Project Notification Form /
Institutional Master Plan Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

Massachusetts Mental Health Center Redevelopment

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

Submitted by:
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June 16, 2009

Epsilon
ASSOCIATES INC.

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1.0 SUMMARY

1.1 Project Summary

The Brigham and Women's Hospital, Inc. (BWH or the Hospital) and Partners HealthCare System Inc., in association with the Roxbury Tenants of Harvard Association, Inc. (RTH), are proposing to redevelop the 2.39-acre Massachusetts Mental Health Center (MMHC) complex on Fenwood Road and Vining Street (MMHC Site) and the 0.29 acre Binney Street site at the corner of Binney Street and Francis Street (the Binney Street Site) in Boston (see Figure 1-1). Together, these parcels collectively comprise the "Project Site" totaling 2.68 acres. The redevelopment proposal has been the result of a request for proposals and subsequent selection process conducted by the Massachusetts Division of Capital Asset Management (DCAM) on behalf of Department of Mental Health (DMH). For the purposes of this report, the Proponent refers to the joint development effort by BWH and RTH for all four buildings proposed as part of the Massachusetts Mental Health Center Redevelopment project.

The MMHC Site is located in the Mission Hill neighborhood and is adjacent to the Longwood Medical and Academic Area (LMA). The MMHC Site contains five buildings formerly occupied by the MMHC, run by the Massachusetts Department of Mental Health (Figure 1-2). These buildings containing approximately 190,000 gross square feet are currently vacant, as MMHC temporarily relocated in 2003. The 2.39-acre MMHC Site is owned by Commonwealth of Massachusetts acting through the Massachusetts Division of Capital Asset Management (DCAM) on behalf of DMH. The Binney Street Site is owned and used by BWH and is currently occupied by construction trailers which are vacant. DCAM will execute a 95-year ground lease with BWH which will in turn bifurcate the ground lease with RTH at the time the Residential Building (described below) is constructed. BWH will master lease the Partial Hospital/Fenwood Inn for 95 years to DMH and will lease the building at Binney Street to DMH for ten years.

The Proponent proposes and the Project is predicated upon the demolition of the existing buildings located on the MMHC Site and removal of the construction trailers on the Binney Street Site in order to construct approximately 633,960 square feet[1] (sf) in four buildings (the Project). The Project will include residential, parking, clinical, inpatient, research and office uses, including replacement space for the MMHC, and may also include community space.

[1] Zoning square footage excludes certain areas such as mechanical space and the below grade parking garage. The PNF/IMPNF uses zoning square footage.

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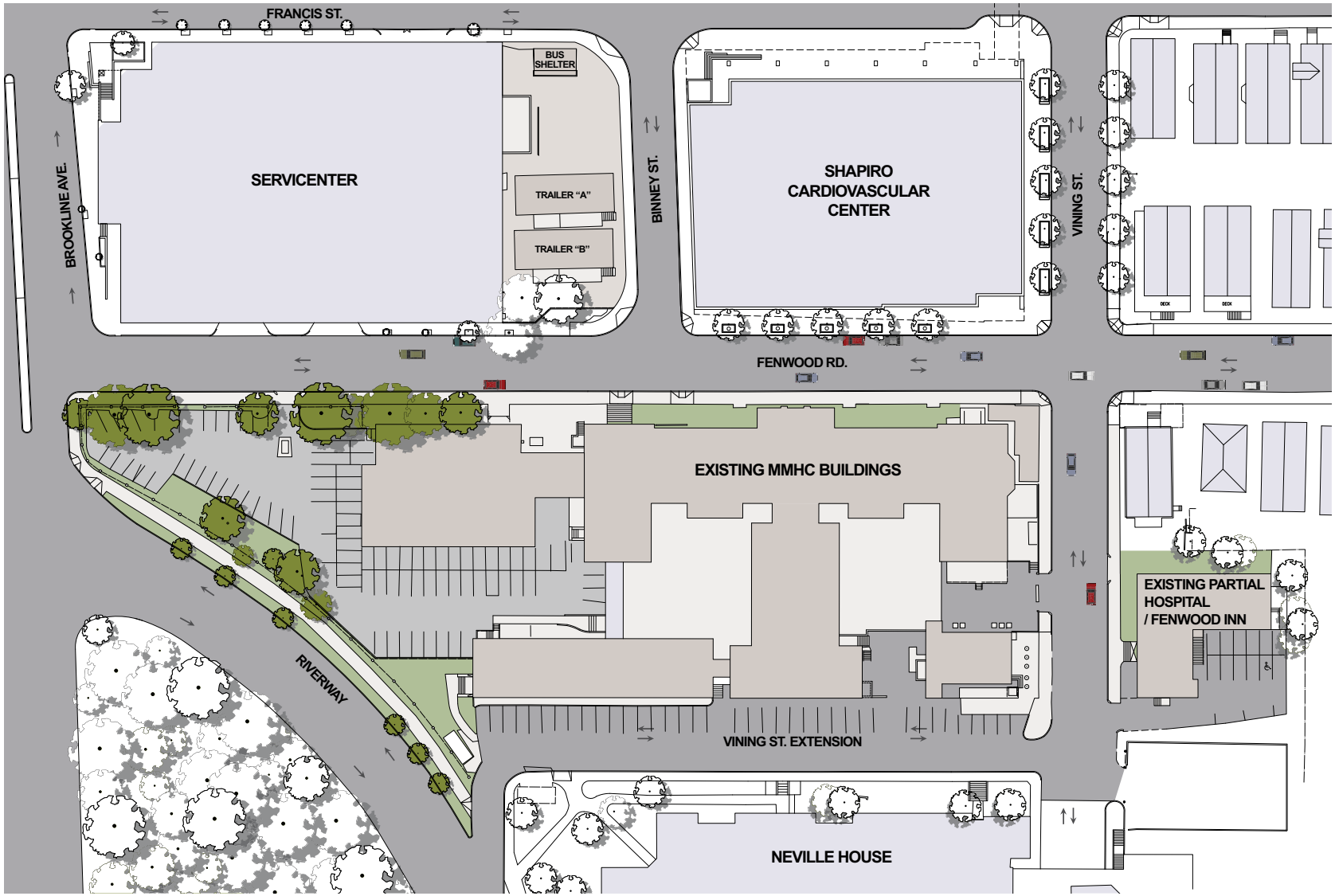
Massachusetts Mental Health Center Redevelopment Boston, Massachusetts

Epsilon Associates Inc.

Figure 1-1
Aerial Locus Map



Massachusetts Mental Health Center **Boston, MA**

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Figure 1-2
Existing Site Plan

The Project comprises four distinct buildings as shown in Figure 1-3:

1. The Residential Building (which will be developed, managed and controlled by RTH) will include approximately 66 affordable rental units and approximately 70 condominiums for a total of approximately 136 units. A substantial number of the condominiums will also be affordable housing. The building may also include approximately 10,000 sf of community space for a total of approximately 197,750 sf.

2. The Brigham and Women's Building which will be developed, managed and controlled by BWH will contain approximately 358,670 sf of space for research and development, clinical and office uses by BWH and DMH.

3. The Binney Street Building, which will be developed by BWH, comprises 56,540 sf of clinical and office space which will be utilized by BWH for outpatient uses. Pending the completion of construction of the Brigham and Women's Building, DMH will occupy the Binney Street Building until the DMH designated space within the Brigham and Women's Building is available. Upon completion of the Brigham and Women's Building, BWH will have a total of 358,670 sf and DMH will have 56,540 sf at the Binney Street Building or 52,750 sf at the Brigham and Women's Building.[2]

4. The Partial Hospital/Fenwood Inn Building, which will be developed by BWH on behalf of DMH, and will include 13 single residential units and 17 double residential units, a 8,260 sf outpatient clinic and partial hospital (a link between inpatient and outpatient mental health treatment) components for a total of 21,000 sf with 47 beds.

The Project will contain 406 parking spaces located beneath the Brigham and Women's Building.

The abatement and demolition of the MMHC buildings will be an integral part of the first phase of work, as the cleared site is necessary to ensure public safety and to allow for the safe and clear access to construct the first two buildings.[3] The vacant buildings have suffered serious deterioration, including structurally and they present a major public safety hazard. The first phase of the Project will also include the development of the Partial Hospital/Fenwood Inn and the Binney Street Building. Both of these buildings will be dedicated initially for use by DMH, and construction of these buildings will commence

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2 The difference in sf for the DMH space is due to more efficient use of space which is possible given the design and configuration of the Brigham and Women's Building.

3 The demolition of these buildings was contemplated under the MOA between DCAM and the Massachusetts Historical Commission and was taken into consideration by DCAM in selecting this proposal for redevelopment of the site.

[1] The turning lane will coincide with the construction of the Brigham and Women's Building in the last phase of the project.

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Figure 1-3
Proposed Site Plan

immediately upon the completion of the permitting of the Project by the relevant City and State agencies and authorities. The other elements of the Project, specifically the Brigham and Women's Building and the Residential Building, will be constructed in subsequent phases. The timing of the construction of the Residential Building and the Brigham and Women's Building will depend on the availability of capital for these two elements of the Project.

A landscape plan has been developed to visually link the separate buildings. The plan reflects a strong streetscape language of hardscape and plantings punctuated by plazas at major entrances, as well as terraces and covered outdoor space. A new pocket-garden is proposed at the end of the Residential Building Site, at the corner of Fenwood Road and the Riverway.

Connections between the Brigham and Women's Building and the new Shapiro Cardiovascular Center at 70 Francis Street are proposed via an underground tunnel and a pedestrian bridge across Fenwood Road.

The Proponent is pleased to submit this joint Project Notification Form for the proposed Project and Institutional Master Plan Notification Form (PNF/IMPNF) to amend and renew the BWH IMP pursuant to Boston Zoning Code Article 80D and to initiate Large Project Review pursuant to Article 80B.

Chapter 2.0 provides a detailed project description. Chapter 3.0 includes an assessment of development review components as required by Article 80B of the Zoning Code. Chapter 4.0 provides information on BWH and its campus as required under Article 80D of the Boston Zoning Code.

1.2 General Information and Project Team

Project Name:	Massachusetts Mental Health Center Redevelopment
Locations:	MMHC Site: The corner of Fenwood Road and Vining Street Boston, MA
	Binney Street Site: The corner of Binney Street and Francis Street

1.2.1 Project Team

Brigham and Women's Hospital

BWH is a Harvard-affiliated, non-profit, teaching hospital located in the Longwood Medical and Academic Area (LMA). The hospital is a founding member of Partners HealthCare System Inc. and has an international reputation for the quality of its medical care and innovative research. BWH has performed pioneering work in several areas, including

transplantation technology, the evaluation of methods to reduce the effect of heart attack, high-risk obstetrics, diagnostic imaging and joint replacement. In addition, its varied educational programs provide the highest quality training for medical, nursing and other health professions. Chapter 4.0 provides additional information on BWH's mission and community benefits.

Partners HealthCare System

Partners HealthCare System Inc. was founded in 1994 by Brigham and Women's Hospital and Massachusetts General Hospital. In addition to its two original academic medical centers, the system also includes community hospitals, specialty hospitals, community health centers, a physician network, home health and long-term care services, and other health-related entities.

Roxbury Tenants of Harvard

Roxbury Tenants of Harvard Association, Inc. is a non-profit, resident organization founded in Mission Hill in 1969. Its mission is to own and operate high-quality low- and moderate-income housing, to provide education, employment and other opportunities for residents of Mission Hill, and to ensure community participation in the City's design and review process for projects that affect the Mission Hill neighborhood. RTH also runs a children's center and after-school program, as well as classes for youths and adults. RTH operates a wide array of social, educational, and economic opportunity programs.

History of RTH

RTH was incorporated in 1969 to insure that the remaining residential neighborhood west of the LMA, would be preserved and that affordable replacement housing would be created to assure that the economically and racially diverse character of its community would endure in close proximity to the expanded medical institutions. Appendix A includes more detailed information regarding the history of RTH.

RTH is a multi-purpose, resident-controlled neighborhood non-profit corporation that employs over 40 people. Over the past 35 years, RTH has purchased and rehabilitated 962 units of low- and moderate-income housing, including the 775 unit Mission Park complex.

RTH has long represented community residents and has held strong local support throughout its over 30-year history. RTH represents over 2,000 Mission Hill residents south of Huntington Avenue. RTH has created a safe and racially diverse neighborhood noted for its strong community participation, numerous services, and high quality of life. Below is a summary of RTH's development experience. A more complete description is included in Appendix A.

RTH's Development Experience

Mission Park

RTH participated as a general partner in the 775-unit Mission Park development with two private developer partners, actively engaged in all aspects of the development including programming, team assembly, design, permitting, financing and planning for services.

Mission Park is now a substantially improved development in excellent condition with 90% of its homes occupied by households with incomes below 60% of median.

Restoration Housing

RTH created a coherent program to rehabilitate the properties Harvard University formerly owned on Fenwood Road and Francis Street.

Following initial property management by Greater Boston Community Development (GBCD) (now known as The Community Builders), RTH formed its own property management organization and won HUD approval to assume full control of property management in 1987. Since inception, RTH has operated Restoration Housing on behalf of low-income families without any default or delinquency, and meets or exceeds all agency and lender requirements for performance.

In 2002, RTH arranged with HUD, BWH and the residents for six of these 17 buildings to be relocated to other BWH-owned lots in the neighborhood. In addition, as part of this transaction, RTH obtained $5 million of additional property in the neighborhood.

Other projects include RTH Community Housing containing 67 housing units and RTH Community Apartments, containing 20 units and five stores. RTH also has extensive social service experience as also described in Appendix A.

Department of Mental Health

The Massachusetts Department of Mental Health is the State agency which sets the standards for the operation of mental health facilities and community residential programs. The agency provides clinical, rehabilitative and supportive services for adults with serious mental illness, and children and adolescents with serious mental illness or serious emotional disturbance. DMH integrates public and private services and resources to provide optimal community-based care and opportunities.

The operation of the Massachusetts Mental Health Center is a collaboration between the DMH and Harvard Medical School (HMS). It is both a state mental health facility and a center of excellence in academic psychiatry, combining public service with outstanding clinical and research programs. The MMHC provides access to a network of effective, efficient and culturally sensitive clinical and rehabilitative services for Boston Metro area DMH clients with mental illness.

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Architects:	Brigham and Women's Building, Binney Street Building and Partial Hospital/Fenwood Inn: Linea 5 195 State Street Boston, MA 02109 (617) 723-8808 Michael Slezak Richard Radville Residential Building & Masterplanners: The Architectural Team 50 Commandant's Way at Admiral's Hill Chelsea, MA 02150 (617) 889-4402 Michael Liu Tom Schultz
Landscape Architect:	Copley-Wolff Design Group 160 Boylston Street 4th Floor Boston, MA (617) 889-4402 John Copley

Permitting Consultants:	Epsilon Associates, Inc. 3 Clock Tower Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Cindy Schlessinger Katherine Fuller Ron Morad
Transportation/Parking/Civil Engineering Consultants:	Vanasse Hangen Brustlin, Inc. 99 High Street Boston, MA 02110 (617) 728-7777 David Bohn Ellen Donohoe
Legal Counsel for BWH:	Ropes & Gray LLP One International Place Boston, MA 02110-2624 (617) 951-7177 Mary T. Marshall, Esq.
Legal Counsel for Roxbury Tenants of Harvard:	Edwards Angell Palmer & Dodge LLP 111 Huntington Avenue Boston, MA 02199-7613 (617) 239-0225 Rebecca A. Lee, Esq.
Construction Manager	John Moriarty & Associates Inc. 3 Church Street Winchester, MA 01890 (781) 729-3900 John Moriarty David Leathers
Structural Engineer:	McNamara/Salvia, Inc. 160 Federal Street Boston, MA 02110 (617) 737-0040 Joseph Salvia

1.3 Project Benefits

The Project will provide a number of public benefits to the City of Boston. The Project has been carefully designed to meet the DMH program objectives, as well as be sensitive to the residential neighborhood that surrounds the Site. Specific benefits are described below. Chapter 4.0 provides a summary of community benefits provided by BWH which are not specifically related to the MMHC project.

Mental Health Services

The Project provides replacement space for the MMHC in the Brigham and Women's Building as well as the Partial Hospital/Fenwood Inn. The proposed 56,540 sf of outpatient and office space, which will first be located in the Binney Street Building and then relocated pending completion of the Brigham and Women's Building, and the proposed Partial Hospital/Fenwood Inn Building will replace the existing obsolete buildings at the Project Site. This will enable the return of patient care and DMH services to the neighborhood in modern, state of the art buildings where care can be delivered in a clean and dignified setting. The move back from the Shattuck Hospital, where the services have been located in the interim, will also provide much greater public transportation access for MMHC clients.

Increased Housing

The Project will provide approximately 136 residential units to the neighborhood with a mix of rental and home ownership opportunities.

Affordable Housing

As previously described, the Project team includes RTH, a non-profit housing and human service organization. The Residential Building will result in the creation of approximately 66 affordable rental units for households with incomes below 60% of the area median income and 70 condominiums, a substantial number of which will be affordable units.

Affordable units will be marketed in accordance with the City's fair housing regulations and widely marketed to neighborhood residents. RTH will provide special training to pre-qualify residents of Mission Hill for the condominiums.

Common Space and Community Programs

The Project may provide approximately 10,000 sf of common space in the Residential Building, which will provide an area for RTH social and educational programs including community based job-training, education and wellness programs.

The Project will provide $1.7 million to build a gymnasium, recreational and large meeting space for the community to be constructed on land owned by RTH. The Project will extend for eight additional years an agreement entered into in the context of the Shapiro Cardiovascular Center to provide matching funding of $350,000 per year to RTH to support health care initiatives undertaken for the benefit of the residents of the RTH community.

Preservation

The Project may include a variety of internal and external architectural references to the existing buildings located on the MMHC Site, where appropriate. A historical photo display of the history of the Massachusetts Mental Health Center will be explored as part of the Project. The Project includes setbacks from the property line along Fenwood Road and the Riverway to preserve view lines and enhance the feeling of openness. The setbacks also allow for the mature perimeter trees to be protected to the greatest extent feasible and incorporated into the landscape plan as well as replication of the historic iron fence on the north and east sides of the MMHC Site and the provision of a continuous green border along the Riverway.

Redevelopment

The Project will replace functionally obsolescent and dilapidated vacant buildings with new residential, DMH, research, outpatient and clinical uses.

Increased Employment

The Project will create both temporary construction jobs and permanent jobs. The Brigham and Women's Building will create approximately 500 new jobs in both research and clinical areas. The Residential Building will create the need for 13 new permanent jobs for the residential space and community programming.

Construction Employment

The construction of the four buildings will contribute directly to the local economy by providing numerous construction employment opportunities. Approximately 600 full-time construction jobs are anticipated as a result of these construction projects.

Sustainable Design

The Proponent is committed to a sustainable Project and will incorporate sustainable design measures into the Project. The Project will be designed to comply with Article 37 of the Boston Zoning Code and will be LEED Certifiable.

Tax Revenue

BWH is a tax-exempt not for profit institution and currently has several Payment in Lieu of Taxes (PILOT) agreements in place with the City of Boston. BWH anticipates entering into a PILOT agreement in connection with certain elements of this Project. The Residential Building will contribute annual real estate taxes in excess of $100,000 per year. DMH is exempt from taxation.

Linkage

Under Section 80B-7 of the Boston Zoning Code, projects that require zoning relief and that will devote more than 100,000 sf of space to "development impact uses," must make contributions to the City of Boston's Neighborhood Housing Trust and Neighborhood Jobs Trust. For those portions of the Project which are classified as Development Impact Project uses, the Proponent will make both a housing contribution grant and a jobs construction grant to the Neighborhood Housing Trust and the Neighborhood Jobs Trust. BWH will pursue a Housing Creation Option Application to allow the housing linkage funds to be targeted to the Residential Building, if practicable.

Section 2.0
Project Description

2.0 PROJECT DESCRIPTION

2.1 Planning Context and Planning Goals for the Site

2.1.1 Collaboration between RTH and BWH

RTH and the predecessor entities to BWH and Partners Healthcare (referred to as BWH) have been engaged in a relationship that dates to 1969 and has defined the nature of the development process along all of Francis Street and nearly all the way to the junction of the Riverway and the west end of Huntington Avenue. The process began in the 1960's by community organizers who wished to insure that the remaining residential neighborhoods were preserved.

What has ensued in the intervening years is the redevelopment of the entire square mile area that constitutes the property of RTH and BWH. At each stage, each entity has derived major benefits, met or exceeded their essential objectives and the overall community has been enhanced and preserved.

In chronological order:

- Mid-1970's-- Harvard built the MATEP power plant, and provided funding for the creation of 775 units of low-income housing (Mission Park) developed in collaboration with RTH, and leased the 1,375 space parking garage and 40,000 sf of office space to the Hospital.

- Early 1980's –Harvard leased 150 units of existing wood frame housing to RTH for 50 years and the Hospital constructed the building at 45 Francis Street.

- Early 1990's – BWH built a new facility at 75 Francis Street

- Year 2000 – Harvard sold a 90-year interest in the 775 unit Mission Park project to RTH, which performed substantial improvements and took over the operation.

- Year 2002 – RTH agreed to allow BWH to move six of RTH's multifamily houses to nearby lots and to deed to BWH the former house lots so that BWH could build the Shapiro Cardiovascular Center at 70 Francis Street. As part of the agreement, RTH received permanent title to all remaining Hospital- and Harvard-owned residential properties in the neighborhood, including all the multifamily houses.

- Year 2004-7 – BWH and RTH agreed to collaborate on the redevelopment of the Mass Mental Health Center Site to provide DMH a modern replacement facility, create substantial new medical facilities, add below-market housing, recreational facilities, and provide ongoing support for the health and educational needs of neighborhood residents.

- Year 2008 – Harvard agreed to convert RTH's 90-year lease of Mission Park to permanent RTH ownership.

In this 40-year collaboration, BWH has created over one million sf of modern medical facilities, and RTH has played a central role in creating and preserving over one million sf of predominantly below-market housing, all of which it currently owns and operates. They have done it at a pace and in a manner that has assured that the economically and racially diverse character of this community would thrive in close proximity to a greatly expanded and improved world-class medical institution.

At each stage in this 40-year planning and redevelopment process, extensive public presentation, discussion, documentation and debate has been integral to shaping the decisions and approvals that have led to the implementation of these projects. In recent years, the Longwood Medical and Academic Area Forum and numerous community-initiated meetings on both sides of Huntington Avenue have been held.

2.1.2 Planning Goals for the MMHC Site

The goals that have governed the planning for the MMHC Site from the outset in 2002 when RTH and BWH first agreed to collaborate in redeveloping the MMHC Site have been:[4]

- To preserve and enhance the quality of the built environment of the neighborhood;
- To provide a first class mental health facility that can provide the best available care and treatment for DMH clients;
- To meet the large and growing need for housing close to transit and jobs that can be accessed by households of limited income; and
- To sustain and enhance the exceptional quality and extent of the health care available to the community.

In response to DCAM's Request for Proposals, DCAM selected a medical facility that could support DMH's needs and a sizeable, predominantly below-market rate housing development as well as additional community benefits. The proposed Project balances and meets the planning objectives.

4 The Binney Street Building was included in order to meet DMH's near term needs given the changes in the Project schedule.

2.2 Site History and Existing Uses

The proposed Project will be located on approximately 2.68 acres in the LMA and Mission Hill neighborhood of Boston. The Project Site includes three parcels; one parcel that is bounded by Fenwood Road to the north, Vining Street to the east, a private road and the Neville House to the south, and Riverway to the west. The second parcel is bounded by Vining Street to the west, a surface parking lot to the south and RTH-owned residences to the north and east. The third parcel, owned by BWH, is located on Binney Street between Francis Street and Fenwood Street. The Project Site is immediately adjacent to hospital, research and residential uses, and has access to mass transit and vehicular transportation systems. Appendix B provides an existing condition survey.

The MMHC Site is the former location of the MMHC, a community mental health center administered by the DMH. Opened as the Psychopathic Department of Boston State Hospital, the MMHC Site is historically significant for the pioneering role MMHC played both in psychiatric research and in the development of new patient treatment strategies. The MMHC represented a shift from the asylum setting found at institutions such as Danvers and Northampton state hospitals to a more clinical and research based rehabilitation program with strong emphasis on furthering scientific knowledge. In 1956, the facility officially became known as the MMHC. The MMHC continues to provide outpatient psychiatry services, mental health research, inpatient care and intensive day hospitalizations.

Facing changing mental health needs and an aging facility, the MMHC moved temporarily off-site in 2003 to allow redevelopment of the MMHC Site. The Commonwealth conducted an evaluation of existing buildings in an effort to consider alternatives for site redevelopment. Based on the assessment, the Commonwealth concluded that the current facilities are not appropriate for the use by the DMH due to the condition of the buildings and the design of the space. The buildings are out of date, and do not meet current standards of the National Fire Protection Association's Life Safety Code, accessibility requirements of the Americans with Disabilities Act or Massachusetts Architectural Access Board, or accreditation standards of the Joint Commission on Accreditation of Healthcare Organizations. In its current condition, it also presents a threat to public safety. Since the Commonwealth does not have the resources to rehabilitate the property, it was determined that redeploying the property through a long-term ground lease had the potential to generate economic benefits, as well as provide the DMH with a modern space to continue its clinical services, without the need for funds from the Commonwealth for construction.

The existing MMHC Site contains five buildings with approximately 190,000 gross square feet. The buildings are currently vacant. The vacant buildings have suffered serious deterioration, including structurally and they present a major public safety hazard. In addition, there are approximately 163 surface parking spaces around the buildings which are currently licensed by DCAM to BWH.

The Binney Street Site owned by BWH is currently occupied by construction trailers which were utilized in connection with the development of the Shapiro Cardiovascular Center and are now vacant.

2.3 Proposed Development Program

2.3.1 Building Program

The proposed Project will provide approximately 633,960 sf in four new buildings as outlined in Table 2-1 and described below.

Table 2-1 Building Program

Use	Zoning Square Footage (sf)
Residential Building	
Residential Units	187,7500
Community Space	10,000
Residential Subtotal	*197,750*
Brigham and Women's Building	
BWH Research (clinical, wet, dry)	152,960
BWH Clinical	152,960
BWH Subtotal	*305,920*
DMH Outpatient Clinics	16,730
DMH Office	36,020
DMH Subtotal:	*52,750*
Brigham and Women's Building Total	358,670*
DMH - Partial Hospital/Fenwood Inn	
Outpatient Clinic	8,260
Fenwood Inn (Inpatient)	12,740
Partial Hospital / Fenwood Inn Subtotal	*21,000*
Binney Street Building	
Outpatient Clinics	16,000
Administrative	40,540
Total	56,540
PROJECT TOTAL:	**633,960**

* Upon completion of the Brigham and Women's Building, BWH will have a total of 358,670 sf and DMH will have 56,540 sf at the Binney Street Building or 52,750 sf at the Brigham and Women's Building. The difference in sf for the DMH space is due to more efficient use of space which is possible given the design and configuration of the Brigham and Women's Building.

Residential Building

The Residential Building (which will be developed, managed and controlled by RTH) will include approximately 66 affordable rental units and approximately 70 condominiums for a total of approximately 136 units. A substantial number of the condominiums will also be affordable housing. The building may also include approximately 10,000 sf of community space for a total of approximately 197,750 sf.

Brigham and Women's Building

The Brigham and Women's Building which will be developed, managed and controlled by BWH will contain approximately 358,670 sf of space for research and development, clinical and offices uses by BWH and DMH.

Binney Street Building

The Binney Street Building, which will be developed by BWH, comprises 56,540 of clinical and office space which will be utilized by BWH for outpatient uses. Pending the completion of construction of the Brigham and Women's Building, DMH will occupy the Binney Street Building until the DMH designated space within the Brigham and Women's Building is available. Upon completion of the Brigham and Women's Building, BWH will have a total of 358,670 sf and DMH will have 56,540 sf at the Binney Street Building or 52,750 sf at the Brigham and Women's Building. The difference in sf for the DMH space is due to higher levels of efficiencies at the Brigham and Women's Building.

Partial Hospital/Fenwood Inn

The Partial Hospital/Fenwood Inn Building, which will be developed by BWH on behalf of DMH programs and will include 13 single units and 17 double units, a 8,260-sf outpatient clinic and partial hospital (a link between inpatient and outpatient mental health treatment) components for a total of 21,000 sf with 47 beds.

The Fenwood Inn is a 40-bed transitional residence for DMH clients with severe and persistent mental illness. All residents are referred to community housing and are discharged when appropriate housing is available. The Fenwood Inn provides rehabilitation services to assess and assist with medication compliance, sobriety support, personal hygiene, room care and other skills needed for successful community living. The Fenwood Inn works in collaboration with the Partial Hospital Program (PHP), a link between inpatient and outpatient mental health treatment, to provide a 24-hour, acute, step-down and diversion service for clients who require this intensity of treatment. PHP serves clients from the Fenwood Inn and the general community by providing a highly structured four-week intensive therapeutic intervention. In addition to treating acute symptoms, the PHP staff also provides diagnostic, cognitive, and functional consultation to outpatient clinicians.

The first floor of the building includes office space and exam rooms associated with the Partial Hospital. The second and third floors provide space for both the Partial Hospital and the Fenwood Inn. The second floor offers a group kitchen, common room, laundry and five single rooms. The top floor includes eight singles and 17 doubles for a total of 47 beds in 30 rooms.

Loading facilities for the Partial Hospital/Fenwood Inn building will be located on the south side of the building.

Parking Garage

Today there are 163 parking spaces on the MMHC Site. The Project will include a 406-space below-grade parking garage in the Brigham and Women's Building. The new spaces will serve BWH and DMH. The garage will be accessed via the driveway on the southern edge of the site.

No residential parking will be provided on the Project Site. As currently planned, 90 parking passes will be provided for the new residential units in the nearby Mission Park Garage by BWH.

2.3.2 Approximate Dimensions

Site Area:	2.68 acres
Zoning height:	
Residential Building	182 feet*
Brigham and Women's Building	222 feet**
Partial Hospital/Fenwood Inn	40 feet
Binney Street Building	75 feet
Parking:	
Proposed	406 spaces

* Does not include 20 foot mechanical penthouse.

** Includes mechanical levels 13 and 14 but excludes rooftop mechanical equipment. As noted above, the Brigham and Women's Building will contain approximately 358,670 sf and will have a maximum height of 222 feet measured from the average grade around the building to the top of the roof of the mechanical penthouses: The zoning height as calculated in accordance with Article 2A of the Code may in fact be less than the 222 feet maximum described herein. The number of floors within the Brigham and Women's Building will depend on the final program mix between clinical and research uses. The square footage may be configured as 12 above-grade and one occupied level below grade or 13 occupied levels above-grade.

Figures 2-1 through 2-13 are aerials and perspectives of the proposed Project. Floor plans of the Project and additional graphics are attached as Appendix C.

Figure 2-1
Aerial View From West

Figure 2-2
Aerial View From North

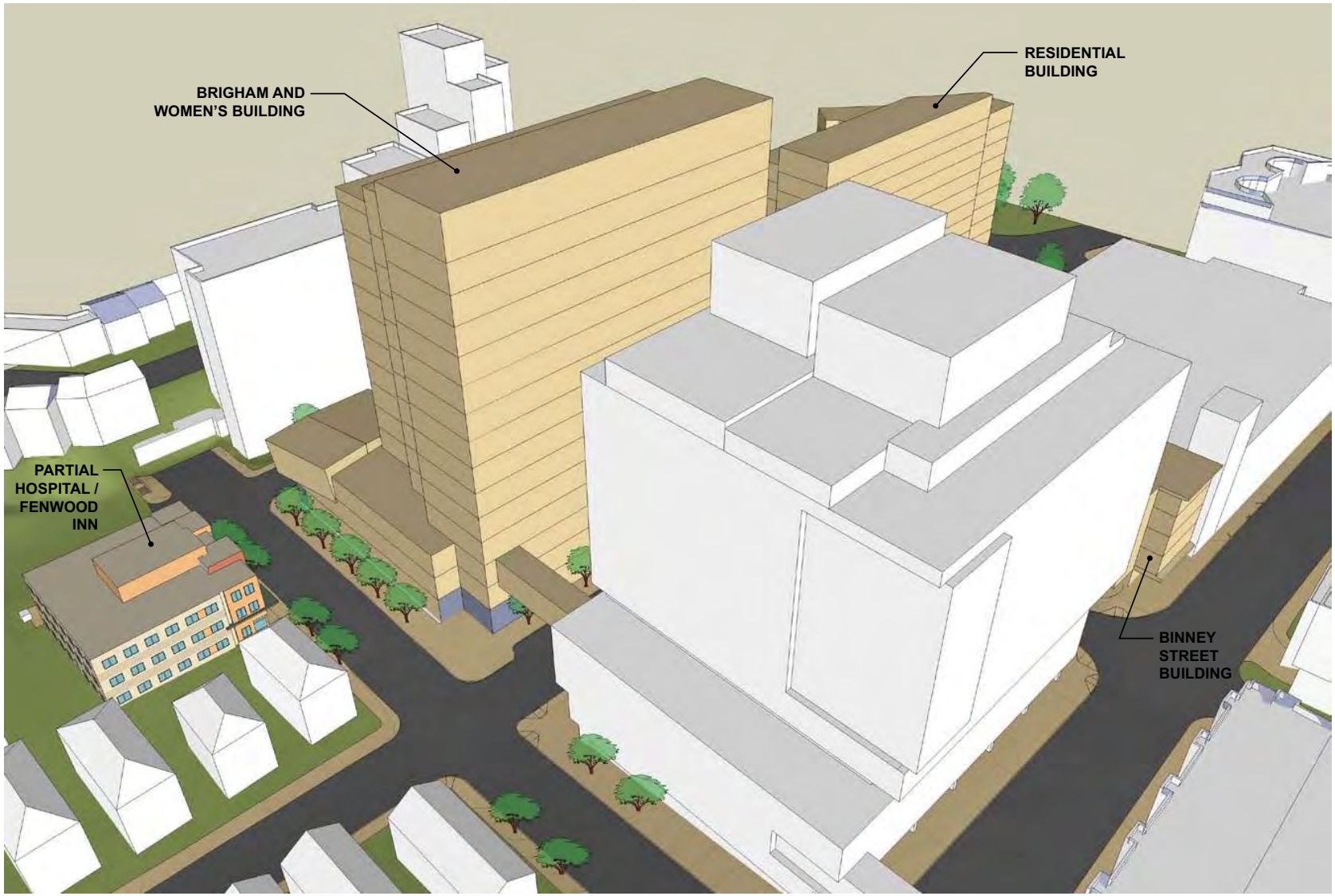

Figure 2-3
Aerial View From East

Figure 2-4
Aerial View From South

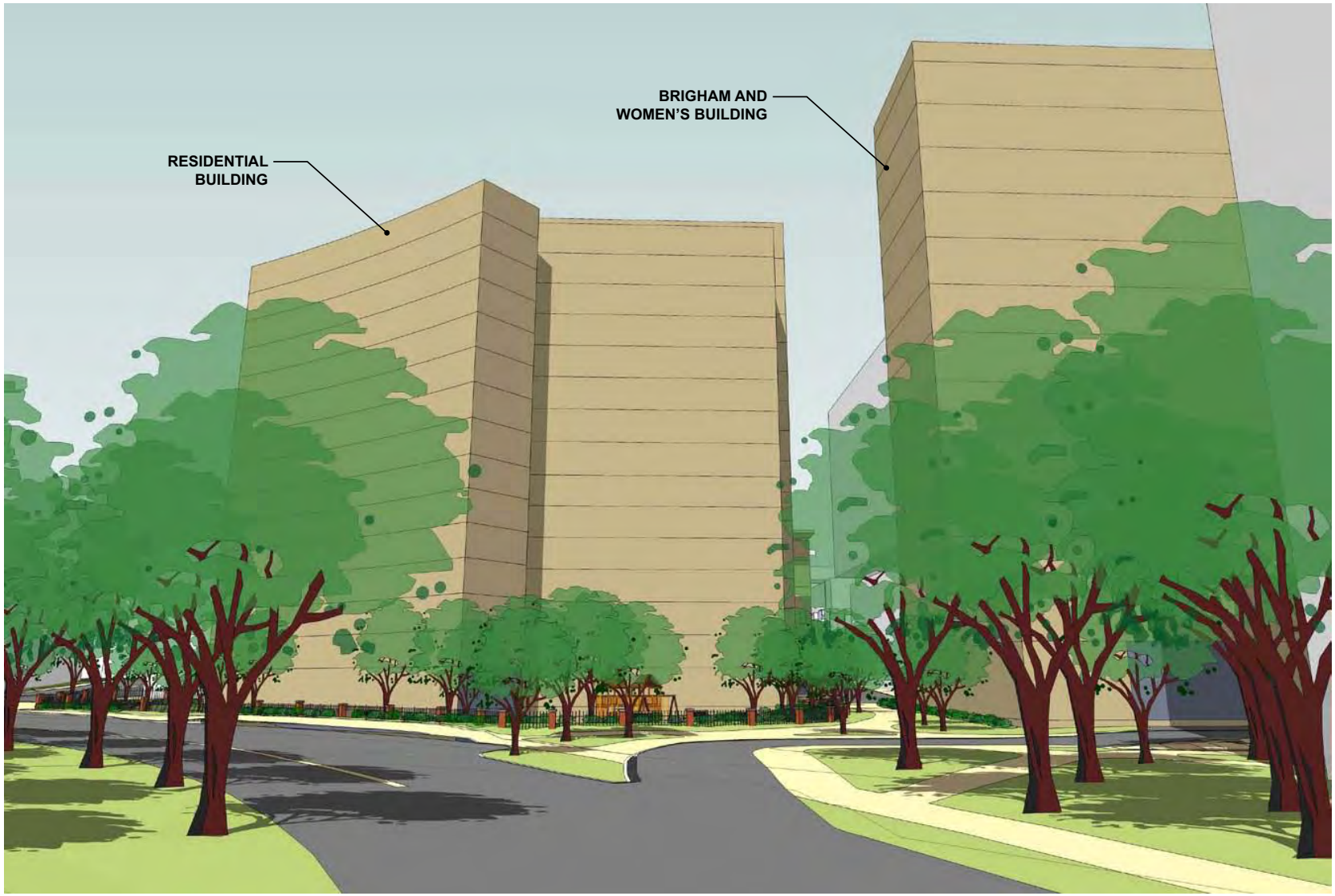

Figure 2-5
Perspective From Riverway

Figure 2-6
Perspective From Riverway

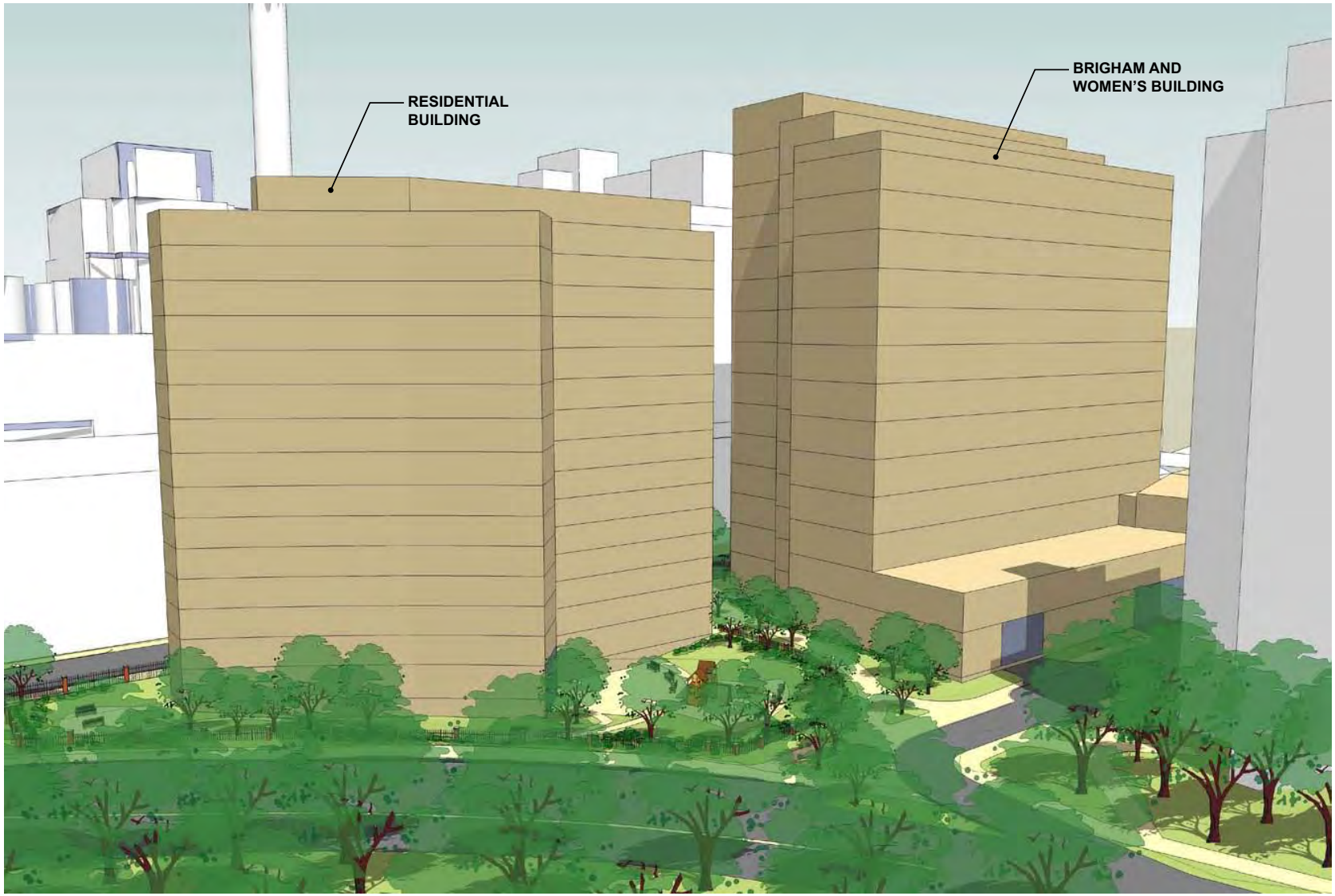

Figure 2-7
Elevated Perspective From Riverway

Figure 2-8
Aerial View From West (With Shapiro Hidden)

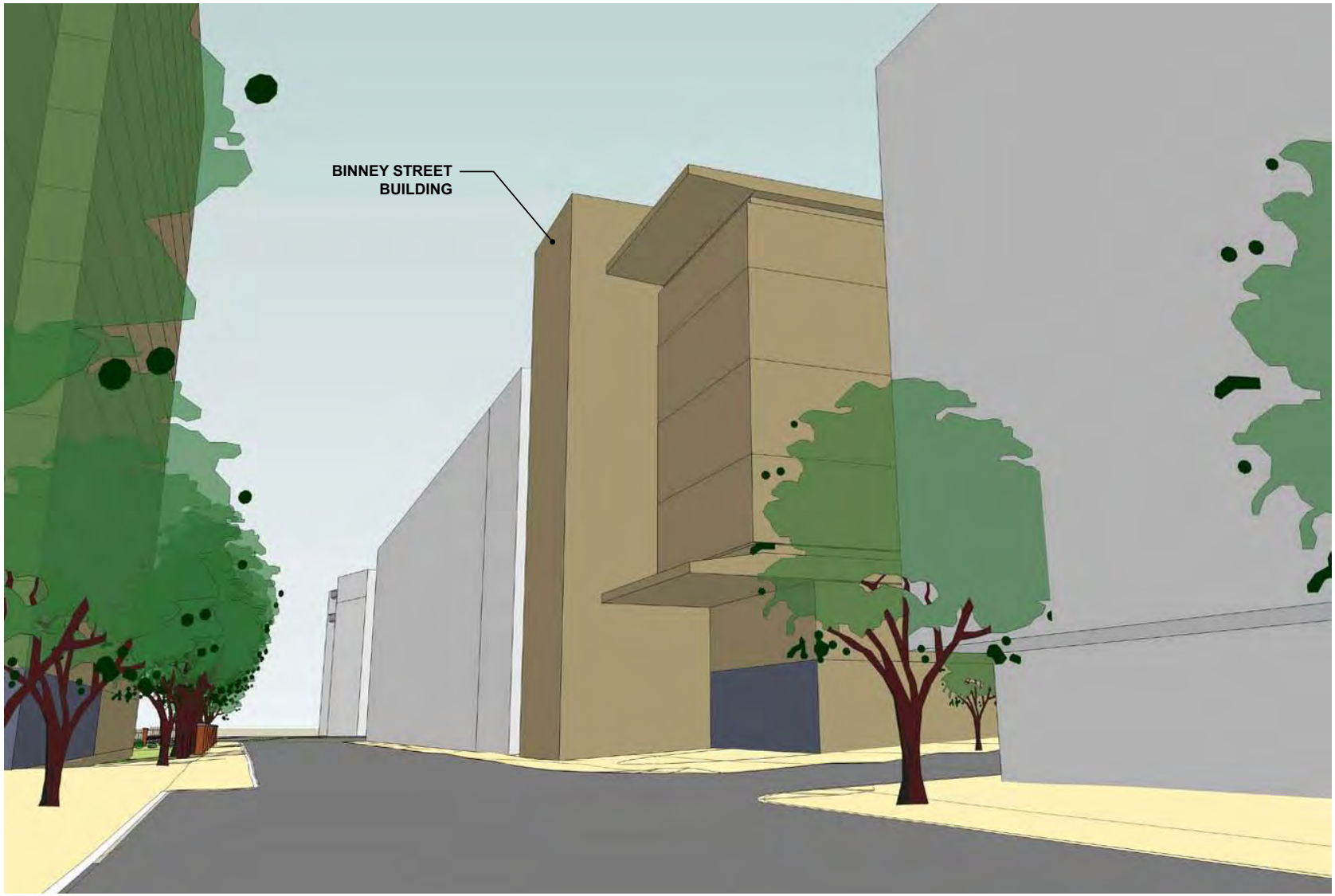

Figure 2-9
Perspective Down Fenwood Road

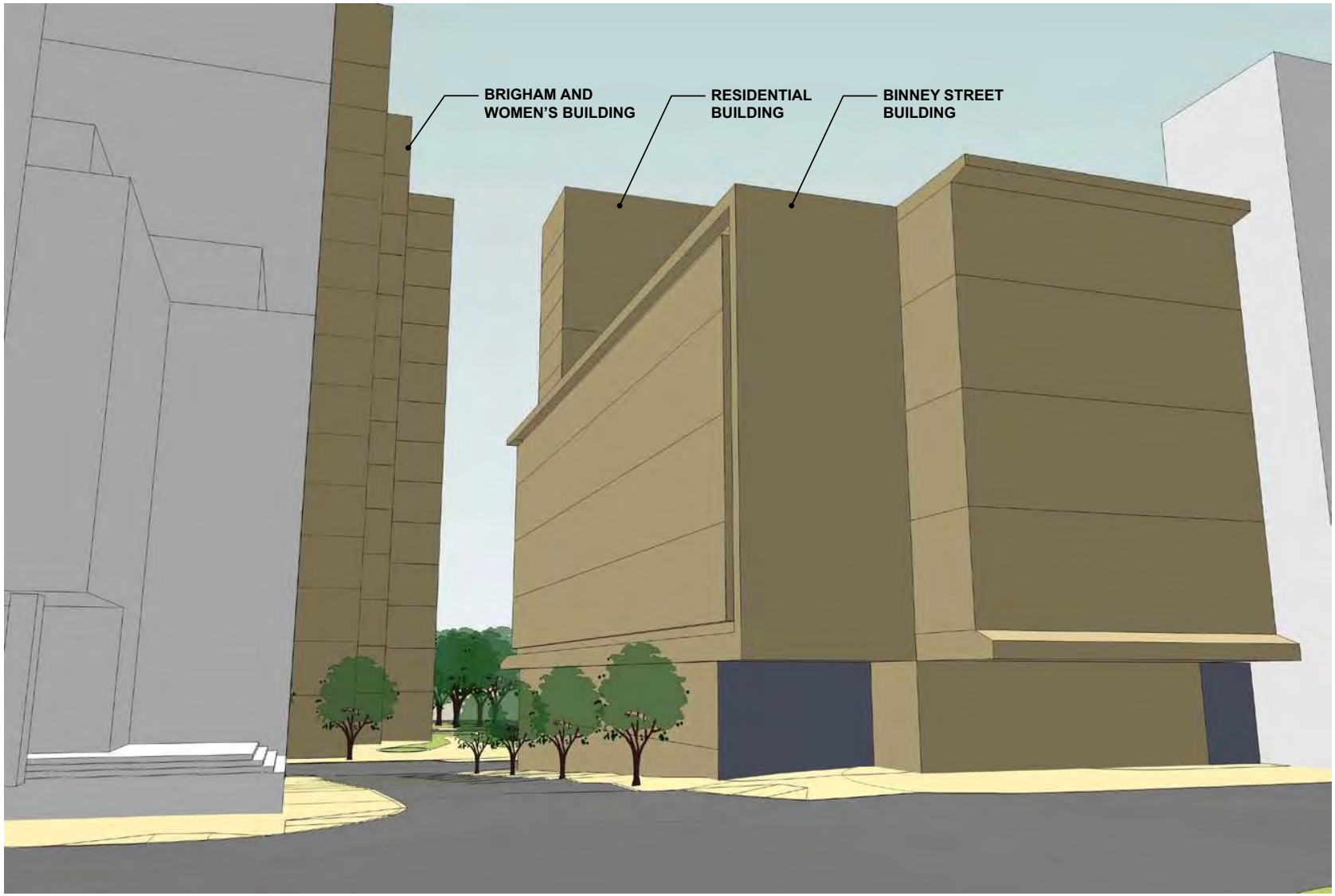

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Figure 2-10
Francis Street Perspective

Figure 2-11
Partial Hospital / Fenwood Inn - Vining Street Perspective

Figure 2-12
Partial Hospital / Fenwood Inn Perspective From Vining Street Extension

Figure 2-13
Binney Street Building from Fenwood Road

2.4 Legal Information

2.4.1 Legal Judgments Adverse to the Proposed Project

The Proponent is not aware of any legal judgments which are adverse to the Proposed Project.

2.4.2 History of Tax Arrears on Property

The MMHC Site has been owned by the Commonwealth and dedicated for use by DMH, thus it is in tax exempt ownership. The Binney Street Site is owned by BWH and was formerly exempt from real estate taxation given its status as a MGL c121A approved project. It continues to be exempt from taxation as it is owned by BWH. BWH has entered into a PILOT Agreement with respect to the Binney Street Site.

2.4.3 Evidence of Site Control/Nature of Public Easements

The MMHC Site is owned and controlled by the Commonwealth acting by and through the Division of Capital Asset Management on behalf of DMH. The Binney Street Site is owned by BWH.

2.5 Consistency with Zoning

2.5.1 Existing Zoning for BWH Buildings

2.5.1.1 The Binney Street Building

The Binney Street Building, consisting of approximately 56,540 sf of office and clinic space will be constructed on the Binney Street Site, an approximately 12,454 sf vacant parcel of land immediately adjacent to the Servicenter Garage known and numbered 80 Francis Street. The Binney Street Site is located within the Apartment Floor Area of 1.0 (H-1) Zoning District and the Restricted Parking Overlay District as shown on Map 1 "Boston Proper" and Map 6 "Roxbury" of the Zoning Maps for the City of Boston. The Binney Street Site and the Servicenter Garage were permitted, constructed and used in accordance with M.G.L. c. 121A, the approvals for which expired earlier this year. The BRA has issued a Certificate of Project Termination with respect to the 121A approvals in accordance with BRA Board action taken on April 28, 2009.

By virtue of the 2005 IMP approvals, the Binney Street Site was also included within the BWH Institutional Master Plan Overlay District established pursuant to Map Amendment No. 444, adopted by the Boston Zoning Commission in February, 2005 (the "BWH IMP Overlay District").

2.5.1.2 The Brigham and Women's Hospital Building

As described herein, the majority of the MMHC Site will be divided into two lots, one of which will be developed by RTH for residential purposes, and one of which will be developed by BWH both for its use and for use by DMH. The remainder of the MMHC Site is located at 20 Vining Street, directly across the street from the main MMHC parcel, and will be developed as the Partial Hospital/Fenwood Inn, discussed in greater detail below.

The lot on which the proposed Brigham and Women's Building will be constructed will consist of approximately 70,848 sf (the "Brigham and Women's Building Site") and is located within the Massachusetts Mental Health Center Institutional Subdistrict (MMHC Institutional Subdistrict) of the Mission Hill Neighborhood Zoning District established in accordance with the provisions of Article 59 of the Boston Zoning Code (the Code), and within the boundaries of the Restricted Parking Overlay District (RPOD) established in accordance with the provisions of Article 3-1A.c. of the Code. A portion of the MMHC Site, the portion which will be dedicated for use by RTH, appears to be located within the Greenbelt Protection Overlay District (GPOD), established in accordance with Article 29 of the Code. The Brigham and Women's Building Site does not appear to fall within the GPOD. According to Table D of Article 59 which sets forth the uses allowed within the MMHC Institutional Subdistrict, clinics, clinical laboratories, hospitals and general/professional offices are allowed as of right within the MMHC Institutional Subdistrict. The dimensional regulations applicable to development within the MMHC Institutional Subdistrict are as set forth in Table I of Article 59, as the same may be affected by the provisions of an approved IMP. Parking, other than that which is required for and accessory to a residential use, is not allowed as of right within the MMHC Institutional Subdistrict and RPOD, absent zoning relief granted by the Board of Appeal in the forming of a conditional use permit or IMP approval.

2.5.2 Existing Zoning for RTH Buildings

The lot on which the Residential Building is to be built comprises slightly in excess of one acre and is located within multiple zoning districts: the Mission Hill Neighborhood Zoning District, which is governed by Article 59 of the Boston Zoning Code and Map 6D of the Boston Zoning Maps; the Restricted Parking Overlay District pursuant to Section 3-1A.c of the Zoning Code; and the Greenbelt Protection Overlay District, which is governed by Article 29 of the Zoning Code and covers only a portion of the lot.

The lot is also located within the Massachusetts Mental Health Center Institutional Subdistrict, established pursuant to Section 59-23 of the Zoning Code. Pursuant to Section 59-24 of the Zoning Code, the permitted uses within this Institutional Subdistrict are as set forth in Table D to Article 59; the permitted uses include the residential and community uses proposed at the Residential Building.

2.5.3 Proposed Zoning for BWH Buildings

2.5.3.1 The Binney Street Building

By virtue of the proposed BWH IMP amendment/renewal, the BWH portion of the MMHC Site will be included in the "BWH Campus" as that term is defined in the existing BWH IMP adopted in February of 2005. The IMP will also be amended to allow for the development and use of the Binney Street Building, consisting of approximately 56,540 sf of clinical and office space which will be utilized by BWH for outpatient clinical and office uses. The Binney Street Site is already included within the BWH IMP Overlay District and described within the BWH IMP. Pending the completion of construction of the Brigham and Women's Building, DMH will occupy the Binney Street Building for its office use and clinical purposes until the DMH-designated space with the Brigham and Women's Building has been completed. Once approved, the BWH IMP as amended/renewed will authorize the construction of the Binney Street Building, as fully in compliance with all the relevant provisions of the Code.

2.5.3.2 Proposed Zoning for Brigham and Women's Building

The existing BWH IMP and BWH Institutional Overlay District will be amended to include the portion of the MMHC Site which will be dedicated to BWH's use for the development and construction of the Brigham and Women's Building. The underlying MMHC Institutional Subdistrict zoning allows for the clinical, office, laboratory, and research uses proposed for the Brigham and Women's Building. The BWH Institutional Overlay District and BWH IMP, as the same may be amended/renewed, will be sufficient to authorize the use and construction of the proposed Brigham and Women's Building including the parking spaces in the underground garage. The development and use of the Brigham and Women's Building in accordance with the terms of the BWH IMP and BWH Institutional Overlay District will be deemed to be allowed as of right and determined to be in compliance with all relevant provisions of the Code, including dimensional, parking, loading, and other special districts without the need for further relief.

2.5.4 Proposed Zoning for RTH Building

Pursuant to Section 59-25 of the Zoning Code, the dimensional regulations for the lot are as set forth in Table I to Article 59; these restrictions were designed to accommodate the existing MMHC buildings, which was in existence well before the adoption of Article 59 in 1996. These dimensional regulations include a 55-foot height restriction, a twenty-foot front yard setback requirement, and a floor area ratio maximum of 2.0 (i.e., approximately 87,000 sf of building area on the one acre lot). The proposed Residential Building will not comply with any of these dimensional restrictions, as follows: (1) the proposed height of this 15-story building will be approximately 182 feet (versus 55 foot maximum), (2) the total gross square footage in the building will be approximately 197,750 sf, yielding a floor area

ratio of approximately 4.53 (versus the 2.0 maximum), and (3) there will be no front yard setback, as the building's primary entrance will be on Fenwood Road, and the building is designed to be closer to the sidewalk line on such street than the 20-foot setback required.

Thus, the lot on which the Residential Building will be built will need to be rezoned to accommodate its proposed redevelopment, which is denser than the low-scale MMHC campus. The zoning approach for the Residential Building is under discussion with the BRA, RTH and the community, and will be discussed in detail in the Draft PIR.

2.5.5 Proposed Zoning for Partial Hospital/Fenwood Inn

The proposed site of the Partial Hospital/Fenwood Inn is a 10,853-sf lot with improvements located thereon located at 20 Vining Street. It is the site of an existing vacated administrative office building which has been owned and operated by DMH. According to a review of Map 6D Mission Hill Neighborhood District, this property is located within the Three Family 2000 sf of lot area (3F-2000) Subdistrict of the Mission Hill Neighborhood Zoning District and within Restricted Parking Overlay District established in accordance with Section 3-1A.c. of the Code. It is unclear why at the time of the 1996 rezoning which resulted in the creation of the MMHC Institutional Subdistrict, this property was not included therein. It is assumed it was an oversight.

The development and use of the Partial Hospital/Fenwood Inn will be exempt from local zoning and other local regulations, and will be authorized as an "essential government function" of DMH which, as an agency of the Commonwealth, will use the replacement Partial Hospital/Fenwood Inn – which had been located in the MMHC at 74 Fenwood Road – for the care and treatment, on an inpatient and outpatient basis, of the patient community which it serves. The redevelopment of the Partial Hospital/Fenwood Inn will be undertaken by BWH on behalf of DCAM/DMH pursuant to the terms of the Master Plan, Development Agreement, and Ground Lease with DCAM, acting by and on behalf of DMH, which will set forth the terms of the redevelopment.

2.6 Public Agencies

Table 2-2 below presents a list of state and local agencies from which permits or other actions are expected to be required:

Table 2-2 Anticipated Permits and Approvals

Agency Name	Permit / Approval
FEDERAL	
Environmental Protection Agency	National Pollution Discharge Elimination System Stormwater Discharge Construction Dewatering
Federal Aviation Administration	Notice of Construction and Crane approval(s)

Table 2-2 Anticipated Permits and Approvals (Continued)

Agency Name	Permit / Approval
STATE	
Division of Capital Asset Management	Long Term Ground Leases of MMHC Site and Long Term Leases on behalf of DMH
Department of Environmental Protection, Division of Water Pollution Control	Sewer Connection and Extension Permit
Department of Environmental Protection, Division of Air Quality Control	Plan Approval (If required)
Executive Office of Environmental Affairs (MEPA Unit)	MEPA review
Massachusetts Water Resources Authority	Sewer Use Discharge Permit; Construction Dewatering Permit Industrial Discharge Permit (if required)
Massachusetts Historical Commission	State Register Review/254 Review Consistency with 2003 MOA
Massachusetts Aeronautics Commission	Notice of Pre-Construction
LOCAL	
Boston Civic Design Commission	Design Review and Approval
Boston Redevelopment Authority	80B Large Project Review; 80D Institutional Master Plan Review; 80C Planned Development Area Review (Residential Building only)
Boston Water and Sewer Commission	Sewer Use Discharge Permit; Site Plan Approval; Construction Dewatering Permit; Sewer Extension/ Connection Permit; Stormwater Connection
City of Boston Inspectional Services Department	Building and Occupancy Permits
Boston Public Improvement Commission	Streetscape Improvements; Vining Street Extension Reconfiguration
Boston Zoning Commission	Zoning Approvals; Approval of Institutional Master Plan and Potential Planned Development Area Plan (Residential Building only)
Boston Department of Public Works	Street Occupancy (construction period) Curb Cut

Table 2-2 Anticipated Permits and Approvals (Continued)

Agency Name	Permit / Approval
Boston Transportation Department	Transportation Access Plan Agreement Construction Management Plan
Boston Landmarks Commission	Article 85 Demolition Delay Consistency with 2003 MOA
Boston Parks and Recreation Commission	Approval of Demolition and Construction within 100 feet of park or parkway
Boston Committee on Licenses	Permit to erect and maintain parking garage Flammable storage license
Boston Fire Department	Permits and review as necessary

2.7 Schedule

The first phase of the Project will be the development of the Partial Hospital/Fenwood Inn and the Binney Street Building which is estimated to begin sometime between January 2010 and July 2010 and last approximately 15 to 18 months respectively which includes three months for demolition and abatement on the Partial Hospital/Fenwood Inn. The abatement and demolition of the main MMHC building will be an integral part of this first phase of work as the cleared site is necessary for the safe and clear access to construct the first two buildings and in the interest of public safety given the condition of the buildings[5]. Both of these buildings will be dedicated initially for use by DMH, and construction of these buildings will commence immediately upon the completion of the permitting of the Project by the relevant City and State agencies and authorities. The other elements of the Project, specifically the Brigham and Women's Building and the Residential Building, will be constructed in subsequent phases. The timing of the construction of the Residential Building and the Brigham and Women's Building will depend on the availability of capital for these two elements of the Project. It is anticipated that construction of the Residential Building will have a 24–month construction duration. Pursuant to the Development Agreement with DCAM, occupancy of the Residential Building and the Brigham and Women's Building may only occur after occupancy of the Partial Hospital/Fenwood Inn and Binney Street buildings. The Brigham and Women's Building must be completed within 10 years of the completion of the Binney Building under the terms of the Development Agreement with DCAM.

[5] The demolition of these buildings was contemplated under the MOA with DCAM and the Massachusetts Historical Commission and was taken into consideration by DCAM in selecting this proposal for redevelopment of the site.

Section 3.0

Project Notification Form/Assessment of Development Review Components

3.0 PROJECT NOTIFICATION FORM / ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

Article 80 of the Code specifies that the BRA may require in its Scoping Determination that the applicant conduct studies to determine the direct or indirect impact to the environment reasonably attributable to a proposed project. The development review components include transportation, environmental protection, urban design, historic resources, and infrastructure systems. Where potential for direct or indirect impacts exist, design measures may be required to mitigate the impacts, to the extent economically feasible. The areas for which studies and mitigation may be required are discussed below.

3.1 Transportation

This section presents a four-part summary of the Project and the BWH Campus from a transportation perspective and provides an overview of the area's existing transportation infrastructure. The first section provides a brief discussion of the transportation characteristics of the Hospital and the Project. The second section describes the existing transportation infrastructure surrounding the site. This discussion includes descriptions of public transportation, area roadways, parking and patient valet operations, loading activities, and ambulance operations. The third section provides a brief evaluation of future conditions with the Project in place, including future parking and valet service, loading activities, ambulance operations and trip generation. The final sections provide a discussion of anticipated transportation-related construction management actions and transportation demand management measures that are expected to be employed in connection with the Project.

3.1.1 Project Summary

As described previously in Chapter 2.0, the Proponent is proposing to develop a mixed-use development project on the site of the former MMHC located between the Riverway and Fenwood Road in the Mission Hill neighborhood immediately adjacent to the LMA and a portion of BWH-owned vacant land located at the corner of Binney Street and Francis Street within the LMA. The MMHC Project Site includes vacant buildings totaling 190,000 sf and 163 surface parking spaces. As currently contemplated, the Project includes four new buildings. These building are described below:

The Residential Building, located at the northwestern end of the MMHC Site, will include approximately 66 affordable rental units and approximately 70 condominiums for a total of approximately 136 units. A substantial number of the condominiums will also be affordable. The building may also include approximately 10,000 sf of community space for a total of approximately 197,750 sf. This component of the Project is intended to foster RTH's goal to continue to meet the large and growing need for housing close to transit and jobs that can be accessed by households of limited income.

Brigham and Women's Building, located at the MMHC Site, this facility will house a new research and clinical facility (305,920 sf) for BWH. The building will also accommodate DMH outpatient clinical and office space, providing approximately 52,750 sf of space for that use. In total, this building will be approximately 358,670 sf and will provide 406 parking spaces below grade that are envisioned to support the entire Project[6]. This is the only proposed parking structure with the Project.

Binney Street Building, located adjacent to the Servicenter Garage on Binney Street, this building will provide 16,000 sf of outpatient clinic space and 40,540 sf of administrative space (56,540 sf in total). The parking associated with the building will be provided in the Brigham and Women's Building.[7]

The Partial Hospital/Fenwood Inn, at the northeastern end of the site across Vining Street from the main MMHC Site, will be approximately 21,000 sf and will include 47 beds for the Fenwood Inn and Partial Hospital components of the MMHC program. The parking associated with the building will be provided in the Brigham and Women's Building.

Upon completion of the Brigham and Women's Building, BWH will have a total of 358,670 sf and DMH will have 56,540 sf at the Binney Street Building or 52,750 sf at the Brigham and Women's Building.[8] The Brigham and Women's Building garage will provide 406 parking spaces to support the new building space. New parking to be provided to support the Project is planned to be provided at a rate of 0.65 parking spaces per thousand sf of net new development. BTD guidelines applicable to parking ratios for new construction would allow for 0.75 spaces per residential unit and 1,000 sf per non-residential land uses within the LMA and 0.75-1.0 spaces per 1,000 sf of non-residential use and 0.5-1.0 spaces per residential unit within the Mission Hill neighborhood. Under the existing guidelines, up to 555 parking spaces could be built to support the Project.

Table 3.1-1 presents the proposed program for the four buildings.

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6 90 residential spaces win the form unrestricted parking passes will be provided in the Mission Park Garage.

7 Until the Brigham and Women's Building is completed, 50 parking spaces will be provided for DMH on the MMHC Site as surface parking or alternatively in the adjacent Servicenter Garage.

8 The difference in sf for the DMH space is due to more efficient use of space which is possible given the design and configuration of the Brigham and Women's Building.

Table 3.1-1 Project Building Program Summary

	Size (sf)	Parking
Residential Building	**197,750**	
Brigham and Women's Building		
DMH	52,750	
BWH	305,920	
Total Brigham and Women's Building	**358,670**	
Binney Street Building	**56,540**	
Partial Hospital/Fenwood Inn	**21,000**	
Total	**633,960**	**406***

* *A total of 406 parking spaces will be provided to meet the future demands associated with the Residential Building, Fenwood Inn, DMH, and BWH. Based on BTD parking guidelines, up t o 555 parking spaces could be built to support the Project.*

As part of the Project, an opportunity to create an additional travel lane on the Riverway will be explored. As envisioned, this additional travel lane would create a third northbound approach lane for right-turning vehicles onto Brookline Avenue. The construction of this additional travel lane would be part of the phase of the Project coinciding with the construction of the Brigham and Women's Building.

3.1.2 Existing Transportation Conditions

This section provides a summary of existing transportation conditions at BWH and the MMHC Site including:

- A description of the existing BWH campus and adjacent residential properties;
- The existing roadway network;
- Existing parking and valet services serving BWH;
- Existing ambulance activity;
- Existing loading operations at the BWH Campus; and
- Public transportation services in the area.

3.1.2.1 Existing Site Description

The BWH Campus is located predominately in the LMA and abuts the Mission Hill residential neighborhood. The existing BWH Campus includes the block bounded by Francis Street, Shattuck Street, Brookline Avenue, and Huntington Avenue. BWH also owns the newly constructed Shapiro Cardiovascular Center at 70 Francis Street and the Servicenter Garage at 80 Francis Street and several buildings located at 221 Longwood Avenue. All of these properties are described in BWH's existing IMP and located within the IMP Overlay District.

The MMHC Site is located on a parcel south of Fenwood Road and east of the Riverway. Vining Street splits the site with The Partial Hospital/Fenwood Inn located to the east of Vining Street and the other two proposed Buildings sited between Vining Street and the Riverway. A 50-foot wide private way bounds the site to the south. The MMHC Site also includes a small 17,000-sf parcel on the east side of Vining Street, which is proposed to house the Partial Hospital/Fenwood Inn.

The Binney Street Site is currently a vacant parcel of land bounded by Binney Street, Francis Street, and Fenwood Road adjacent to the Servicenter Garage. This parcel is currently occupied by temporary construction trailers.

3.1.2.2 Roadway Descriptions

The Riverway, a four-lane parkway which travels north-south following the Muddy River, bounds the MMHC Site to the west. It connects the Sears Rotary in Boston with the Jamaicaway to the south. Adjacent to the MMHC Site, two travel lanes are provided in each direction with a posted 30 miles per hour (mph) speed limit. No Parking is allowed on the Riverway near the MMHC site, which has sidewalks on the eastern side of the road and an unpaved pedestrian path on the opposite side in the vicinity of the Project.

Fenwood Road and Vining Street, bounding the MMHC Site to the south and east respectively, are both local roadways with one lane in each direction. Fenwood Road connects Brookline Avenue to Huntington Avenue and becomes one way westbound between St. Albans Road near Huntington Avenue. Vining Street begins at Francis Street and serves the Mission Park Garage.

Binney Street is a two way street connecting Fenwood Road to Longwood Avenue. One travel lane is provided in each direction. No parking is provided on-street.

3.1.2.3 BWH Existing Parking and Valet Activity

BWH currently controls approximately 5,027 total off-street parking spaces, with 1,023 parking spaces available for use by its patients and visitors, and 4,004 parking spaces available for staff. Approximately sixty percent of the employee parking supply (2,429 spaces) is located outside of the LMA in remote parking facilities. Most of the off-site

parking is utilized by employees who either walk or use shuttle buses to travel between the campus and these remote parking facilities. A summary of the existing parking supply is shown in Table 3.1-2.

Table 3.1-2 BWH Existing Parking Space Inventory (May 2009)

Parking Facility	Current Number of Parking Spaces			Connecting Mode
On-Campus/Nearby Parking	Total	Patient/Visitor	Employee	
Mission Park Garage	1,305	204	1,101	Walk/Valet
Servicenter Garage*	70	0	70	Walk
ASB-II Garage	247	246	1	Walk
221 Longwood	15	15	0	Walk
Harvard Garage	5	0	5	Walk
15 Francis Street	57	47	10	Walk
One Brigham Circle	248	0	248	Walk
Harvard NRB Garage	297	0	297	Walk
375 Longwood Garage	98	0	98	Walk
Mass College of Pharmacy	40	0	40	Walk
Mass Mental Health Site	163**	104	59	Valet
Smith Building (Dana Farber)	33	0	33	Walk
Children's Hospital Garage	20	0	20	Walk
Total On-Campus/Nearby	**2,598**	**616**	**1,982**	
20 Kent Street Lot	24	0	24	Walk
850 Boylston Street	681	407	274	Shuttle
Wentworth Lot	267	0	267	Shuttle
Lansdowne Garage	200	0	200	Shuttle
Red Sox Garage	63	0	63	Shuttle
116 Huntington Avenue	5	0	5	Walk
Colonnade Garage	15	0	15	Walk
Chestnut Hill Lot	146	0	146	Shuttle
Ipswich Garage	62	0	62	Shuttle
Atrium Mall	200	0	200	Shuttle
One Brookline Place	12	0	12	Shuttle
1249 Boylston Street Lot	40	0	40	Shuttle
St. Lawrence Church	40	0	40	Walk
Crosstown Garage	552	0	552	Shuttle/Walk
65 Landsdowne Garage	122	0	122	Shuttle
Total Off-Campus	**2,429**	**407**	**2,022**	
Grand Total	**5,027**	**1,023**	**4,004**	

** A BWH related entity acquired the Servicenter parking garage in December 2004. However, the Hospital will only control up to 70 spaces at this facility through 9/30/09 due to a lease agreement with MASCO. After this lease expiration, BWH will control 650 spaces.*

*** Includes spaces at MMH and Fenwood Inn spaces.*

The existing MMHC buildings are vacant and have not been actively used by the DMH for several years pending redevelopment. However, BWH currently leases the surface parking lot on-site as storage for their patient valet operations and as parking for some employees and contractors. Under existing conditions, there are 163 total spaces on the MMHC Site, with 59 of those spaces allocated to employees and contractors. On a typical weekday, approximately 324 valet trips and 136 contractor trips are made in and out of the parking area. Table 3.1-3 summarizes existing vehicle activity on the site during weekday peak periods.

Table 3.1-3 Existing Condition Site Vehicle Trips

Time Period	Valet	Contractor/ Employee	Total
Morning Peak Hour			
Enter	27	11	39
Exit	12	5	17
Total	39	16	55
Evening Peak Hour			
Enter	13	5	18
Exit	19	8	28
Total	32	14	46
Daily	324	136	460

Source: Vehicle counts conducted by VHB, June 2007.

3.1.2.4 BWH Loading and Service Activities

The main BWH loading and service area is located in the Servicenter Loading Dock at 89 Fenwood Road, underneath the Servicenter Parking Garage and connected to the main BWH Campus by an underground tunnel beneath Francis Street. Additional loading and service areas are located at the West Plaza Loading Dock (20 Shattuck Street) and the Thorn Building (50 Shattuck Street). Small deliveries such as flowers occasionally arrive at the 75 Francis Street entrance. No changes are anticipated at the existing loading facilities as a result of the proposed Project.

3.1.2.5 Public Transportation and Shuttle Services

The Project Site, situated at the crossroads of the LMA and the Mission Hill neighborhood, is well served by public transportation. The site is located between the Arborway (E Line) Branch and the Riverside Branch (D Line) of the MBTA Green Line. The Green Line connects to the North Station Commuter Rail Station. The Project is also close to the Orange Line which provides connections to Back Bay's Commuter Rail Station. MBTA services are described below:

- **Green Line D Branch** – The D (or Riverside) Branch of the Green Line light rail subway line runs on 5-minute headways during peak hours. The line runs above ground on a dedicated right-of-way from Riverside Station in Newton through 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 Back Bay, Government Center, and North Station to its terminus at Lechmere Station. The D line stops closest to the site are the Longwood and Brookline Village stops, both located west of the Muddy River. Passengers traveling to the site would either walk half a mile from the Longwood stop, or transfer to MBTA bus routes 60 or 65 at Brookline Village.

- **Green Line E Branch** – The E (or Heath Street) Branch of the Green Line light rail subway line runs on 9-minute headways during peak hours. The line originates at Heath Street Station and runs east at grade within the median of Huntington Avenue. Southwest of Massachusetts Avenue, the line descends below grade to serve Symphony and Prudential stations before joining the main Green Line (described previously in the D Branch section) at Copley. The site is served by the line's Brigham Circle and Fenwood Street stops which are located approximately ¼-mile from the site.

- **Orange Line** – The Orange Line heavy rail subway line runs on 5-minute headways during peak hours, using 6-car trains. From north to south, the line runs from Oak Grove Station in Malden through Medford, Charlestown, downtown Boston, the South End, and Roxbury, before reaching Forest Hills Station in Jamaica Plain. The Orange Line connects with the Green Line and with all northern commuter rail lines at North Station, with the Green Line at Haymarket, with the Blue Line at State Street, and with the Red Line at Downtown Crossing. It connects with all northern commuter rail lines at North Station. Orange Line passengers traveling to the site would either walk approximately one mile from Roxbury Crossing Station or take the MASCO Ruggles Express shuttle service from Ruggles Station to the LMA.

The MBTA also operates eight bus routes that provide service within one-half mile of the Project Site:

- **Crosstown 2 (CT2)** bus route operates between Sullivan Square Station on the Orange Line and Ruggles Station on the Orange Line.

- **Crosstown 3 (CT3)** bus route operates between Brookline Avenue at BIDMC East Campus and Andrew Square Station on the Red Line Station in Dorchester.

- **Route 8** operates between Kenmore Square and UMass Boston, with high-frequency service between Kenmore Square and the Ruggles Street MBTA Orange Line/Commuter Rail Station during peak commuter periods.

- **Route 39** provides service between the Forest Hills Station on the Orange Line and Back Bay Station on the Orange Line.

- **Route 47** provides service between Central Square Station on the Red Line and Broadway Station on the Red Line via Ruggles Street Station on the Orange Line.

- **Route 60** provides service between Chestnut Hill in Newton and Kenmore Square via Brookline Village Station on the Green Line D Branch.

- **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.

- **Route 66** provides service between Harvard Square in Cambridge and Dudley Square.

In addition to MBTA bus routes, MASCO operates ten shuttle routes that provide service within one-half mile of the Project Site:

- **Fenway Park and Ride Shuttle** connecting the LMA with the Boylston Street Lot and the Kenmore Lot.

- **M2 Cambridge Shuttle** connects the LMA to Harvard Square, with interim stops along Mass Ave at Putnam Street, Bay Street, Central Square, MIT, and Beacon Street, the Fenway and Kenmore MBTA station as well as Simmons and Vanderbilt Hall.

- **M6 Chestnut Hill Shuttle** connects the LMA with the Mishkan Tefila Parking Lot in Chestnut Hill (Newton), making interim stops at 850 Boylston, Lowry, Brigham & Women's Hospital, Dana-Faber Cancer Institute, Children's Hospital, and BIDMC Shapiro Building.

- **Ruggles Express** provides continuous service between the MBTA's Ruggles Station and the LMA.

- **Renaissance Shuttle** provides service between the LMA and the Renaissance Park Garage.

- **Beacon Route** provides service between LMA and the 1295 Boylston Garage.

- **JFK/UMass Shuttle** connects the LMA and the JFK/UMass Station via Andrew Square on the MBTA's Red Line.

- **Centre Street/Wentworth Park and Ride Shuttle** connects the LMA and the Centre Street and Wentworth lot.

- **Crosstown Shuttle** connects the LMA and the Crosstown Center Parking Facility.
- **Midday Shuttle** connects the LMA to all of its satellite parking facilities.

BWH employees, patient, and visitors are also eligible to ride the free shuttles offered by Partners Passenger Transportation Service.

3.1.3 Future Conditions

This section provides a summary of future transportation conditions at the site including:

- Future Parking and Valet Service;
- Loading Activities;
- Ambulance Operations; and
- Trip Generation.

3.1.3.1 Future Parking

The Project will contain 406 parking spaces located beneath the Brigham and Women's Building. These spaces will provide parking to support the new building space, including proposed hospital uses, DMH parking, Fenwood Inn parking, and parking for the residential units that are proposed. From an operational standpoint, RTH has indicated that it would be advantageous to allocate proposed residential parking within the existing (and nearby) Mission Park Garage; where most off-street RTH parking is provided today. To make this accommodation, some BWH staff that park in the Mission Park Garage will need to be relocated within the new parking garage. The specific parking actions to be made in connection with the Project will be described and studied in detail in a future Draft PIR to be produced in connection with the ongoing Article 80 Development Review and Approval process for the Project. As currently contemplated, the DMH will control 50 spaces and BWH will use the remaining 356 spaces in the new garage.

Table 3.1-4 summarizes the parking changes with the Project.

Table 3.1-4 Parking Supply

	Spaces at New Brigham & Women's Building
Brigham and Women's Hospital	356
DMH	50
Residential	
Total	**406**

* 90 Residential spaces in the form of unrestricted parking passes will be provided in the nearby Mission Park garage.

3.1.3.2 Loading Activities

The Brigham and Women's Building will provide a dedicated off-street loading facility accessed from the south side of the MMHC Site. Currently, three loading docks are planned and an additional bay will be provided for ambulance layover, if needed.

Off-street loading areas will be provided separately at the Residential Building and the Partial Hospital/Fenwood Inn. The Proponent will work closely with BTD to ensure that loading and service needs are accommodated at each site.

3.1.3.3 Future Trip Generation

This section provides a summary of preliminary trip generation estimates for the Project. Note that the trip generation estimates presented must be considered preliminary. A more detailed, empirically-based estimate of future trip generation based on employment and patient projections and comprehensive review of existing transportation conditions will be developed for the Draft PIR.

Unadjusted Vehicle Trip Generation

Consistent with BTD guidelines, trips were estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual. The ITE manual yields 'unadjusted' vehicle trips meaning that these trips do not reflect alternative modes of transportation such as walking and public transportation. The most appropriate ITE land codes were used:

- LUC 220 (Apartments) – was used to estimate residential trips. The Project currently contemplates a mix of condominiums and apartments however, as a conservative estimate the apartment land use code was used since this category has a higher trip generation rate than condominiums.
- LUC 620 (Nursing Home) – was used to estimate trips to the Partial Hospital/Fenwood Inn. This land use code most closely reflects trips being made primarily by staff and employees providing full-time care.
- LUC 710 (Office) – was used to estimate trips to the Brigham and Women's Building and Binney Street Building where some office space will be provided.
- LUC 760 (Research and Development Center) – was used to estimate the BWH research and development space at the new Brigham and Women's Building and the Binney Street Building.
- LUC 610 (Hospital) - was used to estimate trips associated with the new clinical space in the Brigham and Women's Building. This land use code is the most closely related ITE data set. A more detailed trip estimate based in part on a population survey at the existing BWH campus and from data to be provided by the DMH will be developed as part of the Draft PIR.

No peak-hour trips were assumed to be generated with the new 10,000 sf of community space. Additionally, information on auto usage and ownership patterns of Mission Park will be gathered and evaluated in the Draft PIR.

Table 3.1-5 summarizes net new unadjusted ITE trips once existing trips are accounted for.

Table 3.1-5 Unadjusted Trip Generation*

Land Use	Land Use Code	Size	ITE Unadjusted Vehicle Trip Generation						
			AM Peak Hour			PM Peak Hour			Daily
			Enter	Exit	Total	Enter	Exit	Total	Total
Residential	Apartments	136 units	14	55	69	55	30	85	914
Research and Development	R & D	152,960 sf	157	32	189	25	140	165	1,240
Office	Office	76,560 sf	104	14	118	19	95	114	842
Fenwood Inn	Nursing Home	47 beds	6	2	8	3	7	10	112
Clinic	Hospital	193,950sf	156	77	233	76	153	229	3,408
Total Unadjusted Trips			**437**	**180**	**617**	**178**	**425**	**603**	**6,516**

**Trips are not adjusted for local mode share.*

Adjusted Vehicle Trip Generation

To account for alternative modes of transportation, mode splits were applied to the trip results presented in Table 3.1-5. The auto mode split includes all vehicle based trips including taxis. Mode splits for the area are based on BTD Guidelines and are shown in Table 3.1-6.

Table 3.1-6 Peak Hour Mode Splits

Mode	Work Trips	Residential Trips
Public Transit	33 %	17 %
Walk/Bike/Other	20 %	46 %
Automobile	47 %	37 %

Source: BTD Guidelines, Zone 5

As shown in Table 3.1-6, according to BTD mode split guidelines, only 47 percent of work trips to the site and 37 percent of residential trips from the site will be by personal automobile. The remaining trips will be walk, bike, or transit trips. Table 3.1-7 provides a summary of vehicle trips adjusted for the local mode share.

Table 3.1-7 Project Trip Generation

Time Period/Direction	Walk/Bike/Other	Transit	Total Vehicle Trips	Less Existing Vehicle Trips	Net-New Vehicle Trips
Daily					
Inbound	1,411	984	1,626	-240	1,386
Outbound	1,411	984	1,626	-240	1,386
Daily Total	**2,822**	**1,968**	**3,252**	**-480**	**2,772**
AM Peak Hour					
Inbound	145	200	196	-39	157
Outbound	75	71	76	-17	59
AM Total	**220**	**271**	**272**	**-55**	**217**
PM Peak Hour					
Inbound	75	70	74	-18	56
Outbound	146	190	189	-28	161
PM Total	**221**	**260**	**263**	**-48**	**217**

Time Period/Direction	Walk/Bike/Other	Transit	Total Vehicle Trips	Less Existing Vehicle Trips	Net-New Vehicle Trips
Daily					
Inbound	1,411	984	1,626	-240	1,386
Outbound	1,411	984	1,626	-240	1,386
Daily Total	**2,822**	**1,968**	**3,252**	**-480**	**2,772**
AM Peak Hour					
Inbound	145	200	196	-39	157
Outbound	75	71	76	-17	59
AM Total	**220**	**271**	**272**	**-55**	**217**
PM Peak Hour					
Inbound	75	70	74	-18	56
Outbound	146	190	189	-28	161
PM Total	**221**	**260**	**263**	**-48**	**217**

Table 3.1-7 Project Trip Generation (Continued)

Time Period/Direction	Walk/Bike/Other	Transit	Total Vehicle Trips	Less Existing Vehicle Trips	Net-New Vehicle Trips
Daily					
Inbound	1,411	984	1,626	-240	1,386
Outbound	1,411	984	1,626	-240	1,386
Daily Total	**2,822**	**1,968**	**3,252**	**-480**	**2,772**
AM Peak Hour					
Inbound	145	200	196	-39	157
Outbound	75	71	76	-17	59
AM Total	**220**	**271**	**272**	**-55**	**217**
PM Peak Hour					
Inbound	75	70	74	-18	56
Outbound	146	190	189	-28	161
PM Total	**221**	**260**	**263**	**-48**	**217**

Source: ITE Trip Generation, 7th Edition & BTD Mode Share

As shown in Table 3.1-7, the Project is expected to generate approximately 217 net-new vehicle trips (157 in, 59 out) during the weekday morning peak hour, and 217 new vehicle trips (56 in, 161 out) during the weekday evening peak hour once the proposed Project is completed and fully occupied. On a daily basis, the Project is expected to generate approximately 2,772 new vehicle trips.

Note, however, that the trip generation estimates presented within Tables 3.1-5 and 3.1-7 must be considered preliminary. A more detailed, empirically-based estimate of future trip generation based on residential trends, employment and patient projections and comprehensive review of existing transportation conditions will be developed for the Draft PIR. The expected effects of this growth will be evaluated on nearby streets and at area intersections as part of the Draft PIR process.

3.1.4 Construction Management

The Proponent will develop and review with RTH and the neighboring institutions, a detailed evaluation of potential short-term construction-related transportation impacts, including construction vehicle traffic, parking supply and demand, and pedestrian access to the Project Site in relation to the BWH Campus and residential properties in the vicinity of

the Project Site most of which are controlled by RTH. A detailed Construction Management Plan (CMP) will be developed and submitted to the BTD for its approval as described below. These plans will detail construction vehicle routing and staging.

3.1.4.1 Construction Vehicle Traffic

Construction vehicles will be necessary to move construction materials to and from the project sites. Every reasonable effort will be made to reduce the noise, control dust, and minimize other disturbances associated with construction traffic. It is the Proponent's intent to use Brookline Avenue as the principal construction traffic route to the Project Site. Each phase of the Project will have a separate CMP. As with the CMP for the Shapiro Cardiovascular Center project, each CMP will attempt to minimize the disruption of the BWH's neighbors on Francis Street and Fenwood Road to the east of Vining Street by restricting construction traffic there. All construction traffic routes are subject to BTD approval. The primary lay-down area is expected to be located on the Project Site therefore reducing the impacts to adjacent properties.

3.1.4.2 Construction Parking Issues

Contractors will be required to develop access plans for their personnel that de-emphasize auto use (such as seeking off-site parking, provide transit subsidies, on-site lockers, etc.) Construction workers will also be encouraged to use public transportation to access the Project Site because no new parking will be provided for them. The Proponent will work with the BTD, MASCO, and the Boston Police Department to ensure that parking regulations in the area and in designated residential parking areas are enforced.

3.1.4.3 Pedestrian Access during Construction

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

3.1.5 Transportation Demand Management

The Project has distinct land use types that require different Transportation Demand Management (TDM) strategies. The office, research and development and clinical uses, to be occupied by BWH will be offered the same TDM incentives as currently offered on the BWH campus as a means to reduce single occupant driving and increase use of alternative forms of transportation to access the workplace. The Residential Building will require specific home-based TDM strategies. DMH will offer benefits similar to other state agencies.

3.1.5.1 BWH Transportation Demand Management

Currently, BWH offers a wide array of TDM incentives and actively supports efforts to reduce auto use for employees traveling to the hospital. Many actions to support this goal are actively employed by BWH, including the following:

- Employee Transportation Advisor – Provides alternative transportation information for employees.

- Membership in MASCO's Commute Works TMA - Both for transportation and health benefits, the hospital encourages biking, walking, running, or rollerblading to work. Toward this end, the Brigham is an active member of the CommuteWorks Transportation Management Association, which is operated by MASCO. CommuteWorks offers an array of ongoing programs (discussed further below) designed to encourage employees to choose alternative options for commuting.

- Full support of MASCO's other ongoing transportation initiatives

- 50 percent transit pass subsidy for employees - Provides a 50 percent subsidy in the cost of T and commuter-rail passes for employees. The cost of passes is deducted on a pre-tax basis, resulting in an additional cost savings to employees.

- Carpool assistance and incentives - Ridematching services are provided to employees through MASCO's CommuteWorks. Preferential parking is provided for carpools registered with CommuteWorks. Carpools of three or more are guaranteed parking at nearby garages, while two-person carpools are guaranteed spaces at remote MASCO lots.

- Bicycling/walking incentives and amenities – BWH participates in CommuteWorks' Commute Fit Program that provides rewards to employees who bicycle, walk, or rollerblade to work, based on the miles they log. The hospital also provides a secure bike cage for employees.

- Location-priced parking - Offering competitive-rate parking on-campus and subsidized parking off-campus.

- Telecommuting and compressed workweeks – BWH has an informal policy of encouraging telecommuting and compressed workweeks for employees where reasonably feasible.

- Promotional efforts – BWH promotes alternative transportation through a variety of newsletters, information kiosks, websites, e-mail, and special events.

In addition, BWH will explore the opportunity to provide for a car-sharing service such as Zipcar in the Servicenter Garage.

3.1.5.2 DMH Transportation Demand Management

DMH is a state agency which will offer the same TDM incentives offered to other state employees. On-site transportation amenities, such as bicycle storage and shower facilities will be provided to encourage alternative modes of transportation.

3.1.5.3 Residential Buildings Transportation Demand Management

New residents will be provided access to the same services as existing RTH residents including:

- After school programs for children that will eliminate the need for parents to travel to pick up their children after school and allow parents to have flexible work hours;
- Van services that allow residents to run errands without the need for a personal automobile; and
- Assistance in accessing job opportunities at BWH so that residents may live and work in the Mission Hill neighborhood to reduce commuter traffic in the area.

Additional measures that will be promoted for the Residential Building include:

- Providing a packet of TDM information in each resident's move-in documents that highlight non-automobile transportation options and on-line transportation services including the MBTA on-line transit pass purchase option.
- The building's Property Manager will create a transportation information area at the development for residents and for the general public and visitors. Information to be provided includes area and transportation maps, bicycle maps, contact information, a list of transit services and schedules, etc. The property management will be responsible for updating the information on a regular basis.
- The Management Company will serve as the Transportation Coordinator and will coordinate TDM measures for the residential building with those already in place at Mission Park. Responsibilities will include:
  - Updating the transportation information described above; and
  - Coordinating vehicular operations, service and loading, and parking enforcement related to the Residential Building.
- To take advantage of the variety of public transportation facilities available in LMA, the Project's public transportation TDM measures include:
  - Providing information in each resident's move-in documents on public transportation benefits to residents and

- Providing information and schedules for the public transportation routes in the area.

- Bicycle/Pedestrian TDM measures will include:

  - Providing landscaped sidewalks adjacent to and around the site; and

  - Providing on-site bike racks for residents and transient visitors;

In addition, new residents will be provided access to the same services as existing RTH residents including:

- After school programs for children that will eliminate the need for parents to travel to pick up their children after school and allow parents to have flexible work hours;

- Van services that allow residents to run errands without the need of a personal automobile ; and

- Assistance in accessing job opportunities at BWH so that residents may live and work in the LMA to reduce commuter traffic in the area.

3.2 Environmental Protection

3.2.1 Wind

Because of the lower height of the Fenwood Inn/Partial Hospital and Binney Street Building, wind impacts are expected to be minor. The Residential Building and Brigham and Women's Building will have a height of approximately 182 and 222 feet, respectively. The buildings will be of similar height to other buildings in the vicinity. Potential pedestrian level impacts will be studied in the Draft PIR.

3.2.2 Shadow

The site is located in a densely built urban area with buildings of varying heights. The Olmsted Park system is immediately west of the Project Site, and therefore, it is anticipated that the Project may result in some new shadow on surrounding public open spaces in the morning although efforts have been undertaken to minimize shadow impacts. As part of the shadow study to be conducted for the Draft PIR, the Proponent will analyze the shadow effects of the Project on the Olmsted Park system and other properties within the vicinity of the site.

3.2.3 Daylight

The purpose of a daylight analysis is to estimate the extent to which a proposed Project affects the amount of daylight reaching public streets in the immediate vicinity of a Project Site. The extent of daylight obstruction resulting from the Residential Building and Brigham

and Women's Building and measures to mitigate adverse impacts will be studied in the Draft PIR. Daylight obstruction impacts from the Partial Hospital/Fenwood Inn and Binney Street Building are expected to be minimal.

3.2.4 Solar Glare

The Project will be designed so as not to present an adverse safety impact on Project area traffic as a result of reflected solar glare. Although the façade materials of the Project have not been finalized, facades will incorporate low E high performance glass.

3.2.5 Air Quality

Potential long-term air quality impacts will be limited to emissions from Project-related mechanical equipment and pollutant emissions from vehicular traffic generated by the development of the Project. If changes in traffic operations are significant, the potential air quality impacts will be modeled for both existing and future conditions in the Draft PIR to demonstrate conformance with the National Ambient Air Quality Standards.

Construction period air quality impacts and mitigation are discussed below in Section 3.2.11.1.

3.2.6 Stormwater/Water Quality

The Project is expected to produce beneficial changes in the quantity and quality of stormwater runoff from the site. Please see Section 3.5.3 for additional information.

3.2.7 Flood Hazard Zones/Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Site located in the City of Boston - Community Panel Number 250286 0009 C indicates the FEMA Flood Zone Designations for the Project Site. The map shows that the Project is located in a Zone C, Area of Minimal Flooding.

The Project Site is developed and does not contain wetlands.

3.2.8 Geotechnical/Groundwater

3.2.8.1 Subsurface Soil and Groundwater Conditions

Based on the results of a preliminary subsurface exploration program, the Project Site is underlain by a 4 to 15-foot thick fill deposit consisting of varying amounts of brick, ash, cinders, glass and wood. Underlying the fill deposit at isolated locations across the site there is an organic deposit of as much as five feet in thickness. Underlying the fill deposit in areas where the organic deposit is not present, a marine clay deposit varies in thickness from three to 22 feet. The marine clay deposit consists of stiff to very stiff, yellow silty clay with interbedded layers of silty fine sand.

Underlying the organic and marine clay deposits, there is a medium dense to very dense marine sand deposit. The marine sand deposit ranges in depth from 44 to 50 feet. The marine sand deposit is underlain by a glacial till deposit consisting of a very dense gray-brown sand with some silt and gravel, varying to silty sand and gravel with cobbles and boulders. The top of the glacial till is anticipated to extend to depths of 50 to 80 feet below the existing ground surface, where it is directly underlain by bedrock.

Groundwater levels were observed to vary from about 8 to 12 feet below the existing ground surface, corresponding to approximately Elevation +9 and Elevation +18.

Although the Project Site is not located with the Groundwater Conservation Overlay District, the Project will coordinate with the Boston Groundwater Trust and will incorporate measures to ensure that area groundwater levels are maintained.

3.2.8.2 Preliminary Foundation Design Recommendations

The proposed Residential Building is anticipated to be supported on spread footings with a slab-on-grade. Footings would bear in the top of the Marine Clay layer. Alternatively, pile foundations can be driven to bearing in underlying glacial till and rock. The proposed slab will be approximately 10 feet below street grade, with the first floor roughly at the same elevation as Fenwood Road. Limited excavation support will likely be required due to the proximity of existing trees and to the streets.

Foundation support for Fenwood Inn/Partial Hospital is anticipated to be supported on pressure injected footings (PIFs) with a structural slab. PIFs would bear in the top of any sand layers. Pre-auguring may be necessary to remove obstructions before installing the PIFs.

The proposed Binney Street Building foundation system will either be PIFs, drilled caissons or conventional spread footings, each as described above.

The Brigham and Women's Building's four–level, below-grade garage will require a 50 to 60-foot deep excavation adjacent to existing streets and utilities. The four-level, below-grade garage will start on either lower level one or two depending on final program/use. Therefore, the type and design of both the temporary earth support system for the deep excavation and the permanent foundation wall system will provide for adequate support and protection of the adjacent streets and utilities, be compatible with the subsurface conditions, and be capable of maintaining groundwater levels outside the site at or near pre-construction levels.

It is anticipated that the Brigham and Women's Building will incorporate a reinforced concrete diaphragm wall (i.e. slurry wall) constructed by the slurry trench method to be installed as part of the foundation construction. The slurry wall will be designed to serve as an effective groundwater cut-off, provide temporary excavation support, and serve as the permanent exterior foundation wall. The slurry wall is anticipated to extend a minimum of

two feet into the underlying glacial till deposit across the site in order to minimize groundwater seepage into the excavation. The Brigham and Women's Building is anticipated to be supported on spread footings or a foundation mat bearing in the Marine Sand or Glacial Till. Alternatively, if up-down construction is utilized, building columns will be supported on drilled shafts.

3.2.8.3 Conclusions

The geotechnical impacts from the proposed buildings will be presented in the Draft PIR. An analysis of existing subsurface conditions, groundwater levels, potential for ground movement and settlement during excavation and potential impact on adjacent buildings and utilities for each building will be included. In addition, the Draft PIR will describe measures to ensure that groundwater levels are maintained during and after construction.

3.2.9 Solid and Hazardous Wastes

3.2.9.1 Existing Hazardous Waste Conditions

Based upon the results of preliminary chemical analyses conducted on samples of the site soils, background levels of total petroleum hydrocarbons (TPHs), polynuclear aromatic hydrocarbons (PAHs) and lead were encountered that were attributed to the presence of ash and cinders present within the fill material across the site. Based on these preliminary results, the fill material is considered regulated for off-site disposition. Additional characterization of soil and groundwater is planned at the appropriate stage of the design process to further evaluate site environmental conditions and soil management requirements for each building. Management of soil and groundwater will be conducted in accordance with applicable local, state, and federal laws and regulations.

The Project involves the demolition of existing buildings. The demolition debris will be removed to a properly licensed solid waste disposal facility. Asbestos-containing materials or other hazardous materials will be managed in accordance with applicable local, state, and federal laws and regulations.

3.2.9.2 Operational Solid and Hazardous Wastes

The Project will generate solid waste typical of other residential, office, inpatient, and medical research and clinical projects. Solid waste will include wastepaper, cardboard, glass, and bottles. A portion of the waste will be recycled. The remainder of the waste will be compacted and removed by waste haulers contracted by each of the Proponents. The Project's recycling programs which will be structured as to consider the impacts of each use and operator will be described in the Draft PIR.

With the exception of "household hazardous wastes" typical of residential uses (for example, cleaning fluids and paint), the residential uses will not generate hazardous waste.

The other Project uses may generate hazardous and medical wastes typical of medical research, inpatient and clinical facilities. Management of hazardous and medical waste is highly regulated for the safety of the public, the environment and the hospital community. All hazardous and medical waste will be handled and disposed of in accordance with applicable laws and regulations.

BWH has long been a leader in healthcare recycling efforts. The hospital has established policies and procedures relating to the recycling of various materials used within the facility, such as mixed paper, cardboard, metals, batteries, and plastics among other things. Furthermore, during major construction or renovation projects, BWH works closely with its contractors and their sub-contractors to utilize recycling practices to minimize the generation and disposal of construction waste. Additional information on BWH's recycling program and the proposed recycling programs for the Project's other buildings will be provided in the Draft PIR.

3.2.10 Noise

During operations, neither the Project's mechanical equipment nor traffic noise associated with the Project is expected to result in a perceptible change in noise levels. These impacts, and the Project's compliance with the City of Boston Noise Ordinance, will be studied in the Draft PIR.

Construction period noise impacts and mitigation are discussed below in Section 3.2.11.2.

3.2.11 Construction Impacts

The proximity of city streets and abutting institutional and residential properties to the Site will require careful scheduling of material removal and delivery. Planning with the City, residential and institutional neighbors will be essential to the successful development of the Project.

A Construction Management Plan (CMP) for each component of the Project will be prepared and reviewed with RTH and then submitted to the BTD for review and approval prior to issuance of a building permit. The CMP will define truck routes which will help in minimizing the impact of trucks on local streets. A police detail will be provided to maintain access to adjacent properties and to direct pedestrian and vehicle flow.

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.

Throughout the phases of Project construction, a secure perimeter will be maintained to protect the public from construction activities.

The construction of the Project will be phased. The first phase of the Project will be the development of the Partial Hospital/Fenwood Inn and the Binney Street Building which is estimated to begin sometime between January 2010 and July 2010 and last approximately 15 to 18 months respectively which includes three months for demolition and abatement on the Partial Hospital/Fenwood Inn. The abatement and demolition of the main MMHC building will be an integral part of this first phase of work as the cleared site is necessary for the safe and clear access to construct the first two buildings[9]. The vacant buildings have suffered serious deterioration, including structurally and they present a major public safety hazard. Both of these buildings will be dedicated initially for use by DMH, and construction of these buildings will commence immediately upon the completion of the permitting of the Project by the relevant City and State agencies and authorities. The other elements of the Project, specifically the Brigham and Women's Building and the Residential Building, will be constructed in subsequent phases. The timing of the construction of the Residential Building and the Brigham and Women's Building will depend upon the availability of capital for these two elements of the Project. It is anticipated that construction of the Residential Building will have a 24–month construction duration. Occupancy of the Residential Building and the Brigham and Women's Building may only occur after occupancy of the Partial Hospital/Fenwood Inn and Binney Street buildings.

3.2.11.1 Construction Air Quality

Short-term air quality impacts from fugitive dust may be expected during the early phases of construction and during demolition. Plans for controlling fugitive dust during construction and demolition 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 area 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

[9] The demolition of these buildings was contemplated under the MOA between DCAM and the Massachusetts Historical Commission and was taken into consideration by DCAM in selecting this proposal for redevelopment of the site.

- Periodic street and sidewalk cleaning with water to minimize dust accumulations.

3.2.11.2 Construction Noise

The Proponent is committed to mitigate 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.

3.2.11.3 Construction Waste Management

The Proponent will reuse or recycle demolition and 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.

3.2.12 Rodent Control

A rodent extermination certificate will be filed as applicable with each 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.

3.2.13 Wildlife Habitat

The Project Site is within a fully developed urban area and, as such, the Project will not impact wildlife habitats.

3.2.14 Sustainable Design

The Proponent is committed to a sustainable Project and will incorporate sustainable design measures into the Project. These will include measures related to building energy management systems, lighting, recycling, conservation measures, and local building materials.

The Project reflects "Smart Growth" principles as follows:

- ***Redevelopment*** – The Project will transform an underutilized, previously developed site into a vibrant development with a mix of uses.

- ***Reuse and rehabilitate existing infrastructure*** - By locating near and using existing infrastructure and transportation systems (both roadway and public transit), the environmental impacts from the Project are minimized and are far less than would occur if the development were constructed on an undeveloped or "greenfield" site without these services and infrastructure in place.

- ***Concentrate Development*** – The Project's density concentrates a mix of uses in a single location. The Project's density makes efficient use of the site that complements the site plan design which fosters a sense of place.

- ***Conserve Natural Resources*** – The Project will advance sustainable and environmentally conscious design and construction practices. Consistent with Article 37, the Project buildings will be LEED certifiable as described in more detail below.

- ***Expand Housing Opportunities*** - The proposed Residential Building will include quality affordable and market rate housing. Increasing the housing supply in this location will allow residents ready access to the area public transportation and job opportunities in the LMA.

3.2.14.1 LEED Certification

The purpose of Article 37 is "to ensure that major building projects are planned, designed, constructed, and managed to minimize adverse environmental impacts; to conserve natural resources; to promote sustainable development; and to enhance the quality of life in

Boston." Due to the requirements of Article 37, buildings in this Project (with the exception of the Partial Hospital/Fenwood Inn which is exempt from local zoning control) must attain a level of "LEED Certifiable" based on the USGBC's building-rating system LEED for New Construction Version 2.2. In order to achieve LEED Certifiable, 26 points are required. In addition to all prerequisites, the LEED building-rating system provides 69 possible points, and Article 37 provides 4 additional points, called Boston Green Building Credits (BGBC), with certain prerequisites in order to attain any of the four BGBC points.

The Proponent is committed to a sustainable Project and will incorporate sustainable design measures into the Project. Although the Partial Hospital/Fenwood Inn is exempt from the requirements of Article 37, the Proponent will voluntarily comply to the extent practicable. The Project will be designed to comply with Article 37 of the Boston Zoning Code and will be LEED Certifiable. Preliminary LEED checklists and a narrative description of each credit proposed in this preliminary stage for each building are provided in Appendix D. The Draft PIR will include updated LEED checklists and additional information on each credit proposed for the Project.

3.3 Urban Design

The four buildings are intended to stand as individual buildings with architectural vocabularies appropriate to their respective uses, but work together as an ensemble in a mutually reinforcing and coordinated manner. The ensemble of buildings consists of four distinct masses: the Residential Building, the Brigham and Women's Building, the Binney Street Building and the Partial Hospital/Fenwood Inn Building. The Partial Hospital/Fenwood Inn Building is at the southeastern end of the site, separated from the other buildings by Vining Street. The Brigham and Women's Building, located between the Partial Hospital/Fenwood Inn and the Residential Building on Fenwood Road, will be separated from the Residential Building by a new landscaped pedestrian way. This new landscaped pedestrian way will permit a view corridor looking southwestward from the intersection of Binney Street and Fenwood Road to the historic Riverway and the vistas beyond. The Binney Street Building will be located between Francis and Binney Streets and Fenwood Road, adjacent to the Servicenter Garage.

3.3.1 Residential Building

The proposed massing of the residential high-rise to the northwest is oriented along Fenwood Road, set back from the street to accommodate the mature trees and to provide light and air for the lower residential floors. At its northwesterly end, the mass of the Residential Building is set back 40 feet from the Riverway property line and follows its curved geometry to the approximate midpoint of the Riverway frontage before stepping back first perpendicular to the Riverway for about 30 feet and then to the orthogonal geometry established by a plane parallel with Fenwood Road. The resulting notched geometry of the footprint establishes several distinct zones around the site.

At ground level, the Residential Building and the Brigham and Women's Building define a landscaped pedestrian and visual connector from the intersection of Fenwood Road and Binney Street to the Riverway. The main Residential Building entrance is envisioned at its southeast corner where the Brigham and Women's Building steps back to widen this pedestrian connector and form an entry plaza. To the northwest, the triangular space between the Residential Building and the intersection of Fenwood Road and the Riverway becomes, at its most northwesterly section, a hardscaped open space and sitting area on the outside of the reconstructed historic fence. Following the curve of the Riverway, a landscaped buffer on the inside of the reconstructed historic fence is activated with walking paths and sitting areas and widens toward the intersection of the Riverway and the Vining Street extension where the building steps back to define an outdoor space that will serve both the residents of the Residential Building and the larger RTH community. A direct entrance to these spaces is envisioned at this outdoor space linking to the more public pedestrian way between the Residential Building and the Brigham and Women's Building and the wider RTH community to the south.

A service entrance will be located along the Fenwood Road façade opposite the existing service entrances of the Servicenter Garage. The mechanical penthouse will be set away from the Riverway and incorporated in the northwestern corner facing Binney Street.

3.3.2 Brigham and Women's Building

The Brigham and Women's Building is located at the center of the site. Its massing is organized as three vertically-oriented layers over a two-story podium. These three vertically-oriented layers slide past each other along their northwest-southeast axis, which at both northwest and southeast facades permit a slender, vertically-oriented organization. In addition, they create a staggered footprint at the east end of the Brigham and Women's Building which helps define and zone the ground plane of the pedestrian way. The two-story podium facing the RTH community to the southwest serves to set the taller, layered volume back from Neville House, the RTH residential high-rise located on the opposite side of the Vining Street extension. An additional third level of massing is added to the podium at its southern corner and along its southeastern edge with the addition of an articulated auditorium volume and the termination of the "Pike," a visual extension of the bridge crossing Fenwood Road from the Shapiro Cardiovascular Center at 70 Francis Street. Within this massing scheme the three-story podium facing Vining Street roughly corresponds to the scale of the neighborhood to the east, aligning it with the upper levels of the Shapiro Cardiovascular Center.

Major entrances to the Brigham and Women's Building are located at the north and east corners. Service and garage entrances are located on the southwest façade along the Vining Street extension as shown on Figure 1-3.

Certain historic finishes and features of the existing MMHC facility may be removed and incorporated if feasible into the proposed Project along with a possible interpretive educational presentation highlighting the more than 90-year history of the MMHC and innovations in mental health care developed at the site.

3.3.3 Partial Hospital/Fenwood Inn

At three stories, the height of the Partial Hospital/Fenwood Inn extends the residential scale of Vining Street, Kempton Street and St. Albans Street. While the somewhat larger footprint of the building provides transition to the other new buildings in the development, the massing along Vining Street is divided into five vertical sections, each set back at slightly different planes from the street, and each of slightly different heights and varying surface texture. This division of the Vining Street façade recalls the familiar vertical proportion and scale of the neighborhood. Punched residentially scaled windows are proposed throughout, slightly larger at the Vining Street façade to reflect a variety of more public areas and common spaces within the building. Brick and composite panels are proposed as surface materials.

3.3.4 Binney Street Building

The Binney Street Building is proposed as a six-level structure between Binney Street, Francis Street and Fenwood Road, adjacent to the Servicenter Garage. The building presents a uniform roof line, but is five floors at Francis Street and six floors at Fenwood Road due to the change in grade across the site. The underlying massing is layered, with a solid, anchoring mass containing core elements along the garage and a lighter, glassy element which wraps the solid element along Binney and Francis Streets. The upper four floors of this lighter, glassy element are visually enclosed within in a metal cornice which at the southwestern end extends as cantilevered shading device toward Fenwood Road and on the northeastern side turns vertical to become a vertical element on the Francis Street facade. The floors below this distinct massing element are set back to widen the sidewalks and further articulate the mass above. This widening of sidewalk extends the Binney Street sidewalk and creates entry plazas at both Binney Street intersections.

These two entry plazas mark the two public points of entry to the building. The primary address is on Fenwood Road in a space defined by the entry plaza and the extended cornice canopy described above. The secondary entrance located at the corner of Francis and Binney Streets accesses the auditorium and certain other first floor public areas, which need to be separable from other programmatic uses within the building.

Materials contemplated are chosen to reinforce the massing organization and include metal panels at the cornice, masonry units at solid areas and curtain wall.

3.4 Historical and Archaeological Resources

3.4.1 Historic Resources on the Project Site

Massachusetts Mental Health Center (74 Fenwood Road)

Opened in 1912 as the Psychopathic Department of Boston State Hospital, MMHC is historically significant for its pioneering role it played both in psychiatric research and in the development of new patient treatment strategies, both of which revolutionized mental health care in the early twentieth century. Designed by the Boston architectural firm of Kendall, Taylor & Company, MMHC is also architecturally significant as a representative example of the major shift in psychiatric philosophies at the turn of the century, from physical rather than environmental causes to mental illness. MMHC reflects a shift from the creation of the asylum setting, as seen at Danvers and Northampton state hospitals, to a more clinical and research based rehabilitation program with strong emphasis on furthering scientific knowledge. Chapter 537 of the Acts of 1920 removed the Psychopathic Department from the direct control of Boston State Hospital and renamed it the Boston Psychopathic Hospital. Chapter 63 of the Acts of 1956 renamed the facility the Massachusetts Mental Health Center.

The Massachusetts Historical Commission (MHC) included MMHC, along with 14 other state hospitals and state reformatory schools in a Multiple Property Thematic nomination to the National Register of Historic Places. As a result, in 1994, MMHC was listed in the National Register of Historic Places and is de facto included within the State Register of Historic Places. The National Register nomination for MMHC includes five resources at the site: the 1912, four-story, red brick, E-shaped Main Building; the 1912 freestanding, red brick Power Plant; the 1954 five-story, red brick Research Building; the 1957, two-story, red brick Therapeutic Building; and the original 1912 cast iron and brick fence. The nomination did not include the building at 20 Vining Street. Of the five resources included in the National Register nomination, only those dating from the hospital's original 1912 construction are considered "contributing" to the historical and architectural significance of MMHC; these include the Main Building, the Power Plant and fence.

While the Project includes the demolition of the MMHC Building, the continued presence of MMHC on the Site in a new state-of-the-art facility will allow for the continuation of the site's historic function.

3.4.2 Historic Resources in the vicinity

3.4.2.1 Other State and National Register listed properties

Olmsted Park System, Sections of the Back Bay Fens and the Emerald Necklace Parks

The Back Bay Fens and the Emerald Necklace Parks were designed by Frederick Law Olmsted as part of the Boston Park System. Landscaped as a park, the Muddy River runs through the Fens, and a conduit was created to carry the overflow of Stony Brook to the

Charles River. To accommodate the various city streets in the area, several bridges were also constructed through the Fens and Emerald Necklace Parks. Simple in design, the Fens consists of a passive park of walkways and a bridle path. When the Charles River dam was completed in 1910, the salt water marshes began to die and three of the large marshes on the southern half of the Fens were filled, and the Victory Garden, part of Olmsted's original design, was reconfigured in the early 20th century for playing fields. Despite the changes to the Fens in the 20th century, it remains an important and noteworthy resource in the Olmsted Park System Historic District. The Emerald Necklace Parks are similar in design to the Fens. The portion of the Emerald Necklace Parks adjacent to the LMA consists of low lying areas surrounding the Muddy River with meandering pathways on both sides of the waterway and bounded on the southwest by the landscaped Riverway.

Mission Hill Triangle Architectural Conservation District

The Mission Hill Triangle District comprises 71 buildings in a triangular area bordered by Huntington Avenue, Tremont and Worthington Streets. In 1871, developer George D. Cox began building single-family row houses resembling those in the Back Bay. By the early 1880s, Huntington Avenue was extended, bringing with it electric car service that influenced new housing types. The Helvetica, a distinctive apartment hotel, was constructed at 706-708 Huntington Avenue in 1884-1885; three-family houses were built in 1890 on Wigglesworth and Worthington Streets; and the Georgian Revival apartment building known as the Esther (682 Huntington Avenue/142-148 Smith Street) was constructed in 1912. The District, which is designated a Boston Architectural Conservation District, exemplifies the development of this urban neighborhood from the 1870s to the 1910s. The buildings of brick, brownstone, sandstone and marble trace the changes from single-family housing to more modest three-family buildings and apartment buildings.

Table 3.4-1 identifies State and National Register listed properties within the vicinity.

Table 3.4-1 State and National Register-listed properties

No.	Name	Address
A	Massachusetts Mental Health Center	74 Fenwood Road
B	Mission Hill Triangle District	Huntington Avenue, Smith, Worthington, Wigglesworth and Tremont streets
C	Olmsted Park System	Sections of the Back Bay Fens*, Emerald Necklace Parks*

* Property listed as a Boston City Landmark

3.4.2.2 Properties included in the Inventory of Historic and Archaeological Resources of the Commonwealth

Francis Street and Fenwood Road District (Francis Street and Fenwood Road)

The Francis Street and Fenwood Road District consists of a group of approximately forty residential pitched roof two to six-family houses and a few brick multi-family residential buildings along Francis Street and Fenwood Road from the early 20th century. The vast majority of these are owned by RTH. Most of the houses in the neighborhood have

retained original porches and trim, and many maintain natural siding. Edges of the district along Huntington Avenue include brick multi-family properties dating from the turn of the 20th century.

Former New England Deaconess Hospital Building (175 Pilgrim Road)

New England Deaconess Home and Training School was founded in 1889 by eight Methodist Deaconesses. The New England Deaconess Hospital was constructed in 1903-1907. The Georgian Revival style, three-story hospital is nine bays long with a central pediment and pilasters. Light colored stone details accentuate the façade. Deaconess was the first hospital to perform insulin treatment for patients in New England.

Harvard Medical School (210, 220, 240, 260 Longwood Avenue/25 Shattuck Street)

The Harvard Medical School was built between 1906 and 1908 in the Classical Revival style. It consists of five white marble buildings in a U-shaped plan around a monumentally-scaled, landscaped quadrangle. The buildings were designed by Shepley, Rutan and Coolidge who designed many of the buildings in the surrounding LMA. They are connected to one another by a raised marble terrace and marble banister further encloses the group along Longwood Avenue.

Former Palmer Hospital Building (195 Pilgrim Road)

Originally known as the Palmer Memorial Hospital, the imposing Georgian Revival building originally housed patients from the Cullis Consumptive Home in Roxbury and ministered to acutely ill patients requiring radium, deep X-ray therapy and surgery. The five-story brick building features a central three-bay pavilion with three-story pilasters. The nine-bay-wide and five-bay-deep building is accentuated with dentil courses and quioning.

Thomas Morgan Rotch, Jr. Memorial Hospital for Infants (55 Shattuck Street)

The Thomas Morgan Rotch, Jr. Memorial Hospital for Infants was designed by Shepley, Rutan and Coolidge and built in 1910. The building is a fine example of Classical Revival architecture by one of Boston's most prominent architectural firms who were responsible for several buildings in the LMA. The building is a white marble clad structure with a monumental Ionic portico and was designed to coordinate with the adjacent Harvard Medical School buildings.

Peter Bent Brigham Hospital (721 Huntington Avenue/15 Francis Street)

The will of Peter Bent Brigham provided the funds for the establishment of a hospital for the care of the poor in Suffolk County in 1877. In 1902 a hospital corporation was organized and a competition for the design of the new hospital was instituted. The architectural firm of Codman & Despradelle was chosen from the six competing firms. The hospital was opened in 1913 for the admission of patients.

Not long after its dedication, the design of the new hospital was cited for its role in the development of hospital architecture in America. Designed in the pavilion style, the Administration Building with its central Doric style pedimented portico is flanked on both sides with two projecting wings. Four pavilion style wards ran parallel down Francis Street. Each ward was connected to the other, and in turn to the Administration Building, and each terminated with an octagonal pavilion. The pavilion style wards have been removed and replaced with modern hospital buildings, but the Administration Building and projecting wings, though with some alterations, maintains its historic integrity and presence at Brigham Circle as does the "Pike" which continues to connect the main hospital buildings.

Farragut School (10 Fenwood Road)

The Farragut School was constructed in 1903 and opened in January 1904 as a 12-classroom primary school. Designed by the renowned architecture firm of Wheelwright and Haven, the Farragut School was considered experimental with its attempts to exclude sunlight from the classrooms to benefit the eyes. Despite the fact that this was the most expensive school erected at the time, the school board determined as early as 1905 that the lack of sunlight was a detriment.

The red brick Georgian Revival school building is complemented with light sandstone trim, quoins, stringcourses, keystones and classical surrounds at the entries. Nine-over-nine sash with flat arches, stone sills, keystones and roundels enclose a central playground. A low brick and cast iron fence parallel to the street complete the courtyard.

Properties within the Project's vicinity that are included in the Inventory are identified in Table 3.4.2. Figure 3-1 depicts the locations of the State and National Register listed properties, and properties included in the Inventory, within one-quarter mile of the Project Site.

Table 3.4.2 Properties included in the Inventory of Historic and Archaeological Resources of the Commonwealth

No.	Name	Address
1	Francis Street and Fenwood Road District	Francis Street and Fenwood Road
2	Harvard Medical School District	210, 220, 230, 240, 260 Longwood Ave. and 25 Shattuck Street
3	Former New England Deaconess Hospital Building	175 Pilgrim Road
4	Former Palmer Hospital Building	195 Pilgrim Road
5	Thomas M. Rotch Jr. Memorial Hospital For Infants	55 Shattuck Street
6	Peter Bent Brigham Hospital	721 Huntington Avenue / 15 Francis Street
7	Farragut School	10 Fenwood Road

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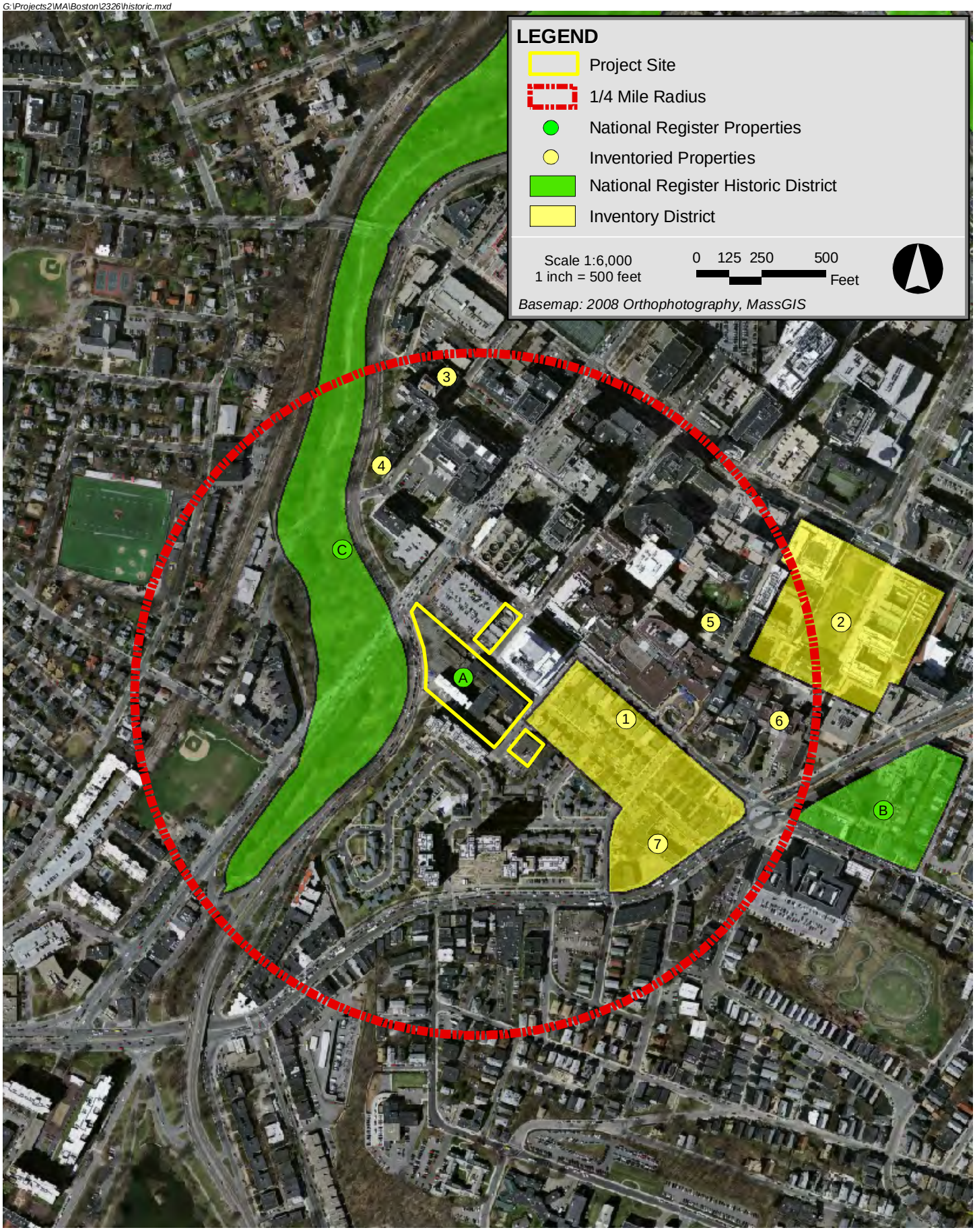

Massachusetts Mental Health Center Redevelopment **Boston, Massachusetts**

Epsilon Associates Inc.

Figure 3-1
Historic Resources

3.4.3 Impacts to Historic Resources

As a National Register listed property, it is de facto included within the State Register of Historic Places, the proposed demolition of the MMHC constitutes an "adverse effect" in accordance with Massachusetts General Laws, Chapter 9, Section 26-27C, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00). Prior to the Commonwealth's disposition of the property, it was anticipated that demolition of the MMHC buildings would likely be part of the redevelopment of the site. In June 2003, DCAM, DMH, MHC and the Boston Landmarks Commission (BLC) entered into a Memorandum of Agreement (MOA) for the disposition and redevelopment of MMHC. A copy of the MOA is attached as Appendix E.

The original buildings on the 2.39-acre MMHC Site comprised approximately 190,000 gsf in five structures of varying height of one to four stories. Prior to its interim relocation in 2003, the MMHC was occupying these facilities. Since then, there has been serious deterioration, including structurally, of the buildings and they present a major public safety hazard. The DMH together with MMHC determined that their programs would best be served by approximately 70,000 sf. Given the priorities of the state government's budget it is unfeasible to renovate, for partial occupancy, these structures which were vacated five years ago. The original RFP was based on the concept of the value of the site's redevelopment providing the capital to fund the facilities needed by the MMHC for the twenty-first century. This redevelopment relies on a higher density development of the site than the existing buildings provide. This, together with the deteriorated condition, precludes their reuse.

The MOA states that if preservation of all character-defining features is not feasible, preservation of portions of contributing resources, as identified in the National Register nomination, is encouraged. The Project will include developing an architectural salvage and reuse plan that will ensure the preservation of portions of the contributing buildings' character-defining features. In addition, as stated above the original 1912 cast iron and brick fence will be replicated. A display of historic photos is also being explored.

The MOA also states that prior to any major changes on the site, such as demolition of contributing buildings or substantial new construction on the site, photographic recordation and documentation must be prepared and submitted for review by MHC, with final copies of the resulting documentation made available to MHC and BLC. In December 2005, archival black and white photographs documenting the character-defining features of MMHC were submitted to the MHC and BLC. In letters dated January 3, 2006 January 25, 2006, BLC and MHC stated that the documentation submitted fulfilled the photographic recordation stipulation of the MOA.

In their comment letters on the two proposals submitted for the redevelopment of the site, MHC and BLC noted that one of the proposals included retaining more of the existing buildings. However, in consideration of the overall feasibility of the two proposals and other relevant criteria, DCAM ultimately selected the proposal that did not retain the

original buildings, but incorporated certain character defining features of the site in the proposed redevelopment. DCAM's RFP process, and MHC and BLC's participation in the review of the proposed redevelopment was consistent with the terms of the 2003 MOA.

Project-related impacts, such as design and shadow impacts, to other historic resources within the Project's vicinity will be studied in detail as part of the Draft PIR. The Draft PIR will also include a further developed mitigation package to mitigate the Project's impacts.

3.4.4 Archaeological Resources

According to the National Register nomination for MMHC, no recorded archaeological sites exist on the Project Site. The National Register nomination further states that the small size of the former hospital site, combined with the dense urban development in and around the Project Site, indicates that the potential for significant archaeological resources is low. Likewise, the Binney Street Building Site is also that of a small, urban parcel previously disturbed by prior construction activities.

3.5 Infrastructure Systems

Existing domestic water, steam, natural gas, electrical, sanitary sewer and stormwater systems servicing the proposed Project are described herein. As appropriate, locations of future connections for the Project are outlined.

3.5.1 Wastewater Generation

Sewage generated by the proposed Project will discharge to the Boston Water and Sewer Commission (BWSC) system via the 12-inch sewer in Fenwood Road and the 12-inch sewer in Vining Street. The locations and sizes of these connections have not been determined. From there these sewers flow to the Brookline Sewer and ultimately flow to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

The proposed Project will generate an average daily sewer flow of approximately 99,180 gpd, inclusive of mechanical equipment as shown in Table 3.5-1. For clinics space, a wastewater generation rate of 200 gallons per day per 1,000 sf has been assumed. The wastewater generation rates for the Project will be re-calculated in the Draft PIR to reflect more detailed program, staffing levels and architectural information, if available. Wastewater generation rates for bedrooms and offices are per Department of Environmental Protection guidelines.

Table 3.5-1 Net New Wastewater Generation

Proposed Project	Size (sf) or # of Bedrooms	Flow Rate (gpd)	Sewage Generation (gpd)
Partial Hospital/Fenwood Inn			
Outpatient clinic offices	8,260	200/1,000 sf	1,652
Bedrooms	47	110/bdrm	5,170
Brigham and Women's Building			
Wet Research	107,072	200/1,000 sf	21,414
Dry Research/Offices	45,888	75/1,000 sf	3,442
Clinics	152,960	200/1,000 sf	30,952
Residential Building			
Bedrooms	272	110/bdrm	29,920
Community Room	10,000	75/1,000 sf	750
Binney Street Building – BWH			
Outpatient Clinic	16,000	200/1,000 sf	3,200
Administrative/Offices	40,540	75/1,000 sf	3,040
Total New Wastewater Generation			**99,180**

3.5.2 Water Supply System

The BWSC will provide potable water to the Project Site. Existing water service for domestic use and fire protection is supplied from water systems owned and operated by BWSC. Water service will be provided to the Project via an 8-inch line in Vining Street, 12- and 8-inch lines in Fenwood Road and a 12-inch line in Binney Street.

Water generation is based upon estimated sewage generation with an added factor of 10 percent for consumption, system losses, and other usage. The average daily water demands for the proposed Project are expected to be approximately 109,100 gpd, inclusive of mechanical equipment demand.

3.5.3 Stormwater Management

The Project is expected to produce beneficial changes in the quantity and quality of stormwater runoff from the site. The Proponent intends to comply with the City of Boston's sustainability guidelines, specifically targeting compliance for both the stormwater management quantity and quality control standards.

For the Residential Building, Brigham and Women's Building and the Fenwood Inn building, the existing site is approximately 83 percent impervious and currently covered mostly by roof area and pavement. The current design for the proposed site will reduce the

impervious area through increased landscaped areas and landscaped buffers. This additional landscaped space will not only reduce the volume of runoff, but will also enhance the quality of runoff entering the BWSC drainage system.

The Binney Street Building Site is currently covered by construction trailers and construction support space. The existing site is almost completely impervious. Under the future condition, the site is expected to remain nearly completely impervious.

In addition to the added green space, the design team will be exploring permeable pavement materials, vegetated stormwater management areas and/or subsurface infiltration/detention systems in order to comply with the City of Boston's sustainability requirements for stormwater. The goal of these stormwater management practices will be a twenty-five percent reduction in the volume of stormwater from a two-year storm event.

The Proponent intends to further refine the stormwater management strategy in conjunction with the progress of the Project's design and overall sustainability objectives development. As the design progresses, estimates of expected stormwater runoff reductions and estimates of improved water quality can be developed.

Stormwater management controls will be established in compliance with BWSC standards and the Project will not introduce peak flows, pollutants, or sediments that would potentially impact the receiving waters of the local BWSC stormwater drainage system. Among the stormwater management controls considered for implementation will be deep sumped and hooded catch basins, sump cleaning, and oil/gas separators. Stormwater from the sites will be collected and discharged via several new connections to either the existing 36-inch drain in Fenwood Road or the 15-inch drain in Vining Street.

As part of the permitting process, the Project will submit stormwater management plans for each phase of the Project to the BWSC. Surface drain structures required by the Project will be developed to meet the latest city and state codes and standards. Compliance with the standards for the final site design will be reviewed as part of BWSC's Site Plan Review Process.

3.5.4 Energy Systems

3.5.4.1 Energy Efficiency

Each building will be designed to provide for its own heating and cooling needs. The Proponent is committed to promoting energy efficiency measures throughout the Project. Since research and clinical facilities are by nature 24-hour operations and intense equipment users, the Proponent will take seriously its leadership role in helping control use of excess energy. The Proponent will commission mechanical systems to ensure systems are operating as efficiently as possible from the day of their installation.

The Proponent will have a program in place to ensure chlorofluorocarbon reduction in all heating, ventilation, air-conditioning, and refrigeration equipment purchased. The Proponent will incorporate efficient light fixtures to increase energy efficiency and improve illumination. The energy requirements for all major pieces of equipment will be in accordance with energy code requirements and with requirements for a LEED certification.

3.5.4.2 Energy Needs

The Proponent is contemplating the use of steam for cage washing, glass washing and autoclaves while using gas-fired boilers for building heat and hot water. Steam demands and availability will be coordinated with the Medical Area Total Energy Plant (MATEP). There is an existing steam system located in Binney Street that could be extended to the Project. Natural gas demands and availability will be coordinated with Keyspan. Currently, an upgraded 8-inch medium pressure gas service line is located in Fenwood Road. Electric demands will be reviewed and coordinated with NSTAR. There is a recently upgraded electrical duct bank in Fenwood Road.

Future analyses will include a discussion of the Project's energy needs including a description of the planned heating, cooling, electrical and fire protection. In addition, the future analyses will provide detail regarding the Project's measures to reduce energy needs.

Section 4.0
Institutional Master Plan Notification Form

4.0 INSTITUTIONAL MASTER PLAN NOTIFICATION FORM

4.1 Background on Brigham and Women's Hospital

BWH is a Harvard-affiliated, non-profit, teaching hospital and a founding member of Partners HealthCare System Inc. BWH has an international reputation for the quality of its medical care and innovative research. In addition, its varied educational programs provide the highest quality training for medical nursing and other health professions.

BWH is a major employer in the Boston region, with a total of approximately 13,990 employees at the hospital, its neighborhood health centers, and facilities outside Boston. The hospital is also a major employer of Boston residents, with a total of 4,694 Boston residents employed at its facilities, representing 34 percent of total BWH employment.

4.1.1 Hospital Background

BWH was established in 1980 as a result of an unprecedented merger involving three of Boston's oldest and most prestigious Harvard teaching hospitals: the Peter Bent Brigham Hospital -- founded in 1911 "for the care of sick persons in indigent circumstances", the Robert Breck Brigham Hospital -- founded in 1914 to serve patients with arthritis and other debilitating joint diseases, and the Boston Hospital for Women. The Boston Hospital for Women itself was established through a merger in 1966 of the Boston Lying-in Hospital (established in 1832 for women unable to afford in-home medical care) and the Free Hospital for Women (founded in 1875 for poor women affected with diseases or in need of surgical aid).

In 1994, BWH joined with Massachusetts General Hospital to form Partners HealthCare System Inc., an affiliation established to create an integrated health care delivery system providing excellent, cost-efficient patient care while maintaining the hospital's historic dedication to teaching and research. Other Partners members include Faulkner Hospital, McLean Hospital, Newton-Wellesley Hospital, North Shore Medical Center, Partners Community Health Care, and the Spaulding Rehabilitation Hospital Network. In addition to its academic medical centers, community hospitals, specialty hospitals, community health centers, Partners also includes a physician network, home health care services and other related entities. Appendix F includes important milestones in BWH's history.

4.1.2 BWH Today

Today's BWH comprises 777 beds, extensive outpatient facilities, and state-of-the-art research laboratories[10]. It is recognized internationally for its excellence in patient care, medical research, and the training of outstanding young physicians and other health care professionals.

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10 Includes 27 beds licensed to the Dana Farber Cancer Institute.

BWH's pre-eminence and leadership are demonstrated in a wide variety of medical fields, as noted below.

- A preeminent provider of women's health services, BWH is New England's leading birthing center and a regional center of high-risk obstetrics and newborn care. BWH was ranked first in the nation in obstetric care by US News & World Report in 2008.

- The Hospital is known world-wide for its pioneering work in transplantation of vital organs and tissues, including the heart, lung, heart-lung, kidney and bone marrow, and has the largest heart transplant and bone marrow transplant programs in New England.

- BWH is one of the country's foremost centers for orthopedic and joint-replacement surgery.

- The Hospital has also achieved significant breakthroughs in treating arthritis, rheumatic disorders, and cardiovascular disease.

- BWH is one of only two burn trauma units within the Boston metropolitan region.

- Year after year, BWH has been a top recipient among independent U.S. hospitals of research funding from the NIH.

Due to its leadership with clinical, basic, and population-based studies, BWH is advancing the prevention, diagnosis, treatment and cure of diseases for people in New England, across the country, and around the world.

4.2 Mission and Objectives of the Hospital

BWH is dedicated to serving the needs of the community. It is committed to providing the highest quality health care to patients and their families, to expanding the boundaries of medicine through research, and to training the next generation of health care professionals.

BWH's stated vision is:

Brigham and Women's/Faulkner Hospitals will be the academic and community teaching hospitals and physicians of choice with the most distinguished caliber of physician and professional healthcare staff. We will create the highest quality of care through our commitment to patients and their families, the innovation inherent in our academic programs, and the strength of partnerships with members of Partners HealthCare System, Dana Farber Cancer Institute, Harvard University, and our local community, as well as our unique relationships with care provider groups such as Harvard Vanguard Medical Associates.

BWH's values include:

- **Quality Patient Care:** Delivering quality patient care is the center of everything we do.
- **Teaching Excellence:** We seek to uphold the highest standards in training health care professionals.
- **Research Leadership:** We continuously seek new ways to demonstrate our leadership role in research.
- **Customer Focus:** Our focus is to serve our customers.
- **Respect for the Individual:** We recognize and value the contributions of every individual.
- **Teamwork:** We work toward a unified approach to developing health care solutions.
- **Embracing Change:** Embracing change will help us to be successful.
- **Operational Efficiency:** We strive for efficient and effective delivery of services.

Since the formation of BWH, the hospital has distinguished itself in Boston and throughout the nation for its excellent patient care, research, and education.

4.2.1 Patient Care

BWH is a full-service, acute care teaching hospital, providing a number of specialized services to patients from Boston and New England. The hospital has 777 beds and 43 operating rooms, and in fiscal year[11] (FY) 2008 recorded 45,617 (excluding newborns) inpatient discharges and 753,091 ambulatory visits in the LMA including 58,168 visits recorded in FY 2008 by the BWH Emergency Department. The surgical staff performed approximately 30,232 inpatient and ambulatory operations in FY 2008.

BWH has one of the largest obstetrical programs in New England, with approximately 8,000 deliveries each year (7,841 in FY 2008) and one of the most comprehensive high-risk obstetrics services in the country.

In addition, BWH's two licensed health centers – Southern Jamaica Plain and Brookside (both located in Jamaica Plain) – saw a total of 152,504 ambulatory visits in FY 2008. The BWH's community health centers represent approximately 17% of BWH's total ambulatory volume. Specialties include primary care, pediatrics, adult medicine, obstetrics and gynecology, mental health, women's health, WICS, and dentistry. BWH purchased a

11 Fiscal Year extends from October 1 to September 30.

building site at 640 Centre Street and invested $5.3 million dollars to build a new 18,000 square foot health center (Southern Jamaica Plain Health Center) in 1997 to 1999 for residents of Jamaica Plain, Roslindale, Hyde Park and West Roxbury.

In 2001, BWH purchased the existing health center on Washington Street and completely renovated and expanded it to 27,000 square feet (Brookside Community Health Center). BWH invested approximately the $5.4 million dollars for Brookside Community Health Center for the residents of Jamaica Plain, Roxbury, North Dorchester and Mattapan.

In addition to these major capital investments, BWH underwrites the two health centers operational budgets by approximately $4 million annually.

BWH is also one of the largest providers of free care to people without means to pay for health care in the Commonwealth, and a major provider of health care for patients on Medicaid.

4.2.2 Biomedical Research

Throughout its long history, BWH has been internationally recognized for excellence in biomedical research. In recent years, even greater contributions and recognition in research have been achieved. BWH ranks second nationally among independent hospitals in research funding from the National Institutes of Health (NIH), receiving over $252 million from the NIH in FY 2008. Leading BWH research programs supported by the NIH include those in:

- Cardiology;
- Multiple Sclerosis;
- Alzheimer's Disease;
- Hypertension;
- Renal Medicine;
- Obstetrics and Gynecology;
- Infectious Diseases;
- Surgery;
- Pathology; and
- Rheumatology.

Additional research funding from other federal, state, not-for-profit, foundation, and industry funding sources is estimated to be over $189 million[12] in FY 2008 bringing total research funding to over $441 million.

To foster the research missions of the hospital, all of BWH's physicians are required to maintain faculty appointments at Harvard Medical School and to participate actively in both research and patient care. This universal requirement is unique among the Harvard-affiliated teaching hospitals. To permit integration of basic biomedical research with patient care applications, clinical facilities at BWH have been developed in close proximity to the BWH research laboratories and to basic sciences laboratories at Harvard Medical School.

4.2.3 Education

BWH is a major teaching affiliate of Harvard Medical School. More than 40 percent of Harvard Medical School students undergo clinical training at the BWH, and BWH faculty participates actively in formal courses at the school. In graduate medical education, BWH maintains 45 ACGME-accredited programs with approximately 850 residents and fellows each year. Educational experiences are provided additionally to research fellows funded primarily by the NIH. To promote its teaching mission, BWH has full-time clinical faculty of 1,214 on the medical staff and an additional affiliate staff of 839 physicians, all of whom hold faculty positions at Harvard Medical School.

In addition to educational programs in medicine, BWH serves as a clinical training site for nursing students, dieticians, medical technologists, nuclear medicine technologists, occupational and physical therapists, pharmacists, radiology technologists, respiratory therapists, and social workers.

4.3 Existing Campus and Facilities

4.3.1 The BWH Campus

BWH's campus is located in Boston's LMA and extends into the Mission Hill neighborhood by virtue of development authorized by the BWH 2005 IMP. BWH's main campus includes (i) an area of land bounded generally by Francis Street, Huntington Avenue, Shattuck Street, and Binney Street, which totals approximately 8.7 acres, and (ii) another on the south side of Francis Street between Binney and Vining streets, which totals approximately 1.11 acres, which is known as 70 Francis Street (Shapiro Cardiovascular Center). The former parcel contains the hospital's main buildings and below-grade parking garage; the latter parcel is the site of the new Shapiro Cardiovascular Center. The BWH Campus, therefore, is co-extensive with the limits of the BWH Institutional Overlay District and contains approximately 12.8 acres and includes additional properties as described below.

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[12] The $189 million in FY 2008 includes grants provided over multiple years.

221 Longwood Avenue

BWH owns property at 221 Longwood Avenue which contains 1.6 acres and hosts three hospital buildings, including the former Boston Lying-In Hospital buildings and the Eugene Braunwald Research Center. The three buildings on this lot contain a total of 222,494 sf.

48 Francis Street

BWH also owns a residential property at 48 Francis Street. The 48 Francis Street lot contains 0.07 acres and houses a four-story residential structure with three units used for long term stays for oncology and thoracic surgery patients and families.

80 Francis Street

The Servicenter at 80 Francis Street contains a materials handling center, which is owned by and used exclusively by BWH; approximately 11,850 sf of space devoted to doctor's offices used by BWH; and 643 parking spaces located in the garage which is leased to MASCO and dedicated to use by BWH and others. The lot containing the Servicenter is 1.28 acres. The Binney Street Building Site currently has two temporary construction trailers that would be relocated to the MMHC Site to support the construction of the Fenwood Inn and Binney Street buildings.

See Table 4-1, BWH-owned Facilities, which includes information on all BWH-owned facilities in Boston.

Table 4-1 BWH-owned Facilities

Map Key (Fig 4-1)	Building Name	Address of Nearest Entry	Building Use (1)	Year Built	Condition (2)	Approx. Roof Height	Floors Above Grade	Floors Below Grade	Approx. Gross Floor Area (3,4)	Comments
Within Main Campus										
A1	Ambulatory Services Building I	45 Francis Street	Hospital Use including Ambulatory Care, Public Assembly	1979	F	57	3	see LL	95,670	Ambulatory care building housing: Emergency Dept., OB Admitting, Brigham Internal Medicine Associates, Dialysis, Endoscopy, Nutrition, Vascular Lab Imaging.
AB	A Building/Coolidge/Scan	45 Francis Street	Hospital Use including Ambulatory Care	1913/1963/1972	NI	40	4	1	48,137	Three buildings used for administrative space and ambulatory care.
AL	Amory Lab	45 Francis Street	Hospital Use	1979	F	66	3	see LL	73,674	Houses most of the BWH clinical labs and endoscopy procedure space. Surrounds the 75 Francis hospital lobby.
AP	Ambulatory Garage	45 Francis Street	Parking	1986	G	na	0	3	0	Underground parking garage with 247 spaces for patients.
BB	B Building	15 Francis Street	Hospital Use, including Ambulatory Care	1915	NI	50	5	1	46,879	Ambulatory care building housing: Thyroid Test Center, Pain Management, Neurology, and support services and faculty offices.
BP	Biophysics Building	15 Francis Street	Hospital Use, including Ambulatory Care, Public Assembly	1970-1984	F	12	1	0	8,492	One-story building housing faculty offices and asthma research - no patient care. Proposed to be removed for the reconstruction of Brigham Green.
CA	Carrie Hall/Clinics/Pearl	15 Francis Street	Hospital Use, Public Assembly	1913/1913/1956	NI	50	5	1	43,536	Three buildings with faculty offices and administrative space.
CW	Connors Center for Women's Health	75 Francis Street	Hospital Use, including Ambulatory Care, Public Assembly	1994	G	161	10	2	217,181	Ambulatory and inpatient care building with 120 beds. Houses the Center for Women's and Newborns-Maternity Hospital (largest maternity hospital in New England), NICU and Women's Health Specialties: Obstetrics and Gynecology; Center for Reproductive Medicine, Breast Health and Mammography.
LL	Lower Levels	75 Francis Street	Hospital Use	1979	F	na	0	2	182,127	Underground floors housing the heart of the hospital's diagnostic and treatment facilities. OR Suite; Radiology; Interventional Services, Angiography, Cath Labs, Magnetic Resonance Therapy, Radiation/Oncology and Clinical Support Services.
MR	Medical Research Building	45 Francis Street	Hospital Use	1974	NI	81	7	1	29,699	Built as a temporary building, houses mostly wet research facilities.
NA	Nesson Ambulatory Center	45 Francis Street	Hospital Use, including Ambulatory Care, Public Assembly	1986	F	32	3	2	103,655	Ambulatory care facility housing: ambulatory radiology, PT, Podiatry; Brigham Surgical Group and Brigham Medical Group.
PB	Peter Bent Brigham	15 Francis Street	Hospital Use, Public Assembly	1913	F	63	6	1	55,648	Former Peter Bent Brigham hospital building, now housing hospital administration and research. Limited clinics.
RA	Radiology Building	15 Francis Street	Hospital Use	1967	F	47	4	1	15,207	Small building housing radiology administration and library.
SC	Servicenter	80 Francis Street	Hospital Use, including Ambulatory Care, Parking	1979	G	65	5	1	12,989[5]	The building consists of a public parking garage, the Hospital's materials handling facility, and limited office space.
SR	Surgery Building	45 Francis Street	Hospital Use, Public Assembly	1969	NI	46	4	1	55,549	Building housing ambulatory clinics and administration with some research. Also houses Bornstein Amphitheater.
TH	Thorn Research Building	45 Francis Street	Hospital Use	1984	F	192	16	1	146,929	Research building, mostly wet labs.
TR	Tower Building	75 Francis Street	Hospital Use, Public Assembly	1979	F	202	16	1	358,255	Patient care tower housing 612 beds, both medical/surgical and Intensive Care Units. Also non-invasive testing and faculty offices.

Table 4-1 BWH-owned Facilities (Continued)

Map Key (Fig 4-1)	Building Name	Address of Nearest Entry	Building Use (1)	Year Built	Condition (2)	Approx. Roof Height	Floors Above Grade	Floors Below Grade	Approx. Gross Floor Area (3,4)	Comments
Within Main Campus										
WP	West Plaza Infill Building	75 Francis Street	Hospital Use	2002	G	na	1	0	2,624	Building for clean clinical stores and materials handling.
SCC	Shapiro Cardiovascular Center	70 Francis Street	Inpatient/Hospital Use	2008	G	167	10	**3**	345,206	Building contains operating rooms for cardiac, vascular, and thoracic surgery. The operating rooms will allow for the integration of diagnostic and therapeutic services. Approximately 136 beds for cardiovascular patients (30 net new beds), as well as extensive outpatient cardiovascular clinical and imaging facilities and special procedures.
48FR	48 Francis St.	48 Francis St.	Residential/Hospital	c 1900	NI	35	4	1	2,616	Houses Patrick Thompson House for Patient families.
BL	Boston Lying-In	221 Longwood Avenue	Hospital Use	1922	NI	69	5	1	66,467	Former Boston Lying-In Maternity Hospital housing: Research Labs, Faculty Offices and Ambulatory Clinics: Neurology; Endocrinology; Hypertension; Dermatology.
BR	Eugene Braunwald Research Center	221 Longwood Avenue	Hospital Use	1992	G	68	6	1	98,134	Building containing research laboratories including Magnetic Resonance Imaging research.
RF	Richardson Fuller	221 Longwood Avenue	Hospital Use, including Ambulatory Care	1920	NI	65	5	1	57,893	Building housing: Research Labs, and Faculty Offices.
Outside LMA										
	Brookside Community Health Center	3297 Washington Street	Hospital Use, including Ambulatory Care	c 1920	G	20	2	0	26,621	Building housing a large community health center with a long history in the Egleston area. Recently renovated and expanded by BWH and includes Primary Care, Mental Health, WICS, Dentistry, OB/GYN, and Pediatrics.
	Southern Jamaica Plain Health Center	640 Centre Street	Hospital Use, including Ambulatory Care	1997	G	27	2	1	17,735	New Building housing community health center: Adult Primary Care; Pediatrics, Mental Health; OB/GYN/Women's Health Clinics , WICS and Clinical Lab.
								Subtotal	**44,356**	
All BWH Boston Property										
								TOTAL	**2,110,923**	

Notes:

(1) Includes Hospital Use and High Impact Subuses (facility of public assembly, nursing residence, parking facility, power plant, centralized heating or cooling plant, or ambulatory clinical care facility).

(2) Condition Codes: G = Good; F = Fair; NI = Needs Improvement.

(3) Gross Floor Area of building as defined by the City Zoning excluding FAR excludable areas and consistent with prior determinations is exclusive of garage space that is below grade.

(4) The GFA for BWH's Campus are based upon a completed computer assisted inventory of the buildings and structures located on the BWH Campus undertaken by Partners Real Estate and Facilities in conjunction with Cannon Design.

(5) Excludes 219,775 sf devoted to parking consistent with other FAR determinations for the Servicenter.

Outside the LMA

BWH also owns and operates two community health centers – Brookside Community Health Center and Southern Jamaica Plain Health Center – which are both, located outside the LMA in Jamaica Plain.

The BWH-owned facilities are depicted in Figure 4-1.

4.3.2 BWH Leased Facilities

In addition to facilities it owns, BWH leases approximately 830,525 sf of space in buildings in and around the LMA that supports activities occurring on the BWH Campus. Leased space is identified in Table 4-2 and depicted on Figure 4-1 BWH LMA Facilities. As indicated in Table 4-2, BWH leases approximately 671,832 sf within 11 buildings within or immediately adjacent to the LMA. In addition, BWH leases approximately 158,693 sf in ten buildings located in neighborhoods surrounding the LMA.[13] A wide variety of functions occur at the leased facilities.

BWH leases additional research space at several facilities including Children's Hospital and Beth Israel Deaconess Medical Center.

As demonstrated in Table 4-2, BWH has historically leased space in off-site facilities for hospital functions that do not need to occur on campus. BWH's long-term facility goals include continuing to move certain inpatient services, research, ambulatory functions and administrative uses off campus to the extent possible in order to allow for improved inpatient and specialty care services on the campus. Table 4-2 only lists leased facilities in Boston, although there are a number of facilities in neighboring municipalities, particularly Brookline.

13 The IMP Amendment will only address properties in the LMA vicinity of Boston.

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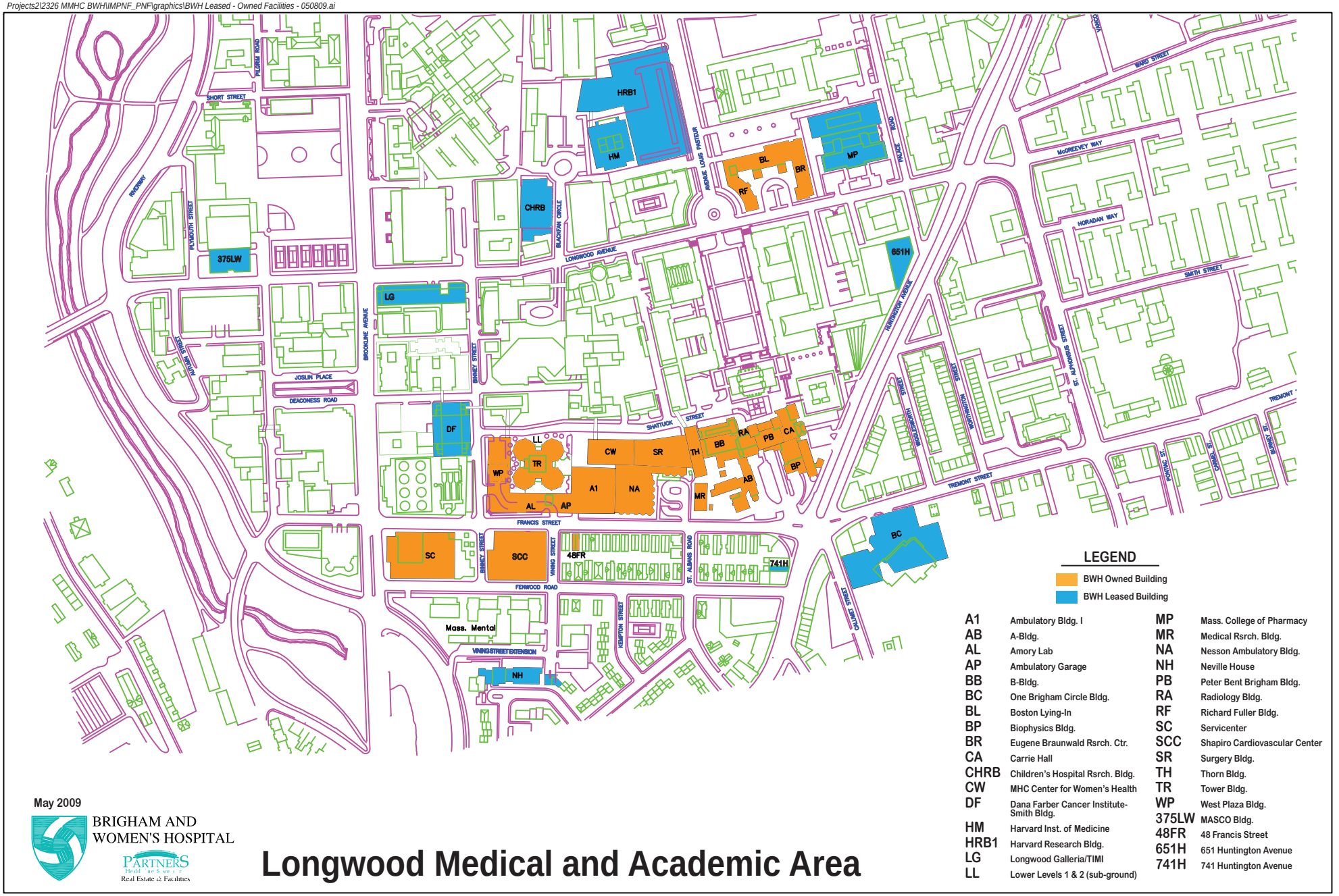

LEGEND

BWH Owned Building

BWH Leased Building

A1	Ambulatory Bldg. I
AB	A-Bldg.
AL	Amory Lab
AP	Ambulatory Garage
BB	B-Bldg.
BC	One Brigham Circle Bldg.
BL	Boston Lying-In
BP	Biophysics Bldg.
BR	Eugene Braunwald Rsrch. Ctr.
CA	Carrie Hall
CHRB	Children's Hospital Rsrch. Bldg.
CW	MHC Center for Women's Health
DF	Dana Farber Cancer Institute-Smith Bldg.
HM	Harvard Inst. of Medicine
HRB1	Harvard Research Bldg.
LG	Longwood Galleria/TIMI
LL	Lower Levels 1 & 2 (sub-ground)
MP	Mass. College of Pharmacy
MR	Medical Rsrch. Bldg.
NA	Nesson Ambulatory Bldg.
NH	Neville House
PB	Peter Bent Brigham Bldg.
RA	Radiology Bldg.
RF	Richard Fuller Bldg.
SC	Servicenter
SCC	Shapiro Cardiovascular Center
SR	Surgery Bldg.
TH	Thorn Bldg.
TR	Tower Bldg.
WP	West Plaza Bldg.
375LW	MASCO Bldg.
48FR	48 Francis Street
651H	651 Huntington Avenue
741H	741 Huntington Avenue

May 2009

BRIGHAM AND WOMEN'S HOSPITAL

PARTNERS HealthCare System Real Estate & Facilities

Longwood Medical and Academic Area

Massachusetts Mental Health Center Redevelopment Boston, Massachusetts

Epsilon Associates Inc.

Figure 4-1

BWH Owned/Leased Buildings

Table 4-2 BWH Leased Facilities

Map Key (Fig 4-1)	Building Name	Address	Building Use [1]	Gross Floor Area (2)	Parking Spaces	Lease Expiration (3)
Within/Adjacent to LMA						
BC	One Brigham Circle	1620 Tremont Street	Hospital Use, including parking	137,538	255	4/14/2053
CHRB	Children's Hospital Research Building (Karp Research Building)	1 Blackfan Circle	Hospital Use, including parking	47,228	20	9/30/2013
DF	Dana-Farber Building (Smith Building)	65 Deaconess Road	Hospital Use, including parking	38,059	44	10/30/2017
HM	Harvard Institutes of Medicine	77 Avenue Louis Pasteur	Hospital Use	112,308	n/a	6/30/2094
LG	Longwood Galleria/ TIM I	350 Longwood Avenue	Hospital Use	15,027	n/a	12/31/2012
MP	Massachusetts College of Pharmacy	181 Longwood Avenue	Hospital Use, including parking	119,737	40	9/30/2021
NH	Neville House	10 Vining Street	Hospital Use	36,239	n/a	12/31/2007
HRB1	New Research Building (Harvard)	77 Avenue Louis Pasteur	Hospital Use, including parking	159,996	297	9/1/2028
741H	741 Huntington Avenue	741 Huntington Ave.	Hospital Use	1,500	n/a	6/30/2016
651H	651 Huntington Avenue	651 Huntington Ave	Hospital Use	3,000	n/a	1/31/2011
375LW	MASCO Building	375 Longwood Ave	Hospital use	1,200	n/a	7/31/2012
Total				**671,832**		
Surrounding LMA (4)						
801MA	Crosstown Center	801 Massachusetts Ave	Hospital Use	78,000	208	10/31/2020
BSS	1249 Boylston Street	1249 Boylston St	Hospital Use	20,800	30	12/31/2012
C4	961 Commonwealth Avenue	961 Commonwealth Ave.	Hospital Use	10,052	n/a	1/31/2012
CO	321 Columbus Avenue	321 Columbus Avenue	Hospital Use	2,109	n/a	7/31/2012
HN	116 Huntington Avenue	116 Huntington Avenue	Hospital Use, including parking	26,431	9	6/30/2012
560H	560 Harrison Avenue	560 Harrison Avenue	Hospital Use	1,616	n/a	8/31/2010
LMK	Landmark Center	401 Park Drive	Hospital Use	14,953	n/a	9/30/2010
125P	New England Baptist Hospital	125 Parker Hill Road	Hospital Use	1,631	n/a	12/31/2009
LITH	Lithgow Building	622 Washington Street	Hospital Use	3,101	n/a	8/31/2009
Total				**158,693**		

NOTES: (1) Includes Hospital Use and High Impact Sub-uses (see Note 1 in Table 4-1).

(2) Gross Floor Area of leased space as defined by the City Zoning (excludes FAR excludable areas). (3) Lease expiration date including options.

(4) Includes Boston properties only. BWH leases additional facilities distant from the LMA and in other communities that are not subject to the IMP.

4.4 Patient Care Trends and Planning Objectives

4.4.1 Demand for Space

Research

The Project will provide a permanent base for the Biomedical Research Institute (BRI), a new research collaborative based at BWH and the Harvard Medical School. The BRI brings together world-class scientists and clinicians under the umbrella of a comprehensive and coordinated research effort. The BRI's mission is to accelerate the pace of scientific discovery by fostering groundbreaking, interdepartmental and interdisciplinary research among the hospital's research community, as well as to provide a clear voice for all BWH researchers.

The BRI encompasses all members of the BWH research community, including but not limited to trainees, nurses, physicians and scientists, across all departmental affiliations.

Specifically, the Project will provide expansion space to meet the increased demand for wet lab research supporting the BRI. BWH-based research expenditures have been growing at 5% per year and the total research expenditures for FY 2009 are projected at $468 million. BWH needs this new space to maintain its leadership in medical research. In addition, BWH currently leases space in buildings owned by Children's Hospital Boston and Dana Farber Cancer Institute. These leases will expire in the next few years and BWH will need to reassign these researchers into space in the Project or in backfill created by the Project.

Clinical Care

BWH, as a leading provider of healthcare services, seeks to expand its campus in line with its goal to always have available the best facilities for its clinical teams. There is a complex interaction of factors that influence the provision of healthcare services. Some of the factors increase demand, some decrease demand, and some do both simultaneously. The net result is, however, a continuing increased demand for healthcare services, and an increase in acuity of services demanded.

With every indication showing that BWH will continue to see increased demand for its services, the hospital must continue to plan for increased clinical volume and for updating clinical facilities – including inpatient and outpatient care, diagnostics and treatment, therapeutic and clinical support services. With increased demand for services comes increased demand for space for all functions of the hospital. Demand drivers include the age of the facilities and the need to replace obsolete infrastructure, the demands of new codes, regulatory requirements and standards, more activity in inpatient, outpatient, diagnostic and treatment spaces due to new diagnostic technologies and therapies.

Further clinical growth drivers are population, incidence and capabilities, and consumerism. While modest growth is forecast for the population of Boston and Massachusetts, the significantly aging population generates a greater demand for services. Incidence and capability-driven growth comes from the development of new technologies and therapies improving the ability to successfully intervene in disease. Consumer-driven growth reflects the pressure on the healthcare industry to behave like retail and service industries by providing greater responsiveness to consumer demands for amenities, choice in treatment options and inclusion of the family in the healing process.

A significant portion of the Project will provide space for needed clinical care expansion either in synergy with translational research in the BRI, or to fulfill other institutional and community goals.

4.4.2 Planning Goals

The 2005 Institutional Master Plan (IMP) described the Hospital's planning objectives and goals. The ultimate goals of all BWH facility initiatives are to improve the quality of the patient care environment, enhance patient comfort and ensure convenient access to BWH programs. BWH's collateral missions involving medical education, research and community service also affect the composition and configuration of campus facilities. Consequently, the IMP will address the needs of patients and clinicians, students, researchers and the community at large. These goals will inform the planning process and influence the development of facilities.

Like most academic medical centers in Boston, BWH has an imperative to optimize the utilization of its on-campus facility capacities while anticipating, and providing space for, new programs, technologies and clinical practice patterns. BWH's planning strategies reflect this reality.

- *Practice shift from inpatient to ambulatory programs.*
- *Functional correction and decompression.*
- *Operational improvement.*
- *Roll out new healthcare technology.*
- *Reuse and upgrading of existing space.*
- *Relocate less acute health care closer to suburban patient populations.*
- *Create excellence centers.*
- *Encourage translational research – "Bench to Bed" so patients benefit from new discoveries.*

- *Improve access for disabled patients and families.*
- *Use Green building technology.*
- *Support medical education.*
- *Attract world class doctors and clinical staff with state of the art facilities and research opportunities.*

The current Project meets the demand for expansion of research and teaching facilities and expanded clinical care, as well as serving the Hospital's institutional planning strategies.

4.5 Institutional Master Plan Background / Permitting History

BWH filed an Institutional Master Plan Notification Form (IMPNF) with the BRA pursuant to Article 80D of the Zoning Code in November 2001. The IMP was submitted to the BRA in August 2004 and revised in January 2005. The IMP was approved by the BRA Board in January 2005 and adopted by the Zoning Commission in February 2005. The term of the approved IMP is five years from 2005 to 2010.

The IMP proposed three projects:

- 70 Francis Street (Shapiro Cardiovascular Center) – The goals for the Shapiro Cardiovascular Center are to provide a healing environment for patients and their families and a supportive environment for hospital staff. The building contains specialty operating rooms for cardiac and vascular surgery, and thoracic surgery. The new operating rooms allow for the integration of diagnostic and therapeutic services. In addition, approximately 136 beds for cardiovascular patients (30 net new beds), and outpatient cardiovascular clinics are included in the project. The Shapiro Cardiovascular Center opened in April 2008.

- Brigham Green Enhancement and Parking – This IMP project includes the improvement of the Brigham Green by removing existing surface parking and the Biophysics building, and in its place creating a landscaped open space. The new Brigham Green will serve to welcome pedestrians coming from Brigham Circle/Huntington Avenue and improve pedestrian conditions and circulation on the campus. The area in front of the Peter Bent Brigham Hospital building at 15 Francis Street will become a new green space sloping gently down from the building's front entrance to Brigham Circle. The south-facing green space will provide an attractive setting for the building that is the recognized image of the hospital. The space will be able to be enjoyed by patients, staff, visitors and residents. The Brigham Green Enhancement and Parking Project will be completed prior to the start of construction of the Brigham and Women's Building.

- Amory Building Façade Improvements - Architectural elements are utilized to reinforce the visibility of the hospital entry. At 75 Francis Street, the bridge across Francis Street marks the main entrance to the hospital, and canopy systems associated with this bridge and attached to the existing walls of the Amory Building elegantly marks the main threshold of the BWH campus. As part of the Amory Building Façade Improvement project the visibility into and from the existing building has been improved. In addition, the new façade is projected forward to more clearly signal the main entrance to the hospital as it is approached along Francis Street. This project has been completed.

In 2007, BWH submitted an IMP update to the BRA and BTD was updated at the same time. As noted in the IMP update, BWH is proceeding with IMP projects and has made adjustments to the construction sequencing of certain Campus and Landscaping Improvements to minimize overall construction impacts upon patients, visitors, and neighbors of the Hospital.

To move forward with the proposed Brigham and Women's Building, BWH is submitting this IMPNF and will submit an IMP Amendment.

4.6 Current Amendment Description

4.6.1 New Construction

The Proponent proposes the demolition of existing site buildings and the construction of approximately 633,960 sf (as measured by the Boston Zoning Code) in four buildings (the Project). The Project includes the development of the Residential Building being developed by RTH as well as three additional buildings being developed by BWH two of which may be dedicated for use by DMH. They will include clinical, research and office uses, including replacement space for the MMHC. The zoning for the Residential Building will be authorized as previously mentioned. The Fenwood Inn/Partial Hospital will be exempt from local zoning as it is an exempt "essential governmental function" of DMH. Although part of the Project will be analyzed pursuant to Large Project Review in accordance with the terms of Article 80B, neither the Residential Building nor the Fenwood Inn/Partial Hospital will be included in the IMP, which will be reviewed pursuant to Article 80D of the Code.

The buildings included in the IMP are described below:

1. The Brigham and Women's Building which will be developed, managed and controlled by BWH will contain approximately 358,670 sf of space for research and development, clinical and offices uses by BWH and DMH. The Project will also contain 406 parking spaces located beneath the Brigham and Women's Building.

2. The Binney Street Building, which will be developed by BWH, comprises 56,540 sf of clinical and office space which will be utilized by BWH for outpatient uses. Pending the completion of construction of the Brigham and Women's Building, DMH will occupy the Binney Street Building until the DMH designated space within the Brigham and Women's Building is available. Upon completion of the Brigham and Women's Building, BWH will have a total of 358,670 sf and DMH will have 56,540 sf at the Binney Street Building or 52,750 sf at the Brigham and Women's Building.[14]

4.6.2 Campus Additions and Upgrades

Due to BWH's reputation of excellence in patient care, and the resulting projected growth in the size and acuity of the patient base, as well as the Hospital's commitment to education and research, BWH needs to renew existing facilities and expand its capacity for treatment with minor additions and upgrades to several of its existing buildings.

- Renovate and upgrade the Neo Natal Intensive Care unit.
- Renovate the ground floor of A-Building at 15 Francis Street for clinical support.
- Continue the renovation, modernization and decompression of inpatient bed units at the Inpatient Tower at 75 Francis Street. Create an inpatient oncology center of excellence with all private rooms. Regionalize and renovate Orthopedic, Neuroscience, Medicine and Surgery bed units.
- Expand the main public cafeteria.
- Expand the emergency department in two phases, short-term adding 12 new treatment bays, and long-term expansion into adjacent building, Nesson 1.
- Provide space for clinical testing, trials and dry research for expanded Sleep Lab.
- Expand Ultrasound imaging department.
- Expand Obstetric triage capacity for improved patient care.
- Create a level 1B Nursery for late term low birth weight infants.
- Expand Orthopedic and Rheumatology Clinic.
- Expand thoracic surgery clinic.

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[14] The difference in sf for the DMH space is due to the more efficient use of space which is possible given the design and configuration of the Brigham and Women's Building.

- Expand Outpatient Allergy Care.
- Create a Transplant Center of excellence around the integration of medicine and surgery for organ transplants.
- Make campus-wide improvements for accessibility and way-finding for the disabled.
- Improve the energy efficiency and environmental quality of the existing physical plant.
- Continue roll-out of new automated pharmacy equipment campus wide to meet USP 797.
- Add Linear Accelerator and Cyber knife rooms for advanced cancer treatments.
- Continue replacement of aging MRIs.
- Replace Cath lab imaging equipment.
- Expand Plastic Surgery and creation of a Wound Care Center.
- Expand Center for Preoperative Evaluation to meet growing surgery volume.
- Acquire and renovate additional lab space in HIM building.
- Renovate Inpatient thoracic surgery unit and provision of digital x-ray on the inpatient floor.
- Create Zebra fish Lab at 221 Longwood Avenue.
- Expansion of Surgical Planning Lab and other functional imaging projects.
- Decompression of on campus Endoscopy.
- Expansion of Inpatient dialysis.
- Renovate and provide automation for Clinical Lab.
- Create a 44th OR and continue renovation of existing ORs.
- Create Integrated Teaching Unit for Medical education.

These projects will enhance BWH's ability to provide the very best in patient care and create expanded research and training opportunities in keeping with its institutional goals.

4.6.3 Leased Space

In addition to the new space provided by the Project, BWH expects to require additional leased space off-site in the LMA for research, administration, support services, information systems, and other non-clinical areas. BWH plans to lease approximately 150,000 to 250,000 sf, depending upon its actual space needs as well as availability of suitable real estate. This space is expected to be located in existing buildings in the LMA or off-site in facilities that have been approved or are in construction. Due to space constraints, BWH has already moved many hospital functions to off-campus locations, including leased facilities in other parts of Boston and in Brookline.

4.7 Public Benefits

4.7.1 Community Benefits of BWH

BWH is one of the largest providers of Health Safety Net care to people without means to pay for health care in the Commonwealth. In FY 2008, more than $40 million worth of care was provided to approximately 3,000 patients. More than one-third of these patients came from Boston neighborhoods, including the communities of Dorchester, Mattapan, Jamaica Plain and Roxbury. At the same time, the hospital treated nearly 5,000 patients insured under Commonwealth Care.

BWH is also a major provider of health care for patients on Medicaid, providing more than $161 million worth of care to more than 25,000 patients in FY 2008. Nearly half of those patients were from Jamaica Plain, Dorchester, and Roxbury.

The following summarizes a few of BWH's Community Benefit programs. The IMP Amendment will include a more detailed listing of BWH's extensive community programs.

4.7.1.1 Integrated Youth Programs

BWH has taken a leadership role in crafting innovative programs to provide educational and employment opportunities to youth within the Mission Hill community. Examples of these programs are described below.

Health and Science Club in Elementary and Middle Schools

Since they were first offered in FY 2006, BWH organized Health and Science Clubs have provided science learning opportunities to over 200 students in the fourth, fifth, sixth, and seventh grades at three schools and one community center in Mission Hill.

In FY 2008, the Center for Community Health and Health Equity (CCHHE) coordinated Health and Science Clubs at Maurice J. Tobin School and Mission Grammar School. A total of 67 students participated. The Clubs provided an informal learning environment in which students worked with one another in small groups led by hospital employees on science

experiments and listened to presentations by guest speakers. The relaxed yet structured atmosphere of the Clubs promoted teamwork and produced cooperative learning experiences that increased science knowledge. The Clubs also familiarized students with new health careers and showed them the types of education and training necessary to pursue specific health career paths.

A total of 30 BWH employees were recruited to serve as classroom volunteers and as guest speakers for the Health and Science Clubs. The volunteers were recruited from 17 BWH departments and were trained to use the Boston Public Schools' (BPS) Youth Explorations in Science (Y.E.S.) curriculum, which aligns with the national science frameworks, enhances and reinforces the Science and Technology for Children and the Full Option Science System curricula (other BPS curricula), and addresses educational standards for engineering and technology. The Y.E.S. curriculum is also aligned with the science Massachusetts Comprehensive Assessment System (MCAS).

Science Works: Employment and Summer Science Lessons for 8th Grade Students

In FY 2008, ScienceWorks accepted 20 eighth-grade students to this volunteer, employment and academic program. Students were required to volunteer in a BWH department during June, and if their supervisors were satisfied with their performance, the students were offered paid positions to work 24 hours a week during July and August. Seventeen of twenty students were selected to participate over the summer. ScienceWorks also offered a series of five three-hour science lessons on the human brain that were held at BWH. The lessons were developed and taught by L. Todd Rose, Ph.D. of the Mind, Brain, and Education program at Harvard University and offered to 17 students from the Tobin School, Mission Grammar School and Roxbury Preparatory Charter School.

During these lessons, the students learned about neurons, the brain stem, and the hypothalamus. Additionally, they discussed the physiology of moods and emotions and how the mind acquires, stores, and retrieves information.

One week after each lesson, a test was administered to the students to determine how much information they learned and retained. Evaluation results show strong retention of science content knowledge. As part of the academic program, students were also required to write and submit research papers on neurology. Their paper topics included the following: memory, laughter, physical and emotional controls in the brain, fear, medulla oblongata, the hemispheres of the brain, the five senses, how art affects the brain, inhibitory control, sleep and dreams, and multiple intelligences.

Student Success Jobs Program: Internships for High School Students

In October 2008, 30 students were accepted into the Student Success Jobs Program (SSJP), joining 20 students who returned to SSJP from the previous year. SSJP is an after-school and summer work achievement program that is coordinated by BWH. Students are recruited from seven Boston public high schools in Mission Hill and Roxbury with which SSJP currently partners.

SSJP students work in a paid position within a hospital department ten hours a week during the school year and 25 hours per week in the summer. Students are matched with a BWH employee who serves as their mentor with students working in clinical and research labs, outpatient clinics and inpatients. In addition to working in the hospital and getting hands-on experience as well as attaining critical science skills, students are offered tutoring to maintain their academic success, attend monthly seminars, and submit written journals. SSJP students also have opportunities to shadow health care professionals in the emergency department, operating room, and on patient rounds.

Student Success Jobs Program: College Scholarships

In 2008, 16 high school seniors in SSJP received one-year college scholarships that were offered by BWH. Six students received $4,000 scholarships, four students received $2,000 scholarships, four students received $1,000 scholarships, and two students received $500 scholarships.

Student Success Jobs Program: Summer Internships for College Students

In FY 2008, BWH provided full-time summer internships for 12 college students. Eight graduates of SSJP, and four students from the Boston Private Industry Council's PS Health Care Program, all of whom are majoring in science and health fields, began their 10-week internships at BWH in June 2008. The students worked in the following hospital departments: Center for Surgery and Public Health, Labor and Delivery, Pathology, Intervention Radiology, Thoracic Surgery Research, Neo-Natal Intensive Care Unit, OB/GYN Clinic, Center for Women and Newborn, Lab Control and Allergy Lab, ,and Thoracic Surgery.

Health Careers Academy

In FY 2008, the CCHHE provided grant support to the Health Careers Engagement Project at Health Careers Academy (HCa), a Horace Mann Charter School that prepares students in the ninth through twelfth grades for careers in the health sciences. The goals of the Health Careers Engagement Project are to promote student knowledge of health care professions and work sites, increase the number of HCa students who enter college programs designed to prepare them for health careers, and expand the number and variety of internships and other workplace learning experiences that are available to HCa students.

During the 2007-2008 school years, the Health Careers Engagement Project organized a guest speaker series for ninth and tenth grade students at HCa. Twenty health care professionals presented in the fields of dentistry, emergency medicine, health care administration, health law, internal medicine, molecular research, nursing, obstetrics/gynecology, pharmacy, physical therapy, psychology, public health, radiology technology, social work, and surgical technology. Additionally, the ninth and tenth grade students made ten site visits to health work sites across Boston and 84 eleventh and twelfth grade students received internship placements. Eighty-five ninth, tenth and eleventh grade students were given job shadowing opportunities at health care organizations and 65 students in the tenth and eleventh grades received summer placements in health-related academic enrichment and work experience programs.

Of the HCa students who graduated in 2008, 30 (46 percent) intend to pursue careers in health care and to major in health or science fields. In addition to the 20 students who intend to pursue nursing, the fields in which these students have expressed interest include: pre-medicine, biology, biochemistry, psychology, pharmacy and speech pathology.

Brigham Book Buddy Program

The Brigham Book Buddy Program, since its inception in 1994, has been implemented in partnership with the Maurice J. Tobin School in Mission Hill. Each month, BWH employees volunteer their time to the program by visiting the Tobin School kindergarten through fifth grade classrooms and reading aloud to students. The Brigham Book Buddies read books selected by the classroom teachers. The goals of the program are to improve students' reading and listening skills, connect the students with health care professionals who serve as role models, and promote the school's literacy objectives. During the 2007-2008 school year, the Book Buddies read to 188 students in 11 classrooms and donated 77 books to the school.

Pen Pal Program

In FY2007, the CCHHE started a Pen Pal Program linking 46 elementary school students in Mission Hill with BWH employees. The program aims at facilitating reading and writing skills among students. In 2008, this successful program more than doubled to 108 second- and third-grade students at Mission Grammar School and the Tobin School who were matched with 108 BWH employees.

Tobin Full-Service School Model

In January 2005, the Tobin School and BWH began to explore the feasibility of developing a full-service school model, which would enable the Tobin School to offer a broader, more coordinated network of before-school and after-school programs for children and parents. As a result of these initial discussions, a task force was convened in FY 2006 to undertake a more thorough planning process.

The development of the Tobin extended school model has focused on the following six areas: Community Resource Assessment, Health Services, Learning Assessment and Evaluation, Mental Health Services, Out-of-School Time Family and Community Engagement.

The Tobin Family Support Center staff is responsible for carrying out the family and community engagement segment of the program. In FY 2007, they selected a curriculum, ordered materials, and conducted outreach in preparation for English as a Second Language (ESL) classes to be offered at the Tobin School. The classes continued in FY2008 with six parents attending classes. They held fall and spring Open Houses to introduce new parents to the school. Eighty-five parents attended the fall Open House in September 2007, and 55 parents attended the spring Open House in March 2008. The parenting partners also organized two bake sales by parents, an apple picking field trip for families, and movie nights for children and parents. Also, in the fall of 2008 the first Grandparents group was established to support the growing numbers of grandparents that act as the primary caretaker of Tobin School students. The group was started with a core of eight grandparents with plans to expand to other grandparents in the school.

4.7.1.2 Violence Screening, Treatment and Prevention Programs

Passageway, a domestic violence intervention program developed by the BWH CCHHE, was launched in 1997. In developing Passageway, the CCHHE created a program that would both incorporate the perspectives and experiences of women and assist the hospital in integrating screening for abuse and domestic violence interventions into routine health care.

Passageway has become a leader in integrating domestic violence advocacy services and training for health professionals into the health care system. In the fall of 2004, BWH expanded Passageway to its community sites at Faulkner Hospital and Southern Jamaica Plain Health Center. Since its inception, Passageway has responded to over 7,000 requests for advocacy services and trained nearly 10,000 health care providers and staff. During FY 2008, Passageway responded to a total of 967 BWH and Faulkner Hospital patients and employees experiencing domestic violence.

4.7.1.3 Community Jobs Access

Project Hope, a multi-service, non-profit agency, was selected to receive a one-year contract for case management services. Through this contract, Project Hope will provide outreach, case management, and follow-up to residents for Mission Hill and nearby neighborhoods. Interested residents will be screened and receive an assessment customized action plan and job search assistance. In addition they will have access to supportive referrals, job readiness workshops, adult education and ESOL classes at Project Hope.

4.7.1.4 Massachusetts League of Community Health Centers

In FY2008, BWH provided grant support to the Mass. League's Workforce Development, Training, and Human Resources Initiative. Through this initiative the Mass. League:

- held a conference on Clinical Quality and Health Disparities with 142 participants;
- supported the role of a workforce development manager;
- established a customer service task force;
- provided integrated health disparities and cultural competence awareness trainings to Healthcorps volunteers; and
- continued the development and delivery of ongoing training in cultural competence in health care diversity and disparities for community health centers.

4.7.1.5 BWH Employees and Workforce Development

BWH is a major employer in the Boston region, with a total of approximately 13,990 employees at the hospital, its neighborhood health centers, and facilities outside Boston. The hospital is also a major employer of Boston residents, with a total of 4,694 Boston residents employed at its facilities, representing 34 percent of total BWH employment.

At its facilities in the LMA, BWH employs approximately 9,593 Full-time Equivalent (FTE) employees. Over the next ten years, BWH expects employment at its facilities in the LMA to grow at an average annual rate of approximately two percent.

This level of growth would result in approximately 1,871 new FTE positions being created in the LMA by 2019. The construction of the Brigham and Women's Building will serve as the location for some of these new jobs. It is expected that the new positions will reflect the full range of employment opportunities currently available at the hospital.

In November 2006, BWH opened the HR One Stop Employment Center at 741 Huntington Avenue. This office is staffed with a full time recruiter and a full time Community Liaison. This is an example of BWH's unique commitment to bring job placement and recruiting opportunities to the community. BWH notes that the level of staff assistance provided exceeds the commitment set forth in the Cooperation Agreement with the BRA.

BWH continues its outreach efforts in the community and with the addition of a case manager. BWH will increase its success rate in placing people from the neighboring areas.

In 2007, BWH's new hires totaled 2,399 employees. Of these new hires, almost 53 percent were Boston residents and approximately ten percent lived in the Mission Hill area. BWH continued to make strides in local hiring in 2008. Of the 3,654 new hires, almost 37 percent were Boston residents and six percent were residents of the Mission Hill area.

BWH has undertaken significant efforts to attract and retain residents of the City of Boston, and in particular Mission Hill, to job opportunities and job training at BWH.

4.7.1.6 PILOT

BWH is currently making a Payment in Lieu of Tax (PILOT) contribution for the Nesson Ambulatory Services Building and Garage, the Thorn Building and the Shapiro Cardiovascular Center. In addition to the PILOT payments noted above, BWH has paid a M.G.L.c. 121A, Section 6A Excise Tax payment with respect to the Servicenter Garage and has entered into a PILOT agreement and will submit a PILOT payment on the Servicenter Garage, which PILOT is now in effect following the termination of the 121A approval.

4.7.1.7 Green Guide for Healthcare – LEED Silver Certification

Although BWH was not subject to compliance with the provisions of Article 37 of the Code at the time its IMP was approved, its building design and practices have exceeded the standards set forth in Article 37. BWH has been at the forefront of environmentally sustainable design in the City of Boston, and has been a leader among health care institutions in this regard. The BWH Shapiro Cardiovascular Center, which opened in April 2008, has officially obtained Silver designation in the U.S. Green Building Council's (USGBC) LEED program, making BWH the first hospital in New England and the largest and most advanced patient care center to achieve this honor.

In addition to its commitment to sustainable design and construction practices, BWH has demonstrated a corresponding commitment to care for Mission Hill's natural environment. The $10,000 which BWH contributes annually towards the upkeep and maintenance of Puddingstone Park is a significant contribution which evidences this commitment.

4.7.1.8 Linkage Payments

Under Section 80B-7 of the Code, projects that require zoning relief and that will devote more than 100,000 sf of space to "development impact uses," must make contributions to the City of Boston's Neighborhood Housing Trust and Neighborhood Jobs Trust. The proposed Project will make both a housing contribution grant and a jobs contribution grant to the Neighborhood Housing Trust and the Neighborhood Jobs Trust, respectively as required pursuant to Article 80B-7 of the Code.

Section 5.0
Coordination with Other Governmental Agencies

5.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

5.1 Massachusetts Environmental Policy Act

The Project will require review under the Massachusetts Environmental Policy Act (MEPA). An Environmental Notification Form (ENF) is being filed.

5.2 Massachusetts Historical Commission

In June 2003, DCAM, DMH, MHC and the Boston Landmarks Commission (BLC) entered into a Memorandum of Agreement (MOA) for the disposition and redevelopment of the MMHC Site. Additional information on the MOA is provided in Section 3.4.3.

Since the Project requires a land transfer (lease) and state permits, it is subject to review by the Massachusetts Historical Commission (MHC) in accordance with M.G.L., Chapter 9, Sec. 26-27c, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00). The ENF to be prepared as part of the MEPA process will be submitted to the MHC to initiate the Chapter 254 review process and the continued review process for the redevelopment of the Site as outlined in the 2003 MOA

5.3 Boston Landmarks Commission

In the City of Boston, complete or partial demolition of properties greater than 50 years old are subject to review in accordance with the Boston Landmarks Commission (BLC) Article 85 (Demolition Delay) ordinance. Because the Project will involve the demolition of buildings greater than 50 years old, the BLC's Article 85 (Demolition Delay) review will be required. The Proponent will consult with BLC staff and submit an Article 85 application at the appropriate time.

5.4 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.

5.5 Boston Civic Design Commission

The Project will comply with the provisions of Article 28 of the Boston Zoning Code. This PNF will be submitted to the Boston Civic Design Commission by the BRA as part of the Article 80 process.

5.6 Other Permits and Approvals

Section 2.6 of this IMPNF/PNF lists agencies from which permits and approvals for the Project are required to be sought.

5.7 Community Outreach

The Proponent is committed to effective community outreach and will engage the community to ensure public input on the Project. See Section 2.1 for further discussion of community involvement with BWH and RTH projects.

Section 6.0
Project's Certification

6.0 PROJECT'S CERTIFICATION

This form has been circulated to the Boston Redevelopment Authority as required by the Boston Zoning Code, Article 80.

Signature of Proponent's Representative

Girma Belay

Roxbury Tenants of Harvard Association, Inc.
11 New Winter Street
Boston, MA 02115

6/16/09
Date

Signature of Proponent's Representative

Arthur Mombourquette

The Brigham and Women's Hospital, Inc.
75 Francis Street
Boston, MA 02115

Signature of Preparer

Cindy Schlessinger

Epsilon Associates, Inc.
3 Clock Tower Place, Suite 250
Maynard, MA 01754
(978) 897-7100

6/10/09
Date

Appendix A
RTH History

APPENDIX A – RTH HISTORY

Roxbury Tenants of Harvard History

In 1964, Mission United Neighborhood Improvement Team (MUNIT), the predecessor to Roxbury Tenants of Harvard, held a rally at the State House protesting the expansion of the LMA at the expense of 700 residential homes. This was part of the battle by Boston neighborhoods against the Boston Redevelopment Authority's plans for urban renewal. This was the early stage of what became a 15-year battle for control of Mission Hill between the "institutions" and the working class residents of Mission Hill.

In 1969, Harvard University students, protesting the Vietnam War, decided to include "No Expansion" by Harvard Medical School or its affiliated hospitals into Mission Hill as one of their Strike's demands. The students won their strike and joined with the MUNIT groups and other organizers in the community over the next several years, leading to the formation of Roxbury Tenants of Harvard Association, Inc.

What ensued over the subsequent 35 years is a process of confrontation and eventually collaboration between RTH, Brigham and Women's Hospital and Harvard that has changed the entire structure and function of the western LMA and the adjacent residential neighborhood to control and direct over $1 billion in institutional and residential development resulting in 1.5 million square feet of new and preserved mixed-income housing and 1.8 million square feet of institutional development that, to an unusual extent, respects its residential neighbors.

RTH's Development Experience

Mission Park

Mission Park was originally financed and constructed in 1975-8 to ensure affordable housing for hundreds of families and elderly residents in the Brigham Circle section of Roxbury and will continue in that role.

RTH participated as a general partner in the 775 unit Mission Park development with two private developer partners, actively engaged in all aspects of the development including programming, team assembly, design, permitting, financing and planning for services. Because of the impact on Massachusetts in the mid 70's of the oil crisis and the legislature's refusal to fund the 13A program in 1975, MHFA could not issue the bonds for Mission Park and Harvard had to in effect guarantee repayment of the Ginnie MAE issue even with the HUD insurance. As a result, Harvard and its investor partner, Citicorp, became the controlling interest in the property and RTH's post closing role was as provider of a wide array of social services to the property, as an active board member in the corporate entity that owns the property and holder of a right to purchase Harvard's stock in that entity.

In 1999, RTH raised $70 million in financing, bought Mission Park from Harvard and performed $20 million in repairs. Mission Park is now a substantially improved development in excellent condition with 90% of its homes occupied by households with incomes below 60% of median. It is the largest and most effective example in the Commonwealth of resident-controlled low-income housing.

Restoration Housing.

RTH was able, after an eight-year struggle, to lease the houses Harvard owned on Fenwood Road and Francis Street and rehabilitate the properties. With the assistance of Greater Boston Community Development (GBCD) (now known as The Community Builders), RTH was able to negotiate a 50-year lease for $8,500 for 17 buildings containing 81 apartments in poor condition, raise over $1 million in equity investment, borrow $4 million, obtain a project-based section 8 contract for all units, and HUD insurance for the debt.

RTH hired the architect, builder and other development team members and participated in negotiating with all parties to obtain public approvals, arrange financing, oversee the design and contracting process, supervise the construction phase and satisfy the requirements for permanent financing.

With initial property management by GBCD, RTH formed its own property management organization and won HUD approval to assume full control of property management in 1987. Since inception, RTH has operated Restoration Housing on behalf of low-income families without any default or delinquency, and meets or exceeds all agency and lender requirements for performance.

In 2002, RTH arranged with HUD, BWH and the residents for 6 of these 17 buildings to be moved to other lots in the neighborhood owned by BWH. As part of the transaction, RTH received from BWH $5 million of additional property in the neighborhood.

RTH Community Housing

In 1983, RTH acquired 67 units of largely occupied homes in wood frame houses on the same Fenwood and Francis Streets for $1. RTH also organized the residents into a limited equity co-op. Working with GBCD, the co-op raised conventional debt, arranged for section 167(k) equity investment, and no rental subsidy, arranged for moderate rehabilitation without a general contractor, employing a construction manager and contracting directly with subs.

RTH assumed responsibility for property management of RTH Community Housing in 1987, and has continued to maintain and operate the property with resident participation.

In 2002, RTH assumed ownership of the property from the Co-op in exchange for buying out the limited partner interests and extinguishing its $5 million seller note. The property is now operated as a moderate-income rental property.

RTH Community Apartments

As a part of the swap of land with BWH in 2002 described in part above, RTH received 20 apartments and 5 stores. In 2003-4, RTH obtained commitments of state, City, investor and lender funds to rehabilitate these properties and rent them to low, moderate and market-rate tenants as well as several local businesses.

As an experienced developer and owner of affordable housing in the community, the ownership team has an impressive track record. RTH has the capacity to assemble all the financing necessary for the financing and construction of affordable housing to the highest standards. RTH has a strong track record of successful construction management of small, medium and large, complex, mixed-finance affordable housing developments, making them well suited to oversee the proposed creation of affordable housing at the Mass Mental Health site. Along with its consultants, the RTH team has extensive experience in all aspects of affordable housing creation and operation and will meet the challenges and capture the extensive opportunities the site represents.

Social Services Experience and Capability

During RTH's 30-year involvement as part of the development and management team at Mission Park, RTH has raised funds and organized and implemented several important social service programs benefiting the residents of the neighborhood. RTH employs more than 30 people in social services, and operates programs for senior citizens, children and youth.

The senior programs include education and health outreach, recreational and social programming and transportation. The programs on the property for young people include day care, after school care, summer camp, supervised swimming in Mission Park's swimming pool and other recreational and educational programming. RTH also has created a professionally staffed day and evening Computer Learning Center that operates classes for all age groups and skill levels, a teen program, aerobics and yoga for adults, intergenerational art and music classes, sports leagues and numerous other programs. The library at Mission Park is also staffed by RTH.

There are extensive tenant supportive services available in the community to serve the tenants of the proposed moderate-income development including three on-site social workers and one intern. The property itself will pay only a fraction of the cost of these services. RTH notifies tenants on a regular basis of opportunities for education and employment training, as well as other important services. RTH offers an exceptional range of programs from which residents can choose.

Programs are paid for by RTH from its commercial rents, grants (including a large multi-year commitment from Brigham and Women's Hospital) as well as support from fees for service and cash flow from its properties.

In addition, a new 10,000+ square foot community center partially funded by BWH that will include job training, education and a variety of services will be located within the residential property to be built on the Mass Mental Health Center site to be developed and operated by RTH.

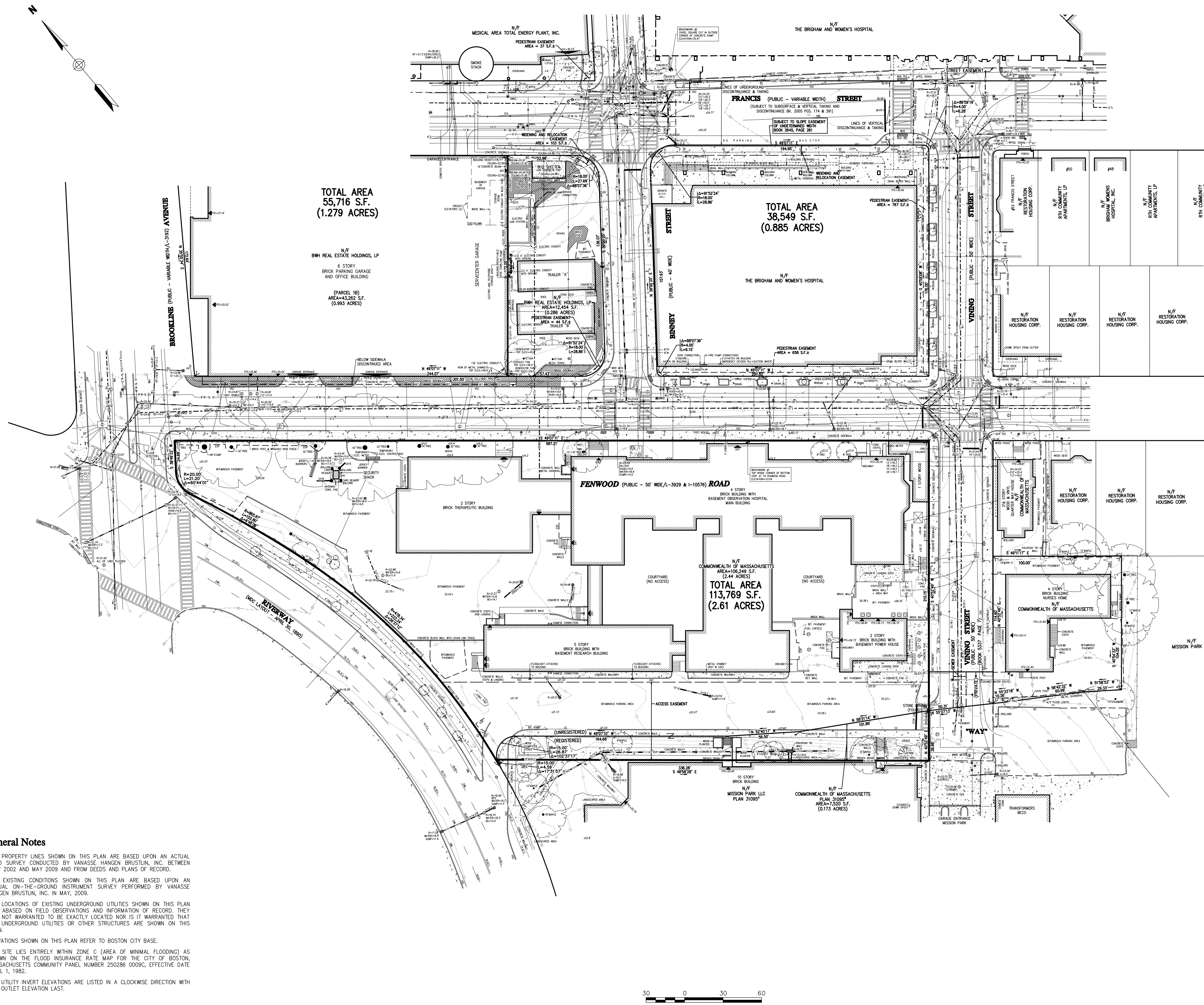
Resident Participation

Roxbury Tenants of Harvard Association, Inc. is a resident-controlled organization. Any resident of the neighborhood who is over 18 years old can vote in elections for the Board of Directors for RTH. Board members serve two-year terms and must also be neighborhood residents.

In addition to involvement in construction and management decisions, an important component of resident control is to offer tenants the opportunity to develop their life and work skills. RTH always seek to identify residents who want to take an active role in managing its properties, either as volunteers or in more formal positions, and those who want to take advantage of the job readiness and skill development opportunities offered by RTH.

Appendix B

Existing Site Survey Plan



General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL FIELD SURVEY CONDUCTED BY VANASSE HANGEN BRUSTLIN, INC. BETWEEN JULY 2002 AND MAY 2009 AND FROM DEEDS AND PLANS OF RECORD.
2) THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON–THE–GROUND INSTRUMENT SURVEY PERFORMED BY VANASSE HANGEN BRUSTLIN, INC. IN MAY, 2009.
3) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE ABASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.
4) ELEVATIONS SHOWN ON THIS PLAN REFER TO BOSTON CITY BASE.
5) THE SITE LIES ENTIRELY WITHIN ZONE C (AREA OF MINIMAL FLOODING) AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE CITY OF BOSTON, MASSACHUSETTS COMMUNITY PANEL NUMBER 250286 0009C, EFFECTIVE DATE APRIL 1, 1982.
6) THE UTILITY INVERT ELEVATIONS ARE LISTED IN A CLOCKWISE DIRECTION WITH THE OUTLET ELEVATION LAST.

Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Services

101 Walnut Street, P.O. Box 9151
Watertown, Massachusetts 02471-9151
617 924 1770 • FAX 617 924 2286

Legend

- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HH HANDHOLE
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY WIRE
- GUY POLE
- FFE=32.18' FIRST FLOOR ELEVATION
- MW MONITORING WELL
- EOP EDGE OF PAVEMENT
- CC CONCRETE CURB
- VGC VERTICAL GRANITE CURB
- SGE SLOPED GRANITE EDGE
- BB BITUMINOUS BERM
- GUARD RAIL
- CHAIN LINK FENCE
- DRAINAGE LINE
- SEWER LINE
- OHW OVERHEAD WIRE
- E UNDERGROUND ELECTRIC
- T TELEPHONE LINE
- G GAS LINE
- W WATER LINE
- STONEWALL
- TREELINE

No.	Revision	Date	Appvd.

Designed by	Drawn by	Checked by
CAD checked by	Approved by	
Scale 1"=30'	Date May 27, 2009	

Project Title

Brigham & Women's Massachusetts Mental Hospital

Boston, Massachusetts

Issued for

Drawing Title

Existing Conditions Plan of Land

Drawing Number

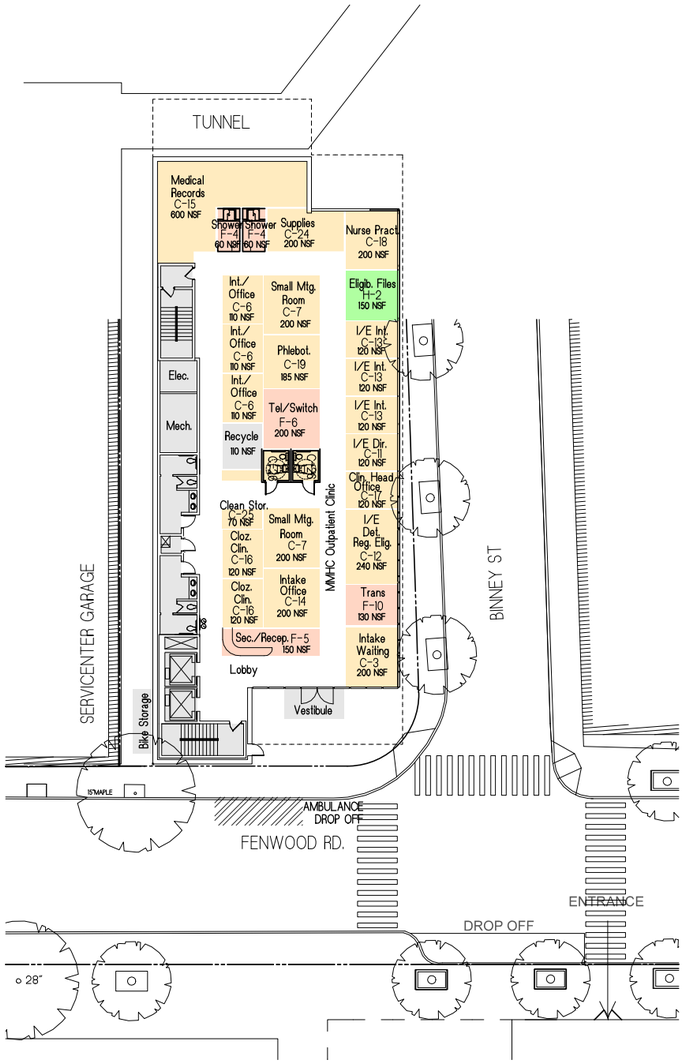
Sv-1

Sheet 1 of 1

Project Number **10568.00**

Appendix C

Floor Plans / Additional Graphics



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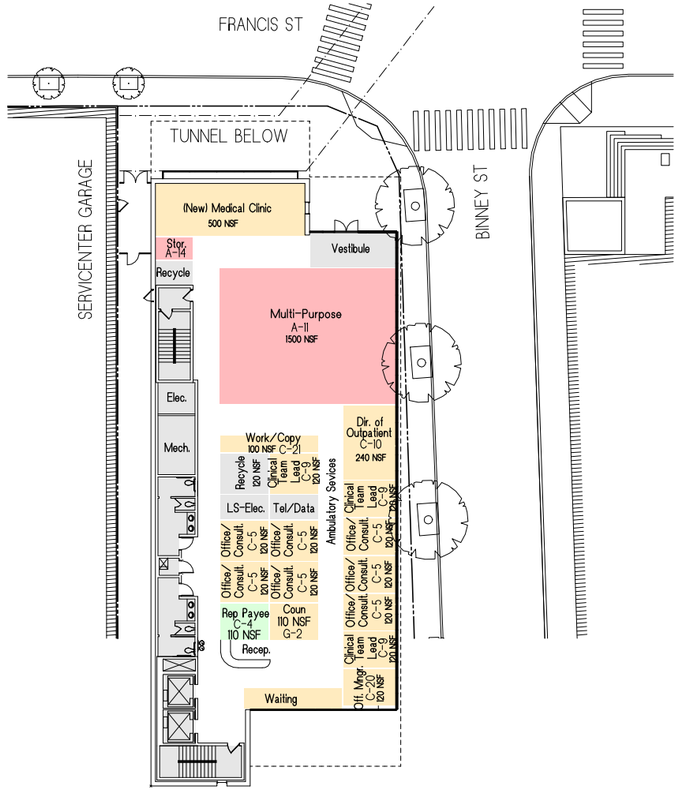

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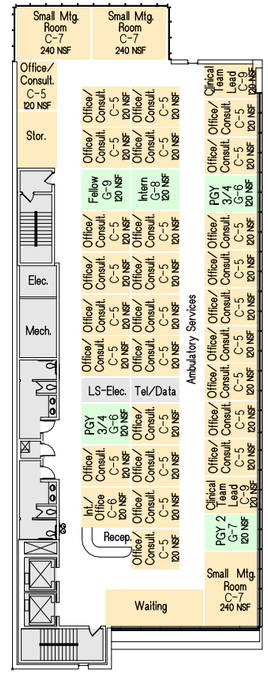


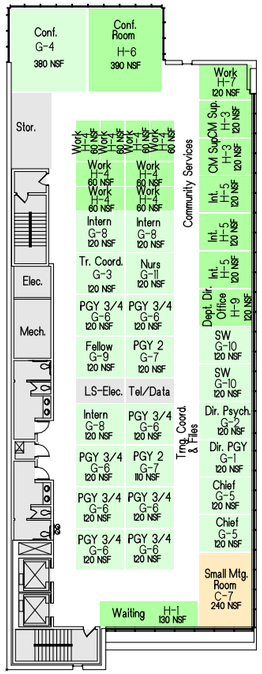
LEVEL 3: 9,865 GSF

LINEA 5, inc.
Boston, MA • Miami Beach, FL

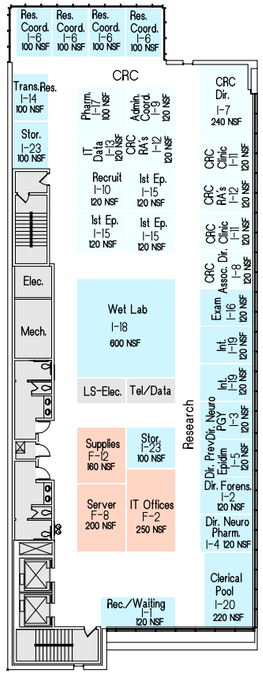
tat | the architectural team

MMHC BINNEY ST. BUILDING

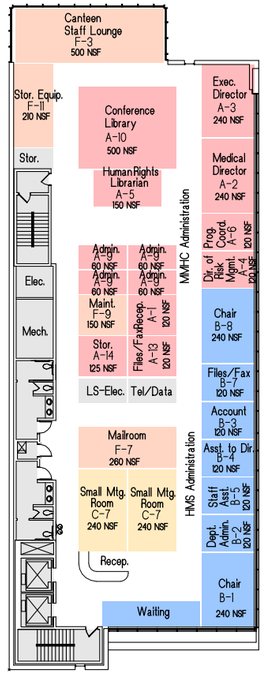
SCALE: 1/32"=1'-0" May 29, 2009 Brigham & Women's Hospital MMHC Redevelopment



LEVEL 4: 9,865 GSF



LEVEL 5: 9,865 GSF



LEVEL 6: 9,865 GSF

TOTAL AREA:
56,540 GSF

LINEA 5, inc.
Boston, MA • Miami Beach, FL

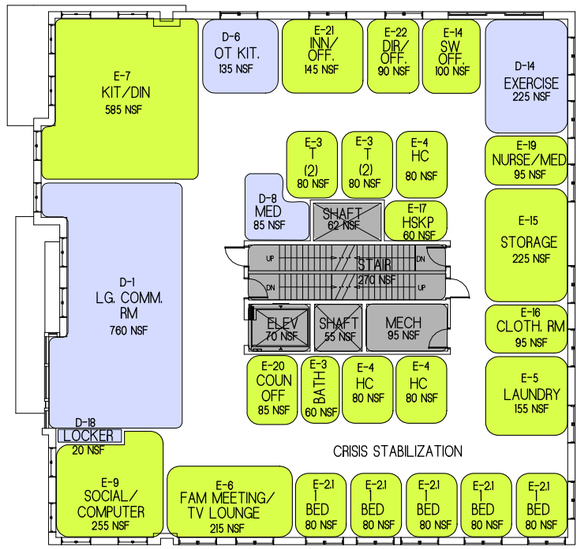
tat | the architectural team

MMHC BINNEY ST. BUILDING **SCALE: 1/32"=1'-0"** **May 29, 2009** **Brigham & Women's Hospital** **MMHC Redevelopment**

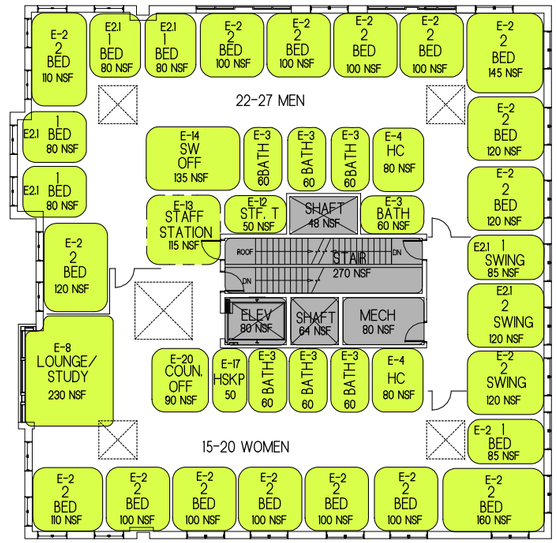
LINEA 5, inc.
Boston, MA • Miami Beach, FL

tat | the architectural team

MMHC VINING STREET BUILDING SCALE: 1"=20' May 29, 2009 Brigham & Women's Hospital MMHC Redevelopment



LEVEL 2: 6,890 GSF



LEVEL 3: 6,890 GSF

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MMHC VINING STREET BUILDING SCALE: 1"=20' May 29, 2009 Brigham & Women's Hospital MMHC Redevelopment

Appendix D

LEED Checklists and Narratives

Mass Mental Health Center Redevelopment
Brigham and Women's Hospital Building
LEED-NC Project Checklist for LEED CERTIFIABLE
Boston, MA

Yes	?	No			
8		**6**	**Sustainable Sites**		**14** Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
		1	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		1	Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
		1	Credit 4.4	**Alternative Transportation**, Parking Capacity	1
		1	Credit 5.1	**Site Development,** Protect of 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			
3		**2**	**Water Efficiency**		**5** Points
1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
1			Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
		1	Credit 2	**Innovative Wastewater Technologies**	1
1			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
		1	Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
6	**2**	**1**	**Energy & Atmosphere**		**17** Points
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
3	1		Credit 1	**Optimize Energy Performance**	1 to 10
		1	Credit 2	**On-Site Renewable Energy**	1 to 3
1			Credit 3	**Enhanced Commissioning**	1
1			Credit 4	**Enhanced Refrigerant Management**	1
1			Credit 5	**Measurement & Verification**	1
	1		Credit 6	**Green Power**	1

Yes	?	No			
2	**2**	**9**	**Materials & Resources**		**13** Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
		1	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1

Mass Mental Health Center Redevelopment
Brigham and Women's Hospital Building
LEED-NC Project Checklist for LEED CERTIFIABLE

Boston, MA

		1	Credit 1.3	**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 Region	1
	1		Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Region	1
		1	Credit 6	**Rapidly Renewable Materials**	1
		1	Credit 7	**Certified Wood**	1

Yes ? No

10 2 3 Indoor Environmental Quality — 15 Points

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**, Carpet 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

3 1 1 Innovation & Design Process — 5 Points

1			Credit 1.1	**Innovation in Design**: Green Bldg Education/Education Outreach	1
1			Credit 1.2	**Innovation in Design**: Exemplary Commuter Choice	1
	1		Credit 1.3	**Innovation in Design**: Exemplary Development Density	1
		1	Credit 1.4	**Innovation in Design**: Provide Specific Title	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes ? No

32 7 22 Project Totals (pre-certification estimates) — 69 Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

BRIGHAM AND WOMEN'S HOSPITAL BUILDING LEED NARRATIVE

The Proponent will prioritize the following credits from the LEED building rating system in order to achieve a level of LEED CERTIFIABLE Certification per Article 37 of the Boston Zoning Code for the Brigham and Women's Hospital Building. Each credit will be evaluated by the Project team on an on-going basis through all of the design and construction phases of the Project.

The total number of points required for CERTIFIABLE Certification is 26. The LEED checklist currently identifies 32 points.

SUSTAINABLE SITES (SS)

SS P1 Construction Activity Pollution Prevention - An erosion and sedimentation control plan for all construction activities will be created and implemented.

SS C1 Site Selection - The Project location avoids development of an environmentally sensitive site and reduces environmental impact by using a previously developed urban site.

SS C2 Development Density & Community Connectivity - The Project is located on a previously developed site in an existing urban area that meets the density requirements of option 1 requiring a minimum density of 60,000 sq. ft. per acre net.

SS C4.1 Alternative Transportation, Public Transportation Access - The Project location utilizes the required public transportation access requirements for this credit by locating within 1/2 mile of an existing subway stop.

SS C4.2 Alternative Transportation, Bicycle Storage & Changing Rooms - The Project intends to include secure bike racks or storage for at least 5% of the building users and provide shower and changing facilities for 0.5% of the full-time equivalent occupants in the building.

SS C6.1 Stormwater Design, Quantity Control -The Project intends to implement strategies consistent with option 2 and reduce the pre-development rate and quantity of stormwater discharge by at least 25%.

SS C6.2 Stormwater Design, Quality Control -The Project intends to implement a stormwater management plan that identifies strategies to capture and treat the stormwater runoff from 90% of the average annual rainfall.

SS C7.1 Heat Island Effect, Non-Roof - The Project intends to meet this credit through option 2 by placing more than 50% of the parking spaces below ground and within the footprint of the Brigham Research Clinical Building.

SS C7.2 Heat Island Effect, Roof - The Project intends to meet this credit through option 3 by installing a combination of vegetated roof surfaces and high albedo roof surfaces such as white pvc roofing.

WATER EFFICIENCY (WE)

WE C1.1 Water Efficient Landscaping, Reduce by 50% - The requirements of this credit will be met with credit WE C1.2 below.

WE C1.2 Water Efficient Landscaping, No Potable Use or No Irrigation - The Project intends to eliminate the use of potable water, or other natural surface or subsurface water resources for landscape irrigation.

WE C3.1 Water Use Reduction, 20% Reduction - It is the intent of the Project to use 20% less water than the minimum fixture performance requirements specified for water closets, urinals, lavatory faucets, showers, and kitchen sinks.

ENERGY AND ATMOSPHERE (EA)

EA P1 Fundamental Commissioning of the Building Energy Systems - The Project intends to follow the requirements for fundamental commissioning as described by this prerequisite.

EA P2 Minimum Energy Performance - The Project intends to establish a minimum level of energy performance by complying with the specified provisions of ASHRAE/IESNA Standard 90.1-2004 and will be demonstrated by the computer simulation model used for EA Credit 1.

EA P3 Fundamental Refrigerant Management - It is the intent of the Project to use zero CFC-based refrigerants in the new base building HVAC&R systems.

EA C1 Optimize Energy Performance - The Project intends to optimize energy performance by conducting whole building energy simulations, option 1, and improve the buildings performance by at least 17.5% over the baseline building performance rating.

EA C3 Enhanced Commissioning - It is the intent of the Project to implement the additional commissioning activities as outlined in this credit.

EA C4 Enhanced refrigerant Management - It is the intent of the Project to follow option 2 and select refrigerants and HVAC&R that comply with the referenced formula.

EA C5 Measurement & Verification - The Project intends to implement a Measurement and Verification Plan as specified by this credit for a period of no less than one year from the point of occupancy.

MATERIALS AND RESOURCES (MR)

MR P1 Storage & Collection of Recyclables - The Project intends to provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including paper, corrugated cardboard, glass, plastics and metals at a minimum.

MR C2.1 Construction Waste Management, Divert 50% from Disposal - The Project intends to recycle and/or salvage at least 50% of non-hazardous construction and demolition debris through the implementation of a construction waste management plan.

MR C4.1 Recycled Content, 10% (post-consumer + ½ pre-consumer) - The Project intends to document the recycled content of all building materials and maintain or exceed the required recycled content for this credit.

INDOOR ENVIRONMENTAL QUALITY (EQ)

EQ P1 Minimum IAQ Performance - The Project intends to design the ventilation systems to meet the minimum outdoor air ventilation rates specified by this credit.

EQ P2 Environmental Tobacco Smoke (ETS) Control - The Project intends to minimize exposure to Environmental Tobacco Smoke through option 1, to prohibit smoking in the building and locate any exterior designated smoking areas at least 25 feet from entries, air intakes, and operable windows.

EQ C1 Outdoor Air Delivery Monitoring - The Project will consider permanent monitoring systems with feedback as part of the ventilation system to monitor carbon dioxide concentrations in densely occupied spaces and measure outdoor air flow rates to non-densely occupied spaces as specified in this credit.

EQ C2 Increased Ventilation - The Project intends to increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by the referenced standard for this credit.

EQ C3.1 Construction IAQ Management Plan, During Construction - The Project intends to develop and implement an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the building as follows: during construction meet or exceed the recommended control measures, protect stored on-site or installed absorptive materials from moisture damage, and use filtration media with a MERV of 8 shall be used at each return air grille and replaced immediately prior to occupancy if permanently installed air handlers are used during construction.

EQ C3.2 Construction IAQ Management Plan, Before Occupancy - As part of the Indoor Air Quality Management Plan in credit EQ C3.1, the Project intends to coordinate a flush-out during the pre-occupancy phase of the plan as required by option 1.

EQ C4.1 Low-Emitting Materials, Adhesives & Sealants - It is the intent of the Project that all interior adhesives and sealants will meet the requirements of their respective reference standard listed under this credit for VOC limit.

EQ C4.2 Low-Emitting Materials, Paints & Coatings - It is the intent of the Project that all interior paints and coatings will meet the VOC limits indicated by the reference standards listed under this credit.

EQ C4.3 Low-Emitting Materials, Carpet Systems - It is the intent of the Project that all carpet systems will be selected to meet the requirements of the reference standards listed under this credit.

EQ C4.4 Low-Emitting Materials, Composite Wood & Agrifiber Products - It is the intent of the Project that all composite wood and agrifiber products and other materials listed under this credit that are used on the interior of the building will contain no added urea-formaldehyde resins.

EQ C5 Indoor Chemical & Pollutant Source Control - The Project intends to minimize building occupant exposure to potentially hazardous particulates and chemical pollutants by designing pollutant control measures at building entries and ventilating regularly occupied spaces as required by the credit.

EQ C6.1 Controllability of Systems, Lighting - The Project intends to provide a high level of lighting system control by integrating lighting systems controllability into the overall lighting design while managing the overall energy use of the building. This includes both schemes for individual lighting controls and controllability of multi-occupant spaces to allow adjustments to be made to meet group needs and preferences.

INNOVATION AND DESIGN PROCESS (ID)

ID C1.1 Innovation in Design: Implement Green Building Education and/or Education Outreach program - To be determined.

ID C1.2 Innovation in Design: Exemplary Commuter Choice - The Project location along with a transportation management plan may demonstrate a quantifiable reduction in personal automobile use through multiple alternative options.

ID C2 LEED® Accredited Professional - It is the intent of the Project to maintain a LEED Accredited Professional as an active participant in the Project to assist in integrating the requirements of LEED and streamlining the application and certification process.

Mass. Mental Health Center Redevelopment
MMHC Fenwood Inn/Partial Hospital Building
Article 37 Project Checklist
Boston, MA

Yes	?	No			
5	**3**	**6**	**Sustainable Sites**		**14** Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
		1	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		1	Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
		1	Credit 4.4	**Alternative Transportation**, Parking Capacity	1
		1	Credit 5.1	**Site Development,** Protect of 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			
2	**2**	**1**	**Water Efficiency**		**5** Points
1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
1			Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
	1		Credit 2	**Innovative Wastewater Technologies**	1
	1		Credit 3.1	**Water Use Reduction**, 20% Reduction	1
		1	Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
3	**4**	**2**	**Energy & Atmosphere**		**17** Points
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
3	1		Credit 1	**Optimize Energy Performance**	1 to 10
		1	Credit 2	**On-Site Renewable Energy**	1 to 3
	1		Credit 3	**Enhanced Commissioning**	1
	1		Credit 4	**Enhanced Refrigerant Management**	1
	1		Credit 5	**Measurement & Verification**	1
		1	Credit 6	**Green Power**	1

Yes	?	No			
2	**2**	**9**	**Materials & Resources**		**13** Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
		1	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
		1	Credit 1.3	**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 Region	1
		1	Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Region	1
		1	Credit 6	**Rapidly Renewable Materials**	1
	1		Credit 7	**Certified Wood**	1

Yes	?	No			
10	**3**	**2**	**Indoor Environmental Quality**		**15** Points
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**, Carpet 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	**1**		**Innovation & Design Process**		**5** Points
1			Credit 1.1	**Innovation in Design**: Green Bldg Education/Education Outreach	1
1			Credit 1.2	**Innovation in Design**: Exemplary Commuter Choice	1
1			Credit 1.3	**Innovation in Design**: Exemplary Development Density	1
	1		Credit 1.4	**Innovation in Design**: TBD	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No			
		4	**Boston Green Building Credits**		**4** Points
N			Prereq 1	**Construction Air Pollution Control Plan**	Required for BGBC
N			Prereq 2	**Outdoor Construction Management Plan**	Required for BGBC
N			Prereq 3	**Pest Management Plan**	Required for BGBC
		1	Credit 1	**Modern Grid**	1
		1	Credit 2	**Historic Preservation**	1
		1	Credit 3	**Groundwater Recharge**	1
		1	Credit 4	**Modern Mobility**	1

Yes	?	No		
26	**15**	**24**	**Project Totals (pre-certification estimates)**	**69** Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

PARTIAL HOSPITAL / FENWOOD INN LEED NARRATIVE

The Project team will prioritize the following credits from the LEED building rating system in order to be LEED Certifiable with 26 points for the Partial Hospital / Fenwood Inn. Each credit will be evaluated by the Project team on an on-going basis through all of the design and construction phases of the Project.

SUSTAINABLE SITES (SS)

SS P1 Construction Activity Pollution Prevention - An erosion and sedimentation control plan for all construction activities will be created and implemented.

SS C1 Site Selection - The Project location avoids development of an environmentally sensitive site and reduces environmental impact by using a previously developed urban site.

SS C2 Development Density & Community Connectivity - The Project is located on a previously developed site in an existing urban area that meets the density requirements of option 1 requiring a minimum density of 60,000 sq. ft. per acre net.

SS C4.1 Alternative Transportation, Public Transportation Access - The Project location utilizes the required public transportation access requirements for this credit by locating within 1/2 mile of an existing subway stop.

SS C4.2 Alternative Transportation, Bicycle Storage & Changing Rooms - The Project intends to include secure bike racks or storage for at least 5% of the building users and provide shower and changing facilities for 0.5% of the full-time equivalent occupants in the building within 200 yards of the building entrance. Portions of this credit may be shared with the BRCB/MMHC building.

SS C7.2 Heat Island Effect, Roof - The Project intends to meet this credit through option 1 by installing high albedo roof surfaces such as white pvc roofing for a minimum of 75% of the roof surface.

WATER EFFICIENCY (WE)

WE C1.1 Water Efficient Landscaping, Reduce by 50% - The requirements of this credit will be met with credit WE C1.2 below.

WE C1.2 Water Efficient Landscaping, No Potable Use or No Irrigation - The Project intends to eliminate the use of potable water, or other natural surface or subsurface water resources for landscape irrigation.

ENERGY AND ATMOSPHERE (EA)

EA P1 Fundamental Commissioning of the Building Energy Systems - The Project intends to follow the requirements for fundamental commissioning as described by this prerequisite.

EA P2 Minimum Energy Performance - The Project intends to establish a minimum level of energy performance by complying with the specified provisions of ASHRAE/IESNA Standard 90.1-2004 and will be demonstrated by the computer simulation model used for EA Credit 1.

EA P3 Fundamental Refrigerant Management - It is the intent of the Project to use zero CFC-based refrigerants in the new base building HVAC&R systems.

EA C1 Optimize Energy Performance - The Project intends to optimize energy performance by following option 3 to comply with the prescriptive measures identified in the Advanced Building Core Performance Guide.

MATERIALS AND RESOURCES (MR)

MR P1 Storage & Collection of Recyclables - The Project intends to provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including paper, corrugated cardboard, glass, plastics and metals at a minimum.

MR C2.1 Construction Waste Management, Divert 50% from Disposal - The Project intends to recycle and/or salvage at least 50% of non-hazardous construction and demolition debris through the implementation of a construction waste management plan.

MR C4.1 Recycled Content, 10% (post-consumer + ½ pre-consumer) - The Project intends to document the recycled content of all building materials and maintain or exceed the required recycled content for this credit.

INDOOR ENVIRONMENTAL QUALITY (EQ)

EQ P1 Minimum IAQ Performance - The Project intends to design the ventilation systems to meet the minimum outdoor air ventilation rates specified by this credit.

EQ P2 Environmental Tobacco Smoke (ETS) Control - The Project intends to minimize exposure to Environmental Tobacco Smoke through option 1, to prohibit smoking in the building and locate any exterior designated smoking areas at least 25 feet from entries, air intakes, and operable windows.

EQ C3.1 Construction IAQ Management Plan, During Construction - The Project intends to develop and implement an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the building as follows: during construction meet or exceed the

recommended control measures, protect stored on-site or installed absorptive materials from moisture damage, and use filtration media with a MERV of 8 shall be used at each return air grille and replaced immediately prior to occupancy if permanently installed air handlers are used during construction.

EQ C3.2 Construction IAQ Management Plan, Before Occupancy - As part of the Indoor Air Quality Management Plan in credit EQ C3.1, the Project intends to coordinate a flush-out during the pre-occupancy phase of the plan as required by option 1.

EQ C4.1 Low-Emitting Materials, Adhesives & Sealants - It is the intent of the Project that all interior adhesives and sealants will meet the requirements of their respective reference standard listed under this credit for VOC limit.

EQ C4.2 Low-Emitting Materials, Paints & Coatings - It is the intent of the Project that all interior paints and coatings will meet the VOC limits indicated by the reference standards listed under this credit.

EQ C4.3 Low-Emitting Materials, Carpet Systems - It is the intent of the Project that all carpet systems will be selected to meet the requirements of the reference standards listed under this credit.

EQ C4.4 Low-Emitting Materials, Composite Wood & Agrifiber Products - It is the intent of the Project that all composite wood and agrifiber products and other materials listed under this credit that are used on the interior of the building will contain no added urea-formaldehyde resins.

EQ C5 Indoor Chemical & Pollutant Source Control - The Project intends to minimize building occupant exposure to potentially hazardous particulates and chemical pollutants by designing pollutant control measures at building entries and ventilating regularly occupied spaces as required by the credit.

EQ C6.1 Controllability of Systems, Lighting - The Project intends to provide a high level of lighting system control by integrating lighting systems controllability into the overall lighting design while managing the overall energy use of the building. This includes both schemes for individual lighting controls and controllability of multi-occupant spaces to allow adjustments to be made to meet group needs and preferences.

EQ C6.2 Controllability of Systems, Thermal Comfort - The Project team will explore the feasibility of providing a high level of thermal comfort system control by individuals or specific groups to promote the productivity, comfort, and well-being of building occupants as specified by this credit.

EQ C8.2 Daylight & Views, Views for 90% of Spaces - The Project intends to design the spaces and locate vision glazing to provide a direct line of sight to the outdoor environment for 90% of the regularly occupied spaces.

INNOVATION AND DESIGN PROCESS (ID)

*ID C1.1 *Innovation in Design: Implement Green Building Education and/or Education Outreach program* - To be determined.

*ID C1.2 *Innovation in Design: Exemplary Commuter Choice* - The Project location along with a transportation management plan may demonstrate a quantifiable reduction in personal automobile use through multiple alternative options.

*ID C1.3 *Innovation in Design: Exemplary Development Density* - To be determined.

ID C2 LEED® Accredited Professional - It is the intent of the Project to maintain a LEED Accredited Professional as an active participant in the Project to assist in integrating the requirements of LEED and streamlining the application and certification process.

LEED-NC Version 2.2 Project Checklist with Boston Green Building Credits

RTH - Residential

Boston, MA

Yes	?	No			
9	**1**	**4**	**Sustainable Sites**		**14** Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
		1	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		1	Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
		1	Credit 5.1	**Site Development,** Protect of 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			
	3	**2**	**Water Efficiency**		**5** Points
	1		Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
	1		Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
		1	Credit 2	**Innovative Wastewater Technologies**	1
	1		Credit 3.1	**Water Use Reduction**, 20% Reduction	1
		1	Credit 3.2	**Water Use Reduction**, 30% Reduction	1
Yes	?	No			
2	**5**	**1**	**Energy & Atmosphere**		**17** Points
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
	1		Credit 1	**Optimize Energy Performance**	1 to 10
	3		Credit 2	**On-Site Renewable Energy**	1 to 3
	1		Credit 3	**Enhanced Commissioning**	1
		1	Credit 4	**Enhanced Refrigerant Management**	1
1			Credit 5	**Measurement & Verification**	1
1			Credit 6	**Green Power**	1
Yes	?	No			

4 | 1 | 8 Materials & Resources — 13 Points

Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
		1	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
		1	Credit 1.3	**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 Regio	1
		1	Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regio	1
		1	Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Yes ? No

14 | 1 | Indoor Environmental Quality — 15 Points

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**, Carpet 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

2 | | 3 Innovation & Design Process — 5 Points

1			Credit 1.1	**Innovation in Design**: Provide Specific Title	1
		1	Credit 1.2	**Innovation in Design**: Provide Specific Title	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 2	**LEED® Accredited Professional**	1

Yes ? No

Yes	?	No	Boston Green Building Credits	4 Points
Y			Prereq 1 **Construction Air Pollution Control Plan**	Required
Y			Prereq 2 **Outdoor Construction Management Plan**	Required
Y			Prereq 3 **Pest Management Plan**	Required
		1	Credit 1 **Modern Grid**	1
		1	Credit 2 **Historic Preservation**	1
1			Credit 3 **Groundwater Recharge**	1
1			Credit 4 **Modern Mobility**	1

Yes	?	No	Project Totals (pre-certification estimates)	69 Points
33	11	20		

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

RESIDENTIAL BUILDING LEED NARRATIVE

SUSTAINABLE SITES (SS)

SS P1 Construction Activity Pollution Prevention - An Erosion and Sedimentation Control Plan will be developed as part of the PNF process which will employ strategies such as temporary and permanent seeding, mulching, silt fencing, sediment traps and sediment basins.

SS C1 Site Selection - The Massachusetts Mental Health Center Site doesn't trigger any of the criteria and is therefore eligible for this credit.

SS C2 Development Density & Community Connectivity - The Massachusetts Mental Health Center Site is considered an Urban Site and is therefore eligible for this credit.

SS C4.1 Alternative Transportation, Public Transportation Access - The Massachusetts Mental Health Center Site is within ½ mile of the Longwood Medical Area T-stop on the Green D-line.

SS C4.2 Alternative Transportation, Bicycle Storage & Changing Rooms - The residents of The Massachusetts Mental Health Center Site Redevelopment will be provided with a minimum of 21 (15%) bicycle storage racks.

SS C4.4 Alternative Transportation, Parking Capacity - The Residential Building at the Massachusetts Mental Health Center Site has no new parking spaces, therefore complies with this point requirement.

SS C6.1 Stormwater Design, Quantity Control - The Massachusetts Mental Health Center Site is covered by more than 50% impervious surfaces. It is the intent to recharge the groundwater that results in a 25% decrease in the volume of storm water runoff from the two-year, 24-hour design storm.

SS C7.1 Heat Island Effect, Non-Roof - The Residential Building at the Massachusetts Mental Health Center Site Redevelopment will use a combination of high-reflective hardscaping and shading methods for a minimum of 50% of the sites hardscape.

SS C7.2 Heat Island Effect, Roof - The Residential Building's roof is considered a low-slope roof and will have a minimum SRI of 78.

SS C8.0 Light Pollution Reduction - The Residential Building at the Massachusetts Mental Health Center Site Redevelopment site will be designed to maintain safe light levels while avoiding off-site lighting and night sky pollution. Site lighting will be minimized where possible. Technologies used to reduce light pollution include full cutoff luminaries, low-reflectance surfaces and low-angle spotlights.

ENERGY AND ATMOSPHERE (EA)

EA P1 Fundamental Commissioning of the Building Energy Systems - The client will engage and obtain a commissioning report from an independent agency per the LEED criteria.

EA P2 Minimum Energy Performance - The building envelope, HVAC, lighting, and other systems will meet or exceed the LEED criteria, therefore meeting the intent of this prerequisite.

EA P3 Fundamental Refrigerant Management - The Residential Building will not have any HVAC equipment that uses CFC refrigerants, thus meeting the intent of this required prerequisite.

EA C5 Measurement & Verification - The owner will develop an M&V Plan to evaluate building energy system performance for a minimum of one-year.

EA C6 Green Power - The owner intends to sign a two-year contract with an electric utility company to purchase a minimum of 35% of the buildings electricity demand (based on one of the LEED options).

MATERIALS AND RESOURCES (MR)

MR P1 Storage & Collection of Recyclables - The Residential Building has been designed to incorporate recycling within the building including but not limited to the materials identified by LEED.

MR C2.1 Construction Waste Management, Divert 50% from Disposal - The client and contractor have committed to divert 50% of construction waste at the Residential Building.

MR C4.1 Recycled Content, 10% (post-consumer + ½ pre-consumer) - The client and contractors shall agree to establish a project goal for recycled content materials and identify material suppliers that can achieve this goal. During construction the contractor will ensure that the specified recycled content materials are installed.

MR C5.1 Regional Materials - The Residential Building will use locally sourced construction materials.

MR C7 Certified Wood - The owner will establish a goal above the minimum 50% required and ensure that the FSC-certified wood products are installed and quantify the total percentage of FSC-certified wood products installed.

INDOOR ENVIRONMENTAL QUALITY (EQ)

EQ P1 Minimum IAQ Performance - The buildings HVAC system will meet or exceed the minimum outdoor air ventilation rates as described in the ASHRAE standard.

EQ P2 Environmental Tobacco Smoke (ETS) Control - The building will be a smoke free facility, therefore complying with the intent of this prerequisite.

EQ C2 Increased Ventilation - The HVAC system will be designed using the following eight design steps described in the Carbon Trust Good Practice Guide 237:

1) Develop design requirements,

2) Plan airflow paths,

3) Identify building uses and features that might require special attention,

4) Determine ventilation requirements,

5) Estimate external driving pressures,

6) Select types of ventilation devices,

7) Size ventilation devices,

8) Analyze the design. Use public domain software such as NIST's CONTAM, Multizone Modeling Software, along with LoopDA, Natural Ventilation Sizing Tool, to analytically predict room-by room airflows.

EQ C3.1 Construction IAQ Management Plan, During Construction - The owner will adopt an IAQ management plan to protect the HVAC system during construction; therefore the building is eligible for this credit.

EQ C3.2 Construction IAQ Management Plan, Before Occupancy - The building will either be flushed out or tested to meet the above criteria prior to occupancy.

EQ C4.1 Low-Emitting Materials, Adhesives & Sealants - The Residential Building construction documents will specify low-VOC materials as defined above, thus the building will be eligible for this credit.

EQ C4.2 Low-Emitting Materials, Paints & Coatings - The construction documents will specify low-VOC paints and coatings to comply with the intent of this credit.

EQ C4.3 Low-Emitting Materials, Carpet Systems - Construction documents will clearly specify requirements for product testing and/or certification, thus the building is eligible for this credit.

EQ C4.4 Low-Emitting Materials, Composite Wood & Agrifiber Products - The residential construction documents will specify wood and agrifiber products that contain no added urea-formaldehyde resins.

EQ C5 Indoor Chemical & Pollutant Source Control - The residential entrances have been designed to employ the use of a walk-off grate at the main entrance and will exhaust laundry areas as described above.

EQ C6.1 Controllability of Systems, Lighting - The occupants of the residential building will have full individual lighting control within their residential units; therefore the building is eligible fore this credit.

EQ C6.2 Controllability of Systems, Thermal Comfort - The occupants of the Residential Building will have more than 50% control of their thermal comfort; therefore the building is eligible fore this credit.

EQ C7.1 Thermal Comfort, Design - The Residential Building will have HVAC systems and the building envelope designed to meet the LEED referenced AHRAE standards. Thus the building meets the intent of this credit.

EQ C7.2 Thermal Comfort, Verification - The owner agrees to implement a thermal comfort survey within the allotted time and will develop a corrective action plan if needed.

EQ C8.1 Daylight & Views, Daylight 75% of Spaces - The Residential Building will be designed to allow daylight into 90% of the occupied spaces and will be verified via one of the two options (glazing factor calculation or daylight measurement); therefore the building is in compliance with these credit requirements.

EQ C8.2 Daylight & Views, Views for 90% of Spaces - The residential building will be designed to allow daylight into 90% of the occupied spaces and will be verified via one of the two options listed in Credit 8.1; therefore the building is in compliance with these credit requirements.

INNOVATION AND DESIGN PROCESS (ID)

ID C1.1 Innovation in Design: "Live Green" - The owner has committed to developing and maintaining a sustainable bulletin board to help residents "Live Green."

ID C2 LEED® Accredited Professional - At least one member of The Architectural Team, Inc. will be a LEED Accredited Professional.

Boston Green Building Credits (Article 37)

BGBC Pa-c Construction Air Pollution Control Plan - The owner and contractor will incorporate the Boston Public Health Commission prerequisites outlined in the Boston Green Building Credits into the contract for construction language.

BGBC C3 Groundwater Recharge - The Massachusetts Mental Health Center Redevelopment Site is understood to be outside of Article 32 associated areas. The project

will provide measures that result in on-site infiltration of rainwater; therefore the building will be eligible for this credit.

BGBC C4 Modern Mobility - The owner has agreed to all of the prerequisites associated with residential buildings. The owner will comply with the following prerequisites:

(1) Designate an On-Site Transportation Coordinator in the management office

(2) Post information about public transportation and car-sharing options

(3) Provide transit, bike and pedestrian access information on building website

(4) Provide on-site, external bicycle racks for visitors and covered secure bicycle storage for building occupants. The capacity is to be sized as follows: fifteen percent (15%) or more for residential buildings and five percent (5%) or more for all other building uses

(5) Comply with Boston Transportation Department district parking ratios; and

(6) join a Transportation Management Association (for commercial, hotel and mixed use projects).

In addition the project will include the TDM options as follows:

(a) Provide a fifty percent (50%) subsidy for monthly T pass purchases, one for each dwelling unit for the tenants first full year of occupancy.

(b) Price and allow the purchase of deeded parking spaces separately from dwelling units. Parking spaces required by zoning may only be purchased and used by building tenants/unit owners.

(c) On site ATM, dry cleaning drop-off/pick-up & other amenities that reduce short car trips.

Mass Mental Health Center Redevelopment

Binney Street Building

LEED-NC Project Checklist for LEED CERTIFIABLE

Boston, MA

Yes	?	No			
9	**1**	**4**	**Sustainable Sites**		**14** Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
1			Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
		1	Credit 3	**Brownfield Redevelopment**	1
1			Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
1			Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
		1	Credit 5.1	**Site Development,** Protect of 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			
1	**3**	**1**	**Water Efficiency**		**5** Points
1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
	1		Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
	1		Credit 2	**Innovative Wastewater Technologies**	1
	1		Credit 3.1	**Water Use Reduction**, 20% Reduction	1
		1	Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Yes	?	No			
1	**6**	**2**	**Energy & Atmosphere**		**17** Points
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
	4		Credit 1	**Optimize Energy Performance**	1 to 10
		1	Credit 2	**On-Site Renewable Energy**	1 to 3
1			Credit 3	**Enhanced Commissioning**	1
	1		Credit 4	**Enhanced Refrigerant Management**	1
	1		Credit 5	**Measurement & Verification**	1
		1	Credit 6	**Green Power**	1

Continue…

Yes	?	No			
2	**3**	**8**	**Materials & Resources**		**13** Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
		1	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
		1	Credit 1.3	**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 Region	1
	1		Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Region	1
		1	Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Yes	?	No			
9	**3**	**3**	**Indoor Environmental Quality**		**15** Points
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**, Carpet 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		**1**	**Innovation & Design Process**		**5** Points
1			Credit 1.1	**Innovation in Design**: Green Bldg Education/Education Outreach	1
1			Credit 1.2	**Innovation in Design**: Exemplary Commuter Choice	1
1			Credit 1.3	**Innovation in Design**: Exemplary Development Density	1
		1	Credit 1.4	**Innovation in Design**: Provide Specific Title	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No		
26	**16**	**19**	**Project Totals (pre-certification estimates)**	**69** Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

Mass Mental Health Center Redevelopment

Binney Street Building

Credit Descriptions for LEED CERTIFIABLE

The Project team will prioritize the following credits from the LEED building rating system in order to achieve a level of LEED CERTIFIABLE for this portion of the Project. Each credit will be evaluated by the Project team on an on-going basis through all of the design and construction phases of the Project.

Total points required for LEED CERTIFIABLE: 26

Total points included here: 26

SUSTAINABLE SITES (SS)

SS P1 Construction Activity Pollution Prevention

An erosion and sedimentation control plan for all construction activities will be created and implemented.

SS C1 Site Selection

The Project location avoids development of an environmentally sensitive site and causing increased environmental impact by utilizing a previously developed urban site.

SS C2 Development Density & Community Connectivity

The Project is located on a previously developed site in an existing urban area that meets the density requirements of option 1 requiring a minimum density of 60,000 sq. ft. per acre net.

SS C4.1 Alternative Transportation, Public Transportation Access

The Project location utilizes the required public transportation access requirements for this credit by locating within 1/2 mile of an existing subway stop.

SS C4.2 Alternative Transportation, Bicycle Storage & Changing Rooms

The Project intends to include secure bike racks or storage for at least 5% of the building users and provide shower and changing facilities for 0.5% of the full-time equivalent occupants in the building.

SS C4.3 Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles

It is the intent of the Project to fulfill the requirements of Option 2 by providing preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site.

SS C4.4 Alternative Transportation, Parking Capacity

The project intends to review Option 2 of this credit and provide preferred parking for carpools for 5% of total provided parking spaces.

SS C6.1 Stormwater Design, Quantity Control

The Project intends to implement strategies consistent with option 2 and reduce the pre-development rate and quantity of stormwater discharge by at least 25%.

SS C6.2 Stormwater Design, Quality Control

The Project intends to implement a stormwater management plan that identifies strategies to capture and treat the stormwater runoff from 90% of the average annual rainfall.

SS C7.1 Heat Island Effect, Non-Roof

The Project intends to meet this credit through option 2 by placing more than 50% of the parking spaces below ground and within the footprint of the BWH/MMHC building.

WATER EFFICIENCY (WE)

WE C1.1 Water Efficient Landscaping, Reduce by 50%

The requirements of this credit will be met with credit WE C1.2 below.

ENERGY AND ATMOSPHERE (EA)

EA P1 Fundamental Commissioning of the Building Energy Systems

The Project intends to follow the requirements for fundamental commissioning as described by this prerequisite.

EA P2 Minimum Energy Performance

The Project intends to establish a minimum level of energy performance by complying with the specified provisions of ASHRAE/IESNA Standard 90.1-2004 and will be demonstrated by the computer simulation model used for EA Credit 1.

EA P3 Fundamental Refrigerant Management

It is the intent of the Project to use zero CFC-based refrigerants in the new base building HVAC&R systems.

EA C3 Enhanced Commissioning

It is the intent of the Project to implement the additional commissioning activities as outlined in this credit.

MATERIALS AND RESOURCES (MR)

MR P1 Storage & Collection of Recyclables

The Project intends to provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including paper, corrugated cardboard, glass, plastics and metals at a minimum.

MR C2.1 Construction Waste Management, Divert 50% from Disposal

The Project intends to recycle and/or salvage at least 50% of non-hazardous construction and demolition debris through the implementation of a construction waste management plan.

MR C7 Certified Wood

It is the intent of the Project to use a minimum of 50% of wood-based materials and products that are FSC certified.

INDOOR ENVIRONMENTAL QUALITY (EQ)

EQ P1 Minimum IAQ Performance

The Project intends to design the ventilation systems to meet the minimum outdoor air ventilation rates specified by this credit.

EQ P2 Environmental Tobacco Smoke (ETS) Control

The Project intends to minimize exposure to Environmental Tobacco Smoke through option 1, to prohibit smoking in the building and locate any exterior designated smoking areas at least 25 feet from entries, air intakes, and operable windows.

EQ C1 Outdoor Air Delivery Monitoring

The Project will consider permanent monitoring systems with feedback as part of the ventilation system to monitor carbon dioxide concentrations in densely occupied spaces and measure outdoor air flow rates to non-densely occupied spaces as specified in this credit.

EQ C3.1 Construction IAQ Management Plan, During Construction

The Project intends to develop and implement an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the building as follows: during construction meet or exceed the recommended control measures, protect stored on-site or installed absorptive materials from moisture damage, and use filtration media with a MERV of 8 shall be used at each return air grille and replaced immediately prior to occupancy if permanently installed air handlers are used during construction.

EQ C3.2 Construction IAQ Management Plan, Before Occupancy

As part of the Indoor Air Quality Management Plan in credit EQ C3.1, the Project intends to coordinate a flush-out during the pre-occupancy phase of the plan as required by option 1.

EQ C4.1 Low-Emitting Materials, Adhesives & Sealants

It is the intent of the Project that all interior adhesives and sealants will meet the requirements of their respective reference standard listed under this credit for VOC limit.

EQ C4.2 Low-Emitting Materials, Paints & Coatings

It is the intent of the Project that all interior paints and coatings will meet the VOC limits indicated by the reference standards listed under this credit.

EQ C4.3 Low-Emitting Materials, Carpet Systems

It is the intent of the Project that all carpet systems will be selected to meet the requirements of the reference standards listed under this credit.

EQ C5 Indoor Chemical & Pollutant Source Control

The Project intends to minimize building occupant exposure to potentially hazardous particulates and chemical pollutants by designing pollutant control measures at building entries and ventilating regularly occupied spaces as required by the credit.

EQ C7.2 Thermal Comfort, Verification

It is the intent of the Project to implement a thermal comfort survey of the building occupants within six to eighteen months after occupancy. If more than 20% of occupants are dissatisfied with thermal comfort the Project will develop a plan for corrective action.

EQ C8.1 Daylight & Views, Daylight 75% of Spaces

It is the intent of the Project to provide daylight and views to at least 75% of the regularly occupied areas of the building as required under this credit through the design, location, and specification of glazing systems.

INNOVATION AND DESIGN PROCESS (ID)

ID C1.1 Innovation in Design: Implement Green Building Education and/or Education Outreach program

To be determined.

ID C1.2 Innovation in Design: Exemplary Commuter Choice

The Project location along with a transportation management plan may demonstrate a quantifiable reduction in personal automobile use through multiple alternative options.

ID C1.3 Innovation in Design: Exemplary Development Density

To be determined.

ID C2 LEED® Accredited Professional

It is the intent of the Project to maintain a LEED Accredited Professional as an active participant in the Project to assist in integrating the requirements of LEED and streamlining the application and certification process.

Appendix E

Memorandum of Understanding (MOA)

MEMORANDUM OF AGREEMENT
BETWEEN
THE MASSACHUSETTS DEPARTMENT OF MENTAL HEALTH,
THE MASSACHUSETTS DIVISION OF CAPITAL ASSET MANAGEMENT AND
THE MASSACHUSETTS HISTORICAL COMMISSION

WHEREAS, the Asset Management Board has authorized the Massachusetts Department of Mental Health (DMH) with the assistance of the Massachusetts Division of Capital Asset Management and Maintenance (DCAM) to enter into a competitive disposition process to dispose of the approximately 2.87-acre Massachusetts Mental Health Center (MMHC) site located on three parcels of land at the intersection of Brookline Avenue, Fenwood Road, and the Riverway in Boston , MA (Site) by means of a long-term ground lease of ninety-five (95) years; and

WHEREAS, there are five structures on the Site that contain approximately 188,907 square feet and were built in 1912, 1954 and 1957; and

WHEREAS, in exchange for the long-term lease, the ground lessee will be obligated to develop for DMH, in either new construction and/or renovated space, a redeveloped MMHC facility of approximately 50,000 square feet, a hospital / Fenwood Inn of approximately 20,000 square feet, and parking for approximately 50 cars; and

WHEREAS, in exchange for the construction of these state facilities and additional consideration as appropriate, the ground lessee will have the right to develop the remainder of the Site for private development of such uses that are compatible with the DMH facilities and the medical, educational, institutional and residential uses in the Longwood Medical Area, subject to all federal, state and local permits and approvals; and

WHEREAS, with the exception of the Vining Street parcel which is located across Vining Street from the main portion of the Site and contains a 21,126 square foot structure, the Site is listed in the State and National Registers of Historic Places; and

WHEREAS, the listing in the National Register of Historic Places identifies the Main Building (1912), the Power Plant (1912), and cast iron picket fence as contributing structures and the Research Building (1954) and Therapeutic Building (1957) as noncontributing structures; and

WHEREAS, there are other historic properties in the vicinity including but not limited to the Olmsted Park System Historic District, the Mission Hill Triangle Historic District, the Massachusetts School of Art, the Timothy Hoxie House, the Isabella Stuart Gardner Museum, and numerous properties included in MHC's Inventory of Historic and Archeological Assets of the Commonwealth, which, due to their proximity to the Site, may be affected by development on the Site; and

WHEREAS, DMH and DCAM are preparing to issue a Request for Proposals (RFP) for the lease and redevelopment of the Site; and

WHEREAS, the transfer by lease of the Site constitutes a project undertaken by a State agency pursuant to 950 CMR 71.03 and is a project for which DMH and DCAM have sought the comments of the Massachusetts Historical Commission (MHC) pursuant to M.G.L. Chapter 9, Section 26-27C, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00); and

WHEREAS, MHC has determined that the proposed project will have an adverse effect on the historic property pursuant to 950 CMR 71.05(e) through the lease of a State Register property; and

WHEREAS; no feasible or prudent alternative exists to eliminate the adverse effect of the proposed lease; and

WHEREAS, MHC has determined to accept the adverse effect of the lease of the Site in consideration of the mitigation alternatives described herein; and

WHEREAS, MHC, DMH and DCAM agree, and the Boston Landmarks Commission (BLC) hereby concurs, that the project shall be undertaken and implemented in accordance with the following stipulations to mitigate the effect of the lease of the Site in compliance with M.G.L. Chapter 9, Section 27C.

STIPULATIONS

DMH and DCAM shall ensure that the following measures are carried out in coordination with MHC and BLC, as set forth below:

I. Redevelopment of the Massachusetts Mental Health Center

A. DMH and DCAM are encouraged to include historic preservation in any redevelopment process. Options for redevelopment of the Site which incorporate historic preservation should take into account the following principles of reuse planning:

1. Preservation of the character-defining features of the contributing buildings and structures on the Site should be encouraged where feasible.

2. If it is determined that it is not feasible to preserve all of the character-defining features of the contributing buildings and structures on the Site, the feasibility of preserving character-defining features of portions of the contributing buildings and structures will be examined and encouraged where feasible.

3. Rehabilitation of contributing buildings and structures on the Site should be consistent with recommended approaches in the Secretary of the Interior's Standards for Rehabilitation of Historic Properties, (hereinafter "Standards").

II. Marketing Plan and Request for Proposals

A. Notwithstanding any provisions of this MOA, DCAM has full marketing authority for the Site and will make all final marketing decisions. DMH and DCAM will consult with MHC and BLC on developing a marketing plan for the Site which shall include the following elements:

1. An advertising plan and schedule for publicizing the availability of the RFP.

2. An initial distribution list for notice of availability of the RFP which will include any contacts offered by MHC and BLC.

3. A schedule for receiving and reviewing submissions in response to the RFP.

B. DCAM will provide a draft marketing plan to MHC and BLC. MHC and the BLC will have fourteen (14) days to review and comment on the draft marketing plan. If MHC or BLC does not find the draft marketing plan acceptable, DCAM will make reasonable efforts exercised in good faith to accommodate the concerns of MHC and BLC and will submit a final marketing plan. Before implementation, MHC and BLC will have seven (7) days to review and comment on the portions of the final marketing plan which address issues of historic preservation. In the event MHC and BLC do not provide initial comments on the draft marketing plan within 14 days or comments on the final marketing plan within 7 days, the plan shall be deemed acceptable to MHC and BLC. It is understood that the content of the marketing plan shall not require approval of MHC or BLC.

C. Concurrent with the development of a marketing plan, DCAM will prepare the RFP for the disposition of the Site. DMH and DCAM will consult with MHC and BLC on developing the RFP which shall include the following elements:

1. An appendix to the RFP prepared by MHC for submission to DCAM on or before twenty-one (21) days from written notice from DCAM that explains what MHC regards as the significance and the character-defining elements of the contributing buildings and structures and information concerning potential tax benefits. DCAM will have the right to reasonably approve such appendix within seven (7) days of submission and prior to its inclusion in the RFP. If DCAM and MHC cannot agree on the appendix, DCAM shall amend the appendix if necessary to state that it contains MHC's opinions only and then at DCAM's discretion proceed with the RFP.

2. A photograph and parcel map of the Site.

3. Reference to the points listed under I.A. of this MOA. The RFP as a whole will make a good faith effort to generate interest in the preservation of what MHC has defined as the historic character of the Site.

D. DCAM will provide a confidential draft RFP to MHC and BLC. MHC and BLC will have fourteen (14) days to review and comment on those portions of the draft RFP which address issues of historic preservation. Before issuance of the final RFP, MHC and BLC will have seven (7) days to review and comment on the portions of the final RFP which address issues of historic preservation. In the event MHC and BLC do not provide initial comments on the draft RFP within 14 days or comments on the final RFP within 7 days, the RFP shall be deemed acceptable to MHC and BLC. It is understood that the content of the RFP shall not require approval of MHC or BLC. It is further understood that MHC and BLC will not share any portion of the RFP with anyone prior to the time the RFP is made publicly available by DCAM.

E. The marketing effort shall be continued for no less than three months from the date of the issuance of the RFP. Issuance shall occur when the notice of availability of the RFP is published in the Central Register.

F. DCAM and DMH will schedule a Bidder's Conference for prospective developers to occur at the midpoint of the marketing effort during which MHC and BLC will have the opportunity to present information and to answer questions from prospective developers.

G. Once proposals from developers are received by DCAM in response to the RFP, MHC and BLC shall be afforded the opportunity to comment on the proposals and to provide these comments in writing to DCAM prior to any interviews which DCAM and DMH may conduct with any of the developers. If, after a consultation period of no more than thirty (30) days with MHC and BLC regarding the applicability of the Standards to the proposals and taking into consideration MHC and BLC comments during any interviews which DCAM and DMH may conduct with any of the developers during the RFP marketing period, DCAM and DMH, in their sole determination, have received no proposals that are feasible and acceptable that provide for rehabilitation or new construction in conformance with the recommended approaches in the Standards, they will convey their conclusions to MHC and BLC.

1. For all buildings and structures for which there is no preservation proposal that is feasible and acceptable to DCAM and DMH, then DCAM or DMH or any lessee of the Site or any other person may proceed, subject to any other applicable reviews and permits, with demolition of buildings and structures or rehabilitation or new construction that does not conform to the Standards following completion of photographic recordation and documentation as stipulated in Section V.

III. New Construction

A. DCAM shall encourage new buildings and structures that are sympathetic or compatible to what MHC has determined to be character-defining attributes of the contributing buildings and structures on the Site.

IV. Exempted Activities

A. The following construction activities are unlikely to affect what MHC regards as the character-defining attributes of the Site and are exempted from further review by MHC, including comments in any environmental review process:

1. Resurfacing, maintenance, repair or improvement of existing parking lots, roads and driveways.

2. Repair, replacement or improvements to infrastructure, i.e. heating and electrical systems, sewer, water, ventilation systems or plumbing.

3. Maintenance work such as painting, repair or replacement of substantially in-kind architectural elements.

4. All interior work.

5. Demolition or alteration of non-contributing structures.

6. New construction on the Vining Street parcel of the Site.

7. New construction on the main Site that is consistent with the design guidelines set forth in Section III.

V. Photographic Recordation and Documentation

A. Prior to demolition of any contributing building or structure, substantial new construction or other major change to the Site, DCAM and DMH shall require that the buildings and structures on the Site are documented by photographs and narratives in accordance with a "recordation plan" that satisfies all of the following:

1. Provides for documentation of the historical processes that shaped the organization, design and history of the MMHC. (The nomination of the MMHC to the National Register by MHC is sufficient documentation.)

2. Contains photographs and documentation of the character-defining attributes.

3. Is reviewed and commented upon by MHC.

4. Provides that copies of the resulting documentation are made available to MHC and BLC.

VI. Historic Rehabilitation Tax Credits

A. In order to ensure that rehabilitation of buildings and structures that MHC believes contribute to the historical significance of the Site can qualify for applicable tax credits, DMH and DCAM shall encourage any designated ground lessee to consult with MHC and the National Park Service for the purpose of meeting tax credit standards in any work to be completed.

VII. Modifications

Any party to this MOA may request that it be amended or modified whereupon the parties will consult in accordance with 950 CMR 71 to consider such amendment or modification.

Executed on this 16th day of June, 2003.

Department of Mental Health (DMH)

By: Ken Duckett MD
Title: acting commissioner

Division of Capital Asset Management and Maintenance (DCAM)

By: Richard B Powers
Title: Commissioner

Massachusetts Historical Commission (MHC)

By: [signature]
Title: Executive Director

Boston Landmarks Commission (BLC)

By: [signature]
Title: EXECUTIVE DIRECTOR

Appendix F

Brigham and Women's Hospital Milestones

APPENDIX F – BRIGHAM AND WOMEN'S HOSPITAL MILESTONES

Beyond BWH's long tradition of serving the medical needs of the community, BWH, including its predecessor hospitals, has been the home of some of the world's most exciting medical advances including:

- In 1847, at the Boston Lying-In Hospital, anesthesia for childbirth is administered for the first time at a U.S. hospital;
- In 1883, also at the Boston Lying-In Hospital, doctors first use antiseptic techniques to ward off childbirth infection, dramatically reducing the maternal/child mortality rate;
- In 1926, Drs. William Murphy, George Whipple, and George Minot, discover liver extracts as the cure for pernicious anemia at the Peter Bent Brigham Hospital; all three physicians share in the 1934 Nobel Prize for the discovery;
- In 1929, the first polio victim is saved using the newly developed Drinker Respirator (iron lung) at the Peter Bent Brigham Hospital;
- In 1944, researchers at the Free Hospital for Women fertilize a human egg in a test tube for the first time;
- In 1949, Dr. Carl Walter, of the Peter Bent Brigham Hospital, invents and perfects the plastic bag used to collect, store, and transfuse blood;
- In 1954, the first successful human organ transplant, a kidney transplant from one identical twin to another, occurred at Peter Bent Brigham; Dr. Joseph Murray won the 1990 Nobel Prize in Medicine for this landmark achievement;
- In 1962, direct electric current is first used to restore rhythm to a heart that has stopped at the Peter Bent Brigham Hospital;
- In 1973, non-invasive fetal heart monitoring is developed at the Boston Hospital for Women, enabling physicians and nurses to better and more safely predict when the fetus is in distress during labor;
- In 1984, the first heart transplant in New England is performed at BWH;
- In 1990, the first lung transplant in Massachusetts and the first double lung transplant in New England take place at BWH;
- In 1992, the first heart-lung transplant in Massachusetts is performed at BWH;
- In 1994, BWH unveiled the world's first Intra-Operative Magnetic Resonance Imaging (MRI) System enabling surgeons to take images of the body's interior during

surgery, and allowing the hospital to treat patients with brain tumors that were previously considered inoperable;

- In 1995, BWH surgeons perform the first triple transplant in New England – the simultaneous transplantation of two lungs and a heart from one donor;

- In 1996, BWH became one of only 10 hospitals in the nation to perform a "minimally invasive" aortic valve repair through a three-inch incision instead of through open-chest surgery;

- In 2000, BWH surgeons were among the first in the nation to perform both general and cardiac surgery using a computer-assisted robot;

  Researchers at BWH reported that an inexpensive blood test could detect minute elevations in C-reactive protein, thus identifying people at risk for heart attacks, even when they lack obvious risk factors such as high cholesterol;

  BWH surgeons perform the nation's first quadruple transplant, the simultaneous transplantation of one heart, two lungs and one kidney from the same donor; and,

  BWH celebrated the 25th anniversary of the BWH-based Nurses Health Study, which enrolled 122,000 women in America's first study of women's health. This landmark study has resulted in significant findings about links between birth control pills and cancer, and associations between lifestyle factors and disease.

- In 2005, BWH brings health care to those who need it most in Boston and throughout the world. Gary Gottlieb, MD, MBA, president, co-chaired with Mayor Thomas Menino the City's Task Force on Racial and Ethnic Disparities, which released a blueprint to reduce those very real disparities in Boston. BWH's Department of Emergency Medicine sent physicians and nurses to the Gulf of Mexico region following Hurricane Katrina.

  BWH published significant findings from the renowned TIMI (Thrombolysis in Myocardial Infarction) trials. One study found that statin drugs' ability to combat levels of C-reactive protein in one's blood is just as important as the drugs' role in reducing cholesterol. Also, BWH cardiologists found that the use of a low molecular weight heparin significantly reduced the risk of repeat heart attack or death.

  A prestigious grant of $11 million was awarded to BWH and Dana Farber/Harvard Cancer Center for a broad program with the mission of lowering ovarian cancer deaths. The grant, known as SPORE (Specialized Project of Research Excellence), focused on clinical and bench research related to prevention, early detection and treatment of ovarian cancer.

BWH researchers are the first to prove that measuring C-reactive protein (CRP) levels is as important as measuring cholesterol at predicting heart attack.

BWH is the only hospital out of more than 1,200 facilities nationwide that gained perfect scores on the Leapfrog's Group's online hospital ranking system of safety and overall value for consumers. The Leapfrog Group, a consortium of more than 170 public and private health care payers, providers, and purchasers issues rankings based on quality and safety standards.

In recognition of its landmark electronic Medication Administration Record (eMAR) and barcoding system, BWH was a recipient of the first Betsy Lehman Patient Safety Recognition Award for organizational excellence. The award honors Betsy Lehman, a Boston Globe health columnist who died in 1994 when she was accidentally given the wrong dosage of chemotherapy.

The National Institutes of Health (NIH) granted the BWH Surgical Planning Laboratory a five-year, $19.2 million grant to lead the National Alliance for Medical Image Computing. The grant is being used for the development of software to extract valuable disease information from imaging data, allowing the power of modern imaging machines to characterize diseases and work together in examining new treatment methods.

BWH marked its 500th heart transplant, the most for any New England hospital. This historic operation adds BWH to an exclusive list of hospitals nationwide to reach this mark, according to the United Network of Organ Sharing (UNOS).

- In 2006, Custom-designed nanoparticles carrying doses of chemotherapy that can specifically target cancer cells have been created by BWH researchers. These nanoparticles are absorbed by the cancer cell, delivering a lethal dose of chemotherapy and leaving healthy cells unscathed. This therapy, which has been tested and proven successful in mice, in theory can be applied to almost any disease by re-engineering the nanoparticles' properties to carry different drugs and target different cells.

  A laser eye scanner has been developed at BWH that is 100 percent accurate in detecting Alzheimer's disease in mice. The laser scans the eye for the protein beta amyloid, which forms on the edge of the eye, potentially decades before lesions form on the brain.

  The Dana-Farber/Brigham and Women's Cancer Center (DF/BWCC) recently conducted its first radioembolization of the liver - a treatment that offers hope to patients with limited options. Certain tumors that have been unresponsive to chemotherapy have responded to this treatment, which delivers radiation directly to liver tumors and spares healthy tissue, improving survival and the quality of life for patients.

The National Committee for Quality Health Care (NCQHC), a non-profit organization comprised of industry leaders who share a common interest in quality as the foundation of health care delivery, awarded BWH the 2006 National Quality Health Care Award.

BWH became the first hospital in New England and the second hospital in the nation to implant in a patient the Impella Recover 2.5 - the world's smallest ventricular assist device (VAD) - during a high-risk angioplasty. This procedure benefits those angioplasty patients with the most compromised heart function.

BWH launches, in collaboration with the NIH and Amgen, the first Women's Genome Health Study to find the genetic causes for the development of heart disease, stroke, cancer, and other common health disorders.

- In 2007, BWH opens the city of Boston's first Asian Renal Clinic to better serve the approximately 200,000 Asians living in the Boston area.

  Using data collected from over 24,000 initially healthy American women, researchers from BWH have devised a new Web-based formula called the Reynolds Risk Score that for the first time more accurately predicts risk of heart attack or stroke among women.

  A large-scale genomic study has uncovered new genetic variations associated with multiple sclerosis (MS), findings that suggest a possible link between MS and other autoimmune diseases.

  BWH receives approval to perform partial facial transplants in selected previous transplant patients, making the hospital just the second in the country able to do so.

  BWH has been named a 2007 Leapfrog Top Hospital for the third year in a row for making significant strides in quality and patient safety. Only forty-one hospitals nation-wide received this distinction, which is based on a rating system that provides an assessment of quality and safety.

  BWH is one of only two academic medical centers nationally to be named to the University HealthSystem Consortium (UHC) top five, three years in a row.

  For the third year in a row BWH has been nationally recognized as a top-ranked leader in demonstrating excellence in delivering high quality care by the UHC.

- In 2008 BWH is the first in the nation to perform transoral obesity surgery, a weight-loss procedure without an incision, giving patients an alternative to traditional obesity surgery, one with a faster and less painful recovery time and a reduced risk for infections and other complications.

Using new DNA sequencing technology, researchers for the first time, identified the unique genetic mutations of a cancerous tumor of an individual patient. The researchers obtained the genetic sequences of all of the expressed genes in tumors from patients with mesothelioma. This approach could become a new standard for discovery of tumor mutations that underlie cancer.

In the landmark JUPITER trial, researchers found a way to cut in half the risk of heart attack, stroke and cardiovascular death in men and women who had low levels of cholesterol but were still at high risk for vascular disease due to increased levels of inflammation or high sensitivity C-reactive protein.

BWH researchers discovered a strategy that targets cancer stem cells for destruction, successfully halting one of the deadliest cancers – melanoma. The findings added credence to the hypothesis that stem cells drive cancer progression and lay the groundwork for a possible treatment, showing that targeting stem cells may be a viable strategy in cancer.

The first patients were welcomed to the Carl J. and Ruth Shapiro Cardiovascular Center, as the Watkins Cardiovascular Clinic, which now combines Cardiovascular Medicine, Cardiac Surgery and Vascular Surgery in one location, officially opened in June. The inpatient move took place in July.

The BWH Osher Clinical Center was officially dedicated, offering patients access to a full array of complementary and integrative care from a team of credentialed acupuncturists, chiropractors and massage therapists along with care providers from Medicine, Psychiatry, Nutrition, Physical Therapy and consultations from orthopedics, rheumatology and other conventional specialties.

A new kidney cancer clinic was opened by DF/BWCC to provide multidisciplinary care, including clinical trails and kidney-sparing surgeries for a difficult cancer that in many cases is not diagnosed until it has spread.

- In 2009, a 35-member surgical team at BWH performed a partial face transplant on April 9, the second such procedure to be performed in the U.S. The team included plastic and ear, nose and throat (ENT) surgeons, nurses, anesthesiologists, physician assistants, residents and technicians who worked for 17 hours to replace the mid-face area of the patient including the nose, hard palate, upper lip, facial skin, muscles of facial animation and the nerves that power them and provide sensation.

  BWH became the second hospital in the country to be recognized as having a Comprehensive Academic Sleep Program of Distinction by the American Academy of Sleep Medicine (AASM), which sets standards and promotes excellence in sleep medicine health care, education and research.

BWH and Massachusetts General Hospital opened the Brigham and Women's/Mass General Health Care Center at Patriot Place. The state-of-the-art facility offers convenient primary care and other medical and surgical specialty care to BWH and MGH patients in that area of the state.

BWH performed it first case in the new Hybrid OR in the Carl J. and Ruth Shapiro Cardiovascular Center. Among the first of its kind in the country, the Hybrid OR enables staff to perform 3D angiography, CT-like imaging and intravascular ultrasound in an operating room, allowing for patients to have imaging and treatment in one setting, where multiple trips were required in the past.