in Table 12.6-9. Noise emissions from the primary sources, as estimated from the equipment's capacity or from manufacturer-provided specifications, are also presented in Table 12.6-9, which includes broadband (dBA) sound power levels, as well as octave band sound levels when available.

The cooling tower will be located on the roof of the proposed building at an approximate elevation of 200 feet. Much of the remaining mechanical equipment for the building will be housed within a louvered mechanical penthouse just below the roof, including a 1,000 kW emergency diesel generator, with exhaust ducts and vents exiting at roof-level. There will be secondary noise sources including hot water heaters and various exhaust fans, but those are expected to have much lower sound levels (10 dBA or more) than the other, larger pieces of equipment and were not considered in this analysis. It is understood that the two 1,500 kVA electrical services will be housed in a transformer vault located on the ground floor or in the basement, and are not expected to contribute to the overall exterior sound level.

Mitigation will be applied to multiple sources as needed to ensure compliance with the noise regulations. An approximately 15-foot-tall parapet will be constructed on all sides of the upper-most roof, providing some mitigation to rooftop sources. The emergency generator exhaust noise will be controlled using a critical-grade exhaust silencer. To further limit impacts from the generator, the required periodic routine testing is expected to occur

Table 12.6-8 Baseline Ambient Noise Measurements

							Octave Band Center Frequency (Hz)								
Location and Period	Start	L_{10}	L_{50}	L_{90}	L_{eq}	L_{max}	32	63	125	250	500	1000	2000	4000	8000
	Time	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)	L_{90} (dB)
M1 Day	1:17 PM	70	64	58	67	87	70	65	58	55	54	54	50	42	34
M2 Day	1:48 PM	58	53	51	55	73	61	55	51	49	48	46	41	32	22
M3 Day	3:05 PM	61	59	58	60	77	63	61	57	54	53	55	48	34	23
M4 Day	12:32 PM	54	50	48	52	70	55	53	48	47	45	44	39	32	23
M1 Night	12:03 AM	73	63	54	69	87	62	57	54	52	50	50	45	34	22
M2 Night	12:26 AM	51	50	49	50	67	56	52	53	49	46	44	37	32	24
M3 Night	12:50 AM	57	54	51	56	74	58	57	54	51	49	48	41	29	21
M4 Night	1:17 AM	51	48	47	49	64	53	48	47	48	45	42	37	31	23

Notes:
1. Daytime weather: Temperature = 440 F, RH = 35%, skies sunny, winds 0-2 mph.
   Nighttime weather: Temperature = 350 F, RH = 50%, clear skies, winds 0-2 mph.
2. Some Road Surfaces were dry, others were moist due to melting snow piles.
3. All sampling periods were approximately 20 minutes duration.
4. Daytime measurements were collected on December 30, 2010.
   Nighttime measurements were collected in the early morning on December 31, 2010.

Table 12.6-9 Reference Equipment Noise Levels – Per Unit

Noise Source	Form of Data	Ref. Distance (feet)	Overall Level (dBA)	Sound Levels (dB) per Octave Band Center Frequency (Hz) 32	63	125	250	500	1000	2000	4000	8000	No.	Location	Capacity
Cooling Tower[1]	Sound Power	NA	**99**	N/A	104	102	103	97	93	86	81	78	1	Roof	800-ton
Modular Chiller[2]	Sound Power	NA	**101**	N/A	97	98	99	95	95	95	91	84	2	Penthouse	800-ton
Primary Chilled Water Pump[3]	Sound Power	NA	**96**	85	86	87	89	89	92	89	85	79	2	Penthouse	800 gpm
Condenser Water Pump[3]	Sound Power	NA	**93**	82	83	84	86	86	89	86	82	76	2	Penthouse	1200 gpm
Boiler[4]	Sound Power	NA	**71**	79	78	73	67	66	64	62	62	62	8	Penthouse	3,000 mbh
Boiler Pump[3]	Sound Power	NA	**79**	68	69	70	72	72	75	72	68	62	8	Penthouse	150gpm
System Pump[3]	Sound Power	NA	**96**	85	86	87	89	89	92	89	85	79	2	Penthouse	1360gpm
MAU-1 Laundry[5]	Sound Power	NA	**81**	N/A	N/A	82	85	78	77	69	66	57	1	Penthouse	2000 cfm
AHU-6[6]	Sound Power	NA	**95**	N/A	90	90	96	93	88	86	80	74	1	Penthouse	15,600 cfm
Emergency Generator – Mechanical[7]	Sound Power	23	**95**	N/A	83	95	92	89	90	90	84	83	1	Penthouse	800kW/ 1000kVA
Emergency Generator – Exhaust[7]	Sound pressure	3.28	**117**	N/A	101	121	123	112	108	107	97	82	1	Roof	800kW/ 1000kVA

Notes:

1. BAC Series 3000 #3412C-2 Two-Cell Cooling Tower with single 25HP fan per BAC Cooling Tower Selection Program (Release 6.10 NA); with Directivity of Large Vertical Exhaust Stack per Edison Electric Institute (EEI) Electric Power Plant Environmental Noise Guide, Table 4.19
2. Multistack MS80T 800-ton Centrifugal Chiller [(10) 80-ton units] per "Hoover & Keith: Noise Control for Buildings and Manufacturing Plants" (sec 7-6; eq. 7-3)
3. Primary Pump Selections Document provided by Mark Holmquist of William Rawn Associates, Architects, Inc on 1/5/2011; Hoover & Keith: Noise Control for Buildings & Manufacturing Plants; Table 7-12
4. Aerco BMK-3.0LN using EEI Table 4.2: Sound Power Levels of Main Steam Boilers
5. BESB500-4-1-FC Centrifugal Impellar Fan used on Exhausto Mechanical Dryer Venting System (MDVS)
6. Trane Performance Climate Changer, Direct-Drive Plenum 3-Fan Configuration
7. Caterpillar Model C32 Diesel Generator; 1,000 kW, 100%Load

during daytime hours when background sound levels are highest. Acoustical louvers are expected to be installed to mitigate the sound associated with the mechanical equipment in the penthouse. A summary of the additional noise mitigation proposed for the project is presented in Table 12.6-10.

12.6.6.10 Modeling Methodology

Anticipated noise impacts associated with the project were predicted at the nearest residences around the project site using the CadnaA noise calculation software. This software uses the ISO 9613-2 industrial noise calculation methodology. CadnaA allows for octave band calculation of noise from multiple noise sources, as well as for computation of diffraction around building edges and multiple reflections off parallel buildings and solid ground areas. In this manner, all significant noise sources and geometric propagation effects are accounted for in the noise modeling.

It was assumed for the purposes of this preliminary model that the floor and ceiling of the penthouse were made of untreated concrete and that the open penthouse walls were fitted with non-acoustic louvers.

12.6.6.11 Future Sound Level of Project

An initial analysis considered all of the mechanical equipment without the emergency generator running to simulate typical operating conditions at nearby residences. A second analysis combined the mechanical equipment and the emergency generator to reflect worst-case conditions during brief, routine, daytime testing of the generator. A final analysis was conducted for the emergency generator operating alone to simulate a grid power failure, during which time it is assumed the remaining mechanical equipment will not be operating. The results of nighttime and daytime future project sound level impacts at the closest residences are shown in Tables 12.6-11 and 12.6-12, respectively. For the sake of brevity, the detailed tables only show results at the closest residential location (M1). Since sound levels at Location M1 meet all criteria (with mitigation), the more distant locations will also meet the City of Boston noise regulations.

Table 12.6-10 Attenuation Values Used for Sound Level Modeling (dB)

Noise Source	Form of Mitigation	Octave Band Center Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
Penthouse Equipment[1]	Acoustical Louvers	5	10	16	21	28	30	27	15
Emergency Generator – Exhaust[2]	Exhaust Silencer	23	38	35	26	26	32	26	20

[1] Transmission Loss of Acraflow Series 600/16 Acoustical Louvers (or similar)

[2] Noise Reduction of Maxim Super Critical Grade Chamber Type Silencer (or similar) with improved mid-range performance

Table 12.6-11 Nighttime Future Project Sound Level Impacts at Closest Residences[1]

Octave Bands	Residential Nighttime Noise Standard	Without Additional Mitigation		With Additional Mitigation	
		All Equipment Running - No Emergency Generator	Emergency Generator Only	All Equipment Running - No Emergency Generator[3]	Emergency Generator Only[4]
	(dB)	(dB)	(dB)	(dB)	(dB)
32 Hz	68	NA[2]	NA[2]	NA[2]	NA[2]
63 Hz	67	57	40	54	38
125 Hz	61	56	50	50	44
250 Hz	52	**57**	48	45	46
500 Hz	46	**53**	45	37	43
1000 Hz	40	**51**	**45**	31	39
2000 Hz	33	**40**	**43**	27	32
4000 Hz	28	**36**	**33**	25	27
8000 Hz	26	24	18	26	20
Broadband (dBA)	50	**55**	50	41	44
Compliance with the City of Boston Noise Regulation?		No	No	Yes	Yes

Future Project + Background Sound Level (dBA)	58	56	55	55
Incremental Increase Over Background (dBA)	3	1	0	0
Compliance with MassDEP Noise Policy (<10dBA)?	Yes	Yes	Yes	Yes

1. Closest Residences along Massachusetts Avenue (Location M1)
2. Sound Power Level Data not available for 32Hz Octave Band
3. Acoustic Louvers Installed
4. Acoustic Louvers and Improved Generator Exhaust Silencer Installed

Note: Bold values indicate an exceedance of the noise standard

Table 12.6-12 Daytime Future Project Sound Level Impacts at Closest Residences[1]

Octave Bands	Residential Daytime Noise Standard	All Equipment Running During Daytime Emergency Generator Test	
		Without Additional Mitigation	With Additional Mitigation[3]
	(dB)	(dB)	(dB)
32 Hz	76	NA[2]	NA[2]
63 Hz	75	57	54
125 Hz	69	57	51
250 Hz	62	57	49
500 Hz	56	54	44
1000 Hz	50	52	40
2000 Hz	45	45	33
4000 Hz	40	38	29
8000 Hz	38	25	27
Broadband (dBA)	60	56	46
Compliance with the City of Boston Noise Regulation?		No	Yes

Future Project + Background Sound Level (dBA)	59	56
Incremental Increase Over Background (dBA)	3	0
Compliance with MassDEP Noise Policy (<10dBA)?	Yes	Yes

1. Closest Residences along Massachusetts Avenue (Location M1)
2. Sound Power Level Data not available for 32Hz Octave Band
3. Acoustic Louvers and Improved Generator Exhaust Silencer Installed

12.6.6.12 Conclusions

To ensure compliance with applicable noise regulations, the following mitigation efforts will be implemented:

- Acoustic louvers with a transmission loss similar to that specified in Table 12.6-10 will be installed on all four penthouse walls.

- The emergency generator exhaust will be fitted with a super critical-grade muffler whose noise reduction is similar to that specified in Table 12.6-10.

Predicted mechanical equipment noise levels from the project at each receptor location, taking into account attenuation due to distance, structures, and noise control measures, are all below the MassDEP criteria of 10 dBA over the quietest nighttime sound levels. Additionally, the project's mechanical equipment will not create or exacerbate any pure tone conditions when combined with existing nighttime background sound levels that do not already exist currently.

When the aforementioned mitigation efforts are included, the predicted sound levels from project-related equipment are expected to remain below 44dBA, well within the most stringent nighttime residential zoning limits for the City of Boston (50 dBA or less) at the nearest residential receptors. It should be noted that the existing ambient background levels immediately surrounding the project already exceed 50 dBA without any contribution from the project.

At this time, the mechanical equipment and noise controls are conceptual in nature. During the final design phase of the project, mechanical equipment and noise controls will be specified and designed to meet not only the 50 dBA limit, but also the corresponding octave band limits. Additional mitigation may include absorptive paneling or equipment enclosures, as needed.

12.6.7 Solid and Hazardous Waste

12.6.7.1 Hazardous Waste

Classification and Removal of Hazardous Materials

Prior to commencement of the work, investigations will be performed at the site and in the existing buildings to evaluate the presence of contaminated soils, groundwater, asbestos, lead paint, or other hazardous materials that may exist. If such materials are present, they will be characterized based on the type, composition, and level of the contaminants. Work plans will be prepared by appropriately licensed professionals to identify the means and methods for safe removal and legal disposal or recycling of these materials.

Abatement and disposal of hazardous materials (or hazardous waste) discovered in the existing buildings will be performed prior to demolition of the buildings by specialty contractors experienced and licensed in removing and handling these materials.

Excess soils generated from excavations on site and not reused on site will be legally transported off site and disposed of in accordance with the Massachusetts Contingency Plan and other applicable regulatory requirements. Disposal of excess excavated soil materials will be tracked via Bills of Lading or other methods, as required to ensure their proper and legal transport and disposal in accordance with MassDEP regulations.

12.6.7.2 Solid Waste

The project will generate solid waste typical of residential development with dining facilities. Solid waste generated by the project will be between approximately 403.8 tons per year (see Table 12.6-13).

Table 12.6-13 Estimated Solid Waste Generation

Unit Type	Program	Generation Rate	Solid Waste (tons per year)
Residence Hall	370 beds	4 lbs/bed/day	270.1
Dining Hall	400 seats	1 lb/seat/day	73.0
Retail	5,000 sf	5.5 tons/1,000 sf/year	27.5
Music Technology/ Common	26,000 sf	0.007 lb/sf/day	33.2
Total Proposed Solid Waste Generation			**403.8**

Solid waste will include wastepaper, cardboard, glass, bottles, food waste, and other waste typical of residential uses and dining facilities. Each residential floor will have a trash room, and Berklee staff will collect the trash and move it to the dumpster in the loading area of the building on a regular basis. There will be a dumpster/compactor for trash at the loading dock. Trash from the dining hall and music technology space will be collected regularly and transported to the loading dock.

With the exception of "household hazardous wastes" typical of residential uses (e.g., cleaning fluids), hazardous wastes will not be generated.

12.6.7.3 Recycling

A portion of the waste will be recycled, as described further in Section 12.6.7.3. Berklee plans to roll out single-stream recycling campus-wide in April 2011, making it easier for recycling to occur throughout the project. Each residential floor will include space in the trash room for recycling, and will possibly include a 95-gallon recycling container.

Recycling will be picked up on a regular basis and transported to the loading dock area. Recycling from the dining hall and other spaces will also be collected regularly. In addition, Berklee is studying the possibility of using a composting vendor for food waste from the dining hall.

12.6.8 Flood Hazard Zones/Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map indicates the FEMA Flood Zone Designations for the site (City of Boston, Community Panel Number 25025C 0077 G). The project site is located outside of the 100-year floor zone.

The site is developed and does not contain wetlands.

12.6.9 Geotechnical/Groundwater Impacts

12.6.9.1 Introduction

This section based on information provided by Haley & Aldrich describes existing site conditions, subsurface soil and groundwater conditions, planned below-grade construction activities for the project, procedures for monitoring and protecting adjacent structures and maintaining groundwater levels in the project area during excavation and foundation construction, and following construction completion.

12.6.9.2 Existing Site Conditions

The project site is currently occupied by two, one-story buildings situated on the east side of Massachusetts Avenue that are registered at 154-162 Massachusetts Avenue and 168-174 Massachusetts Avenue. Belvidere Street borders the site to the north, Massachusetts Avenue to the west, and Saint Germain Street to the south; along the east side of the site and separated by a 10-foot wide passageway, are two buildings registered as 8 Saint Germain Street and 11 Belvidere Street. Ground surface along the Massachusetts Avenue side of the project is approximately El. 22 Boston City Base (BCB) at the north end, sloping down gradually to about El. 19 BCB at the south end of the project.

Each existing building on the project site has a below-grade basement level that is at approximately El. 12 BCB. A portion of the basement of the building at 154-162 Massachusetts Avenue extends out beyond the west façade of the building, beneath the Massachusetts Avenue sidewalk to the curb and is believed to have been originally used as a vault to receive and store coal needed to heat the building. Each existing building is supported on wood pile foundations that likely extend 25 to 35 feet below the basement levels into the underlying natural subsurface soils. Where existing buildings conflict with proposed construction, the existing buildings will be demolished and removed to accommodate the project.

12.6.9.3 Subsurface Soil and Bedrock Conditions

Based on subsurface data obtained at the site during a test boring and test pit exploration program undertaken for the project, and available subsurface data collected by others in the immediate project area, the general subsurface profile is listed in Table 12.6-14 in order of increased depth below the ground surface.

Table 12.6-14 Subsurface Soil and Bedrock Conditions in Project Area

Generalized Subsurface Strata	Approximate Depth Below Ground Surface to Top of Stratum (ft)	Approximate Thickness (ft)
Miscellaneous (Urban) Fill	Not Applicable	10 to 18
Organic Soil Deposits	14 to 18	3 to 4
Glaciofluvial (Sand) Deposits	10 to 21	17 to 28
Marine (Clay) Deposits	37 to 41	80 to 82
Glacial Deposits and Bedrock	118 to 132	Not Applicable

Generalized descriptions of the strata are described below:

- *Miscellaneous (Urban) Fill* – The project site consists of filled land reclaimed from the former Back Bay tidal flats during the late 1800s. The composition of this material varies, but typically consists of loose to medium dense, brown to gray, well graded gravel with sand and/ or medium dense brown silty sand with gravel and/or medium dense yellow brown sandy silt with gravel, and having varying amounts of concrete, cinders, metal, brick, and other miscellaneous materials. Buried building demolition debris, rubble from pre-existing buildings, and remnant foundation walls, slabs and utilities may also be encountered within and beneath the footprint of the existing buildings which currently occupy the site.

- *Organic Soil Deposits* – The Organic Soil Deposits consist of medium stiff brown fibrous peat to medium stiff gray organic soil with gravel.

- *Glaciofluvial (Sand) Deposits* – The Glaciofluvial (Sand) Deposits consist of medium dense to very dense gray poorly graded to well graded sand with gravel.

- *Marine (Clay) Deposits* – The clay, known locally as Boston Blue Clay, is very stiff to hard at the top of the stratum (“crust”), becoming softer with depth, and is generally described as olive gray to gray lean clay with occasional seams of sandy silt/silty sand.

- *Glacial Deposits and Bedrock* – A very stiff gray lean clay with sand and gravel (Glaciomarine Deposits) to very dense gray sandy silt with gravel (Glacial Till Deposits) was encountered below the Marine deposits. Bedrock is anticipated to be encountered below the Glacial Deposits at depths of about 130 feet.

12.6.9.4 Existing Groundwater Conditions

The project site is located in Boston’s Groundwater Conservation Overlay District GCOD, which includes those areas in Boston having wood pile supported buildings that are potentially susceptible to the possible effects of depressed groundwater levels. Groundwater levels need to be above the tops of the wood piles to keep the piles submerged and lessen the potential for the wood to decay. Groundwater levels in the vicinity of the project site are monitored by the Boston Groundwater Trust, an entity that tracks and reports groundwater levels in the GCOD.

Recent groundwater level measurements in observation wells in proximity to the project site have ranged from El. 6 to El. 9.5 (BCB), which are somewhat higher than groundwater levels measured elsewhere in the GCOD. Groundwater levels at and near the site could be influenced by leakage into and out of sewers, storm drains, water utilities, and other below grade structures, and environmental factors such as precipitation, season, and temperature.

12.6.9.5 Proposed Foundation and Below Ground Construction

The project will include construction of an above-grade tower with two underground levels. Construction of the underground structure and building foundations will require an excavation extending to the limits of the property and from current ground surface (El. 19 to El. 22 BCB) to El. -18 BCB, which corresponds to a depth of about 40 feet below current ground surface. The bottom of the excavation is anticipated to terminate within the Glaciofluvial (Sand) Deposits, the design bearing strata for the new building’s foundation system. The foundation system selected for the new building is anticipated to be comprised of a reinforced concrete mat slab foundation.

In advance of the excavation and foundation construction, an excavation support system will be installed around the perimeter of the entire site to control the limits of the excavation, mitigate adverse impacts to adjacent properties, control groundwater seepage, and maintain current groundwater levels outside the excavation. Although the wall system has not yet been selected, it is anticipated to consist of a continuous interlocking steel sheetpile wall installed from ground surface and sealed into the relatively impervious Marine Deposits anticipated below the bottom of excavation.

Because of the nature of the near surface fill soils, pre-excavation will be performed in advance of installing the excavation support wall. The intent of the pre-excavation is to remove foundations and other buried obstructions from former site buildings that could interfere with installation of the excavation support walls. The project will seek a license from the City to install the excavation support walls in the public right-of-way along the two sides bordered by Massachusetts Avenue and Saint Germain Street.

Due to the depth of excavation, which will be made using conventional methods, lateral bracing of the walls will be required as the excavation is advanced down to foundation subgrade level. Lateral bracing of the excavation support wall will be by internal systems, likely comprised of up to three levels of steel beam struts spanning opposing walls and across corners; external bracing (tiebacks) will not be allowed.

Temporary dewatering will be required inside the excavation to remove groundwater and precipitation during excavation and foundation construction. The relatively watertight excavation support wall will prevent any significant withdrawal of groundwater from beyond the excavation limits. A temporary construction dewatering permit will be obtained from governing agencies prior to discharge of dewatering effluent from the site. Chemical testing of the effluent will be conducted in accordance with permit criteria prior to discharge to municipal systems.

The proposed below-grade construction, which will extend approximately 30 feet below groundwater levels, will be fully waterproofed and designed to resist hydrostatic pressures. In this manner, the below-grade construction will be designed to not adversely affect (lower) long-term groundwater levels.

12.6.9.6 Potential Impacts During Excavation and Foundation Construction

Potential impacts during excavation and foundation construction include impacts to area groundwater levels and ground and building movements due to excavation. Additionally, construction activities will generate ground vibrations, dust, and noise. The excavation support wall and foundation design and construction will be conducted to limit potential adverse impacts, especially to adjacent structures and to groundwater levels.

12.6.9.7 Mitigation Measures

Provisions will be incorporated into the design and construction procedures to limit potential adverse impacts, including the following:

- The design team will conduct studies, prepare designs and specifications, and review contractor's submittals for conformance to the project contract documents with specific attention to protection of nearby structures and facilities and to maintaining existing groundwater levels. In particular, selection of building foundation systems and excavation support systems and their details will be made taking into consideration mitigation of adverse temporary and long-term effects outside the site.

- Performance criteria will be established in the project specifications for the excavation support systems with respect to movements, water-tightness and the construction sequence of the below-grade portion of the work. The contractor will be required to employ, and modify as necessary, construction methods and take necessary steps during the work to protect nearby buildings and other facilities.

- Performance criteria will be established for protection of groundwater levels in the vicinity of the project. The contractor will be required to modify construction methods and take necessary steps during the work to not lower groundwater levels outside the limits of the site.

- Geotechnical instrumentation will be installed and monitored during the below-grade portion of the work to observe the performance of the excavation, adjacent buildings and structures, and area groundwater levels. Groundwater observation wells will be monitored prior to and during construction activities. When construction begins, groundwater observation wells will be monitored regularly for the duration of the below-grade construction period.

- The project is within the Groundwater Conservation Overlay District (GCOD), and therefore will implement systems of groundwater recharge. The project will be required to recharge the equivalent of one inch of stormwater over the entire impervious area of the site into the ground. Berklee will coordinate with the Boston Groundwater Trust.

12.6.10 Construction Impacts

Due to the proximity of the project site to Massachusetts Avenue, careful scheduling will be required for material removal and delivery. Planning with the City and neighborhood will be essential to the successful development of the project.

A Construction Management Plan (CMP) will be submitted to the Boston Transportation Department (BTD) for review and approval. The CMP will define truck routes which will help to minimize the impact of trucks on local streets. The construction contractor will be required to comply with the details and conditions of the approved CMP.

Construction methodologies that ensure public safety and protect nearby businesses will be employed. Techniques such as barricades, walkways, painted lines, and signage will be used as necessary. Construction management and scheduling—including plans for construction worker commuting and parking, routing plans and scheduling for trucking and deliveries, protection of existing utilities, maintenance of fire access, and control of noise and dust—will minimize impacts on the surrounding environment.

The proposed construction staging plan will be designed to secure the perimeter and isolate the construction while providing safe access for pedestrians and vehicles during normal day-to-day activity and emergencies. Some construction activities will require use of the adjacent streets. Berklee's construction manager will coordinate any use of streets with the BTD through the Construction Management Plan.

12.6.10.1 Construction Methodology

Construction methodologies that ensure public safety and protect nearby businesses and tenants will be employed. Techniques such as barricades and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

As the design of the project progresses, Berklee and its construction team will meet with BTD to discuss the specific location of barricades, the need for lane closures, pedestrian walkways, and truck queuing areas. This will be incorporated into the Construction Management Plan which will be submitted to BTD for approval prior to the commencement of the new construction work.

Information related to the proposed project's foundation is provided in Section 12.6.9.5.

12.6.10.2 Construction Schedule

The Proponent anticipates demolition of the existing buildings and units to begin in September 2011 with new construction following shortly thereafter in October 2011. The project will be complete by August 2013.

Typical construction hours will be from 7:00 am to 6:00 pm, Monday through Friday, with most shifts ordinarily ending at 3:30 pm. No sound-generating activity will occur before 7:00 am. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston Air Pollution Control Commission and BTD in advance. Notification should occur during normal business hours, Monday through Friday. It is noted that some activities such as finishing activities could run beyond 6:00 pm to ensure the structural integrity of the finished product; certain components must be completed in a single pour, and placement of concrete cannot be interrupted.

12.6.10.3 Construction Staging/Public Safety/Access

Access to the site and construction staging areas will be provided in the CMP.

It may be necessary to occasionally occupy pedestrian walkways and parking lanes on Massachusetts Avenue, Belvidere Street and Saint Germain Street. Secure fencing, signage, and covered walkways may be employed to ensure the safety and efficiency of all pedestrian and vehicular traffic flows.

Although specific construction and staging details for each phase of construction have not been finalized, Berklee and its construction management consultants will work to ensure that staging areas will be located to minimize impacts to pedestrian and vehicular flow. Secure fencing and barricades will be used to isolate construction areas from pedestrian traffic adjacent to the site. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to protect pedestrians and ensure their safety. Public safety for pedestrians on abutting sidewalks will also include covered pedestrian walkways when appropriate and, if required, the suspension of the use of certain sidewalks during the most hazardous periods of overhead work activity during the construction of the superstructure. If required by BTD and the Boston Police Department, police details will be provided to facilitate traffic flow. All construction procedures will be designed to meet all Occupational Safety and Health Administration (OSHA) safety standards for specific site construction activities.

12.6.10.4 Construction Mitigation

Berklee intends to follow City and MassDEP guidelines that will direct the evaluation and mitigation of construction impacts. As part of this process, Berklee and its construction team will evaluate the Commonwealth's Clean Air Construction Initiative.

The CMP will be submitted to BTD for review and approval prior to issuance of a Building Permit. The CMP will include detailed information on construction activities, specific construction mitigation measures, and construction materials access and staging area plans to minimize impacts to abutters and the local community. The CMP will also define truck routes which will help minimize the impact of trucks on City and neighborhood streets.

In addition, Berklee will install "Don't Dump - Drains to Boston Harbor" plaques at storm drains that are replaced or installed by the project.

12.6.10.5 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 300 construction jobs will be created over the life of the project. Berklee will make reasonable good-faith efforts to have at least 50% of the total employee work hours be for Boston residents, at least 25% of total employee work hours be for minorities and at least 10% of the total employee work hours be for women. In addition, Berklee will enter into a jobs agreement with the City of Boston.

To reduce vehicle trips to and from the construction site, minimal construction worker parking will be available at the site and all workers will be strongly encouraged to use public transportation and ridesharing options. The Proponent and contractor will work aggressively to ensure that construction workers are well informed of the public transportation options serving the area. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the site each day.

12.6.10.6 Construction Truck Routes and Deliveries

The construction team will manage deliveries to the site during morning and afternoon peak hours in a manner that minimizes disruption to traffic flow on adjacent streets. The construction team will provide subcontractors and vendors with Construction Vehicle & Delivery Truck Route Brochures in advance of construction activity. "No Idling" signs will be included at the loading, delivery, pick-up and drop-off areas.

Berklee will coordinate with BTD to designate access routes for truck deliveries and truck routes which will be established in the CMP.

Truck traffic will vary throughout the construction period, depending on the activity. Construction truck routes to and from the project site for contractor personnel, supplies, materials, and removal of excavations required for the project will be coordinated with BTD. Truck access during construction will be determined by the BTD as part of the Construction Management Plan. These routes will be mandated as a part of all subcontractors' contracts for the project. Traffic logistics and routing are planned to minimize community impacts.

12.6.10.7 Construction Air Quality

Short-term air quality impacts from fugitive dust may be expected during demolition, the early phases of construction and during excavation. Plans for controlling fugitive dust during demolition, construction and excavation include mechanical street sweeping, wetting portions of the site during periods of high wind, and careful removal of debris by covered trucks. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts. These measures are expected to include:

- ♦ Using wetting agents on areas of exposed soil on a scheduled basis;
- ♦ Using covered trucks;
- ♦ Minimizing spoils on the construction site;
- ♦ Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized;
- ♦ Minimizing storage of debris on the site; and
- ♦ Cleaning street and sidewalk periodically with water to minimize dust accumulations.

12.6.10.8 Construction Noise

Berklee is committed to mitigating noise impacts from the construction of the project. Increased community sound levels, however, are an inherent consequence of construction activities. Construction work will comply with the requirements of the City of Boston Noise Ordinance. Every reasonable effort will be made to minimize the noise impact of construction activities.

Mitigation measures are expected to include:

- ♦ Instituting a proactive program to ensure compliance with the City of Boston noise limitation policy;
- ♦ Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- ♦ Muffling enclosures on continuously running equipment, such as air compressors and welding generators;
- ♦ Replacing specific construction operations and techniques by less noisy ones where feasible;
- ♦ Selecting the quietest of alternative items of equipment where feasible;
- ♦ Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels;
- ♦ Turning off idling equipment; and
- ♦ Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

12.6.10.9 Construction Vibration

All means and methods for performing work at the project site will be evaluated for potential vibration impacts on adjoining property, utilities, and adjacent existing structures. Acceptable vibration criteria will be established prior to construction, and vibration will be monitored, if required, during construction to ensure compliance with the agreed-upon standard.

12.6.10.10 Construction Waste

Solid Wastes

Berklee will reuse or recycle construction materials to the greatest extent feasible. Construction procedures will allow for the segregation, reuse, and recycling of materials. Materials that cannot be reused or recycled will be transported in covered trucks by a contract hauler to a licensed facility, per the MassDEP regulations for Solid Waste Facilities, 310 CMR 16.00.

Hazardous Wastes

Hazardous materials encountered during construction will be handled according to local, state and federal regulations.

It is not anticipated that excess soil will be generated as a result of the project development. However, should excess excavated soil be generated it will be managed in accordance with MassDEP policy and the Massachusetts Contingency Plan.

12.6.10.11 Protection of Utilities

Existing public and private infrastructure located within the public right-of-way will be protected during construction. The installation of proposed utilities within the public way will be in accordance with the MWRA, BWSC, Boston Public Works, Dig Safe, and the governing utility company requirements. All necessary permits will be obtained before the commencement of the specific utility installation. Specific methods for constructing proposed utilities where they are near to, or connect with, existing water, sewer and drain facilities will be reviewed by BWSC as part of its plan review process.

12.6.10.12 Rodent Control

A rodent extermination certificate will be filed with the building permit application to the City. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the proposed project, in compliance with the City's requirements. Rodent extermination prior to work start-up will consist of treatment of areas throughout the site. During the construction process, regular service visits will be made.

12.6.10.13 Wildlife Habitat

The site is currently developed and, as such, the proposed project will not impact wildlife habitats as shown on the National Heritage and Endangered Species Priority Habitats of Rare Species and Estimated Habitats of Rare Wildlife.

12.7 Sustainability

This section provides a discussion of the sustainability efforts Berklee will pursue related to the 168 Massachusetts Avenue project. Additional information regarding Berklee's sustainability efforts campus-wide can be found in Chapter 9.

Berklee is committed to developing buildings that are sustainably designed, energy efficient, environmentally conscious and healthy for the faculty, staff and students. As required under Article 37 of the Boston Zoning Code, projects that are subject to Article 80B, Large Project Review, shall be Leadership in Energy and Environmental Design (LEED) certifiable. There are seven categories in the LEED certification guidelines: Sustainable

Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design Process and the additional Regional Priority Credits. The project is targeting several credits which span the seven categories and enable the project to meet the Zoning requirement as described below. The LEED NC v2009 checklist is included in Appendix I.

The project is anticipated to meet the Silver Certification threshold with 52 credit points. However, there are 24 credits, listed in italics below, still being considered to determine if appropriate.

Sustainable Sites

The project site is in a dense urban neighborhood close to several public transportation options. The proposed design includes leased retail space on the ground floor. There is no new parking associated with this development.

<u>Prerequisite 1 Construction Activity Pollution Prevention</u>

The Construction Manager shall submit and implement an Erosion and Sedimentation Control (ESC) Plan for construction activities related to the demolition of existing and the construction of the new building specific to this project. The ESC Plan shall conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Boston.

<u>Credit 1 Site Selection</u>

The proposed project site is located on previously developed urban site parcels in Boston Proper.

<u>Credit 2 Development Density and Community Connectivity</u>

The proposed project site is in the Fenway/Kenmore neighborhood of Boston bordering on the Back Bay neighborhood. The surrounding community is replete with housing, restaurants, shops, grocery stores, educational and religious institutions, performance venues and other community amenities. In addition, the Boston Public Library is a short walk away.

<u>Credit 3 Brownfield Redevelopment</u>

The proposed project site may be classified as a Brownfield Site and will be assessed for hazardous materials.

Credit 4.1 Alternative Transportation, Public Transportation Access

The Hynes Convention Center Green line MBTA subway station is located approximately 0.1 miles from the project site. There is a bus stop outside the subway station that functions as a hub/transfer station for several bus routes many of which pass directly by or in close proximity to the project site. Other MBTA stations in close proximity include the Symphony Green line station (0.3 miles), the Prudential Green line station (0.3 miles), and the Mass Ave Orange line station (0.4 miles). Additionally, the Back Bay Commuter Rail station and Orange line MBTA station is located 0.7 miles away.

Credit 4.4 Alternate Transportation Parking Capacity

There is no parking (existing or new) associated with this project.

Credit 5.1 Site Development, Protect or Restore Habitat

The plantings on the vegetated roof will be considered for contributions to restoring natural habitat.

Credit 5.2 Site Development, Maximize Open Space

The overall area of the vegetated roof and the hardscape pedestrian walks contribute to urban open space.

Credit 6.2 Stormwater Design, Quality Control

The stormwater will be treated prior to release into the municipal storm sewer system as described below in Section 12.10.4. Additionally, the roof above the dining area is vegetated and will help mitigate storm water runoff.

Credit 7.1 Heat Island Effect, Non-Roof

The project will use sidewalk surfacing materials that meet or exceed SRI value limits.

Credit 7.2 Heat Island Effect, Roof

The roof over the dining area shall be vegetated and the roof on the high rise buildings shall be a high-albedo roof membrane with an SRI of 78 minimum. Together the vegetated roof and the high albedo roof are expected to cover at least 75% of the roof area.

Water Efficiency

The project will specify low flow and high efficiency plumbing fixtures to achieve Water Efficiency.

Prerequisite 1 Water Use Reduction, 20% Reduction

Through the use of low flow and high efficiency plumbing fixtures, the project shall implement water use reduction strategies that use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements.

Credits 1.1 and 1.2 Water Efficient Landscaping, Reduce by 50%, No Potable Use or No Irrigation

The project will not have a permanent irrigation system. The vegetated roofs will have drought tolerant plant materials that may require occasional watering by hand.

Credit 3 Water Use Reduction

Specified fixtures will include high efficiency toilets and urinals, low flow lavatory faucets and ultra low flow shower heads. The project goal is an overall water savings of 30% above the calculated baseline.

Energy and Atmosphere

The building systems shall be designed to optimize energy performance and will not use refrigerants that are harmful to the environment. The owner shall engage a Commissioning Agent to confirm the building systems are installed and function as intended and designed.

Prerequisite 1 Fundamental Commissioning of the Building Energy Systems

A third party Commissioning Agent (CxA) shall be engaged by the owner for purposes of providing both basic and enhanced commissioning services for the building energy related systems including heating, ventilation, air condition, and refrigeration (HVAC & R), lighting and domestic hot water systems. The CxA shall verify the building systems are installed, calibrated and performing to the building owner's project requirements.

Prerequisite 2 Minimum Energy Performance

The building performance rating shall demonstrate a minimum of a 10% improvement compared to the baseline building performance calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007. A whole building energy simulation will demonstrate the projected energy savings for the project.

Prerequisite 3 Fundamental Refrigerant Management

The specifications for refrigerants used in the building HVAC & R systems shall NOT permit the use of CFC based refrigerants.

Credit 1 Optimize Energy Performance

The proposed building systems shall target a performance level of a minimum of 20% improvement over a baseline building performance rating. The team shall develop a whole building energy model to demonstrate the expected performance rating of the designed building systems.

Credit 3 Enhanced Commissioning

The Commissioning Agent (CxA) shall be engaged during the design process. The CxA's role shall include reviewing the owner's project requirements, creating, distributing and implementing a commissioning plan, and performing a design review of the design development and construction documents.

Credit 4 Enhanced Refrigerant Management

Long life high-efficiency mechanical equipment shall be specified for the HVAC systems and the refrigerants specified for the systems shall have low Ozone-depletion and Global warming potentials.

Credit 5 Measurement and Verification

The Berklee College of Music may choose to develop and implement a measurement and verification plan.

Credit 6 Green Power

The Berklee College of Music may choose to purchase 'green power' via a 2-year renewable energy contract to provide a minimum of 35% of the building's electricity from renewable sources.

Materials and Resources

Throughout the construction phase of the project, the contractor shall endeavor to divert Construction & Demolition waste from area landfills and procure materials that have recycled content and/or are manufactured locally.

Prerequisite 1 Storage and Collection of Recyclables

Storage of collected recyclables shall be accommodated throughout the building.

Credits 2.1 and 2.2 Construction Waste Management

Prior to the start of construction, the Construction Manager (CM) shall prepare a Construction Waste Management plan. The CM shall endeavor to divert as much demolition debris and construction waste from area landfills as possible with a goal of achieving 75% diversion.

Credits 4.1 Recycled Content 10% (post-consumer & ½ pre-consumer)

The project specifications shall require materials to include pre- and or post-consumer recycled content. During construction, materials submittals shall include a document indicating the percentage of both pre and post consumer recycled content. The CM shall track the recycled content for each material with a project goal to achieve 10% recycled-content materials based on overall project materials costs.

Credits 4.2 Recycled Content 20% (post-consumer & ½ pre-consumer)

During construction, materials submittals shall include a document indicating the percentage of both pre and post consumer recycled content. The CM shall track the recycled content for each material with a project target to achieve 20% recycled-content materials based on overall project materials costs.

Credit 5.1 Regional Materials, 10% Extracted, Processed and Manufactured Regionally

The project specifications shall indicate which materials are to be extracted, harvested, recovered and manufactured within a 500 mile radius of the job site. The project team's goals is that 10% of the materials used be regional materials. The CM shall track the source location for each material with a project target to achieve 10% regional materials based on overall project materials costs.

Credits 5.2 Recycled Content 20% Extracted, Processed and Manufactured Regionally

Construction materials submittals shall include a document indicating the location of the materials procured. The CM shall track the regional materials with a project target to achieve 20% regional materials based on overall project materials costs.

Credit 7 Certified Wood

The Berklee College of Music may use a minimum of 50% FSC certified wood for wood permanently installed inside the building envelope.

Indoor Environmental Quality

The air quality shall be monitored during the construction phase of the project and likely prior to occupancy. Low emitting materials will be used throughout construction to maintain and improve air quality. The building occupants will be able to maintain a comfortable environment through access to thermal and lighting controls.

Prerequisite 1 Minimum IAQ Performance

The building mechanical systems are designed to meet or exceed the requirements of ASHRAE Standard 61.1-2007 sections 4 through 7 and/or applicable building codes.

Prerequisite 2 Environmental Tobacco Smoke (ETS) Control

The building will be a non-smoking environment.

Credit 1 Outdoor Air Delivery Monitoring

The project shall incorporate permanent CO2 sensors and measuring devices to provide feedback on the performance of the HVAC system. Devices shall be programmed to generate an alarm when the conditions vary by 10% from a set point.

Credit 3.1 Construction IAQ Management Plan (during construction)

The Construction Manager shall develop an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the project to meet/exceed the recommended Control Measures of the SMACNA IAQ Guidelines for Occupied buildings Under Construction 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter3). Absorptive materials stored on site shall be protected from moisture damage.

Credit 3.2 Construction IAQ Management Plan (before occupancy)

After the completion of construction and prior to occupancy, Berklee may decide to conduct baseline IAQ testing to demonstrate that contaminant maximum concentrations are not exceeded.

Credits 4.1 Low-Emitting Materials, Adhesives & Sealants

The specifications will include requirements for adhesives and sealants to meet low Volatile Organic Compounds (VOC) criteria for adhesives and sealants.

Credits 4.2 Low-Emitting Materials, Paints and Coatings

The specifications will include requirements for paints and coatings to meet low VOC criteria for paints and coatings.

Credits 4.3 Low-Emitting Materials, Flooring Systems

The specifications will include requirements for hard surface flooring materials to be FloorScore certified and carpet systems shall comply with the Carpet Institute Green label program.

Credit 4.4 Low Emitting Materials, Composite Wood and Agrifiber Products

The project team shall endeavor to use composite wood and agrifiber products that contain no added urea-formaldehyde.

Credit 5 Indoor Chemical and Pollutant Source Control

The project team shall design to minimize and control the entry of pollutants into the building and to contain chemical use areas.

Credit 6.1 Controllability of Systems, Lighting

It is the intent of the design to provide individual lighting controls for regularly occupied spaces. The controls may include vacancy/occupancy sensors and day light dimming controls. Multi-occupant user spaces such as classrooms shall have multi-level lighting controls for modifying light levels as necessary for the various uses.

Credit 6.2 Controllability of Systems, Thermal Comfort

It is the intent of the design to provide individual temperature controls for regularly occupied spaces.

Credit 8.1 Daylight and Views, Daylight for 75% of the spaces

It is the intent of the design to locate regularly occupied spaces along the perimeter of the floor plate with ample vision glass to achieve daylight for 75% of the areas.

Credit 8.2 Daylight and Views, Views for 90% of the spaces

It is the intent of the design to locate regularly occupied spaces along the perimeter of the floor plate with ample vision glass to achieve views for 90% of the areas, below-grade music technology spaces excepted.

Innovation & Design Processes

The team has identified several possible ID credits which are listed below, (limited to 5 ID credits total).

Credit 1 Exemplary Performance for SSc4.1

The project site is located on several bus routes with a frequency of service resulting in over 200 transit rides per day.

Additional ID credits under consideration

Exemplary Performance for MRc2.2 Construction Waste Management: Due to the high volume of demolition debris, there is a high likelihood the CM could divert 95% of the construction waste by weight from area landfills.

Green Housekeeping: Building Facilities/Maintenance shall implement a cleaning program that uses 'green' cleaning products.

Low Mercury lighting: Building Facilities/Maintenance shall establish a lighting purchasing plan to limit the levels of mercury containing lamps purchased for the building.

Credit 2 LEED Accredited Professional (required ID credit for LEED certification)

A LEED AP shall provide administrative services to oversee the LEED credit documentation process.

Regional Priority Credits

Regional Priority Credits (RPC) are established LEED credits designated by the USGBC to have priority for a particular area of the country. When a project team achieves one of the designated RPCs, an additional credit is awarded to the project. RPCs applicable to the Boston area include: SSc3, SSc6.1, SScC7.1 EAc2 and MRc1.1. This project anticipates two RPCs: SSc3 Brownfield Redevelopment and SSc7.1-Heat Island Effect, Non-Roof.

12.8 Urban Design

Berklee brings vitality to Massachusetts Avenue on a daily basis while benefitting from the vibrant energy of the area's street life. The 168 Massachusetts Avenue project can help define a new center of gravity for the college, creating an urban campus on Massachusetts Avenue that connects students, faculty, and their city. The building will also contribute to a neighborhood context that can guide subsequent development, providing a transition for the future iconic Crossroads project proposed at Massachusetts Avenue and Boylston Street.

The design of the 168 Massachusetts Avenue project has been guided by Berklee's goal of creating a more transparent and engaging presence within the city. The proposed mixed-use building will incorporate architectural features and exterior façade materials that will help enliven the pedestrian experience and enhance the character of both the Berklee urban campus and the surrounding neighborhood. The lower "podium" portion of the building incorporates the more public functions of the program, with extensive glazing at the ground floor lobby/retail space and at the large dining and informal performance space on the second and third floors to enliven the public realm and animate the street. The curtain wall at the dining/performance space will have canted and faceted glass that serves to provide necessary acoustical deflection inside for music, while also bringing visual excitement to the streetscape along Massachusetts Avenue and Saint Germain Street.

The residence hall program of the project sits above the podium in a tower element on the north side of the site, with the residential floors visually separated from below by an all-glass enclosed fourth floor housing practice rooms and a small fitness center. The rooftop of the southern portion of the podium will also feature an outdoor terrace and green roof for use by students via the fourth floor of the building. The green roof will feature a screen of foliage and/or other materials to provide aesthetic and auditory privacy to the residential properties on Saint Germain Street. The façade material considered for the residence hall has centered around two materials—variegated limestone or bronze-colored stainless steel. Both are warm, natural materials that impart a sense of timelessness and stability, each having an inherent variety in color and tone that also gives liveliness to the building without trying to draw attention to itself. The large punched windows of the dormitory bedrooms will have a loft-like character, reflective of the "artistic loft" sensibility of Berklee's music students. Double-height student lounges at the corner of Massachusetts Avenue and Belvidere Street create a special vertical glass element; each common room, serving approximately 60 students, incorporates communicating stairs that enhance a greater sense of community between two residential floors. At the top of the building, a 20-foot setback on the south façade forms a two-step profile and helps visually break up the massing at the skyline.

A discussion of the pedestrian experience around the project, including the improved and widened sidewalks, as well as a discussion of the building massing are provided in Section 5.2.7.

12.9 Historic and Archaeological Resources

Immediately adjacent to the project site are a number of inventoried properties, including Saint Cecilia Church and properties along Saint Germain Street. Chapter 8 provides more information about historic resources in the vicinity of the project site.

Adjacent historic properties will not be impacted by shadow from the project during most of the time periods studied, as described in Section 8.3 and 12.6.2. During four time periods, during the afternoon and evening hours, new shadow from the project will be cast on some of the inventoried properties on Saint Germain Street, mostly on rooftops. Additional information on impacts to historic resources in the vicinity of the project site is provided in Section 8.3.

A review of the Inventory of Historic and Archaeological Assets identified no known archaeological resources are located within the project site. In addition, the project site is located on previously disturbed urban land, therefore, it is unlikely that significant archaeological sites remain.

12.10 Infrastructure Systems

The infrastructure analysis addresses the proposed project's impact on the capacity and adequacy of the existing water, sewage, and drainage utility systems. The following sections describe the capacity of the existing utility infrastructure surrounding the site and explain how these systems will service the proposed project.

12.10.1 System Connections

Berklee will coordinate with the Boston Water and Sewer Commission (BWSC) on the design of the proposed water, drainage, and sewer connections. All appropriate permits and approvals will be acquired prior to construction. Utility connections will be designed to minimize any effects within the surrounding area and existing business operations. Based on the analysis there is adequate sewage capacity in the area. The results of the pending BWSC flow tests will determine if there is sufficient water supply.

12.10.2 Sewage/Storm Water Systems

12.10.2.1 Existing Conditions

The existing sewer and drainage system infrastructure that services the project site and surrounding area is owned and operated by the BWSC (see Figure 12.10-1).

Within Massachusetts Avenue, a 15-inch combined sewer line exists and ultimately discharges through the Boston Main Drainage Tunnel to the Massachusetts Water Resource Authority's Deer Island Wastewater Treatment Plant.

Within Belvidere Street a 12-inch sewer line exists and connects to the West Side Interceptor which ultimately discharges to the Massachusetts Water Resource Authority's Deer Island Wastewater Treatment Plant.

Within Belvidere Street a 15-inch storm drain exists and becomes a combined sewer system that runs parallel to the Charles River containing Combined Sewer Overflows and ultimately discharges to the Massachusetts Water Resource Authority's Deer Island Wastewater Treatment Plant.

12.10.2.2 Proposed Sewage Generation

The project's sewage generation rates were estimated using Massachusetts State Environmental Code (Title 5) 310 CMR 15.203. The Code lists typical generation rates for the sources listed in Table 12.10-1.

Berklee college of music

Institutional Master Plan

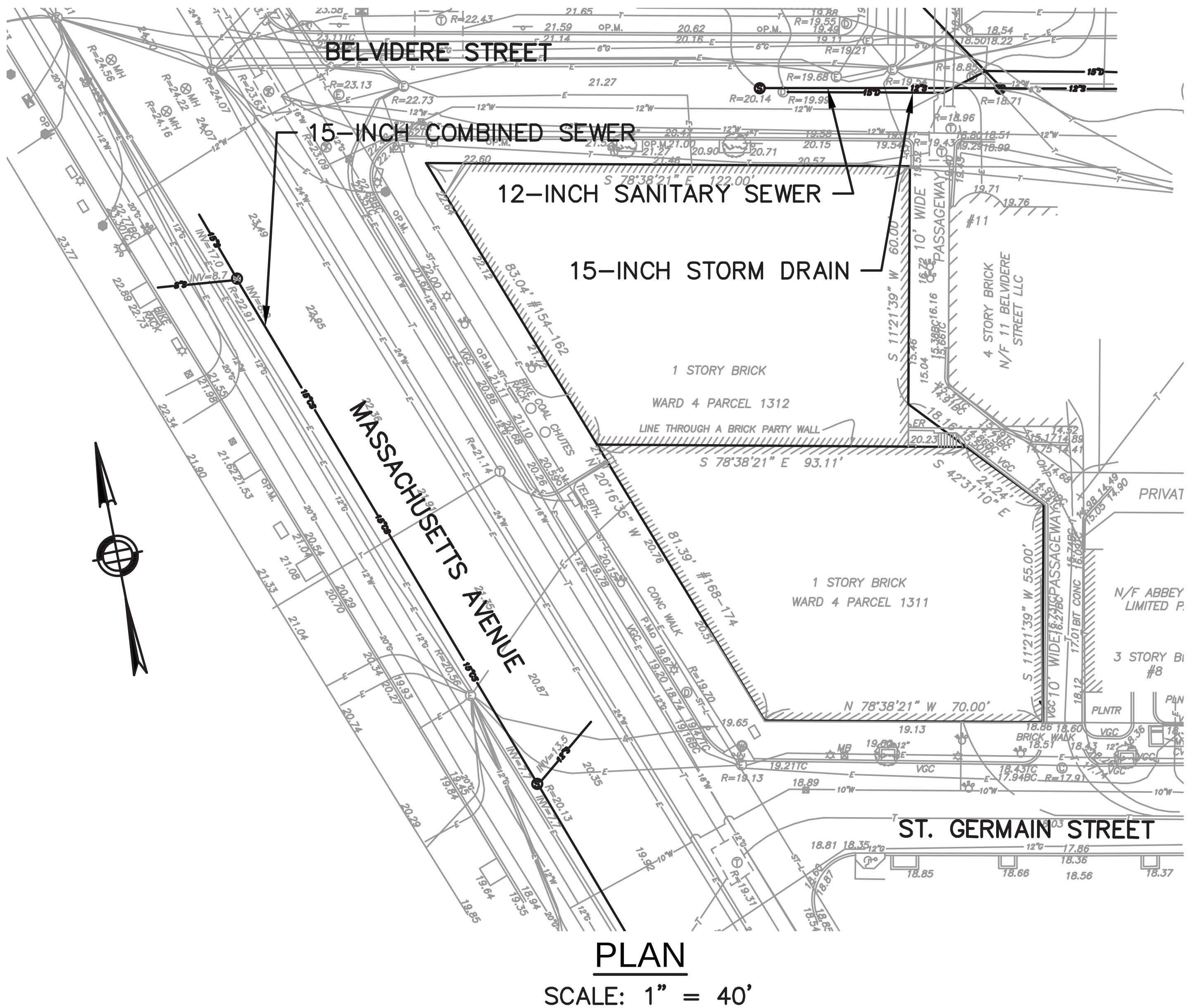


Figure 12.10-1

Existing Sanitary and Storm Drain Systems

Nitsch Engineering

Table 12.10-1 Sewage Generation

Use	Area (sf)	Units	Sewage Generation Rate	Total gpd
College Dormitory*		370 Beds	65 gpd/bed	24,050
Retail	5,000		50 gpd/1,000 sf	250
Music Technology	19,000		75 gpd/1,000 sf	1,425
Total				**25,725**

*Includes dining hall wastewater generation.

The proposed project is expected to produce a total effluent sewage discharge of approximately 25,725 gpd. A Massachusetts Department of Environmental Protection (MassDEP) Sewer Connection Permit is not anticipated at this time.

12.10.2.3 Sanitary Sewer System Capacity Analysis

An analysis was performed on the sanitary sewer lines the project may utilize. Information on the combined sewer line that runs within Massachusetts Avenue and the sanitary sewer line that runs within Belvidere Street were obtained for the analysis. Pipe diameters and inverts were taken from an existing conditions survey prepared by Feldman Land Surveyors. The flow capacity for each segment was analyzed using the Manning equation.

The 15-inch combined sewer main in Massachusetts Avenue has a capacity of 2.02 million gallons per day (mgd).

The 12-inch sewer main in Belvidere Street has a capacity of 2.95 mgd. Based on the peak flow estimate, the project will not substantially burden the existing sewage system. Calculations are presented in Table 12.10-2.

Table 12.10-2 Sewer Hydraulic Capacity Analysis

STREET	SIZE	SLOPE (ft/ft)	MANNING'S n	EXISTING CAPACITY MGD	EXISTING CAPACITY GPM	PROPOSED PEAK FLOW (GPM)
Massachusetts Avenue	15	.002	0.012	2.02	1,405	*17.0+/-*
Belvidere Street	12	.014	0.012	2.95	2,051	*17.0+/-*

12.10.2.4 Sewer/Stormwater Connections

The project's sewage and storm water flows will be kept separate per BWSC requirements, connecting to the appropriate mains respectively within Massachusetts Avenue and/or Belvidere Street. Although the existing sewer line within Massachusetts Avenue is a combined system, the BWSC and the City of Boston are attempting to separate stormwater and waste water over time to prevent periodic overflows of combined sewer and stormwater into receiving waters, and to reduce the sewage treatment burden at Deer Island.

12.10.2.5 Sewer/Stormwater Mitigation

In order to minimize sewage generation, the project will meet all applicable code requirements for the installation of low-flow fixtures. Stormwater run-off rates will not exceed existing rates given that the amount of proposed impervious area will mimic existing conditions. The implementation of several Best Management Practices (e.g. deep sump catch basins, oil/water separators, and an operation and maintenance plan) onsite will significantly improve the quality of stormwater run-off.

The project will also implement a system of groundwater recharge that satisfies the requirements if the Groundwater Conservation Overlay District. Berklee will coordinate with the BWSC and BGwT.

12.10.3 Water Supply System

12.10.3.1 Existing Conditions

Water to the project area is delivered through interconnected network water distribution systems, designated as Southern Low Service (SLS) Systems and Southern High Service (SHS) Systems. SLS systems are generally used to meet domestic water needs and street hydrant demand. SHS systems are generally used as the main supply to the low-pressure service system and supply water for building fire protection systems.

The SLS and SHS systems are integrally connected to form loops that allow major water demands to be fed from more than one direction. Looping allows each distribution system to function at optimum efficiency and provides a measure of safety and redundancy in the event of a water main break.

Adjacent to the site are 12-inch high and 12-inch low service water mains in Belvidere Street. There are 16-inch high, 12-inch low, and 24-inch low service water mains in Massachusetts Avenue and a 10-inch low service water main in Saint Germain Street (see Figure 12.10-2). Hydrant flow tests will be conducted as part of the project design to assist the plumbing and fire protection engineers with their designs.

12.10.3.2 Anticipated Water Consumption

The project's water demand is estimated at 110% of the sewage generation. Average potable water demand for the project is estimated at 28,298 gpd.

12.10.3.3 Water System Connections

Proposed connections are expected to be to the low pressure system for domestic water and the high pressure system for fire protection. The project will connect to any system adjacent to the site as recommended by the BWSC. All former water connections not utilized will be cut and capped at the main.

12.10.3.4 Additional Utilities Connections

The site is serviceable with electric, telephone, cable, and gas services within Massachusetts Avenue, Belvidere Street, and Saint Germain Street. All proposed utility connections will be coordinated with each respective utility provider.

12.10.4 Stormwater/Water Quality

In February of 2008, the MassDEP revised their Stormwater Management Standards to better address water quality and water quantity issues associated with project sites. The revisions promote increased stormwater recharge, treatment of more runoff from polluting land uses, low impact development (LID) techniques, pollution prevention, the removal of illicit discharges, and improved operation and maintenance of stormwater best management practices (BMPs).

A brief explanation of each standard and the project's compliance is provided below.

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

Compliance: The proposed design will comply with Standard #1. There will be no untreated stormwater discharges. All discharges will be treated prior to connection to the BWSC system.

Berklee college of music

Institutional Master Plan

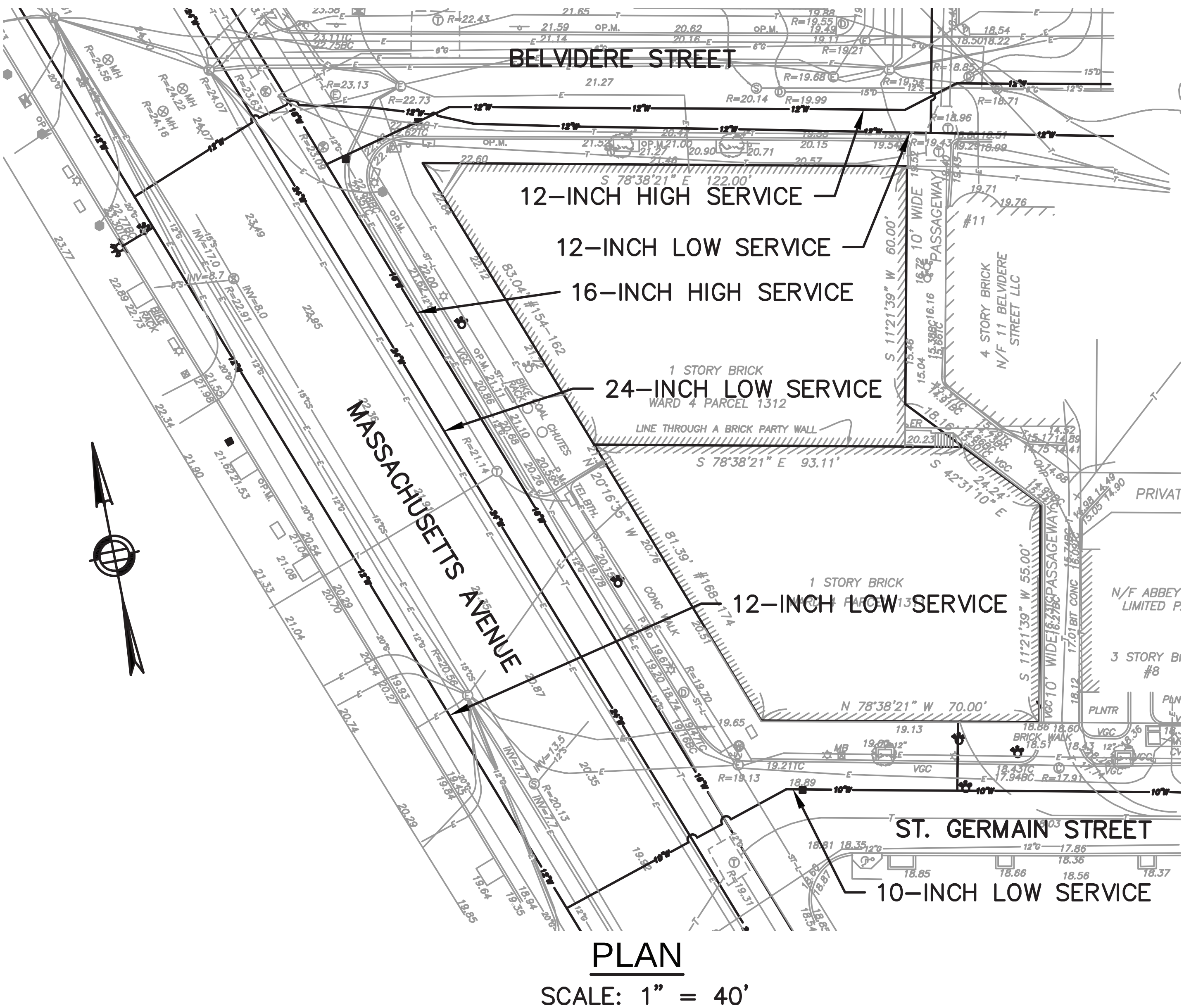


Figure 12.10-2

Existing Water Systems

Nitsch Engineering

Standard #2: Post-development peak discharge rates do not exceed pre-development rates on the Site either at the point of discharge or down-gradient of the property boundary for the 2- and 10-year 24-hour design storms. The project's stormwater design will not increase flooding impacts off-site for the 100-year design storm.

Compliance: The proposed design will not increase the impervious area compared to the pre-development condition. Therefore, the post-development peak discharge rate will be equal to or less than the pre-development discharge rate.

Standard #3: The annual groundwater recharge for the post-development site must approximate the annual recharge from the existing site conditions, based on soil type.

Compliance: As there is no increase in impervious area, the project is not required to provide additional groundwater recharge. However, due to the project lying within the Groundwater Conservation Overlay District, the project will be required to recharge a portion of the stormwater runoff.

Standard #4: For new development, the proposed stormwater management systems must achieve an 80% removal rate for the site's average annual load of Total Suspended Solids (TSS).

Compliance: To the maximum extent possible, the project's stormwater management system will remove 80 percent of the post-development site's average annual TSS load. Deep-sump hooded catch basins and water quality inlets, as needed, will be sized to meet the requirement.

Standard #5: If the site contains land uses with higher potential pollutant loads, specific BMPs must be used to treat and recharge stormwater runoff from the site.

Compliance: The project site does not contain any areas with higher potential pollutant loads. Therefore, the standard is not applicable to this project.

Standard #6: Stormwater discharges near or to critical areas require the use of source control, pollution prevention measures and specific BMPs to properly treat and recharge stormwater runoff from the site.

Compliance: The project does not discharge stormwater near or to critical areas. Therefore, the standard is not applicable to this project.

Standard #7: Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable.

Compliance: The project intends to meet or exceed all Stormwater Management Standards.

Standard #8: Erosion and sediment controls must be designed into the project to minimize adverse environmental effects.

Compliance: The project will comply with this standard. Sedimentation and erosion controls will be incorporated as part of the design of this project and employed during on-site construction.

Standard #9: A long-term operation and maintenance plan is required to ensure proper maintenance and functioning of the stormwater management system.

Compliance: An Operations and Maintenance Plan including long-term BMP operation requirements will be prepared to ensure proper maintenance and functioning of the system.

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

Compliance: No illicit discharges will be introduced into the stormwater management system.

12.11 Coordination with Other Agencies

12.11.1 Architectural Access Board Requirements

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

12.11.2 Massachusetts Historical Commission

The project will comply with Section 106 of the National Historic Preservation Act (36 CFR 800) and State Register Review (950 CMR 71) to the extent applicable.

12.11.3 Boston Landmarks Commission

The project is subject to the City of Boston's Demolition Delay Ordinance (Article 85 of the Boston Zoning Code). Prior to the commencement of demolition, the project will prepare an Article 85 Application for buildings proposed for demolition that are over 50 years of age and submit the applications to the Boston Landmarks Commission.

12.11.4 Other Permits and Approvals

Section 12.3 lists agencies from which permits and approvals for the project will be sought.

Appendix A

Scoping Determination and Response to NPC

Boston Redevelopment Authority

Boston's Planning & Economic Development Office

Thomas M. Menino, *Mayor*
Clarence J. Jones, *Chairman*
John F. Palmieri, *Director*

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

April 6, 2009

Mr. Roger Brown, President
Berklee College of Music
1140 Boylston Street
Boston, MA 02215

Dear Mr. Brown:

Re: **Berklee College of Music Institutional Master Plan Scoping Determination**

Please find enclosed the Scoping Determination for the proposed Berklee College of Music 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 January 30, 2009. 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: John Palmieri, BRA
Brenda McKenzie, BRA
Kairos Shen, BRA
Jim Tierney, BRA
Jay Walsh, Mayor's Office of Neighborhood Services

BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION

FOR

BERKLEE COLLEGE OF MUSIC
INSTITUTIONAL MASTER PLAN

PREAMBLE

Berklee College of Music ("Berklee" or the "College") is seeking approval of an Institutional Master Plan ("Proposed IMP" or "IMP") pursuant to Section 80D of the Boston Zoning Code (the "Code"). The Institutional Master Plan Notification Form ("IMPNF") submitted to the BRA January 30, 2009, describes two Proposed Institutional Projects: (1) the mixed-use Berklee Crossroads project and (2) the 161-171 Massachusetts Avenue academic building project (the "Proposed Institutional Projects" or "Proposed Projects"). The BRA will review the Proposed IMP pursuant to Section 80D of the Code (Institutional Master Plan Review).

Based on review of the IMPNF and comments from city and state public agencies, elected officials, the BRA-appointed Berklee College of Music Task Force, and the public, the BRA hereby issues its written Scoping Determination ("Scope") pursuant to Section 80D-5.3 of the Code. Berklee is requested to respond to the specific elements outlined in this Scope. Comments from public agencies and the public (including the Task Force and elected officials), found in Appendix 1 and 2, respectively, are incorporated as a part of this Scope and should be responded to in the IMP or in another appropriate manner over the course of the review process.

Berklee is required to prepare and submit to the BRA a Proposed IMP pursuant to Section 80D of the Boston Zoning Code. The Proposed IMP must set forth in sufficient detail the characteristics and planning framework of the institution to allow the BRA to make a determination about the merits of the Proposed IMP. The Proposed IMP and DPIR shall contain the information necessary to meet the specifications of Article 80 as well as any additional information requested below.

At other points during the public review of the IMP, the BRA and other City agencies may require additional information to assist in the review of the Proposed IMP and/or Proposed Project.

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

- The City of Boston views its academic institutions as important economic and cultural assets and as valuable partners in a wide range of public policy priorities. However, while the benefits of Boston's academic institutions are felt across the city and even regionally, nationally, and globally, the negative impacts are generally limited to the immediate neighborhood. This dictates that both the BRA and academic institutions work to carefully balance the goals of vibrant institutions and healthy neighborhoods.

- As stated in Section 80D-1 of the Boston Zoning Code, "the purpose of Institutional Master Plan Review is to provide for the well-planned development of Institutional Uses in order to enhance their public service and economic development role in the surrounding neighborhoods." An Institutional Master Plan has a dual purpose of meeting the needs of the institution and relating the institution's facilities to their context in a positive way. The Proposed IMP and Proposed Institutional Projects must therefore constitute a framework to guide future growth. The BRA recognizes that Berklee does not have a traditional campus and that planning for expansion in a constrained urban context is necessarily a different exercise than in the case of an institution with more extensive property holdings. Nevertheless, these constraints do not preclude the formulation of a clear definition of Berklee's physical needs, goals, aspirations, and vision based on stated institutional mission and goals.
- The IMPNF sets forth a planning framework that is the product of roughly two years of discussions with the BRA, the Task Force, and the community at large, and that responds to many of the comments submitted by community members over the course of 2007 and 2008. Berklee has made a commendable effort to pursue alternative development strategies and to articulate a vision of its long-term growth in spite of limited property holdings with which to implement that vision.
- Through this process, there have been concerns expressed about the impacts of the height of the proposed Berklee Crossroads project. At the same time, there are perennial concerns about the impacts of an expanding institutional footprint on the surrounding neighborhoods. These different impacts affect the surrounding neighborhoods to different degrees depending on the different existing and likely future institutional footprint in those neighborhoods, and a balance must be struck between a solution involving greater height with a smaller institutional footprint versus limited height with a larger overall footprint. Berklee's task in the IMP is to make a cogent case for a change in zoning that would allow the proposed program and height of the Berklee Crossroads project by showing that this is preferable to a more diffuse development pattern.
- There are a number of proposed projects in the vicinity of Berklee's Proposed Projects that are currently undergoing some level of review, including, most significantly, proposals for air rights development on the Massachusetts Turnpike Authority parcels and a parcel at St. Cecilia's Church undergoing disposition by the Archdiocese of Boston. Although these proposals will undergo separate review processes, the BRA will review each of them in the context of the others. Additional materials not anticipated in this document may be needed to support this effort, and Berklee shall collaborate as needed with the BRA to facilitate review of the Proposed IMP within the context of those other proposals and to assess the cumulative impacts of all proposals.
- The Task Force has expressed strong support for participation by Berklee in ongoing development projects in the area, most notably the proposed air rights development. Berklee should continue to work with other developers to seek ways to include the College's program in those projects.

SUBMISSION REQUIREMENTS

FOR THE

BERKLEE COLLEGE OF MUSIC IMP

The Scope requests information required by the BRA for its review of the Proposed Institutional Master Plan in connection with the following:

1. Approval of the Proposed IMP pursuant to Article 80D and other applicable sections of the Code.

2. Recommendation to the Zoning Commission for approval of the Proposed IMP.

The Proposed IMP should be documented in a report of appropriate dimensions and in presentation materials which support the review and discussion of the IMP at public meetings. Thirty-five (35) copies of the full report should be submitted to the BRA, in addition to an electronic version in .pdf format. An additional thirty-five (35) copies of the document should be available for distribution to the Berklee Task Force, community groups, and other interested parties in support of the public review process. The IMP should include a copy of this Scoping Determination. The Proposed IMP should include the following elements.

1. MISSION AND OBJECTIVES

- **Organizational Mission and Objectives.** Define Berklee's institutional mission and objectives, and describe how the development contemplated or proposed in the IMP advances the stated mission and objectives. In particular, the IMP should address Berklee's competitive context and an explanation of the relationship between, on the one hand, Berklee's competitive strategy and trajectory as an institution, and on the other hand its physical needs. The Planning and Urban Design Framework section requests a more detailed description of future facilities needs.
- **Major Programs and Initiatives.** Describe any major academic programs or initiatives that will drive academic and physical planning in the future. Included in the description should be current and future trends that are impacting Berklee and shaping program objectives.

2. EXISTING PROPERTY AND USES

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

- **Owned and Leased Properties.** Provide an inventory of land, buildings, and other properties occupied by Berklee's institutional uses as of the date of submission of the IMP, with the following information in tabular and map form for each property:

    - Illustrative site plans showing the footprints of each building and structure, together with roads, sidewalks, parking, and other significant improvements.

- Land and building uses.
- Building gross square footage, including area below grade, and floor area devoted to each use.
- Building height in feet and number of floors, including floors below grade and mechanical penthouses.
- Age of structures.
- Condition of structures.
- A description of off-street loading, trash storage, and parking areas and facilities, including a statement of the approximate number of parking spaces in each area or facility.
- Tenure (owned or leased by Berklee).
- Proposed action (rehabilitation, disposition, demolition, replacement, change of use, or other) during the term of the IMP.
- Indication of temporary swing space facilities, where applicable.
- Existing building linkage payments.

3. INSTITUTIONAL DEMOGRAPHICS

- **Student Population.** The IMP should provide an explanation of past trends and future projections of the size and other salient characteristics of Berklee's student body. These data should be referenced as appropriate in other sections, e.g. the Student Housing Plan.
- **Student Residence Locations.** The IMP should contain more detail than presented in the IMPNF on the residence locations of students living in Berklee-owned dormitories as well as in other Boston-based housing. Specifically, the IMP should present a more legible map with the data in tabular format in addition; a distinction between students living in residence halls versus those living in rental housing; and, ideally, a breakdown at the sub-zipcode level. This information may be integrated with the Student Housing Plan, described below, if desired.
- **Current Employment.** Provide information on Berklee's employee population, disaggregated by faculty/staff, full-time/part-time, Boston residents/non-residents.
- **Future Employment.** Describe projected future employment needs, both College-wide and, to the extent possible, any new jobs that will be generated by the Proposed Institutional Projects. The BRA looks forward to working with Berklee to support the City's employment and workforce development goals. This IMP provides an opportunity for further discussion of measures to enhance educational opportunities for Boston residents and prepare Boston residents and students for employment.

4. PLANNING AND URBAN DESIGN FRAMEWORK

Because an urban institution with dispersed buildings is clearly different from a contiguous campus, the IMP should address the urban qualities of the campus and Berklee's place within the broader urban context. Berklee uses the city as its campus, drawing vitality from it and contributing activity. Boston's streets and parks are the Berklee open spaces, its storefronts the College's student centers, its sidewalks and subways Berklee's circulation system. While this symbiotic relationship is positive in many respects, because the College is so woven into the fabric of its host neighborhoods, it must carefully balance its desire for a more visible institutional identity with the essentially public and neighborhood-oriented quality of the surrounding public realm, both by presenting its own identity sensitively and by striving to create and maintain spaces (whether retail, institutional, or of another nature) that are accessible to the public and that serve neighborhood needs.

This proposed IMP represents Berklee's ongoing master planning for future development, which is the result of a several years of conversations with the Task Force and the BRA. The IMP should present an explanation of the planning and urban design framework that has guided and will guide facilities and development decisions. This section should discuss, at a minimum, the following:

- **Existing Context.** Describe Berklee's current presence, as well as potential future presence in, the broader context of adjacent land uses and surrounding neighborhoods. Reference any City policies or plans that shape the planning context for these areas (e.g. the Civic Vision for Air Rights Development, Fenway rezoning) as well as other vision documents (e.g. the Fenway CDC Urban Village Plan) and major developments such as the Turnpike air rights parcels.
- **Facilities Needs.** Describe Berklee's future facilities needs and goals for the term of this IMP and beyond, with reference to the requirements stated in the "Needs of the Institution" item in Section 80D-3 of the Boston Zoning Code.
- **Zoning Buildout Analysis.** For each property owned by Berklee, the IMP shall present an analysis of any unutilized zoned capacity and the square footage that could be added were the full zoning envelope to be used. The analysis for each property should be accompanied by a description of the feasibility of building out to the zoned capacity, where such additional capacity exists.
- **Planning and Urban Design Principles and Goals.** The IMPNF contains a statement of Berklee's urban design vision and principles. The IMP should provide more detail on how these principles can be realized through the IMP, the Proposed Institutional Projects and alternatives, and coordinated action with the City of Boston and other entities, including developers. Specifically, the IMP should:

    - Discuss the needs and challenges of an urban institution comprising scattered, rather than contiguous, facilities and the way that this reality shapes Berklee's vision of its future development.
    - Describe Berklee's vision of its desired physical identity and, in general terms, strategies for achieving that identity. The discussion should include a vision for Berklee's relationship with key public realm infrastructure, public spaces, activity centers, and destinations in the vicinity of the College, e.g. programming and design of ground floor spaces controlled by Berklee.
    - Include a diagram showing the location of major activity centers and destinations, including both Berklee buildings and other major activity centers (e.g. residential clusters of off-campus student rentals and entertainment districts) in the adjacent areas and the major pedestrian routes connecting them. The IMP should also describe anticipated pedestrian volumes among Berklee's current, proposed, and potential future facilities and between these facilities and other key destinations, taking into account the anticipated distribution of institutional functions.
    - Present a comprehensive campus signage plan for review. The plan should help students as well as casual users orient themselves to the various uses and buildings associated with the College and must create a clear hierarchy of signage that

includes insitutional identity, building identity, and specific uses, while being sensitive to the fact that the College is embedded in a larger urban context.

- **Public Realm.** The IMP should describe the existing public realm infrastructure (i.e. parks, plazas, streetscapes) in the vicinity of Berklee facilities regardless of ownership and should discuss key urban design and public realm goals and objectives proposed by Berklee for the campus area, with a focus on the following:

  - *Sidewalk, streetscape, and pedestrian improvements.* The intersection of Massachusetts Avenue and Boylston Street already has a high volume of pedestrian activity, in particular the block of Massachusetts Avenue known as "Berklee Beach." While the proposed Berklee Crossroads project will help alleviate some of the impacts on the sidewalk by creating indoor student gathering spaces, it will also bring new residents and activity to that corner. Berklee should work with relevant city agencies to improve conditions for pedestrians on sidewalks and in crosswalks in the vicinity of Berklee's facilities, with particular attention to the sidewalks bordering the proposed Berklee Crossroads project—which must safely accommodate event crowds—and the sidewalk on Boylston Street between Massachusetts Avenue and Hemenway Street. The IMP shall present a strategy for working with relevant city agencies to develop and implement coordinated pedestrian and streetscape improvements such as improved sidewalks, consistent lighting standards, street trees, benches, and other amenities along the major pedestrian serving Berklee. As mentioned in the transportation section, the large number of bicycles currently locked along "Berklee Beach" create an additional negative impact on pedestrian conditions, as well as on existing street trees. The IMP should propose measures to create additional bicycle parking, both indoor and outdoor.
  - *Parks and urban public spaces.* The area would benefit, in particular from additional small urban public spaces, particularly spaces that could accommodate outdoor performances. Berklee's creation of a plaza at 7 Haviland Street is a welcome addition to the neighborhood, but the IMP should explore additional opportunities to create and/or support such spaces on its own property or in cooperation with other property owners. In addition, Berklee should propose means of cooperating with the Boston Parks and Recreation Department, other city agencies, and other entities to support the stewardship of nearby parkland.

- **Future Development Strategies.** In the IMPNF, Berklee has presented three goals that guide the projects proposed in the IMPNF: 1) focus new growth at the intersection of Boylston Street and Massachusetts Avenue; 2) gather supporting functions in proximity to the campus; and 3) create residential communities within reasonable walking distance to the core. The IMP should discuss the development and implementation of these goals in more detail. Specifically, the IMP should:

  - Describe the scale and types of uses that could conceivably be accommodated on sites not controlled by Berklee in the vicinity of the Berklee Crossroads project, with particular focus on those sites with active development proposals. This exercise should discuss program elements without a site specified in the IMP (i.e., elements of the "proposed future development program" on Page 3-2 of the IMPNF and the "other future development" section on Page 6-11) as well as program elements currently included in the proposed Berklee Crossroads project. The IMP should outline Berklee's past and ongoing efforts to acquire property and participate in development projects in ways that meet the College's need and balance the impacts of height and institutional footprint.

- Describe how goal #3 (e.g., housing for students along the western part of Boylston Street as suggested in the IMPNF) would affect the citywide distribution of Berklee's student population and describe, in conceptual terms, the types of support facilities (e.g., dining halls, practice rooms) that would be incorporated into these "residential communities."

- **Changes in Use and Property Disposition.** The IMP should describe any proposed or anticipated changes of use in Berklee's existing properties as a result of the Proposed Projects and, to the extent possible, realization of Berklee's future programmatic goals. In particular, the IMP should describe options and criteria for the disposition of 98 Hemenway Street.

5. PROPOSED INSTITUTIONAL PROJECTS

The IMPNF contains only two Proposed Institutional Projects with sufficient detail for scoping and ultimate IMP approval: the Berklee Crossroads project and the project at 161-171 Massachusetts Avenue (together, the "Proposed Projects"). Other future development projects lack the specificity necessary for scoping and IMP approval at this stage. The IMP shall contain the following:

- **Language Modifications.** The Berklee Crossroads project and the project at 161-171 Massachusetts Avenue should be clearly separated from "Other Future Development" in a separate section or chapter entitled "Proposed Institutional Projects." The language on page 6-12 of the IMPNF ("preliminary approval…") should be removed and the projects listed underneath should not be described under the heading "Zoning Applicable to Future Development." The BRA does not recognize any type of "preliminary approval" outside the full Article 80 process. Although approval of the IMP by the BRA Board and Boston Zoning Commission may constitute endorsement of these development concepts, in the absence of more specific information meeting the standards outlined below no projects other than the two projects designated Proposed Institutional Projects will be granted zoning rights or other approval as a result of approval of the Proposed IMP, nor should any such approval be construed.
- **Article 80D Requirements.** Pursuant to Article 80D, the IMP should provide the following information for each Proposed Future Project:
  - Site location and approximate building footprint.
  - Uses (specifying the principal subuses of each land area, building, or structure, such as classroom, laboratory, parking facility).
  - Square feet of gross floor area.
  - Square feet of gross floor area eliminated from existing buildings through demolition of existing facilities.
  - Floor area ratio.
  - Building height in stories and feet, including mechanical penthouses.

- o Parking areas or facilities to be provided in connection with Proposed Institutional Projects;
- o Any applicable urban renewal plans, land disposition agreements, or the like.
- o Current zoning of site.
- o Total project cost estimates.
- o Estimated development impact payments.
- o Approximate timetable for development of proposed institutional project, with the estimated month and year of construction start and construction completion for each.

- **Rationale for Proposed Projects.** Discuss the rationale for the program and location of the Proposed Institutional Projects in light of earlier discussions on mission, facilities needs, and institutional planning objectives. Discuss the rationale for the scale of the proposed building.
- **Building Uses.** For each Proposed Project, discuss the anticipated hours of each use, intensity of use by students, faculty, staff, and visitors, and the potential impact of these uses on pedestrian and student activity in the area around the site and more generally in the neighborhoods surrounding the Proposed Projects. In particular, the IMP should provide more detail on the student life spaces to be created in the proposed Berklee Crossroads project and the ability of these spaces to alleviate the crowding on area sidewalks currently heavily used by Berklee students as social space.
- **Berklee Crossroads Alternatives.** The IMP shall present the following alternatives analyses:

1. *Adherence to underlying zoning.* Present an alternative to the proposed Berklee Crossroads project that conforms to the height, FAR, and other dimensional requirements of the existing zoning and describe the components of the program that would likely be accommodated and those that would likely not be accommodated on the site.
2. *Additional alternatives.* Berklee may present any additional alternative proposals it wishes that are larger than allowed by the existing zoning but smaller than the proposed Berklee Crossroads project.
3. *Parcel 14 and Cambria Street.* The IMP shall describe alternative designs for the proposed Berklee Crossroads project that could be accommodated entirely on property currently controlled by Berklee, without the inclusion of air rights Parcel 14 and/or the section of Cambria Street that Berklee proposes to discontinue and incorporate into its building parcel.
4. *Preservation of Historic Buildings.* Berklee's proposals should continue to explore alternatives that preserve key portions of the State Street Bank and Fenway Theatre buildings.

- **Impact on Planning Goals and Institutional Footprint.** The above alternatives should be studied not only for the impacts of the proposed Berklee Crossroads project, but also for the impacts generated from displacing portions of the proposed program to other sites. The IMP shall present the following analysis for Alternative 1 and any project presented as Alternative 2.

- Based on the College's existing facilities, as well as existing average lot sizes and building heights, FAR, zoning, and assessed value in the vicinity of the Proposed Project, describe the additional projects (i.e. number of buildings, approximate square footage and land area) that would be needed to accommodate the displaced program.
- Describe the likely impacts on Berklee's stated planning goals and the goals set forth in associated planning and vision documents for the relevant neighborhoods.
- Estimate the fiscal impact (i.e. lost property tax base) of this alternative assuming that properties occupied by Berklee under this scenario would become tax exempt (or, in the case of a vacant or underutilized parcel, would NOT be available for a tax-generating property of comparable scale and value). The IMP should clearly present the properties studied in order to conduct this analysis.

- **Water, Sewer, Drainage, Stormwater, Groundwater.** The Proposed Projects, and indeed most of Berklee's buildings, lie within the Groundwater Conservation Overlay District. The IMP shall address the requirements of Article 32 of the Boston Zoning Code and shall respond to all other comments contained in the comments letters from the Boston Water and Sewer Commission and the Boston Groundwater Trust, which are contained in Appendix 1 and are hereby incorporated by reference.
- **Wind Impacts.** Although wind impacts are typically studied in more detail as part of Large Project Review, the request to exceed the existing zoning merits scrutiny of certain environmental impacts of the proposed Berklee Crossroads Project. Specifically, the IMP shall present the following for the project as proposed in the IMPNF as well as for Alternative #1 above and any additional alternative that Berklee chooses to present pursuant to #2 above. The BRA reserves the right to request additional information and/or analysis if deemed necessary.

    - *Wind Effects Statement.* The IMP shall contain a preliminary qualitative assessment of the existing wind environment within the proposed development area and the potential impact of the proposed building massing. The intention is to estimate the pedestrian wind conditions for the proposed project and surrounding area and highlight potential areas of concern.

- **Shadow Impacts.** Although shadow impacts are typically studied in more detail as part of Large Project Review, the request to exceed the existing zoning merits scrutiny of certain environmental impacts of the proposed Berklee Crossroads Project. Specifically, the IMP shall present the following for the project as proposed in the IMPNF as well as for Alternative #1 above and any additional alternative that Berklee chooses to present pursuant to #2 above.

    - A shadow analysis for existing and build conditions for the hours of 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox and winter solstice and for 6:00 p.m. in the summer and fall. The final shadow impact analysis should clearly distinguish between existing shadow and net new shadow in graphics and labels. The shadow impact study area shall include, at a minimum, the entire area to be encompassed by the maximum shadow expected to be produced by the Proposed Project. The build conditions shall include all buildings under construction and any proposed buildings anticipated to be completed prior to completion of the Proposed Project. Shadows from all existing buildings within the shadow impact study area shall be shown. Shadows shall be determined by using the applicable Boston Azimuth and Altitude data. Shadow analysis must show the incremental effects of the proposed development on existing and proposed public open spaces and pedestrian areas (including transit stops), including, but not limited to, sidewalks and pedestrian walkways adjacent to and in the vicinity of the proposed project and parks, plazas, and other open space areas. The analysis must clearly label all streets, vehicular paths, public open spaces, and pedestrian areas adjacent to and in the vicinity of the proposed project area. A North arrow shall be provided on all figures. Additional shadow analysis may be required depending on the particular circumstances or physical characteristics of the project site, including its solar orientation relative to public open spaces, pedestrian and street patterns, existing shadows in the area, historic resources, defined shadow impact areas, or other appropriate factor.

- **Urban Design Submission Requirements.** In addition to the text, drawings, photographs, models and other graphics necessary to respond to the issues listed above, the BRA's Urban Design Department has requested the following materials. Although this list is more typical of Large Project Review than of Institutional Master Plan Review, the scale of the proposed Berklee Crossroads Project warrants material beyond what would typically be requested for this review. The list below is intended to be indicative of the types of submissions that may be required; the exact requirements may be modified as needed and will be determined by the BRA's Urban Design Department during the review process:

    - A comprehensive Institutional Master Plan Area map, clearly indicating all site locations and approximate building footprints;
    - Gross floor area within Institutional Master Plan Area;
    - Gross floor area eliminated from existing buildings through demolition of existing facilities;
    - Floor area ratios of building sites and in total;
    - Written description of program elements and space allocation (in square feet) for each element, as well as Project totals.
    - Neighborhood plan, elevations and sections at an appropriate scale (1"=100' or larger as determined by the BRA) showing relationships of the proposed project to the neighborhood context:

        - Massing
        - Building height
        - Scaling elements
        - Open space
        - Major topographic features
        - Pedestrian and vehicular circulation
        - Land use

    - Color, or Black and white photographs of the site and neighborhood.
    - Sketches and diagrams to clarify design issues and massing options.

- Eye-level perspective (reproducible line or other approved drawings) showing the proposals (including main entries and public passages/areas) in the context of the surrounding area. Views should display a particular emphasis on important viewing areas such as key intersections, accessways, or public parks/attractions. Long-ranged (distanced) views of the proposed project must also be studied to assess the impact on the skyline or other view lines. At least one bird's-eye perspective should also be included. All perspectives should show (in separate comparative sketches) both the build and no-build conditions. The BRA should approve the view locations before analysis is begun. View studies should be cognizant of light and shadow, massing and bulk.
- Additional aerial or skyline views of the project, if and as requested.
- Site sections at 1"=20' or larger (or other scale approved by the BRA) showing relationships to adjacent buildings and spaces.
- Site plan(s) at an appropriate scale (1"=20' or larger, or as approved by the BRA) showing:

  - General relationships of proposed and existing adjacent buildings and open spaces
  - Open spaces defined by buildings on adjacent parcels and across streets
  - General location of pedestrian ways, driveways, parking, service areas, streets, and major landscape features
  - Pedestrian, handicapped, vehicular and service access and flow through the parcel and to adjacent areas
  - Survey information, such as existing elevations, benchmarks, and utilities
  - Phasing possibilities
  - Construction limits

- Massing model (ultimately in basswood) at 1":40'0" for use in the Authority's downtown model (at least for the Crossroads proposal)
- Study model at 1" = 16' or 1" = 20' showing preliminary concept of setbacks, cornice lines, fenestration, facade composition, etc.
- Drawings at an appropriate scale (e.g., 1":16'0", or as determined by BRA) describing architectural massing, facade design and proposed materials including:

  - Building and site improvement plans
  - Neighborhood elevations, sections, and/or plans showing the development in the context of the surrounding area
  - Sections showing organization of functions and spaces, and relationships to adjacent spaces and structures
  - Preliminary building plans showing ground floor and typical upper floor(s).
  - Phasing, if any, of the Proposed Projects

- A written and/or graphic description of the building materials and its texture, color, and general fenestration patterns is required for the proposed development.
- Electronic files describing the site and Proposed Project at Representation Levels one and two ("Streetscape" and "Massing") as described in the document Boston "Smart Model": CAD & 3D Model Standard Guidelines.

- Full responses, which may be in the formats listed above, to any urban design-related issues raised in preliminary reviews or specifically included in the BRA scoping determination, preliminary adequacy determination, or other document requesting additional information leading up to BRA Board action, inclusive of material required for Boston Civic Design Commission review.
- Proposed schedule for submission of all design or development-related materials.
- Diagrammatic sections through the neighborhood (to the extent not covered in item #2 above) cutting north-south and east-west at the scale and distance indicated above.
- True-scale three-dimensional graphic representations of the area indicated above either as aerial perspective or isometric views showing all buildings, streets, parks, and natural features.

6. STUDENT HOUSING PLAN

Article 80D mandates that institutions submit a Student Housing Plan as part of the IMP. The IMP should address both the requirements set forth in Article 80D, which are reproduced below, and the additional requirements set forth in this section.

- **Article 80 Student Housing Plan Requirements.** Pursuant to Article 80D, the IMP should address the following:

  - The number of full-time undergraduate and graduate students living in housing facilities owned or operated by the Institution, including a breakdown by type of degree of program (undergraduate or graduate) and type of housing facility (dormitory, apartment, or cooperative housing facility).
  - The number of housing units owned or operated by the Institution, by type of housing facility (dormitory, apartment or cooperative housing facility).
  - Any housing requirements or restrictions the Institution places on its students (e.g. eligibility for University-owned housing, requirement to live on campus).
  - The process by which the Institution directs its students to housing facilities (both on- and off-campus).
  - The Institution's short-term and long-term plans for housing its undergraduate and graduate students in University-owned housing.
  - Impacts of the Institution's student housing demand on housing supply and rental market rates in the surrounding neighborhoods, including those neighborhoods adjacent to the Institution's campus and other neighborhoods where the Institution's students are concentrated.
  - A plan for mitigating the impacts of the Institution's student housing demand on surrounding neighborhoods

7. TRANSPORTATION AND PARKING MANAGEMENT / MITIGATION PLAN

In addition to the submissions detailed in this Scope, Berklee should continue to work closely with the Boston Transportation Department ("BTD") to outline an appropriate scope for studying and mitigating any transportation impact of the proposed IMP. In addition to the information requested below, the IMP should also address the transportation-related issues set forth in the comment letter from BTD, which is contained in Appendix 1 and is hereby incorporated by reference.

- **Existing Conditions.** Provide a description of Berklee's existing transportation and parking characteristics, including data on mode share for employees, students, and visitors; parking spaces owned and operated by Berklee and other public parking inventory in the area; policies regarding student and employee parking; and existing transportation demand management ("TDM") measures in place. Describe key factors that limit the number of Berklee employees, students, and visitors willing to use alternatives to the automobile.
- **Pedestrian Circulation.** Berklee's location means that pedestrian traffic—whether students and employees moving between Berklee facilities or walking to and from MBTA stations—is a key component of the overall transportation system that serves the College. This is, on the whole, a desirable situation that helps to enliven the urban core and contributes to Berklee's admirable mode share statistics. Nevertheless, high volumes of pedestrian traffic may be more appropriate in some locations than in others. The IMP should describe and quantify the existing and anticipated pedestrian volumes to, from, and between existing and proposed Berklee facilities. This analysis should take into account any major changes in the nature or volume of pedestrian traffic that would be caused by the development of the Proposed Projects and achievement of Berklee's additional development goals.
- **Bicycle Transportation.** Currently, the block of Massachusetts Avenue known as "Berklee Beach" is often overwhelmed by bicycles locked to signposts, street trees, and other objects. This degrades the pedestrian environment and may damage trees. Despite the recent addition of bicycle racks, there is clearly still a deficit. The IMP should propose additional facilities—both outdoor and indoor—to be in included in the Proposed Institutional Projects and/or developed in cooperation with the City of Boston and other property owners.
- **Student Auto Ownership, Use, and Parking.** Provide data on car ownership by Berklee students broken down by those who live in dormitories and those who do not, and explain the eligibility of students living in dormitories to obtain resident parking permits and any measures to enforce existing regulations.
- **Move-In/Move-Out Traffic Management Procedures.** Describe Berklee's current procedures for managing traffic and parking impact generated by students moving into and out of dormitories, and any proposed changes to those procedures that would be implemented as part of the proposed Berklee Crossroads project.

8. ENVIRONMENTAL SUSTAINABILITY

The City of Boston expects a high level of commitment to principles of sustainable development from all developers and institutions. Berklee's growth provides exciting opportunities for innovation and excellence not only in individual buildings, but across the College as a whole. Berklee will be expected to work with the BRA, the City of Boston Environment Department, and other entities as determined by the BRA to set and meet ambitious environmental sustainability goals in both the IMP and in the design of the Proposed Projects. The IMP should present as much information as possible on the topics below.

- **Sustainability Meeting.** Berklee will be expected to help organize one or more meetings on institutional sustainability and green buildings to discuss and shape its plans with the

BRA and other key public agencies and organizations, with particular focus on the topics below, which should also be addressed in the IMP.

- **Existing Sustainability Measures.** Document and describe Berklee's existing sustainability measures at the building and institution-wide level, including but not limited to energy, stormwater, solid waste, transportation, and infrastructure and utilities. Explain the administrative structure for making decisions about and promoting innovation in the area of building a sustainable institution. Describe any formal goals or principles that Berklee has adopted in the area of sustainability.
- **Potential Future Sustainability Programs and Plans.** The IMP should propose additional sustainability initiatives to be implemented in conjunction with this IMP.
- **Article 37 Compliance and Green Buildings.** It is expected that the proposed Berklee Crossroads project will be subject to Article 37 of the Boston Zoning Code. All new buildings and renovations, regardless of legal requirements, should achieve a superior level of performance in the areas of materials and resources, energy, water management, indoor environmental quality, and other standard performance areas of high-performance or "green" buildings. Projects that meet the criteria for Article 37 of the Boston Zoning Code will be subject to the provisions contained therein, and the BRA encourages Berklee to seek LEED certification whenever feasible.
- **Solid Waste.** Master planning should set the goal of reducing the level of solid waste generation in both the construction and operation of buildings. The IMP should describe future efforts and commitments in this area.
- **Performance Standards and Indicators.** Over the long term, Berklee should commit not only to broad sustainability principles, but also to specific performance standards and a system of indicators and metrics to track performance. The IMP should present such a system for ongoing review and implementation parallel to implementation of the development plan outlined in the IMP.
- **Other Comments.** The IMP should respond to all other comments related to environmental protection and sustainability included in the Appendixes, with particular reference to comments submitted by BTD and the Boston Water and Sewer Commission.

9. HISTORIC RESOURCES

Berklee should continue to consult with the Boston Landmarks Commission and other relevant entities regarding appropriate treatment of the State Street Bank and the Fenway Theatre buildings. In addition, the IMP should contain the following.

- **Preservation Survey and Plan.** The IMP should include a preservation survey and plan identifying specific historic resources that are within a ½ mile radius of proposed projects, provide a map showing their locations in relation to project sites and discuss the effects of projects on those resources (demolition, visual and shadow impacts, for example). The source that should be used to document historic resources in the project area is the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth (Inventory). The preservation plan would ensure that Berklee remains a good neighbor, visually, as the school grows. BLC staff notes that the Back Bay Fens, the Olmsted Parks and the Commonwealth Avenue Mall are individual Boston Landmarks and are listed in the State and National Registers and should be included in the list and description of cultural resources.

10. ECONOMIC DEVELOPMENT

The City of Boston views its academic institutions as tremendous assets and as valuable partners in economic development. Berklee's expanded presence in Boston, and the specific nature of its academic resources and Proposed Institutional Projects, offers opportunities for collaboration on key economic development goals. These include the following:

- **Workforce Development.** The BRA looks forward to working with Berklee to support the City's employment and workforce development goals. This IMP provides an opportunity for further discussion of measures to enhance educational opportunities for Boston residents and prepare Boston residents and students for employment. The IMP should provide the information described in the "Job Training Analysis" component of Section 80D-3 of the Boston Zoning Code.
- **Creative Economy.** Berklee's planned investments in arts and cultural facilities could yield a number of important benefits for Boston's creative economy. The BRA will coordinate with Berklee over the course of development of the IMP in order to explore ways to leverage those investments to create employment in creative industries and ancillary businesses.

11. PUBLIC BENEFITS PLAN

- **Existing Community Benefits.** The IMP should discuss all the community benefits currently provided by Berklee.
- **Future Community Benefits.** The BRA looks forward to working with Berklee, the Berklee Task Force, and Berklee's neighbors to explore appropriate community benefits to be associated with the next IMP. Of particular interest are potential benefits related to the following:
    - Education.
    - Workforce development.
    - Improvements to the public realm in the vicinity of Berklee's facilities.
    - Economic development.

12. OTHER

- **PILOT Payments.** Describe Berklee's current Payment-In-Lieu-Of-Taxes (PILOT) program and proposed future payments. Berklee should initiate a meeting with the Assessing Department on this subject.
- **Template.** Berklee should complete the Institutional Partnership template (attached in Appendix 4) 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.
- **Response to Comments.** The IMP should include responses to the major themes in public comment letters submitted on the IMPNF.
- **Public Notice.** Berklee 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. 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 in Appendix 3. Following publication of the Public Notice, Berklee shall submit to the BRA a copy of the published Notice together with the date of publication.

Boston Redevelopment Authority

Boston's Planning & Economic Development Office

Thomas M. Menino, *Mayor*
Clarence J. Jones, *Chairman*
John F. Palmieri, *Director*

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

December 24, 2010

Mr. William Whitney
Vice President for Real Estate
Berklee College of Music
1140 Boylston Street, MS-899 RE
Boston, MA 02215-3693

Dear Mr. Whitney:

I have received the Notice of Project Change ("NPC") dated December 7, 2010 and pertaining to the acquisition by Berklee College of Music of the property located at 154-174 Massachusetts Avenue, better known as 168 Massachusetts Avenue ("168 Massachusetts Avenue") and its inclusion as a Proposed Institutional Project in the Berklee College of Music Institutional Master Plan ("IMP").

As you are aware, due to the fact that the property in question was not discussed in the Institutional Master Plan Notification Form ("IMPNF") filed with the BRA on January 30, 2009 and was therefore not addressed in the Authority's Scoping Determination dated April 6, 2009, its inclusion in the IMP constitutes a material change pursuant to Section 80A-6 of the Boston Zoning Code ("Code"). The same section of the Code authorizes the Director of the BRA to determine "whether a project change or a lapse of time may significantly increase the impacts of a Proposed Project or plan" and what additional review, if any, is required.

After consulting with staff on the proposed change, I have determined the following:

1. The proposed change, namely the inclusion of 168 Massachusetts Avenue as a Proposed Institutional Project, changes the impacts of the proposed IMP beyond what was proposed in the IMPNF.
2. Given these impacts, additional review beyond that requested in the Scoping Determination is necessary. However, I have found that the majority of the impacts can be adequately studied as part of the necessary Article 80B review process and, therefore, only minor modifications to the information requested in the Scoping Determination are necessary.

Specifically, the BRA concurs with the suggestion of the NPC that, aside from ensuring that IMP as filed reflects the addition of the new project in a way responsive to scope of information and level of detail requested in the Scoping Determination, the principal addition to the IMP should be a discussion of the effect of the 168 Massachusetts Avenue project on the plans for the Berklee Crossroads project and on the execution of the overall development program as described in the IMP.

Regarding the Urban Design Submission Requirements, as well as other information required for review of the IMP, Berklee shall be responsible for coordinating with the BRA and various City agencies that are on record in the Scoping Determination to ensure that they have all material necessary for them to conclude their review of the proposed IMP. The BRA reserves right to request additional material at any time.

Regarding review of the 168 Massachusetts Avenue project pursuant to Section 80B of the Code, it is my understanding that Berklee has already had preliminary conversations with BRA and other City staff regarding the content of the Project Notification Form in the areas of wind, shadow, transportation, and urban design. It is our expectation that these conversations will continue in order to ensure a thorough review under both Article 80D and Article 80B.

When appropriate, Berklee's impact analysis in both the IMP and the Article 80B review for 168 Massachusetts Avenue shall include nearby proposed and contemplated developments as currently understood, including the Turnpike air rights projects and the Christian Science Church projects. The exact scope of this analysis shall be determined through ongoing consultation with BRA and other City staff.

We look forward to continuing our review of Berklee's proposed IMP and project.

Thank you and please do not hesitate to contact me or my staff if you have any questions.

Sincerely,

John F. Palmieri, Director

cc: Brenda McKenzie, BRA
Kairos Shen, BRA

Appendix B

PILOT Report 2010

CONTENTS

This document contains a breakdown of the payments and service contributions that Berklee College of Music made to the City of Boston and Boston-based non-profit organizations during the period of July 1, 2009 through June 30, 2010.

SUMMARY OF PAYMENTS AND SERVICE CONTRIBUTIONS

1	PAYMENTS ON PROPERTIES	
	BERKLEE-OWNED PROPERTIES	
	PILOT PAYMENTS	$ 270,304.00
	PROPERTY TAXES - COMMERCIAL USE	$ 255,679.00
	TOTAL PAYMENTS ON BERKLEE-OWNED PROPERTIES	$ 525,983.00
	LEASED PROPERTIES	
	PROPERTY TAXES PAID BY BERKLEE ON LEASED SPACE	$ 214,186.00
	PROPERTY TAXES PAID BY OWNERS ON LEASED SPACE (Estimated)	$ 291,993.00
	TOTAL PROPERTY TAXES PAID ON LEASED SPACE	$ 506,179.00
	TOTAL PAYMENTS ON PROPERTIES	$ 1,032,162.00

2	SERVICE CONTRIBUTIONS	
	TOTAL SERVICE CONTRIBUTIONS	$2,214,554.00

3	TOTAL	
	TOTAL PAYMENTS AND SERVICE CONTRIBUTIONS	$ 3,246,716.00

SERVICE CONTRIBUTION SUMMARY

In addition to the PILOT payments and property taxes paid by Berklee College of Music in Fiscal Year 2010, the College's PILOT agreement required that it make a service contribution of $88,967.00. Berklee's actual service contribution was $2,214,554.00, exceeding the requirement by $2,125,587.00.

The following pages contain a breakdown of those cash and in-kind service contributions. The individual programs, through which Berklee facilitated its contributions, are listed under the following sections:

SCHOLARSHIPS	$ 1,524,784.00
COMMUNITY GRANT PROGRAM	$ 31,000.00
COMMUNITY AND EDUCATION SERVICES	$ 510,136.00
INSTRUMENT AND EQUIPMENT DONATION PROGRAM	$ 63,288.00
COMMUNITY SERVICE WORK-STUDY PROGRAM	$ 85,346.00
TOTAL SERVICE CONTRIBUTIONS	$ 2,214,554.00

SCHOLARSHIPS

Berklee College of Music designs its scholarship programs not only to attract the most talented students but also to ensure that they can afford to study at Berklee regardless of their financial position. This conscious effort results in the tremendous cultural and socioeconomic diversity of the student body. It is accomplished by both supporting talented college-age musicians, and also implementing extensive youth programming that prepares local elementary, middle and high school musicians for entry to and success in college. This section summarizes contributions to Boston residents via (1) scholarships to participate in the college's youth programs known as *Berklee City Music* and (2) scholarships to students for full-time study at the college.

City Music provides the highest quality music education and college preparation available to young people between the ages of 10 and 19, who would otherwise lack access due to limited music programming in public schools. To ensure access, participation is provided free of charge to Boston residents. Every program offers one-on-one music lessons, classes on music theory, and directed ensembles. The six base programs that constitute City Music are the *City Music Mentoring Program*, *City Music Preparatory Academy*, *City Music High School Academy*, *City Music Summer Preparatory Workshop, City Music Summer Scholarship*, and the *City Music Faculty Outreach Program*, which is featured in the Educational Services section. An additional program, *Berklee City Music College Scholarship*, awards full-tuition scholarships to City Music's outstanding high school seniors so that they can continue their education as full-time students at Berklee College of Music.

The pages of this section contain the following totals:

City Music Mentoring Program	$	53,884.00
City Music Preparatory Academy	$	143,136.00
City Music High School Academy	$	181,440.00
City Music Summer Preparatory Workshop	$	20,979.00
City Music Summer Scholarship	$	203,780.00
Berklee City Music College Scholarship	$	921,565.00
TOTAL	$	1,524,784.00

BOSTON AGENCIES SERVED
Boston Resident Middle and High School Students

BERKLEE PROGRAM
City Music Mentoring Program

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Nineteen youths from Boston participated in the program at a cost of $2,836.00 per student	$53,884.00
	TOTAL VALUE	$53,884.00

BOSTON SCHOOLS REPRESENTED	
Academy of the Pacific Rim	Joyce Kilmer K-8 School
Boston Arts Academy	METCO
Boston Latin School	Neighborhood House Charter School
Boston Prep Charter Public School	

BOSTON AGENCIES SERVED
Boston Resident Elementary and Middle School Students

BERKLEE PROGRAM
City Music Preparatory Academy

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Thirty-two youths from Boston participated in the program at a cost of $4,473.00 per student	$143,136.00
	TOTAL VALUE	**$143,136.00**

BOSTON SCHOOLS REPRESENTED	
Baldwin ELC	Mildred Avenue Middle School
Boston Latin Academy	Neighborhood House Charter School
Boston Latin School	Our Lady of Perpetual Hope
John D. O'Bryant High School	Rogers Middle School
Joyce Kilmer K-8 School	Smith Leadership Academy
McCormack Middle School	Umana Barnes Middle School
METCO	William H. Ohrenberger Elementary School

BOSTON AGENCIES SERVED
Boston Resident High School Students

BERKLEE PROGRAM
City Music High School Academy

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Forty youths from Boston participated in the program at a cost of $4,536.00 per student	$181,440.00
	TOTAL VALUE	$ 181,440.00

BOSTON SCHOOLS REPRESENTED	
Boston Arts Academy	Josiah Quincy School
Boston Latin Academy	METCO
Boston Latin School	Roland Hayes School of Music
East Boston High School	

BOSTON AGENCIES SERVED
Boston Resident Elementary and Middle School Students

BERKLEE PROGRAM
City Music Summer Preparatory Workshop

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Forty-two youths from Boston participated in the program at a cost of $499.50 per student	$20,979.00
	TOTAL VALUE	$20,979.00

BOSTON SCHOOLS REPRESENTED	
Boston Latin Academy	McCormack Middle School
Boston Latin School	Murphy K-8 School
Gardner Elementary School	Ohrenberger Elementary School
Harbor Charter School	Park School, The
John D. O'Bryant High School	Rogers Middle School
Joyce Kilmer K-8 School	Roosevelt Elementary School
Lee Academy	Smith Leadership Academy
Marshall Elementary School	Young Achievers K-8 School

BOSTON AGENCIES SERVED
Boston Resident High School Students

BERKLEE PROGRAM
City Music Summer Scholarship

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Forty-three scholarships to participate in the Five-Week Summer Performance Program at a cost of $4,250.00 per student	$182,750.00
2	Production of City Music Scholarship Concert	$10,753.00
3	Reception for City Music Scholarship Concert	$7,527.00
4	Materials for program participants	$2,750.00
	TOTAL VALUE	$203,780.00

BOSTON SCHOOLS REPRESENTED	
Boston Arts Academy	METCO
Boston Latin Academy	Orchard Gardens K-8 Pilot School
Boston Latin School	Roland Hayes School of Music
East Boston High School	

BOSTON AGENCIES SERVED
Boston Resident Students

BERKLEE PROGRAM
City Music College Scholarship

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Annual contribution to the full-tuition scholarships of City Music College Scholarship recipients	
	31 scholarship recipients enrolled at the college during fiscal year 2010	$921,565.00
	TOTAL VALUE	**$921,565.00**

BOSTON SCHOOLS REPRESENTED	
Boston Arts Academy	Madison Park High School
Boston Latin Academy	METCO
Boston Latin School	Monsignor Ryan Memorial High School
Hyde Park High School	

COMMUNITY GRANT PROGRAM

The Community Grant Program provides Boston municipal and community-based organizations access to the facilities of Berklee College of Music. Most often, grant recipients use the award to hold fundraising events and annual recitals at the Berklee Performance Center and other campus venues. In 2010, seven organizations received grants totaling $31,000.00.

BOSTON AGENCIES SERVED
Schools and Municipal and Community-Based Non-Profit Organizations

BERKLEE PROGRAM
Community Grant Program

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Eight in-kind grants were awarded to seven organizations for use of the Berklee Performance Center and the David Friend Recital Hall	
	3 Grants @ $7,000.00	$ 21,000.00
	5 Grants @ $2,000.00	$ 10,000.00
	TOTAL VALUE	$ 31,000.00

RECIPIENT ORGANIZATIONS	
Blue Hill Boys & Girls Club	National Youth Development Council
Boston Arts Academy	Sociedad Latina
Cooperative Urban Ministries	Teen Challenge
Lower Roxbury Coalition	

COMMUNITY AND EDUCATION SERVICES

This section includes contributions to Boston agencies and residents through six initiatives: The *Community Concert Series, City Music Faculty Outreach Program, BeanTown Jazz Festival, Urban Outreach Performance Program*, *Gifts and Donations Program*, and *KidsJam*.

The *Community Concert Series* has two components. The first provides Boston agencies with free tickets to performances on the Berklee campus. The recipient-organizations use the tickets to bring the participants of their programs to professional performances of contemporary music and dance or as auction items for their annual fundraisers. The second component facilitates public access to performances in parks, concert halls and non-profit community centers (e.g. Tito Puente Latin Music Series, Jazz at the Fort, Swingin' in Mothers Rest, the Mayor's Caliente Concert at City Hall Plaza, etc.). This year's contribution totaled $25,243.00.

The *City Music Faculty Outreach Program* places Berklee City Music faculty at select Boston Public Schools (BPS) partner-sites to support BPS resident music instructors and provide supplemental music instruction for the schools' students. This year, 16 teachers served 107 hours per week at five schools: Boston Arts Academy, Orchard Gardens K-8 Pilot School, Ohrenberger Elementary School, Roland Hayes School of Music, and Sumner Elementary School. Contributions totaled $186,669.00.

The ever-expanding Berklee BeanTown Jazz Festival was the largest ever in September 2009, stretching over several days and featuring 20 bands and 130 musicians on ten stages. While the ticketed concerts attracted large crowds, the free outdoor festival drew an estimated 80,000—a new festival record, earning accolades from The Boston Phoenix, "*Berklee is a bottomless resource for the city's music scene — the BeanTown Fest has to rank as one of its sweetest gifts*," writes Jon Garelick. $258,567.00 was spent producing free music and activities for the September 26 free outdoor portion of the Festival.

COMMUNITY AND EDUCATION SERVICES (Continued)

The *Urban Outreach Performance Program* takes Berklee ensembles to local schools and community centers to perform, promote the study of music and encourage young people to attend college. This year, six concerts were held in Boston at an estimated value of $8,905.00.

Every year, Berklee College of Music provides cash and in-kind donations to Boston schools and community-based organizations through the *Gifts and Donations Program*. This year, the program's contributions to ten organizations totaled $20,252.00.

KidsJam @ Berklee provides free music and movement workshops for children ages three to five years. Each workshop is held in Berklee's Cafe 939 and is led by advanced students enrolled in the college's Music Education Department. Many children attend as a supplement to their daycare center curriculum; others attend with their parents or guardians. This year, 315 children attended 21 workshops with a total value of $10,500.00.

Community and Education Services contributions in 2010 totaled $510,136.00.

BOSTON AGENCY SERVED
Schools and Municipal and Community-Based Non-Profit Organizations

BERKLEE PROGRAM
Community Concert Series

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Five hundred ninety-six tickets were awarded to 20 organizations to attend Berklee-sponsored concerts at the Berklee Performance Center	$6,312.00
2	Payments made in the production of free public outreach concerts	$18,931.00
	TOTAL VALUE	**$25,243.00**

RECIPIENT ORGANIZATIONS	
Back of the Hill Apartments	Ellis Neighborhood Association
Boston Alliance for Early Education	Fenway Civic Association
Boston Centers for Youth & Families	Fenway Garden Society
Boston College	Friends of Boston's Homeless
Boston Latin Home School & Association	HopeFound
Boston Living Center	Inquilinos Buricuas en Acción
Boston Parks & Recreation Department	Mattapan CDC
Boston Univ. Center for Psychiatric Rehabilitation	Mattapan Community Health Center
Boston University Academy	Mayor's Office of Arts, Tourism & Special Events
Boys & Girls Club of Dorchester	Neighborhood Improvement Committee
City of Boston Elderly Commission	Rosie's Place

BOSTON AGENCIES SERVED
Boston Public Schools

BERKLEE PROGRAM
City Music Faculty Outreach Program

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Sixteen faculty positions, providing 107 hours of instruction per week for the music programs at five Boston public schools	$186,669.00
	TOTAL VALUE	**$ 186,669.00**

BOSTON SCHOOLS SERVED	
Boston Arts Academy	Sumner Elementary School
Orchard Gardens K-8 Pilot School	William H. Ohrenberger Elementary School
Roland Hayes School of Music	

BOSTON AGENCIES SERVED
Boston Residents

BERKLEE PROGRAM
Berklee BeanTown Jazz Festival

DESCRIPTION OF CONTRIBUTION		VALUE
1	Free outdoor portion of the BeanTown Jazz Festival scheduled on Saturday, September 26, 2009, on Columbus Avenue and the Carter Playground	
	Berklee College of Music institutional contribution	$134,870.00
	Contributions to the festival secured through Berklee College of Music's fundraising initiatives	$123,697.00
	TOTAL VALUE	$258,567.00

RECIPIENTS
Boston residents

BOSTON AGENCIES SERVED
Boston Public Schools and Community-Based Organizations

BERKLEE PROGRAM
Urban Outreach Performance Program

DESCRIPTION OF CONTRIBUTION		VALUE
1	Four public schools and one local senior center received free performances by Berklee ensembles	$8,905.00
	TOTAL VALUE	**$ 8,905.00**

BOSTON AGENCIES REPRESENTED	
Boston Arts Academy	The Foley Senior Residences
Boston Latin Academy	Roland Hayes School of Music
Dennis C. Haley School	

BOSTON AGENCIES SERVED
Municipal and Community-Based Non-Profit Organizations

BERKLEE PROGRAM
Gifts and Donations Program

DESCRIPTION OF CONTRIBUTION		VALUE
1	Cash donations to four organizations	$ 16,916.00
2	In-kind donations to six organizations	$ 3,336.00
	TOTAL VALUE	**$ 20,252.00**

RECIPIENT ORGANIZATIONS	
Blue Hill Boys & Girls Club	Hyde Square Task Force
Boston Arts Academy	Inquilinos Boricuas en Acción
Emerald Necklace Conservancy	National Association for Olmsted Parks
Fenway Alliance	Sociedad Latina
Fenway Community Development Corporation	West End House Boys & Girls Club

BOSTON AGENCIES SERVED
Boston Daycare Centers and Families

BERKLEE PROGRAM
KidsJam @ Berklee

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Three hundred fifteen pre-school age children attended 21 free KidsJam music and movement workshops at Berklee's Cafe 939	$10,500.00
	TOTAL VALUE	$10,500.00

RECIPIENT ORGANIZATIONS	
Horizons for Homeless Children	Boston families
Home-based daycare centers	

INSTRUMENT AND EQUIPMENT DONATION PROGRAM

Berklee's Instrument and Equipment Donation Program (BID/BED) provides Boston organizations with quality computer hardware, musical instruments and production equipment. The donated items, formerly in use at Berklee, are in good condition and are specifically requested by the recipient organizations. BID/BED donations in 2010 totaled $63,288.00.

BOSTON AGENCIES SERVED
Schools and Municipal and Community-Based Non-Profit Organizations

BERKLEE PROGRAM
Berklee Instrument and Equipment Donation Program

	DESCRIPTION OF CONTRIBUTION	VALUE
1	Seventeen organizations received pre-owned computers, production equipment and musical instruments	$63,288.00
	TOTAL VALUE	$63,288.00

RECIPIENT ORGANIZATIONS	
Beyond Borders	Edison School
Boston Arts Academy	Haley School
Boston Latin Academy	Hamilton Garret Music & Arts Academy
Boston Latin School	Holmes Elementary School
Boston Public Schools	Sociedad Latina
Boys and Girls Club of Dorchester	West End House
Community Music Center	William H. Ohrenberger School
Curley School	ZUMIX

COMMUNITY SERVICE WORK-STUDY PROGRAM

Every year, Berklee College of Music places full-time students in Boston schools, municipal agencies and community-based organizations to serve as part-time staff members at no cost to the recipient organization. In 2010, 11 organizations and 67 students participated in the program. Contributions to the community totaled $85,346.00.

BOSTON AGENCIES SERVED
Schools and Municipal and Community-Based Non-Profit Organizations

BERKLEE PROGRAM
Community Service Work-Study Program

DESCRIPTION OF CONTRIBUTION		VALUE
1	Placement of 67 Berklee students to serve as part-time staff members and outreach assistants at community-based organizations and initiatives as part of the college's Community Service Work-Study Program	$85,346.00
	TOTAL VALUE	$85,346.00

RECIPIENT ORGANIZATIONS	
Blue Hill Boys & Girls Club	Roxbury Community College
Boston Arts Academy	Sociedad Latina
Boys & Girls Clubs of Dorchester	South End Technology Center
Hyde Square Task Force	West End House Boys & Girls Club
Inquilinos Boricuas en Acción	Young Achievers Pilot School
Roland Hayes School of Music	

Appendix C

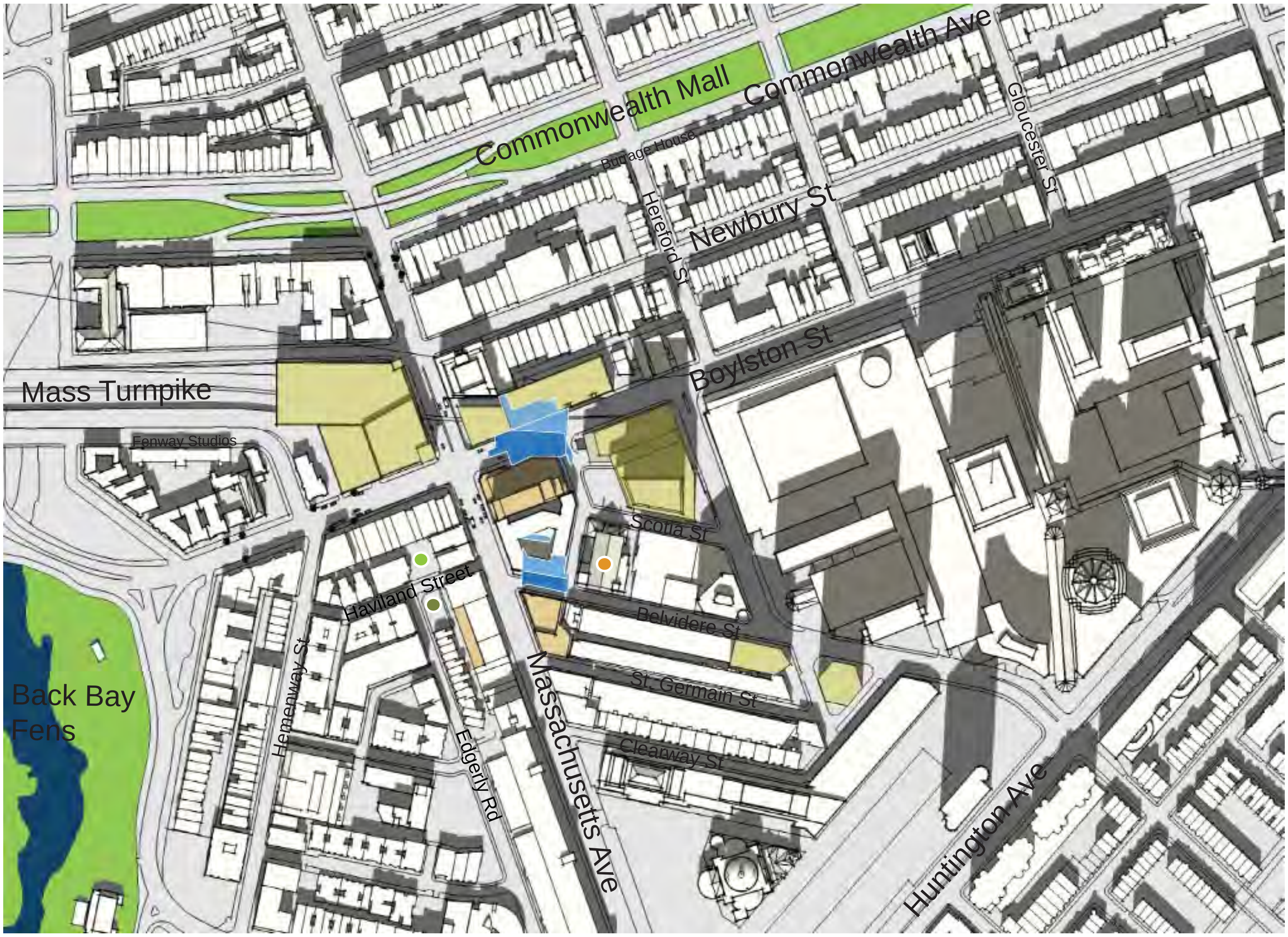
Shadow Graphics

March 21 - 9am

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N



March 21 - 12pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

March 21 - 3pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

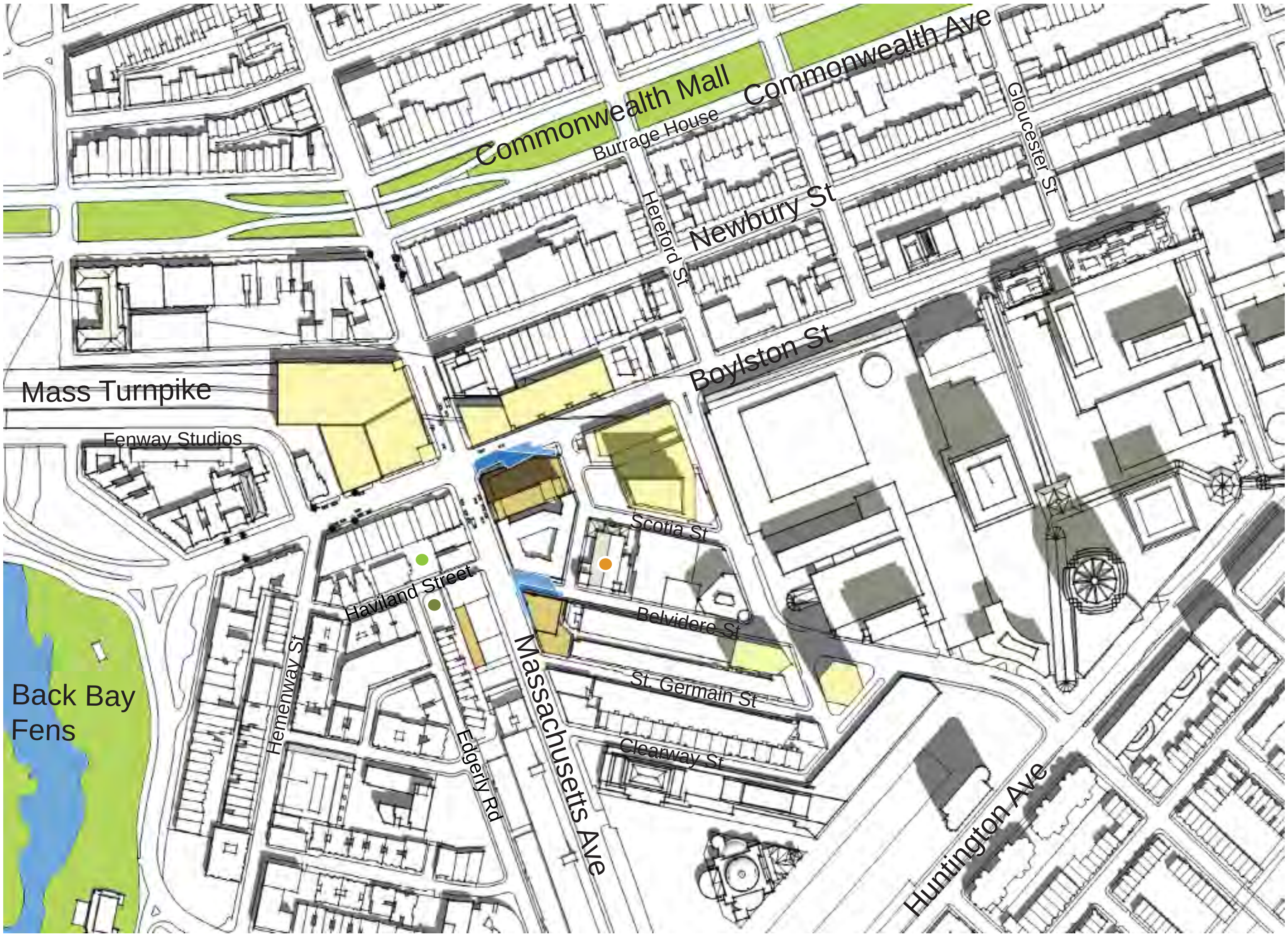
N

June 21 - 9am

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N



June 21 - 12pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

June 21 - 3pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

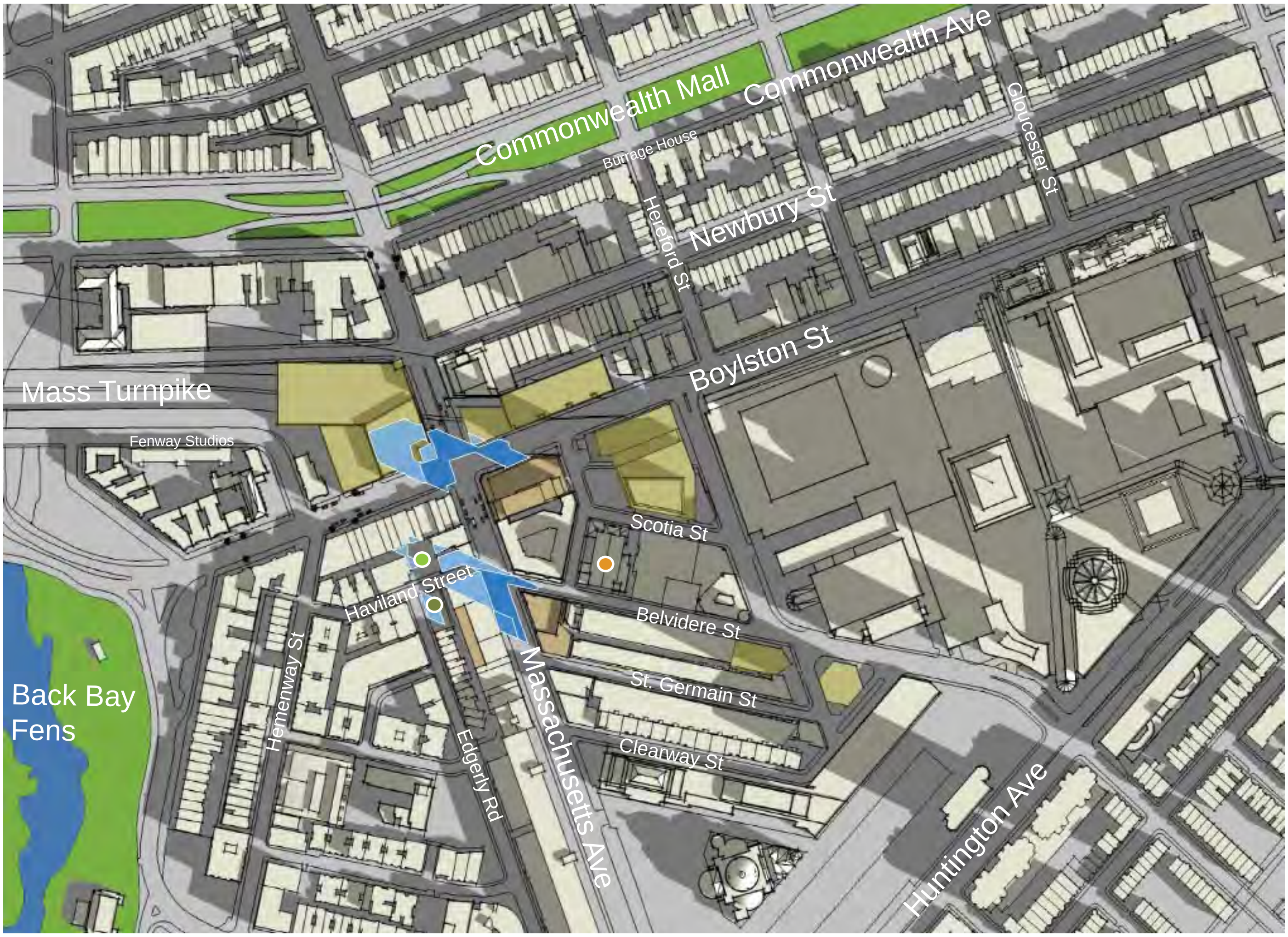
N

June 21 - 6pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N



September 21 - 9am

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

Berklee college of music

September 21 - 12pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

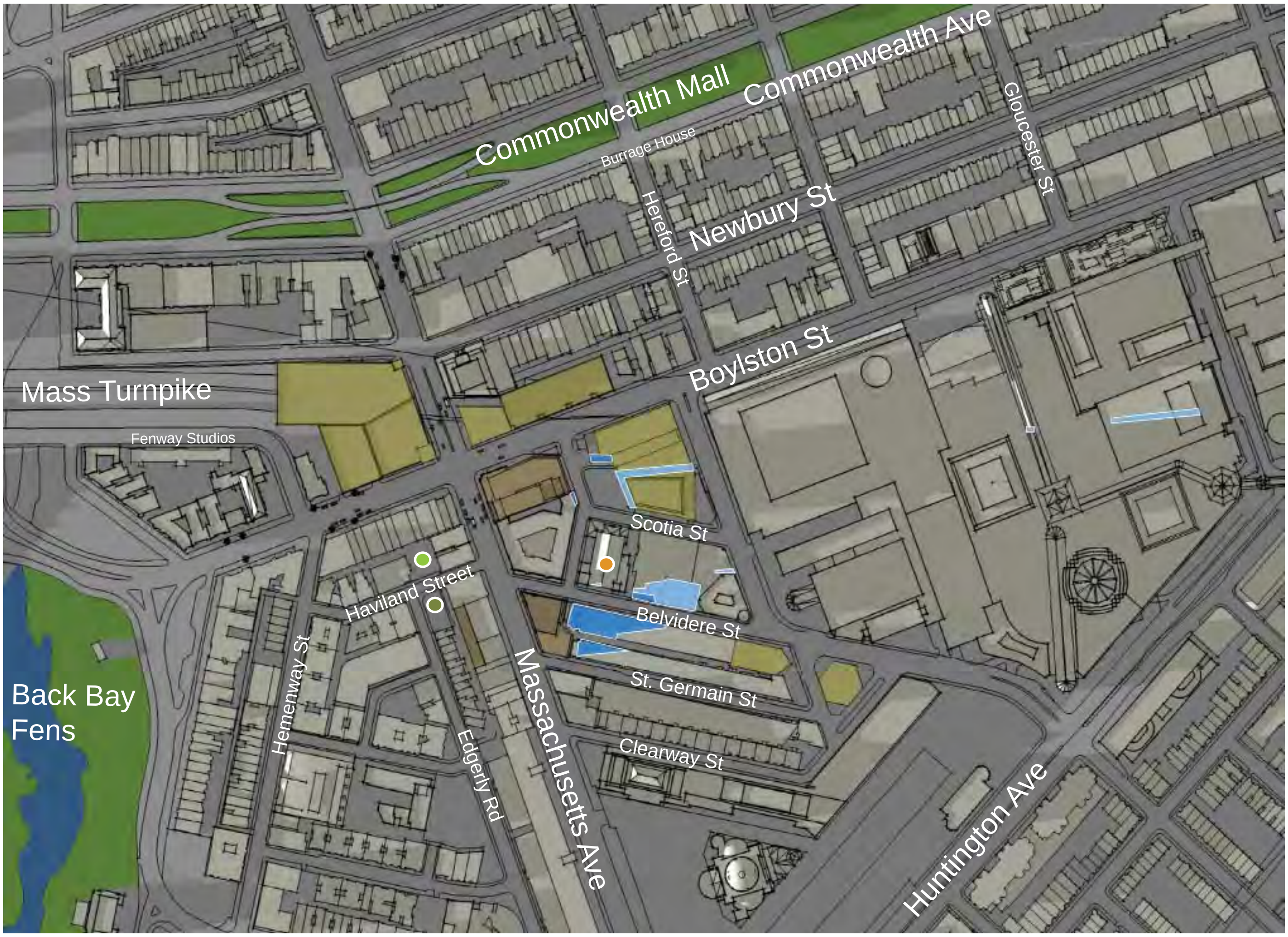
ARCHITECTURE PLANNING PRESERVATION
GOODY CLANCY

September 21 - 3pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N



September 21 - 6pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

December 21 - 9am

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

December 21 - 12pm

Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

December 21 - 3pm

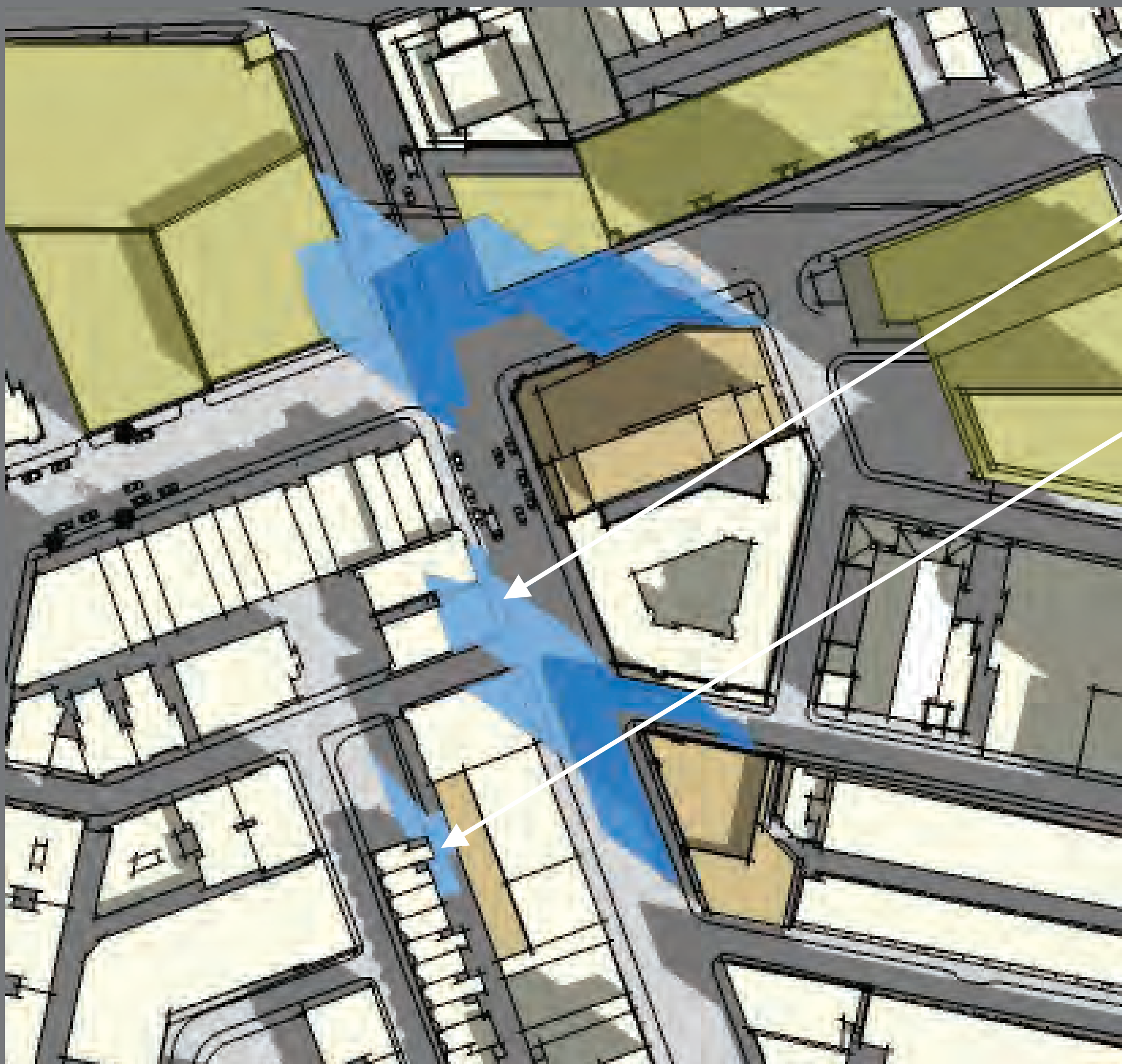
Legend

- As Of Right Shadows
- Net New Shadows
- Existing Shadows
- IMP Projects
- Planned Future Development
- St Cecillia's Parish
- Edgerly Road Playground
- 7 Haviland Street Open Space

N

Berkleecollege *of* music

Institutional Master Plan



Net new shadow created by 168 Massachusetts Avenue addition only (no impact on playground)

Net new shadow created by 161-171 Massachusetts Avenue addition only

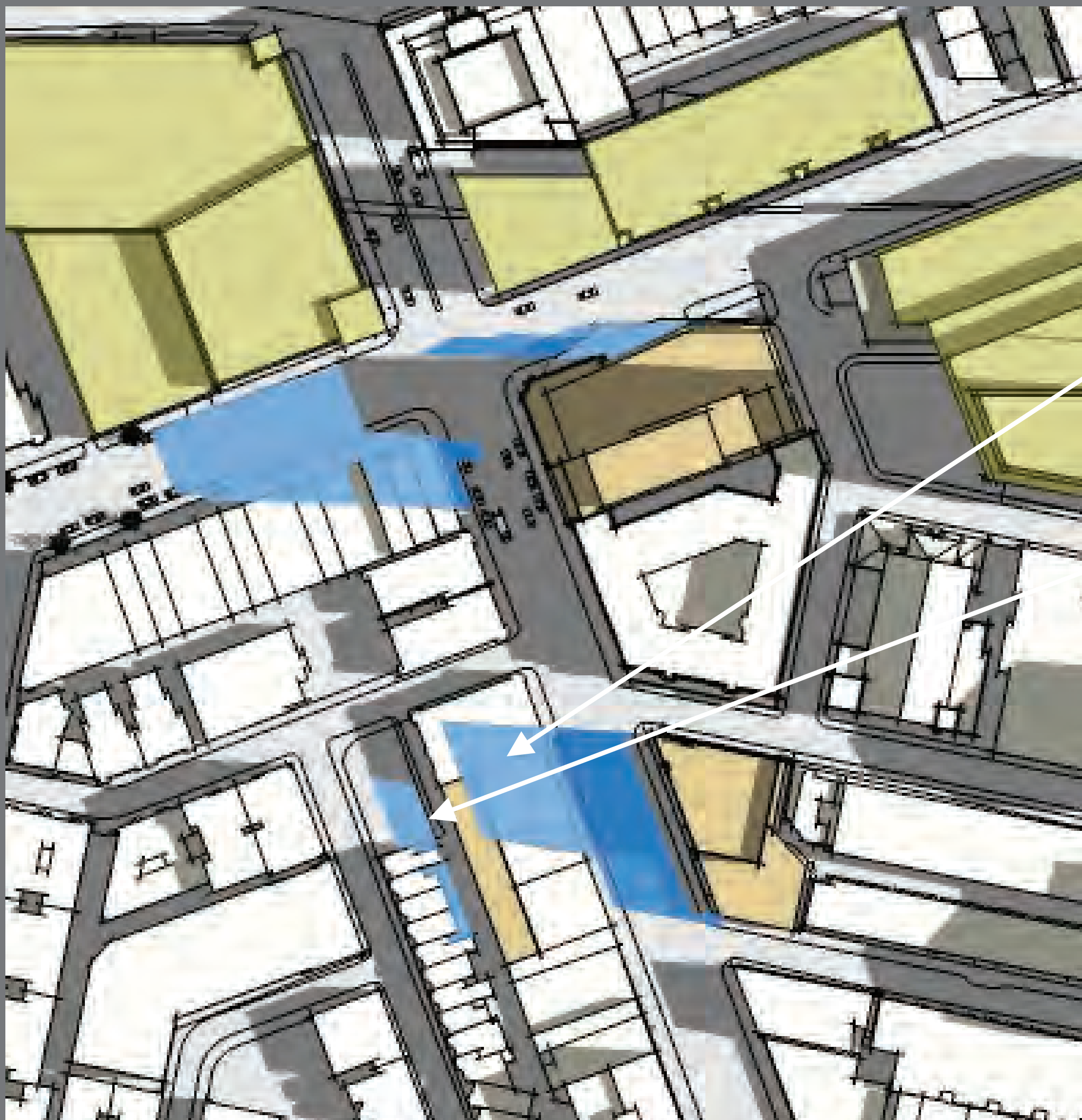
Shadow Analysis
March 21
9:00 am

Goody Clancy ARCHITECTURE PLANNING PRESERVATION

Revised May 10, 2011

Berklee college of music

Institutional Master Plan



Net new shadow created by 168 Massachusetts Avenue addition only (no impact on playground)

Net new shadow created by 161 - 171 Massachusetts Avenue addition only

Shadow Analysis
June 21
9:00 am

Goody Clancy ARCHITECTURE PLANNING PRESERVATION

Revised May 10, 2011

Berklee college of music

Institutional Master Plan

Shadow Analysis
September 21
9:00 am

Goody Clancy ARCHITECTURE PLANNING PRESERVATION

Revised May 10, 2011

Berklee college of music

Institutional Master Plan

Net new shadow created by 168 Massachusetts Avenue addition only (no impact on playground)

No net new shadow created by 161 - 171 Massachusetts Avenue addition; no impact on playground

Shadow Analysis
December 21
9:00 am

GOODY CLANCY ARCHITECTURE PLANNING PRESERVATION

Revised May 10, 2011

Appendix D

Transportation

Berklee College of Music

Institutional Master Plan

APPENDIX D

Transportation

Berkleee College of Music

Institutional Master Plan

APPENDIX D

Traffic, Bicycle & Pedestrian Count Data Sheets

Accurate Counts
978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 1514CT01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Cars - Trucks

	From North				Boylston St From East				St Cecilia St From South				Boylston St From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Hd Rt	Thru	Br Rt	U-TR	Int. Total
07:00	0	0	0	0	1	19	0	0	1	0	0	0	0	94	12	2	129
07:15	0	0	0	0	1	25	0	0	3	0	1	0	0	88	33	8	159
07:30	0	0	0	0	0	29	0	0	1	0	4	0	0	104	27	8	173
07:45	0	0	0	0	1	33	0	0	0	0	0	0	1	107	25	12	179
Total	0	0	0	0	3	106	0	0	5	0	5	0	1	393	97	30	640
08:00	0	0	0	0	1	39	0	0	1	0	2	0	0	117	39	17	216
08:15	0	0	0	0	0	39	0	0	1	0	2	0	0	112	50	11	215
08:30	0	0	0	0	0	44	0	0	0	0	2	0	0	129	43	11	229
08:45	0	0	0	0	3	39	0	0	1	0	2	0	0	136	51	8	240
Total	0	0	0	0	4	161	0	0	3	0	8	0	0	494	183	47	900
Grand Total	0	0	0	0	7	267	0	0	8	0	13	0	1	887	280	77	1540
Apprch %	0	0	0	0	2.6	97.4	0	0	38.1	0	61.9	0	0.1	71.2	22.5	6.2	
Total %	0	0	0	0	0.5	17.3	0	0	0.5	0	0.8	0	0.1	57.6	18.2	5	
Cars	0	0	0	0	6	239	0	0	5	0	11	0	1	798	275	77	1412
% Cars	0	0	0	0	85.7	89.5	0	0	62.5	0	84.6	0	100	90	98.2	100	91.7
Trucks	0	0	0	0	1	28	0	0	3	0	2	0	0	89	5	0	128
% Trucks	0	0	0	0	14.3	10.5	0	0	37.5	0	15.4	0	0	10	1.8	0	8.3

	From North					Boylston St From East					St Cecilia St From South					Boylston St From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Hd Rt	Thru	Br Rt	U-TR	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	0	0	0	1	39	0	0	40	**1**	0	**2**	0	**3**	0	117	39	**17**	173	216
08:15	0	0	0	0	0	0	39	0	0	39	1	0	2	0	3	0	112	50	11	173	215
08:30	0	0	0	0	0	0	**44**	0	0	**44**	0	0	2	0	2	0	129	43	11	183	229
08:45	0	0	0	0	0	**3**	39	0	0	42	1	0	2	0	3	0	**136**	**51**	8	**195**	**240**
Total Volume	0	0	0	0	0	4	161	0	0	165	3	0	8	0	11	0	494	183	47	724	900
% App. Total	0	0	0	0		2.4	97.6	0	0		27.3	0	72.7	0		0	68.2	25.3	6.5		
PHF	.000	.000	.000	.000	.000	.333	.915	.000	.000	.938	.750	.000	1.00	.000	.917	.000	.908	.897	.691	.928	.938
Cars	0	0	0	0	0	3	147	0	0	150	2	0	7	0	9	0	451	183	47	681	840
% Cars	0	0	0	0	0	75.0	91.3	0	0	90.9	66.7	0	87.5	0	81.8	0	91.3	100	100	94.1	93.3
Trucks	0	0	0	0	0	1	14	0	0	15	1	0	1	0	2	0	43	0	0	43	60
% Trucks	0	0	0	0	0	25.0	8.7	0	0	9.1	33.3	0	12.5	0	18.2	0	8.7	0	0	5.9	6.7

Accurate Counts
978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 1514CT01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Trucks

	From North				Boylston St From East				St Cecilia St From South				Boylston St From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Hd Rt	Thru	Br Rt	U-TR	Int. Total
07:00	0	0	0	0	0	2	0	0	1	0	0	0	0	7	1	0	11
07:15	0	0	0	0	0	5	0	0	1	0	0	0	0	14	2	0	22
07:30	0	0	0	0	0	2	0	0	0	0	1	0	0	16	0	0	19
07:45	0	0	0	0	0	5	0	0	0	0	0	0	0	9	2	0	16
Total	0	0	0	0	0	14	0	0	2	0	1	0	0	46	5	0	68
08:00	0	0	0	0	0	3	0	0	1	0	0	0	0	9	0	0	13
08:15	0	0	0	0	0	2	0	0	0	0	0	0	0	9	0	0	11
08:30	0	0	0	0	0	3	0	0	0	0	1	0	0	14	0	0	18
08:45	0	0	0	0	1	6	0	0	0	0	0	0	0	11	0	0	18
Total	0	0	0	0	1	14	0	0	1	0	1	0	0	43	0	0	60
Grand Total	0	0	0	0	1	28	0	0	3	0	2	0	0	89	5	0	128
Apprch %	0	0	0	0	3.4	96.6	0	0	60	0	40	0	0	94.7	5.3	0	
Total %	0	0	0	0	0.8	21.9	0	0	2.3	0	1.6	0	0	69.5	3.9	0	

	From North					Boylston St From East					St Cecilia St From South					Boylston St From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Hd Rt	Thru	Br Rt	U-TR	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	0	0	0	0	0	**5**	0	0	**5**	**1**	0	0	0	**1**	0	14	**2**	0	**16**	**22**
07:30	0	0	0	0	0	0	2	0	0	2	0	0	**1**	0	1	0	**16**	0	0	16	19
07:45	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	9	2	0	11	16
08:00	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	9	0	0	9	13
Total Volume	0	0	0	0	0	0	15	0	0	15	2	0	1	0	3	0	48	4	0	52	70
% App. Total	0	0	0	0		0	100	0	0		66.7	0	33.3	0		0	92.3	7.7	0		
PHF	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.500	.000	.250	.000	.750	.000	.750	.500	.000	.813	.795

Accurate Counts
978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston St / Cambria St
City/State : Boston, MA
Weather : Clear

File Name : 1514PD01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Peds

	St Cecilia St From North				Boylston/Cambria From East				St Cecilia St From South				Boylston/Cambria From West				
Start Time	4	3	2	1	8	7	6	5	12	11	10	9			14	13	Int. Total
07:00	6	1	4	7	0	1	0	0	3	0	1	7	0	0	0	0	30
07:15	8	0	7	5	0	0	0	0	3	0	0	5	0	0	0	0	28
07:30	6	0	19	7	0	4	1	1	8	0	3	2	0	0	2	0	53
07:45	11	5	22	12	2	3	0	3	9	0	2	11	0	0	3	1	84
Total	31	6	52	31	2	8	1	4	23	0	6	25	0	0	5	1	195
08:00	8	3	15	12	3	0	0	0	5	0	4	8	0	0	1	0	59
08:15	12	4	26	9	2	0	2	2	11	2	5	13	0	0	0	1	89
08:30	23	8	43	11	2	2	2	0	6	0	8	28	0	0	0	0	133
08:45	32	13	76	53	2	3	1	2	17	3	10	39	0	0	1	3	255
Total	75	28	160	85	9	5	5	4	39	5	27	88	0	0	2	4	536
Grand Total	106	34	212	116	11	13	6	8	62	5	33	113	0	0	7	5	731
Apprch %	22.6	7.3	45.3	24.8	28.9	34.2	15.8	21.1	29.1	2.3	15.5	53.1	0	0	58.3	41.7	
Total %	14.5	4.7	29	15.9	1.5	1.8	0.8	1.1	8.5	0.7	4.5	15.5	0	0	1	0.7	

	St Cecilia St From North					Boylston/Cambria From East					St Cecilia St From South					Boylston/Cambria From West					
Start Time	4	3	2	1	App. Total	8	7	6	5	App. Total	12	11	10	9	App. Total			14	13	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	8	3	15	12	38	**3**	0	0	0	3	5	0	4	8	17	0	0	**1**	0	1	59
08:15	12	4	26	9	51	2	0	**2**	**2**	6	11	2	5	13	31	0	0	0	1	1	89
08:30	23	8	43	11	85	2	2	2	0	6	6	0	8	28	42	0	0	0	0	0	133
08:45	**32**	**13**	**76**	**53**	**174**	2	**3**	1	2	**8**	**17**	**3**	**10**	**39**	**69**	0	0	1	**3**	**4**	**255**
Total Volume	75	28	160	85	348	9	5	5	4	23	39	5	27	88	159	0	0	2	4	6	536
% App. Total	21.6	8	46	24.4		39.1	21.7	21.7	17.4		24.5	3.1	17	55.3		0	0	33.3	66.7		
PHF	.586	.538	.526	.401	.500	.750	.417	.625	.500	.719	.574	.417	.675	.564	.576	.000	.000	.500	.333	.375	.525

Accurate Counts

978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston St / Cambria St
City/State : Boston, MA
Weather : Clear

File Name : 1514BK01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Bikes

	St Cecilia St From North				Boylston/Cambria From East				St Cecilia St From South				Boylston/Cambria From West				
Start Time			2	1	8				12	11	10	9			14		Int. Total
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3
07:30	0	0	0	0	0	0	0	0	0	0	0	6	0	0	2	0	8
07:45	0	0	0	0	0	0	0	0	0	0	1	4	0	0	2	0	7
Total	0	0	0	0	0	0	0	0	0	0	1	11	0	0	6	0	18
08:00	0	0	1	1	0	0	0	0	0	1	0	8	0	0	0	0	11
08:15	0	0	0	1	0	0	0	0	0	0	1	13	0	0	3	0	18
08:30	0	0	1	1	0	0	0	0	0	0	0	4	0	0	0	0	6
08:45	0	0	0	1	0	0	0	0	0	0	0	6	0	0	7	0	14
Total	0	0	2	4	0	0	0	0	0	1	1	31	0	0	10	0	49
Grand Total	0	0	2	4	0	0	0	0	0	1	2	42	0	0	16	0	67
Apprch %	0	0	33.3	66.7	0	0	0	0	0	2.2	4.4	93.3	0	0	100	0	
Total %	0	0	3	6	0	0	0	0	0	1.5	3	62.7	0	0	23.9	0	

	St Cecilia St From North					Boylston/Cambria From East					St Cecilia St From South					Boylston/Cambria From West					
Start Time			2	1	App. Total	8				App. Total	12	11	10	9	App. Total			14		App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	**1**	**1**	**2**	0	0	0	0	0	0	**1**	0	8	9	0	0	0	0	0	11
08:15	0	0	0	1	1	0	0	0	0	0	0	0	**1**	**13**	**14**	0	0	3	0	3	**18**
08:30	0	0	1	1	2	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	6
08:45	0	0	0	1	1	0	0	0	0	0	0	0	0	6	6	0	0	**7**	0	**7**	14
Total Volume	0	0	2	4	6	0	0	0	0	0	0	1	1	31	33	0	0	10	0	10	49
% App. Total	0	0	33.3	66.7		0	0	0	0		0	3	3	93.9		0	0	100	0		
PHF	.000	.000	.500	1.00	.750	.000	.000	.000	.000	.000	.000	.250	.250	.596	.589	.000	.000	.357	.000	.357	.681

Accurate Counts
978-664-2565

N/S Street : Ipswich St / Hemenway St
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 15140002
Site Code : 15140002
Start Date : 12/8/2010
Page No : 1

Groups Printed- Peds

	Ipswich St From North			Boylston St From East			Hemenway St From South			Boylston St From West			
Start Time	EB		WB	SB		NB	WB		EB	SB		NB	Int. Total
07:00	3	0	6	2	0	5	7	0	6	2	0	1	32
07:15	5	0	11	4	0	5	3	0	9	1	0	1	39
07:30	7	0	9	7	0	10	10	0	13	2	0	5	63
07:45	14	0	15	4	0	4	19	0	17	4	0	3	80
Total	29	0	41	17	0	24	39	0	45	9	0	10	214
08:00	11	0	8	6	0	6	10	0	17	6	0	3	67
08:15	10	0	11	5	0	3	14	0	28	3	0	3	77
08:30	12	0	18	7	0	5	28	0	31	4	0	1	106
08:45	17	0	12	11	0	4	41	0	63	6	0	14	168
Total	50	0	49	29	0	18	93	0	139	19	0	21	418
Grand Total	79	0	90	46	0	42	132	0	184	28	0	31	632
Apprch %	46.7	0	53.3	52.3	0	47.7	41.8	0	58.2	47.5	0	52.5	
Total %	12.5	0	14.2	7.3	0	6.6	20.9	0	29.1	4.4	0	4.9	

	Ipswich St From North				Boylston St From East				Hemenway St From South				Boylston St From West				
Start Time	EB		WB	App. Total	SB		NB	App. Total	WB		EB	App. Total	SB		NB	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	11	0	8	19	6	0	**6**	12	10	0	17	27	**6**	0	3	9	67
08:15	10	0	11	21	5	0	3	8	14	0	28	42	3	0	3	6	77
08:30	12	0	**18**	**30**	7	0	5	12	28	0	31	59	4	0	1	5	106
08:45	**17**	0	12	29	**11**	0	4	**15**	**41**	0	**63**	**104**	6	0	**14**	**20**	**168**
Total Volume	50	0	49	99	29	0	18	47	93	0	139	232	19	0	21	40	418
% App. Total	50.5	0	49.5		61.7	0	38.3		40.1	0	59.9		47.5	0	52.5		
PHF	.735	.000	.681	.825	.659	.000	.750	.783	.567	.000	.552	.558	.792	.000	.375	.500	.622

Accurate Counts
978-664-2565

N/S Street : Ipswich St / Hemenway St
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 15140002
Site Code : 15140002
Start Date : 12/8/2010
Page No : 1

Groups Printed- Bikes

	Ipswich St From North			Boylston St From East			Hemenway St From South			Boylston St From West			
Start Time	Left	Thru	Rght	Left	Thru	Rght	Left	Thru	Rght	Left	Thru	Rght	Int. Total
07:00	0	0	0	0	0	0	0	0	2	0	0	0	2
07:15	1	0	0	0	0	0	0	0	1	0	0	0	2
07:30	1	0	0	0	0	0	0	1	2	0	1	0	5
07:45	1	0	0	0	0	1	0	0	2	0	0	0	4
Total	3	0	0	0	0	1	0	1	7	0	1	0	13
08:00	0	0	0	0	2	1	0	0	1	0	0	0	4
08:15	0	0	0	0	0	1	0	0	1	0	1	0	3
08:30	0	0	0	0	0	0	2	1	0	0	0	0	3
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	2	2	2	1	2	0	1	0	10
Grand Total	3	0	0	0	2	3	2	2	9	0	2	0	23
Apprch %	100	0	0	0	40	60	15.4	15.4	69.2	0	100	0	
Total %	13	0	0	0	8.7	13	8.7	8.7	39.1	0	8.7	0	

	Ipswich St From North				Boylston St From East				Hemenway St From South				Boylston St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**1**	0	0	**1**	0	0	0	0	0	**1**	**2**	**3**	0	**1**	0	**1**	**5**
07:45	1	0	0	1	0	0	**1**	1	0	0	2	2	0	0	0	0	4
08:00	0	0	0	0	0	**2**	1	**3**	0	0	1	1	0	0	0	0	4
08:15	0	0	0	0	0	0	1	1	0	0	1	1	0	1	0	1	3
Total Volume	2	0	0	2	0	2	3	5	0	1	6	7	0	2	0	2	16
% App. Total	100	0	0		0	40	60		0	14.3	85.7		0	100	0		
PHF	.500	.000	.000	.500	.000	.250	.750	.417	.000	.250	.750	.583	.000	.500	.000	.500	.800

Accurate Counts
978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 1514CT01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Cars - Trucks

	From North				Boylston St From East				St Cecilia St From South				Boylston St From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Hd Rt	Thru	Br Rt	U-TR	Int. Total
16:00	0	0	0	0	1	31	0	0	3	0	1	0	0	132	37	6	211
16:15	0	0	0	0	1	41	0	1	0	0	1	0	0	107	30	9	190
16:30	0	0	0	0	1	36	0	0	2	0	0	0	0	144	27	10	220
16:45	1	0	0	0	1	39	0	0	4	0	1	0	0	160	38	10	254
Total	1	0	0	0	4	147	0	1	9	0	3	0	0	543	132	35	875
17:00	0	0	0	0	1	52	0	1	0	0	1	0	0	197	34	7	293
17:15	0	0	0	0	0	43	0	0	2	0	5	0	0	183	46	12	291
17:30	0	0	0	0	1	58	0	2	0	0	0	0	2	209	42	10	324
17:45	0	0	0	0	1	58	0	1	0	0	1	0	2	187	47	5	302
Total	0	0	0	0	3	211	0	4	2	0	7	0	4	776	169	34	1210
Grand Total	1	0	0	0	7	358	0	5	11	0	10	0	4	1319	301	69	2085
Apprch %	100	0	0	0	1.9	96.8	0	1.4	52.4	0	47.6	0	0.2	77.9	17.8	4.1	
Total %	0	0	0	0	0.3	17.2	0	0.2	0.5	0	0.5	0	0.2	63.3	14.4	3.3	
Cars	1	0	0	0	7	343	0	5	11	0	10	0	4	1289	297	69	2036
% Cars	100	0	0	0	100	95.8	0	100	100	0	100	0	100	97.7	98.7	100	97.6
Trucks	0	0	0	0	0	15	0	0	0	0	0	0	0	30	4	0	49
% Trucks	0	0	0	0	0	4.2	0	0	0	0	0	0	0	2.3	1.3	0	2.4

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 17:00

	From North					Boylston St From East					St Cecilia St From South					Boylston St From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Hd Rt	Thru	Br Rt	U-TR	App. Total	Int. Total
17:00	0	0	0	0	0	**1**	52	0	1	54	0	0	1	0	1	0	197	34	7	238	293
17:15	0	0	0	0	0	0	43	0	0	43	**2**	0	**5**	0	**7**	0	183	46	**12**	241	291
17:30	0	0	0	0	0	1	**58**	0	**2**	**61**	0	0	0	0	0	**2**	**209**	42	10	**263**	**324**
17:45	0	0	0	0	0	1	58	0	1	60	0	0	1	0	1	2	187	**47**	5	241	302
Total Volume	0	0	0	0	0	3	211	0	4	218	2	0	7	0	9	4	776	169	34	983	1210
% App. Total	0	0	0	0		1.4	96.8	0	1.8		22.2	0	77.8	0		0.4	78.9	17.2	3.5		
PHF	.000	.000	.000	.000	.000	.750	.909	.000	.500	.893	.250	.000	.350	.000	.321	.500	.928	.899	.708	.934	.934
Cars	0	0	0	0	0	3	206	0	4	213	2	0	7	0	9	4	763	168	34	969	1191
% Cars	0	0	0	0	0	100	97.6	0	100	97.7	100	0	100	0	100	100	98.3	99.4	100	98.6	98.4
Trucks	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	13	1	0	14	19
% Trucks	0	0	0	0	0	0	2.4	0	0	2.3	0	0	0	0	0	0	1.7	0.6	0	1.4	1.6

Accurate Counts
978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 1514CT01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Trucks

	From North				Boylston St From East				St Cecilia St From South				Boylston St From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Hd Rt	Thru	Br Rt	U-TR	Int. Total
16:00	0	0	0	0	0	4	0	0	0	0	0	0	0	2	2	0	8
16:15	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	4
16:30	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	0	8
16:45	0	0	0	0	0	1	0	0	0	0	0	0	0	8	1	0	10
Total	0	0	0	0	0	10	0	0	0	0	0	0	0	17	3	0	30
17:00	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0	8
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
17:30	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
17:45	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	4
Total	0	0	0	0	0	5	0	0	0	0	0	0	0	13	1	0	19
Grand Total	0	0	0	0	0	15	0	0	0	0	0	0	0	30	4	0	49
Apprch %	0	0	0	0	0	100	0	0	0	0	0	0	0	88.2	11.8	0	
Total %	0	0	0	0	0	30.6	0	0	0	0	0	0	0	61.2	8.2	0	

	From North					Boylston St From East					St Cecilia St From South					Boylston St From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Hd Rt	Thru	Br Rt	U-TR	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	0	2	**2**	0	4	8
16:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
16:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	6	0	0	6	8
16:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	**8**	1	0	**9**	**10**
Total Volume	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	17	3	0	20	30
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	85	15	0		
PHF	.000	.000	.000	.000	.000	.000	.625	.000	.000	.625	.000	.000	.000	.000	.000	.000	.531	.375	.000	.556	.750

Accurate Counts
978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston St / Cambria St
City/State : Boston, MA
Weather : Clear

File Name : 1514PD01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Peds

	St Cecilia St From North				Boylston/Cambria From East				St Cecilia St From South				Boylston/Cambria From West				
Start Time	4	3	2	1	8	7	6	5	12	11	10	9			14	13	Int. Total
16:00	54	37	68	77	3	8	1	0	2	0	33	68	0	0	6	0	357
16:15	20	14	57	86	4	10	0	5	1	1	14	25	0	0	3	2	242
16:30	39	24	36	87	5	7	0	4	1	2	28	46	0	1	4	0	284
16:45	50	15	58	71	2	2	1	1	0	1	16	52	0	0	3	0	272
Total	163	90	219	321	14	27	2	10	4	4	91	191	0	1	16	2	1155
17:00	30	34	43	115	3	15	0	1	1	5	22	38	0	0	3	2	312
17:15	29	28	62	108	7	11	0	1	0	2	24	32	0	0	5	1	310
17:30	31	31	60	118	2	4	0	1	0	2	29	38	0	1	4	0	321
17:45	72	58	102	132	3	6	0	2	2	1	48	76	0	1	2	1	506
Total	162	151	267	473	15	36	0	5	3	10	123	184	0	2	14	4	1449
Grand Total	325	241	486	794	29	63	2	15	7	14	214	375	0	3	30	6	2604
Apprch %	17.6	13.1	26.3	43	26.6	57.8	1.8	13.8	1.1	2.3	35.1	61.5	0	7.7	76.9	15.4	
Total %	12.5	9.3	18.7	30.5	1.1	2.4	0.1	0.6	0.3	0.5	8.2	14.4	0	0.1	1.2	0.2	

	St Cecilia St From North					Boylston/Cambria From East					St Cecilia St From South					Boylston/Cambria From West					
Start Time	4	3	2	1	App. Total	8	7	6	5	App. Total	12	11	10	9	App. Total			14	13	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	30	34	43	115	222	3	**15**	0	1	**19**	1	**5**	22	38	66	0	0	3	**2**	5	312
17:15	29	28	62	108	227	**7**	11	0	1	19	0	2	24	32	58	0	0	**5**	1	**6**	310
17:30	31	31	60	118	240	2	4	0	1	7	0	2	29	38	69	0	**1**	4	0	5	321
17:45	**72**	**58**	**102**	**132**	**364**	3	6	0	**2**	11	**2**	1	**48**	**76**	**127**	0	1	2	1	4	**506**
Total Volume	162	151	267	473	1053	15	36	0	5	56	3	10	123	184	320	0	2	14	4	20	1449
% App. Total	15.4	14.3	25.4	44.9		26.8	64.3	0	8.9		0.9	3.1	38.4	57.5		0	10	70	20		
PHF	.563	.651	.654	.896	.723	.536	.600	.000	.625	.737	.375	.500	.641	.605	.630	.000	.500	.700	.500	.833	.716

Accurate Counts

978-664-2565

N/S Street : St Cecilia Street
E/W Street: Boylston St / Cambria St
City/State : Boston, MA
Weather : Clear

File Name : 1514BK01
Site Code : 15140001
Start Date : 12/8/2010
Page No : 1

Groups Printed- Bikes

	St Cecilia St From North				Boylston/Cambria From East				St Cecilia St From South				Boylston/Cambria From West				
Start Time			2	1	8				12	11	10	9			14		Int. Total
16:00	0	0	1	4	1	0	0	0	0	0	1	9	0	0	0	0	16
16:15	0	0	0	4	1	0	0	0	0	0	3	1	0	0	1	0	10
16:30	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3
16:45	0	0	1	2	0	0	0	0	0	0	1	4	0	0	0	0	8
Total	0	0	2	10	2	0	0	0	0	0	5	16	0	0	2	0	37
17:00	0	0	0	2	0	0	0	0	0	0	3	1	0	0	1	0	7
17:15	0	0	0	2	0	0	0	0	1	0	0	7	0	0	1	0	11
17:30	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
17:45	0	0	1	2	0	0	0	0	0	0	0	5	0	0	1	0	9
Total	0	0	1	6	0	0	0	0	1	0	3	17	0	0	3	0	31
Grand Total	0	0	3	16	2	0	0	0	1	0	8	33	0	0	5	0	68
Apprch %	0	0	15.8	84.2	100	0	0	0	2.4	0	19	78.6	0	0	100	0	
Total %	0	0	4.4	23.5	2.9	0	0	0	1.5	0	11.8	48.5	0	0	7.4	0	

	St Cecilia St From North					Boylston/Cambria From East					St Cecilia St From South					Boylston/Cambria From West					
Start Time			2	1	App. Total	8				App. Total	12	11	10	9	App. Total			14		App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	**1**	**4**	**5**	**1**	0	0	0	**1**	0	0	1	**9**	**10**	0	0	0	0	0	**16**
16:15	0	0	0	4	4	1	0	0	0	1	0	0	**3**	1	4	0	0	**1**	0	**1**	10
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	1	3
16:45	0	0	1	2	3	0	0	0	0	0	0	0	1	4	5	0	0	0	0	0	8
Total Volume	0	0	2	10	12	2	0	0	0	2	0	0	5	16	21	0	0	2	0	2	37
% App. Total	0	0	16.7	83.3		100	0	0	0		0	0	23.8	76.2		0	0	100	0		
PHF	.000	.000	.500	.625	.600	.500	.000	.000	.000	.500	.000	.000	.417	.444	.525	.000	.000	.500	.000	.500	.578

Accurate Counts
978-664-2565

N/S Street : Ipswich St / Hemenway St
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 15140002
Site Code : 15140002
Start Date : 12/8/2010
Page No : 1

Groups Printed- Peds

	Ipswich St From North			Boylston St From East			Hemenway St From South			Boylston St From West			
Start Time	EB		WB	SB		NB	WB		EB	SB		NB	Int. Total
16:00	18	0	32	15	0	13	148	0	105	7	0	2	340
16:15	15	0	22	3	0	10	54	0	54	10	0	5	173
16:30	14	0	14	9	0	6	56	0	61	6	0	3	169
16:45	18	0	23	3	0	7	52	0	56	13	0	3	175
Total	65	0	91	30	0	36	310	0	276	36	0	13	857
17:00	17	0	34	17	0	10	102	0	62	20	0	7	269
17:15	6	0	26	10	0	7	52	0	52	4	0	3	160
17:30	14	0	18	7	0	10	51	0	70	3	0	3	176
17:45	16	0	30	5	0	6	47	0	50	4	0	4	162
Total	53	0	108	39	0	33	252	0	234	31	0	17	767
Grand Total	118	0	199	69	0	69	562	0	510	67	0	30	1624
Apprch %	37.2	0	62.8	50	0	50	52.4	0	47.6	69.1	0	30.9	
Total %	7.3	0	12.3	4.2	0	4.2	34.6	0	31.4	4.1	0	1.8	

	Ipswich St From North				Boylston St From East				Hemenway St From South				Boylston St From West				
Start Time	EB		WB	App. Total	SB		NB	App. Total	WB		EB	App. Total	SB		NB	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	**18**	0	**32**	**50**	**15**	0	**13**	**28**	**148**	0	**105**	**253**	7	0	2	9	**340**
16:15	15	0	22	37	3	0	10	13	54	0	54	108	10	0	**5**	15	173
16:30	14	0	14	28	9	0	6	15	56	0	61	117	6	0	3	9	169
16:45	18	0	23	41	3	0	7	10	52	0	56	108	**13**	0	3	**16**	175
Total Volume	65	0	91	156	30	0	36	66	310	0	276	586	36	0	13	49	857
% App. Total	41.7	0	58.3		45.5	0	54.5		52.9	0	47.1		73.5	0	26.5		
PHF	.903	.000	.711	.780	.500	.000	.692	.589	.524	.000	.657	.579	.692	.000	.650	.766	.630

Accurate Counts
978-664-2565

N/S Street : Ipswich St / Hemenway St
E/W Street: Boylston Street
City/State : Boston, MA
Weather : Clear

File Name : 15140002
Site Code : 15140002
Start Date : 12/8/2010
Page No : 1

Groups Printed- Bikes

	Ipswich St From North			Boylston St From East			Hemenway St From South			Boylston St From West			
Start Time	Left	Thru	Rght	Left	Thru	Rght	Left	Thru	Rght	Left	Thru	Rght	Int. Total
16:00	0	0	1	3	5	1	1	1	1	0	2	0	15
16:15	3	0	0	1	2	2	1	1	0	0	2	0	12
16:30	1	0	0	1	4	0	0	0	0	0	1	0	7
16:45	1	0	0	3	2	1	0	3	0	0	0	0	10
Total	5	0	1	8	13	4	2	5	1	0	5	0	44
17:00	1	0	0	0	2	1	0	0	0	0	2	0	6
17:15	0	0	0	1	6	2	0	0	0	0	0	0	9
17:30	0	0	0	2	1	0	0	0	2	0	2	0	7
17:45	2	0	0	0	2	2	0	0	4	0	3	0	13
Total	3	0	0	3	11	5	0	0	6	0	7	0	35
Grand Total	8	0	1	11	24	9	2	5	7	0	12	0	79
Apprch %	88.9	0	11.1	25	54.5	20.5	14.3	35.7	50	0	100	0	
Total %	10.1	0	1.3	13.9	30.4	11.4	2.5	6.3	8.9	0	15.2	0	

	Ipswich St From North				Boylston St From East				Hemenway St From South				Boylston St From West				
Start Time	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Left	Thru	Rght	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	0	0	**1**	1	**3**	**5**	1	**9**	**1**	1	**1**	**3**	0	**2**	0	**2**	**15**
16:15	**3**	0	0	**3**	1	2	**2**	5	1	1	0	2	0	2	0	2	12
16:30	1	0	0	1	1	4	0	5	0	0	0	0	0	1	0	1	7
16:45	1	0	0	1	3	2	1	6	0	**3**	0	3	0	0	0	0	10
Total Volume	5	0	1	6	8	13	4	25	2	5	1	8	0	5	0	5	44
% App. Total	83.3	0	16.7		32	52	16		25	62.5	12.5		0	100	0		
PHF	.417	.000	.250	.500	.667	.650	.500	.694	.500	.417	.250	.667	.000	.625	.000	.625	.733

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N/S: Massachusetts Avenue
E/W: Belvidere Street/Haviland Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 D
Site Code : TBA
Start Date : 5/19/2009

Groups Printed- Cars - Heavy Vehicles

	Massachusetts Avenue From North			Belvidere Street From East			Massachusetts Avenue From South			Haviland Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	3	111	0	17	1	6	0	165	1	0	0	0	304
07:15 AM	5	148	0	18	4	7	0	139	1	0	0	0	322
07:30 AM	6	142	0	23	3	5	0	145	0	0	0	0	324
07:45 AM	5	149	0	21	7	15	0	151	2	0	0	0	350
Total	19	550	0	79	15	33	0	600	4	0	0	0	1300
08:00 AM	8	139	0	41	7	7	0	163	7	0	0	0	372
08:15 AM	1	163	0	18	12	4	0	160	2	0	0	0	360
08:30 AM	7	148	0	30	4	12	0	143	2	0	0	0	346
08:45 AM	4	122	0	17	10	3	0	155	1	0	0	0	312
Total	20	572	0	106	33	26	0	621	12	0	0	0	1390
Grand Total	39	1122	0	185	48	59	0	1221	16	0	0	0	2690
Apprch %	3.4	96.6	0	63.4	16.4	20.2	0	98.7	1.3	0	0	0	
Total %	1.4	41.7	0	6.9	1.8	2.2	0	45.4	0.6	0	0	0	
Cars	34	1007	0	170	46	54	0	1089	14	0	0	0	2414
% Cars	87.2	89.8	0	91.9	95.8	91.5	0	89.2	87.5	0	0	0	89.7
Heavy Vehicles	5	115	0	15	2	5	0	132	2	0	0	0	276
% Heavy Vehicles	12.8	10.2	0	8.1	4.2	8.5	0	10.8	12.5	0	0	0	10.3

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	5	149	0	154	21	7	**15**	43	0	151	2	153	0	0	0	0	350
08:00 AM	**8**	139	0	147	**41**	7	7	**55**	0	**163**	**7**	**170**	0	0	0	0	**372**
08:15 AM	1	**163**	0	**164**	18	**12**	4	34	0	160	2	162	0	0	0	0	360
08:30 AM	7	148	0	155	30	4	12	46	0	143	2	145	0	0	0	0	346
Total Volume	21	599	0	620	110	30	38	178	0	617	13	630	0	0	0	0	1428
% App. Total	3.4	96.6	0		61.8	16.9	21.3		0	97.9	2.1		0	0	0		
PHF	.656	.919	.000	.945	.671	.625	.633	.809	.000	.946	.464	.926	.000	.000	.000	.000	.960
Cars	18	532	0	550	102	28	34	164	0	561	11	572	0	0	0	0	1286
% Cars	85.7	88.8	0	88.7	92.7	93.3	89.5	92.1	0	90.9	84.6	90.8	0	0	0	0	90.1
Heavy Vehicles	3	67	0	70	8	2	4	14	0	56	2	58	0	0	0	0	142
% Heavy Vehicles	14.3	11.2	0	11.3	7.3	6.7	10.5	7.9	0	9.1	15.4	9.2	0	0	0	0	9.9

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N/S: Massachusetts Avenue
E/W: Belvidere Street/Haviland Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 D
Site Code : TBA
Start Date : 5/19/2009
Page No : 1

Groups Printed- Cars

	Massachusetts Avenue From North			Belvidere Street From East			Massachusetts Avenue From South			Haviland Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	2	100	0	16	1	5	0	141	1	0	0	0	266
07:15 AM	5	134	0	16	4	7	0	119	1	0	0	0	286
07:30 AM	5	131	0	21	3	5	0	128	0	0	0	0	293
07:45 AM	3	125	0	20	6	14	0	139	1	0	0	0	308
Total	15	490	0	73	14	31	0	527	3	0	0	0	1153
08:00 AM	7	120	0	38	6	6	0	143	7	0	0	0	327
08:15 AM	1	151	0	16	12	4	0	147	2	0	0	0	333
08:30 AM	7	136	0	28	4	10	0	132	1	0	0	0	318
08:45 AM	4	110	0	15	10	3	0	140	1	0	0	0	283
Total	19	517	0	97	32	23	0	562	11	0	0	0	1261
Grand Total	34	1007	0	170	46	54	0	1089	14	0	0	0	2414
Apprch %	3.3	96.7	0	63	17	20	0	98.7	1.3	0	0	0	
Total %	1.4	41.7	0	7	1.9	2.2	0	45.1	0.6	0	0	0	

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	3	125	0	128	20	6	**14**	40	0	139	1	140	0	0	0	0	308
08:00 AM	**7**	120	0	127	**38**	6	6	**50**	0	143	**7**	**150**	0	0	0	0	327
08:15 AM	1	**151**	0	**152**	16	**12**	4	32	0	**147**	2	149	0	0	0	0	**333**
08:30 AM	7	136	0	143	28	4	10	42	0	132	1	133	0	0	0	0	318
Total Volume	18	532	0	550	102	28	34	164	0	561	11	572	0	0	0	0	1286
% App. Total	3.3	96.7	0		62.2	17.1	20.7		0	98.1	1.9		0	0	0		
PHF	.643	.881	.000	.905	.671	.583	.607	.820	.000	.954	.393	.953	.000	.000	.000	.000	.965

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E/W: Belvidere Street/Haviland Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 D
Site Code : TBA
Start Date : 5/19/2009
Page No : 1

Groups Printed- Heavy Vehicles

	Massachusetts Avenue From North			Belvidere Street From East			Massachusetts Avenue From South			Haviland Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	1	11	0	1	0	1	0	24	0	0	0	0	38
07:15 AM	0	14	0	2	0	0	0	20	0	0	0	0	36
07:30 AM	1	11	0	2	0	0	0	17	0	0	0	0	31
07:45 AM	2	24	0	1	1	1	0	12	1	0	0	0	42
Total	4	60	0	6	1	2	0	73	1	0	0	0	147
08:00 AM	1	19	0	3	1	1	0	20	0	0	0	0	45
08:15 AM	0	12	0	2	0	0	0	13	0	0	0	0	27
08:30 AM	0	12	0	2	0	2	0	11	1	0	0	0	28
08:45 AM	0	12	0	2	0	0	0	15	0	0	0	0	29
Total	1	55	0	9	1	3	0	59	1	0	0	0	129
Grand Total	5	115	0	15	2	5	0	132	2	0	0	0	276
Apprch %	4.2	95.8	0	68.2	9.1	22.7	0	98.5	1.5	0	0	0	
Total %	1.8	41.7	0	5.4	0.7	1.8	0	47.8	0.7	0	0	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:15 AM	0	14	0	14	2	0	0	2	0	**20**	0	**20**	0	0	0	0	36
07:30 AM	1	11	0	12	2	0	0	2	0	17	0	17	0	0	0	0	31
07:45 AM	**2**	**24**	0	**26**	1	**1**	**1**	3	0	12	**1**	13	0	0	0	0	42
08:00 AM	1	19	0	20	**3**	1	1	**5**	0	20	0	20	0	0	0	0	**45**
Total Volume	4	68	0	72	8	2	2	12	0	69	1	70	0	0	0	0	154
% App. Total	5.6	94.4	0		66.7	16.7	16.7		0	98.6	1.4		0	0	0		
PHF	.500	.708	.000	.692	.667	.500	.500	.600	.000	.863	.250	.875	.000	.000	.000	.000	.856

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N/S: Massachusetts Avenue
E/W: Belvidere Street/Haviland Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 D
Site Code : TBA
Start Date : 5/19/2009

Groups Printed- Peds and Bicycles

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	3	0	9	0	0	0	20	0	4	0	3	0	0	0	9	48
07:15 AM	0	4	0	4	0	0	0	35	0	5	0	7	0	0	0	26	81
07:30 AM	0	10	0	15	2	0	0	27	0	6	0	5	0	0	0	15	80
07:45 AM	0	8	1	14	0	0	0	39	0	9	0	11	0	0	0	34	116
Total	0	25	1	42	2	0	0	121	0	24	0	26	0	0	0	84	325
08:00 AM	0	11	0	13	0	0	0	20	0	6	0	9	0	0	0	22	81
08:15 AM	1	8	0	18	1	0	0	30	0	12	0	6	0	0	0	22	98
08:30 AM	0	12	0	23	0	0	0	24	0	10	0	7	0	0	0	26	102
08:45 AM	0	24	0	36	0	0	0	31	0	7	0	10	0	0	1	25	134
Total	1	55	0	90	1	0	0	105	0	35	0	32	0	0	1	95	415
Grand Total	1	80	1	132	3	0	0	226	0	59	0	58	0	0	1	179	740
Apprch %	0.5	37.4	0.5	61.7	1.3	0	0	98.7	0	50.4	0	49.6	0	0	0.6	99.4	
Total %	0.1	10.8	0.1	17.8	0.4	0	0	30.5	0	8	0	7.8	0	0	0.1	24.2	

	Massachusetts Avenue From North					Belvidere Street From East					Massachusetts Avenue From South					Haviland Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	11	0	13	24	0	0	0	20	20	0	6	0	9	15	0	0	0	22	22	81
08:15 AM	**1**	**8**	**0**	**18**	**27**	**1**	0	0	30	**31**	0	**12**	**0**	**6**	**18**	0	0	0	22	22	98
08:30 AM	0	12	0	23	35	0	0	0	24	24	0	10	0	7	17	0	0	0	**26**	**26**	102
08:45 AM	0	**24**	0	**36**	**60**	0	0	0	**31**	31	0	7	0	**10**				**1**			**134**
Total Volume	1	55	0	90	146	1	0	0	105	106	0	35	0	32	67	0	0	1	95	96	415
% App. Total	0.7	37.7	0	61.6		0.9	0	0	99.1		0	52.2	0	47.8		0	0	1	99		
PHF	.250	.573	.000	.625	.608	.250	.000	.000	.847	.855	.000	.729	.000	.800	.931	.000	.000	.250	.913	.923	.774

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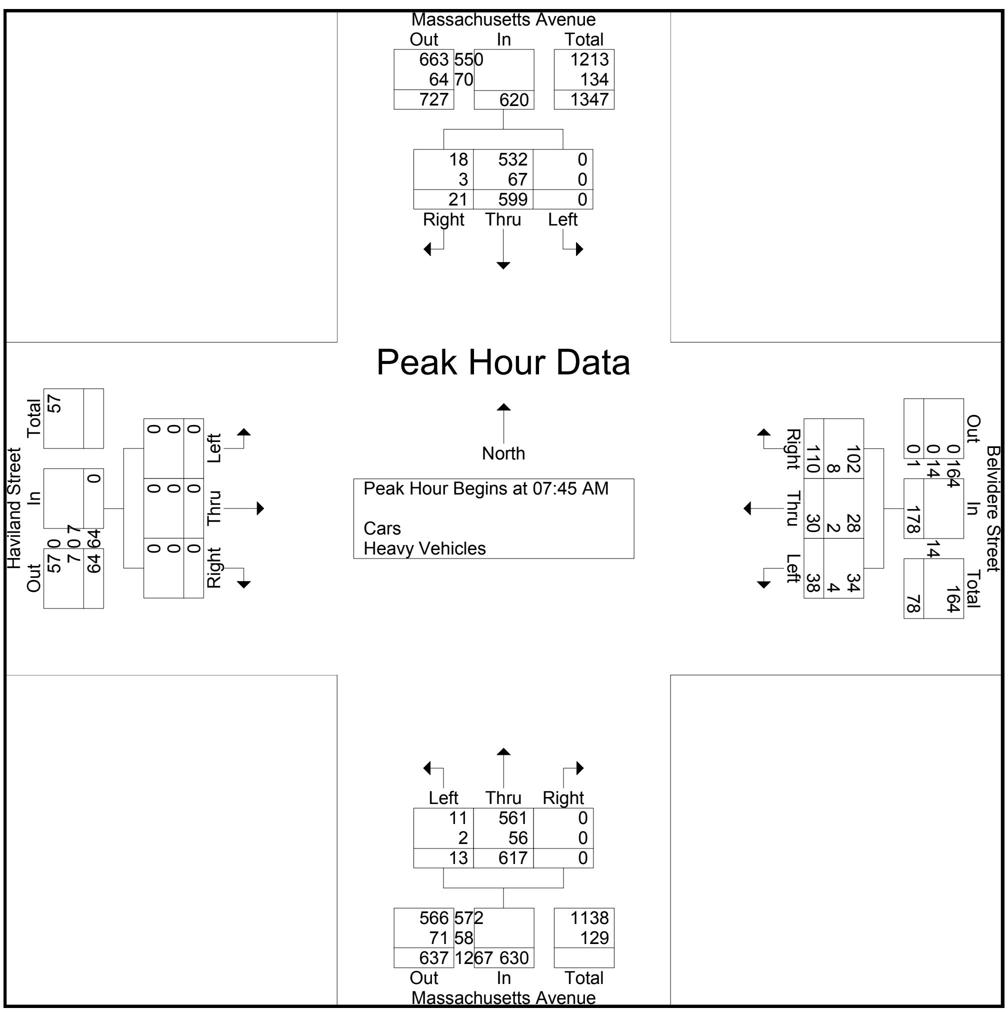
N/S: Massachusetts Avenue
E/W: Belvidere Street/Haviland Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 D
Site Code : TBA
Start Date : 5/19/2009

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	5	149	0	154	21	7	**15**	43	0	151	2	153	0	0	0	0	350
08:00 AM	**8**	139	0	147	**41**	7	7	**55**	0	**163**	**7**	**170**	0	0	0	0	**372**
08:15 AM	1	**163**	0	**164**	18	**12**	4	34	0	160	2	162	0	0	0	0	360
08:30 AM	7	148	0	155	30	4	12	46	0	143	2	145	0	0	0	0	346
Total Volume	21	599	0	620	110	30	38	178	0	617	13	630	0	0	0	0	1428
% App. Total	3.4	96.6	0		61.8	16.9	21.3		0	97.9	2.1		0	0	0		
PHF	.656	.919	.000	.945	.671	.625	.633	.809	.000	.946	.464	.926	.000	.000	.000	.000	.960
Cars	18	532	0	550	102	28	34	164	0	561	11	572	0	0	0	0	1286
% Cars	85.7	88.8	0	88.7	92.7	93.3	89.5	92.1	0	90.9	84.6	90.8	0	0	0	0	90.1
Heavy Vehicles	3	67	0	70	8	2	4	14	0	56	2	58	0	0	0	0	142
% Heavy Vehicles	14.3	11.2	0	11.3	7.3	6.7	10.5	7.9	0	9.1	15.4	9.2	0	0	0	0	9.9



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N/S: Massachusetts Avenue
E/W: Boylston Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 E
Site Code : TBA
Start Date : 5/19/2009

Groups Printed- Cars - Heavy Vehicles

	Massachusetts Avenue From North			Boylston Street From East			Massachusetts Avenue From South			Boylston Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	11	95	28	17	6	0	20	161	1	22	59	3	423
07:15 AM	3	129	39	17	8	2	16	139	4	25	82	2	466
07:30 AM	13	121	36	16	9	0	19	146	5	25	78	7	475
07:45 AM	12	120	29	19	12	0	14	151	6	31	71	2	467
Total	39	465	132	69	35	2	69	597	16	103	290	14	1831
08:00 AM	16	121	42	27	9	0	28	171	7	24	94	0	539
08:15 AM	12	136	52	26	12	1	21	146	3	35	89	1	534
08:30 AM	16	133	40	37	17	2	26	147	2	23	101	3	547
08:45 AM	12	118	50	28	14	2	19	154	9	23	97	2	528
Total	56	508	184	118	52	5	94	618	21	105	381	6	2148
Grand Total	95	973	316	187	87	7	163	1215	37	208	671	20	3979
Apprch %	6.9	70.3	22.8	66.5	31	2.5	11.5	85.9	2.6	23.1	74.6	2.2	
Total %	2.4	24.5	7.9	4.7	2.2	0.2	4.1	30.5	0.9	5.2	16.9	0.5	
Cars	91	872	289	172	80	5	151	1100	36	196	643	18	3653
% Cars	95.8	89.6	91.5	92	92	71.4	92.6	90.5	97.3	94.2	95.8	90	91.8
Heavy Vehicles	4	101	27	15	7	2	12	115	1	12	28	2	326
% Heavy Vehicles	4.2	10.4	8.5	8	8	28.6	7.4	9.5	2.7	5.8	4.2	10	8.2

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**16**	121	42	179	27	9	0	36	**28**	**171**	7	**206**	24	94	0	118	539
08:15 AM	12	**136**	**52**	**200**	26	12	1	39	21	146	3	170	**35**	89	1	125	534
08:30 AM	16	133	40	189	**37**	**17**	**2**	**56**	26	147	2	175	23	**101**	**3**	**127**	**547**
08:45 AM	12	118	50	180	28	14	2	44	19	154	**9**	182	23	97	2	122	528
Total Volume	56	508	184	748	118	52	5	175	94	618	21	733	105	381	6	492	2148
% App. Total	7.5	67.9	24.6		67.4	29.7	2.9		12.8	84.3	2.9		21.3	77.4	1.2		
PHF	.875	.934	.885	.935	.797	.765	.625	.781	.839	.904	.583	.890	.750	.943	.500	.969	.982
Cars	52	457	173	682	111	50	4	165	89	569	20	678	100	360	5	465	1990
% Cars	92.9	90.0	94.0	91.2	94.1	96.2	80.0	94.3	94.7	92.1	95.2	92.5	95.2	94.5	83.3	94.5	92.6
Heavy Vehicles	4	51	11	66	7	2	1	10	5	49	1	55	5	21	1	27	158
% Heavy Vehicles	7.1	10.0	6.0	8.8	5.9	3.8	20.0	5.7	5.3	7.9	4.8	7.5	4.8	5.5	16.7	5.5	7.4

PRECISION
DATA
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N/S: Massachusetts Avenue
E/W: Boylston Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 E
Site Code : TBA
Start Date : 5/19/2009
Page No : 1

Groups Printed- Cars

	Massachusetts Avenue From North			Boylston Street From East			Massachusetts Avenue From South			Boylston Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	11	89	24	15	5	0	17	140	1	19	59	3	383
07:15 AM	3	116	36	14	5	1	16	120	4	25	81	2	423
07:30 AM	13	110	30	15	9	0	16	131	5	25	74	7	435
07:45 AM	12	100	26	17	11	0	13	140	6	27	69	1	422
Total	39	415	116	61	30	1	62	531	16	96	283	13	1663
08:00 AM	15	104	40	27	8	0	27	155	6	22	90	0	494
08:15 AM	10	126	48	26	11	1	19	135	3	32	84	1	496
08:30 AM	15	122	39	32	17	1	25	138	2	23	95	2	511
08:45 AM	12	105	46	26	14	2	18	141	9	23	91	2	489
Total	52	457	173	111	50	4	89	569	20	100	360	5	1990
Grand Total	91	872	289	172	80	5	151	1100	36	196	643	18	3653
Apprch %	7.3	69.6	23.1	66.9	31.1	1.9	11.7	85.5	2.8	22.9	75	2.1	
Total %	2.5	23.9	7.9	4.7	2.2	0.1	4.1	30.1	1	5.4	17.6	0.5	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
08:00 AM	**15**	104	40	159	27	8	0	35	**27**	**155**	6	**188**	22	90	0	112	494
08:15 AM	10	**126**	**48**	**184**	26	11	1	38	19	135	3	157	**32**	84	1	117	496
08:30 AM	15	122	39	176	**32**	**17**	1	**50**	25	138	2	165	23	**95**	**2**	**120**	**511**
08:45 AM	12	105	46	163	26	14	**2**	42	18	141	**9**	168	23	91	2	116	489
Total Volume	52	457	173	682	111	50	4	165	89	569	20	678	100	360	5	465	1990
% App. Total	7.6	67	25.4		67.3	30.3	2.4		13.1	83.9	2.9		21.5	77.4	1.1		
PHF	.867	.907	.901	.927	.867	.735	.500	.825	.824	.918	.556	.902	.781	.947	.625	.969	.974

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City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 E
Site Code : TBA
Start Date : 5/19/2009
Page No : 1

Groups Printed- Heavy Vehicles

	Massachusetts Avenue From North			Boylston Street From East			Massachusetts Avenue From South			Boylston Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	0	6	4	2	1	0	3	21	0	3	0	0	40
07:15 AM	0	13	3	3	3	1	0	19	0	0	1	0	43
07:30 AM	0	11	6	1	0	0	3	15	0	0	4	0	40
07:45 AM	0	20	3	2	1	0	1	11	0	4	2	1	45
Total	0	50	16	8	5	1	7	66	0	7	7	1	168
08:00 AM	1	17	2	0	1	0	1	16	1	2	4	0	45
08:15 AM	2	10	4	0	1	0	2	11	0	3	5	0	38
08:30 AM	1	11	1	5	0	1	1	9	0	0	6	1	36
08:45 AM	0	13	4	2	0	0	1	13	0	0	6	0	39
Total	4	51	11	7	2	1	5	49	1	5	21	1	158
Grand Total	4	101	27	15	7	2	12	115	1	12	28	2	326
Apprch %	3	76.5	20.5	62.5	29.2	8.3	9.4	89.8	0.8	28.6	66.7	4.8	
Total %	1.2	31	8.3	4.6	2.1	0.6	3.7	35.3	0.3	3.7	8.6	0.6	

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	13	3	16	**3**	**3**	**1**	**7**	0	**19**	0	**19**	0	1	0	1	43
07:30 AM	0	11	**6**	17	1	0	0	1	**3**	15	0	18	0	**4**	0	4	40
07:45 AM	0	**20**	3	**23**	2	1	0	3	1	11	0	12	**4**	2	**1**	**7**	**45**
08:00 AM	**1**	17	2	20	0	1	0	1	1	16	**1**	18	2	4	0	6	45
Total Volume	1	61	14	76	6	5	1	12	5	61	1	67	6	11	1	18	173
% App. Total	1.3	80.3	18.4		50	41.7	8.3		7.5	91	1.5		33.3	61.1	5.6		
PHF	.250	.763	.583	.826	.500	.417	.250	.429	.417	.803	.250	.882	.375	.688	.250	.643	.961

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City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 E
Site Code : TBA
Start Date : 5/19/2009
Page No : 1

Groups Printed- Peds and Bicycles

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	3	2	27	0	1	0	50	0	4	0	6	1	1	0	28	123
07:15 AM	2	4	5	43	0	0	0	65	1	3	0	18	1	3	0	56	201
07:30 AM	0	12	4	48	0	0	0	95	0	4	0	24	0	0	0	60	247
07:45 AM	1	10	7	84	0	0	0	123	0	7	0	20	0	5	2	93	352
Total	3	29	18	202	0	1	0	333	1	18	0	68	2	9	2	237	923
08:00 AM	2	11	10	45	0	0	0	73	0	6	0	35	1	5	1	72	261
08:15 AM	4	13	7	71	0	0	0	88	0	14	0	67	0	5	1	77	347
08:30 AM	0	11	14	74	1	0	0	80	0	7	0	68	0	7	0	68	330
08:45 AM	4	25	6	79	0	0	0	122	0	8	0	74	0	11	0	70	399
Total	10	60	37	269	1	0	0	363	0	35	0	244	1	28	2	287	1337
Grand Total	13	89	55	471	1	1	0	696	1	53	0	312	3	37	4	524	2260
Apprch %	2.1	14.2	8.8	75	0.1	0.1	0	99.7	0.3	14.5	0	85.2	0.5	6.5	0.7	92.3	
Total %	0.6	3.9	2.4	20.8	0	0	0	30.8	0	2.3	0	13.8	0.1	1.6	0.2	23.2	

	Massachusetts Avenue From North					Boylston Street From East					Massachusetts Avenue From South					Boylston Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	2	11	10	45	68	0	0	0	73	73	0	6	0	35	41	**1**	**5**	**1**	**72**	**79**	**261**
08:15 AM	**4**	**13**	**7**	**71**	**95**	**0**	**0**	**0**	**88**	**88**	**0**	**14**	**0**	**67**	**81**	**0**	**5**	**1**	**77**	**83**	347
08:30 AM	0	11	**14**			**1**	0	0	80	81	0	7	0	68	75	0	7	0	68	75	330
08:45 AM	4	**25**	6	**79**	**114**	0	0	0	**122**	**122**	0	8	0	**74**	**82**	0	**11**	0	70	81	**399**
Total Volume	10	60	37	269	376	1	0	0	363	364	0	35	0	244	279	1	28	2	287	318	1337
% App. Total	2.7	16	9.8	71.5		0.3	0	0	99.7		0	12.5	0	87.5		0.3	8.8	0.6	90.3		
PHF	.625	.600	.661	.851	.825	.250	.000	.000	.744	.746	.000	.625	.000	.824	.851	.250	.636	.500	.932	.958	.838

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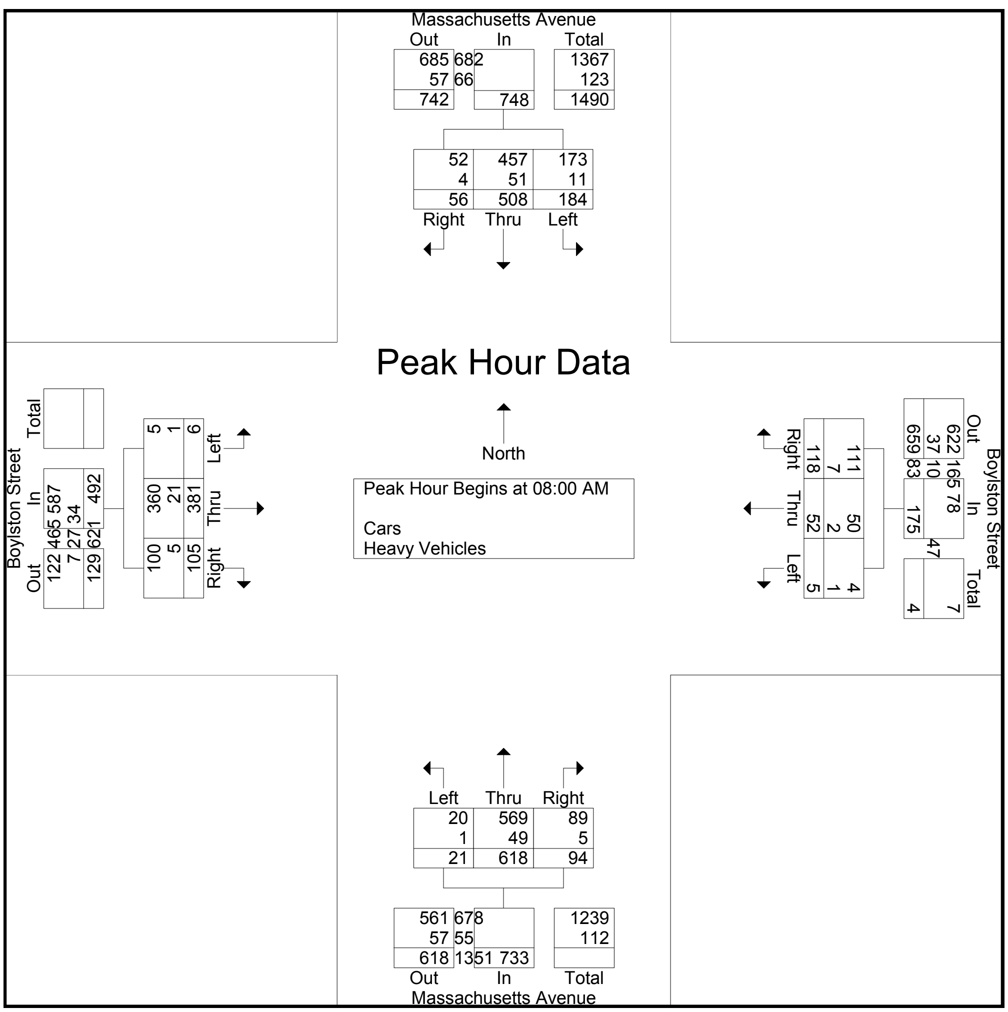
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 E
Site Code : TBA
Start Date : 5/19/2009

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**16**	121	42	179	27	9	0	36	**28**	**171**	7	**206**	24	94	0	118	539
08:15 AM	12	**136**	**52**	**200**	26	12	1	39	21	146	3	170	**35**	89	1	125	534
08:30 AM	16	133	40	189	**37**	**17**	**2**	**56**	26	147	2	175	23	**101**	**3**	**127**	**547**
08:45 AM	12	118	50	180	28	14	2	44	19	154	**9**	182	23	97	2	122	528
Total Volume	56	508	184	748	118	52	5	175	94	618	21	733	105	381	6	492	2148
% App. Total	7.5	67.9	24.6		67.4	29.7	2.9		12.8	84.3	2.9		21.3	77.4	1.2		
PHF	.875	.934	.885	.935	.797	.765	.625	.781	.839	.904	.583	.890	.750	.943	.500	.969	.982
Cars	52	457	173	682	111	50	4	165	89	569	20	678	100	360	5	465	1990
% Cars	92.9	90.0	94.0	91.2	94.1	96.2	80.0	94.3	94.7	92.1	95.2	92.5	95.2	94.5	83.3	94.5	92.6
Heavy Vehicles	4	51	11	66	7	2	1	10	5	49	1	55	5	21	1	27	158
% Heavy Vehicles	7.1	10.0	6.0	8.8	5.9	3.8	20.0	5.7	5.3	7.9	4.8	7.5	4.8	5.5	16.7	5.5	7.4



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N/S: Massachusetts Avenue
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City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 DD
Site Code : TBA
Start Date : 6/2/2009
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Massachusetts Avenue From North			Belvidere Street From East			Massachusetts Avenue From South			Haviland Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	6	154	0	24	6	12	0	148	5	0	0	0	355
04:15 PM	4	165	0	18	4	9	0	160	3	0	0	0	363
04:30 PM	4	166	0	22	5	2	0	172	1	0	0	0	372
04:45 PM	3	192	0	21	1	10	0	145	2	0	0	0	374
Total	17	677	0	85	16	33	0	625	11	0	0	0	1464
05:00 PM	0	165	0	24	2	9	0	181	4	0	0	0	385
05:15 PM	0	187	0	21	5	11	0	157	0	0	0	0	381
05:30 PM	3	179	0	20	11	12	0	166	0	0	0	0	391
05:45 PM	2	175	0	25	3	12	0	138	2	0	0	0	357
Total	5	706	0	90	21	44	0	642	6	0	0	0	1514
Grand Total	22	1383	0	175	37	77	0	1267	17	0	0	0	2978
Apprch %	1.6	98.4	0	60.6	12.8	26.6	0	98.7	1.3	0	0	0	
Total %	0.7	46.4	0	5.9	1.2	2.6	0	42.5	0.6	0	0	0	
Cars	22	1325	0	172	36	72	0	1206	17	0	0	0	2850
% Cars	100	95.8	0	98.3	97.3	93.5	0	95.2	100	0	0	0	95.7
Heavy Vehicles	0	58	0	3	1	5	0	61	0	0	0	0	128
% Heavy Vehicles	0	4.2	0	1.7	2.7	6.5	0	4.8	0	0	0	0	4.3

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**3**	**192**	0	**195**	21	1	10	32	0	145	2	147	0	0	0	0	374
05:00 PM	0	165	0	165	**24**	2	9	35	0	**181**	**4**	**185**	0	0	0	0	385
05:15 PM	0	187	0	187	21	5	11	37	0	157	0	157	0	0	0	0	381
05:30 PM	3	179	0	182	20	**11**	**12**	**43**	0	166	0	166	0	0	0	0	**391**
Total Volume	6	723	0	729	86	19	42	147	0	649	6	655	0	0	0	0	1531
% App. Total	0.8	99.2	0		58.5	12.9	28.6		0	99.1	0.9		0	0	0		
PHF	.500	.941	.000	.935	.896	.432	.875	.855	.000	.896	.375	.885	.000	.000	.000	.000	.979
Cars	6	695	0	701	84	19	42	145	0	624	6	630	0	0	0	0	1476
% Cars	100	96.1	0	96.2	97.7	100	100	98.6	0	96.1	100	96.2	0	0	0	0	96.4
Heavy Vehicles	0	28	0	28	2	0	0	2	0	25	0	25	0	0	0	0	55
% Heavy Vehicles	0	3.9	0	3.8	2.3	0	0	1.4	0	3.9	0	3.8	0	0	0	0	3.6

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City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 DD
Site Code : TBA
Start Date : 6/2/2009
Page No : 1

Groups Printed- Cars

	Massachusetts Avenue From North			Belvidere Street From East			Massachusetts Avenue From South			Haviland Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	6	149	0	24	6	8	0	132	5	0	0	0	330
04:15 PM	4	160	0	18	4	9	0	154	3	0	0	0	352
04:30 PM	4	157	0	22	4	2	0	165	1	0	0	0	355
04:45 PM	3	185	0	20	1	10	0	139	2	0	0	0	360
Total	17	651	0	84	15	29	0	590	11	0	0	0	1397
05:00 PM	0	157	0	24	2	9	0	176	4	0	0	0	372
05:15 PM	0	178	0	21	5	11	0	151	0	0	0	0	366
05:30 PM	3	175	0	19	11	12	0	158	0	0	0	0	378
05:45 PM	2	164	0	24	3	11	0	131	2	0	0	0	337
Total	5	674	0	88	21	43	0	616	6	0	0	0	1453
Grand Total	22	1325	0	172	36	72	0	1206	17	0	0	0	2850
Apprch %	1.6	98.4	0	61.4	12.9	25.7	0	98.6	1.4	0	0	0	
Total %	0.8	46.5	0	6	1.3	2.5	0	42.3	0.6	0	0	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:45 PM	**3**	**185**	0	**188**	20	1	10	31	0	139	2	141	0	0	0	0	360
05:00 PM	0	157	0	157	**24**	2	9	35	0	**176**	**4**	**180**	0	0	0	0	372
05:15 PM	0	178	0	178	21	5	11	37	0	151	0	151	0	0	0	0	366
05:30 PM	3	175	0	178	19	**11**	**12**	**42**	0	158	0	158	0	0	0	0	**378**
Total Volume	6	695	0	701	84	19	42	145	0	624	6	630	0	0	0	0	1476
% App. Total	0.9	99.1	0		57.9	13.1	29		0	99	1		0	0	0		
PHF	.500	.939	.000	.932	.875	.432	.875	.863	.000	.886	.375	.875	.000	.000	.000	.000	.976

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Start Date : 6/2/2009
Page No : 1

Groups Printed- Heavy Vehicles

	Massachusetts Avenue From North			Belvidere Street From East			Massachusetts Avenue From South			Haviland Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	0	5	0	0	0	4	0	16	0	0	0	0	25
04:15 PM	0	5	0	0	0	0	0	6	0	0	0	0	11
04:30 PM	0	9	0	0	1	0	0	7	0	0	0	0	17
04:45 PM	0	7	0	1	0	0	0	6	0	0	0	0	14
Total	0	26	0	1	1	4	0	35	0	0	0	0	67
05:00 PM	0	8	0	0	0	0	0	5	0	0	0	0	13
05:15 PM	0	9	0	0	0	0	0	6	0	0	0	0	15
05:30 PM	0	4	0	1	0	0	0	8	0	0	0	0	13
05:45 PM	0	11	0	1	0	1	0	7	0	0	0	0	20
Total	0	32	0	2	0	1	0	26	0	0	0	0	61
Grand Total	0	58	0	3	1	5	0	61	0	0	0	0	128
Apprch %	0	100	0	33.3	11.1	55.6	0	100	0	0	0	0	
Total %	0	45.3	0	2.3	0.8	3.9	0	47.7	0	0	0	0	

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	5	0	5	0	0	**4**	**4**	0	**16**	0	**16**	0	0	0	0	**25**
04:15 PM	0	5	0	5	0	0	0	0	0	6	0	6	0	0	0	0	11
04:30 PM	0	**9**	0	**9**	0	**1**	0	1	0	7	0	7	0	0	0	0	17
04:45 PM	0	7	0	7	**1**	0	0	1	0	6	0	6	0	0	0	0	14
Total Volume	0	26	0	26	1	1	4	6	0	35	0	35	0	0	0	0	67
% App. Total	0	100	0		16.7	16.7	66.7		0	100	0		0	0	0		
PHF	.000	.722	.000	.722	.250	.250	.250	.375	.000	.547	.000	.547	.000	.000	.000	.000	.670

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City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 DD
Site Code : TBA
Start Date : 6/2/2009

Groups Printed- Peds and Bicycles

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	8	0	75	1	1	0	58	0	7	0	32	0	0	0	7	189
04:15 PM	2	9	0	43	0	0	0	65	0	11	0	34	0	0	0	25	189
04:30 PM	1	15	0	34	0	0	0	78	0	9	0	17	0	0	0	20	174
04:45 PM	0	20	0	45	1	0	0	85	0	9	0	12	0	0	0	37	209
Total	3	52	0	197	2	1	0	286	0	36	0	95	0	0	0	89	761
05:00 PM	2	18	0	92	1	0	0	88	0	22	0	24	0	0	0	16	263
05:15 PM	1	13	1	40	1	0	0	87	0	23	0	16	0	0	0	5	187
05:30 PM	0	21	0	37	1	0	0	94	0	18	0	19	0	0	0	14	204
05:45 PM	1	23	0	70	1	0	0	147	0	13	0	25	2	0	0	43	325
Total	4	75	1	239	4	0	0	416	0	76	0	84	2	0	0	78	979
Grand Total	7	127	1	436	6	1	0	702	0	112	0	179	2	0	0	167	1740
Apprch %	1.2	22.2	0.2	76.4	0.8	0.1	0	99	0	38.5	0	61.5	1.2	0	0	98.8	
Total %	0.4	7.3	0.1	25.1	0.3	0.1	0	40.3	0	6.4	0	10.3	0.1	0	0	9.6	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

	Massachusetts Avenue From North					Belvidere Street From East					Massachusetts Avenue From South					Haviland Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:00 PM	**2**	**18**	**0**	**92**	**112**	**1**	0	0	88	89	0	22	0	24	**46**	0	0	0	16	16	263
05:15 PM	1	13	**1**									**23**									
05:30 PM	**0**	**21**	**0**	**37**	**58**	**1**	**0**	**0**	**94**	**95**	**0**	**18**	**0**	**19**	**37**	**0**	**0**	**0**	**14**	**14**	**204**
05:45 PM	**1**	**23**	0	70	94	1	0	0	**147**	**148**	0	13	0	**25**	**38**	**2**	**0**	**0**	**43**	**45**	**325**
Total Volume	4	75	1	239	319	4	0	0	416	420	0	76	0	84	160	2	0	0	78	80	979
% App. Total	1.3	23.5	0.3	74.9		1	0	0	99		0	47.5	0	52.5		2.5	0	0	97.5		
PHF	.500	.815	.250	.649	.712	1.000	.000	.000	.707	.709	.000	.826	.000	.840	.870	.250	.000	.000	.453	.444	.753

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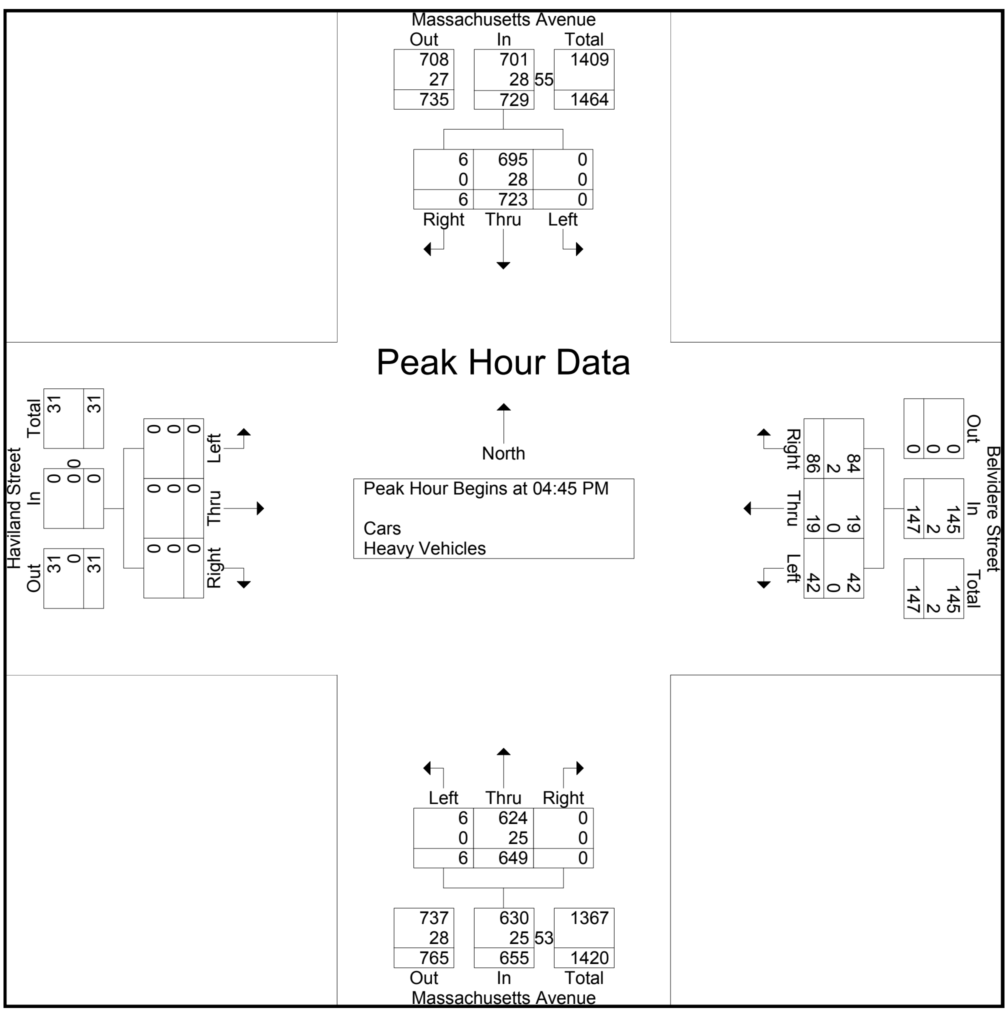
File Name : 91879 DD
Site Code : TBA
Start Date : 6/2/2009
Page No : 1

	Massachusetts Avenue From North				Belvidere Street From East				Massachusetts Avenue From South				Haviland Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**3**	**192**	0	**195**	21	1	10	32	0	145	2	147	0	0	0	0	374
05:00 PM	0	165	0	165	**24**	2	9	35	0	**181**	**4**	**185**	0	0	0	0	385
05:15 PM	0	187	0	187	21	5	11	37	0	157	0	157	0	0	0	0	381
05:30 PM	3	179	0	182	20	**11**	**12**	**43**	0	166	0	166	0	0	0	0	**391**
Total Volume	6	723	0	729	86	19	42	147	0	649	6	655	0	0	0	0	1531
% App. Total	0.8	99.2	0		58.5	12.9	28.6		0	99.1	0.9		0	0	0		
PHF	.500	.941	.000	.935	.896	.432	.875	.855	.000	.896	.375	.885	.000	.000	.000	.000	.979
Cars	6	695	0	701	84	19	42	145	0	624	6	630	0	0	0	0	1476
% Cars	100	96.1	0	96.2	97.7	100	100	98.6	0	96.1	100	96.2	0	0	0	0	96.4
Heavy Vehicles	0	28	0	28	2	0	0	2	0	25	0	25	0	0	0	0	55
% Heavy Vehicles	0	3.9	0	3.8	2.3	0	0	1.4	0	3.9	0	3.8	0	0	0	0	3.6



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City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 EE
Site Code : TBA
Start Date : 6/2/2009

Groups Printed- Cars - Heavy Vehicles

	Massachusetts Avenue From North			Boylston Street From East			Massachusetts Avenue From South			Boylston Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	11	139	27	41	17	1	28	113	5	31	85	0	498
04:15 PM	12	125	43	44	15	1	23	164	5	37	94	1	564
04:30 PM	18	142	48	33	20	0	20	154	5	30	94	3	567
04:45 PM	13	142	44	42	15	1	30	114	3	48	123	2	577
Total	54	548	162	160	67	3	101	545	18	146	396	6	2206
05:00 PM	19	144	50	34	19	5	27	173	8	25	98	2	604
05:15 PM	11	172	39	59	21	3	21	157	3	25	99	2	612
05:30 PM	12	159	40	42	29	0	21	169	2	32	109	1	616
05:45 PM	13	156	54	33	24	1	20	151	2	34	94	1	583
Total	55	631	183	168	93	9	89	650	15	116	400	6	2415
Grand Total	109	1179	345	328	160	12	190	1195	33	262	796	12	4621
Apprch %	6.7	72.2	21.1	65.6	32	2.4	13.4	84.3	2.3	24.5	74.4	1.1	
Total %	2.4	25.5	7.5	7.1	3.5	0.3	4.1	25.9	0.7	5.7	17.2	0.3	
Cars	107	1123	328	325	140	10	184	1140	32	258	774	12	4433
% Cars	98.2	95.3	95.1	99.1	87.5	83.3	96.8	95.4	97	98.5	97.2	100	95.9
Heavy Vehicles	2	56	17	3	20	2	6	55	1	4	22	0	188
% Heavy Vehicles	1.8	4.7	4.9	0.9	12.5	16.7	3.2	4.6	3	1.5	2.8	0	4.1

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**19**	144	50	213	34	19	**5**	58	**27**	**173**	**8**	**208**	25	98	**2**	125	604
05:15 PM	11	**172**	39	222	**59**	21	3	**83**	21	157	3	181	25	99	2	126	612
05:30 PM	12	159	40	211	42	**29**	0	71	21	169	2	192	32	**109**	1	**142**	**616**
05:45 PM	13	156	**54**	**223**	33	24	1	58	20	151	2	173	**34**	94	1	129	583
Total Volume	55	631	183	869	168	93	9	270	89	650	15	754	116	400	6	522	2415
% App. Total	6.3	72.6	21.1		62.2	34.4	3.3		11.8	86.2	2		22.2	76.6	1.1		
PHF	.724	.917	.847	.974	.712	.802	.450	.813	.824	.939	.469	.906	.853	.917	.750	.919	.980
Cars	55	600	180	835	168	84	8	260	88	624	15	727	115	391	6	512	2334
% Cars	100	95.1	98.4	96.1	100	90.3	88.9	96.3	98.9	96.0	100	96.4	99.1	97.8	100	98.1	96.6
Heavy Vehicles	0	31	3	34	0	9	1	10	1	26	0	27	1	9	0	10	81
% Heavy Vehicles	0	4.9	1.6	3.9	0	9.7	11.1	3.7	1.1	4.0	0	3.6	0.9	2.3	0	1.9	3.4

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File Name : 91879 EE
Site Code : TBA
Start Date : 6/2/2009

Groups Printed- Cars

	Massachusetts Avenue From North			Boylston Street From East			Massachusetts Avenue From South			Boylston Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	10	135	25	40	14	1	26	101	5	30	81	0	468
04:15 PM	11	120	41	44	13	1	23	155	5	37	92	1	543
04:30 PM	18	133	40	32	15	0	19	149	4	29	88	3	530
04:45 PM	13	135	42	41	14	0	28	111	3	47	122	2	558
Total	52	523	148	157	56	2	96	516	17	143	383	6	2099
05:00 PM	19	135	48	34	16	5	26	168	8	25	93	2	579
05:15 PM	11	163	39	59	19	3	21	151	3	25	97	2	593
05:30 PM	12	155	40	42	27	0	21	161	2	32	107	1	600
05:45 PM	13	147	53	33	22	0	20	144	2	33	94	1	562
Total	55	600	180	168	84	8	88	624	15	115	391	6	2334
Grand Total	107	1123	328	325	140	10	184	1140	32	258	774	12	4433
Apprch %	6.9	72.1	21.1	68.4	29.5	2.1	13.6	84.1	2.4	24.7	74.1	1.1	
Total %	2.4	25.3	7.4	7.3	3.2	0.2	4.2	25.7	0.7	5.8	17.5	0.3	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
05:00 PM	**19**	135	48	202	34	16	**5**	55	**26**	**168**	**8**	**202**	25	93	**2**	120	579
05:15 PM	11	**163**	39	**213**	**59**	19	3	**81**	21	151	3	175	25	97	2	124	593
05:30 PM	12	155	40	207	42	**27**	0	69	21	161	2	184	32	**107**	1	**140**	**600**
05:45 PM	13	147	**53**	213	33	22	0	55	20	144	2	166	**33**	94	1	128	562
Total Volume	55	600	180	835	168	84	8	260	88	624	15	727	115	391	6	512	2334
% App. Total	6.6	71.9	21.6		64.6	32.3	3.1		12.1	85.8	2.1		22.5	76.4	1.2		
PHF	.724	.920	.849	.980	.712	.778	.400	.802	.846	.929	.469	.900	.871	.914	.750	.914	.973

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N/S: Massachusetts Avenue
E/W: Boylston Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 EE
Site Code : TBA
Start Date : 6/2/2009
Page No : 1

Groups Printed- Heavy Vehicles

	Massachusetts Avenue From North			Boylston Street From East			Massachusetts Avenue From South			Boylston Street From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	1	4	2	1	3	0	2	12	0	1	4	0	30
04:15 PM	1	5	2	0	2	0	0	9	0	0	2	0	21
04:30 PM	0	9	8	1	5	0	1	5	1	1	6	0	37
04:45 PM	0	7	2	1	1	1	2	3	0	1	1	0	19
Total	2	25	14	3	11	1	5	29	1	3	13	0	107
05:00 PM	0	9	2	0	3	0	1	5	0	0	5	0	25
05:15 PM	0	9	0	0	2	0	0	6	0	0	2	0	19
05:30 PM	0	4	0	0	2	0	0	8	0	0	2	0	16
05:45 PM	0	9	1	0	2	1	0	7	0	1	0	0	21
Total	0	31	3	0	9	1	1	26	0	1	9	0	81
Grand Total	2	56	17	3	20	2	6	55	1	4	22	0	188
Apprch %	2.7	74.7	22.7	12	80	8	9.7	88.7	1.6	15.4	84.6	0	
Total %	1.1	29.8	9	1.6	10.6	1.1	3.2	29.3	0.5	2.1	11.7	0	

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	4	2	7	**1**	3	0	4	**2**	**12**	0	**14**	**1**	4	0	5	30
04:15 PM	1	5	2	8	0	2	0	2	0	9	0	9	0	2	0	2	21
04:30 PM	0	**9**	**8**	**17**	1	**5**	0	**6**	1	5	**1**	7	1	**6**	0	**7**	**37**
04:45 PM	0	7	2	9	1	1	**1**	3	2	3	0	5	1	1	0	2	19
Total Volume	2	25	14	41	3	11	1	15	5	29	1	35	3	13	0	16	107
% App. Total	4.9	61	34.1		20	73.3	6.7		14.3	82.9	2.9		18.8	81.2	0		
PHF	.500	.694	.438	.603	.750	.550	.250	.625	.625	.604	.250	.625	.750	.542	.000	.571	.723

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E/W: Boylston Street
City, State: Boston, MA
Client: VHB/M. Miller

File Name : 91879 EE
Site Code : TBA
Start Date : 6/2/2009

Groups Printed- Peds and Bicycles

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	3	10	2	72	0	1	0	160	0	4	0	155	1	2	0	124	534
04:15 PM	5	9	0	110	3	1	0	145	0	6	0	117	1	6	0	123	526
04:30 PM	3	16	0	93	0	0	0	133	3	6	0	109	2	10	0	124	499
04:45 PM	5	19	1	109	0	0	0	151	0	5	0	106	0	3	0	140	539
Total	16	54	3	384	3	2	0	589	3	21	0	487	4	21	0	511	2098
05:00 PM	4	16	4	154	0	0	0	238	1	15	1	109	0	5	0	122	669
05:15 PM	10	18	2	143	1	1	0	230	1	24	0	78	0	9	1	109	627
05:30 PM	9	27	0	171	2	1	0	223	1	17	0	90	1	2	1	147	692
05:45 PM	12	22	5	248	0	3	1	372	0	12	0	106	0	3	1	143	928
Total	35	83	11	716	3	5	1	1063	3	68	1	383	1	19	3	521	2916
Grand Total	51	137	14	1100	6	7	1	1652	6	89	1	870	5	40	3	1032	5014
Apprch %	3.9	10.5	1.1	84.5	0.4	0.4	0.1	99.2	0.6	9.2	0.1	90.1	0.5	3.7	0.3	95.6	
Total %	1	2.7	0.3	21.9	0.1	0.1	0	32.9	0.1	1.8	0	17.4	0.1	0.8	0.1	20.6	

	Massachusetts Avenue From North					Boylston Street From East					Massachusetts Avenue From South					Boylston Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	4	16	4	154	178	0	0	0	238	238	**1**	**15**	**1**	**109**	**126**	0	5	0	122	127	669
05:15 PM	10	18	2	143	173	1	1	0	230	232	1	**24**					**9**	**1**			
05:30 PM	**9**	**27**	0	171	207	**2**	1	0	223	226	1	17	0	90	108	**1**	**2**	**1**	**147**	**151**	692
05:45 PM	**12**		**5**	**248**	**287**	0	**3**	**1**	**372**	**376**	0	12	0	106	118	0	3	1	143	147	**928**
Total Volume	35	83	11	716	845	3	5	1	1063	1072	3	68	1	383	455	1	19	3	521	544	2916
% App. Total	4.1	9.8	1.3	84.7		0.3	0.5	0.1	99.2		0.7	14.9	0.2	84.2		0.2	3.5	0.6	95.8		
PHF	.729	.769	.550	.722	.736	.375	.417	.250	.714	.713	.750	.708	.250	.878	.903	.250	.528	.750	.886	.901	.786

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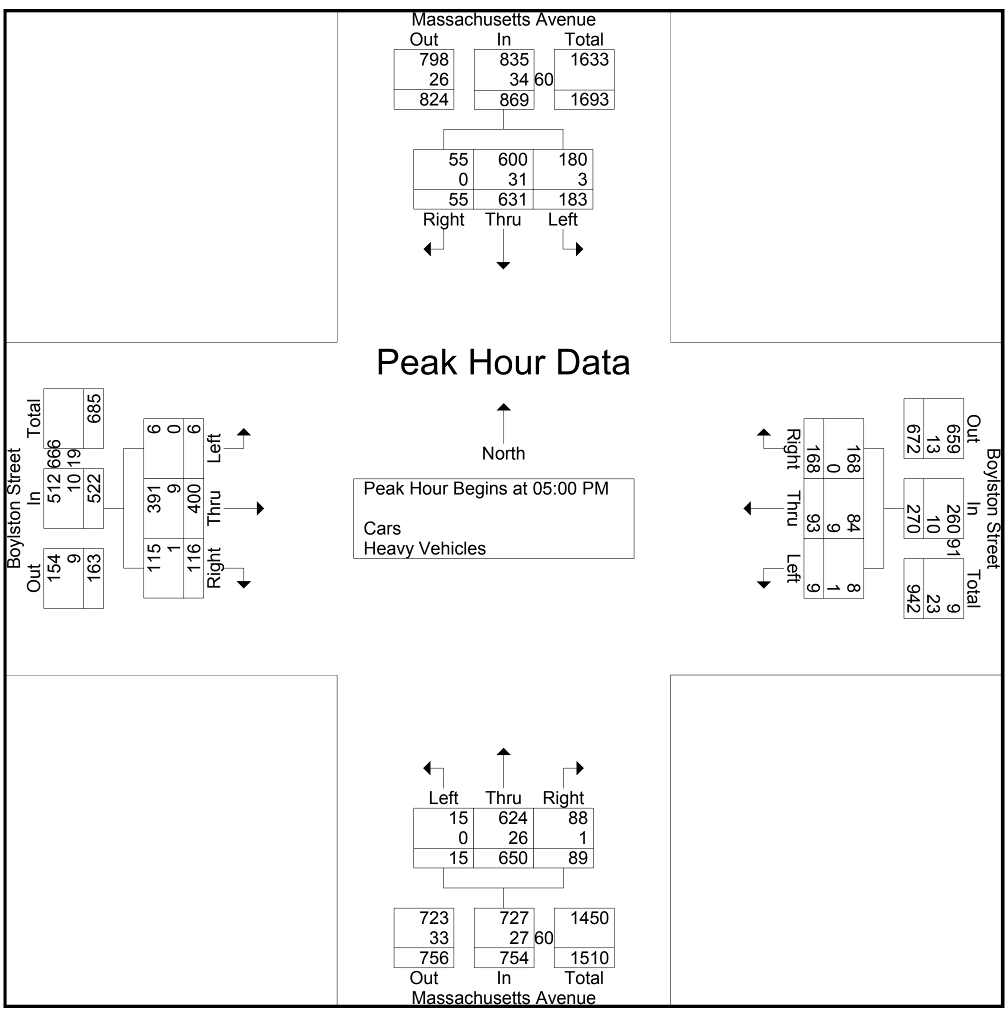
File Name : 91879 EE
Site Code : TBA
Start Date : 6/2/2009
Page No : 1

	Massachusetts Avenue From North				Boylston Street From East				Massachusetts Avenue From South				Boylston Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**19**	144	50	213	34	19	**5**	58	**27**	**173**	**8**	**208**	25	98	**2**	125	604
05:15 PM	11	**172**	39	222	**59**	21	3	**83**	21	157	3	181	25	99	2	126	612
05:30 PM	12	159	40	211	42	**29**	0	71	21	169	2	192	32	**109**	1	**142**	**616**
05:45 PM	13	156	**54**	**223**	33	24	1	58	20	151	2	173	**34**	94	1	129	583
Total Volume	55	631	183	869	168	93	9	270	89	650	15	754	116	400	6	522	2415
% App. Total	6.3	72.6	21.1		62.2	34.4	3.3		11.8	86.2	2		22.2	76.6	1.1		
PHF	.724	.917	.847	.974	.712	.802	.450	.813	.824	.939	.469	.906	.853	.917	.750	.919	.980
Cars	55	600	180	835	168	84	8	260	88	624	15	727	115	391	6	512	2334
% Cars	100	95.1	98.4	96.1	100	90.3	88.9	96.3	98.9	96.0	100	96.4	99.1	97.8	100	98.1	96.6
Heavy Vehicles	0	31	3	34	0	9	1	10	1	26	0	27	1	9	0	10	81
% Heavy Vehicles	0	4.9	1.6	3.9	0	9.7	11.1	3.7	1.1	4.0	0	3.6	0.9	2.3	0	1.9	3.4



Berklee College of Music

Institutional Master Plan

APPENDIX D

SYNCHRO Analysis Worksheets

Lanes, Volumes, Timings

Morning Peak Period

10: Belvidere Street & Massachusetts Avenue

2011 Existing Conditions Berklee School of Music

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations													
Volume (vph)	0	0	0	28	33	107	13	656	0	0	605	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	14	12	11	11	11	10	10	10	
Right Turn on Red			Yes			No			Yes			Yes	
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		199			734			1231			292		
Travel Time (s)		5.4			20.0			33.6			8.0		
Confl. Peds. (#/hr)				32		90	95					95	
Confl. Bikes (#/hr)									35			55	
Peak Hour Factor	0.25	0.25	0.25	0.75	0.75	0.75	0.93	0.93	0.93	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	0%	12%	3%	8%	8%	10%	0%	0%	10%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	7	0	0	0	8	
Parking (#/hr)				1	1	1		1			1	1	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	224	0	0	719	0	0	694	0	
Turn Type				Split			Perm						
Protected Phases				3	3			1			1		2
Permitted Phases							1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0		8.0
Minimum Split (s)				14.0	14.0		13.0	13.0			13.0		23.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	0.0	46.0	46.0	0.0	0.0	46.0	0.0	23.0
Total Split (%)	0.0%	0.0%	0.0%	31.0%	31.0%	0.0%	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	23%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		3.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Recall Mode				None	None		C-Max	C-Max			C-Max		None
v/c Ratio					0.84			0.57			0.53		
Control Delay					62.8			22.5			16.7		
Queue Delay					0.0			0.2			0.3		
Total Delay					62.8			22.7			17.1		
Queue Length 50th (ft)					136			168			106		
Queue Length 95th (ft)					169			m253			261		
Internal Link Dist (ft)		119			654			1151			212		
Turn Bay Length (ft)													
Base Capacity (vph)					332			1264			1311		
Starvation Cap Reductn					0			0			196		
Spillback Cap Reductn					0			85			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.67			0.61			0.62		

Intersection Summary

Area Type: CBD

Cycle Length: 100

Actuated Cycle Length: 100

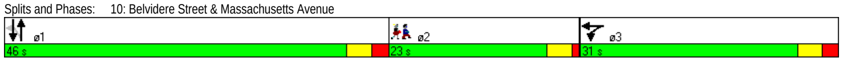
Offset: 73 (73%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Belvidere Street & Massachusetts Avenue



HCM Signalized Intersection Capacity Analysis

Morning Peak Period

10: Belvidere Street & Massachusetts Avenue

2011 Existing Conditions Berklee School of Music

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	28	33	107	13	656	0	0	605	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	14	12	11	11	11	10	10	10
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					1.00			0.95			0.95	
Frpb, ped/bikes					0.91			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.91			1.00			1.00	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1253			2664			2591	
Flt Permitted					0.99			0.94			1.00	
Satd. Flow (perm)					1253			2499			2591	
Peak-hour factor, PHF	0.25	0.25	0.25	0.75	0.75	0.75	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	37	44	143	14	705	0	0	672	22
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	224	0	0	719	0	0	692	0
Confl. Peds. (#/hr)				32		90	95					95
Confl. Bikes (#/hr)									35			55
Heavy Vehicles (%)	0%	0%	0%	12%	3%	8%	8%	10%	0%	0%	10%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	7	0	0	0	8
Parking (#/hr)				1	1	1		1			1	1
Turn Type				Split			Perm					
Protected Phases				3	3			1			1	
Permitted Phases							1					
Actuated Green, G (s)					21.0			49.8			49.8	
Effective Green, g (s)					21.0			49.8			49.8	
Actuated g/C Ratio					0.21			0.50			0.50	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					263			1245			1290	
v/s Ratio Prot					c0.18						0.27	
v/s Ratio Perm								c0.29				
v/c Ratio					0.85			0.58			0.54	
Uniform Delay, d1					38.0			17.7			17.2	
Progression Factor					1.00			1.04			0.77	
Incremental Delay, d2					21.7			1.2			1.5	
Delay (s)					59.7			19.6			14.8	
Level of Service					E			B			B	
Approach Delay (s)		0.0			59.7			19.6			14.8	
Approach LOS		A			E			B			B	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.2
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	391	106	5	53	119	21	624	95	186	513	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	10	10	10	9	11	12
Right Turn on Red			Yes			Yes			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		548			106			292			314	
Travel Time (s)		14.9			2.9			8.0			8.6	
Confl. Peds. (#/hr)	269		244	244		269	287		363			287
Confl. Bikes (#/hr)			28						35			60
Peak Hour Factor	0.97	0.97	0.97	0.78	0.78	0.78	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	17%	6%	5%	20%	4%	6%	5%	8%	5%	6%	10%	7%
Parking (#/hr)		4	4									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	512	0	0	74	153	0	832	0	198	607	0
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Detector Phase		4		4	4	1	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0		
Minimum Split (s)		28.0		28.0	28.0	12.0	30.0	30.0		12.0		
Total Split (s)	0.0	30.0	0.0	30.0	30.0	25.0	45.0	45.0	0.0	25.0	70.0	0.0
Total Split (%)	0.0%	30.0%	0.0%	30.0%	30.0%	25.0%	45.0%	45.0%	0.0%	25.0%	70.0%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		1.0		1.0	1.0	1.0	4.0	4.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode		None		None	None	C-Max	Max	Max		C-Max		
v/c Ratio		0.80			0.20	0.28		0.64		0.61	0.32	
Control Delay		43.8			33.1	14.8		20.6		44.7	7.3	
Queue Delay		0.0			0.0	0.0		5.1		0.0	0.0	
Total Delay		43.8			33.1	14.8		25.7		44.7	7.3	
Queue Length 50th (ft)		151			38	46		187		115	75	
Queue Length 95th (ft)		208			m63	m69		241		#211	108	
Internal Link Dist (ft)		468			26			212			234	
Turn Bay Length (ft)												
Base Capacity (vph)		702			401	547		1298		324	1879	
Starvation Cap Reductn		0			0	0		393		0	0	
Spillback Cap Reductn		0			0	0		0		0	85	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.73			0.18	0.28		0.92		0.61	0.34	

Intersection Summary

Area Type: CBD
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Boylston Street & Massachusetts Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	391	106	5	53	119	21	624	95	186	513	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	10	10	10	9	11	12
Total Lost time (s)		4.0			4.0	4.0		7.0		4.0	4.0	
Lane Util. Factor		0.95			1.00	1.00		0.91		1.00	0.95	
Frpb, ped/bikes		0.93			1.00	0.84		0.96		1.00	0.97	
Flpb, ped/bikes		1.00			0.99	1.00		0.99		1.00	1.00	
Frt		0.97			1.00	0.85		0.98		1.00	0.98	
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		2604			1602	1157		3765		1379	2746	
Flt Permitted		1.00			0.96	1.00		0.91		0.95	1.00	
Satd. Flow (perm)		2604			1541	1157		3415		1379	2746	
Peak-hour factor, PHF	0.97	0.97	0.97	0.78	0.78	0.78	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	0	403	109	6	68	153	24	701	107	198	546	61
RTOR Reduction (vph)	0	25	0	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	0	487	0	0	74	150	0	832	0	198	607	0
Confl. Peds. (#/hr)	269		244	244		269	287		363			287
Confl. Bikes (#/hr)			28						35			60
Heavy Vehicles (%)	17%	6%	5%	20%	4%	6%	5%	8%	5%	6%	10%	7%
Parking (#/hr)		4	4									
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Actuated Green, G (s)		23.5			23.5	47.0		38.0		23.5	65.5	
Effective Green, g (s)		23.5			23.5	47.0		38.0		23.5	65.5	
Actuated g/C Ratio		0.24			0.24	0.47		0.38		0.24	0.66	
Clearance Time (s)		4.0			4.0	4.0		7.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		612			362	590		1298		324	1799	
v/s Ratio Prot		c0.19				0.06				c0.14	0.22	
v/s Ratio Perm					0.05	0.07		c0.24				
v/c Ratio		0.80			0.20	0.25		0.64		0.61	0.34	
Uniform Delay, d1		36.0			30.7	15.9		25.4		34.2	7.6	
Progression Factor		1.00			1.07	0.95		0.72		1.00	1.00	
Incremental Delay, d2		7.1			0.3	0.2		2.0		8.3	0.5	
Delay (s)		43.1			33.0	15.3		20.3		42.5	8.1	
Level of Service		D			C	B		C		D	A	
Approach Delay (s)		43.1			21.1			20.3			16.6	
Approach LOS		D			C			C			B	

Intersection Summary

HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	47	496	0	4	162	3	8
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	533	0	4	172	3	9
Pedestrians		6			9	115	
Lane Width (ft)		12.0			12.0	12.0	
Walking Speed (ft/s)		4.0			4.0	4.0	
Percent Blockage		1			1	10	
Right turn flare (veh)							
Median type		None			None		
Median storage veh)							
Upstream signal (ft)		301			328		
pX, platoon unblocked	0.00						
vC, conflicting volume	0			648		835	391
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0			648		835	391
tC, single (s)	0.0			4.6		7.5	7.1
tC, 2 stage (s)							
tF (s)	0.0			2.5		3.8	3.4
p0 queue free %	0			99		99	98
cM capacity (veh/h)	0			718		225	521

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	356	178	177	12
Volume Left	0	0	4	3
Volume Right	0	0	0	9
cSH	1700	1700	718	383
Volume to Capacity	0.21	0.10	0.01	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	0.0	0.3	14.7
Lane LOS			A	B
Approach Delay (s)	0.0		0.3	14.7
Approach LOS				B

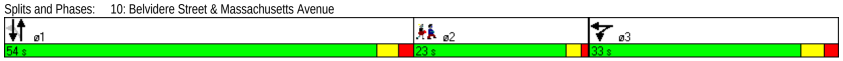
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations													
Volume (vph)	0	0	0	46	21	91	6	680	0	0	751	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	14	12	11	11	11	10	10	10	
Right Turn on Red			Yes			No			Yes			Yes	
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		177			729			1224			300		
Travel Time (s)		4.8			19.9			33.4			8.2		
Confl. Peds. (#/hr)				84		239	78					78	
Confl. Bikes (#/hr)									76			75	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	4%	0%	0%	5%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	0	0	
Parking (#/hr)				1	1	1		1			1	1	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	175	0	0	780	0	0	796	0	
Turn Type				Split			Perm						
Protected Phases				3	3			1			1		2
Permitted Phases							1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0		7.0
Minimum Split (s)				15.0	15.0		25.0	25.0			25.0		22.0
Total Split (s)	0.0	0.0	0.0	33.0	33.0	0.0	54.0	54.0	0.0	0.0	54.0	0.0	23.0
Total Split (%)	0.0%	0.0%	0.0%	30.0%	30.0%	0.0%	49.1%	49.1%	0.0%	0.0%	49.1%	0.0%	21%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Recall Mode				None	None		C-Max	C-Max			C-Max		None
v/c Ratio					0.78			0.52			0.51		
Control Delay					65.6			19.1			14.0		
Queue Delay					0.0			0.3			0.6		
Total Delay					65.6			19.4			14.6		
Queue Length 50th (ft)					119			186			137		
Queue Length 95th (ft)					181			279			187		
Internal Link Dist (ft)		97			649			1144			220		
Turn Bay Length (ft)													
Base Capacity (vph)					311			1511			1547		
Starvation Cap Reductn					0			0			363		
Spillback Cap Reductn					0			259			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.56			0.62			0.67		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 28 (25%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 10: Belvidere Street & Massachusetts Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	46	21	91	6	680	0	0	751	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	14	12	11	11	11	10	10	10
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					1.00			0.95			0.95	
Frpb, ped/bikes					0.81			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.92			1.00			1.00	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1186			2815			2732	
Flt Permitted					0.99			0.95			1.00	
Satd. Flow (perm)					1186			2670			2732	
Peak-hour factor, PHF	0.25	0.25	0.25	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	51	23	101	7	773	0	0	791	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	175	0	0	780	0	0	796	0
Confl. Peds. (#/hr)				84		239	78					78
Confl. Bikes (#/hr)									76			75
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	4%	0%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	0	0
Parking (#/hr)				1	1	1		1			1	1
Turn Type				Split			Perm					
Protected Phases				3	3			1			1	
Permitted Phases							1					
Actuated Green, G (s)					20.1			61.7			61.7	
Effective Green, g (s)					20.1			61.7			61.7	
Actuated g/C Ratio					0.18			0.56			0.56	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					217			1498			1532	
v/s Ratio Prot					c0.15						0.29	
v/s Ratio Perm								c0.29				
v/c Ratio					0.81			0.52			0.52	
Uniform Delay, d1					43.1			15.0			15.0	
Progression Factor					1.00			1.00			0.73	
Incremental Delay, d2					18.3			1.3			1.2	
Delay (s)					61.4			16.3			12.0	
Level of Service					E			B			B	
Approach Delay (s)		0.0			61.4			16.3			12.0	
Approach LOS		A			E			B			B	

Intersection Summary

HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	28.2
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	410	117	9	94	170	15	657	90	185	637	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	10	10	10	9	11	12
Right Turn on Red			Yes			Yes			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		548			133			300			314	
Travel Time (s)		14.9			3.6			8.2			8.6	
Confl. Peds. (#/hr)	716		383	383		716	521		1063			521
Confl. Bikes (#/hr)			19			5			68			83
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	11%	10%	0%	0%	4%	1%	2%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Parking (#/hr)		4	4									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	573	0	0	127	210	0	837	0	191	715	0
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Detector Phase		4		4	4	1	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0		
Minimum Split (s)		29.0		29.0	29.0	12.0	30.0	30.0		12.0		
Total Split (s)	0.0	34.0	0.0	34.0	34.0	27.0	49.0	49.0	0.0	27.0	76.0	0.0
Total Split (%)	0.0%	30.9%	0.0%	30.9%	30.9%	24.5%	44.5%	44.5%	0.0%	24.5%	69.1%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		1.0		1.0	1.0	1.0	4.0	4.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode		None		None	None	C-Max	Max	Max		C-Max		
v/c Ratio		0.83			0.35	0.39		0.62		0.58	0.37	
Control Delay		47.7			36.9	19.7		38.2		46.4	8.6	
Queue Delay		0.1			0.0	0.0		32.3		0.0	0.0	
Total Delay		47.9			36.9	19.7		70.5		46.4	8.6	
Queue Length 50th (ft)		190			72	77		231		122	105	
Queue Length 95th (ft)		253			m111	m110		276		204	146	
Internal Link Dist (ft)		468			53			220			234	
Turn Bay Length (ft)												
Base Capacity (vph)		751			395	540		1346		331	1932	
Starvation Cap Reductn		0			0	0		550		0	0	
Spillback Cap Reductn		7			8	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.77			0.33	0.39		1.05		0.58	0.37	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 45 (41%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Boylston Street & Massachusetts Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	410	117	9	94	170	15	657	90	185	637	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	10	10	10	9	11	12
Total Lost time (s)		4.0			4.0	4.0		7.0		4.0	4.0	
Lane Util. Factor		0.95			1.00	1.00		0.91		1.00	0.95	
Frpb, ped/bikes		0.92			1.00	0.77		0.94		1.00	0.96	
Flpb, ped/bikes		1.00			0.99	1.00		1.00		1.00	1.00	
Frt		0.97			1.00	0.85		0.98		1.00	0.99	
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		2671			1531	1120		3844		1433	2860	
Flt Permitted		1.00			0.94	1.00		0.92		0.95	1.00	
Satd. Flow (perm)		2671			1448	1120		3526		1433	2860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	0	446	127	11	116	210	16	722	99	191	657	58
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	551	0	0	127	210	0	837	0	191	715	0
Confl. Peds. (#/hr)	716		383	383		716	521		1063			521
Confl. Bikes (#/hr)			19			5			68			83
Heavy Vehicles (%)	0%	2%	1%	11%	10%	0%	0%	4%	1%	2%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Parking (#/hr)		4	4									
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Actuated Green, G (s)		27.6			27.6	53.0		42.0		25.4	71.4	
Effective Green, g (s)		27.6			27.6	53.0		42.0		25.4	71.4	
Actuated g/C Ratio		0.25			0.25	0.48		0.38		0.23	0.65	
Clearance Time (s)		4.0			4.0	4.0		7.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		670			363	580		1346		331	1856	
v/s Ratio Prot		c0.21				0.08				c0.13	0.25	
v/s Ratio Perm					0.09	0.10		c0.24				
v/c Ratio		0.82			0.35	0.36		0.62		0.58	0.39	
Uniform Delay, d1		38.9			33.8	17.9		27.6		37.5	9.0	
Progression Factor		1.00			1.02	0.96		1.30		1.00	1.00	
Incremental Delay, d2		8.0			0.6	0.4		1.9		7.2	0.6	
Delay (s)		46.9			35.0	17.6		37.8		44.7	9.6	
Level of Service		D			D	B		D		D	A	
Approach Delay (s)		46.9			24.2			37.8			17.0	
Approach LOS		D			C			D			B	

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (veh/h)	34	780	4	4	3	212	2	7
Sign Control		Free				Free	Stop	
Grade		0%				0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.32	0.32
Hourly flow rate (vph)	0	839	4	0	3	238	6	22
Pedestrians		18				5	307	
Lane Width (ft)		12.0				12.0	12.0	
Walking Speed (ft/s)		4.0				4.0	4.0	
Percent Blockage		1				0	26	
Right turn flare (veh)								
Median type		None				None		
Median storage veh)								
Upstream signal (ft)		299				345		
pX, platoon unblocked	0.00			0.00				
vC, conflicting volume	0			0	1150		1411	734
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	0			0	1150		1411	734
tC, single (s)	0.0			0.0	4.1		6.8	6.9
tC, 2 stage (s)								
tF (s)	0.0			0.0	2.2		3.5	3.3
p0 queue free %	0			0	99		93	92
cM capacity (veh/h)	0			0	458		96	272

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	559	284	242	28
Volume Left	0	0	3	6
Volume Right	0	4	0	22
cSH	1700	1700	458	193
Volume to Capacity	0.33	0.17	0.01	0.15
Queue Length 95th (ft)	0	0	1	12
Control Delay (s)	0.0	0.0	0.3	26.8
Lane LOS			A	D
Approach Delay (s)	0.0		0.3	26.8
Approach LOS				D

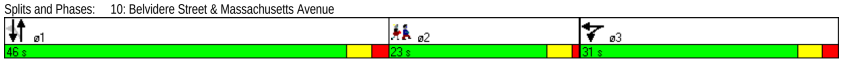
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations													
Volume (vph)	0	0	0	38	34	141	13	764	0	0	621	21	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	14	12	11	11	11	10	10	10	
Right Turn on Red			Yes			No			Yes			Yes	
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		199			734			1231			292		
Travel Time (s)		5.4			20.0			33.6			8.0		
Confl. Peds. (#/hr)				32		90	95					95	
Confl. Bikes (#/hr)									35			55	
Peak Hour Factor	0.25	0.25	0.25	0.75	0.75	0.75	0.93	0.93	0.93	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	0%	12%	3%	8%	8%	10%	0%	0%	10%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	7	0	0	0	8	
Parking (#/hr)				1	1	1		1			1	1	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	284	0	0	836	0	0	713	0	
Turn Type				Split			Perm						
Protected Phases				3	3			1			1		2
Permitted Phases							1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0		8.0
Minimum Split (s)				14.0	14.0		13.0	13.0			13.0		23.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	0.0	46.0	46.0	0.0	0.0	46.0	0.0	23.0
Total Split (%)	0.0%	0.0%	0.0%	31.0%	31.0%	0.0%	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	23%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		3.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Recall Mode				None	None		C-Max	C-Max			C-Max		None
v/c Ratio					0.92			0.71			0.58		
Control Delay					72.4			27.2			19.0		
Queue Delay					0.0			4.1			0.4		
Total Delay					72.4			31.3			19.4		
Queue Length 50th (ft)					173			227			203		
Queue Length 95th (ft)					#232			m321			m268		
Internal Link Dist (ft)		119			654			1151			212		
Turn Bay Length (ft)													
Base Capacity (vph)					328			1182			1223		
Starvation Cap Reductn					0			0			159		
Spillback Cap Reductn					0			263			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.87			0.91			0.67		

Intersection Summary

Area Type: CBD
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 73 (73%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Belvidere Street & Massachusetts Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	38	34	141	13	764	0	0	621	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	14	12	11	11	11	10	10	10
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					1.00			0.95			0.95	
Frpb, ped/bikes					0.92			1.00			0.99	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.91			1.00			1.00	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1256			2664			2590	
Flt Permitted					0.99			0.94			1.00	
Satd. Flow (perm)					1256			2504			2590	
Peak-hour factor, PHF	0.25	0.25	0.25	0.75	0.75	0.75	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	51	45	188	14	822	0	0	690	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	284	0	0	836	0	0	711	0
Confl. Peds. (#/hr)				32		90	95					95
Confl. Bikes (#/hr)									35			55
Heavy Vehicles (%)	0%	0%	0%	12%	3%	8%	8%	10%	0%	0%	10%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	7	0	0	0	8
Parking (#/hr)				1	1	1		1			1	1
Turn Type				Split			Perm					
Protected Phases				3	3			1			1	
Permitted Phases							1					
Actuated Green, G (s)					24.4			46.4			46.4	
Effective Green, g (s)					24.4			46.4			46.4	
Actuated g/C Ratio					0.24			0.46			0.46	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					306			1162			1202	
v/s Ratio Prot					c0.23						0.27	
v/s Ratio Perm								c0.33				
v/c Ratio					0.93			0.72			0.59	
Uniform Delay, d1					36.9			21.6			19.8	
Progression Factor					1.00			1.02			0.78	
Incremental Delay, d2					32.5			2.8			2.0	
Delay (s)					69.4			24.8			17.5	
Level of Service					E			C			B	
Approach Delay (s)		0.0			69.4			24.8			17.5	
Approach LOS		A			E			C			B	

Intersection Summary

HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.2
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	454	110	5	60	128	38	656	188	203	526	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	10	10	10	9	11	12
Right Turn on Red			Yes			Yes			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		548			106			292			314	
Travel Time (s)		14.9			2.9			8.0			8.6	
Confl. Peds. (#/hr)	269		244	244		269	287		363			287
Confl. Bikes (#/hr)			28						35			60
Peak Hour Factor	0.97	0.97	0.97	0.78	0.78	0.78	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	17%	6%	5%	20%	4%	6%	5%	8%	5%	6%	10%	7%
Parking (#/hr)		4	4									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	581	0	0	83	164	0	991	0	216	622	0
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Detector Phase		4		4	4	1	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0		
Minimum Split (s)		28.0		28.0	28.0	12.0	30.0	30.0		12.0		
Total Split (s)	0.0	30.0	0.0	30.0	30.0	25.0	45.0	45.0	0.0	25.0	70.0	0.0
Total Split (%)	0.0%	30.0%	0.0%	30.0%	30.0%	25.0%	45.0%	45.0%	0.0%	25.0%	70.0%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		1.0		1.0	1.0	1.0	4.0	4.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode		None		None	None	C-Max	Max	Max		C-Max		
v/c Ratio		0.88			0.22	0.30		0.83		0.69	0.34	
Control Delay		50.1			32.5	15.5		24.9		49.5	7.6	
Queue Delay		0.0			0.0	0.0		68.0		0.0	0.0	
Total Delay		50.1			32.5	15.5		92.9		49.5	7.7	
Queue Length 50th (ft)		175			41	52		246		130	82	
Queue Length 95th (ft)		#263			m68	m73		m294		#240	112	
Internal Link Dist (ft)		468			26			212			234	
Turn Bay Length (ft)												
Base Capacity (vph)		704			402	542		1199		312	1855	
Starvation Cap Reductn		0			0	0		334		0	0	
Spillback Cap Reductn		0			0	0		0		0	149	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.83			0.21	0.30		1.15		0.69	0.36	

Intersection Summary

Area Type: CBD
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Boylston Street & Massachusetts Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	454	110	5	60	128	38	656	188	203	526	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	10	10	10	9	11	12
Total Lost time (s)		4.0			4.0	4.0		7.0		4.0	4.0	
Lane Util. Factor		0.95			1.00	1.00		0.91		1.00	0.95	
Frpb, ped/bikes		0.94			1.00	0.84		0.93		1.00	0.97	
Flpb, ped/bikes		1.00			0.99	1.00		0.99		1.00	1.00	
Frt		0.97			1.00	0.85		0.97		1.00	0.99	
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		2628			1608	1148		3598		1379	2746	
Flt Permitted		1.00			0.96	1.00		0.87		0.95	1.00	
Satd. Flow (perm)		2628			1547	1148		3154		1379	2746	
Peak-hour factor, PHF	0.97	0.97	0.97	0.78	0.78	0.78	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	0	468	113	6	77	164	43	737	211	216	560	62
RTOR Reduction (vph)	0	21	0	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	0	560	0	0	83	161	0	991	0	216	622	0
Confl. Peds. (#/hr)	269		244	244		269	287		363			287
Confl. Bikes (#/hr)			28						35			60
Heavy Vehicles (%)	17%	6%	5%	20%	4%	6%	5%	8%	5%	6%	10%	7%
Parking (#/hr)		4	4									
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Actuated Green, G (s)		24.4			24.4	47.0		38.0		22.6	64.6	
Effective Green, g (s)		24.4			24.4	47.0		38.0		22.6	64.6	
Actuated g/C Ratio		0.24			0.24	0.47		0.38		0.23	0.65	
Clearance Time (s)		4.0			4.0	4.0		7.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		641			377	585		1199		312	1774	
v/s Ratio Prot		c0.21				0.06				c0.16	0.23	
v/s Ratio Perm					0.05	0.08		c0.31				
v/c Ratio		0.87			0.22	0.28		0.83		0.69	0.35	
Uniform Delay, d1		36.3			30.2	16.1		28.0		35.5	8.1	
Progression Factor		1.00			1.05	0.95		0.71		1.00	1.00	
Incremental Delay, d2		12.6			0.3	0.3		4.4		11.9	0.5	
Delay (s)		48.9			31.9	15.6		24.4		47.5	8.6	
Level of Service		D			C	B		C		D	A	
Approach Delay (s)		48.9			21.1			24.4			18.7	
Approach LOS		D			C			C			B	

Intersection Summary

HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	48	609	0	4	166	15	8
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	655	0	4	177	16	9
Pedestrians		6			9	115	
Lane Width (ft)		12.0			12.0	12.0	
Walking Speed (ft/s)		4.0			4.0	4.0	
Percent Blockage		1			1	10	
Right turn flare (veh)							
Median type		None			None		
Median storage veh)							
Upstream signal (ft)		301			328		
pX, platoon unblocked	0.00						
vC, conflicting volume	0			770		961	451
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0			770		961	451
tC, single (s)	0.0			4.6		7.5	7.1
tC, 2 stage (s)							
tF (s)	0.0			2.5		3.8	3.4
p0 queue free %	0			99		91	98
cM capacity (veh/h)	0			638		183	474

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	437	218	181	25
Volume Left	0	0	4	16
Volume Right	0	0	0	9
cSH	1700	1700	638	233
Volume to Capacity	0.26	0.13	0.01	0.11
Queue Length 95th (ft)	0	0	1	9
Control Delay (s)	0.0	0.0	0.3	22.3
Lane LOS			A	C
Approach Delay (s)	0.0		0.3	22.3
Approach LOS				C

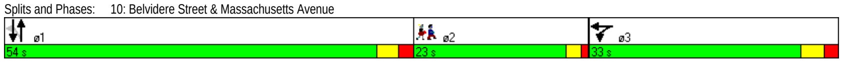
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations													
Volume (vph)	0	0	0	59	22	149	6	723	0	0	775	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	14	12	11	11	11	10	10	10	
Right Turn on Red			Yes			No			Yes			Yes	
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		177			729			1224			300		
Travel Time (s)		4.8			19.9			33.4			8.2		
Confl. Peds. (#/hr)				84		239	78					78	
Confl. Bikes (#/hr)									76			75	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	4%	0%	0%	5%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	0	0	
Parking (#/hr)				1	1	1		1			1	1	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	256	0	0	829	0	0	821	0	
Turn Type				Split			Perm						
Protected Phases				3	3			1			1		2
Permitted Phases							1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0		7.0
Minimum Split (s)				15.0	15.0		25.0	25.0			25.0		22.0
Total Split (s)	0.0	0.0	0.0	33.0	33.0	0.0	54.0	54.0	0.0	0.0	54.0	0.0	23.0
Total Split (%)	0.0%	0.0%	0.0%	30.0%	30.0%	0.0%	49.1%	49.1%	0.0%	0.0%	49.1%	0.0%	21%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Recall Mode				None	None		C-Max	C-Max			C-Max		None
v/c Ratio					0.90			0.61			0.59		
Control Delay					73.7			24.2			17.2		
Queue Delay					0.0			14.8			0.6		
Total Delay					73.7			39.0			17.9		
Queue Length 50th (ft)					170			241			164		
Queue Length 95th (ft)					#311			305			m195		
Internal Link Dist (ft)		97			649			1144			220		
Turn Bay Length (ft)													
Base Capacity (vph)					306			1354			1386		
Starvation Cap Reductn					0			0			246		
Spillback Cap Reductn					0			519			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.84			0.99			0.72		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 28 (25%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Belvidere Street & Massachusetts Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	59	22	149	6	723	0	0	775	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	14	12	11	11	11	10	10	10
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					1.00			0.95			0.95	
Frpb, ped/bikes					0.80			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.91			1.00			1.00	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1161			2815			2732	
Flt Permitted					0.99			0.95			1.00	
Satd. Flow (perm)					1161			2670			2732	
Peak-hour factor, PHF	0.25	0.25	0.25	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	66	24	166	7	822	0	0	816	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	256	0	0	829	0	0	821	0
Confl. Peds. (#/hr)				84		239	78					78
Confl. Bikes (#/hr)									76			75
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	4%	0%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	0	0
Parking (#/hr)				1	1	1		1			1	1
Turn Type				Split			Perm					
Protected Phases				3	3			1			1	
Permitted Phases							1					
Actuated Green, G (s)					26.6			55.2			55.2	
Effective Green, g (s)					26.6			55.2			55.2	
Actuated g/C Ratio					0.24			0.50			0.50	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					281			1340			1371	
v/s Ratio Prot					c0.22						0.30	
v/s Ratio Perm								c0.31				
v/c Ratio					0.91			0.62			0.60	
Uniform Delay, d1					40.5			19.8			19.5	
Progression Factor					1.00			1.00			0.71	
Incremental Delay, d2					31.0			2.2			1.8	
Delay (s)					71.5			21.9			15.7	
Level of Service					E			C			B	
Approach Delay (s)		0.0			71.5			21.9			15.7	
Approach LOS		A			E			C			B	

Intersection Summary

HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	28.2
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	458	123	9	111	192	41	701	120	198	654	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	10	10	10	9	11	12
Right Turn on Red			Yes			Yes			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		548			133			300			314	
Travel Time (s)		14.9			3.6			8.2			8.6	
Confl. Peds. (#/hr)	716		383	383		716	521		1063			521
Confl. Bikes (#/hr)			19			5			68			83
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	11%	10%	0%	0%	4%	1%	2%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Parking (#/hr)		4	4									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	632	0	0	148	237	0	947	0	204	733	0
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Detector Phase		4		4	4	1	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0		
Minimum Split (s)		29.0		29.0	29.0	12.0	30.0	30.0		12.0		
Total Split (s)	0.0	34.0	0.0	34.0	34.0	27.0	49.0	49.0	0.0	27.0	76.0	0.0
Total Split (%)	0.0%	30.9%	0.0%	30.9%	30.9%	24.5%	44.5%	44.5%	0.0%	24.5%	69.1%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		1.0		1.0	1.0	1.0	4.0	4.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode		None		None	None	C-Max	Max	Max		C-Max		
v/c Ratio		0.88			0.39	0.44		0.77		0.64	0.38	
Control Delay		52.3			37.2	21.3		43.1		49.8	9.1	
Queue Delay		0.7			0.1	0.0		88.0		0.0	0.0	
Total Delay		53.1			37.3	21.3		131.0		49.8	9.1	
Queue Length 50th (ft)		212			84	89		261		134	115	
Queue Length 95th (ft)		#306			m126	m123		308		#221	151	
Internal Link Dist (ft)		468			53			220			234	
Turn Bay Length (ft)												
Base Capacity (vph)		753			397	535		1229		320	1911	
Starvation Cap Reductn		0			0	0		433		0	0	
Spillback Cap Reductn		20			22	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.86			0.39	0.44		1.19		0.64	0.38	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 45 (41%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Boylston Street & Massachusetts Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	458	123	9	111	192	41	701	120	198	654	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	10	10	10	9	11	12
Total Lost time (s)		4.0			4.0	4.0		7.0		4.0	4.0	
Lane Util. Factor		0.95			1.00	1.00		0.91		1.00	0.95	
Frpb, ped/bikes		0.92			1.00	0.76		0.92		1.00	0.96	
Flpb, ped/bikes		1.00			0.99	1.00		0.99		1.00	1.00	
Frt		0.97			1.00	0.85		0.98		1.00	0.99	
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		2685			1536	1109		3761		1433	2860	
Flt Permitted		1.00			0.94	1.00		0.85		0.95	1.00	
Satd. Flow (perm)		2685			1457	1109		3220		1433	2860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	0	498	134	11	137	237	45	770	132	204	674	59
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	611	0	0	148	237	0	947	0	204	733	0
Confl. Peds. (#/hr)	716		383	383		716	521		1063			521
Confl. Bikes (#/hr)			19			5			68			83
Heavy Vehicles (%)	0%	2%	1%	11%	10%	0%	0%	4%	1%	2%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Parking (#/hr)		4	4									
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Actuated Green, G (s)		28.5			28.5	53.0		42.0		24.5	70.5	
Effective Green, g (s)		28.5			28.5	53.0		42.0		24.5	70.5	
Actuated g/C Ratio		0.26			0.26	0.48		0.38		0.22	0.64	
Clearance Time (s)		4.0			4.0	4.0		7.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		696			377	575		1229		319	1833	
v/s Ratio Prot		c0.23				0.09				c0.14	0.26	
v/s Ratio Perm					0.10	0.12		c0.29				
v/c Ratio		0.88			0.39	0.41		0.77		0.64	0.40	
Uniform Delay, d1		39.1			33.6	18.4		29.8		38.7	9.5	
Progression Factor		1.00			1.01	0.96		1.31		1.00	1.00	
Incremental Delay, d2		12.0			0.7	0.5		3.6		9.5	0.7	
Delay (s)		51.1			34.8	18.2		42.5		48.2	10.2	
Level of Service		D			C	B		D		D	B	
Approach Delay (s)		51.1			24.6			42.5			18.5	
Approach LOS		D			C			D			B	

Intersection Summary

HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (veh/h)	35	839	4	4	3	217	34	7
Sign Control		Free				Free	Stop	
Grade		0%				0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.32	0.32
Hourly flow rate (vph)	0	902	4	0	3	244	106	22
Pedestrians		18				5	307	
Lane Width (ft)		12.0				12.0	12.0	
Walking Speed (ft/s)		4.0				4.0	4.0	
Percent Blockage		1				0	26	
Right turn flare (veh)								
Median type		None				None		
Median storage veh)								
Upstream signal (ft)		299				345		
pX, platoon unblocked	0.00			0.00				
vC, conflicting volume	0			0	1213		1480	765
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	0			0	1213		1480	765
tC, single (s)	0.0			0.0	4.1		6.8	6.9
tC, 2 stage (s)								
tF (s)	0.0			0.0	2.2		3.5	3.3
p0 queue free %	0			0	99		0	92
cM capacity (veh/h)	0			0	433		86	259

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	601	305	247	128
Volume Left	0	0	3	106
Volume Right	0	4	0	22
cSH	1700	1700	433	97
Volume to Capacity	0.35	0.18	0.01	1.32
Queue Length 95th (ft)	0	0	1	228
Control Delay (s)	0.0	0.0	0.3	277.6
Lane LOS			A	F
Approach Delay (s)	0.0		0.3	277.6
Approach LOS				F

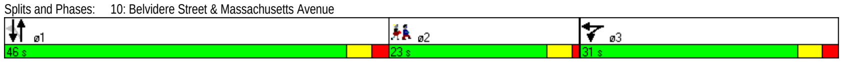
Intersection Summary			
Average Delay	27.8		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations													
Volume (vph)	0	0	0	38	34	141	13	764	0	0	621	21	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	14	12	11	11	11	10	10	10	
Right Turn on Red			Yes			No			Yes			Yes	
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		199			734			1231			292		
Travel Time (s)		5.4			20.0			33.6			8.0		
Confl. Peds. (#/hr)				32		90	95					95	
Confl. Bikes (#/hr)									35			55	
Peak Hour Factor	0.25	0.25	0.25	0.75	0.75	0.75	0.93	0.93	0.93	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	0%	12%	3%	8%	8%	10%	0%	0%	10%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	7	0	0	0	8	
Parking (#/hr)				1	1	1		1			1	1	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	284	0	0	836	0	0	713	0	
Turn Type				Split			Perm						
Protected Phases				3	3			1			1		2
Permitted Phases							1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0		8.0
Minimum Split (s)				14.0	14.0		13.0	13.0			13.0		23.0
Total Split (s)	0.0	0.0	0.0	31.0	31.0	0.0	46.0	46.0	0.0	0.0	46.0	0.0	23.0
Total Split (%)	0.0%	0.0%	0.0%	31.0%	31.0%	0.0%	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	23%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		3.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Recall Mode				None	None		C-Max	C-Max			C-Max		None
v/c Ratio					0.92			0.71			0.58		
Control Delay					72.4			27.2			19.0		
Queue Delay					0.0			4.1			0.4		
Total Delay					72.4			31.3			19.4		
Queue Length 50th (ft)					173			227			203		
Queue Length 95th (ft)					#232			m321			m268		
Internal Link Dist (ft)		119			654			1151			212		
Turn Bay Length (ft)													
Base Capacity (vph)					328			1182			1223		
Starvation Cap Reductn					0			0			159		
Spillback Cap Reductn					0			263			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.87			0.91			0.67		

Intersection Summary

Area Type: CBD
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 73 (73%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Belvidere Street & Massachusetts Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	38	34	141	13	764	0	0	621	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	14	12	11	11	11	10	10	10
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					1.00			0.95			0.95	
Frpb, ped/bikes					0.92			1.00			0.99	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.91			1.00			1.00	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1256			2664			2590	
Flt Permitted					0.99			0.94			1.00	
Satd. Flow (perm)					1256			2504			2590	
Peak-hour factor, PHF	0.25	0.25	0.25	0.75	0.75	0.75	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	51	45	188	14	822	0	0	690	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	284	0	0	836	0	0	711	0
Confl. Peds. (#/hr)				32		90	95					95
Confl. Bikes (#/hr)									35			55
Heavy Vehicles (%)	0%	0%	0%	12%	3%	8%	8%	10%	0%	0%	10%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	7	0	0	0	8
Parking (#/hr)				1	1	1		1			1	1
Turn Type				Split			Perm					
Protected Phases				3	3			1			1	
Permitted Phases							1					
Actuated Green, G (s)					24.4			46.4			46.4	
Effective Green, g (s)					24.4			46.4			46.4	
Actuated g/C Ratio					0.24			0.46			0.46	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					306			1162			1202	
v/s Ratio Prot					c0.23						0.27	
v/s Ratio Perm								c0.33				
v/c Ratio					0.93			0.72			0.59	
Uniform Delay, d1					36.9			21.6			19.8	
Progression Factor					1.00			1.02			0.78	
Incremental Delay, d2					32.5			2.8			2.0	
Delay (s)					69.4			24.8			17.5	
Level of Service					E			C			B	
Approach Delay (s)		0.0			69.4			24.8			17.5	
Approach LOS		A			E			C			B	

Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	29.2
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	454	110	5	60	128	38	656	188	203	526	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	10	10	10	9	11	12
Right Turn on Red			Yes			Yes			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		548			106			292			314	
Travel Time (s)		14.9			2.9			8.0			8.6	
Confl. Peds. (#/hr)	269		244	244		269	287		363			287
Confl. Bikes (#/hr)			28						35			60
Peak Hour Factor	0.97	0.97	0.97	0.78	0.78	0.78	0.89	0.89	0.89	0.94	0.94	0.94
Heavy Vehicles (%)	17%	6%	5%	20%	4%	6%	5%	8%	5%	6%	10%	7%
Parking (#/hr)		4	4									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	581	0	0	83	164	0	991	0	216	622	0
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Detector Phase		4		4	4	1	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0		
Minimum Split (s)		28.0		28.0	28.0	12.0	30.0	30.0		12.0		
Total Split (s)	0.0	30.0	0.0	30.0	30.0	25.0	45.0	45.0	0.0	25.0	70.0	0.0
Total Split (%)	0.0%	30.0%	0.0%	30.0%	30.0%	25.0%	45.0%	45.0%	0.0%	25.0%	70.0%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		1.0		1.0	1.0	1.0	4.0	4.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode		None		None	None	C-Max	Max	Max		C-Max		
v/c Ratio		0.88			0.22	0.30		0.83		0.69	0.34	
Control Delay		50.1			32.5	15.5		24.9		49.5	7.6	
Queue Delay		0.0			0.0	0.0		68.0		0.0	0.0	
Total Delay		50.1			32.5	15.5		92.9		49.5	7.7	
Queue Length 50th (ft)		175			41	52		246		130	82	
Queue Length 95th (ft)		#263			m68	m73		m294		#240	112	
Internal Link Dist (ft)		468			26			212			234	
Turn Bay Length (ft)												
Base Capacity (vph)		704			402	542		1199		312	1855	
Starvation Cap Reductn		0			0	0		334		0	0	
Spillback Cap Reductn		0			0	0		0		0	149	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.83			0.21	0.30		1.15		0.69	0.36	

Intersection Summary

Area Type: CBD
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Boylston Street & Massachusetts Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	454	110	5	60	128	38	656	188	203	526	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	10	10	10	9	11	12
Total Lost time (s)		4.0			4.0	4.0		7.0		4.0	4.0	
Lane Util. Factor		0.95			1.00	1.00		0.91		1.00	0.95	
Frpb, ped/bikes		0.94			1.00	0.84		0.93		1.00	0.97	
Flpb, ped/bikes		1.00			0.99	1.00		0.99		1.00	1.00	
Frt		0.97			1.00	0.85		0.97		1.00	0.99	
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		2628			1608	1148		3598		1379	2746	
Flt Permitted		1.00			0.96	1.00		0.87		0.95	1.00	
Satd. Flow (perm)		2628			1547	1148		3154		1379	2746	
Peak-hour factor, PHF	0.97	0.97	0.97	0.78	0.78	0.78	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	0	468	113	6	77	164	43	737	211	216	560	62
RTOR Reduction (vph)	0	21	0	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	0	560	0	0	83	161	0	991	0	216	622	0
Confl. Peds. (#/hr)	269		244	244		269	287		363			287
Confl. Bikes (#/hr)			28						35			60
Heavy Vehicles (%)	17%	6%	5%	20%	4%	6%	5%	8%	5%	6%	10%	7%
Parking (#/hr)		4	4									
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Actuated Green, G (s)		24.4			24.4	47.0		38.0		22.6	64.6	
Effective Green, g (s)		24.4			24.4	47.0		38.0		22.6	64.6	
Actuated g/C Ratio		0.24			0.24	0.47		0.38		0.23	0.65	
Clearance Time (s)		4.0			4.0	4.0		7.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		641			377	585		1199		312	1774	
v/s Ratio Prot		c0.21				0.06				c0.16	0.23	
v/s Ratio Perm					0.05	0.08		c0.31				
v/c Ratio		0.87			0.22	0.28		0.83		0.69	0.35	
Uniform Delay, d1		36.3			30.2	16.1		28.0		35.5	8.1	
Progression Factor		1.00			1.05	0.95		0.71		1.00	1.00	
Incremental Delay, d2		12.6			0.3	0.3		4.4		11.9	0.5	
Delay (s)		48.9			31.9	15.6		24.4		47.5	8.6	
Level of Service		D			C	B		C		D	A	
Approach Delay (s)		48.9			21.1			24.4			18.7	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Volume (veh/h)	48	609	0	4	166	15	8
Sign Control		Free			Free	Stop	
Grade		0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	655	0	4	177	16	9
Pedestrians		6			9	115	
Lane Width (ft)		12.0			12.0	12.0	
Walking Speed (ft/s)		4.0			4.0	4.0	
Percent Blockage		1			1	10	
Right turn flare (veh)							
Median type		None			None		
Median storage veh)							
Upstream signal (ft)		301			328		
pX, platoon unblocked	0.00						
vC, conflicting volume	0			770		961	451
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0			770		961	451
tC, single (s)	0.0			4.6		7.5	7.1
tC, 2 stage (s)							
tF (s)	0.0			2.5		3.8	3.4
p0 queue free %	0			99		91	98
cM capacity (veh/h)	0			638		183	474

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	437	218	181	25
Volume Left	0	0	4	16
Volume Right	0	0	0	9
cSH	1700	1700	638	233
Volume to Capacity	0.26	0.13	0.01	0.11
Queue Length 95th (ft)	0	0	1	9
Control Delay (s)	0.0	0.0	0.3	22.3
Lane LOS			A	C
Approach Delay (s)	0.0		0.3	22.3
Approach LOS				C

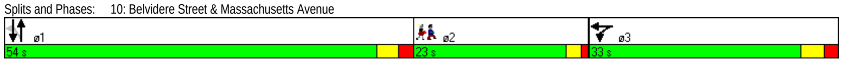
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations													
Volume (vph)	0	0	0	59	22	149	6	723	0	0	775	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	14	12	11	11	11	10	10	10	
Right Turn on Red			Yes			No			Yes			Yes	
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		177			729			1224			300		
Travel Time (s)		4.8			19.9			33.4			8.2		
Confl. Peds. (#/hr)				84		239	78					78	
Confl. Bikes (#/hr)									76			75	
Peak Hour Factor	0.25	0.25	0.25	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	4%	0%	0%	5%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	0	0	
Parking (#/hr)				1	1	1		1			1	1	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	256	0	0	829	0	0	821	0	
Turn Type				Split			Perm						
Protected Phases				3	3			1			1		2
Permitted Phases							1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0		7.0
Minimum Split (s)				15.0	15.0		25.0	25.0			25.0		22.0
Total Split (s)	0.0	0.0	0.0	33.0	33.0	0.0	54.0	54.0	0.0	0.0	54.0	0.0	23.0
Total Split (%)	0.0%	0.0%	0.0%	30.0%	30.0%	0.0%	49.1%	49.1%	0.0%	0.0%	49.1%	0.0%	21%
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	5.0	4.0	
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Recall Mode				None	None		C-Max	C-Max			C-Max		None
v/c Ratio					0.90			0.61			0.59		
Control Delay					73.7			24.2			17.2		
Queue Delay					0.0			14.8			0.6		
Total Delay					73.7			39.0			17.9		
Queue Length 50th (ft)					170			241			164		
Queue Length 95th (ft)					#311			305			m195		
Internal Link Dist (ft)		97			649			1144			220		
Turn Bay Length (ft)													
Base Capacity (vph)					306			1354			1386		
Starvation Cap Reductn					0			0			246		
Spillback Cap Reductn					0			519			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.84			0.99			0.72		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 28 (25%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Belvidere Street & Massachusetts Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	59	22	149	6	723	0	0	775	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	14	12	11	11	11	10	10	10
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					1.00			0.95			0.95	
Frpb, ped/bikes					0.80			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.91			1.00			1.00	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1161			2815			2732	
Flt Permitted					0.99			0.95			1.00	
Satd. Flow (perm)					1161			2670			2732	
Peak-hour factor, PHF	0.25	0.25	0.25	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	66	24	166	7	822	0	0	816	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	256	0	0	829	0	0	821	0
Confl. Peds. (#/hr)				84		239	78					78
Confl. Bikes (#/hr)									76			75
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	4%	0%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	8	0	0	0	0
Parking (#/hr)				1	1	1		1			1	1
Turn Type				Split			Perm					
Protected Phases				3	3			1			1	
Permitted Phases							1					
Actuated Green, G (s)					26.6			55.2			55.2	
Effective Green, g (s)					26.6			55.2			55.2	
Actuated g/C Ratio					0.24			0.50			0.50	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					281			1340			1371	
v/s Ratio Prot					c0.22						0.30	
v/s Ratio Perm								c0.31				
v/c Ratio					0.91			0.62			0.60	
Uniform Delay, d1					40.5			19.8			19.5	
Progression Factor					1.00			1.00			0.71	
Incremental Delay, d2					31.0			2.2			1.8	
Delay (s)					71.5			21.9			15.7	
Level of Service					E			C			B	
Approach Delay (s)		0.0			71.5			21.9			15.7	
Approach LOS		A			E			C			B	

Intersection Summary

HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	28.2
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	458	123	9	111	192	41	701	120	198	654	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	12	10	10	10	9	11	12
Right Turn on Red			Yes			Yes			No			No
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		548			133			300			314	
Travel Time (s)		14.9			3.6			8.2			8.6	
Confl. Peds. (#/hr)	716		383	383		716	521		1063			521
Confl. Bikes (#/hr)			19			5			68			83
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	11%	10%	0%	0%	4%	1%	2%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Parking (#/hr)		4	4									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	632	0	0	148	237	0	947	0	204	733	0
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Detector Phase		4		4	4	1	2	2		1	1 2	
Switch Phase												
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0		
Minimum Split (s)		29.0		29.0	29.0	12.0	30.0	30.0		12.0		
Total Split (s)	0.0	34.0	0.0	34.0	34.0	27.0	49.0	49.0	0.0	27.0	76.0	0.0
Total Split (%)	0.0%	30.9%	0.0%	30.9%	30.9%	24.5%	44.5%	44.5%	0.0%	24.5%	69.1%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		1.0		1.0	1.0	1.0	4.0	4.0		1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	7.0	7.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode		None		None	None	C-Max	Max	Max		C-Max		
v/c Ratio		0.88			0.39	0.44		0.77		0.64	0.38	
Control Delay		52.3			37.2	21.3		43.1		49.8	9.1	
Queue Delay		0.7			0.1	0.0		88.0		0.0	0.0	
Total Delay		53.1			37.3	21.3		131.0		49.8	9.1	
Queue Length 50th (ft)		212			84	89		261		134	115	
Queue Length 95th (ft)		#306			m126	m123		308		#221	151	
Internal Link Dist (ft)		468			53			220			234	
Turn Bay Length (ft)												
Base Capacity (vph)		753			397	535		1229		320	1911	
Starvation Cap Reductn		0			0	0		433		0	0	
Spillback Cap Reductn		20			22	0		0		0	0	
Storage Cap Reductn		0			0	0		0		0	0	
Reduced v/c Ratio		0.86			0.39	0.44		1.19		0.64	0.38	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 45 (41%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Boylston Street & Massachusetts Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	458	123	9	111	192	41	701	120	198	654	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	10	10	10	9	11	12
Total Lost time (s)		4.0			4.0	4.0		7.0		4.0	4.0	
Lane Util. Factor		0.95			1.00	1.00		0.91		1.00	0.95	
Frpb, ped/bikes		0.92			1.00	0.76		0.92		1.00	0.96	
Flpb, ped/bikes		1.00			0.99	1.00		0.99		1.00	1.00	
Frt		0.97			1.00	0.85		0.98		1.00	0.99	
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		2685			1536	1109		3761		1433	2860	
Flt Permitted		1.00			0.94	1.00		0.85		0.95	1.00	
Satd. Flow (perm)		2685			1457	1109		3220		1433	2860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.91	0.91	0.91	0.97	0.97	0.97
Adj. Flow (vph)	0	498	134	11	137	237	45	770	132	204	674	59
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	611	0	0	148	237	0	947	0	204	733	0
Confl. Peds. (#/hr)	716		383	383		716	521		1063			521
Confl. Bikes (#/hr)			19			5			68			83
Heavy Vehicles (%)	0%	2%	1%	11%	10%	0%	0%	4%	1%	2%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Parking (#/hr)		4	4									
Turn Type				Perm		pm+ov	Perm			Prot		
Protected Phases		4			4	1		2		1	1 2	
Permitted Phases		4		4		4	2					
Actuated Green, G (s)		28.5			28.5	53.0		42.0		24.5	70.5	
Effective Green, g (s)		28.5			28.5	53.0		42.0		24.5	70.5	
Actuated g/C Ratio		0.26			0.26	0.48		0.38		0.22	0.64	
Clearance Time (s)		4.0			4.0	4.0		7.0		4.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		696			377	575		1229		319	1833	
v/s Ratio Prot		c0.23				0.09				c0.14	0.26	
v/s Ratio Perm					0.10	0.12		c0.29				
v/c Ratio		0.88			0.39	0.41		0.77		0.64	0.40	
Uniform Delay, d1		39.1			33.6	18.4		29.8		38.7	9.5	
Progression Factor		1.00			1.01	0.96		1.31		1.00	1.00	
Incremental Delay, d2		12.0			0.7	0.5		3.6		9.5	0.7	
Delay (s)		51.1			34.8	18.2		42.5		48.2	10.2	
Level of Service		D			C	B		D		D	B	
Approach Delay (s)		51.1			24.6			42.5			18.5	
Approach LOS		D			C			D			B	

Intersection Summary

HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (veh/h)	35	839	4	4	3	217	34	7
Sign Control		Free				Free	Stop	
Grade		0%				0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.32	0.32
Hourly flow rate (vph)	0	902	4	0	3	244	106	22
Pedestrians		18				5	307	
Lane Width (ft)		12.0				12.0	12.0	
Walking Speed (ft/s)		4.0				4.0	4.0	
Percent Blockage		1				0	26	
Right turn flare (veh)								
Median type		None				None		
Median storage veh)								
Upstream signal (ft)		299				345		
pX, platoon unblocked	0.00			0.00				
vC, conflicting volume	0			0	1213		1480	765
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	0			0	1213		1480	765
tC, single (s)	0.0			0.0	4.1		6.8	6.9
tC, 2 stage (s)								
tF (s)	0.0			0.0	2.2		3.5	3.3
p0 queue free %	0			0	99		0	92
cM capacity (veh/h)	0			0	433		86	259

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	601	305	247	128
Volume Left	0	0	3	106
Volume Right	0	4	0	22
cSH	1700	1700	433	97
Volume to Capacity	0.35	0.18	0.01	1.32
Queue Length 95th (ft)	0	0	1	228
Control Delay (s)	0.0	0.0	0.3	277.6
Lane LOS			A	F
Approach Delay (s)	0.0		0.3	277.6
Approach LOS				F

Intersection Summary			
Average Delay	27.8		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix E

Preservation Plan and MHC Inventory Forms

Preservation and Stewardship Plan

Property	Current Use	Anticipated Use (10 years)	Recent improvements	Anticipated improvements
130 Massachusetts Avenue	Administration, classrooms	Concert Hall, student life, residential		Proposed Institutional Project
Berklee Performance Center - 136 Massachusestts Avenue	Concert hall, classrooms, ensemble rooms, studios	Concert Hall, student life, residential	Box Office Carpet and Ceiling TIle Replacement	Proposed Institutional Project
150 Massachusetts Avenue	Administration, library, dining hall, academic, residential	Administration, music technology, instruction, housing	Roof Replacement; Installation of Dorm Thermostats; New Steamer for Café; Carpet Replacement due to Flood; Bathroom Renovation	Ramp/Elevator Design; Relocation of Mech. Systems on Roof Engineering Services; Roof Deck Design; Pile Repair; MP&E Studio Upgrade;
921 Boylston Street	Classrooms, performance space, administration	Administration, instruction, recital	1st &6th Floor Renovation; 1st Floor Carpet Replacement	
1108 Boylston Street	Leased to others	Retail, commercial, instruction (Boston Conservatory)		
1140 Boylston Street	Administration, classrooms, recital halls	Administration, instruction, recital	2W Faculty Lounge Renovation; Office of the President Carpet and Furnishing	
22 The Fenway	Administration, classrooms, recital hall	Administration, instruction, recital	Window Replacement; HVAC upgrade; Classroom Renovation; New Building Signage	
264-266-270 Commonwealth Avenue	Residential	Housing	Roof Replacement; Window Replacement; Façade Restoration	
25 Fordham Road	Practice rooms	Practice rooms		
98 Hemenway Street	Residential	Residential	Bathroom Renovations; Kitchen Painted; Oil Tank Removal;	
1096 Boylston Street	Administration, retail, apartment	Administration, retail, apartment	2nd Floor Renovation;	
155 Massachusetts Avenue	Retail, administration, classrooms	Retail, administration, classrooms	Roof Replacement; Global Iniatives upgrade	Basement Renovation; Elevator Rehab
161 Massachusetts Avenue	Retail, leased commercial	Retail, administration, classrooms	Cooling Tower Replacement	Proposed Institutional Project
171 Massachusetts Avenue	Retail, practice rooms, leased commercial	Retail, practice rooms, administration, classrooms		Proposed Institutional Project
7 Haviland Street	Classrooms and faculty offices	Classrooms and faculty offices		
168 Massachusetts Avenue	Retail, administration, classrooms	Retail, dining, performance, music technology, residential		Proposed Institutional Project

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
0401557000			

Town: Boston

Place: *(neighborhood or village)* East Fens

Address: 98 Hemenway Street

Historic Name: Parkview Chambers

Uses: Present: Residence Hall (Berklee College of Music)

Original: Apartments

Date of Construction: c.1910

Source: Building Permit

Style/Form: Classical Revival/ Georgian Revival

Architect/Builder: Frederick A. Norcross

Exterior Material:

Foundation: Granite

Wall/Trim: Brick, Limestone

Roof: Flat-Composite

Outbuildings/Secondary Structures: (none)

Major Alterations *(with dates)*:
1986- Interior renovations to floors, walls and ceilings
2004- Removal of store front and paint on first floor
New insulated wood windows with vinyl storms

Condition: Good

Moved: no | X | yes | | **Date** __________

Acreage: 35,000 sq. ft. (0.8 acre)

Setting: Urban

Photograph

Topographic or Assessor's Map

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date (*month / year*): June 2009

Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The building at 98 Hemenway Street, also known as 'Parkview Chambers', comprises 5 above-grade stories and a basement. It sits on a granite foundation with walls made of brick and limestone. The building footprint is almost symmetrical and measures 72' at the front and rear and is 86' deep. The building steps back from the plot line on the two sides and at the back to allow light into a larger number of spaces. The property is currently owned by the Berklee College of Music and is used as a Residence Hall for approximately 100 students. There is a circulation core somewhat in the center of the floor plate, consisting of a U-shaped staircase wrapped around an elevator. A corridor runs around this core, providing access to the 3, 4 or 5-bedroom apartments off of it on each floor. In addition, there is one shared kitchen each on the first, third and fifth floors. The basement houses a one-bed apartment, laundry, service areas, a lounge and music practice rooms for the residents. While there are windows on all four facades of the building, only the front, west-facing facade features bay windows. In fact the bays run the entire length of the face from the basement up to the fifth floor. There are four, protruding, 3-sided bays with flat connecting walls in between. These flat walls incorporate metal balconies at all floor levels. *(Continued)*

HISTORICAL NARRATIVE

Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

Historical construction permit records for this building indicate that it was constructed c. 1910 by a well-known real-estate developer Samuel Altman as an apartment building. The architect hired by Mr. Altman was Boston based Frederick A. Norcross, who is credited with a number of other single and multi-family residences in and around the city dating from early twentieth century. Of particular note are four of his apartment buildings in Grove Hall, Dorchester[1] that also display a rhythmic progression of bowed and flat fronts on its street front, very much like at 98 Hemenway. They also feature quoins at the corners and pressed metal cornices with dentil and console bracket courses. Other buildings designed by Norcross also display similar detailing. From the roster of his other projects, it seems like Norcross specialized in the design of multi-family apartment buildings.

After construction, the building was occupied by stores on the first floor and apartments on the upper floors. In the 1930's Boston Penny Savings Bank took over ownership of the building. By 1960's the ownership had passed on to the Bay State Federal Savings and Loan Association, and the building's physical condition had significantly deteriorated. In 1978 an accidental fire in one of the apartments caused some damage to the floor decking, walls and windows. In the late 1980's Berklee College of Music bought the building and carried out interior renovations. In 2004, the existing windows were replaced with insulated ones with low-e glazing in order to better the energy performance of the building.

BIBLIOGRAPHY and/or REFERENCES

[1]*Grove Hall: Area Form from Boston Landmarks Commission as part of 1994 Survey of Dorchester. Dated March, 1995 and recorded by Edward W. Gordon,* http://www.dorchesteratheneum.org/page.php?id=622 (accessed June 24, 2009).

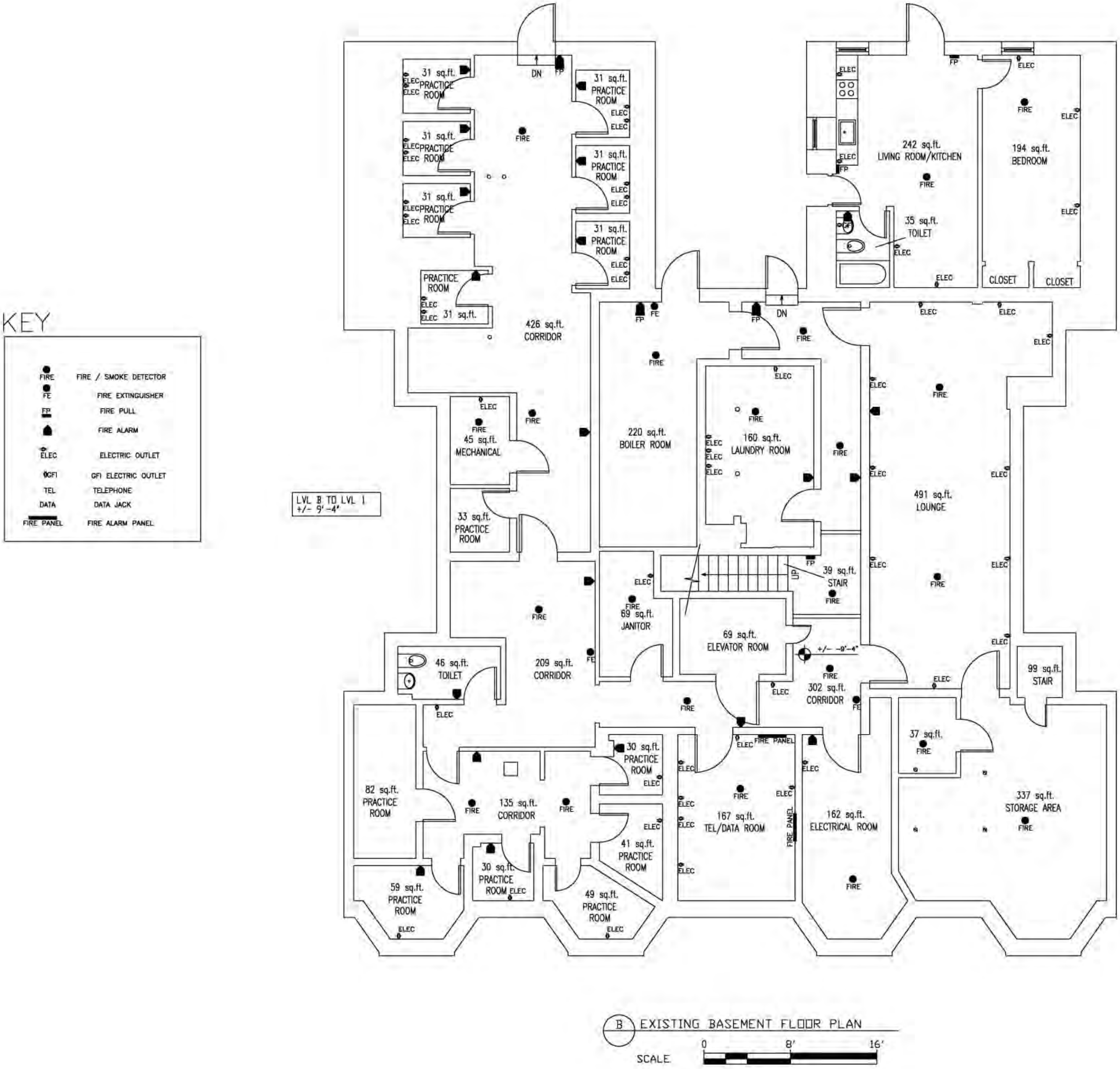
ARCHITECTURAL DESCRIPTION: (Continued)

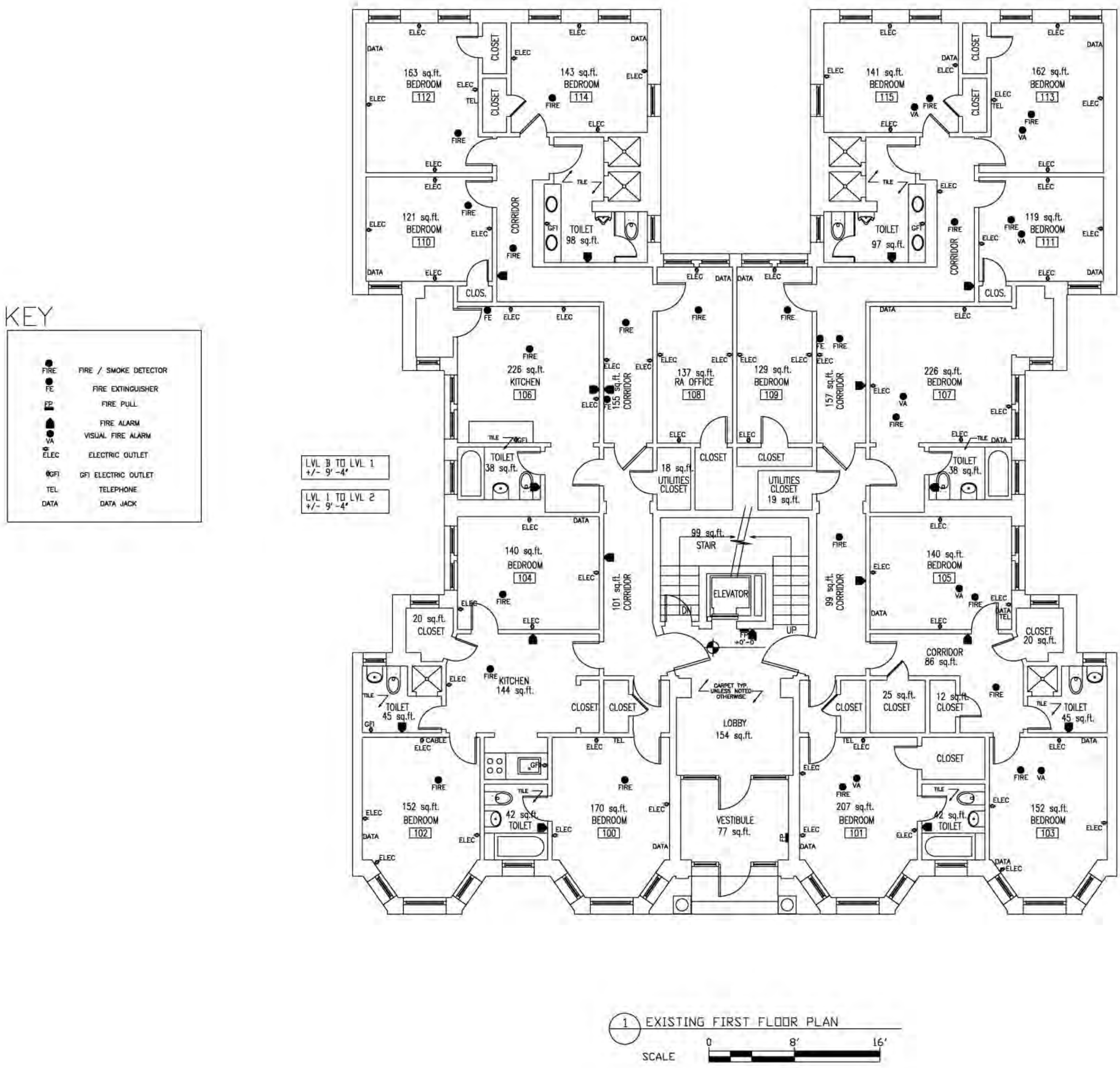
Renaissance revival styles for building design were in vogue during the early twentieth century. It is therefore not surprising that this building features some typical elements of classical detailing such as the columned portico in the center of the west façade that provides main access to the building. Other tell-tale features include the use of limestone ashlar on the first floor as opposed to brick on the upper floors. A heavier treatment of the façade base by using materials such as stone was a common feature in neo-classical design. However, the majority of the rest of the façade is made up of buff-colored brick with minimal use of limestone for the sills, lintels, quoins and ornate decoration. Beltcourses and moldings delineate the first floor from the three stories above and the fifth floor from the three stories below – this tends to emphasize the monumentality of the building thus exhibiting yet another trait of classical & renaissance styling. The wall behind the second floor balcony, directly above the entrance portico is more ornately detailed than other façade areas with sculptural, low-relief ornamentation in limestone, depicting a floral urn motif on the pilaster and fluted brackets. Another notable feature of the building is the deep projecting roof cornice, with elaborate moldings and over-sized sculptural brackets alternating with smaller ones creating a rhythmic detail. The cornice ornamentation is pressed metal and painted to match the limestone on other parts of the building.

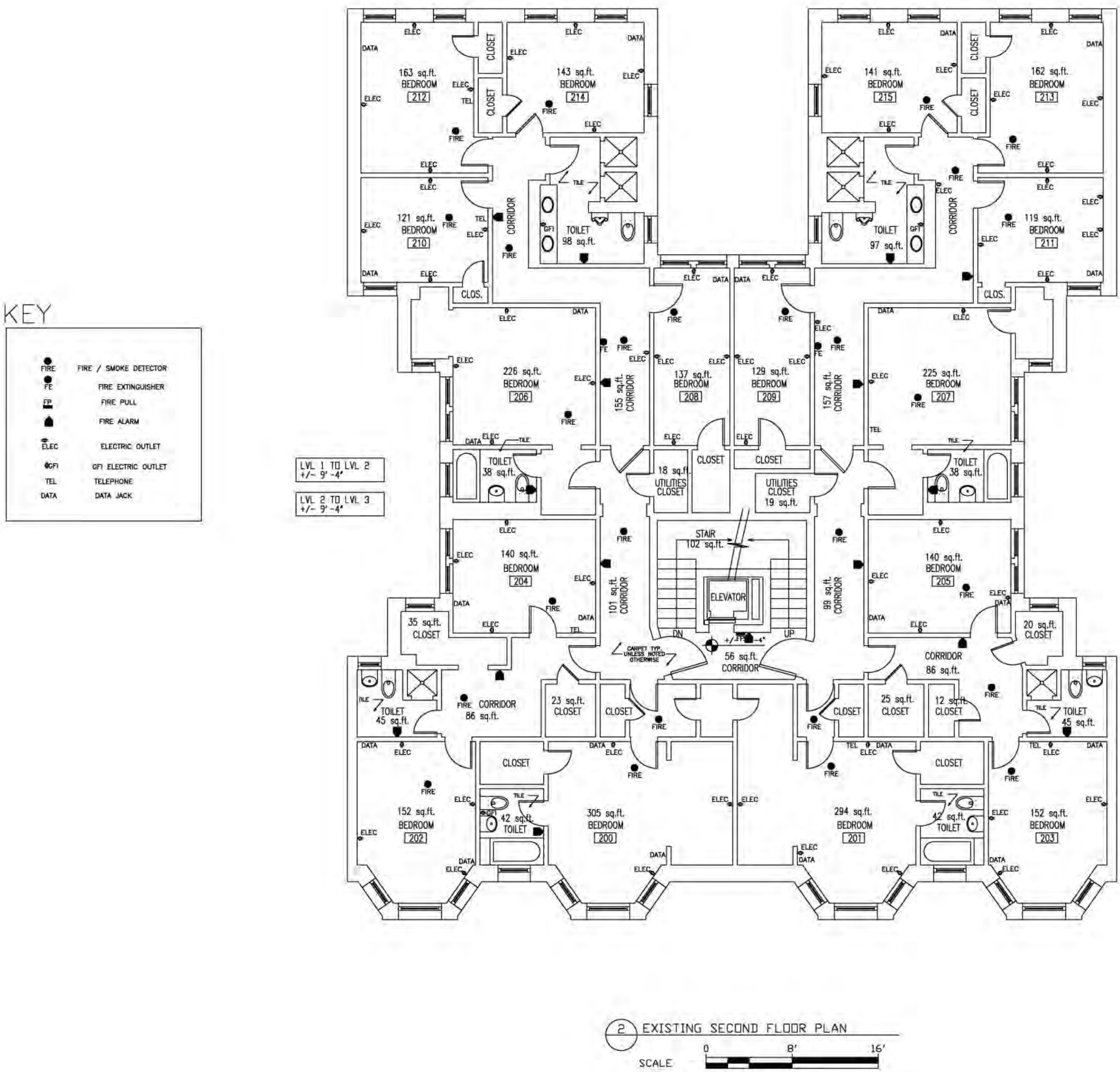
While most window openings on the building are rectilinear in shape, a few on the first and second floors have arched window heads with emphasized keystones. Overall the window openings are very consistent and follow similar sill and lintel heights throughout building, varying only slightly in width at certain bays. All windows on the front façade have wood frames with two sashes. While the upper sash has muntins (that seek to replicate the original sashes) and are typically 6-lite or 4-lite, the lower sash lacks horizontal or vertical dividers. The original wood windows were replaced with wood-interior and vinyl-exterior windows, featuring insulated low-e glass, in 2004. The aluminum door at the entrance is a replacement most probably installed in 1963.

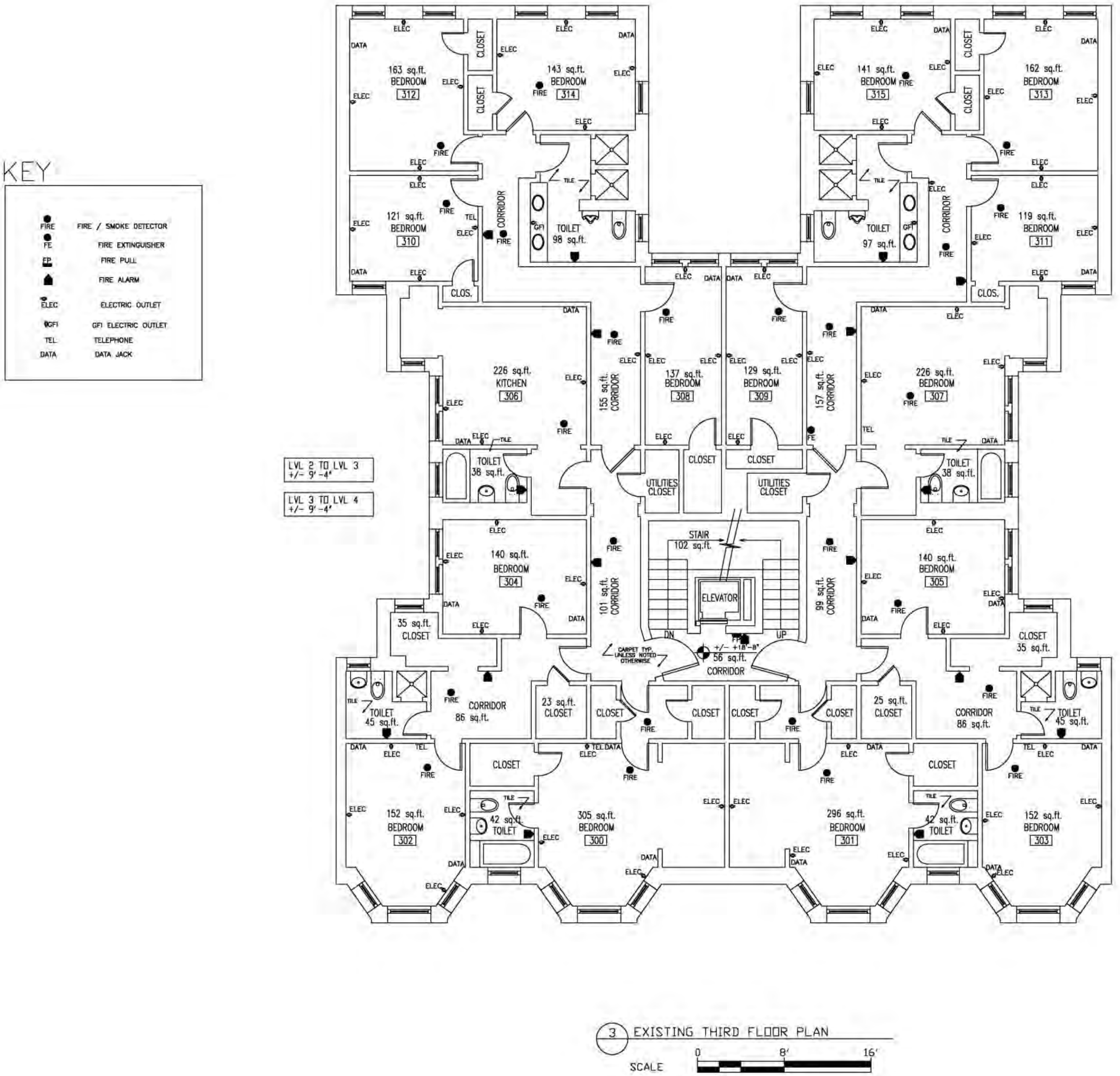
Detail at second floor balcony

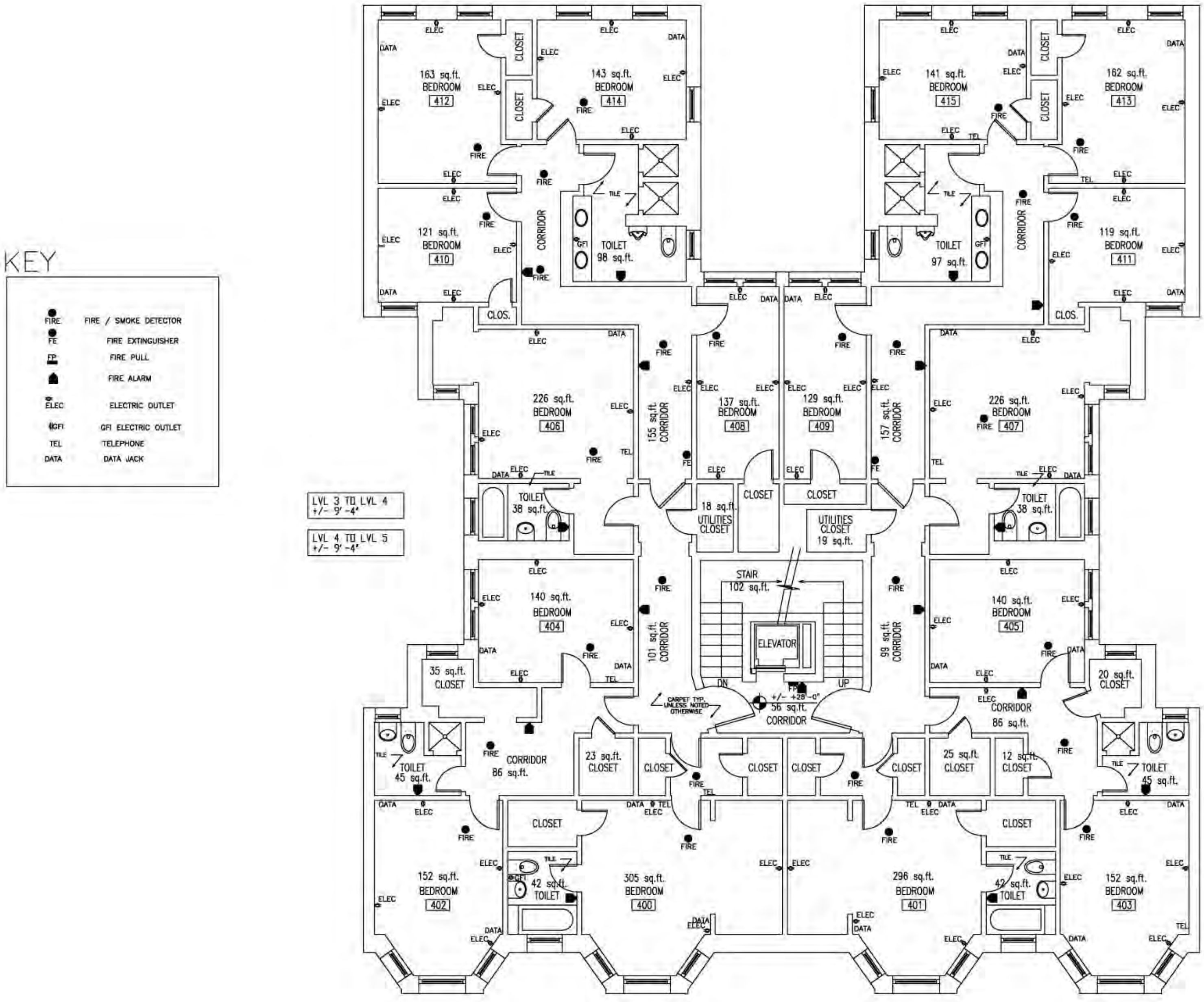
Detail at roof cornice


KEY
FIRE FIRE / SMOKE DETECTOR
FE FIRE EXTINGUISHER
FP FIRE PULL
FIRE ALARM
ELEC ELECTRIC OUTLET
GFI GFI ELECTRIC OUTLET
TEL TELEPHONE
DATA DATA JACK
FIRE PANEL FIRE ALARM PANEL
LVL B TO LVL 1 +/- 9'-4"
31 sq.ft. PRACTICE ROOM
426 sq.ft. CORRIDOR
45 sq.ft. MECHANICAL
33 sq.ft. PRACTICE ROOM
220 sq.ft. BOILER ROOM
160 sq.ft. LAUNDRY ROOM
242 sq.ft. LIVING ROOM/KITCHEN
194 sq.ft. BEDROOM
35 sq.ft. TOILET
CLOSET
491 sq.ft. LOUNGE
39 sq.ft. STAIR
69 sq.ft. JANITOR
69 sq.ft. ELEVATOR ROOM
46 sq.ft. TOILET
209 sq.ft. CORRIDOR
302 sq.ft. CORRIDOR
99 sq.ft. STAIR
37 sq.ft.
337 sq.ft. STORAGE AREA
82 sq.ft. PRACTICE ROOM
135 sq.ft. CORRIDOR
30 sq.ft. PRACTICE ROOM
41 sq.ft. PRACTICE ROOM
49 sq.ft. PRACTICE ROOM
59 sq.ft. PRACTICE ROOM
167 sq.ft. TEL/DATA ROOM
162 sq.ft. ELECTRICAL ROOM
B EXISTING BASEMENT FLOOR PLAN
SCALE 0 8' 16'


KEY
FIRE — FIRE / SMOKE DETECTOR
FE — FIRE EXTINGUISHER
FP — FIRE PULL
FIRE ALARM
VA — VISUAL FIRE ALARM
ELEC — ELECTRIC OUTLET
GFI — GFI ELECTRIC OUTLET
TEL — TELEPHONE
DATA — DATA JACK
LVL B TO LVL 1 +/- 9'-4"
LVL 1 TO LVL 2 +/- 9'-4"
1 EXISTING FIRST FLOOR PLAN
SCALE 0 8' 16'

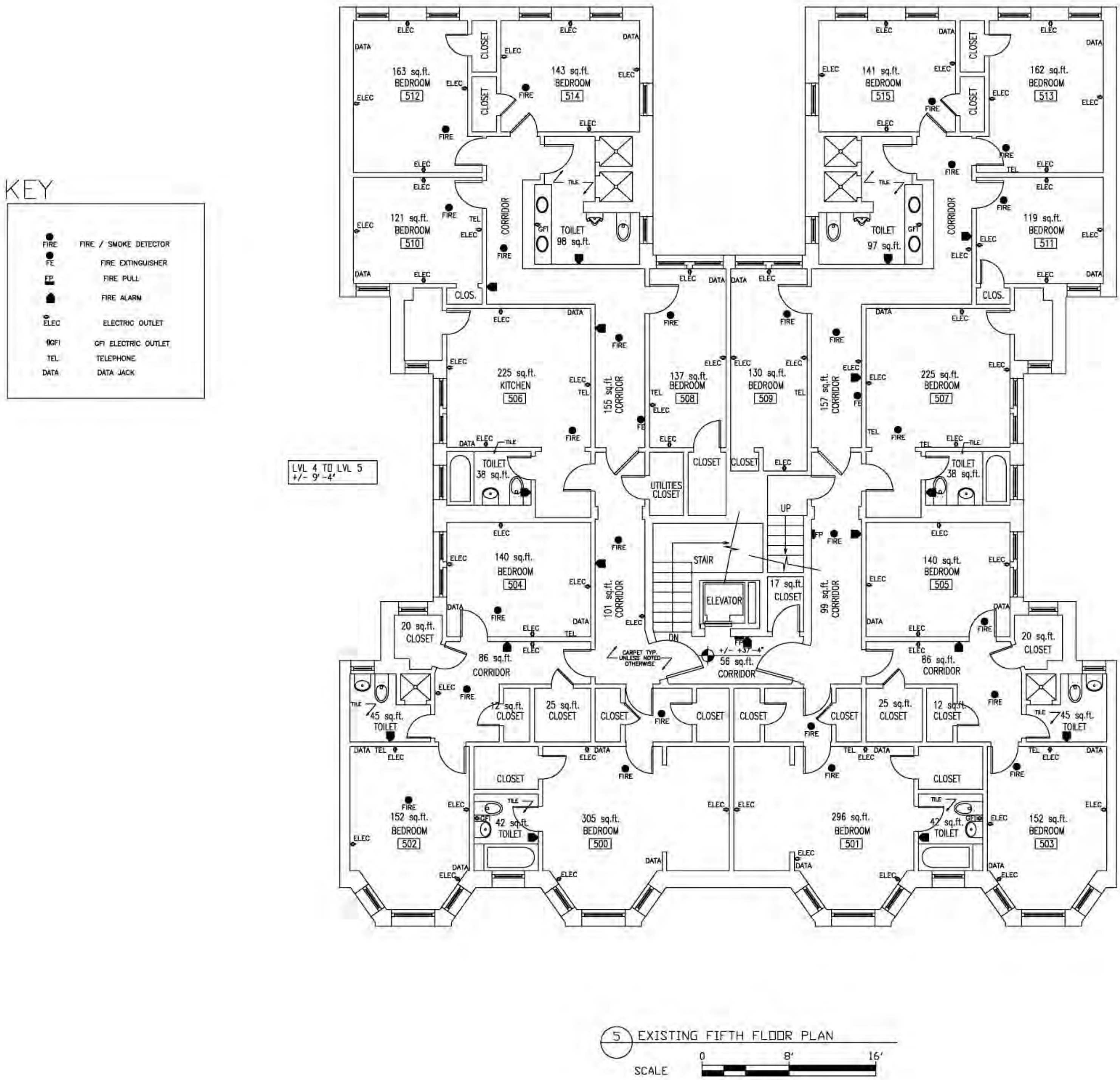

KEY
FIRE / SMOKE DETECTOR
FIRE EXTINGUISHER
FIRE PULL
FIRE ALARM
ELECTRIC OUTLET
GFI ELECTRIC OUTLET
TELEPHONE
DATA JACK
LVL 1 TO LVL 2 +/- 9'-4"
LVL 2 TO LVL 3 +/- 9'-4"
163 sq.ft. BEDROOM 212
143 sq.ft. BEDROOM 214
141 sq.ft. BEDROOM 215
162 sq.ft. BEDROOM 213
121 sq.ft. BEDROOM 210
119 sq.ft. BEDROOM 211
TOILET 98 sq.ft.
TOILET 97 sq.ft.
226 sq.ft. BEDROOM 206
137 sq.ft. BEDROOM 208
129 sq.ft. BEDROOM 209
225 sq.ft. BEDROOM 207
155 sq.ft. CORRIDOR
157 sq.ft. CORRIDOR
TOILET 38 sq.ft.
18 sq.ft. UTILITIES CLOSET
UTILITIES CLOSET 19 sq.ft.
STAIR 102 sq.ft.
ELEVATOR
140 sq.ft. BEDROOM 204
140 sq.ft. BEDROOM 205
101 sq.ft. CORRIDOR
99 sq.ft. CORRIDOR
35 sq.ft. CLOSET
20 sq.ft. CLOSET
56 sq.ft. CORRIDOR
CORRIDOR 86 sq.ft.
TOILET 45 sq.ft.
23 sq.ft. CLOSET
25 sq.ft. CLOSET
12 sq.ft. CLOSET
152 sq.ft. BEDROOM 202
305 sq.ft. BEDROOM 200
294 sq.ft. BEDROOM 201
152 sq.ft. BEDROOM 203
42 sq.ft. TOILET
2 EXISTING SECOND FLOOR PLAN
SCALE 0 8' 16'


KEY
FIRE / SMOKE DETECTOR
FIRE EXTINGUISHER
FIRE PULL
FIRE ALARM
ELECTRIC OUTLET
GFI ELECTRIC OUTLET
TELEPHONE
DATA JACK
LVL 2 TO LVL 3 +/- 9'-4"
LVL 3 TO LVL 4 +/- 9'-4"
163 sq.ft. BEDROOM 312
143 sq.ft. BEDROOM 314
141 sq.ft. BEDROOM 315
162 sq.ft. BEDROOM 313
121 sq.ft. BEDROOM 310
119 sq.ft. BEDROOM 311
TOILET 98 sq.ft.
TOILET 97 sq.ft.
226 sq.ft. KITCHEN 306
155 sq.ft. CORRIDOR
137 sq.ft. BEDROOM 308
129 sq.ft. BEDROOM 309
157 sq.ft. CORRIDOR
226 sq.ft. BEDROOM 307
TOILET 38 sq.ft.
UTILITIES CLOSET
STAIR 102 sq.ft.
ELEVATOR
140 sq.ft. BEDROOM 304
101 sq.ft. CORRIDOR
99 sq.ft. CORRIDOR
140 sq.ft. BEDROOM 305
35 sq.ft. CLOSET
56 sq.ft. CORRIDOR
CORRIDOR 86 sq.ft.
23 sq.ft. CLOSET
25 sq.ft. CLOSET
TOILET 45 sq.ft.
152 sq.ft. BEDROOM 302
305 sq.ft. BEDROOM 300
296 sq.ft. BEDROOM 301
152 sq.ft. BEDROOM 303
42 sq.ft. TOILET
CARPET TYP. UNLESS NOTED OTHERWISE
3 EXISTING THIRD FLOOR PLAN
SCALE 0 8' 16'



4 EXISTING FOURTH FLOOR PLAN

SCALE 0 8' 16'


KEY
FIRE / SMOKE DETECTOR
FIRE EXTINGUISHER
FIRE PULL
FIRE ALARM
ELECTRIC OUTLET
GFI ELECTRIC OUTLET
TELEPHONE
DATA JACK
LVL 4 TO LVL 5 +/- 9'-4"
163 sq.ft. BEDROOM 512
143 sq.ft. BEDROOM 514
141 sq.ft. BEDROOM 515
162 sq.ft. BEDROOM 513
121 sq.ft. BEDROOM 510
119 sq.ft. BEDROOM 511
TOILET 98 sq.ft.
TOILET 97 sq.ft.
225 sq.ft. KITCHEN 506
225 sq.ft. BEDROOM 507
137 sq.ft. BEDROOM 508
130 sq.ft. BEDROOM 509
155 sq.ft. CORRIDOR
157 sq.ft. CORRIDOR
TOILET 38 sq.ft.
UTILITIES CLOSET
140 sq.ft. BEDROOM 504
140 sq.ft. BEDROOM 505
101 sq.ft. CORRIDOR
99 sq.ft. CORRIDOR
STAIR
ELEVATOR
17 sq.ft. CLOSET
20 sq.ft. CLOSET
86 sq.ft. CORRIDOR
56 sq.ft. CORRIDOR
45 sq.ft. TOILET
12 sq.ft. CLOSET
25 sq.ft. CLOSET
152 sq.ft. BEDROOM 502
305 sq.ft. BEDROOM 500
296 sq.ft. BEDROOM 501
152 sq.ft. BEDROOM 503
42 sq.ft. TOILET
5 EXISTING FIFTH FLOOR PLAN
SCALE 0 8' 16'

[1] *Grove Hall: Area Form from Boston Landmarks Commission as part of 1994 Survey of Dorchester. Dated March, 1995 and recorded by Edward W. Gordon,* http://www.dorchesteratheneum.org/page.php?id=622 (accessed June 24, 2009).

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
0401372000 0401372001			

Photograph

Topographic or Assessor's Map

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date (*month / year*): January 2011

Town: Boston

Place: *(neighborhood or village)* East Fenway

Address: 150 Massachusetts Avenue

Historic Name: Embassy Apartments/ Sherry Biltmore Hotel

Uses: Present: Institutional, Residence hall

Original: Apartments

Date of Construction: c.1900

Source: Building Permit Records

Style/Form: Renaissance Revival

Architect/Builder: Unknown

Exterior Material:

Foundation: Stone (partially Concrete)

Wall/Trim: Brick/ Cast Stone, Cast Metal

Roof: Flat-Composite

Outbuildings/Secondary Structures: None

Major Alterations *(with dates)*:
c.1900- South portion of present building constructed first facing Belvidere St, Cecilia St and Mass Ave.
c.1908- North portion of building completed in same style as south creating interior courtyard
c.1925- first elevators installed
1955- Major renovations to convert to 'Sherry Biltmore Hotel'

Condition: Fair

Moved: **no** | X | **yes** | | **Date** __________

Acreage: sq. ft. (acre)

Setting: Urban

Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The building at 150 Massachusetts Avenue has 6 above-grade stories and two basement floors (one of which is partially above-grade). The building sits on a stone and concrete foundation with walls made of brick, featuring cast stone trim and a painted cast/ pressed metal cornice and a flat roof. The building footprint is approximately shaped like an irregular pentagon and has street facing facades on Massachusetts Avenue, Belvidere Street and St. Cecilia Street. On the fourth, fifth and sixth level, the building footprint is almost 48' wide around all the perimeter edges, leading to an open- air internal courtyard that looks down onto a terrace. As revealed by the historical narrative, originally this open courtyard extended all the way down to the ground floor, and an arched passageway led directly from the street into the courtyard. However, in subsequent renovations, this courtyard was roofed over to create covered space at the first floor. The courtyard building extends up to the third floor, albeit with a slightly offset footprint to allow for the retention of courtyard-facing windows on the second and third floors. *(Continued)*

HISTORICAL NARRATIVE:

Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

Historic construction permit records and fire insurance maps of the building site indicate that c. 1890, two apartment buildings were constructed on plots 142-148. The owner is listed as William Bassett and the architect as G.F. Loring[1]. The buildings constructed with brick and brownstone, were most probably built in the prevalent back-bay style. Architect G.F. Loring is likely George Fullington Loring, a prominent Boston architect, who had worked in the Office of the City Engineer at City Hall before he opened his own office with Sanford Phipps under the name 'Loring & Phipps' in 1889. Together, they designed many school buildings and residences in and around Boston.[2]

However, these buildings were demolished and replaced c. 1900 by a portion of the present building that wraps around on plots 150-152 Mass. Ave, 2-10 Belvidere Avenue and 29-31 St. Cecilia St. This essentially means that roughly the south half of the eight-floor building that currently exists at 150 Mass Ave was constructed first around 1900-1902.[3] Built in brick with brick quoins, terracotta trim and a cast iron cornice, it set the stage for the north half of the building that was constructed soon after in c. 1908, wrapping around to create an enclosed courtyard in the center.[4] The two parts functioned as one 'apartment hotel' known as 'Massachusetts Chambers' and were owned/developed by Cabot, Cabot and Forbes, a well-known Boston real-estate firm founded in 1897. From the permit records it appears that the ground floor of the building had stores which were extended to the basement in 1916. There were most likely terracotta partitions with plate glass storefronts at the street level. There was an archway at the ground floor that led directly to the street from the interior courtyard. By the late 1930's the building had been re-named as 'Embassy Apartments' and housed 179 hotel apartments with 12 stores (at the ground and basement levels). In 1945, the Embassy Restaurant at the ground floor was replaced with the 'First National Store Supermarket'. New front doors, new stairs to the basement and new egress stairs were also added to this part at the time. *(Continued)*

BIBLIOGRAPHY and/or REFERENCES

[1] Building Permit Records, Inspectional Services Dept., City of Boston, http://www.cityofboston.gov/isd/ (accessed January 10, 2011), listed as '138 Massachusetts' in record search
[2] Edward A. Samuels and Kimball, H.H., *Somerville, Past and Present: An Illustrated Historical Souvenir Commemorative of the Twenty-fifth Anniversary of the Establishment of the City of Somerville*, 1897 (Google eBook), p.582
[3] *Bromley Atlas: Boston Proper- 1902*, available at Boston Redevelopment Authority http://www.mapjunction.com/bra/
[4] *Bromley Atlas: Boston Proper- 1908*, available at Boston Redevelopment Authority http://www.mapjunction.com/bra/
[5] Paul A. Christian, *Boston's Fire Trail: A Walk through the City's Fire and Firefighting History* (Boston: The History Press, 2007), p. 66
[6] Ibid.

ARCHITECTURAL DESCRIPTION: *(Continued)*

The property is currently owned by the Berklee College of Music and is used for student housing and academic purposes. The lower floors house the public and academic spaces, while the uppermost three floors are dedicated to housing. Rooms are arranged off of a double-loaded corridor. There are two projecting bays on the façade facing Belvidere Street. Since the building was built in two phases, with the south half having been built first, it is possible that this façade was the main elevation for building – thus explaining the presence of bays on only this façade.

The building has exposed brick masonry with brick quoins at the corners and edges. There are three arches in slight relief on the brick, on both the west and south facades- their central location hinting to major historic public entrances at the ground floor in these locations. In an undated renovation, the ground floor of the building on both these facades was remodeled with new arched openings, new entrances and stone finish. Above this floor, the original finishes remain intact. The second floor has projecting horizontal brick coursing. There are cast stone belt courses above the first floor, second floor and fifth floor. On the south half of the building (built earlier), there is one window in each bay as opposed to the north half that features windows in grouped pairs. The window openings have a combination of jack arches and semicircular arches –the sills are all made of cast stone units. The building does not have original wood windows. They have been replaced with contemporary double-hung aluminum ones. The building has a metal roof cornice painted to match the masonry trim. It features projecting brackets and recessed panels. The space between consecutive windows on the top floor also features recessed brick panels.

Renaissance revival style for building design was in vogue during the late nineteenth - early twentieth century in Boston, therefore it is not surprising that it was utilized in this building. The characteristic features are formal symmetrical styling, quoins, belt courses and an ornamental cornice. Although the architectural style for this building is similar to other buildings in the neighborhood built around the same, the sheer size of this building make it very significant, both historically and architecturally.

HISTORICAL NARRATIVE: *(Continued)*

From 1952-55, the entire building was remodeled and reopened as the 'Sherry Biltmore Hotel'. The bottom three floors contained stores, lounges, ballrooms, lobby and a kitchen, as well as other functional and service areas. The upper five floors contained guest rooms. The hallways were covered with inch-thick plywood and had a suspended ceiling.[5] During this reconstruction, the open courtyard at the center of the building was roofed over to create a health club and the archway to the street was bricked up. The Biltmore Hotel housed many dignitaries and hosted many important events while in operation. There was a significant fire in the upper floors of the hotel in 1963 killing 2 guests and injuring many others.[6]

In 1972, Berklee College of Music purchased both the Sherry Biltmore Hotel and its adjoining building 'Fenway Theatre at 130 Mass. Ave. The theater was renovated and opened as the 1,227-seat Berklee Performance Center in 1976. The former Biltmore Hotel provided additional classroom and practice room spaces and residence halls. It is unclear when the ground floor of the building was remodeled to its current form, but had been constructed by 1991. A new membrane roof was put in place and interior renovation in the form of new flooring, ceilings and partitions was also carried out at this time. In 1993, the fourth floor was remodeled as a student technology lab. Currently the building at 150 Mass Ave has a residence hall for 450 students, a Media Center and Library facility, academic space and a 250-seat dining hall. It is anticipated that the building will be utilized by Berklee for the same or similar uses in the future.

View from intersection of Mass. Ave. and Belvidere St.

Detail of sixth floor and roof cornice

Detail of quoins at the corner of Mass. Ave and Belvidere Ave.


KEY
A EXISTING 'A' LEVEL PLAN
SCALE


KEY
B EXISTING 'B' LEVEL PLAN
SCALE

Area(s) Form No.


EXISTING SECOND LEVEL PLAN
KEY


KEY
3 EXISTING THIRD LEVEL PLAN
SCALE


4 EXISTING FOURTH LEVEL PLAN
KEY


EXISTING FIFTH LEVEL PLAN
KEY


6 EXISTING SIXTH LEVEL PLAN
KEY
ADJACENT BUILDING

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
0401413000 0401413001			

Town: Boston

Place: *(neighborhood or village)* East Fenway

Photograph

Address: 155 Massachusetts Avenue

Historic Name: None

Uses: Present: Mixed-Use (Commercial; Institutional)

Original: Mixed-Use (Commercial; Residential)

Date of Construction: c. 1900

Source: Bromley Atlas

Style/Form: Renaissance Revival

Architect/Builder: Edwin J. Lewis, Jr.

Exterior Material:

Foundation: Stone

Wall/Trim: Brick, Copper, Limestone

Roof: Flat - Composite

Outbuildings/Secondary Structures: None

Topographic or Assessor's Map

Major Alterations *(with dates)*:
1984- Painted brick and copper facade
1985 – Replaced existing wood, masonry & glass storefront with new glass and aluminum assembly
1986 – Covered areaway at ground floor level

Condition: Fair

Moved: **no** | X | **yes** | | **Date** __________

Acreage: 26,564 sq. ft. (0.609 acre)

Setting: Urban

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date *(month / year)*: July 2009

Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The building at 155 Massachusetts Avenue (153 in Building Assessor's and Permit Records) is a 4-story brick structure with a below grade basement floor. It is located at the corner of Massachusetts Avenue and Haviland Street. The building footprint measures approximately 60' on the front and back and is almost 95' deep. The structure sits on a stone foundation and comprises a brick and limestone superstructure. Its architectural style can be classified as Renaissance Revival with a number of neoclassical features such as arched windows, projecting rounded bays, swag and wreath details and an ornamental cornice. The style and appearance of this building is very similar to its neighboring building at 147 Massachusetts Avenue across Haviland Street. This near-identical design suggests that number 155 which now features a painted brick finish originally had yellow brick exterior walls, like those that remain unpainted at 147 Massachusetts Avenue. Building permit records indicate that the brick and copper facades were painted in 1984.[1]

The main (east-facing) building façade has a centrally positioned entry vestibule at the ground floor with an arched opening. It is constructed of limestone ashlar masonry and detailed with an 'egg-and-dart motif' at the edges. The ground floor is taller than the upper floors and consistent with the design intent, this floor has always housed retail stores. The original storefront was constructed with limestone, wood framing and glass panels. It was remodeled in the mid-1980's with new glass and aluminum framing. Above the first floor, the flat brick facades are punctuated by projecting rounded bays with painted copper cladding. The bays feature ornamentation in the form of moldings, decorative pediments with Ionic capitals and floral swag and wreath patterns. The copper is painted tan to match the surrounding brick masonry. *(Continued)*

HISTORICAL NARRATIVE:

Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

Although the exact date of construction of the building cannot be stated with certainty, historic maps of this area from the Bromley Atlas of Boston[2] indicate that it was constructed c.1900 by owner George T. Cruft as an apartment building with retail stores on the first floor. Most of the properties on this block at the time were single-family dwellings arranged as rowhouses much in the fashion of Back Bay proper. Across Massachusetts Avenue though, the lots were larger and were beginning to be occupied by commercial and institutional establishments. Over-time, this trend spilled over to the other side of the street as well. Most former dwellings were taken down and lots merged to construct larger mixed-use buildings. The corner building at 155 Massachusetts Avenue was therefore, somewhat of a precursor to this trend on its block. *(Continued)*

BIBLIOGRAPHY and/or REFERENCES

[1] Building Permit, August 29 1984, City of Boston, Inspectional Services Department http://www.cityofboston.gov/isd/building/docroom/ (Accessed July 2009)
[2] Bromley Atlas of Boston 1890, 1895, 1902, 1908, 1917, 1928, 1938. Available at http://www.bostonredevelopmentauthority.org/maps/maps.asp (Acceseed July 2009)
[3] Seventy-Sixth Annual Report of the Industrial Aid Society, October 1911,, p.2 http://books.google.com/books?id=ArzIAAAAMAAJ&printsec=titlepage#v=onepage&q=&f=false (Accessed July 2009). The main purpose of the Industrial Aid Society was to help people find appropriate employment and improve their working conditions.
[4] Anthony Mitchell Sammarco and Paul Buchanan, *Milton Architecture*, (Arcadia Publishing, 2000), p. 116 http://books.google.com/books?id=YRSZ30aTMkAC&printsec=frontcover#v=onepage&q=&f=false (Accessed July 2009)

ARCHITECTURAL DESCRIPTION: (Continued)

The copper roof cornice projects out from the building line to create an overhang supported by ornamental brackets. These are followed by a frieze of 'egg-and-dart' detail as seen on the first floor and another frieze of dentils, also molded in copper. Just below the cornice, the flat brick façade features a Lombard band detail – i.e. a decorative blind arcade. Between the third and fourth floors there is another beltcourse of dentils – a simpler molding (sans the dentils) appears between the first and second floors. There is no banding between the second and third floors. All the exterior windows on the building, except those on the fourth floor have rectilinear windows with jack-arches above them – the fourth floor windows feature semi-circular arches. All windows have limestone sills.

As briefly mentioned above, the building has a roughly rectangular footprint with the main entrance on the first floor positioned centrally on the shorter side. This entrance leads into a corridor with an elevator to access other floors. On either side of the entrance, there are stores on the first floor with centrally positioned toilets behind the elevator shaft. The second, third and fourth floors have a variety of small and large rooms arranged around the perimeter with circulation around the central core of elevator, stairs and toilets. An areaway enclosed on all 4 sides on the south edge of the building was covered on the first floor with a roof, in the mid-1980's –it was, however, not enclosed on the upper floors.

Overall, the Renaissance Revival style of the building, characteristic of architectural trends at the advent of the twentieth century, as well as its strong relationship with the neighboring building across Haviland Street, asserts the important role this building plays in establishing an appropriate historical context in this neighborhood.

HISTORICAL NARRATIVE: (Continued)

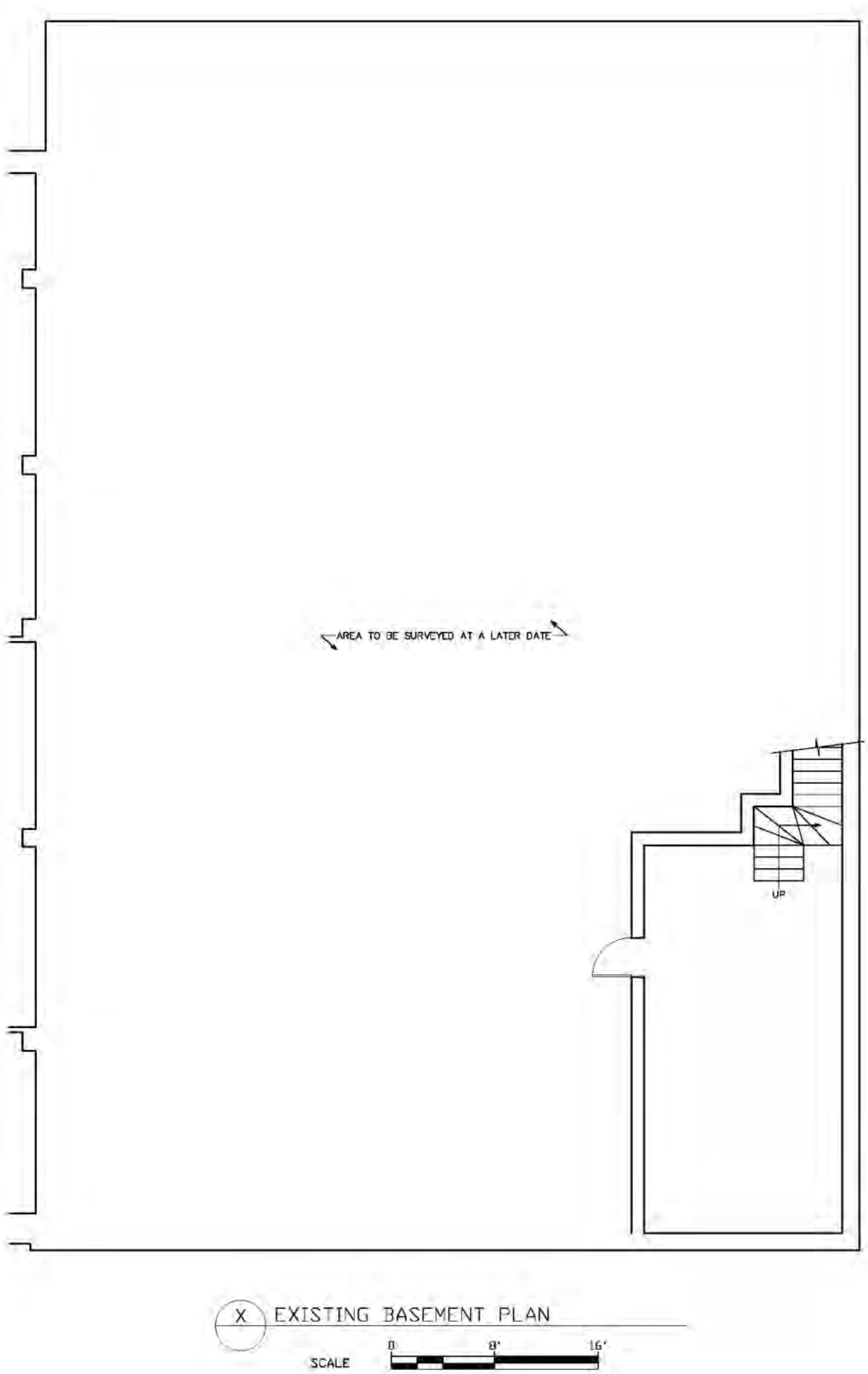
The owner George T. Cruft was prominent in Boston's business and social circles at the time. Records from 1911 of the Industrial Aid Society list him as one of the Vice-Presidents of the Society.[3] Building permit records indicate that architect Edwin J. Lewis, Jr. was employed by Mr. Cruft in 1915 to make some minor alterations on the first floor. Edwin J. Lewis, Jr. (1859-1937) was a prominent Boston architect[4] and it seems likely that he was also the architect for the whole building. An M.I.T. graduate, Lewis was associated with the architectural firm of Peabody and Stearns from 1881 to 1887, when he established his own practice at 9 Park Street in Boston. For five decades, Lewis was an important architect who designed almost 35 churches in the US and Canada and a number of residential buildings.

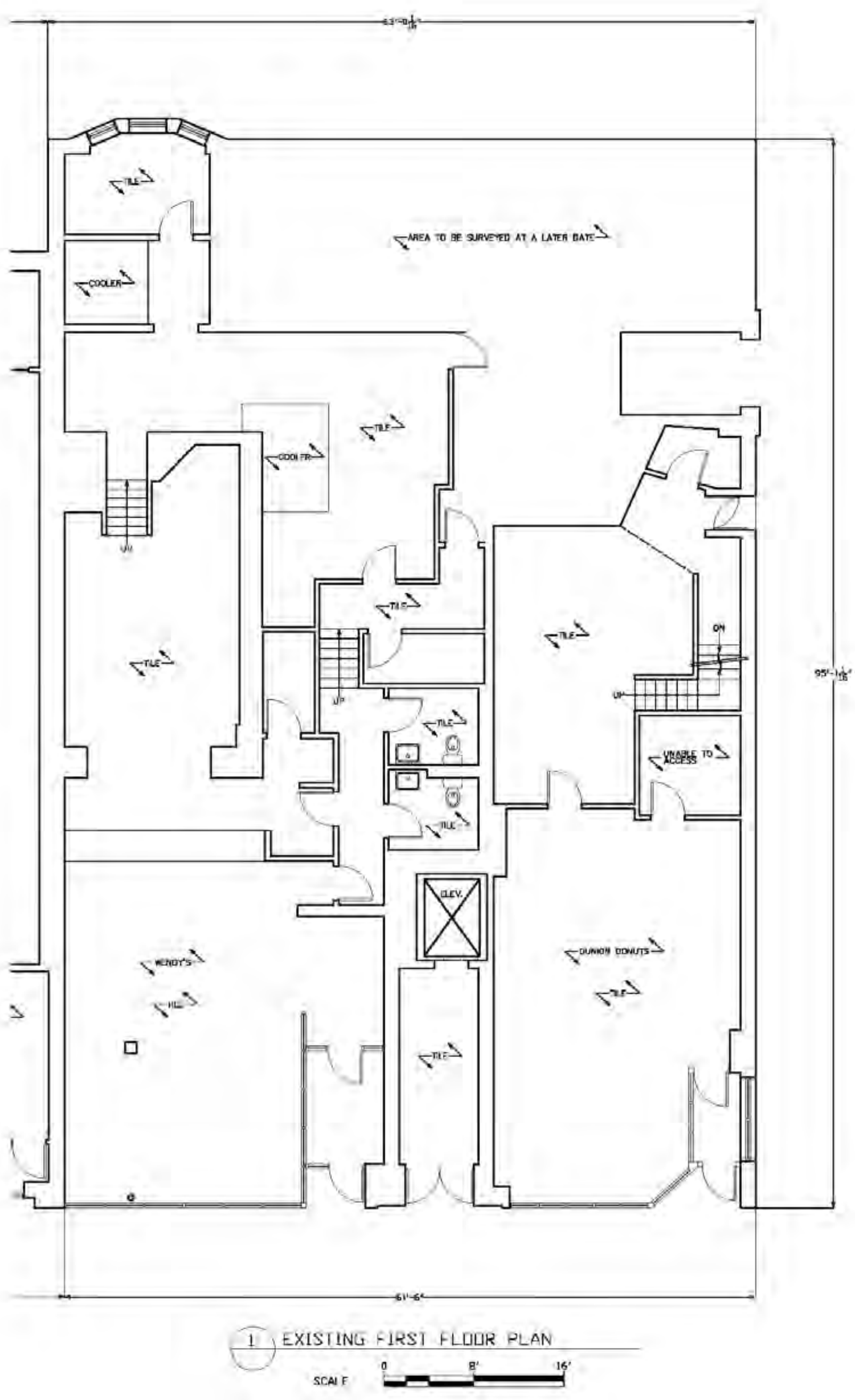
In 1943 the building occupancy was changed to a lodging house and records indicate that by 1945 the upper floors were operating as a home for aged persons. The first floor always housed retail stores of different kinds, and it was in 1956 that a part of it was converted to a café. Since then, the first floor has been used for restaurants, bakeries and different dining houses. Interior finishes have been significantly altered over the years –new ceilings, floor, lighting and mechanical systems were replaced and renovated multiple time in the buildings long history. In 2006 the Berklee College of Music bought the building. Currently it is occupied by commercial tenants for retail uses on the first floor, by Berklee on the third and fourth floors for faculty and special program offices, and it is lying vacant on the second floor. Berklee is in the process of developing two new classrooms and faculty offices on the second floor.

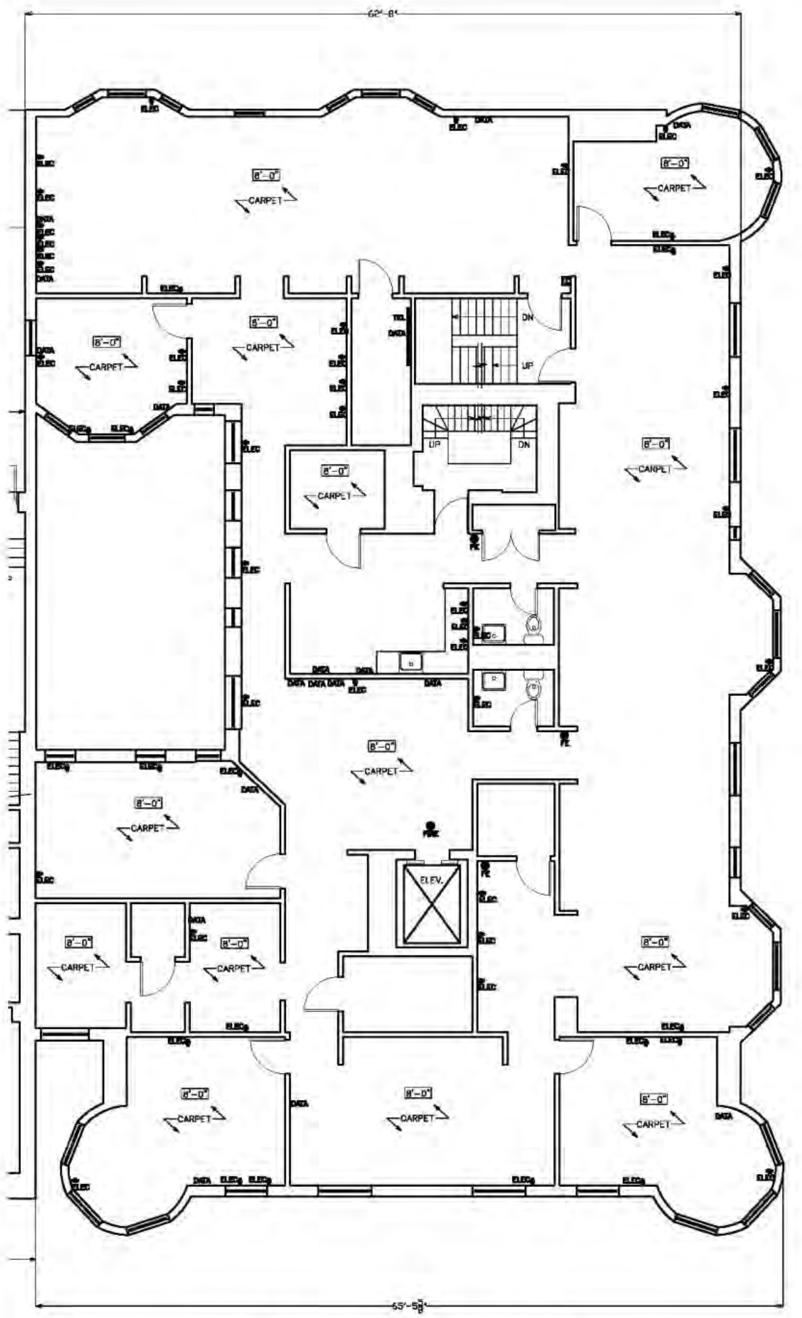
North-east corner detail

Bay detail

Front Entrance

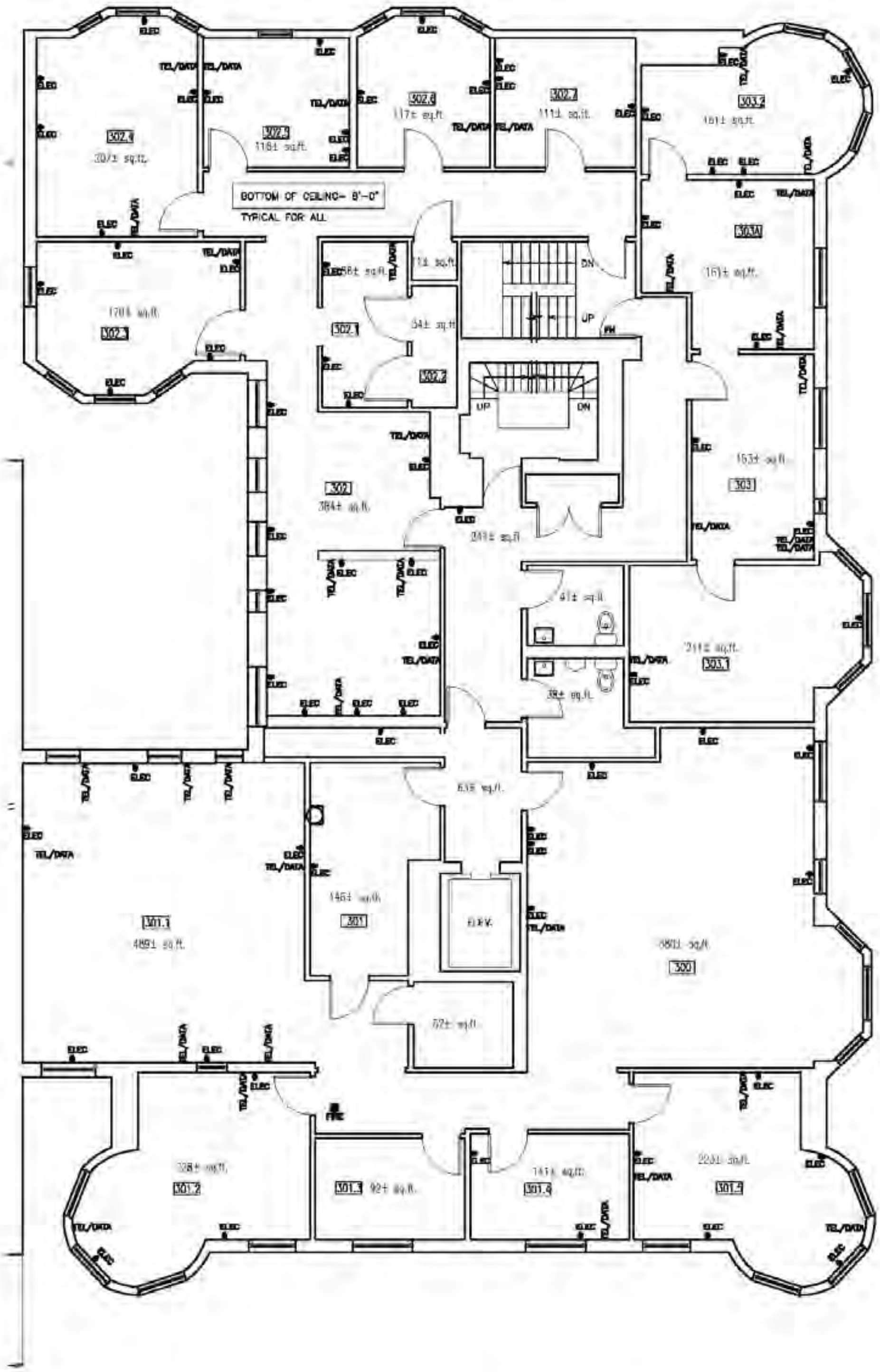

AREA TO BE SURVEYED AT A LATER DATE
UP
X
EXISTING BASEMENT PLAN
SCALE
0
8'
16'


AREA TO BE SURVEYED AT A LATER DATE
TILE
COOLER
UP
ELEV.
UNABLE TO ACCESS
WENDY'S
DUNKIN DONUTS
61'-6"
1 EXISTING FIRST FLOOR PLAN
SCALE
0
8'
16'



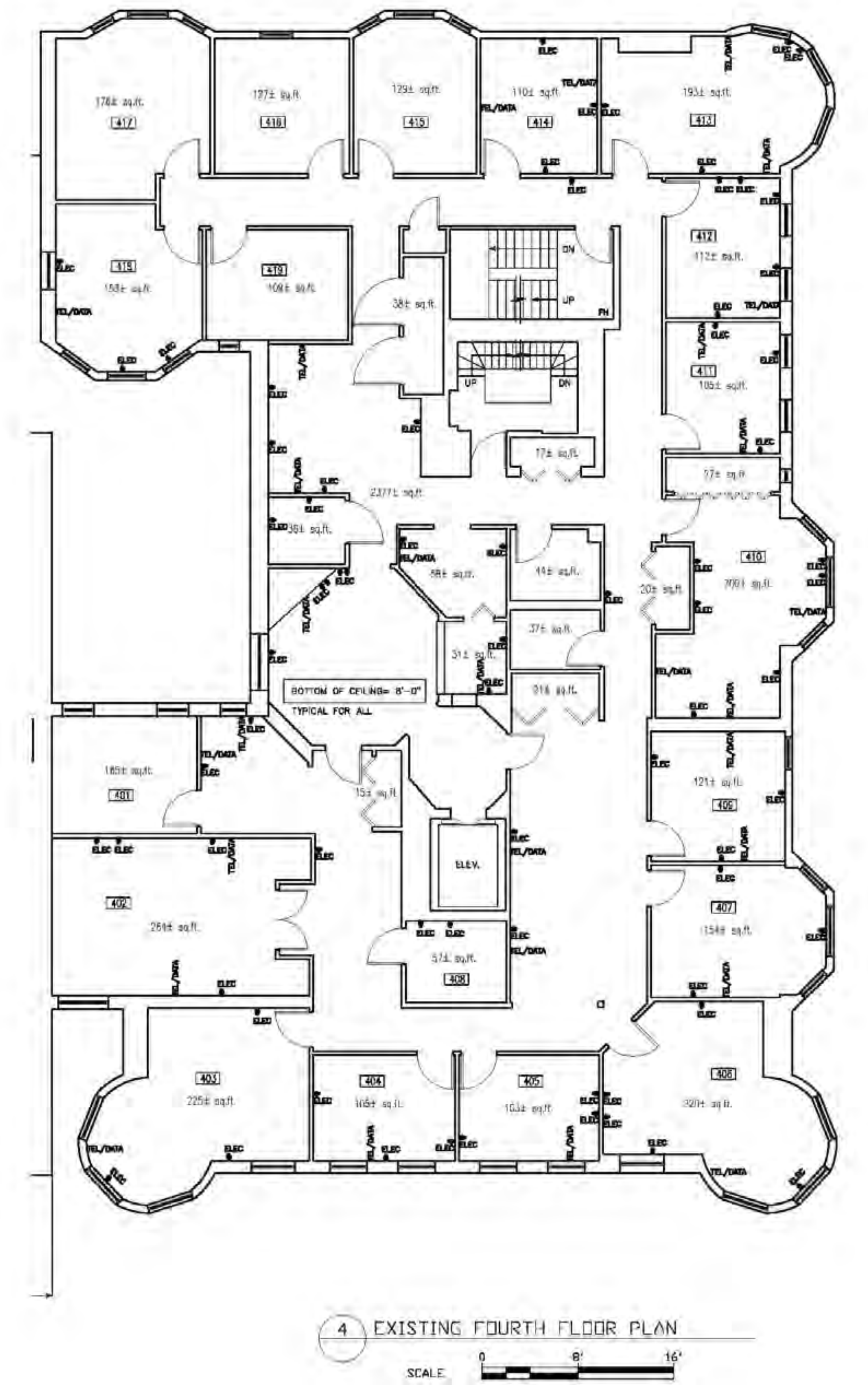
2 EXISTING SECOND FLOOR PLAN

SCALE 0 8' 16'



3 EXISTING THIRD FLOOR PLAN

SCALE 0 8' 16'


BOTTOM OF CEILING= 8'-0"
TYPICAL FOR ALL
ELEV.
4 EXISTING FOURTH FLOOR PLAN
SCALE
0
8'
16'

[1] Building Permit, August 29 1984, City of Boston, Inspectional Services Department http://www.cityofboston.gov/isd/building/docroom/ (Accessed July 2009)
[2] Bromley Atlas of Boston 1890, 1895, 1902, 1908, 1917, 1928, 1938. Available at http://www.bostonredevelopmentauthority.org/maps/maps.asp (Acceseed July 2009)
[3] Seventy-Sixth Annual Report of the Industrial Aid Society, October 1911,, p.2 http://books.google.com/books?id=ArzIAAAAMAAJ&printsec=titlepage#v=onepage&q=&f=false (Accessed July 2009). The main purpose of the Industrial Aid Society was to help people find appropriate employment and improve their working conditions.
[4] Anthony Mitchell Sammarco and Paul Buchanan, *Milton Architecture*, (Arcadia Publishing, 2000), p. 116 http://books.google.com/books?id=YRSZ30aTMkAC&printsec=frontcover#v=onepage&q=&f=false (Accessed July 2009)

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
0401414000 0401414001			

Photograph

Topographic or Assessor's Map

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date (*month / year*): July 2009

Town: Boston

Place: *(neighborhood or village)* East Fenway

Address: 161 Massachusetts Avenue

Historic Name: None

Uses: Present: Mixed-Use (Commercial; Institutional)

Original: Mixed-Use (Commercial; Institutional)

Date of Construction: 1915

Source: Building Permit Records

Style/Form: Renaissance Revival

Architect/Builder: Henry Bailey Alden

Exterior Material:

Foundation: Stone

Wall/Trim: Brick/ Terracotta

Roof: Flat - Composite

Outbuildings/Secondary Structures: None

Major Alterations *(with dates)*:
1948- Addition of fire escape
1961- Erection of mezzanine floor (Where?)
1966- Replacement of original glass & wood frame storefront with new aluminum and glass
2008-09—Façade & parapet restoration – plaster and paint of exterior elevations

Condition: Fair

Moved: **no** | X | **yes** | | **Date** __________

Acreage: 30,283 sq. ft. (0.7 acre)

Setting: Urban

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The building at 161 Massachusetts Avenue (159 in Building Assessor's and permit Records) is a four story brick structure with a below grade basement. The building footprint is roughly square on the basement and first floors, and measures almost 90' on the front, back and sides. The floorplate becomes smaller on the upper floors as the building line recedes in the rear to almost 60'. The structure sits on a stone foundation and comprises a yellow brick and limestone superstructure. The building was constructed in 1915 and its architectural style which is very similar to its neighbors, can be classified as Renaissance Revival. The front façade of the building is symmetrical and rhythmic. It is organized into seven vertical bays – the central bay is narrower than the rest and acts as the central focus with an entrance portal on the first floor. On either side of this entrance there are shop windows that are wider than the windows on the upper floors. In 1966 the old wooden shop windows were replaced with aluminum frame and new glass. The building has 'Chicago-style'[1] windows on the upper three stories – while those on the second and third floors have rectilinear profiles, the fourth story windows feature tudor arches. The arched spandrels in these fourth story windows appear to be modern replacements. There are ornamental sculptural details at the heads of the arched windows, most probably in terracotta. The motifs are floral in nature and consistent with the renaissance revival theme of the building. Under the windows on the second, third and fourth floors are brick spandrel panels with geometric (diamond-shaped) designs. Three-sided columns that run from the second to the fourth floor separate each vertical bay from the next. The roof cornice is more heavily decorated than any other façade element and features ornamental, floral column capitals, brackets and beltcourses. At the time of preparation of the Form B, the building is undergoing a major façade and parapet restoration which involves plastering of the exposed yellow brick surface of the building. The interiors of the building have been renovated a number of times in its history with new partitions, ceiling and floor finishes, etc.

HISTORICAL NARRATIVE:

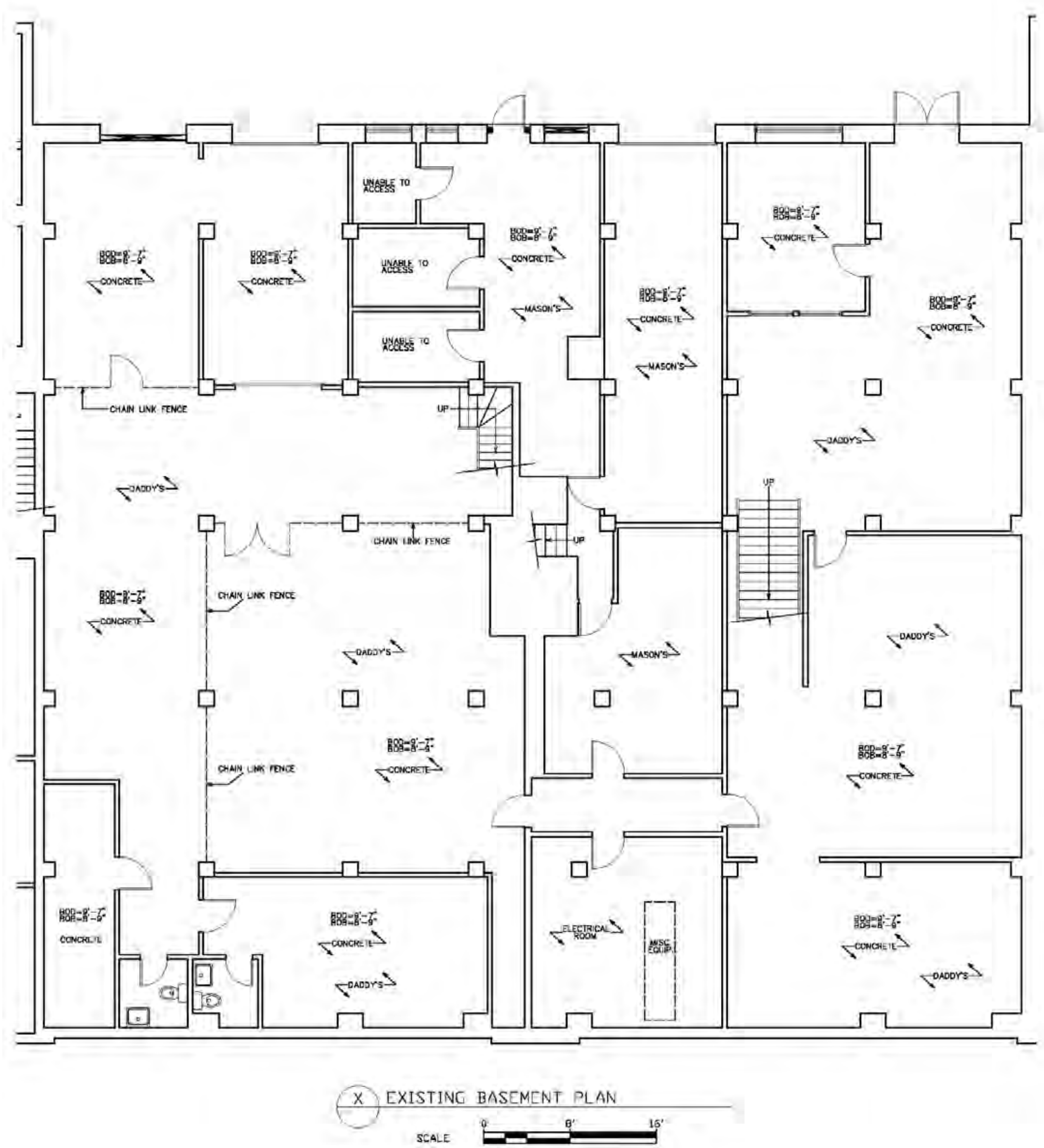
Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

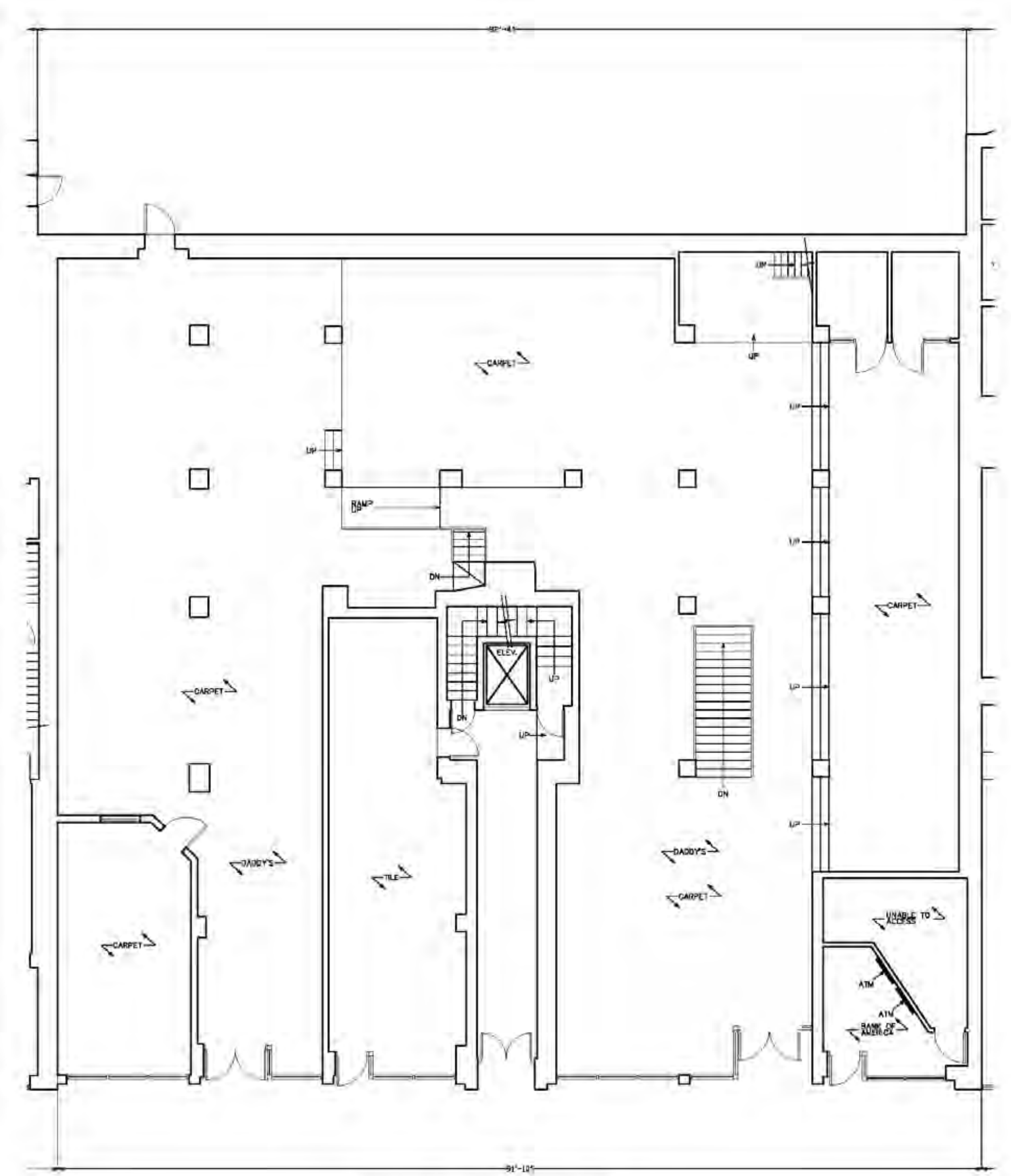
Permit records indicate that for the construction of this building in 1915, three existing lots were merged to create the current lot. Each of these lots had an existing 3-story residential building possibly dating from 1885. These buildings were demolished to make way for this new structure. The owner's name is listed as Swift-McNutt Company; however, historical research indicates that Swift McNutt was a prominent building demolition company; therefore, it may be possible that they briefly owned the building during the demolition and construction process, but later sold it to other owners. From the permit records it also appears that the architect for the building was Henry Bailey Alden. H.B. Alden was a prominent Boston architect known for his office and residential buildings throughout the city. His most well-known project is arguably the Chatham Bars Inn in Chatham, Cape Cod. It appears that the building was originally used to house stores on the first floor and offices above. Towards the middle of the twentieth century, the building was owned by Boston Real Estate Trust and restaurants and dining facilities had replaced some of the stores on the first floor. The building passed onto the hands of a number of other private owners who maintained retail and office uses in the structure. In 2008 it was acquired by the Berklee College of Music. Currently, the building is occupied by retail uses on the ground floor and commercial tenants on the three upper floors.

BIBLIOGRAPHY and/or REFERENCES

[1] Chicago-Style is an architectural style c.1895-1930 which refers to the commercial and office form that developed in the late nineteenth century, primarily in response to the new technologies that permitted greater physical height and larger expanses of open floor space. The style is called the "Chicago Style" because experimentation with the form flourished in that city after the 1871 fire. The Chicago-style window is a three-part window with a large rectangular fixed central light flanked by two narrow, double-hung sashes.

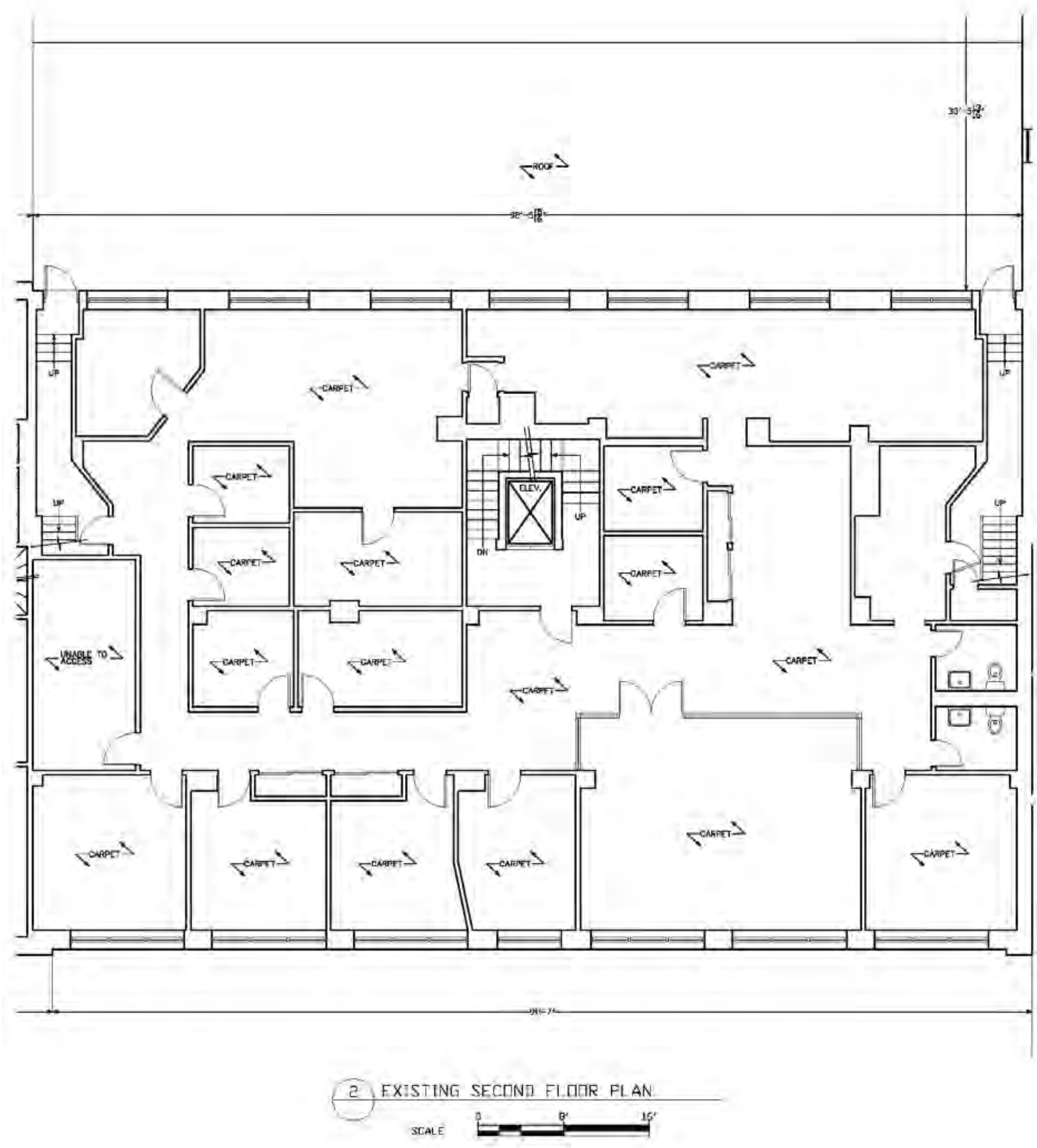
North-west corner detail

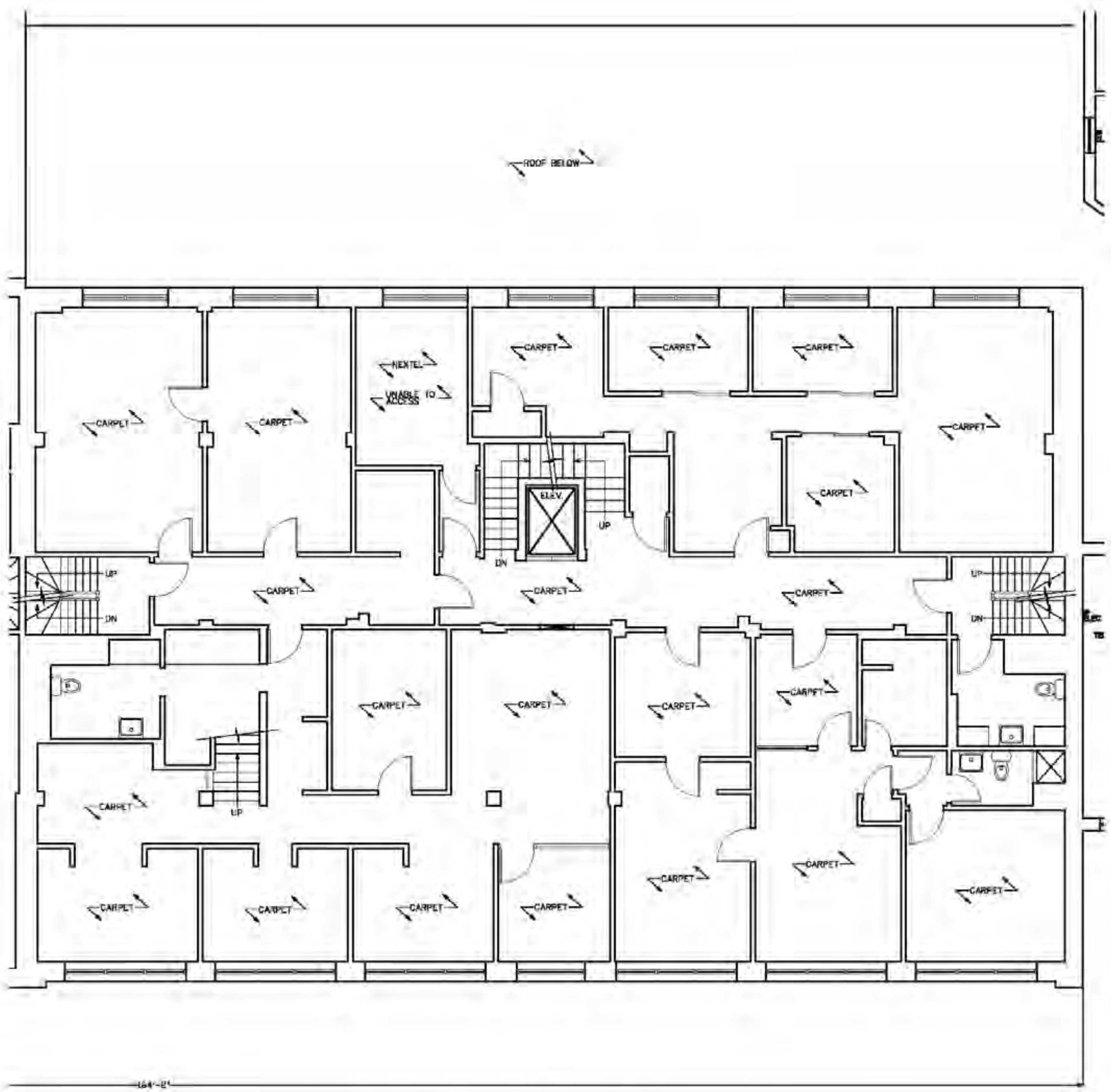

UNABLE TO ACCESS
UNABLE TO ACCESS
UNABLE TO ACCESS
CONCRETE
MASON'S
DADDY'S
CHAIN LINK FENCE
UP
ELECTRICAL ROOM
MISC EQUIP
X EXISTING BASEMENT PLAN
SCALE
0
8'
16'



1 EXISTING FIRST FLOOR PLAN

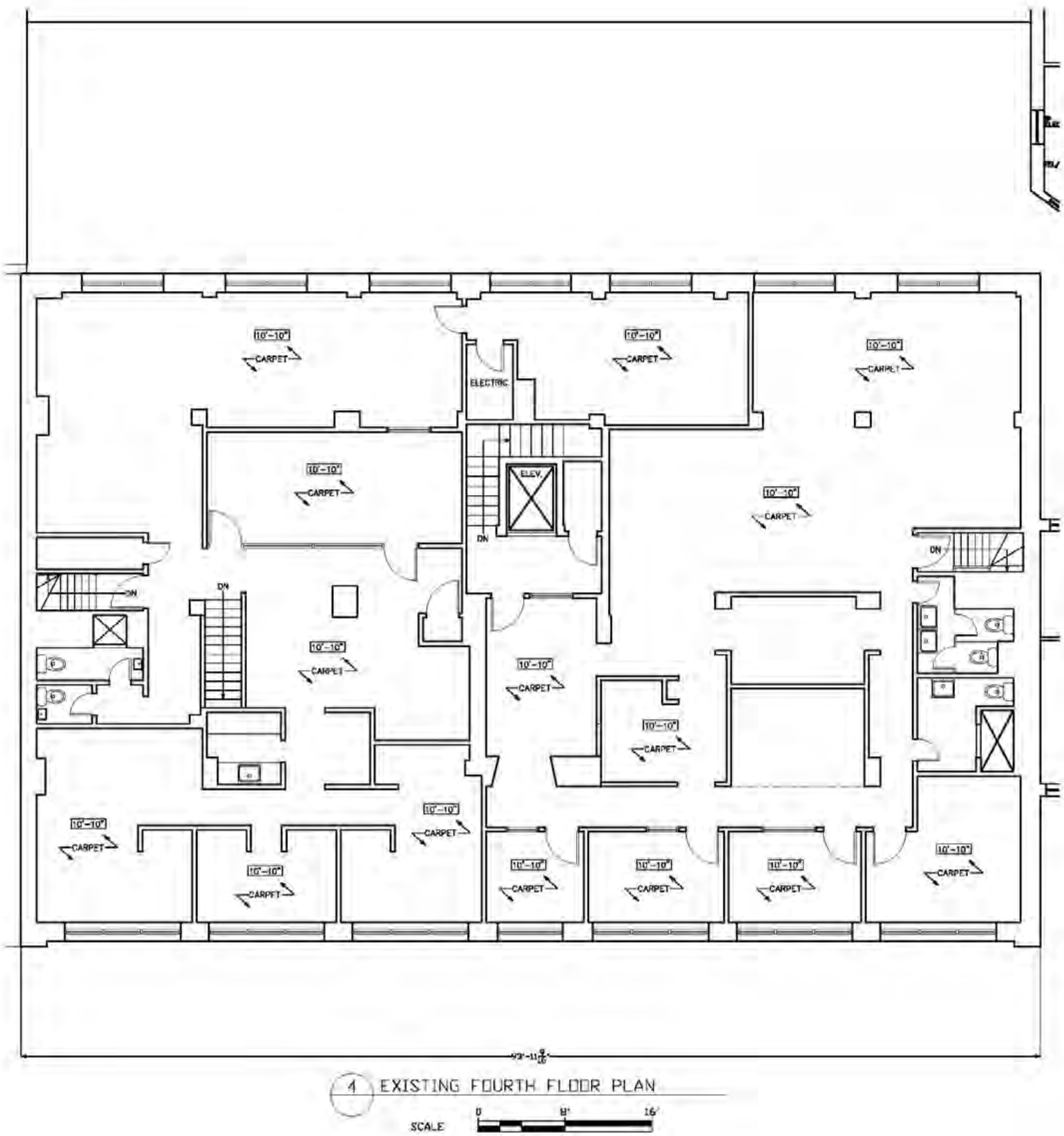
SCALE 0 8' 16'


ROOF
CARPET
CARPET
UP
UP
UP
UP
ELEV.
DN
UNABLE TO ACCESS
2 EXISTING SECOND FLOOR PLAN
SCALE
0
8'
16'



3 EXISTING THIRD FLOOR PLAN

SCALE 0 8' 16'


10'-10"
CARPET
ELECTRIC
ELEV.
DN
4 EXISTING FOURTH FLOOR PLAN
SCALE
0
8'
16'

[1] Chicago-Style is an architectural style c.1895-1930 which refers to the commercial and office form that developed in the late nineteenth century, primarily in response to the new technologies that permitted greater physical height and larger expanses of open floor space. The style is called the "Chicago Style" because experimentation with the form flourished in that city after the 1871 fire. The Chicago-style window is a three-part window with a large rectangular fixed central light flanked by two narrow, double-hung sashes.

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
0401415000 0401415001			

Town: Boston

Place: *(neighborhood or village)* East Fenway

Photograph

Address: 171 Massachusetts Avenue

Historic Name: None

Uses: Present: Mixed-Use (Commercial; Institutional)

Original: Mixed-Use (Commercial; Institutional)

Date of Construction: c. 1915

Source: Building Permit Records

Style/Form: Renaissance Revival

Architect/Builder: Architect unknown, E. Pierson Beebe (owner)

Exterior Material:

Foundation: Stone/Concrete

Wall/Trim: Brick/ Stone/Cast Metal

Roof: Flat- composite

Outbuildings/Secondary Structures: None

Topographic or Assessor's Map

Major Alterations *(with dates)*:
c.1983- Construction of a restaurant at first floor
1996 – Major interior remodeling of first floor, new space layout and finishes for practice rooms and offices for Berklee College of Music.

Condition: Fair

Moved: **no** | X | **yes** | | **Date** __________

Acreage: sq. ft. (acre)

Setting: Urban

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date (*month / year*): January 2011

Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The building at 171 Massachusetts Avenue has 3 above-grade stories and a below-grade basement. The building has a rectangular footprint- 70’ wide by 90’ deep. The building sits on a stone and concrete foundation with painted brick walls, cast/pressed metal trim and cast stone. The building has two staircases and the floor plate becomes smaller on the second and third floors to almost 63’, resulting in an inaccessible terrace on the second floor. The building was constructed c. 1915 and its architectural style, which is very similar to its neighbors, can be classified as Renaissance Revival. The front façade of the building is symmetrical and rhythmic. It is organized into five equal vertical bays. The entrance leading to the upper floors of the building is centrally located on the first floor. It is distinguished by an ornamental trim and pediment in cast metal that is painted black to match the black marble casing and keystone over the entrance. On either side of this entrance, there are shop windows that are wider than, and not in alignment with the windows on the upper floors. Windows on the second and third floor are the original wood windows in a style referred to as ‘Chicago-Style’ windows[1] – a three part window with a large rectangular fixed central light flanked by two narrow double-hung sashes. *(Continued)*

HISTORICAL NARRATIVE:

Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

Historic construction permit records and fire insurance maps of the building site indicate that c. 1890, three residential buildings, one on each, were constructed on plots 167, 169 and 171. However, it appears from subsequent maps that these buildings were demolished and replaced by the present building c. 1915. This new 3-storied building stood on plots 167, 169 and 171 and was owned by Edward Pierson Beebe (1843-1926) and later by his brother Franklin Huntington Beebe (1853-1932). The Beebe’s were a prominent Massachusetts family. Edward Pierson Beebe mostly used his middle name and is listed as E. Pierson Beebe in the historic permit records. He was the Director of the Androscoggin Mills in Lewiston, Maine, one of the largest cotton mills in New England and is most well-known for building Highfield Hall in 1878, the first of the great summer homes in Falmouth, and the St. Barnabas Memorial Church in 1889, a thank offering for his financial success. He also served as senior warden of the Church from 1888 until his death in 1926. The Beebes were undoubtedly a formidable family. They owned a lot of property in and around Boston and were on the boards of various cultural, social and religious organizations, including being shareholders of the Boston Opera House. The Beebe’s eventually sold the property at 171 Mass. Ave and the new owner was E. Sohier Welch, as listed in the 1938 fire insurance map. E. Sohier Welch was a distinguished Boston lawyer and businessman. He was President of the Boston Co-operative Building Society and owned some other properties too in Back Bay on nearby Newbury Street.

The building at 171 Mass. Ave. was originally built as a mixed-use building with stores on the street level and offices on the upper floors and it maintained these functions till about 1983 when a restaurant was added on the first floor. By 1989 the property had been purchased by the Berklee College of Music and some of the spaces were reconfigured to create practice rooms for the College. The restaurant retail functions at the first floor on the north half of the site were retained. *(Continued)*

BIBLIOGRAPHY and/or REFERENCES

[1] Chicago-Style is an architectural style c.1895-1930 which refers to the commercial and office form that developed in the late nineteenth century, primarily in response to the new technologies that permitted greater physical height and larger expanses of open floor space. The style is called the "Chicago Style" because experimentation with the form flourished in that city after the 1871 fire. The Chicago-style window is a three-part window with a large rectangular fixed central light flanked by two narrow, double-hung sashes.

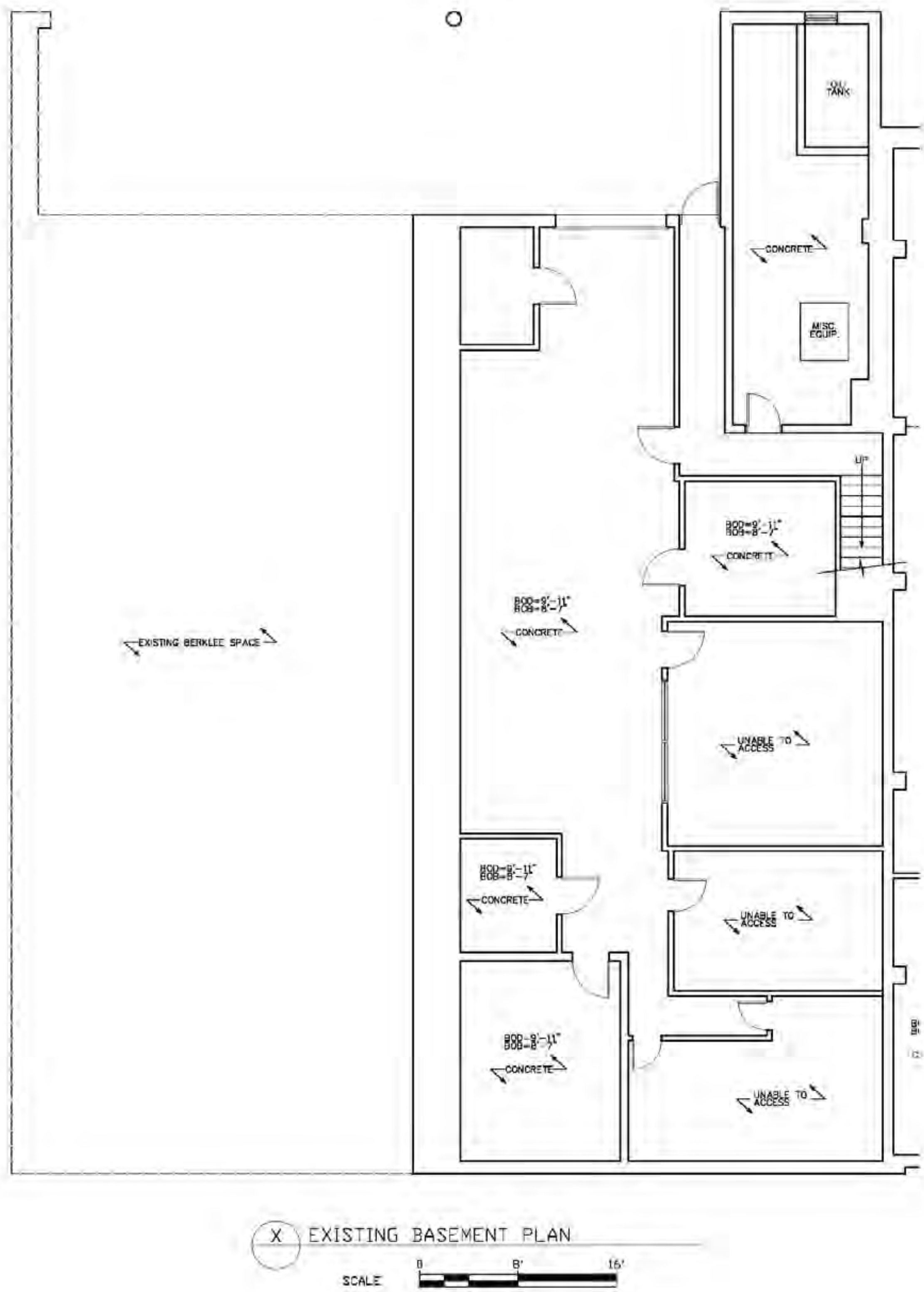
ARCHITECTURAL DESCRIPTION: (Continued)

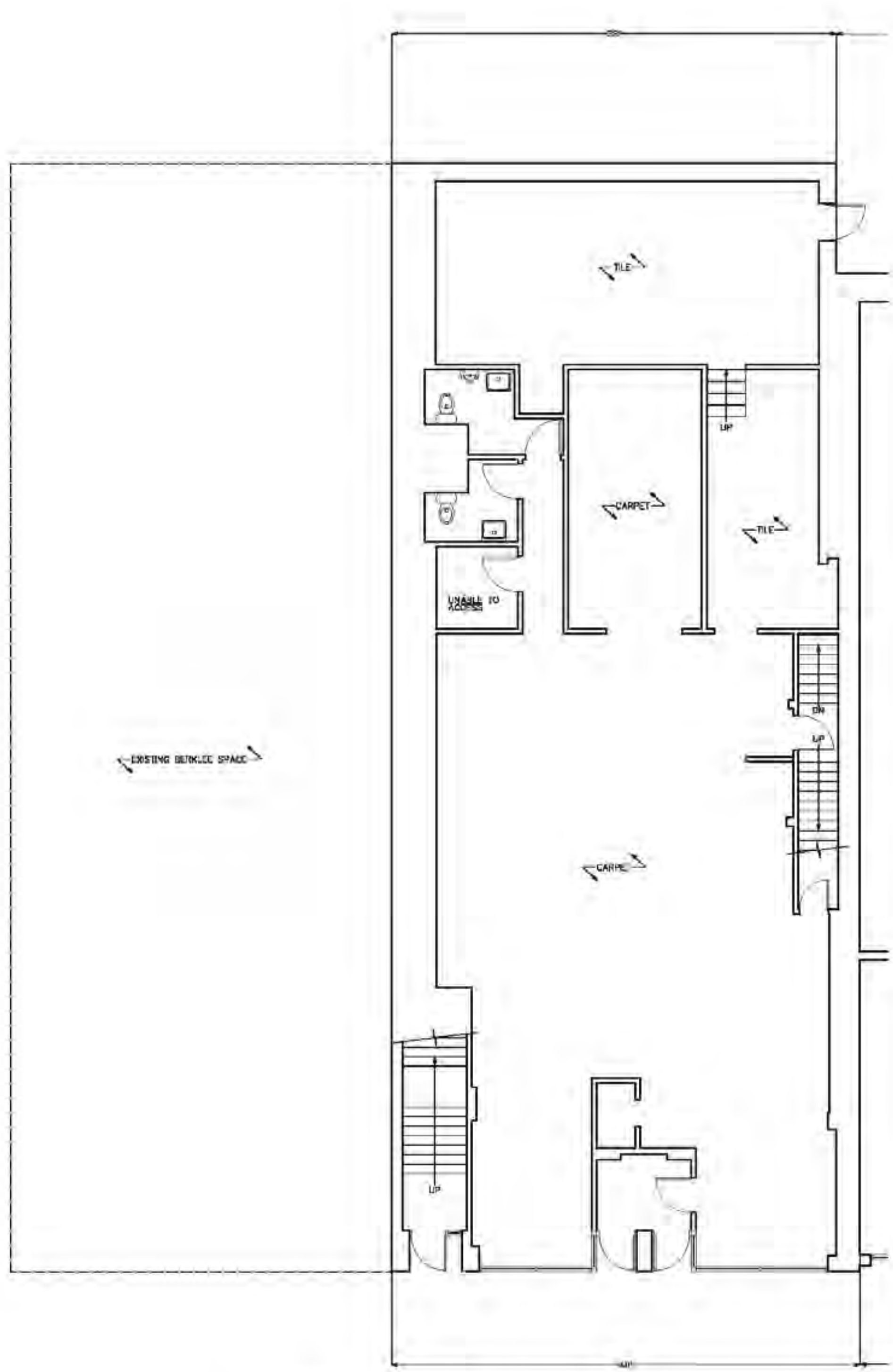
Between the first and second floor windows there is a continuous horizontal cast stone band roughly 5' tall. This space is occupied by awnings and signs for the spaces on the first floor. On the second and third floors the vertical bays are more clearly identified and emphasized. This is accomplished by a cast stone molding that runs around each vertically stacked pair of windows with a step detail and keystone over the top window. There is a spandrel zone with cast metal detailing between the second and third floor windows. The roof cornice features ornamental detailing in cast metal with square brackets above a dentil band. The parapet is almost 'battlement' shaped with two alternating blocks of varying shape and size imparting an interesting silhouette to the façade.

The building and its Renaissance Revival façade style is very similar to the neighboring buildings built for commercial and office use on Massachusetts Avenue. Therefore 171 Mass Ave plays an important role in contributing to the historical context in this neighborhood.

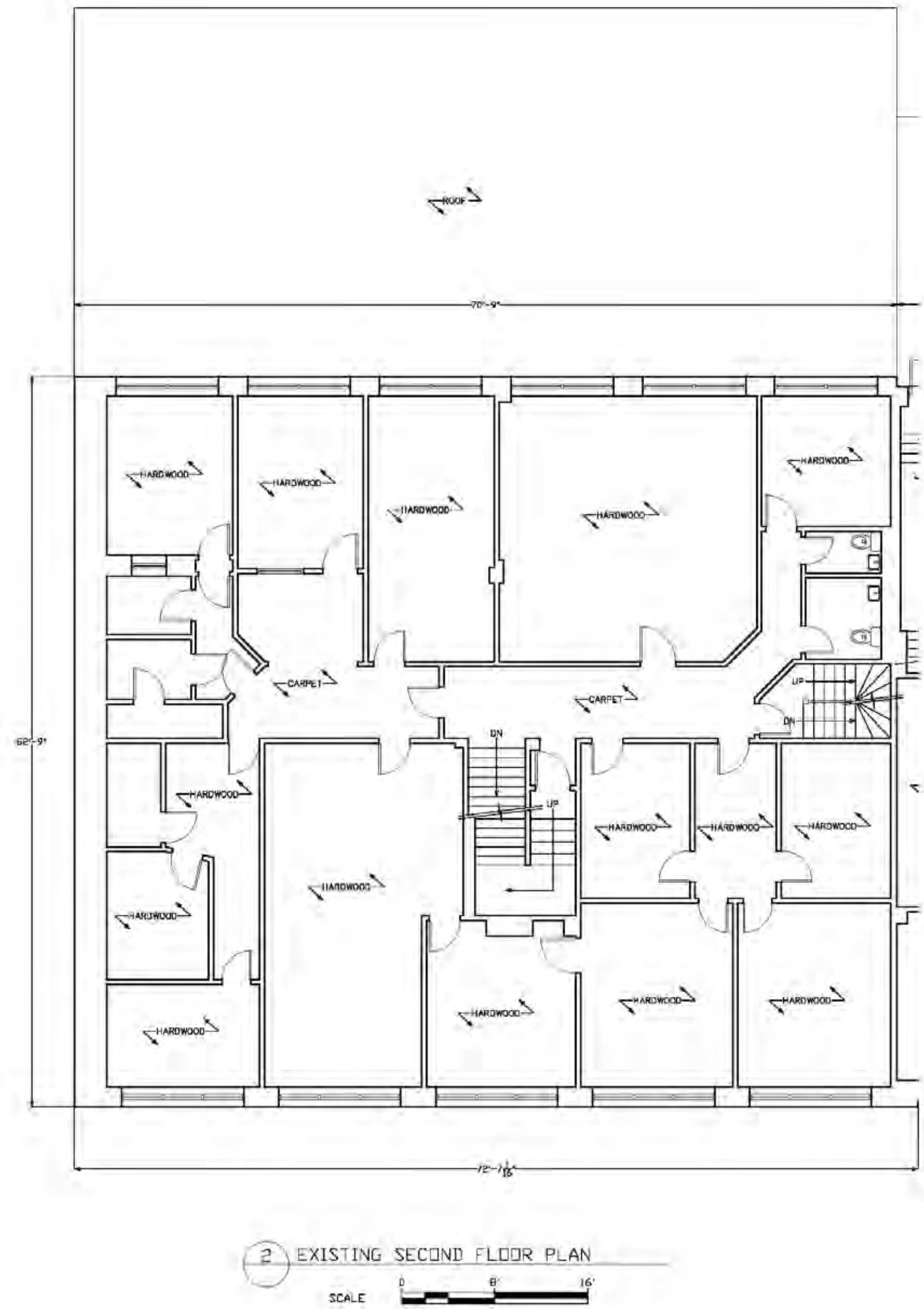
Front entrance

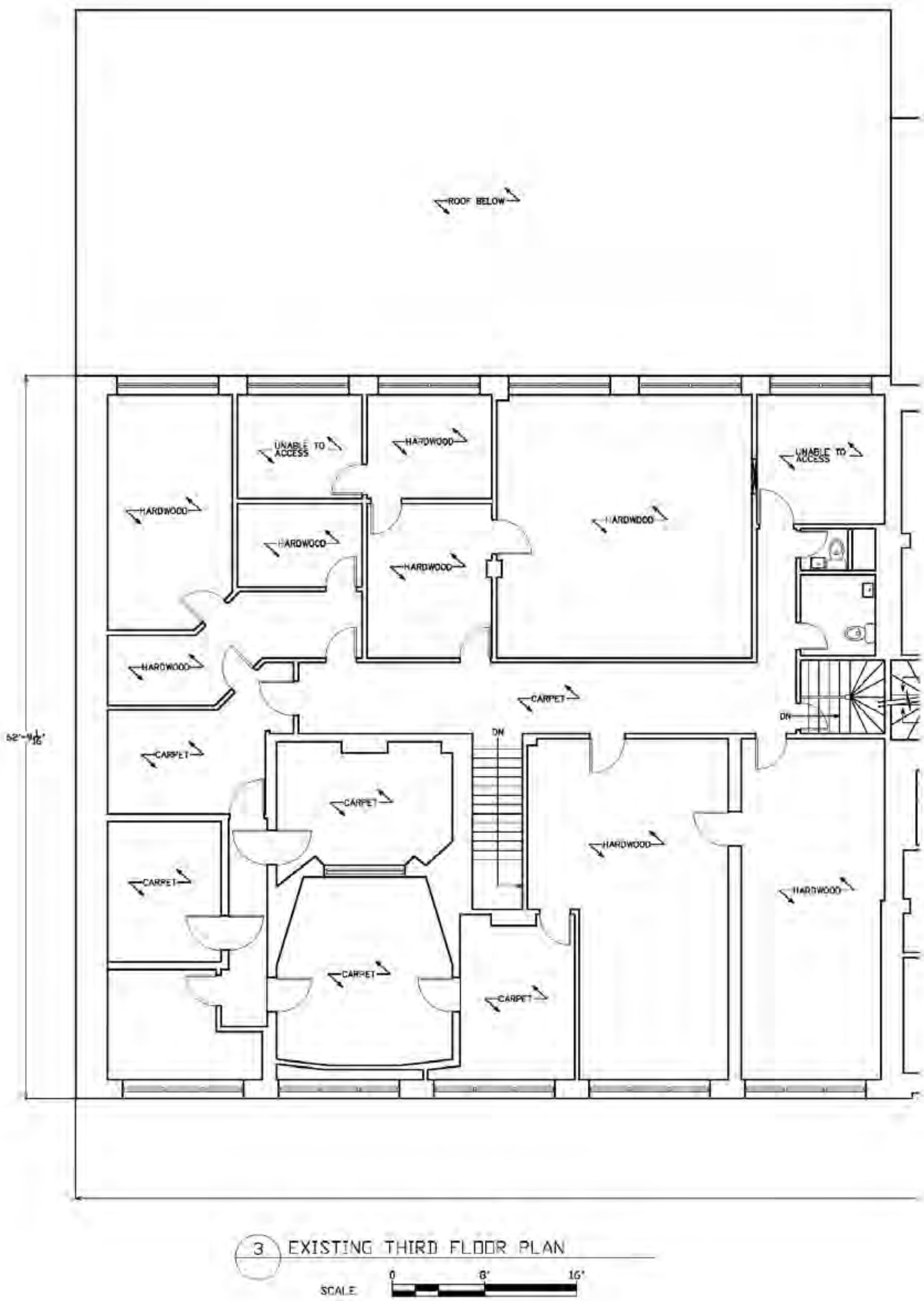

Elevation detail


OIL TANK
CONCRETE
MISC. EQUIP.
UP
BOD=9'-11"
BOB=8'-7"
CONCRETE
EXISTING BERKLEE SPACE
UNABLE TO ACCESS
UNABLE TO ACCESS
UNABLE TO ACCESS
X EXISTING BASEMENT PLAN
SCALE
0 8' 16'



1 EXISTING FIRST FLOOR PLAN
SCALE 0 8' 16'


ROOF
70'-9"
HARDWOOD
CARPET
DN
UP
62'-9"
72'-7 1/16"
2 EXISTING SECOND FLOOR PLAN
SCALE
0
8'
16'


ROOF BELOW
UNABLE TO ACCESS
HARDWOOD
UNABLE TO ACCESS
HARDWOOD
HARDWOOD
HARDWOOD
HARDWOOD
HARDWOOD
CARPET
DN
DN
CARPET
CARPET
HARDWOOD
HARDWOOD
CARPET
CARPET
CARPET
3 EXISTING THIRD FLOOR PLAN
SCALE
0
8'
16'

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
0401389000 0401389001			

Town: Boston

Place: *(neighborhood or village)* Back Bay

Photograph

Address: 1096 Boylston Street

Historic Name:

Uses: Present: Vacant

Original: Commercial (Stores + Offices)

Date of Construction: c. 1915

Source: Building Permit

Style/Form: Modern

Architect/Builder: Unknown

Exterior Material:

Foundation: Concrete

Wall/Trim: Brick veneer with brick backup

Roof: Flat - Composite

Topographic or Assessor's Map

Outbuildings/Secondary Structures: (none)

Major Alterations *(with dates):*
1916- Extended 1st floor to rear alley
1980- Rebuilt existing brick parapet with block, Re-laid existing brick veneer on front façade (2nd floor & up)
1988- One bedroom apt incorporated on 3rd floor

Condition: Poor

Moved: **no** | X | **yes** | | **Date** __________

Acreage: 2100 sq. ft. (0.048 acre)

Setting: Urban

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date *(month / year)*: June 2009

Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:
Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The 3-story building at 1096 Boylston Street has a simple brick-clad façade and large rectilinear openings. The building footprint measures approximately 20' on the front and back and ranges from 45' to 65' in length on various floors. It has a basement, sub-basement, and three floors above with a partial mezzanine between the first and second floors. Structurally the building is composed of a concrete foundation and brick walls with a flat, composite roof and wooden floors. The front façade of the building has brick veneer which was replaced with new brick from the second floor up in 1980. The building previously featured a similar brick veneer still present on the first floor, more specifically known as 'tapestry brick' dating from the building's original construction of early twentieth century. Tapestry brick was a popular building material during the time and was used in a number of other commercial and residential buildings in Boston, New York, and other major cities on the east coast. It usually referred to a '*modern, mechanically pressed brick'* with a '*rich texture and splendid polychromy'*[1]. Visual and tactile associations with fabric tapestries lent the brick its distinctive name. One of the very few manufacturers of this brick was Fiske & Co. of Boston, and it is possible that their brick was indeed used at this building. There are a number of historical product catalogues and brochures, dating from early 20th century (hence coinciding with the date of construction of this building) for tapestry brick from Fiske & Co. advertising the trademark 'Tapestry' stamped on every brick[2]. The most distinctive feature of this brick was its varied colors that ranged from '*Indian-red coppers, olive-greens and purple-browns to deep blue'*[3] and were the result of a special clay and firing process developed by the Company. While the 1980 veneer replacement campaign did attempt to match the original brick with a modern replacement that is currently present on the building, it lacks the colors and texture of the historic 'tapestry brick'. Also, while the original brick on the first floor has a 'basket-weave' pattern, the replacement brick on upper floors features running bond, with no attempt to match the original pattern. The parapet was rebuilt in the 1980 renovation – it is not clear whether the horizontal brick banding present there, as well under the third floor window, was added at this time or was a replication of an original detail. *(Continued)*

HISTORICAL NARRATIVE
Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

The building at 1096 Boylston Street seems to have been used for stores and offices since its construction c. 1915. The upper floors were abandoned for a brief period in the 1930's. Subsequently, the building was also used as storage for grocery, fuel and furniture in 1940's. Most of the various stores housed in this building were for household appliances, furniture, etc. Since 1980, up until recently, the first floor of the building was occupied by Jack's Drum Shop. Major renovations were carried out in 1980 as described above – such as replacement of the brick veneer and rebuilding of the roof and parapet. In 1988 the third floor of the building was remodeled as a one bedroom apartment with the division of the floorplan into living and sleeping quarters and the addition of a toilet in the center. The building was acquired by the Berklee College of Music in 2007 and is currently lying vacant. It is anticipated that the ground floor will be marketed for a retail lease; the upper floors will be used for administrative offices and the basement for storage.

BIBLIOGRAPHY and/or REFERENCES

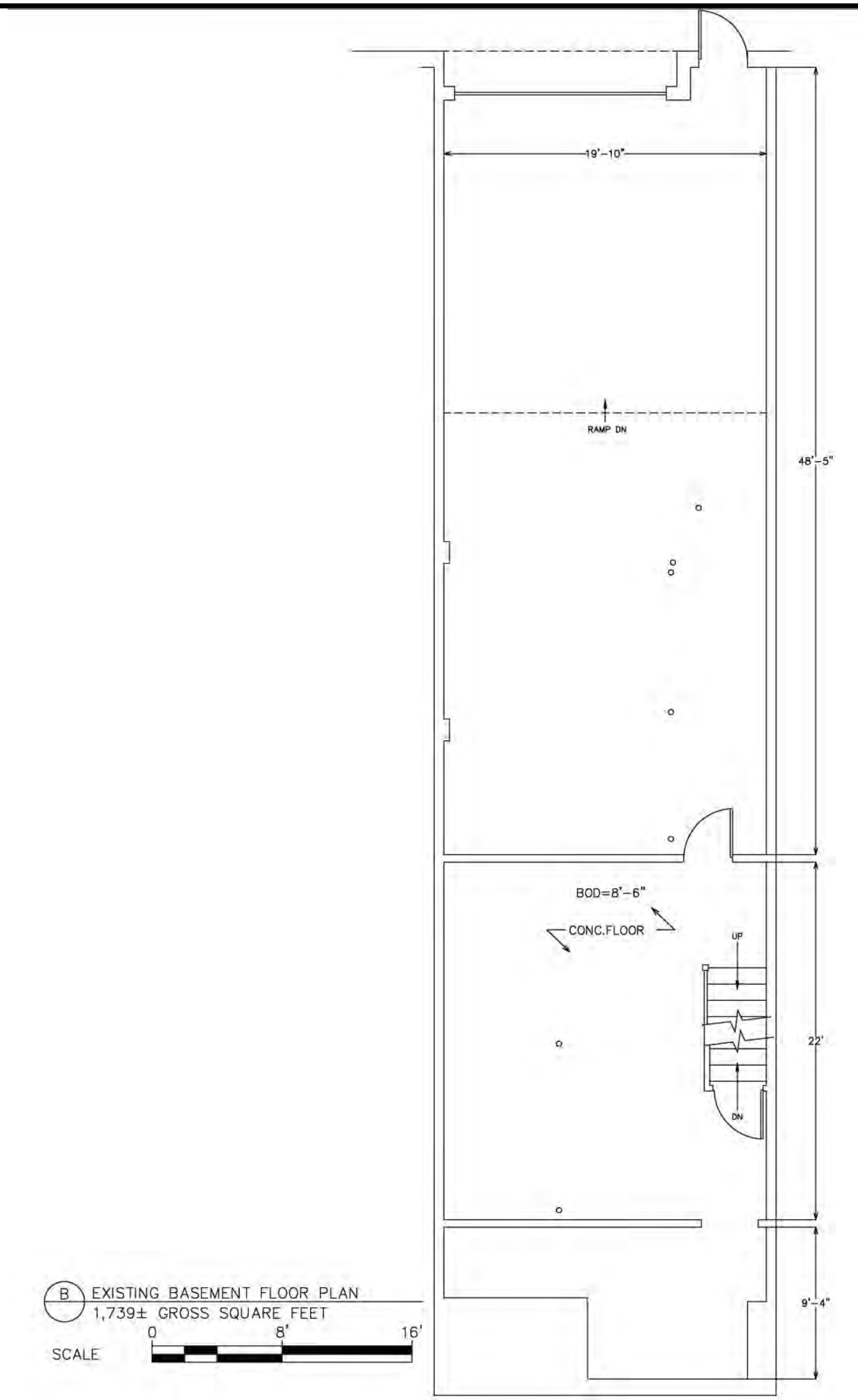
[1] Robert C. Twombly, Narciso G. Menocal, *Louis Sullivan: The Poetry of Architecture* (W.W. Norton & Company, 2000), 138.
[2] Daniel D. Reiff, *Houses from Books: Treatises, Pattern Books and Catalogs in American Architecture- 1738-1950* (Penn State Press, 2000), 327.
[3] "Tapestry Brick: the Most Artistic and Permanent Building Material in the World", *Country Life in America*, March 1910, 595.

ARCHITECTURAL DESCRIPTION: (Continued)

The front façade of the building is punctured by large window openings. On the first floor these take the form of shop windows with a wood entrance door on the left. There is a metal frame above this opening for an awning that has since been removed. The wall surface behind the frame has been patched, and there appears to be a new concrete sill below the second floor window. The second floor has 3 original fixed wood windows – with the central one having the widest proportions. The third floor features replacement metal casement windows that do not maintain the same proportions as the historic ones, i.e., wider sash in the center and narrower ones on the sides- rather all three sashes are the same width in the replacement. The original wood windows are in poor condition.

The interior of the building has a fairly simple layout - from the first floor entrance, stairs lead down into the basements and lead up to the rather small mezzanine space. From here they continue up to the higher floors. The second floor has a bay window and small toilet at the back. The third floor was remodeled as a one-bed apartment in 1988—it has a toilet in the center, a bedroom at back and living room and kitchen in the front.

First floor --Notice original tapestry brick on sides and new brick veneer above first floor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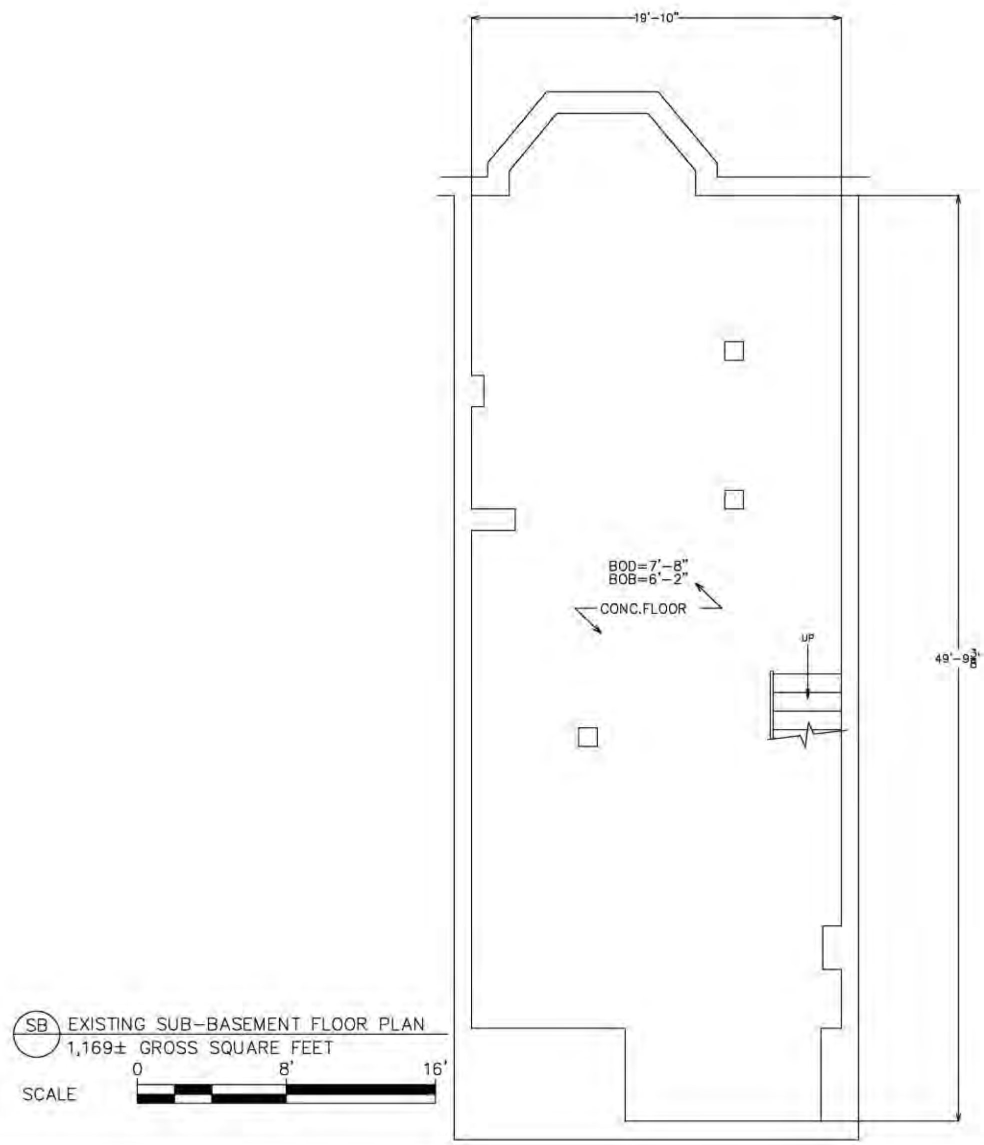
RAMP DN
48'-5"
BOD=8'-6"
CONC.FLOOR
UP
22'
DN
9'-4"
EXISTING BASEMENT FLOOR PLAN
1,739± GROSS SQUARE FEET
0
8'
16'
SCALE


19'–10"
BOD=7'–8"
BOB=6'–2"
CONC.FLOOR
UP
49'–9 3/8"
SB
EXISTING SUB–BASEMENT FLOOR PLAN
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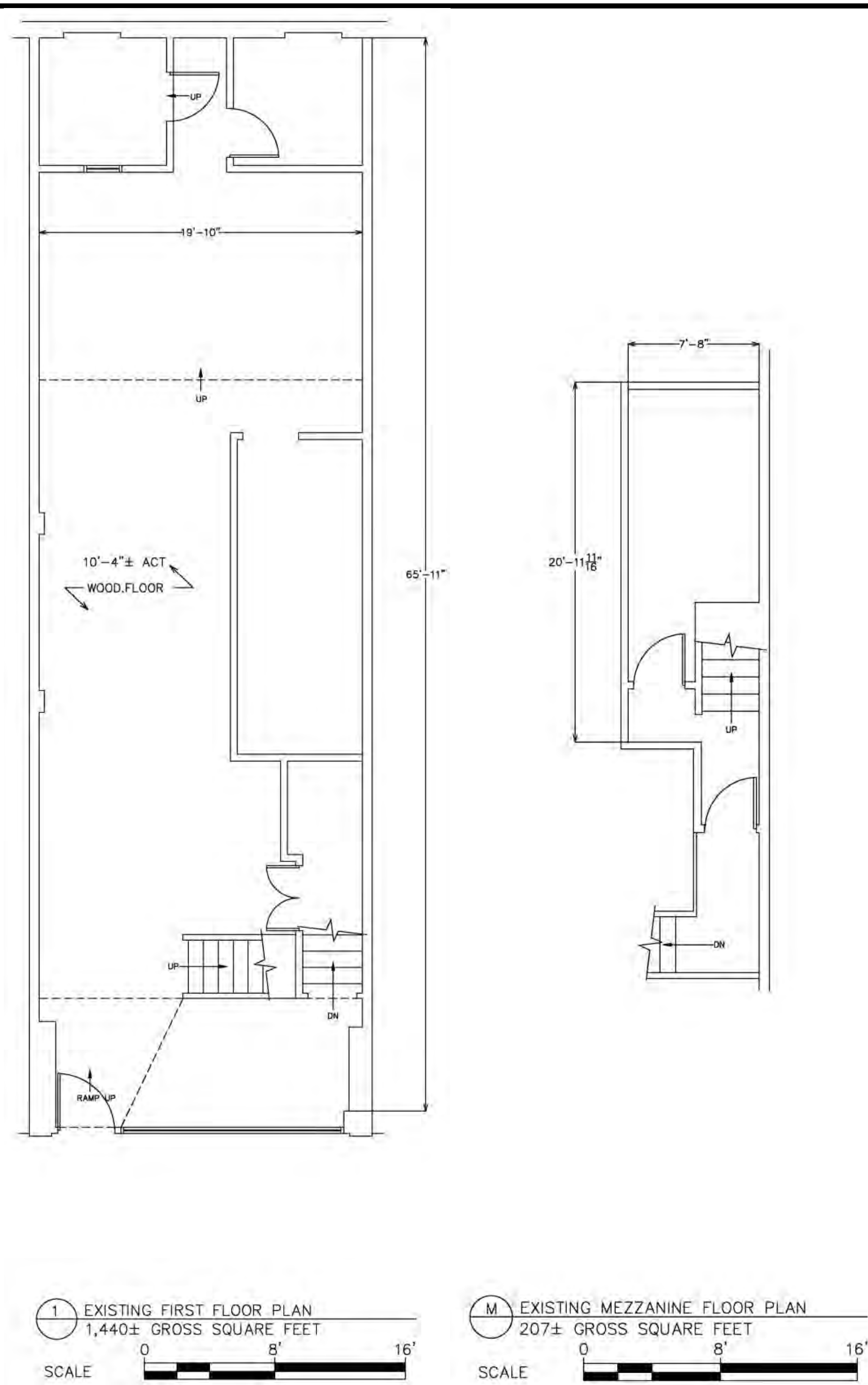
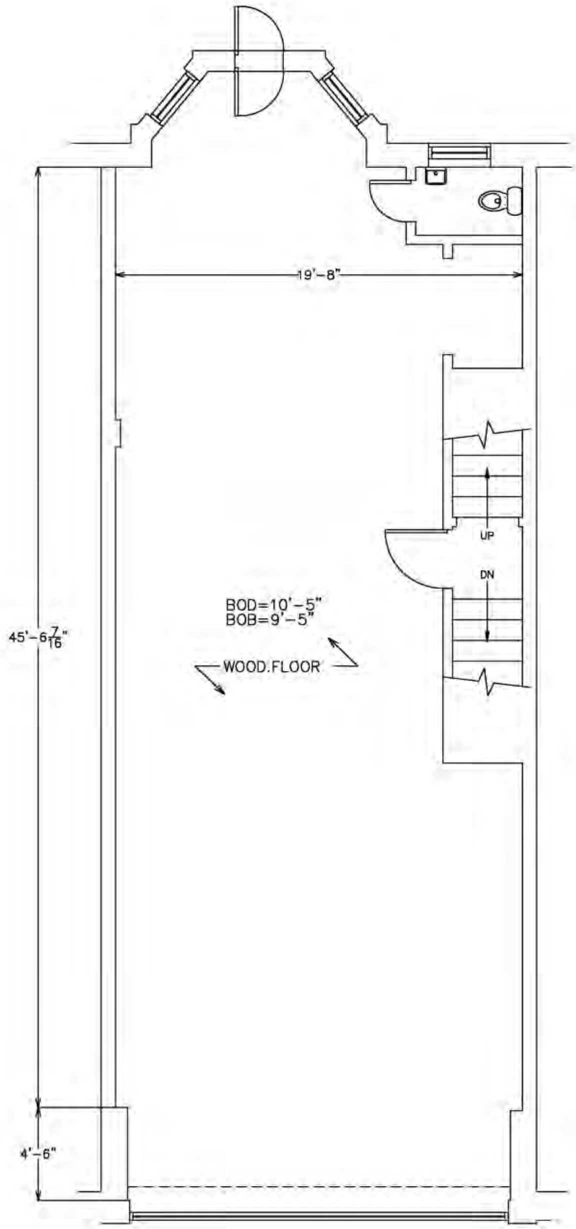
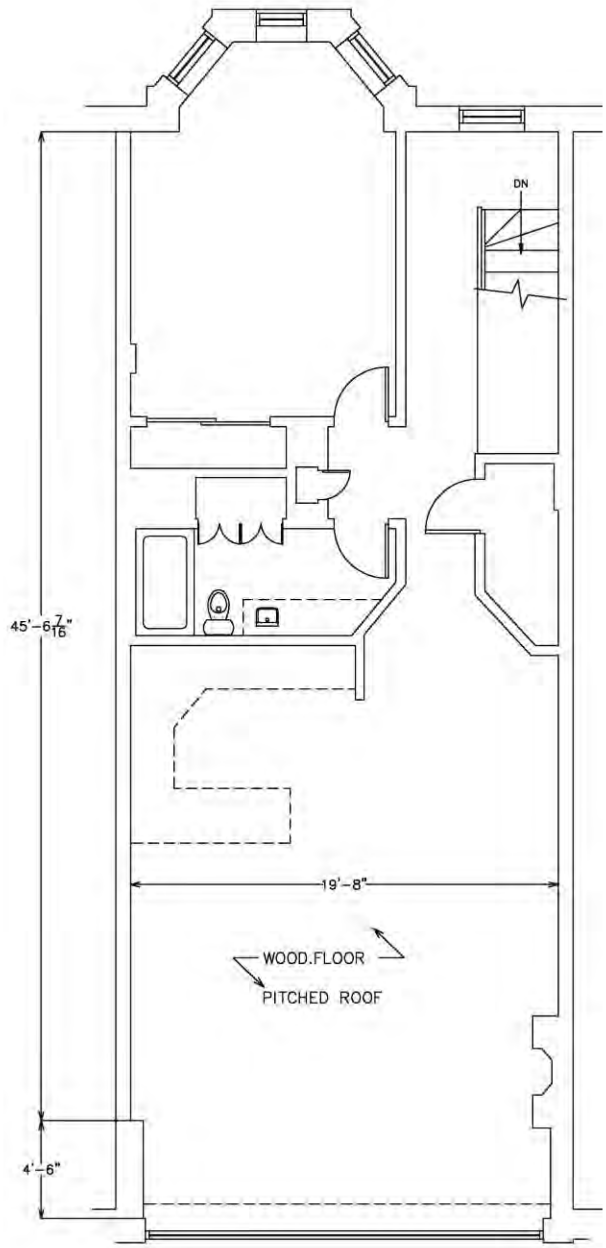
8'
16'
SCALE


UP
19'-10"
UP
10'-4"± ACT
WOOD.FLOOR
65'-11"
UP
DN
RAMP UP
7'-8"
20'-11 11/16"
UP
DN
1
EXISTING FIRST FLOOR PLAN
1,440± GROSS SQUARE FEET
SCALE
0
8'
16'
M
EXISTING MEZZANINE FLOOR PLAN
207± GROSS SQUARE FEET
SCALE
0
8'
16'



2 EXISTING SECOND FLOOR PLAN
1,144± GROSS SQUARE FEET

SCALE 0 8' 16'



3 EXISTING THIRD FLOOR PLAN
1,144± GROSS SQUARE FEET

SCALE 0 8' 16'

[1] Robert C. Twombly, Narciso G. Menocal, *Louis Sullivan: The Poetry of Architecture* (W.W. Norton & Company, 2000), 138.
[2] Daniel D. Reiff, *Houses from Books: Treatises, Pattern Books and Catalogs in American Architecture- 1738-1950* (Penn State Press, 2000), 327.
[3] “Tapestry Brick: the Most Artistic and Permanent Building Material in the World”, *Country Life in America*, March 1910, 595.

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
04013870000 04013870001			

Town: Boston

Place: *(neighborhood or village)* Back Bay

Photograph

Address: 1108 Boylston Street

Historic Name: Walker-Gordon Laboratory

Uses: Present: Mixed-Use (Commercial; Institutional)

Original: Milk Laboratory

Date of Construction: c.1915

Source: Building Permit

Style/Form: Classical Revival

Architect/Builder: Kilham & Hopkins

Exterior Material:

Foundation: Piles- Concrete

Wall/Trim: Limestone with brick backup

Roof: Composite -Flat

Outbuildings/Secondary Structures: (none)

Topographic or Assessor's Map

Major Alterations *(with dates)*:
1946-Elevator shaft extended to 3rd floor
1963,2000-Window restoration
1974-Wood sash replaced with aluminum

Condition: Fair

Moved: **no** | X | **yes** | | **Date** __________

Acreage: 4200 sq. ft. (0.096 acre)

Setting: Urban

Recorded by: Priya Jain

Organization: Goody Clancy Associates

Date (*month / year*): June 2009

Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.

___ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The building at 1180 Boylston Street also comprises the adjoining lots 1160 and 1110, with the main entrance located at the center at 1180. It is a 3-story building with a below-grade basement and 3 roughly symmetrical bays on the front (north-west facing) façade. Structurally the building is composed of concrete pile foundations and a brick superstructure with terracotta cladding. The floor plan is rectangular with the shorter end abutting the street and measuring approximately 43' x 70'. A U-shaped staircase and elevator shaft are located roughly in the center of the building. The floor plate cantilevers out to the rear on the 2nd and 3rd floors to almost 82'.

The front façade is the most ornately detailed face of the building with pilasters separating the adjoining bays and projecting cornices at the roof and between the 1st and 2nd story. The building is entered through a set of wooden double doors accessed via a depressed portico in the center bay. While the west door appears original to the building, the east one is a subsequent replacement. Ornamental wood moldings encase the front doors, the 4-lite transom above them and 2 full-height fixed windows on either side. A set of 3 concrete steps lead up to this main entrance and the new outdoor concrete patio in front of the building. The portico has a wood paneled ceiling that appears original with contemporary recessed lighting fixtures. *(Continued)*

HISTORICAL NARRATIVE:

Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

Historical building permit records[1] indicate that the building at 1108 Boylston Street was constructed c. 1915. It originally housed the Walker-Gordon Milk Laboratory – an enterprise that originated in Boston in 1891 and by the middle of the twentieth century had gone on to "setting up subsidiaries across the country"[2]. In early 1891, Dr. Thomas M. Rotch, pediatrician at the Harvard Medical School, determined that infant deaths could be greatly reduced by careful prescription feeding. He met with Mr. Gustavus A. Gordon, a scientist from Milwaukee, and they came up with a formula for modifying cow's milk - changing it to closely resemble human mother's breast milk. Mr. George H. Walker, a wealthy Boston businessman, was interested in the project and supplied the financing.[3] The first laboratory opened in Boston on December 1, 1891 at 203 Clarendon Street[4] (now demolished). *(Continued)*

BIBLIOGRAPHY and/or REFERENCES

[1] Building Permit Records, Inspectional Services Dept., City of Boston, http://www.cityofboston.gov/isd/ (accessed June 19, 2009), listed as '1106 Boylston' in Record search.
[2] Jacqueline H. Wolf, *Don't Kill Your Baby: Public Health and the Decline of Breastfeeding in the Nineteenth and Twentieth Century* (Ohio: University of Ohio Press, 2001), 168.
[3] *Walker Gordon Laboratory Company Short Story*, Plainsboro Historical Society, Inc. , http://www.plainsborohistory.org/walkerlab.htm (accessed June 19, 2009)
[4] *Needham and Public Health Reform in the 1800s*, Needham Historical Society, http://www.greisnet.com/needhist.nsf/CleanPlate!OpenPage (accessed June 19, 2009)
[5] Ibid.
[6] Rima D. Apple, *Mothers and Medicine: A Social History of Infant Feeding*, 1890-1950 (University of Wisconsin Press, 1987), 63.

ARCHITECTURAL DESCRIPTION: (Continued)

The heads of the two outermost pilasters are adorned with minor floral relief and green marble insets encased in rectilinear panels. Only the marble insets (sans the floral relief) also appear at the heads of the two intermediate pilasters. The building parapet has a stepped profile in its center displaying a floral wreath relief detail with green marble inset and the letters –'Walker Gordon'. The floral wreath ornamentation reoccurs, though in a simplified version on the two side pilasters at ground floor level (it currently delineates the space for hanging signs by the commercial establishments housed in the building). A projecting metal balcony extends all the way across the width of the building at the second floor. A similar version of the balcony reappears at the third floor, except here it is discontinuous at the intermediate pilasters. The purpose of these balconies is purely ornamental as opposed to structural as they do not project out far from the building face. Large openings for windows dominate the front façade. Windows at the second and third floors have wood frames with a tripartite organization – arched fixed glazing in the center and double hung components on the sides (also known as Chicago-style windows) - all three parts have fixed transoms. Building permit records indicate that the windows were restored in 1963 and 2000 (it is not completely clear but it seems that window weights and mullions were repaired in 1963 and trim in 2000). The permit records also indicate that the wood sash was replaced with aluminum in 1974.

The architecture of 1108 Boylston is very similar to other buildings that were constructed for commercial uses in this part of Boston, during the early twentieth century. Most buildings on this block are also 3-story high with contemporaneous architectural styles. After construction of the Boston Public Library in 1888 in neighboring Back Bay in the Classical Revival tradition, it became the favored style for most buildings right up to the 1930's. In fact most major public buildings from this time-period in the vicinity of 1108 Boylston are in that style, such as Museum of Fine Arts (1909), Boston Symphony Orchestra (1900), Forsyth Dental Infirmary (1914), New England Conservatory of Music (1903) and Christian Science Center (1894) to name a few. While nowhere near any of these buildings in scale or grandeur, the modest 3-story Walker-Gordon Laboratory on Boylston Street also adhered to simple principles of neo-classical design such as symmetrical centralized organization and use of pilasters, belt-courses etc. In summary, the architecture of this building is a good representation of the prevalent architectural trends in Boston during the early twentieth century.

HISTORICAL NARRATIVE: (Continued)

From the beginning, the company's main hurdle was obtaining milk of consistent quality and sufficient purity for infant use. In order to control the production of their own milk, Walker-Gordon purchased almost 160 acres of land in Plainsboro, New Jersey in 1897. On their farm, the cattle were maintained in an entirely controlled environment and fed on specially-grown feed. The milk was tested daily for bacteria and pathogens. As demand for their infant formula and milk increased, Walker-Gordon purchased a second farm in Needham, Massachusetts before the turn of the century[5]. These farms worked in conjunction with Walker-Gordon milk laboratories such as the one at Clarendon Street and the one at 1108 Boylston Street. After being transported from the farms, it was at the laboratories that the milk was modified and prepared for delivery to consumers. A fair idea of the daily activities at a typical Walker-Gordon laboratory can be gleaned from this account – *"The laboratory processed the milk in a centrifugal separator and produced a cream with a stable percentage of fat. A laboratory employee, a „modifying clerk', compounded the physician's prescription with cream, milk, and a standard 20% sugar solution, diluting it with lime water if necessary, and plain water. The clerk then divided the formula into tubes designed as nursing bottles and placed the tubes in a wicker basket for delivery. Before the baskets left the laboratory, they were sent through a sterilizer and quickly cooled. The laboratory delivered the baskets to the homes of consumers, and the basket and tubes from the previous day were returned for washing and sterilizing."*[6]

The architecture of the laboratory building seems to have been designed to aid in its activities. A shipping platform and garage were located in the basement to enable ease of supply and deliveries. Early building permit records from 1917 list the architect's name as Kilham and Hopkins for some proposed work in the basement which was subsequently abandoned. Kilham and Hopkins was a reputed local architecture firm at the time and it seems unlikely that their services were employed solely for a minor alteration. It seems more probable that they were also the architects for the original building that had just been constructed c.1915. While most known for their work on schools, churches and residential buildings, Kilham and Hopkins also routinely designed commercial buildings for clients and real estate developers. In terms of style, they incorporated most of the prevalent styles in their buildings while usually employing the Renaissance Revival styles that were most in vogue at the time and also used at this building.

By 1945, Walker-Gordon had grown to be the world's largest Certified Milk Farm and developed technical innovations – such as the world-famous Rotolactor – that allowed farms to speed up milk production. With the passage of time however, federal regulation of milk standards reduced the need for Walker-Gordon’s stringent (and costly) cleanliness practices. Home milk delivery, upon which Walker-Gordon depended, was not as convenient for housewives as the supermarket. By 1960, the Needham farm had been closed, and the land was sold. Due to various financial reasons, by 1971, the dairy operation of the Walker-Gordon Laboratory Co. ceased. Today Walker-Gordon raises beef cattle, in addition to growing and selling general field crops.

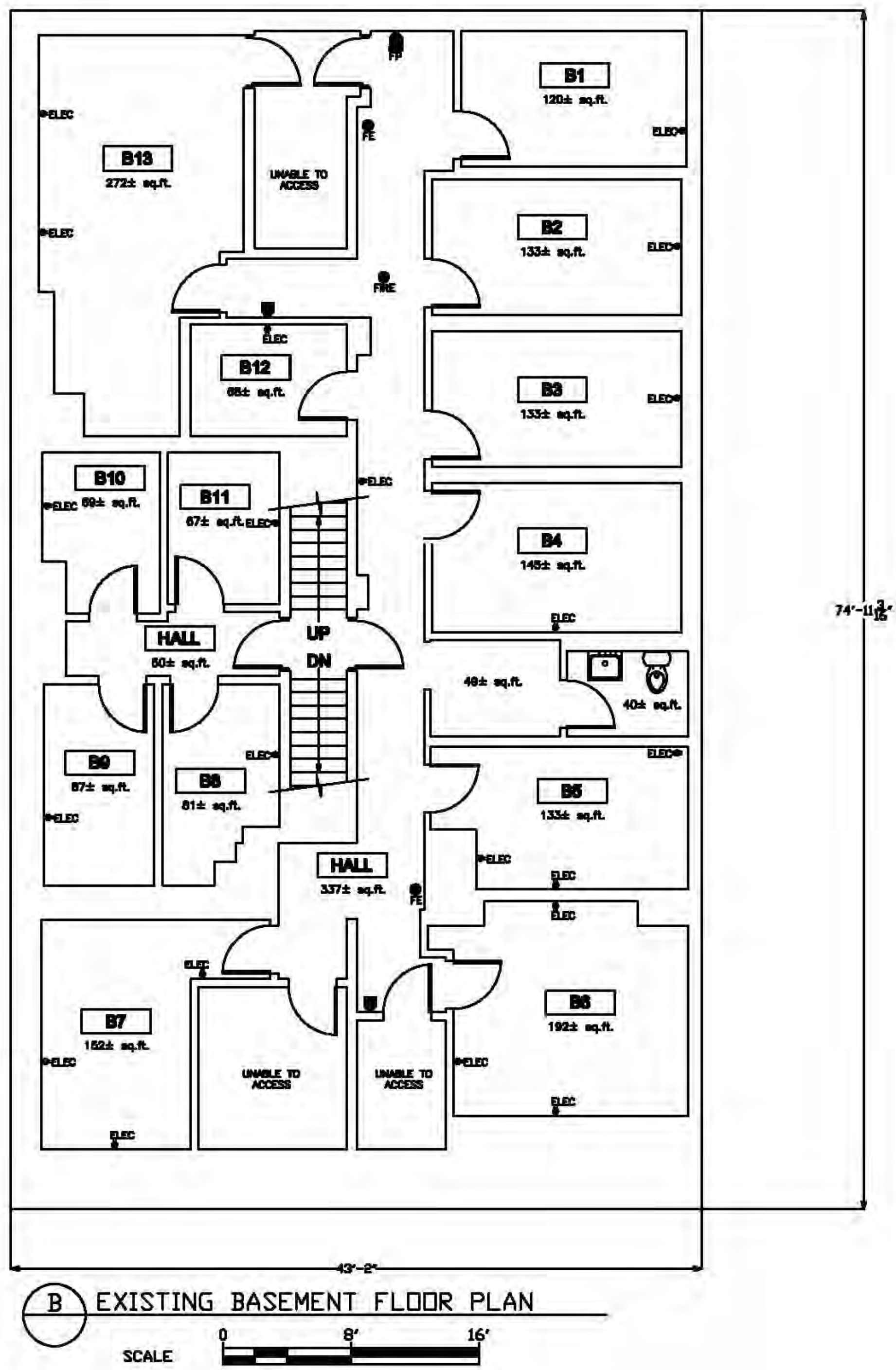
The Walker-Gordon laboratory at 1108 Boylston Street was out of operation by 1945 and was sold and subsequently adapted for a variety of uses such as a dining hall, offices and stores and even a studio where pottery was glazed and decorated. These called for tremendous changes to the interior layout and finishes of the building – the elevator shaft was extended all the way up to the third floor and most spaces received new floor coverings, ceiling, plumbing and electricity at numerous stages along the way. During the 1970’s a ballet school was housed in the top floor of the building. Presently, the building is owned by the Berklee College of Music who lease most (55%) of the space to the Boston Conservatory of Music and the rest to commercial users. It is proposed that the College will use the sub-basement level for either academic or storage uses.

Front façade – second and third stories

Parapet - Center

Front Entrance

Ornamental detail – Ground floor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B3
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B4
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B5
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B6
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B7
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B8
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B9
87± sq.ft.
B10
69± sq.ft.
B11
67± sq.ft.
B12
68± sq.ft.
B13
272± sq.ft.
HALL
50± sq.ft.
HALL
337± sq.ft.
UNABLE TO ACCESS
UP
DN
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43'-2"
B EXISTING BASEMENT FLOOR PLAN
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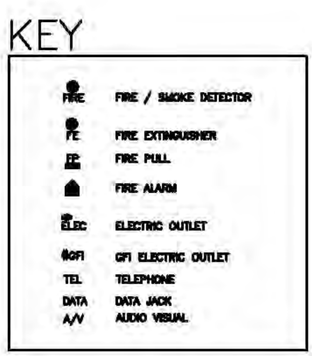
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FIRE EXTINGUISHER
FIRE PULL
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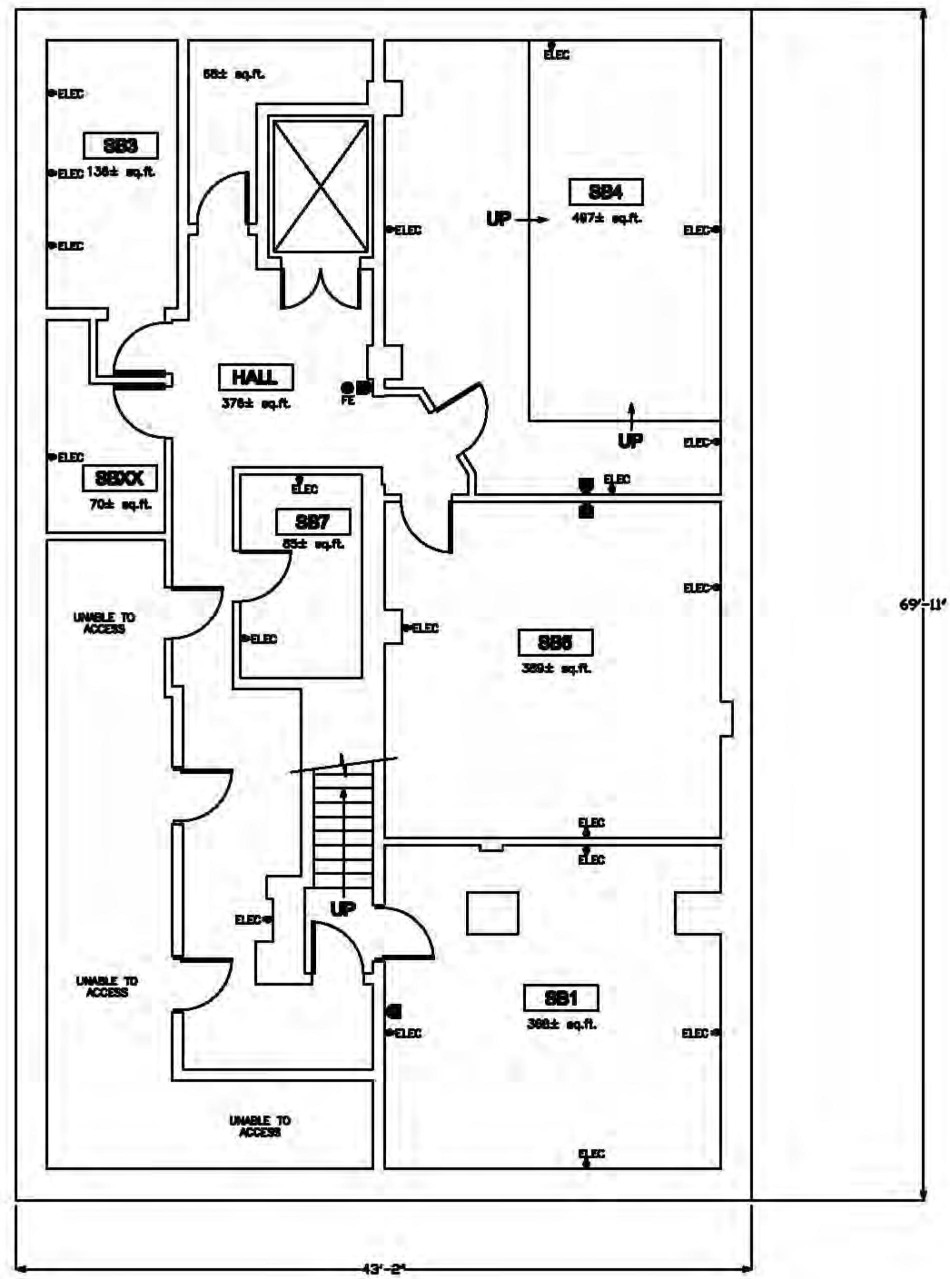
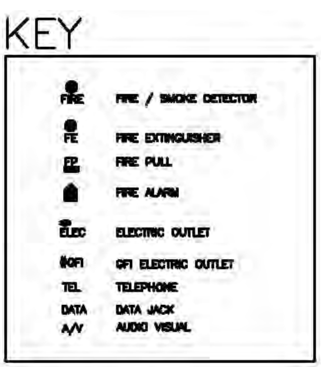
GFI ELECTRIC OUTLET
TEL TELEPHONE
DATA DATA JACK
A/V AUDIO VISUAL





SB EXISTING SUB-BASEMENT FLOOR PLAN

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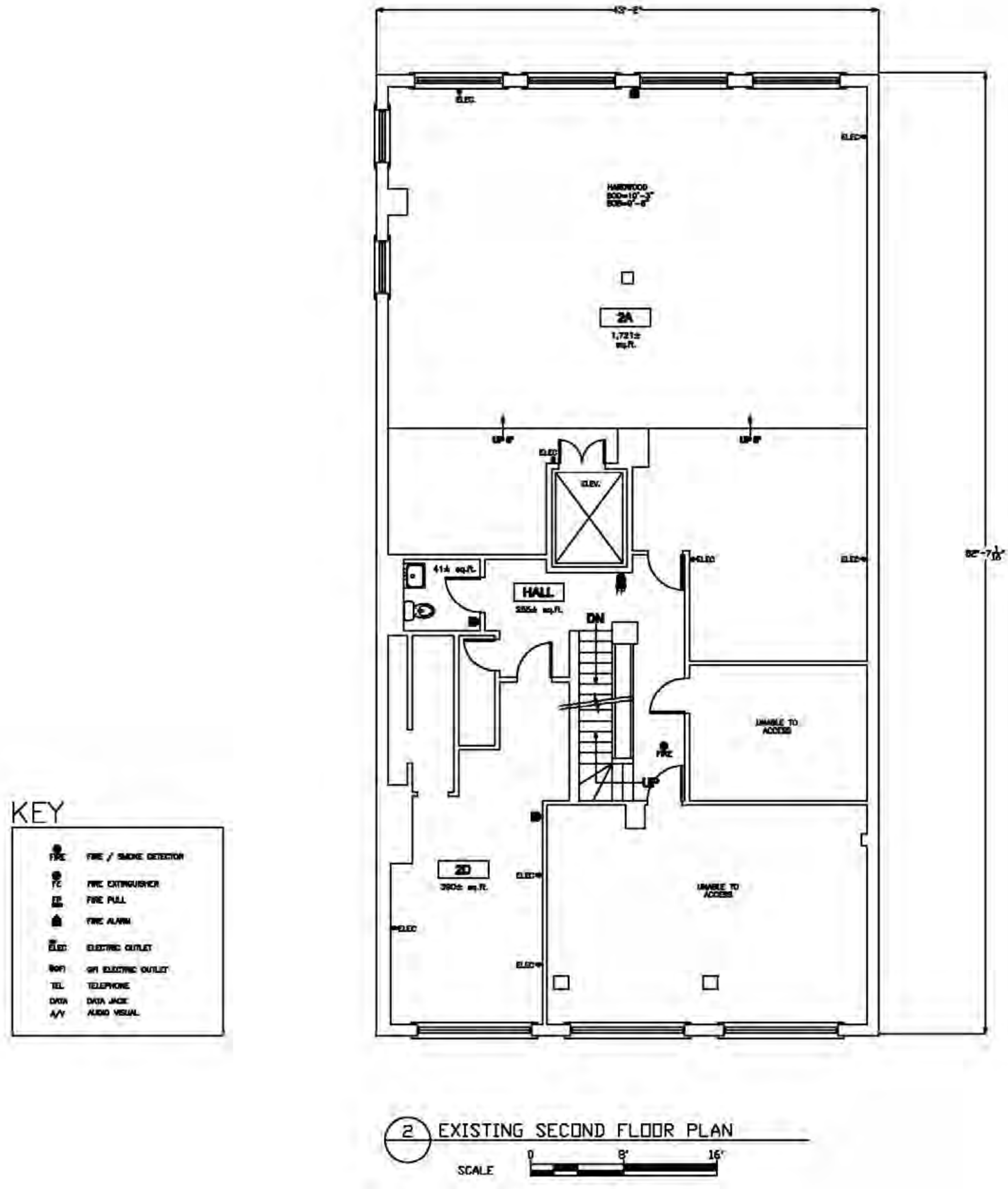
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UNABLE TO ACCESS
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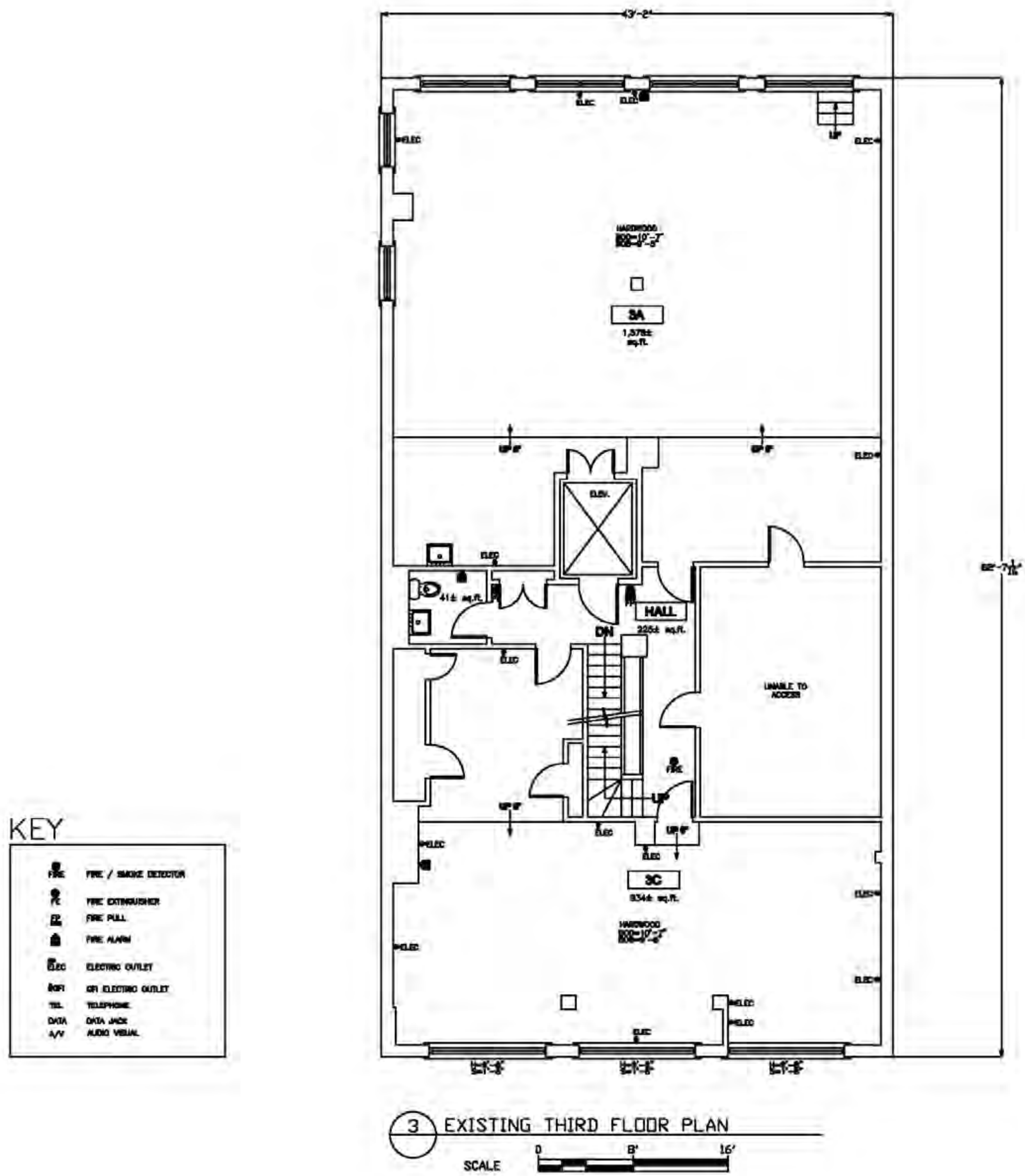
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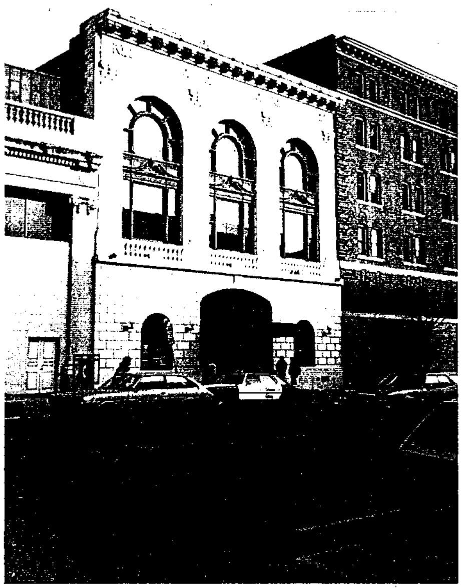
FIRE ALARM
ELECTRIC OUTLET
GFI ELECTRIC OUTLET
TELEPHONE
DATA JACK
AUDIO VISUAL
3 EXISTING THIRD FLOOR PLAN
SCALE
0
8'
16'

[1]

[2] Jacqueline H. Wolf, *Don't Kill Your Baby: Public Health and the Decline of Breastfeeding in the Nineteenth and Twentieth Century* (Ohio: University of Ohio Press, 2001), 168.
[3] *Walker Gordon Laboratory Company Short Story*, Plainsboro Historical Society, Inc. , http://www.plainsborohistory.org/walkerlab.htm (accessed June 19, 2009)
[4] *Needham and Public Health Reform in the 1800s*, Needham Historical Society, http://www.greisnet.com/needhist.nsf/CleanPlate!OpenPage (accessed June 19, 2009)
[5] Ibid.
[6] Rima D. Apple, *Mothers and Medicine: A Social History of Infant Feeding*, 1890-1950 (University of Wisconsin Press, 1987), 63.

BOSTON LANDMARKS COMMISSION Building Information Form Form No. 534 Area FENWAY



ADDRESS 136 MASSACHUSETTS AVE COR. NEAR BOYLSTON STREET

NAME BERKLEE PERFORMANCE CENTER (present) FENWAY THEATRE (original)

MAP No. 23N/10E SUB AREA

DATE 1915 BUILDING PERMIT (source)

ARCHITECT THOMAS W. LAMB BUILDING PERMIT (source)

BUILDER JARDIN CO. ADV. OF ATLANTIC TERRACOTTA CO. (source)

OWNER COLONIAL REALTY CO. (original) BERKLEE COLLEGE OF MUSIC (present)

1917 - FENWAY THEATRE COLONIAL REALTY
1922; 1936 - ABRAHAM ABRAM TRUST - FENWAY THEATRE

PHOTOGRAPHS FENWAY 3.4/5*-84

TYPE (residential) single double row 2-fam. 3-deck ten apt.
(non-residential) THEATRE + OFFICES, STORES

NO. OF STORIES (1st to cornice) 3 plus —

ROOF FLAT cupola — dormers —

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) brick stone terracotta (over red brick) concrete iron/steel/alum.

BRIEF DESCRIPTION SYMETRICAL, NARROW, BEAUX-ARTS THEATRE AND OFFICE BUILDING DISPLAYING RUSTICATED TALL FIRST FLOOR WITH BROAD SEGMENTALLY ARCHED ENTRY AND TERRA COTTA FACED 2ND AND 3RD FLOORS EXHIBITING TRIO OF DOUBLE-STORY ARCHED WINDOWS FRAMED BY FLUTED CORINTHIAN PILASTERS AND DIVIDED AT FLOOR LEVEL BY METAL SPANDRELS ENHANCED WITH OPEN SCROLL PEDIMENTS. ROOFLINE IS TRIMMED WITH SWAG ORNAMENTED FRIEZE AND DENTIL, SCROLL-LEAFED, BRACKETED CORNICE.

EXTERIOR ALTERATION minor ON EXTERIOR moderate drastic

CONDITION good fair poor LOT AREA 10,845 sq. feet

NOTEWORTHY SITE CHARACTERISTICS ON MAJOR THOROUGHFARE, NEAR MASS AVE AND TURNPIKE ENTRY. BUILDING EXTENDS AT REAR TO ST. CECILIA STREET. ADJACENT TO NEO-CLASSICAL BANK BUILDING AT #130-32.

(Map)

SIGNIFICANCE (cont'd on reverse)
Architecturally notable building designed by nationally prominent architect specializing in motion picture theatres. The Fenway Theatre, now the Berklee Performance Center, is also significant as a relatively intact example of terracotta fronted architecture which with its abutting Neo-Classical neighbor at #130-2 provides Mass.

TV
RP 4/84

Moved; date if known ____________

Themes (check as many as applicable)

Aboriginal		Conservation		Recreation	X
Agricultural		Education		Religion	
Architectural	X	Exploration/ settlement		Science/ invention	
The Arts	X	Industry		Social/ humanitarian	
Commerce		Military		Transportation	
Communication		Political			
Community/ development					

Significance (include explanation of themes checked above)

Mass. Avenue with an appealing formal presence.

Built as the Fenway Theatre, #136 Mass. Ave. was the first theatre to be constructed in up-town Boston for motion picture shows, and its completion was timed to correspond with the opening of the Mass. Ave. subway station (now Auditorium station). Screenings at the Fenway Theatre included live performances usually with singers and a concert orchestra of 20 musicians. During the 1920's, The Fenway was taken over by Paramount Pictures--at a time in which motion picture companies acquired theatres in order to exhibit their own films. In the 1930's, the Fenway Theatre was owned by New England Theatre Co. With the declining interest in movies during the '60's, the building, in 1967, was purchased by the Bryant and Stratton Commercial School, and five years later by Berklee College of Music. Renovation of the building by Berklee included the reconstruction of the first floor to reflect the theatre's early facade design and the complete modernization of its interior.

Thomas W. Lamb (1871-2/28/1942), the designer of the Fenway Theatre was born and educated in Scotland and trained in architecture at Cooper Union in New York City. His earliest theatre work dates from the turn-of-the-century. Lamb formed a working relationship

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

with exhibitor Marcus Loew and also did much work for the Keith-Albee and Fox organizations. He was responsible for many moving picture theatres in New York including the Strand, Rialto, and the Rivoli--as well as the 5,000 seat Capital (1919)--the first of the great "moving picture cathedrals." Lamb's Adamesque designs for his earlier theatres yield in the '20's to flashier baroque and exotic styles. Dating from this period are the Fox in San Francisco, the Albee in Cincinnati, Loews 72nd Street, N.Y., and the Keith Memorial (now Savoy) in Boston (1925-8).

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

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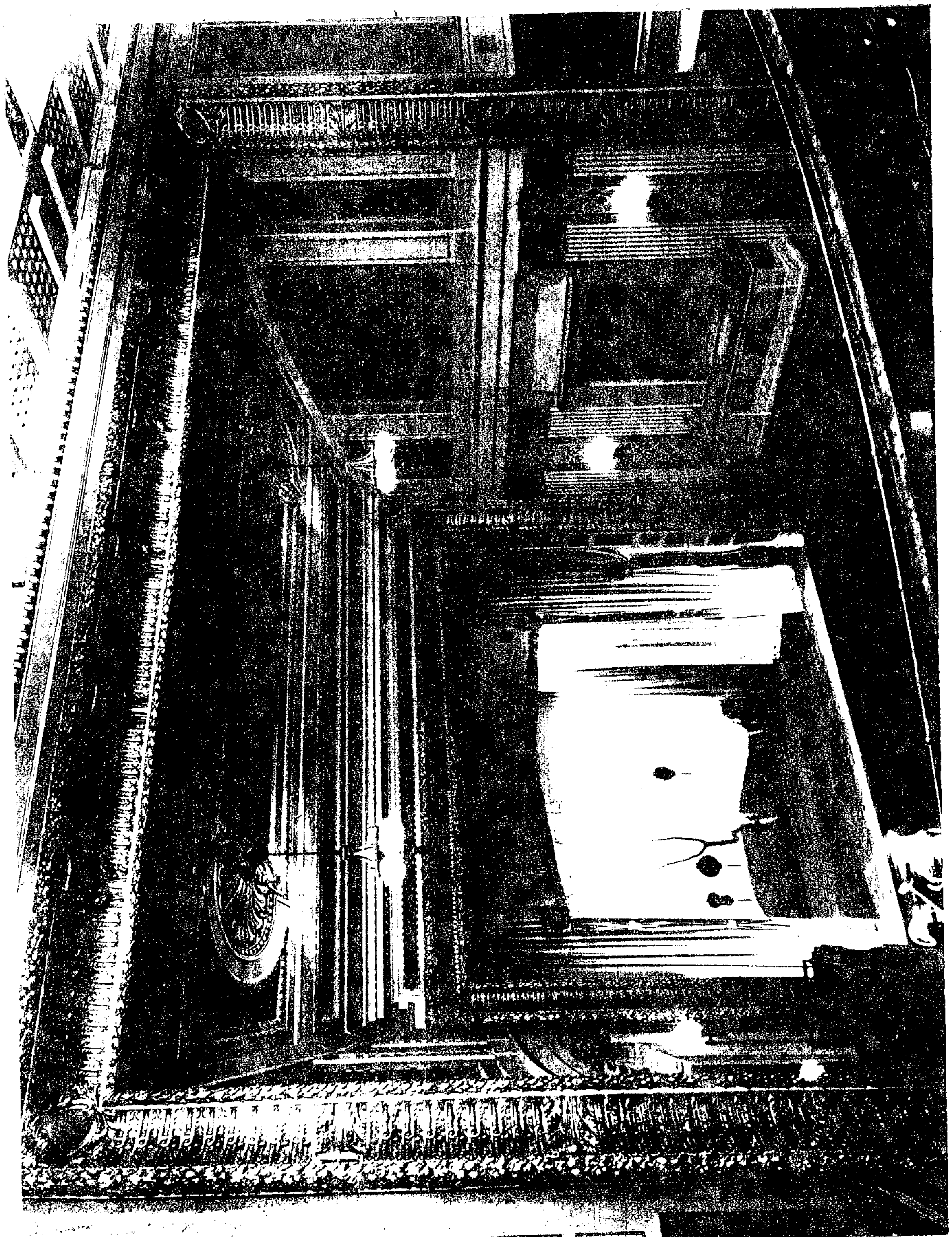
Bromley. Atlases. 1895-1938.
Architectural Archive. Fine Arts Dept/BPL
Withey. American Architects Deceased.
The Marquee. Vol. 15, no. 2. 1983--Special Issue--Keith Memorial
Berklee Performance Center. Brochure. in Art Dept. Athenaeum
Photograph Collection. Fine Arts Dept. BPL.

Fenway Theatre, Boston, Mass.

Thomas W. Lamb, Architect   Jardin Company, Builders

Entirely of dark cream glazed Atlantic Terra Cotta. A typical high class Moving Picture Theatre building with small stores flanking the entrance. The cream color stands out prominently by day and at night the facade is illuminated from electric lights in the rosettes of the soffit of the main cornice.

ATLANTIC TERRA COTTA CO. 1170 BROADWAY, NEW YORK



1924 RENOVATION.

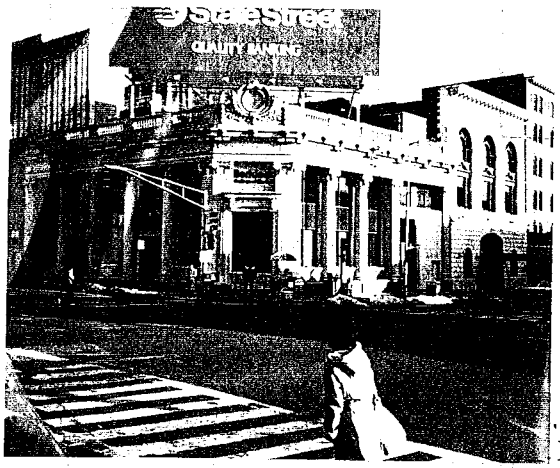
FINE ARTS DEPT/BPL. FENWAY THEATRE #136 MASS. AVE.

FENWAY THEATRE. FINE ARTS DEPT/BPL. (PHOTO EARLY TO MID 1940's)
136 MASS AVE.

BOSTON LANDMARKS COMMISSION   Building Information Form   Form No. 409 Area FENWAY

ADDRESS 130-32 MASSACHUSETTS ~~COR.~~ AND 1044 BOYLSTON

NAME ________ STATE STREET TRUST CO.
present   original



MAP No. 23N/10E   SUB AREA

DATE 1902   Building plaque and source Boston Directories

ARCHITECT ALLEN AND COLLENS BUILDING PERMIT
source

BUILDER
source

OWNER STATE STREET TRUST CO.   BERKLEE COLLEGE OF MUSIC
original   present
1938 : STATE STREET BANK & TRUST CO.

PHOTOGRAPHS FENWAY 3. 42, 43*, 44

TYPE (residential) single double row 2-fam. 3-deck ten apt.
(non-residential) BANK ; NOW OFFICES OF BERKLEE COLLEGE OF MUSIC

NO. OF STORIES (1st to cornice) 2   plus —

ROOF FLAT   cupola —   dormers —

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) brick stone LIMESTONE concrete iron/steel/alum.

BRIEF DESCRIPTION "LOW RISE" NEO-CLASSICAL SQUARISH PLAN BANK BUILDING DISPLAYING ALONG BOYLSTON AND MASS. AVE. FACADES DIVIDED RESPECTIVELY INTO 5 AND 4 BAYS BY DOUBLE-STORY ENGAGED IONIC-LIKE COLUMNS AND POSTS. — LARGE CLASSICALLY CORNICED WINDOW AT CLIPPED CORNER ORIGINALLY WAS BANK'S MAIN ENTRY. ROOFLINE IS EDGED WITH BALUSTERED RAILING AND OVER CORNER ENTRY BAY CORNUCOPEIA FLANKED AND GARLAND EDGED PLAQUE WITH 1902 DATE IS SET ABOVE CONTINUOUS LIONS HEAD AND DENTIL CORNICES

EXTERIOR ALTERATION minor moderate drastic   REPLACEMENT WINDOWS; CLOSED-OFF MAIN ENTRY AT CORNER; NEW SIDE ENTRIES. REMOVAL OF WINDOW GRILLS.

CONDITION good fair poor   LOT AREA 5421 sq. feet

NOTEWORTHY SITE CHARACTERISTICS ON VERY BUSY NOISY PROMINENT CORNER SITE, AT INTERSECTION OF TWO MAJOR STREETS. NEAR ENTRY TO MASS PIKE.

(Map)

SIGNIFICANCE (cont'd on reverse)

Architecturally notable, prominently located, Neo classical building which until recent years maintained its original use as the Back Bay branch of the State Street Bank. 130-2 Mass. Ave. maintains much of its turn-of-the century stately appearance and is of additional interest as a design by Allen and Collens, a firm best known for

IV
RP 4/84

Moved; date if known ____________

Themes (check as many as applicable)

Aboriginal	____	Conservation	____	Recreation	____
Agricultural	____	Education	____	Religion	____
Architectural	X	Exploration/ settlement	____	Science/ invention	____
The Arts	____	Industry	____	Social/ humanitarian	____
Commerce	X	Military	____	Transportation	____
Communication	____	Political	____		
Community/ development	____				

Significance (include explanation of themes checked above)

its Modern Gothic work (see form for 1103 Boylston Street--St. Clements Church). The existing building was planned originally as the first stage in the construction of a 6-story office building which was never executed. Although the surviving permit for 130-2 Mass.is dated 1905, the ornamented roofline plaque indicates a 1902 date--a fact confirmed by listings for the State Street Bank in the 1902 Boston Directory.

#130-2 Mass Ave has experienced several alterations to accomodate various tenants which have included the Boylston Branch Post Office, a restaurant, and most recently,offices for the new owner the Berklee College of Music.

Francis R. Allen (1843-11/2/1931) and Charles W. Collens (1873? - 1956), the designers of 130-2 Mass.Ave.were well-known practitioners of the Modern and Collegiate Gothic Style. Their commissions included the Memorial Chapel and 8 buildings on the Williams College campus, Union Theological Seminary, New York (1906), several college buildings at Vassar College, and Riverside Church (1929). Locally, Allen and Collens designed the Church of the Redemption (now St. Clements) and the Lindsey Memorial Chapel, Emmanuel Church on Newbury Street (1924). The firm of Allen and Collens was organized in 1904. Prior

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

to this association, Allen worked independently and in the 1880's with Arthur Kenway.

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

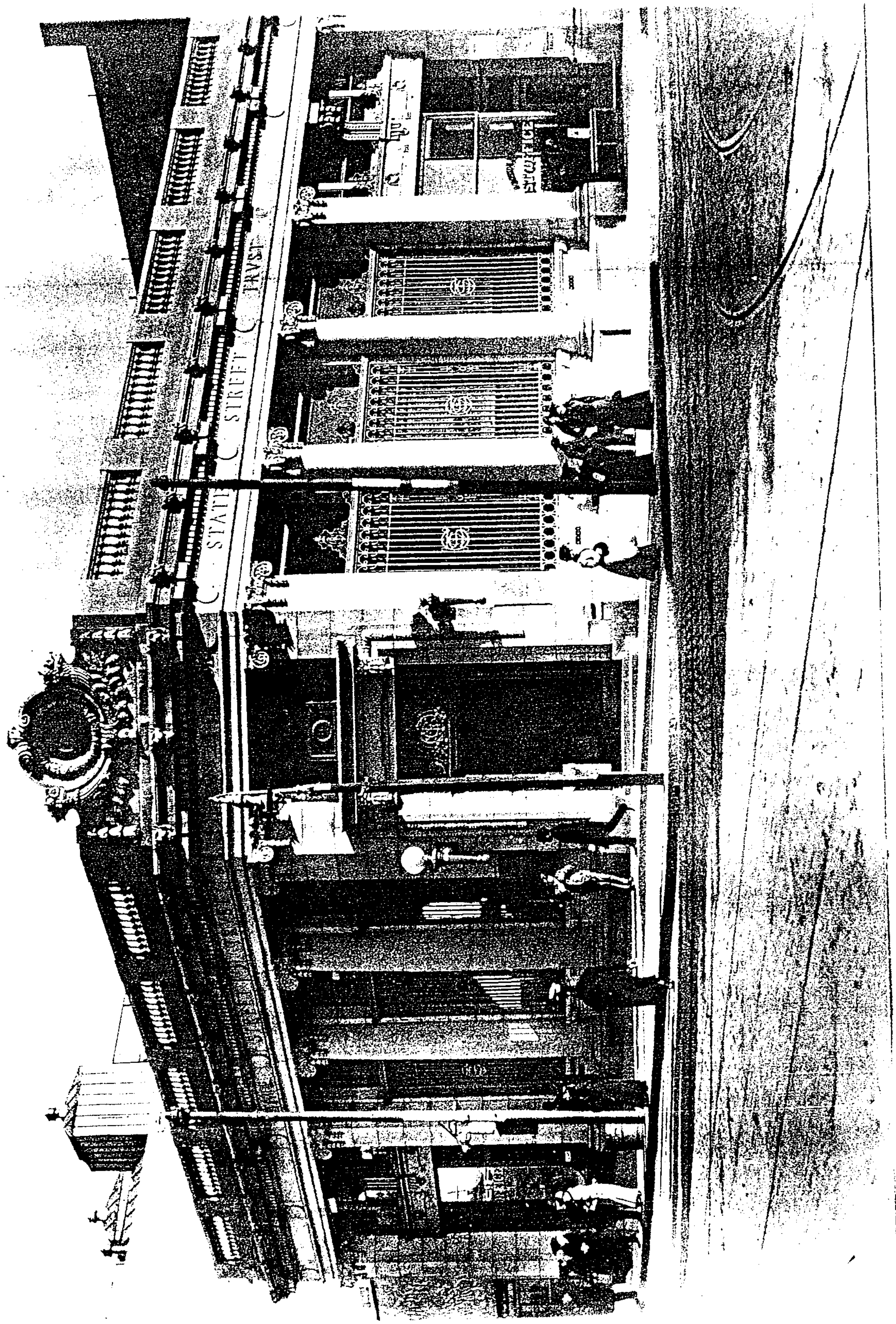
Boston Building Dept. Records.
Architectural Archive. Boston Public Library/Fine Arts Dept.
Bromley. Atlases. 1884-1938.
Boston Directories.
Photo Collections. SPNEA.
Withey. American Architects Deceased.

F I K 409

Boston Directory 1902.

F/K 409

SPNEA.
STEBBINGS 68-9



BOSTON LANDMARKS COMMISSION Building Information Form Form No. 17 Area FENWAY

ADDRESS 22 THE FENWAY COR. NEAR BOYLSTON STREET

NAME

present original

MAP No. 23N/10E SUB AREA EAST FENS

DATE 1900 BUILDING PERMIT
source

ARCHITECT PEABODY & STEARNS BUILDING PERMIT
source

BUILDER McNEIL BROTHERS BUILDING PERMIT
source

OWNER 1900: ROBT. S. AND ANNE P. PEABODY
1917: " " " " MASSACHUSETTS MEDICAL SOCIETY
original present
1928: BESSIE W. PRESTON

PHOTOGRAPHS FENWAY 3. 4/6*; FENWAY 2. 4/5-84*

TYPE (residential) (single) double row 2-fam. 3-deck ten apt.
(non-residential)

NO. OF STORIES (1st to cornice) 3 plus ATTIC; FULL BASEMENT BELOW GRADE

ROOF FLAT cupola — dormers —

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) (brick) TAN stone LIME: 1ST FLOOR AND TRIM concrete iron/steel/alum.

BRIEF DESCRIPTION 3-BAY SIDE HALL PLAN FEDERAL REVIVAL TOWN HOUSE WITH FIRST FLOOR EXECUTED IN SMOOTH FACED LIMESTONE AND RATHER AUSTERE ENTRY AT LEFT TRIMMED WITH "FLOWER ON STEM" ORNAMENT. SECOND FLOOR DISPLAYS ARCHED WINDOWS FLANKING A ROBUSTLY EXECUTED PALLADIAN WINDOW SURMOUNTED BY SLIGHTLY RECESSED STONE ARCH. WINDING RUN OF STONE STAIRS WITH WROUGHT IRON RAILINGS LEADS TO BASEMENT AND ENGLISH STYLE AREAWAY. BALCONY GRILL IS SET AT 2ND FLOOR PALLADIAN WINDOW AND SHELTERS THREE-PART 1ST FLOOR WINDOW.

EXTERIOR ALTERATION minor (moderate) drastic ADDED ATTIC; REPLACEMENT WINDOWS

CONDITION (good fair) poor LOT AREA 4000 sq. feet

NOTEWORTHY SITE CHARACTERISTICS FACES FENS AND LANDSCAPED PARK STRIP PLANTED WITH OAKS AND MAPLES. MODEST LAWN FRONTAGE ENCLOSED BY LOW STONE CURBING FOLLOWING ALIGNMENT OF ABUTTERS.

(Map)

SIGNIFICANCE (cont'd on reverse)
Architecturally distinguished residence, one of three abutting houses (see forms for 24, 26 The Fenway) designed by Peabody and Stearns, one of Boston's most productive and important architectural firms of the late 19th through early twentieth century. #22 The Fenway was designed as the home of architect Robert Swain Peabody of the Peabody and Stearns

IV
RP 4/84

Moved; date if known ______________

Themes (check as many as applicable)

Theme	Check	Theme
Aboriginal		Conservation
Agricultural		Education
Architectural	X	Exploration/ settlement
The Arts		Industry
Commerce		Military
Communication		Political
Community/ development	X	

Significance (include explanation of themes checked above)

partnership, and the Federal Revival residence remained his in-town home until his death in 1917. The Peabody and Stearns houses at 22, 24, 26 The Fenway are included in the proposed Fenway National Register District and serve individually and as a group as significant design elements of the district's Fenway frontage. The use of light stone and tan brick continues the color and materials established by the Massachusetts Historical Society and is characteristic of the buildings along Boylston Street through 26 The Fenway. Deed restrictions on the development of the Fenway lots that were established between the city of Boston and the Boston Water Power Company (owner of the Fenway frontage) in 1891 sought to insure architectural harmony, residential uses, and high quality construction along the park. These restrictions excluded livery, mercantile, or manufacturing buildings, established 80' height limits (excluding churches), minimum building costs of $7,000 for stone or brick houses and $4,000 per suite of apartments in multiple unit buildings, and set limits on size and projection for bays and oriel windows.
Robert Swain Peabody (1845-10/3/1917) in partnership with John Goddard Stearns (1843-9/16/1917) enjoyed an extensive architectural practice which lasted for 40 years when in 1917, the two men died

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

within days of each other. Their designs for churches, public buildings, commercial offices, schools and residences included Mathews Hall and the old Hemenway Gym at Harvard; the Boston and Providence Railroad Station formerly in Park Square; on Boston's State Street--the Exchange Building, the Cunard Building and the India Building; the Hotel Bellevue at 19-25 Beacon Street, the Massachusetts State Building and Machinery Building at the World's Columbian Exposition in Chicago; City Hall, Chelsea and City Hall, Worcester; and numerous residences in Back Bay. (see page 2)

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

BOSTON BUILDING DEPT RECORDS.
ARCHITECTURAL ARCHIVE — FINE ARTS DEPT./BPL.
WITHEY. AMERICAN ARCHITECTS DECEASED.
BOSTON DIRECTORIES: ROBERT S. PEABODY — 1880-1917; ANDREW W. PRESTON: 1918-1930.
BRICKBUILDER. MARCH 1905. VOL 14 #3 P.55; 56. (PHOTO OF ENTRY); VOL. 10 JAN. 1901. DRAWING FACADE + SECTION.
AABN. V.75 p.47, PL. 1363. FEB 8, 1902 (GOOD DOUBLE PAGE PHOTO)
SUFFOLK DEEDS 2034/322 (DEED RESTRICTIONS); 2032/END PLAN NO. 3 (PLAN OF LOTS — JUN. 1, 1888)
BUNTING. HOUSES OF BOSTON'S BACK BAY. APPENDIX A.
CBD ARCHITECTS LIST — BOSTON LANDMARKS COMMISSION

FK 17

Significance continued:

New York and Philadelphia and many suburban homes and estates. Peabody and Stearns were the architects of the Dorchester Heights monument in South Boston and the Custom House Tower, Boston's first skyscraper and for many years downtown's landmark building. In the Fenway area, Peabody and Stearns were responsible for the Queen Anne/Georgian Revival row at 37-57 St. Stephen (1884), the Georgian Revival row at 38-56 St. Stephen (1885-6), Chickering Hall (demolished), the Industrial School for Crippled and Deformed Children, 241 St. Botolph Street (1903), and Simmons College at 300 The Fenway (1901-4) (see forms for).

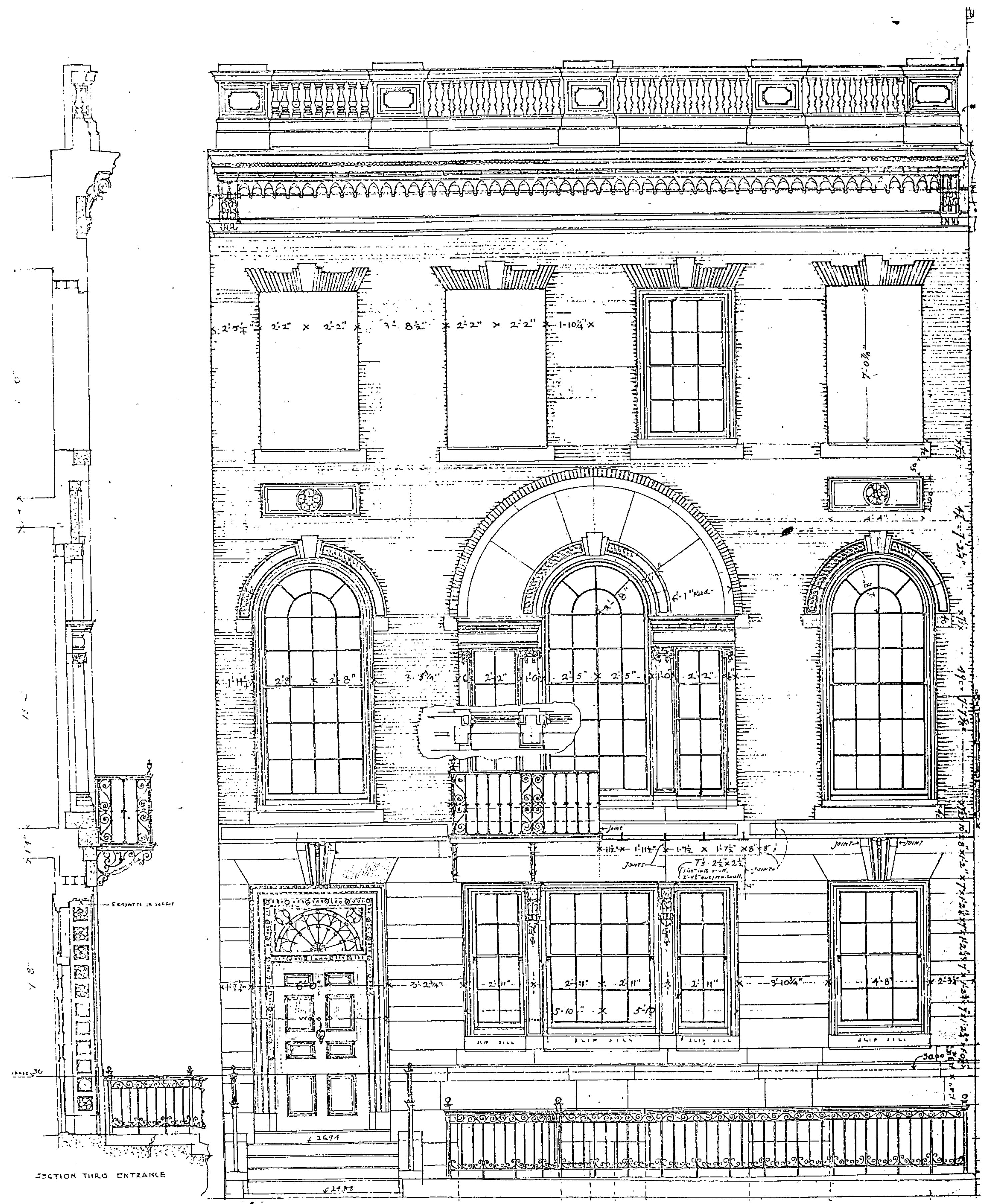
Robert S. Peabody was born in New Bedford and was the son of Rev. Ephraim Peabody who was minister of King's Chapel, Boston during the 1840's and '50's. Peabody attended the Boston city schools and Harvard College and was one of an early group of Americans to be trained at the Ecole des Beaux-Arts. In addition to his design work, Peabody was note for his architectural and travel writings, his long-time presidency of the Boston Society of Architects, and his civic involvement including, in the 1910's, serving as head of the City Park Department. From the 1880's through the mid-'90's, Peabody was a Brookline resident and just prior to his move to the Fenway lived in Boston's Back Bay.

After Peabody's death, 22 The Fenway was sold to Andrew W. Preston. Preston was the President of the United Fruit Company (131 State Street) and formerly lived at 25 Bay State Road. By the 1950's, 22 The Fenway was owned and occupied by The Massachusetts Medical Society, an organization which used to maintain its offices in the Boston Medical Library building at #18 (see form for). The Massachusetts Medical Society remains the present owner of 22 The Fewnay.

Recommendations:

Already listed in Fenway/Boylston National Register District

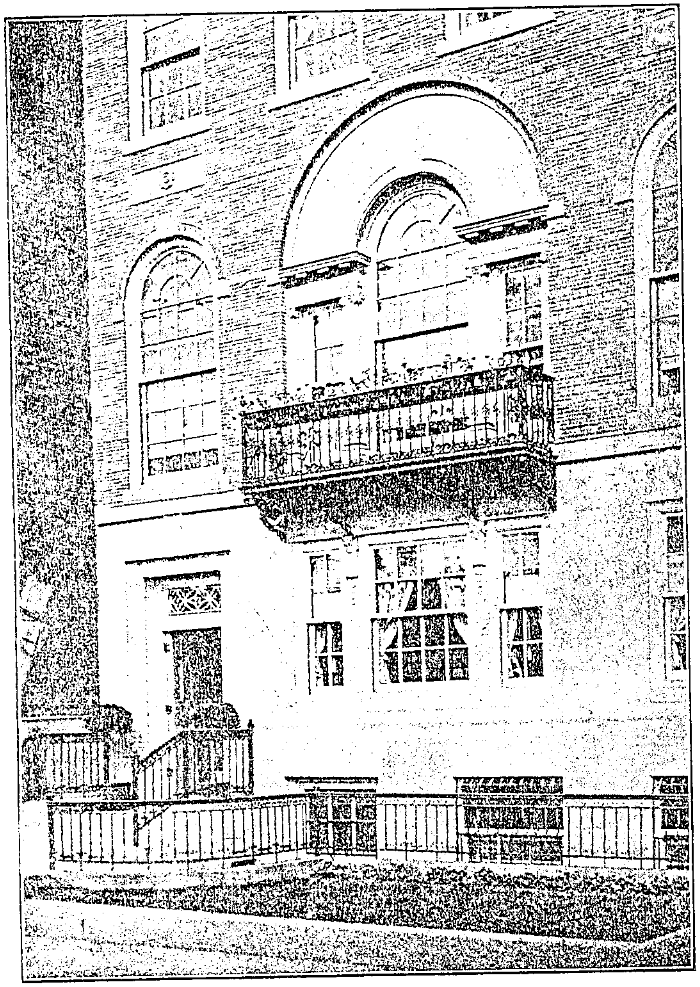
Recommended for inclusion in Fenway Landmark District



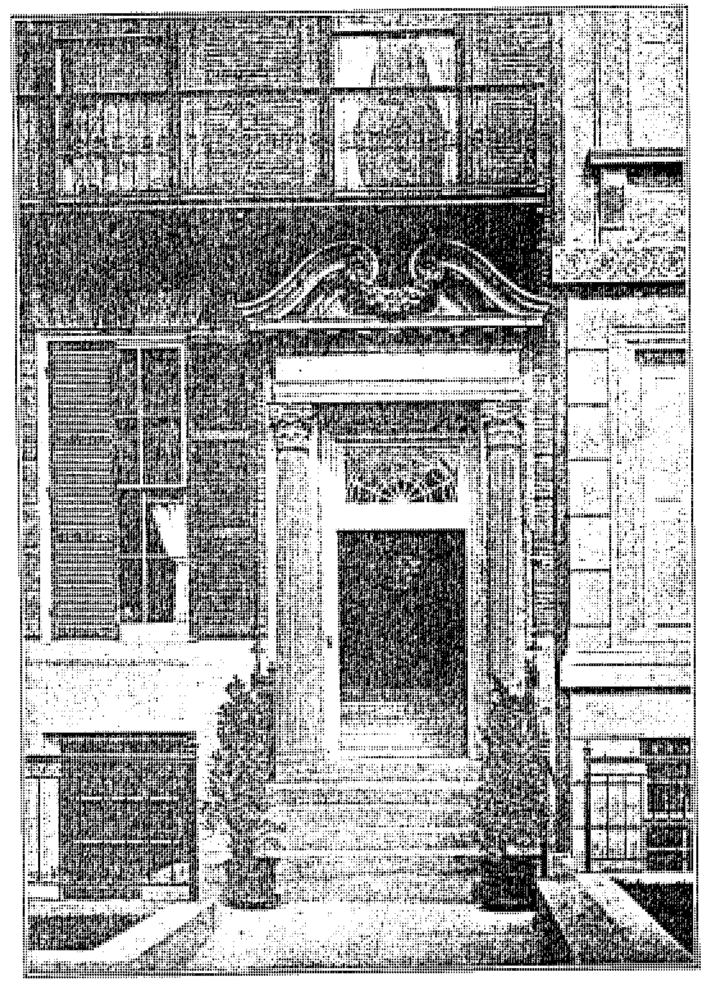
#22 THE FENWAY
FROM: THE BRICKBUILDER VOL. 10, NO. 1 1901 (END)

THE BRICKBUILDER. VOL. 14
MARCH 1905
#22 AND 24 THE FENWAY

FK 17



32. HOUSE OF ROBERT S. PEABODY, ESQ.
Peabody & Stearns, Architects.



33. HOUSE OF MOORFIELD STOREY, ESQ.
Peabody & Stearns, Architects.

BOSTON LANDMARKS COMMISSION Building Information Form Form No. 504 Area FENWAY

ADDRESS 1138 BOYLSTON ST. COR. HEMENWAY

NAME BERKLEE COLLEGE OF MUSIC (present) Carlton Hotel (original)

MAP No. 23N/10E SUB AREA EAST FENS

DATE 1901-2 BUILDING PERMIT (source)

ARCHITECT ARTHUR H. BOWDITCH BUILDING PERMIT (source)

BUILDER GEORGE A. FULLER CO. BUILDING PERMIT (source)

OWNER
1901 – CARLETON HOTEL TRUST
1908 – ANNA SHAW
1912 – INTERNATIONAL TRUST CO.
1922 – Fritz-Carlton Hotel Trust
1938 – Mina E. Fritz
(original) BERKLEE COLLEGE OF MUSIC (present)

PHOTOGRAPHS FENWAY 3. 2/1*-84; 3 - 6/6-84; 9 1/2, 1/3-84

TYPE (residential) single double row 2-fam. 3-deck ten apt. HOTEL
(non-residential)

NO. OF STORIES (1st to cornice) 5 plus FULL STORY OVER MAIN CORNICE

ROOF FLAT cupola — dormers —

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) brick TAN + LIME stone 1ST FLOOR AND LIMESTONE + TERRACOTTA TRIM. concrete iron/steel/alum.

BRIEF DESCRIPTION TRAPAZOIDAL-PLAN BEAUX-ARTS BUILDING WITH HEAVY OVERLAY OF GEORGIAN REVIVAL DETAILING DISPLAYING ROUNDED CORNER BAY AT HEMENWAY STREET, – BLOCK JOINT LIMESTONE 1ST FLOOR, AND OFF-CENTER BOYLSTON STREET GRADE LEVEL ENTRY PORTICO SUPPORTED BY DOUBLE PAIRS OF FLUTED AND BANDED IONIC SWAG COLUMNS. ROBUST ORNAMENT GENERALLY EXECUTED IN TAN TERRACOTTA INCLUDES BANDING OF 2nd FLOOR AND KEYSTONE AND QUOINED WINDOW ENFRAMEMENTS ON 2nd AND 4th, 3RD FLOOR CONSOLED ARCHITRAVES, AND THREE-STORY FLUTED AND ORNAMENTED PILASTERS VERTICALLY LINKING 3-5th FLOORS. 3-SIDED BAYS ARE APPARENT ON BOYLSTON ~~STREET~~ FACADE; HEMENWAY FACE IS FLAT. CLASSICAL MODILLION AND EGG AND DART MAIN CORNICE IS SET ABOVE FIFTH FLOOR.

EXTERIOR ALTERATION minor moderate drastic ROOF BALUSTRADE HAS BEEN REMOVED

CONDITION good fair poor LOT AREA 13,318 sq. feet

NOTEWORTHY SITE CHARACTERISTICS On corner site, one block west of Fens; Wide sidewalk planted with youngish lindens. Adjacent at right to Massachusetts Historical Society (see form for) and across from St. Clement's Church (see form for).

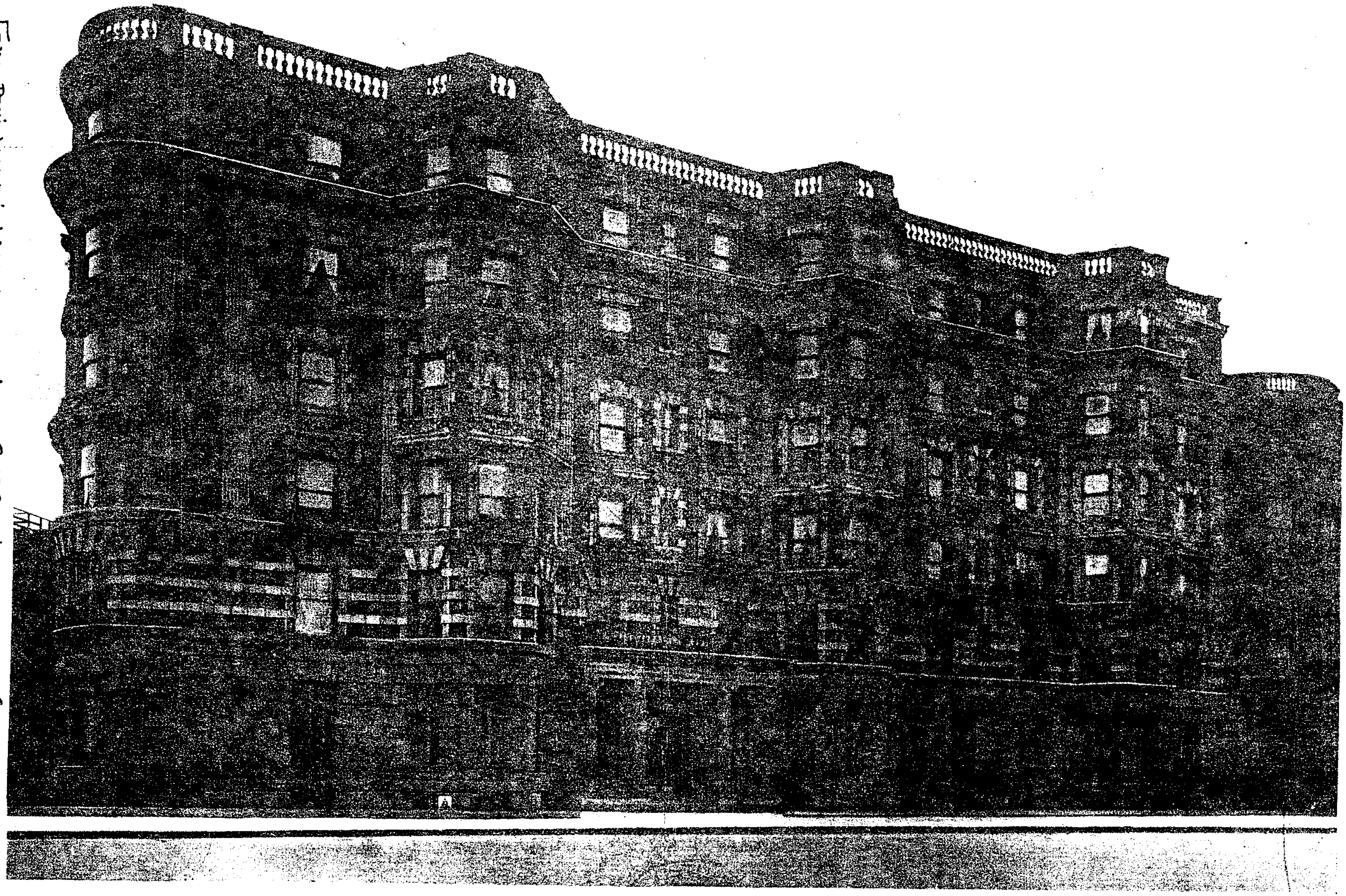
(Map)

SIGNIFICANCE (cont'd on reverse)

Prominently located architecturally distinguished building included in the proposed Fenway National Register District, and contributing significantly to the design quality of the East Fens area. Reportedly built as a copy of the Carlton Hotel in London, Boston's Carlton

IV
RP/4-84

F/K 504



Owner:
CARLTON HOTEL TRUST,
Boston.

CARLTON HOTEL,
BOSTON.

GEORGE A. FULLER COMPANY, Builders.

Architect:
ARTHUR H. BOWDITCH,
Boston.

FROM: PROMINENT BUILDINGS ERECTED BY THE GEORGE A. FULLER CO. (AT BPL)

Recommendations: Listed as part of Fenway/Boylston NR district

Moved; date if known ______

Themes (check as many as applicable)

Aboriginal	____	Conservation	
Agricultural	____	Education	X
Architectural	X	Exploration/ settlement	
The Arts	X	Industry	
Commerce	____	Military	
Communication	____	Political	
Community/ development	____		

Significance (include explanation of themes checked above)

displays similar building materials (tan brick and white limestone), ---limestone first floor, and columned grade level entry porch as its abutting neighbor the Massachusetts Historical Society. During the 1910's through the thirties, the hotel was known as the Fritz-Carlton and in the 1940's as the Bostonian Hotel. By 1943, the Carlton/Bostonian was owned by United Seaman's Service and was the 54th unit in its worldwide chain of non-profit residential and recreational clubs for officers and seamen of the American Merchant Marine. In the 1960's, the building was purchased by the Berklee College of Music and converted from a 150 room hotel to school and dormitory use. By 1969, the entire building was changed over into classrooms and practice rooms.

Arthur Bowditch (d. March 14, 1941), the architect of the Carlton was active from ca. 1890 through the thirties and was responsible for the design of many apartment, hotel, and commerical buildings including the Beacon Trust Building (now Telephone Workers Credit Union) 31 Milk, 1921. the Publicity Building at 40-44 Bromfield, 1913, Merchants Building, 75-81 Summer Street, 1901, Old South Building, 294 Washington Street, office buildings at 402 and 439 Boylston Street, 1908 and 1910, Hotel Somerset at 400 Commonwealth Avenue, 1897, Audubon Court Apartments 516-522 Park Drive, 1915 (see form for),

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

the Lenox Hotel, the Essex Hotel, Stoneholm Apartments at 1514 Beacon, Brookline, 1907, and 465 Audubon Road (Park Drive) 1896. (see form for) The contractors for the Carlton, George A. Fuller and Co. were pre-eminent in their field and worked in Boston, New York, Philadephia, Washington, Baltimore, Pittsburgh, St. Louis and Chicago. They were responsible for the Monadnock Building and Reliance Building in Chicago, Carson, Pirie, Scott and CO, Chicago, New York Times Building and R.H. Macy's, New York, Frick Building, Pittsburgh, and in Boston, Board of Trade Building, Brazer Building, and Bowditch designed--Merchant's Office Building and the Essex and Lenox Hotels.

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

Bromley Atlases: 1898, 1908, 1912, 1917, 1922, 1928, 1938.

Architectural Archive. Fine Arts Dept/BPL

Building Permit and alteration info at Building Department/Boston

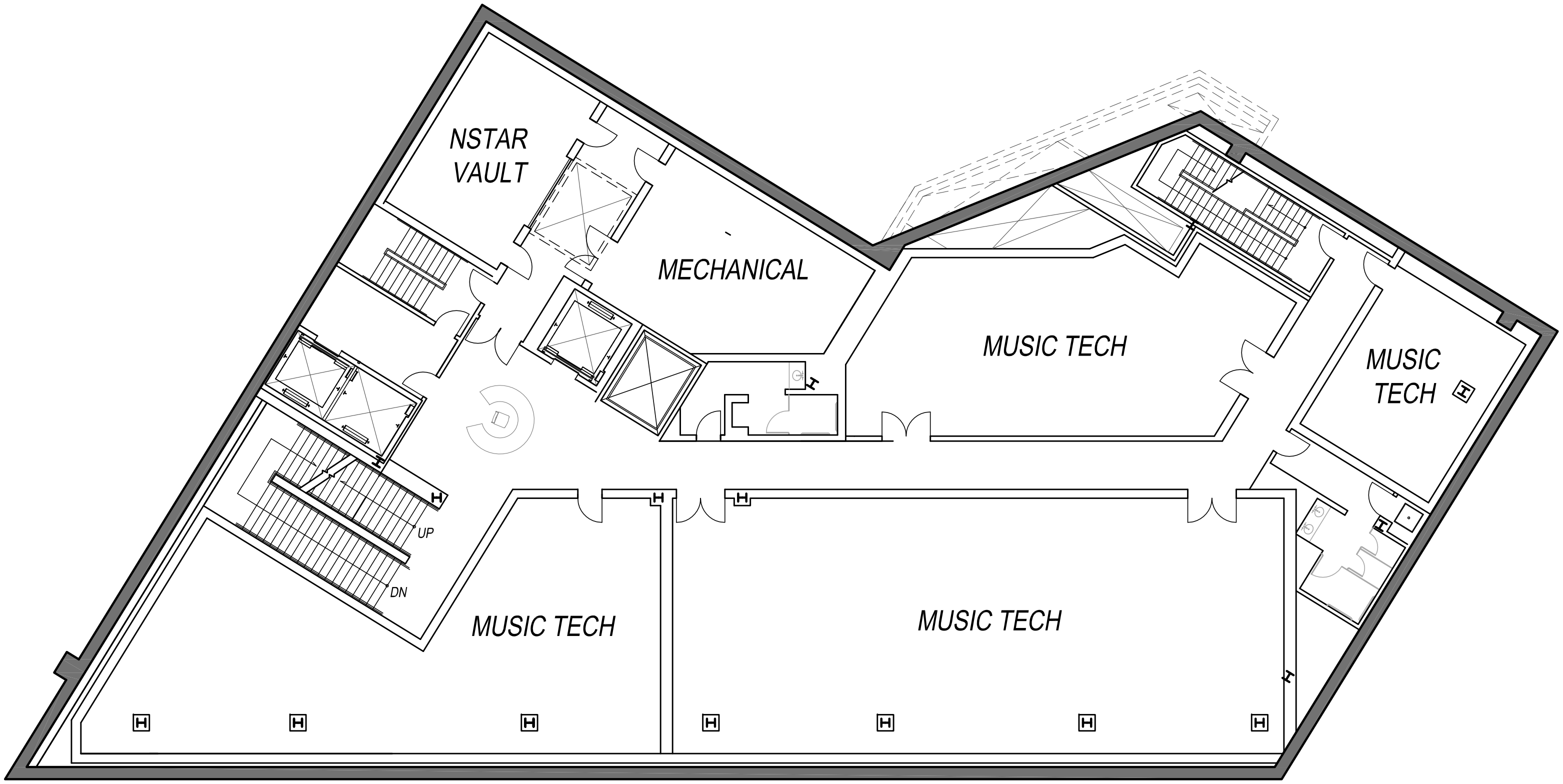
Article on the Bostonian Hotel: Inside Boston, Boston Daily Globe Oct, 14, 1943 (in Building Dept. packet)

Prominent Buildings Erected by the George A. Fuller Co. (BPL: FA *4090.143)

Brickbuilder. V. 11. Dec. 1902 p. 260. photo.

Appendix F

Preliminary Floor Plans

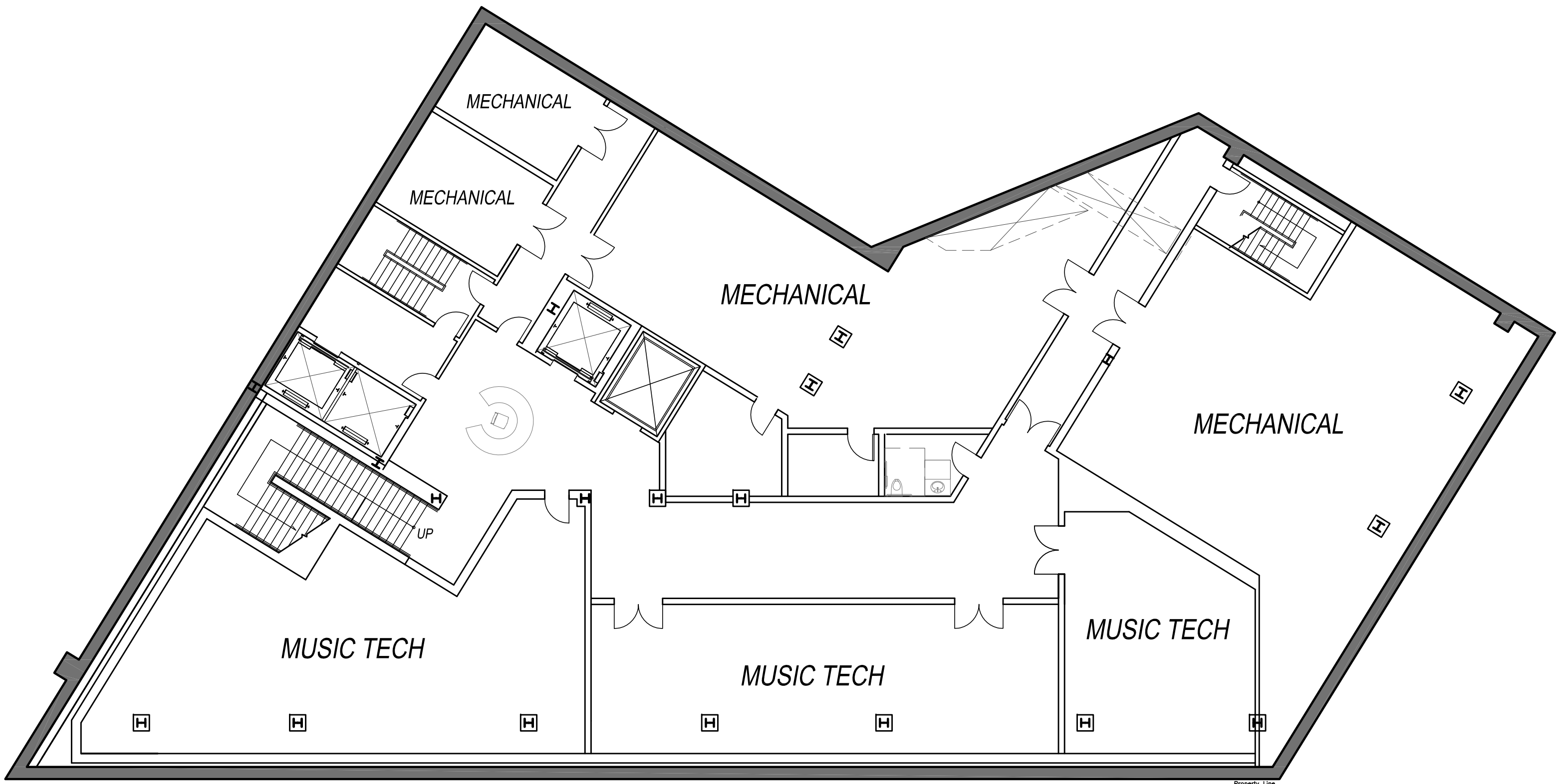


Berklee college of music

Institutional Master Plan

Level B1 Plan

William Rawn Associates
Architects, Inc.
Boston, MA

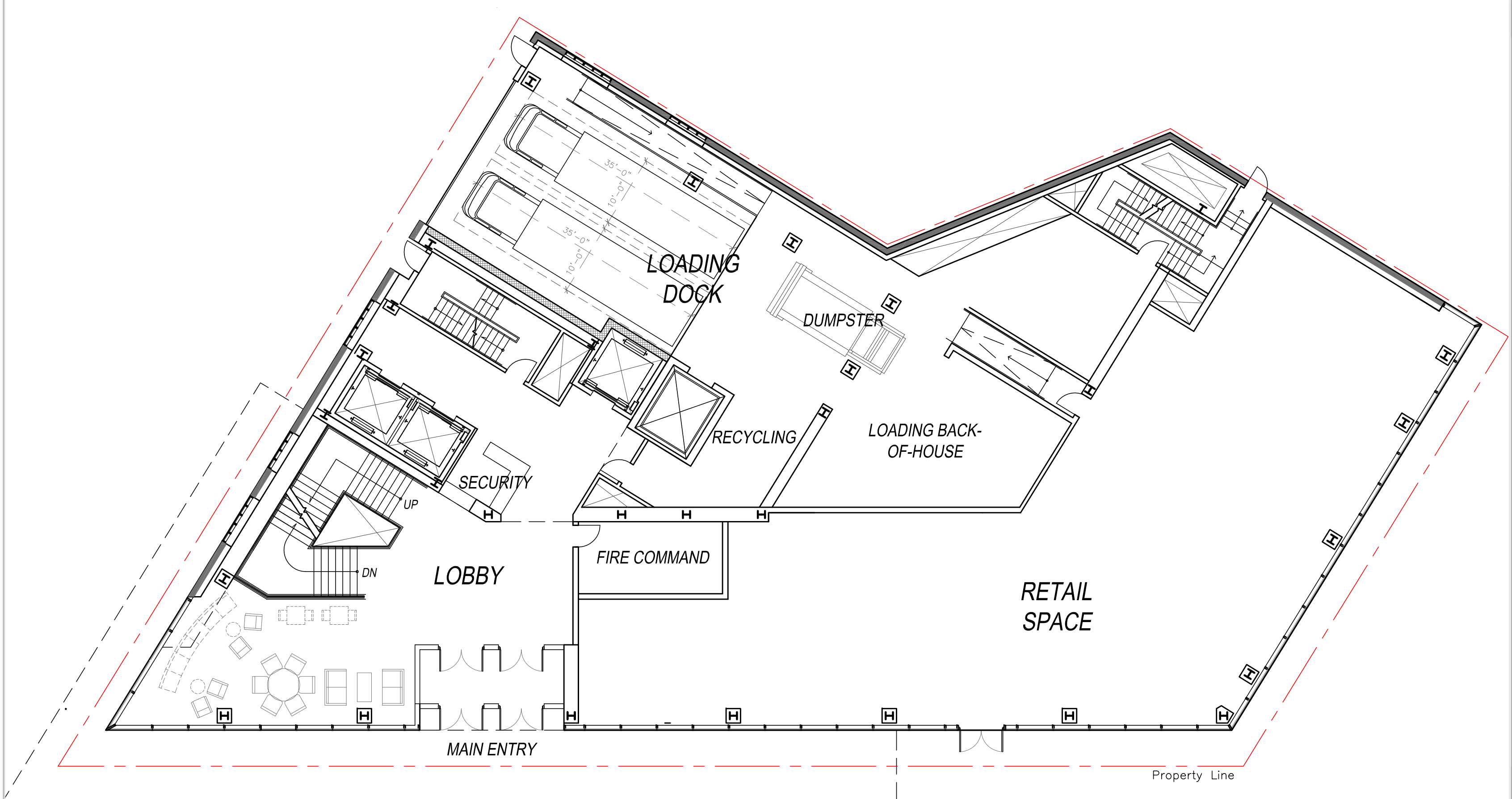


Berklee college of music

Institutional Master Plan

Level B2 Plan

William Rawn Associates
Architects, Inc.
Boston, MA



Berklee college of music

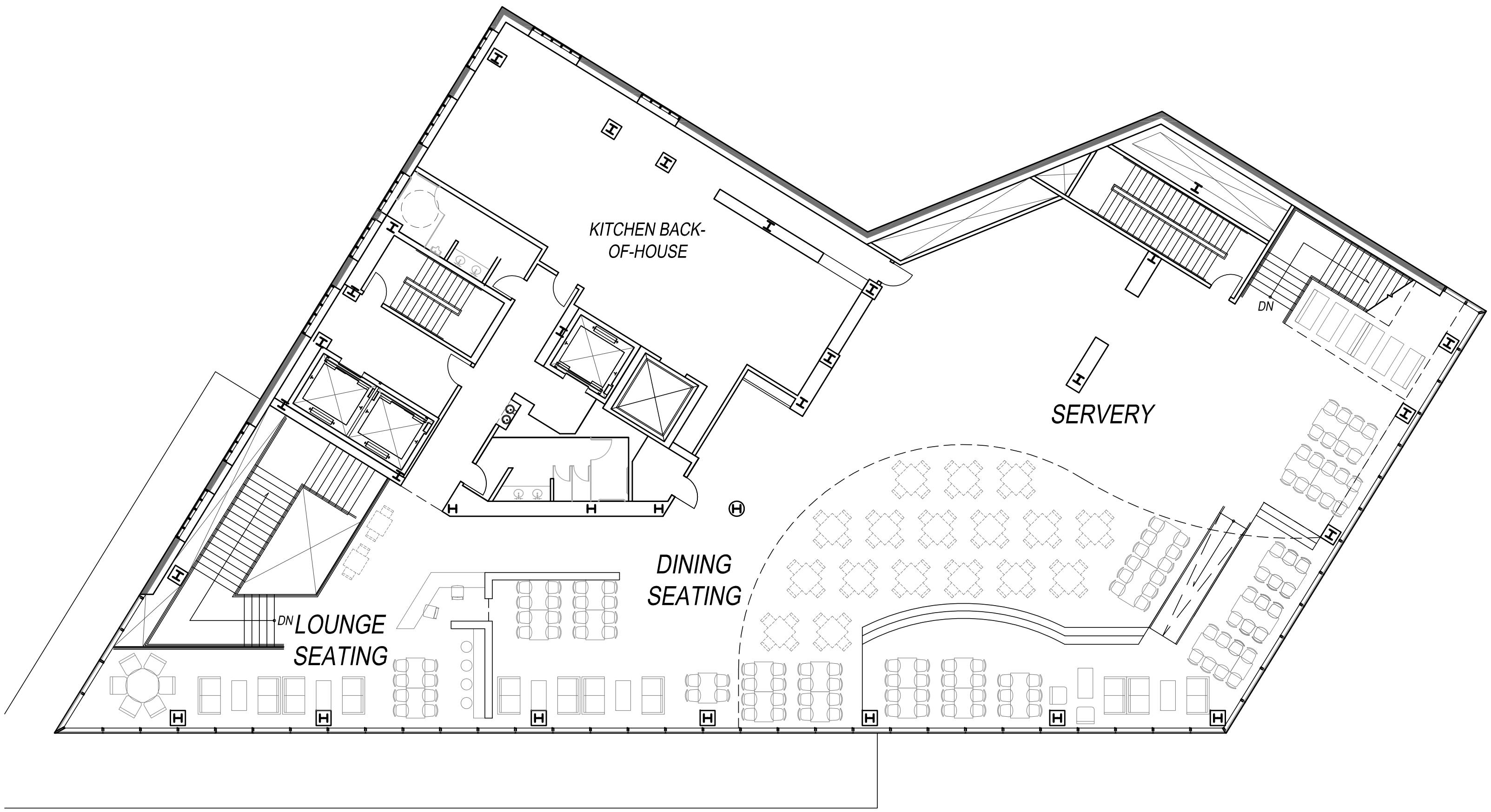
Institutional Master Plan

Level 1 Plan

William Rawn Associates
Architects, Inc.
Boston, MA

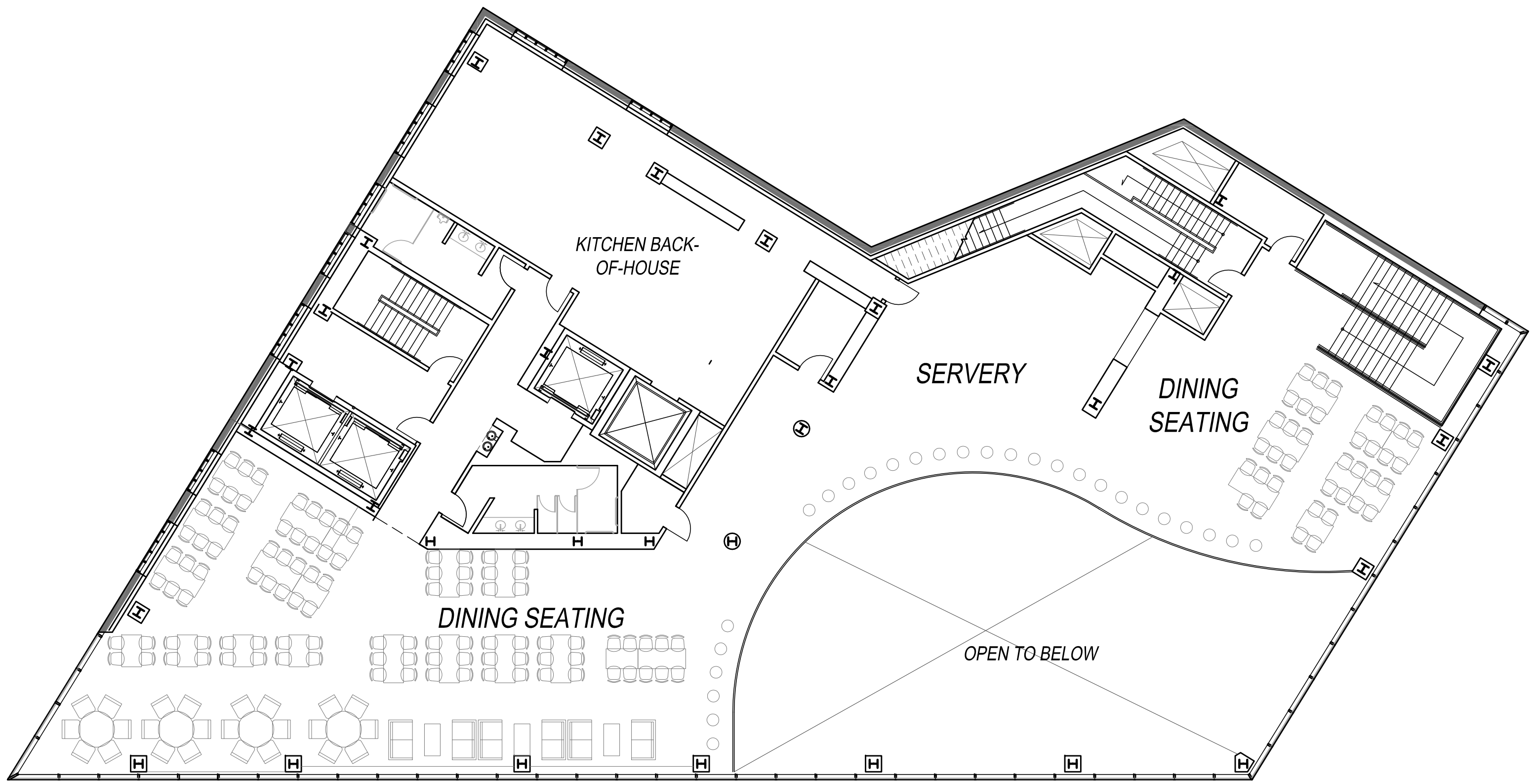
Berklee college of music

Institutional Master Plan



Level 2 Plan

William Rawn Associates
Architects, Inc.
Boston, MA



Berklee college of music

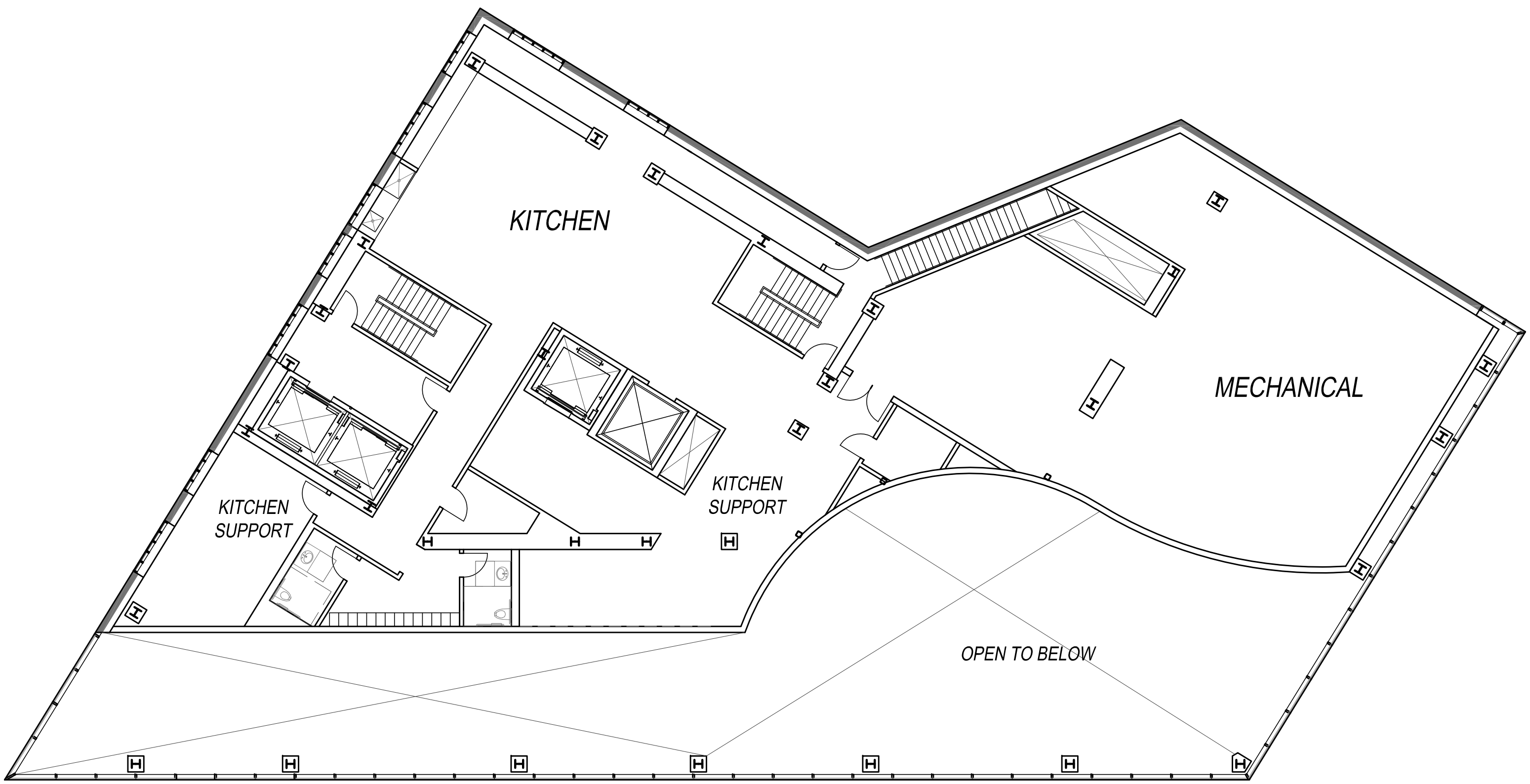
Institutional Master Plan

Level 3 Plan

William Rawn Associates
Architects, Inc.
Boston, MA

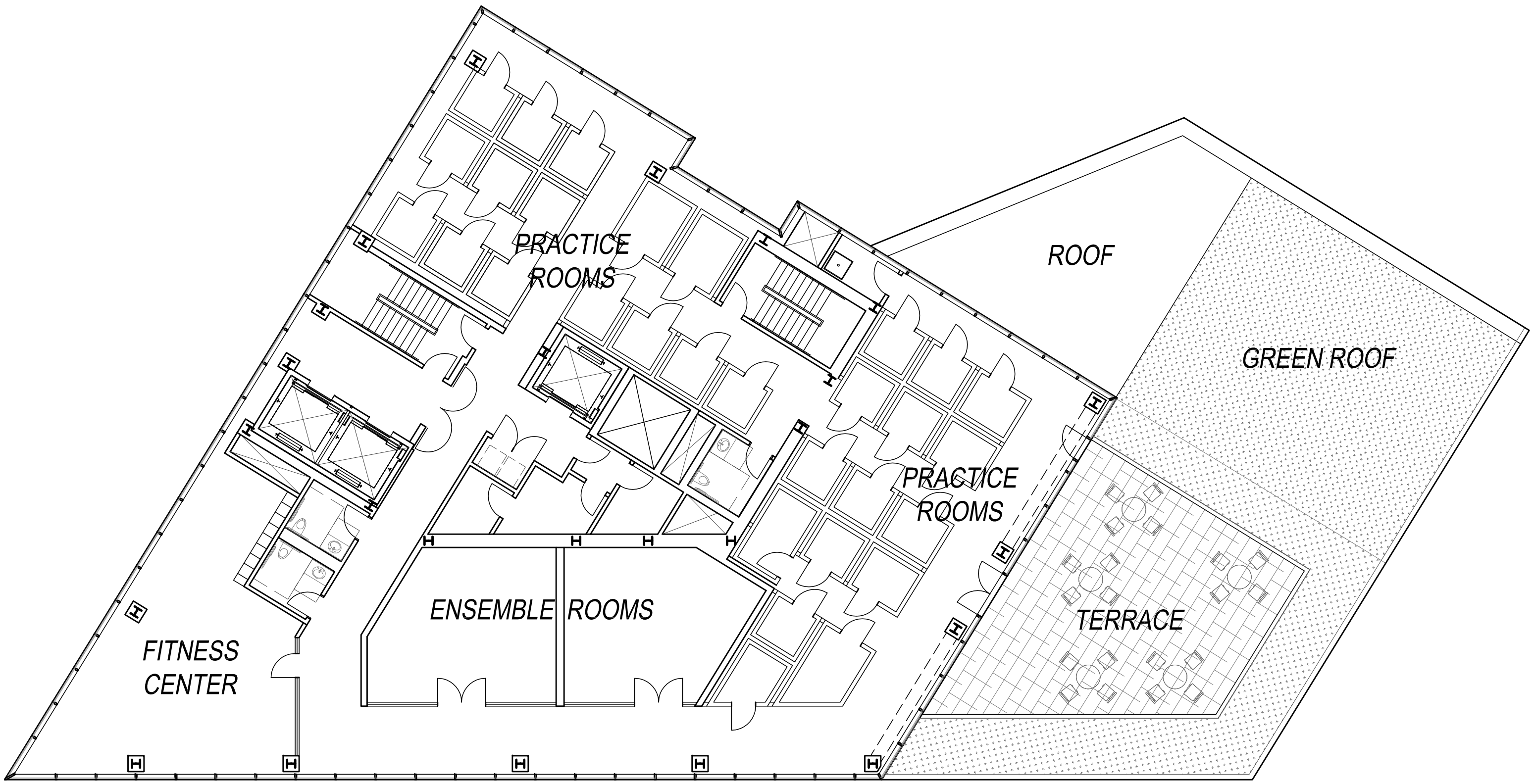
Berklee college of music

Institutional Master Plan



Level 3M Plan

William Rawn Associates
Architects, Inc.
Boston, MA

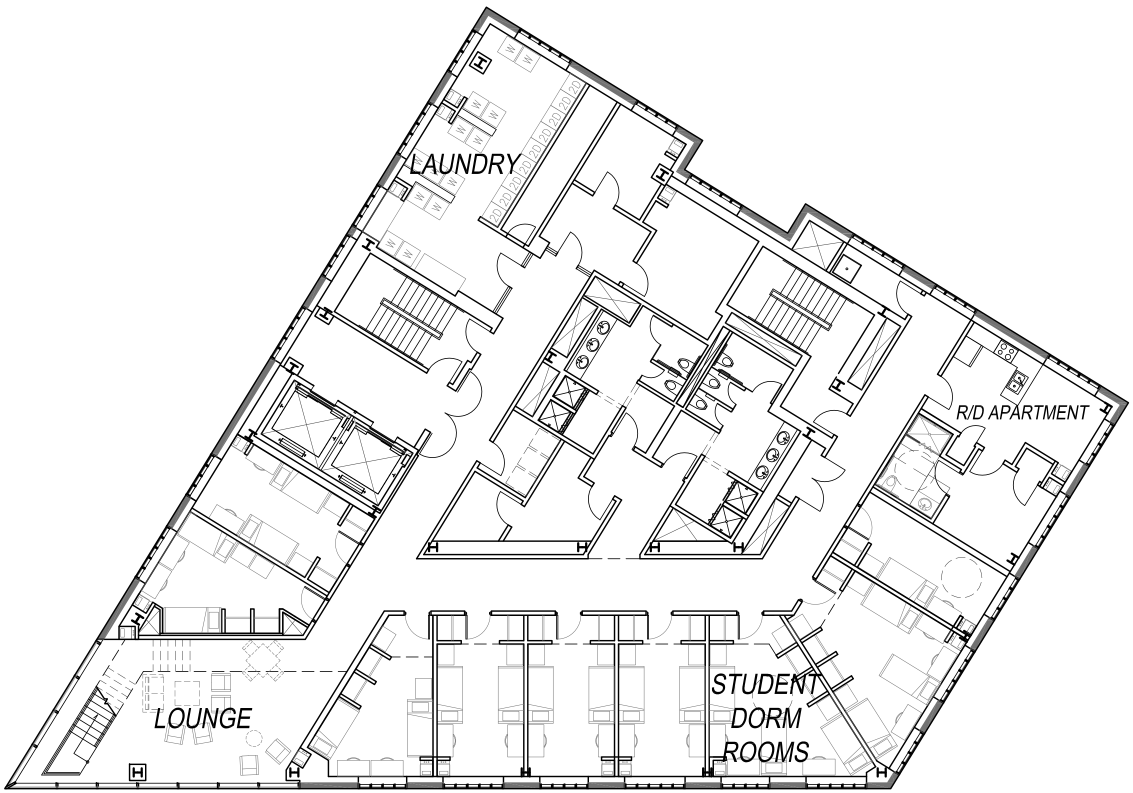


Berklee college of music

Institutional Master Plan

Level 4 Plan

William Rawn Associates
Architects, Inc.
Boston, MA

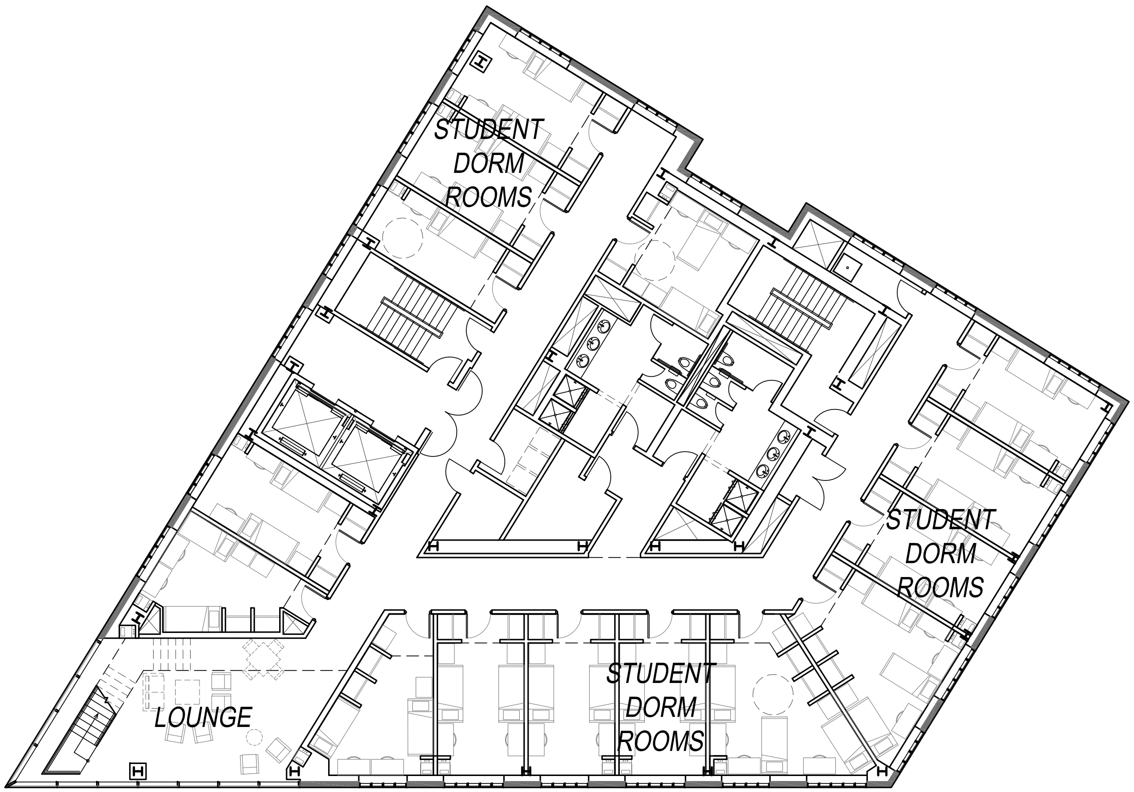


Berklee college *of* music

Institutional Master Plan

Level 5 Plan

William Rawn Associates
Architects, Inc.
Boston, MA

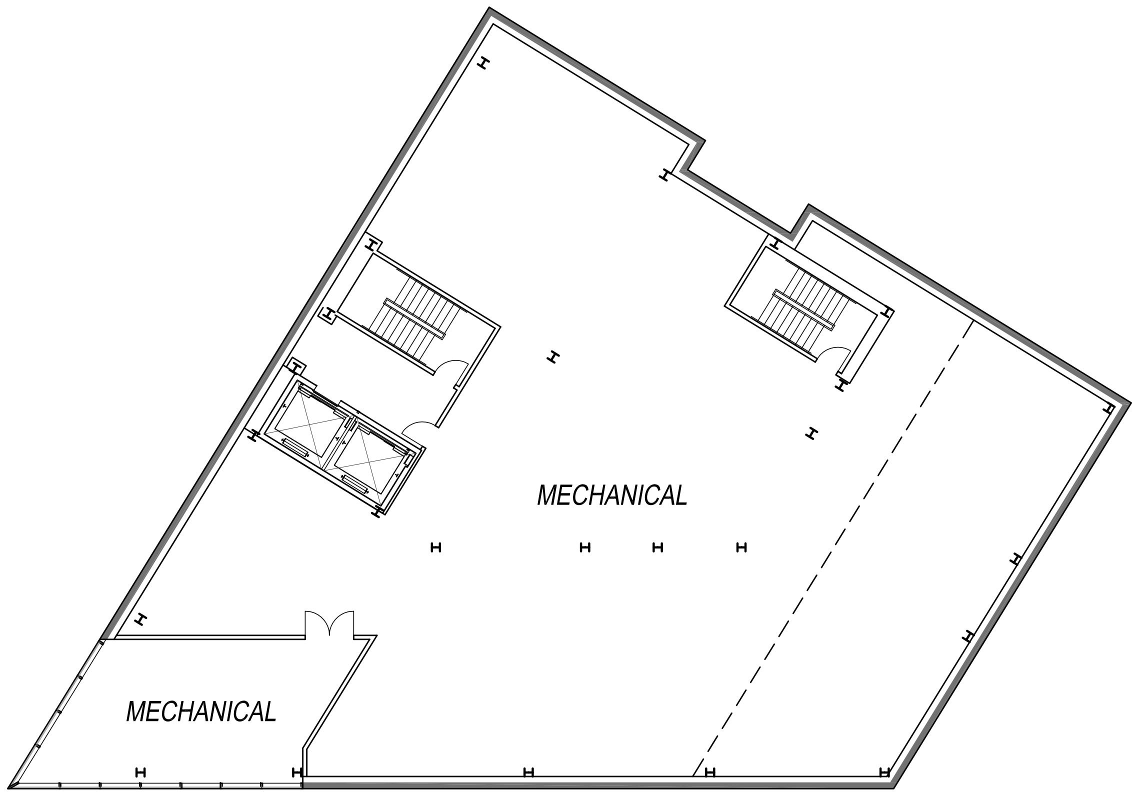


Berklee
college *of*
music

Institutional
Master Plan

Typ. Residential
Floor Plan

William Rawn Associates
Architects, Inc.
Boston, MA



Berklee college of music

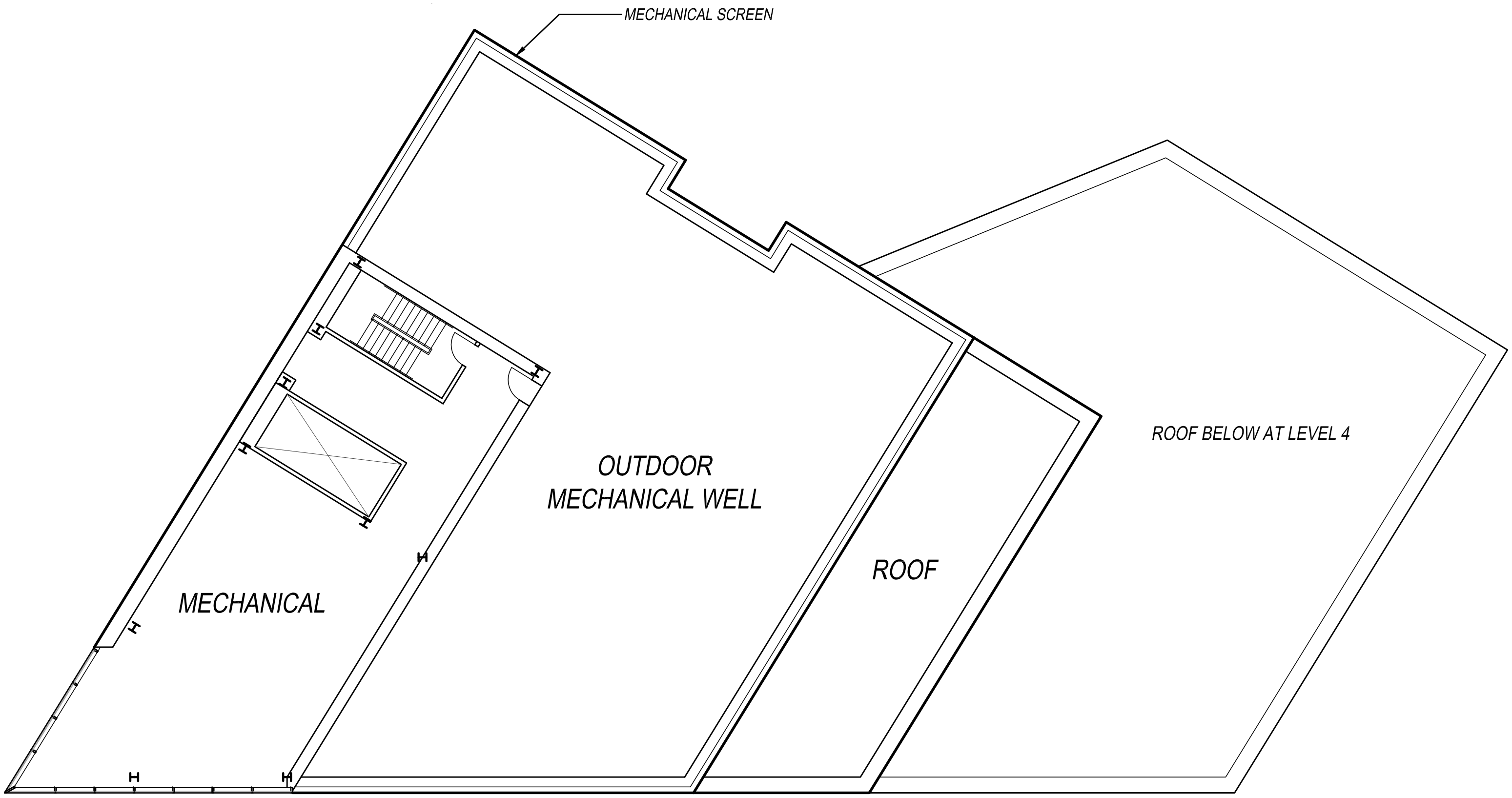
Institutional Master Plan

Mech Penthouse Plan

William Rawn Associates
Architects, Inc.
Boston, MA

Berklee college of music

Institutional Master Plan



Roof Plan

William Rawn Associates
Architects, Inc.
Boston, MA

Appendix G

Wind Analysis

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
1	A	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	18	+29%	Walking	26	+24%	Acceptable
		Summer	14	+40%	Standing	19	+27%	Acceptable
		Fall	17	+31%	Walking	24	+26%	Acceptable
		Winter	19	+19%	Walking	27	+17%	Acceptable
		Annual	17	+21%	Walking	24	+20%	Acceptable
2	A	Spring	15		Standing	22		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	13	-12%	Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	13		Standing	20		Acceptable
3	A	Spring	14		Standing	20		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	15		Standing	22	+10%	Acceptable
		Summer	11	+10%	Sitting	16	+14%	Acceptable
		Fall	14	+17%	Standing	20	+11%	Acceptable
		Winter	17	+13%	Walking	25	+14%	Acceptable
		Annual	15	+15%	Standing	22	+10%	Acceptable
4	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	16	+23%	Walking	23	+15%	Acceptable
		Summer	12	+20%	Sitting	16	+14%	Acceptable
		Fall	15	+25%	Standing	21	+17%	Acceptable
		Winter	18	+20%	Walking	25	+14%	Acceptable
		Annual	16	+23%	Walking	23	+15%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Full Build w/o 168 Mass. Ave.	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Full Build with 168 Mass. Ave.	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
5	A	Spring	13		Standing	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	18	+38%	Walking	24	+26%	Acceptable
		Summer	13	+44%	Standing	18	+29%	Acceptable
		Fall	16	+33%	Walking	22	+22%	Acceptable
		Winter	19	+36%	Walking	26	+24%	Acceptable
		Annual	17	+31%	Walking	24	+26%	Acceptable
6	A	Spring	9		Sitting	14		Acceptable
		Summer	7		Sitting	10		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	9		Sitting	16	+14%	Acceptable
		Summer	7		Sitting	12	+20%	Acceptable
		Fall	9	+13%	Sitting	14		Acceptable
		Winter	10		Sitting	17		Acceptable
		Annual	9		Sitting	15		Acceptable
7	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	19	+12%	Acceptable
		Summer	9	+13%	Sitting	14	+17%	Acceptable
		Fall	11	+10%	Sitting	18	+13%	Acceptable
		Winter	13		Standing	21	+11%	Acceptable
		Annual	12		Sitting	19	+12%	Acceptable
8	A	Spring	19		Walking	25		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	18		Walking	23		Acceptable
		Winter	19		Walking	25		Acceptable
		Annual	18		Walking	23		Acceptable
	B	Spring	17	-10%	Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15	-16%	Standing	22		Acceptable
		Winter	17	-10%	Walking	24		Acceptable
		Annual	16	-10%	Walking	23		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Full Build w/o 168 Mass. Ave.	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Full Build with 168 Mass. Ave.	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			**Mean Wind Speed**			**Effective Gust Wind Speed**		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
9	A	Spring	14		Standing	22		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	18	+29%	Walking	26	+18%	Acceptable
		Summer	15	+50%	Standing	22	+38%	Acceptable
		Fall	17	+31%	Walking	24	+20%	Acceptable
		Winter	18	+38%	Walking	26	+30%	Acceptable
		Annual	17	+31%	Walking	25	+25%	Acceptable
10	A	Spring	13		Standing	20		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	17	+31%	Walking	24	+20%	Acceptable
		Summer	12	+33%	Sitting	18	+20%	Acceptable
		Fall	15	+36%	Standing	22	+22%	Acceptable
		Winter	17	+42%	Walking	24	+26%	Acceptable
		Annual	16	+45%	Walking	23	+28%	Acceptable
11	A	Spring	19		Walking	26		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	21		Uncomfortable	29		Acceptable
		Annual	18		Walking	26		Acceptable
	B	Spring	19		Walking	28		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	17		Walking	26		Acceptable
		Winter	20		Uncomfortable	30		Acceptable
		Annual	18		Walking	27		Acceptable
12	A	Spring	20		Uncomfortable	27		Acceptable
		Summer	15		Standing	20		Acceptable
		Fall	18		Walking	25		Acceptable
		Winter	22		Uncomfortable	29		Acceptable
		Annual	19		Walking	26		Acceptable
	B	Spring	18		Walking	26		Acceptable
		Summer	13	-12%	Standing	19		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	20		Uncomfortable	28		Acceptable
		Annual	18		Walking	25		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Full Build w/o 168 Mass. Ave.	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Full Build with 168 Mass. Ave.	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
13	A	Spring	21		Uncomfortable	28		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	19		Walking	25		Acceptable
		Winter	22		Uncomfortable	30		Acceptable
		Annual	20		Uncomfortable	27		Acceptable
	B	Spring	22		Uncomfortable	29		Acceptable
		Summer	16		Walking	21		Acceptable
		Fall	20		Uncomfortable	26		Acceptable
		Winter	23		Uncomfortable	31		Acceptable
		Annual	21		Uncomfortable	28		Acceptable
14	A	Spring	23		Uncomfortable	29		Acceptable
		Summer	19		Walking	23		Acceptable
		Fall	21		Uncomfortable	27		Acceptable
		Winter	23		Uncomfortable	30		Acceptable
		Annual	22		Uncomfortable	28		Acceptable
	B	Spring	25		Uncomfortable	31		Acceptable
		Summer	20		Uncomfortable	25		Acceptable
		Fall	23	+10%	Uncomfortable	29		Acceptable
		Winter	25		Uncomfortable	32		Unacceptable
		Annual	24		Uncomfortable	30		Acceptable
15	A	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	21		Acceptable
16	A	Spring	18		Walking	24		Acceptable
		Summer	14		Standing	18		Acceptable
		Fall	17		Walking	23		Acceptable
		Winter	20		Uncomfortable	26		Acceptable
		Annual	18		Walking	24		Acceptable
	B	Spring	17		Walking	23		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	16		Walking	22		Acceptable
		Winter	19		Walking	25		Acceptable
		Annual	17		Walking	23		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

Mean Wind Speed Criteria

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

Effective Gust Criteria

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
17	A	Spring	23		Uncomfortable	31		Acceptable
		Summer	17		Walking	22		Acceptable
		Fall	21		Uncomfortable	28		Acceptable
		Winter	25		Uncomfortable	33		Unacceptable
		Annual	23		Uncomfortable	30		Acceptable
	B	Spring	24		Uncomfortable	32		Unacceptable
		Summer	17		Walking	23		Acceptable
		Fall	22		Uncomfortable	29		Acceptable
		Winter	25		Uncomfortable	34		Unacceptable
		Annual	23		Uncomfortable	31		Acceptable
18	A	Spring	25		Uncomfortable	33		Unacceptable
		Summer	18		Walking	24		Acceptable
		Fall	22		Uncomfortable	30		Acceptable
		Winter	26		Uncomfortable	35		Unacceptable
		Annual	24		Uncomfortable	32		Unacceptable
	B	Spring	23		Uncomfortable	32		Unacceptable
		Summer	17		Walking	23		Acceptable
		Fall	21		Uncomfortable	29		Acceptable
		Winter	24		Uncomfortable	33		Unacceptable
		Annual	22		Uncomfortable	31		Acceptable
19	A	Spring	19		Walking	26		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	17		Walking	24		Acceptable
	B	Spring	17	-10%	Walking	24		Acceptable
		Summer	12	-13%	Sitting	18		Acceptable
		Fall	15	-11%	Standing	22		Acceptable
		Winter	17	-10%	Walking	24	-10%	Acceptable
		Annual	16		Walking	23		Acceptable
20	A	Spring	16		Walking	22		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	15		Standing	20		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	15		Standing	21		Acceptable
	B	Spring	17		Walking	22		Acceptable
		Summer	15		Standing	19		Acceptable
		Fall	15		Standing	20		Acceptable
		Winter	16		Walking	22		Acceptable
		Annual	16		Walking	21		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

Mean Wind Speed Criteria

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

Effective Gust Criteria

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
21	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	21		Acceptable
		Annual	12		Sitting	19		Acceptable
22	A	Spring	18		Walking	26		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	20		Uncomfortable	28		Acceptable
		Annual	18		Walking	25		Acceptable
	B	Spring	16	-10%	Walking	24		Acceptable
		Summer	12	-13%	Sitting	18		Acceptable
		Fall	15	-11%	Standing	22		Acceptable
		Winter	17	-14%	Walking	25	-10%	Acceptable
		Annual	15	-16%	Standing	23		Acceptable
23	A	Spring	20		Uncomfortable	30		Acceptable
		Summer	15		Standing	22		Acceptable
		Fall	18		Walking	28		Acceptable
		Winter	21		Uncomfortable	32		Unacceptable
		Annual	19		Walking	29		Acceptable
	B	Spring	20		Uncomfortable	30		Acceptable
		Summer	14		Standing	22		Acceptable
		Fall	18		Walking	27		Acceptable
		Winter	20		Uncomfortable	30		Acceptable
		Annual	19		Walking	28		Acceptable
24	A	Spring	21		Uncomfortable	29		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	19		Walking	27		Acceptable
		Winter	23		Uncomfortable	32		Unacceptable
		Annual	21		Uncomfortable	28		Acceptable
	B	Spring	21		Uncomfortable	28		Acceptable
		Summer	15		Standing	20		Acceptable
		Fall	19		Walking	26		Acceptable
		Winter	23		Uncomfortable	31		Acceptable
		Annual	20		Uncomfortable	28		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
25	A	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	17		Walking	24		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
26	A	Spring	11		Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	17		Acceptable
	B	Spring	14	+27%	Standing	22	+22%	Acceptable
		Summer	11	+38%	Sitting	17	+31%	Acceptable
		Fall	13	+30%	Standing	20	+25%	Acceptable
		Winter	14	+27%	Standing	23	+28%	Acceptable
		Annual	13	+30%	Standing	21	+24%	Acceptable
27	A	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
28	A	Spring	16		Walking	24		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	15		Standing	22		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			**Mean Wind Speed**			**Effective Gust Wind Speed**		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
29	A	Spring	21		Uncomfortable	28		Acceptable
		Summer	16		Walking	21		Acceptable
		Fall	19		Walking	27		Acceptable
		Winter	22		Uncomfortable	30		Acceptable
		Annual	20		Uncomfortable	28		Acceptable
	B	Spring	21		Uncomfortable	28		Acceptable
		Summer	16		Walking	22		Acceptable
		Fall	19		Walking	27		Acceptable
		Winter	22		Uncomfortable	30		Acceptable
		Annual	20		Uncomfortable	28		Acceptable
30	A	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
31	A	Spring	12		Sitting	16		Acceptable
		Summer	10		Sitting	13		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	11		Sitting	15		Acceptable
	B	Spring	12		Sitting	19	+19%	Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	11	+10%	Sitting	17	+13%	Acceptable
		Winter	12		Sitting	19	+12%	Acceptable
		Annual	11		Sitting	18	+20%	Acceptable
32	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	13		Standing	21	+17%	Acceptable
		Summer	10	+11%	Sitting	15	+15%	Acceptable
		Fall	13	+18%	Standing	19	+12%	Acceptable
		Winter	14	+17%	Standing	22	+16%	Acceptable
		Annual	13	+18%	Standing	20	+11%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Full Build w/o 168 Mass. Ave.	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Full Build with 168 Mass. Ave.	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
33	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	14	+27%	Standing	21	+24%	Acceptable
		Summer	10	+25%	Sitting	15	+25%	Acceptable
		Fall	13	+30%	Standing	19	+27%	Acceptable
		Winter	15	+25%	Standing	23	+28%	Acceptable
		Annual	14	+27%	Standing	21	+31%	Acceptable
34	A	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	11	+10%	Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10	+11%	Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11	+10%	Sitting	17		Acceptable
35	A	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	12		Sitting	18		Acceptable
		Summer	8	-10%	Sitting	13		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	11		Sitting	18		Acceptable
36	A	Spring	10		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	10		Sitting	17		Acceptable
		Annual	9		Sitting	15		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Full Build w/o 168 Mass. Ave.	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Full Build with 168 Mass. Ave.	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
37	A	Spring	10		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	9		Sitting	16		Acceptable
		Winter	11		Sitting	19		Acceptable
		Annual	10		Sitting	17		Acceptable
	B	Spring	11	+10%	Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10	+11%	Sitting	16		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	10		Sitting	17		Acceptable
38	A	Spring	10		Sitting	16		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	12	+20%	Sitting	18	+13%	Acceptable
		Summer	9	+29%	Sitting	13		Acceptable
		Fall	11	+22%	Sitting	17	+13%	Acceptable
		Winter	13	+18%	Standing	19	+12%	Acceptable
		Annual	12	+20%	Sitting	18	+13%	Acceptable
39	A	Spring	12		Sitting	19		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	17	+42%	Walking	25	+32%	Acceptable
		Summer	12	+50%	Sitting	18	+38%	Acceptable
		Fall	16	+45%	Walking	22	+29%	Acceptable
		Winter	19	+46%	Walking	27	+29%	Acceptable
		Annual	17	+42%	Walking	24	+33%	Acceptable
40	A	Spring	12		Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	17		Acceptable
	B	Spring	16	+33%	Walking	23	+28%	Acceptable
		Summer	12	+50%	Sitting	18	+38%	Acceptable
		Fall	15	+36%	Standing	21	+31%	Acceptable
		Winter	17	+31%	Walking	25	+32%	Acceptable
		Annual	16	+33%	Walking	23	+35%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
41	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	15	+25%	Standing	22	+22%	Acceptable
		Summer	11	+22%	Sitting	16	+23%	Acceptable
		Fall	14	+17%	Standing	20	+18%	Acceptable
		Winter	17	+21%	Walking	24	+20%	Acceptable
		Annual	15	+25%	Standing	22	+22%	Acceptable
42	A	Spring	15		Standing	21		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	16		Walking	22		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	17		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
43	A	Spring	10		Sitting	15		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
	B	Spring	9		Sitting	16		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	10		Sitting	17		Acceptable
		Annual	9		Sitting	15		Acceptable
44	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	11	+10%	Sitting	16		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
45	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11	+10%	Sitting	17		Acceptable
46	A	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	11	+10%	Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10	+11%	Sitting	16		Acceptable
		Winter	12		Sitting	19	+12%	Acceptable
		Annual	11	+10%	Sitting	17		Acceptable
47	A	Spring	22		Uncomfortable	29		Acceptable
		Summer	16		Walking	22		Acceptable
		Fall	20		Uncomfortable	27		Acceptable
		Winter	24		Uncomfortable	32		Unacceptable
		Annual	22		Uncomfortable	29		Acceptable
	B	Spring	22		Uncomfortable	30		Acceptable
		Summer	16		Walking	22		Acceptable
		Fall	21		Uncomfortable	27		Acceptable
		Winter	25		Uncomfortable	33		Unacceptable
		Annual	22		Uncomfortable	29		Acceptable
48	A	Spring	17		Walking	24		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	18		Walking	27		Acceptable
		Annual	16		Walking	24		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
49	A	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	14		Standing	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
50	A	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	21		Acceptable
51	A	Spring	11		Sitting	17		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	17		Acceptable
	B	Spring	11		Sitting	17		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
52	A	Spring	14		Standing	19		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	13		Standing	18		Acceptable
		Winter	15		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	16	+14%	Walking	21	+11%	Acceptable
		Summer	12	+20%	Sitting	16	+14%	Acceptable
		Fall	15	+15%	Standing	19		Acceptable
		Winter	17	+13%	Walking	22	+10%	Acceptable
		Annual	16	+23%	Walking	20		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
53	A	Spring	11		Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	14	+27%	Standing	20	+11%	Acceptable
		Summer	11	+38%	Sitting	15	+15%	Acceptable
		Fall	13	+30%	Standing	19	+19%	Acceptable
		Winter	16	+45%	Walking	21	+17%	Acceptable
		Annual	14	+40%	Standing	20	+25%	Acceptable
54	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	14	+27%	Standing	21	+24%	Acceptable
		Summer	11	+38%	Sitting	16	+33%	Acceptable
		Fall	13	+30%	Standing	20	+25%	Acceptable
		Winter	15	+25%	Standing	22	+22%	Acceptable
		Annual	14	+27%	Standing	21	+31%	Acceptable
55	A	Spring	11		Sitting	18		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	17		Acceptable
	B	Spring	13	+18%	Standing	20	+11%	Acceptable
		Summer	10	+25%	Sitting	15	+15%	Acceptable
		Fall	13	+30%	Standing	19	+19%	Acceptable
		Winter	14	+27%	Standing	21	+17%	Acceptable
		Annual	13	+30%	Standing	19	+12%	Acceptable
56	A	Spring	13		Standing	20		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
57	A	Spring	18		Walking	26		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	19		Walking	28		Acceptable
		Annual	17		Walking	25		Acceptable
	B	Spring	17		Walking	26		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	18		Walking	28		Acceptable
		Annual	17		Walking	25		Acceptable
58	A	Spring	22		Uncomfortable	28		Acceptable
		Summer	17		Walking	21		Acceptable
		Fall	20		Uncomfortable	26		Acceptable
		Winter	23		Uncomfortable	30		Acceptable
		Annual	21		Uncomfortable	27		Acceptable
	B	Spring	21		Uncomfortable	28		Acceptable
		Summer	16		Walking	21		Acceptable
		Fall	19		Walking	26		Acceptable
		Winter	22		Uncomfortable	30		Acceptable
		Annual	20		Uncomfortable	27		Acceptable
59	A	Spring	18		Walking	23		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	16		Walking	22		Acceptable
		Winter	17		Walking	23		Acceptable
		Annual	16		Walking	22		Acceptable
	B	Spring	17		Walking	23		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	16		Walking	21		Acceptable
		Winter	17		Walking	23		Acceptable
		Annual	16		Walking	22		Acceptable
60	A	Spring	17		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	17		Walking	24		Acceptable
		Annual	16		Walking	22		Acceptable
	B	Spring	17		Walking	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	22		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
61	A	Spring	18		Walking	24		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17		Walking	22		Acceptable
		Winter	18		Walking	25		Acceptable
		Annual	17		Walking	23		Acceptable
	B	Spring	18		Walking	25		Acceptable
		Summer	16	+14%	Walking	21	+11%	Acceptable
		Fall	17		Walking	23		Acceptable
		Winter	18		Walking	25		Acceptable
		Annual	17		Walking	24		Acceptable
62	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	11		Sitting	17		Acceptable
63	A	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	14		Standing	22		Acceptable
	B	Spring	15		Standing	23		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
64	A	Spring	10		Sitting	15		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	15		Acceptable
	B	Spring	10		Sitting	16		Acceptable
		Summer	8	+14%	Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	11	+10%	Sitting	17		Acceptable
		Annual	10	+11%	Sitting	15		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
65	A	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	13	-12%	Standing	19	-13%	Acceptable
		Summer	9	-17%	Sitting	14	-12%	Acceptable
		Fall	12		Sitting	17	-14%	Acceptable
		Winter	14	-12%	Standing	20	-16%	Acceptable
		Annual	13		Standing	18	-13%	Acceptable
66	A	Spring	12		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	10	-16%	Sitting	17		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	16		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
67	A	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	9		Sitting	16		Acceptable
		Summer	7	-12%	Sitting	12		Acceptable
		Fall	8	-10%	Sitting	14		Acceptable
		Winter	10	-16%	Sitting	17		Acceptable
		Annual	9		Sitting	15		Acceptable
68	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	17		Acceptable
	B	Spring	11		Sitting	16	-10%	Acceptable
		Summer	8	-10%	Sitting	12		Acceptable
		Fall	10		Sitting	15		Acceptable
		Winter	12		Sitting	17	-10%	Acceptable
		Annual	11		Sitting	16		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

<u>Configurations</u>

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

<u>Mean Wind Speed Criteria</u>

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

<u>Effective Gust Criteria</u>

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
69	A	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	12		Acceptable
		Fall	9		Sitting	15		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	10		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10	+11%	Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
70	A	Spring	11		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
71	A	Spring	14		Standing	19		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	18		Acceptable
		Annual	12		Sitting	17		Acceptable
	B	Spring	14		Standing	19		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	18		Acceptable
		Annual	12		Sitting	17		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) %Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations

A – Full Build w/o 168 Mass. Ave.
B – Full Build with 168 Mass. Ave.

Mean Wind Speed Criteria

Comfortable for Sitting:	≤ 12 mph
Comfortable for Standing:	> 12 and ≤ 15 mph
Comfortable for Walking:	> 15 and ≤ 19 mph
Uncomfortable for Walking:	> 19 and ≤ 27 mph
Dangerous Conditions:	> 27 mph

Effective Gust Criteria

Acceptable:	≤ 31 mph
Unacceptable:	> 31 mph

Appendix H

Air Quality

Berklee School of Music 168 Mass Ave - Calculation of Stationary Source Emissions

Heating Boilers

				Notes
Alternative		Preferred	Alternate	
Source Name		BLRPREF1-6	BLRALT1-8	
Model		BMK 2.0LN	BMK 3.0LN	from Mech report
Qty.		6	8	from Mech report
Boiler Heat Input:	MMBTU/hr:	2.000	3.000	from Mech report
Boiler Emission Rates	lb/MMBTU	g/s (ea.)	g/s (ea.)	
NOx	0.035	0.00882	0.01323	ERP limits
CO	0.080	0.02016	0.03024	ERP limits
VOC	0.030	0.00756	0.01134	ERP limits
PM-2.5	0.010	0.00252	0.00378	ERP limits Assume PM10=PM2.5
PM-10	0.010	0.00252	0.00378	ERP limits Assume PM10=PM2.5
SO2	0.0006	0.00015	0.00022	AP42 Table 1.4-2 (assuming 1040 Btu/scf)
CO2	115.385	29.07628	43.61442	AP42 Table 1.4-2 (assuming 1040 Btu/scf)
Gas Exit Temp (°F)	°F	170	170	Assumed
Exhaust air (CFM)	CFM	990.96	1486.44	Mfg data
Gas Exit Velocity (fps)	fps	47.27	70.90	calculated
Roof Height	feet	204	204	from Rawn & Assoc. site plan
Stack height	feet above roofline	10	10	ERP minimum
Stack height	feet	214	214	calculated
Stack Diameter	feet	0.667	0.667	Mfg data

Cooling Towers

Alternative		Preferred	Alternate	Notes
Designation		CT-PREF1	CT-ALT1-2	
Make		BAC	BAC	from Mech report
Model		3412C	3412C-2	from Mech report
Cooling Tower Rate	tons	399	798	Mfg data
Tower Overall Dimensions	feet	19.75x20x10.75	9.75x20x10.75	Mfg data
CT Stack Height (above roofline)	feet	10.75	10.75	Mfg data
Primary Building Height (ft)	feet	204.00	204.00	from Rawn & Assoc. site plan
CT Stack Height (ft)	feet	215	215	calculated
Number of cells (per tower)	#	1	2	from Mech report
Cooling Tower Specs				
Cooling Tower Exhaust Flow	CFM	103700	207400	Mfg data
Cooling Tower Cell Exhaust Flow	CFM	103700	103700	per cell
Cooling Tower Cell Exhaust Flow	kg/s	54.5	54.5	calculated
Cooling Tower Exhaust Temp	°F	78	78	assumed
Cooling Tower Cell Diameter	feet	9	9	assumed based on overall dimensions
Cooling Tower Stack Velocity	fps	27.17	27.17	calculated
Cooling Tower Drift				
Drift Rate	% of circ water	0.001	0.001	assumed
Circulating Water Rate	gpm	1,197	2,394	assumed 3gpm/ton cooling
Circulating Water Rate	gph	71,820	143,640	calculated
TDS+TSS concentration in drift	mg/L	1,500	1,500	assumed
PM emission rate in drift (per cell)	lb/hr	0.009	0.009	calculated
PM emission rate in drift (per cell)	g/s	0.00114	0.00114	calculated

Emergency Generator

			Notes
Electrical output	kilowatts	800	from Mech report
Make		CAT	assumed
model		C27 Standby	assumed
Engine Horsepower	BHP	1214.00	Mfg data
Engine power	kilowatts	905.28	calculated
Fuel consumption @full load	gph	57.22	Mfg data
Heat Input	MMBTU/hr:	7.83914	calculated

Pollutant	Emission factor unit	Emission factor	Short Term g/s	Long Term (300 hr/yr) g/s	
NOx	g/BHP-h	5.26	1.7728	0.06071	"Nominal" EF from mfg data
CO	g/BHP-h	0.23	0.0769	0.00263	"Nominal" EF from mfg data
VOC	g/BHP-h	0.03	0.0101	0.00035	"Nominal" EF from mfg data
PM10	g/BHP-h	0.02	0.0076	0.00026	"Nominal" EF from mfg data
PM2.5	g/BHP-h	0.02	0.0076	0.00026	"Nominal" EF from mfg data
SO2	lb/MMBTU	0.001515	0.0015	0.00005	emission factor from EPA AP-42 (Table 3.4-1)
HAPs	lb/MMBTU	0.00149	0.0015	0.00005	emission factor from EPA AP-42 (Table 3.4-3&4)
CO2	lb/hr	1251.3	157.6603	5.39933	"Nominal" EF from mfg data

Stack Exhaust Flow	ACFM	6,046	Mfg data
Stack Exhaust Temperature	F	955.04	Mfg data
Stack Diameter	in	16	assumed
Stack Velocity	fps	72.2	calculated
Roof Height	feet	204.0	from Rawn & Assoc. site plan
Stack height	feet above roofline	10	ERP minimum
Stack height	feet	214.0	calculated

Loading Dock Exhaust Vent

	2013 M6.2 Emission factors (g/hr/veh)	Hourly Idle Time (min/veh)	# Vehicles	Emission Rate (g/s)	Notes
Composite VOC :	4.561	5	2	0.000211	calculated
Composite CO :	42.009	5	2	0.001945	calculated
Composite NOX :	11.184	5	2	0.000518	calculated
Composite CO2 :	2953.598	5	2	0.136741	calculated
Total PM2.5:	0.168	5	2	0.000008	calculated
Total PM10:	0.168	5	2	0.000008	calculated
SO2:	0.036	5	2	0.000002	calculated

assumption: Loading dock is capable of handling 2 trucks at a time. Assume dock is used from 7am-4pm consistently with 2 trucks idling maximum of 5 minutes per hour (MGL Chapter 90, Section 16A).

Vent Parameters		Vent 1	
Stack Exhaust Flow	ACFM	5600	from Mech Fig 2.9
Stack Exhaust Temperature	F	70	assumed
outlet area	sq ft	4.166666667	(30x20") from Mech Fig 2.9
effective diameter	ft	2.30	calculated
Stack Velocity	fps	22.4	calculated
Roof Height	feet	204.0	from Rawn & Assoc. site plan
Stack height	feet above roofline	4	assumed
Stack height	feet	208.0	calculated

summer 2013 2.5 mph

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.2983	0.4117	0.162		0.0369	0.0001	0.0015	0.0857	0.0038	1
Fuel Economy (mpg):	24.1	18.5	14.2	17.1	9.9	32.5	18.4	7.3	50	16.2
Composite Emission	Factors (g/ mi):									
Composite VOC :	2.334	1.774	1.982	1.833	2.66	0.443	0.394	0.963	12.06	1.975
Composite CO :	12.52	10.9	11.8	11.16	27.56	4.148	1.357	4.12	106.63	11.911
Composite NOX :	0.613	0.525	0.756	0.59	0.688	0.698	0.355	6.699	1.12	1.126
Composite CO2 :	368	479.1	624.1	520	895.1	313.1	553.5	1400.1	177.4	562.7
Total PM2.5:	0.0113	0.0113	0.0113	0.0113	0.0259	0.0961	0.0285	0.0917	0.0207	0.0188
Total PM10:	0.0113	0.0113	0.0113	0.0113	0.0259	0.0961	0.0285	0.0917	0.0207	0.0188
SO2:	0.0066	0.0087	0.0115	0.0095	0.0163	0.0029	0.0052	0.013	0.0033	0.0092

Winter 2013 2.5 mph

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3031	0.4092	0.1608		0.0365	0.0002	0.0015	0.0851	0.0037	1
Fuel Economy (mpg):	24.1	18.5	14.2	17.1	9.9	32.5	18.4	7.3	50	16.2
Composite Emission	Factors (g/ mi):									
Composite VOC :	2.357	1.765	2.057	1.848	2.984	0.434	0.409	0.983	11.37	2.003
Composite CO :	20.16	18.69	20	19.06	33.76	4.093	1.379	4.404	89.82	18.92
Composite NOX :	0.52	0.57	0.854	0.65	0.782	0.692	0.378	7.251	1.48	1.18
Composite CO2 :	368	479	624	519.9	895.2	313.1	553.5	1401.2	177.4	561.34
Total PM2.5:	0.0113	0.0113	0.0113	0.0113	0.0271	0.0961	0.0297	0.0974	0.0207	0.0193
Total PM10:	0.0113	0.0113	0.0113	0.0113	0.0271	0.0961	0.0297	0.0974	0.0207	0.0193
SO2:	0.0066	0.0087	0.0115	0.0095	0.0164	0.0029	0.0052	0.0131	0.0033	0.0092

Summer Loading Dock vehicles :	HDGV	HDDV	SUM
actual fraction	0.0369	0.0857	0.1226
garage fraction	0.3010	0.6990	1
			Composite EF
Composite VOC :	2.66	0.963	1.667
Composite CO :	27.56	4.12	13.892
Composite NOX :	0.688	6.699	4.151
Composite CO2 :	895.1	1400.1	1181.439
Total PM2.5:	0.0259	0.0917	0.064
Total PM10:	0.0259	0.0917	0.064
SO2:	0.0163	0.013	0.014

Winter Loading Dock vehicles :	HDGV	HDDV	SUM
actual fraction	0.0365	0.0851	0.1216
garage fraction	0.3002	0.6998	1
			Composite EF
Composite VOC :	2.984	0.983	1.824
Composite CO :	33.76	4.404	16.804
Composite NOX :	0.782	7.251	4.474
Composite CO2 :	895.2	1401.2	1179.428
Total PM2.5:	0.0271	0.0974	0.067
Total PM10:	0.0271	0.0974	0.067
SO2:	0.0164	0.0131	0.014

Appendix I

LEED Checklist

D for New Construction and Major Renovation 2009
ect Scorecard

P of Music , Dormitory

350 beds
FTEs: 20
Retail:
Visitors:
400 seat dining hall - performance space

Project Address: 168 Massachusetts Avenue, Boston, MA

LEED Rating: Silver

Yes	?	No			
18	2	6		**Sustainable Sites**	**26**
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
5			Credit 2	**Development Density & Community Connectivity**	5
1			Credit 3	**Brownfield Redevelopment**	1
6			Credit 4.1	**Alternative Transportation,** Public Transportation Access	6
		1	Credit 4.2	**Alternative Transportation,** Bicycle Storage & Changing Rooms	1
		3	Credit 4.3	**Alternative Transportation,** Low-Emitting & Fuel-Efficient Vehicles	3
2			Credit 4.4	**Alternative Transportation,** Parking Capacity	2
	1		Credit 5.1	**Site Development,** Protect or Restore Habitat	1
	1		Credit 5.2	**Site Development,** Maximize Open Space	1
		1	Credit 6.1	**Stormwater Design,** Quantity Control	1
1			Credit 6.2	**Stormwater Design,** Quality Control	1
1			Credit 7.1	**Heat Island Effect,** Non-Roof	1
1			Credit 7.2	**Heat Island Effect,** Roof	1
		1	Credit 8	**Light Pollution Reduction**	1

Yes	?	No			
6	1	3		**Water Efficiency**	**10**
Y			Prereq 1	**Water Use Reduction, 20%** Reduction	Required
2			Credit 1.1	**Water Efficient Landscaping,** Reduce by 50%	2
2			Credit 1.2	**Water Efficient Landscaping,** No Potable Use or No Irrigation	2
		2	Credit 2	**Innovative Wastewater Technologies**	2
2	1	1	Credit 3	**Water Use Reduction**	2 to 4
				2 30% Reduction	2
				3 35% Reduction	3
				4 40% Reduction	4

Yes	?	No			
9	10	16		**Energy & Atmosphere**	**35**
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
5	5	9	Credit 1	**Optimize Energy Performance**	1 to 19
				12% New Buildings or 8% Existing Building Renovations	1
				14% New Buildings or 10% Existing Building Renovations	2
				16% New Buildings or 12% Existing Building Renovations	3
				18% New Buildings or 14% Existing Building Renovations	4
				x 20% New Buildings or 16% Existing Building Renovations	5
				22% New Buildings or 18% Existing Building Renovations	6
				24% New Buildings or 20% Existing Building Renovations	7
				26% New Buildings or 22% Existing Building Renovations	8
				28% New Buildings or 24% Existing Building Renovations	9
				30% New Buildings or 26% Existing Building Renovations	10
				32% New Buildings or 28% Existing Building Renovations	11
				34% New Buildings or 30% Existing Building Renovations	12
				36% New Buildings or 32% Existing Building Renovations	13
				38% New Buildings or 34% Existing Building Renovations	14
				40% New Buildings or 36% Existing Building Renovations	15
				42% New Buildings or 38% Existing Building Renovations	16
				44% New Buildings or 40% Existing Building Renovations	17
				46% New Buildings or 42% Existing Building Renovations	18
				48% New Buildings or 44% Existing Building Renovations	19
		7	Credit 2	**On-Site Renewable Energy**	1 to 7
				1% Renewable Energy	1
				3% Renewable Energy	2
				5% Renewable Energy	3
				7% Renewable Energy	4
				9% Renewable Energy	5
				11% Renewable Energy	6
				13% Renewable Energy	7
2			Credit 3	**Enhanced Commissioning**	2
2			Credit 4	**Enhanced Refrigerant Management**	2
	3		Credit 5	**Measurement & Verification**	3
	2		Credit 6	**Green Power**	2

Yes	?	No			
4	3	7		**Materials & Resources**	14
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
0		3	Credit 1.1	**Building Reuse - Maintain Existing Walls, Floors, and Roof**	1 to 3
				Maintain 55% of Existing Walls, Floors & Roof	1
				Maintain 75% of Existing Walls, Floors & Roof	2
				Maintain 95% of Existing Walls, Floors & Roof	3
		1	Credit 1.2	**Building Reuse - Maintain 50% of Interior Non-Structural Elements**	1
1			Credit 2.1	**Construction Waste Management,** Divert 50% from Disposal	1
1			Credit 2.2	**Construction Waste Management,** Divert 75% from Disposal	1
		1	Credit 3.1	**Materials Reuse, 5%**	1
		1	Credit 3.2	**Materials Reuse,10%**	1
1			Credit 4.1	**Recycled Content, 10%** (post-consumer + ½ pre-consumer)	1
	1		Credit 4.2	**Recycled Content, 20%** (post-consumer + ½ pre-consumer)	1
1			Credit 5.1	**Regional Materials, 10%** Extracted, Processed & Manufactured Regionally	1
	1		Credit 5.2	**Regional Materials, 20%** Extracted, Processed & Manufactured Regionally	1
		1	Credit 6	**Rapidly Renewable Materials**	1
	1		Credit 7	**Certified Wood**	1

Yes	?	No			
9	3	3		**Indoor Environmental Quality**	15
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
1			Credit 1	**Outdoor Air Delivery Monitoring**	1
		1	Credit 2	**Increased Ventilation**	1
1			Credit 3.1	**Construction IAQ Management Plan,** During Construction	1
	1		Credit 3.2	**Construction IAQ Management Plan,** Before Occupancy	1
1			Credit 4.1	**Low-Emitting Materials,** Adhesives & Sealants	1
1			Credit 4.2	**Low-Emitting Materials,** Paints & Coatings	1
1			Credit 4.3	**Low-Emitting Materials,** Flooring Systems	1
	1		Credit 4.4	**Low-Emitting Materials,** Composite Wood & Agrifiber Products	1
	1		Credit 5	**Indoor Chemical & Pollutant Source Control**	1
1			Credit 6.1	**Controllability of Systems,** Lighting	1
1			Credit 6.2	**Controllability of Systems,** Thermal Comfort	1
		1	Credit 7.1	**Thermal Comfort,** Design	1
		1	Credit 7.2	**Thermal Comfort,** Verification	1
1			Credit 8.1	**Daylight & Views,** Daylight 75% of Spaces	1
1			Credit 8.2	**Daylight & Views,** Views for 90% of Spaces	1

Yes	?	No			
4	2	0		**Innovation & Design Process**	6
1			Credit 1.1	**Innovation in Design:** SSc2 EP	1
1			Credit 1.2	**Innovation in Design:** Green Cleaning	1
1			Credit 1.3	**Innovation in Design:** Provide Specific Title	1
	1		Credit 1.4	**Innovation in Design:** Provide Specific Title	1
	1		Credit 1.5	**Innovation in Design:** Provide Specific Title	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No			
2	0	2		**Regional Priority Credits**	4
1			Credit 1.1	**Regional Priority Credit:** Region Defined	1
1			Credit 1.2	**Regional Priority Credit:** Region Defined	1
		1	Credit 1.3	**Regional Priority Credit:** Region Defined	1
		1	Credit 1.4	**Regional Priority Credit:** Region Defined	1

Yes	?	No			
52	21	37		**Project Totals (Certification Estimates)**	110

Certified: 40-49 points, **Silver:** 50-59 points, **Gold:** 60-79 points, **Platinum:** 80+ points