Institutional Master Plan Notification Form

Boston Medical Center

NOVEMBER 20, 2019

Submitted To:
Boston Planning and Development Agency
Once City Hall Square
Boston, MA 02201

Submitted pursuant to Article 80D of the Boston Zoning Code

Submitted By:
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1.0 OVERVIEW

1.1 Introduction

Boston Medical Center (BMC) is a private, not-for-profit, 514-licensed-bed, urban academic medical center located in Boston's Historic South End, which emphasizes community-based, accessible care and the mission to provide consistently accessible health services to all in need of care regardless of status and ability to pay. The primary teaching affiliate for Boston University School of Medicine, BMC is the largest safety net hospital and busiest trauma and emergency services center in New England. BMC provides a full spectrum of pediatric and adult care services from primary to family medicine to advance specialty care.

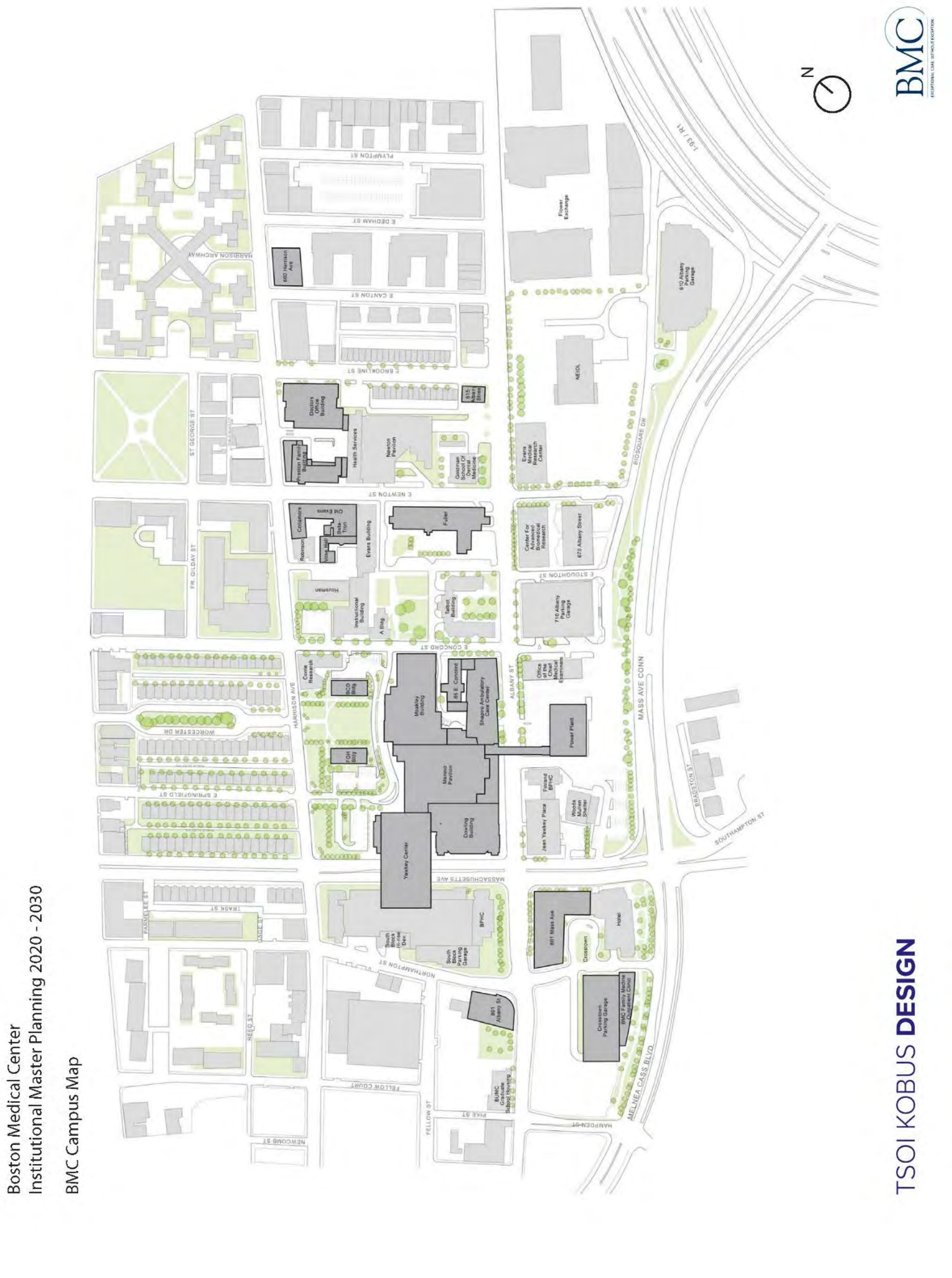
BMC was incorporated as a Massachusetts charitable corporation July 1, 1996 with the merger of Boston City Hospital, Boston Specialty and Rehabilitation Hospital, and the Boston University Medical Center Hospital, referred to as University Hospital. The physical remnants of this merger left BMC with inefficient operational challenges by having two clinical zones on the east and west ends of the campus. The goals and objectives executed under the previously approved 2010 Institutional Master Plan (IMP) focused on consolidating two clinical campuses to create a new clinical core to the west. This established centralized services and complementary use adjacencies driving operational efficiency and positioned BMC to thrive in a new healthcare environment. BMC reduced its institutional square footage by over 270,000 square feet. These objectives were realized through the completion of the projects and sale of certain real estate. Since the approval of the 2010 IMP, there have been dramatic changes in the healthcare environment and in 2018, BMC became a Boston Accountable Care Organization (BACO). To implement and succeed in this new coordinated care model, the goals and objectives for the new 10-year IMP will focus on reconfiguring and modernizing clinical spaces and administrative spaces to address the medical, behavioral, and social needs of BMC's patient population.

The original approved 2000 IMP and 2010 IMP Renewal and associated IMP Amendments, were joint submissions with the Trustees of Boston University (BU). Following the approval of the 2017 IMP Amendment, BMC and BU evaluated options for moving forward and have determined that developing separate IMP's better serves the needs of each institution in the face of changing priorities, and goals. While BMC and BU will be filing separate IMPs, both institutions will remain partners in some instances regarding area planning and shared Transportation Demand Management functions. BMC and BU continue to jointly own the area known as BioSquare, which is subject to a separate Planned Development Area Master Plan.

A detailed history of prior IMP approvals is provided as **Appendix A**.

Boston Medical Center Corporation (the Proponent), is pleased to submit this Institutional Master Plan Notification Form (IMPNF) to initiate the Boston Planning and Development Agency (BPDA) Article 80 Institutional Master Plan review process for a new BMC Institutional Master Plan (IMP). This is pursuant to Section 80D-8 of the Boston Zoning Code (the Code). With this submission, the Proponent requests the BPDA issue a Scoping Determination for a separate BMC Institutional Master Plan to govern the programmatic growth of BMC over the next 10 years. **Figure 1-1** illustrates the general location of BMC's Campus. An Institutional Master Plan will be submitted after issuance of the Scoping Determination by the BPDA.

Figure 1-1 BMC campus Plan and IMP Area



1.2 Project Team

Project Name:	Boston Medical Center Institutional Master Plan
Address/Location:	The BMC main campus is located in Boston's South End, generally bound by Harrison Avenue, East Brookline Street, Albany Street and Massachusetts Avenue. The campus is comprised of 18 BMC-owned or controlled buildings, a helipad, and development parcels. BMC also leases space in 5 buildings located on and/or proximate to campus.
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1.3 Mission and Objectives

At Boston Medical Center, all are welcome and treated equally. The best and brightest physicians, representing virtually every medical specialty, choose to work here for the opportunity to make a difference in their community and beyond. Unwavering in its commitment to the community, BMC is a private, not-for-profit, 514-licensed-bed, academic medical center located in Boston's historic South End. The hospital is the primary teaching affiliate for Boston University School of Medicine. BMC is the largest safety net hospital and busiest trauma and emergency services center in New England. The Emergency Department had 137,864 visits in 2018.

The mission of BMC is “to provide consistently excellent and accessible health services to all in need of care regardless of status or ability to pay” – exceptional care, without exception.

1.3.1 Patient Care

With more than 26,339 discharges and 1,001,304 total outpatient visits in 2018, BMC provides a comprehensive range of inpatient, clinical, and diagnostic services in more than 70 areas of medical specialties and subspecialties, including cardiac care and surgery, hypertension, neurological care, orthopedics, geriatrics, pediatrics, and women’s health.

Unwavering in its commitment to serve the community, BMC is dedicated to providing accessible health care. Approximately 57% of BMC patients come from underserved populations, such as the low-income and elderly, who rely on government payers such as Medicaid, the Health Safety Net, and Medicare for their coverage, and 32% do not speak English as a primary language.

Through its commitment to serve everyone, BMC offers numerous outreach programs and services such as Health Screenings, Smoking Cessation, Preventive Food Pantry, and Interpreter Services in over 250 Languages, 24 hours a day.

Seeing more than one million patient visits a year in over 70 medical specialties and subspecialties, BMC physicians are leaders in their fields with the most advanced medical technology at their fingertips and working alongside a highly skilled nursing and professional staff. No matter who you meet at BMC – from the x-ray technologist to the critical care nurse, the admissions staff to the chief of surgery – everyone is committed to providing quality care to every patient and family member with respect, warmth, and compassion.

BMC’s goal is not only to treat disease, but to question why it persists. Keeping people healthy is no longer about treating acute and chronic disease over and over again; a model in which people spend too much time at the doctor's and costs rise.

BMC knows that for many, medical issues exist because of a lack of employment, income, stable housing or food, and limited education. These are sometimes called "root causes upstream" and the health issues they lead to are known as "downstream consequences." BMC is now intervening at the upstream, in order to affect the downstream disease and instability it sees in its clinics and hospital every day.

To do this, BMC is working with its partners in the community and leveraging its collective resources and expertise to break down the structural barriers its patients face and improve things like access to employment, food, and stable housing. BMC's goal is to help economically stimulate neighborhoods to transform where its patients live and work into sustainable, vibrant communities.

1.3.2 Teaching

As the principal teaching affiliate of Boston University School of Medicine, BMC is devoted to training future generations of healthcare professionals. Every member of the hospital's medical and dental staff holds an academic appointment at the Boston University School of Medicine or at the Boston University Goldman School of Dental Medicine. BMC operates 66 residency training programs and 817 resident and fellowship positions.

1.3.3 Research

BMC is a recognized leader in groundbreaking medical research. BMC is the 15th largest recipient of funding in the U.S. from the National Institutes of Health among independent hospitals. BMC received more than $116 million in budgeted sponsored research funding in 2016 and oversees 581 research and service projects separate from research activities at Boston University School of Medicine. The world-renowned researchers at BMC conduct both basic, laboratory-based biomedical research, and clinical research programs, including substance use disorder, violence intervention, infectious disease, cardiology, Parkinson's Disease, geriatrics, endocrinology, and hematology/oncology.

1.3.4 Boston HealthNet

Focusing strongly on urban health, BMC is a founder of Boston HealthNet, a network affiliation of the medical center, Boston University School of Medicine, and 14 community health centers. Established in 1995, Boston HealthNet is an integrated healthcare delivery system whose partners provide outreach, prevention, primary and specialty care, and dental services at sites located throughout Boston and in nearby communities. Physicians who practice at HealthNet locations provide a wide range of comprehensive healthcare services to adults and pediatric patients, with a focus on disease prevention and health education. Patients receiving primary care at HealthNet sites have access to highly trained specialists and cutting-edge technology at BMC while maintaining individualized and culturally sensitive care in their neighborhoods. In 2016, Boston HealthNet heath center patients accounted for 32.7 percent of outpatient visits and 37.8 percent of all inpatient admissions to BMC.

1.3.5 Boston Medical Center HealthNet Plan, Inc.

BMC HealthNet Plan (BMCHP) is a not-for-profit health maintenance organization founded in 1997 by BMC. BMCHP's Massachusetts business, BMC HealthNet Plan, serves over 240,000 members across the state through several product lines that include MassHealth (Medicaid, including CarePlus) and Qualified Health Plan. BMCHP also offers a senior care options plan for individuals age 65 and older who are also eligible for Medicaid.

Because of its ongoing commitment to quality, BMC Health HealthNet Plan's HMO has been awarded Excellent Accreditation status and is rated 4 out of 5 by the National Committee for Quality Assurance. BMC HealthNet Plan's Medicaid HMO also has been awarded Excellent status. In addition, BMC HealthNet Plan's Qualified Health Plan program has been awarded Accredited status from NCQA, the highest accreditation level available at this time.

In New Hampshire, BMCHP does business as Well Sense Health Plan. More than 70,000 Medicaid recipients have joined Well Sense Health Plan since New Hampshire began offering managed care coverage to Medicaid recipients in December 2013. Well Sense Health Plan's Medicaid HMO has received Commendable Accreditation status and is rated 4.5 out of 5 among Medicaid plans in the U.S. by the National Committee for Quality Assurance (NCQA). Well Sense is the highest rated Medicaid plan in New Hampshire and one of the highest rated plans nationwide.

Comprehensive coverage for hospital, primary, specialty, and behavioral healthcare are among the benefits and services provided to all members. In addition, members receive extras beyond traditional benefits, such as free car safety seats and bike helmets for kids, manual breast pumps and dental kits (including electric toothbrush), access to a 24/7 Nurse Advice line, and reimbursements for Weight Watchers® and qualified gym memberships.

1.3.6 Boston Accountable Care Organization

BMC, along with its physician practices and BMC HealthNet Plan, is approved as its own Accountable Care Organization (ACO), Boston Accountable Care Organization (BACO). Three other health care organizations, Mercy Medical Center, Signature Healthcare, and Southcoast Health participate in BACO. As part of BACO, BMC receives a fixed amount of money to pay for the care of each MassHealth patient and is responsible for coordinating everything its patients need to stay healthy, both outpatient and inpatient services, as well as community-based services. The result will allow for improved ability to predict patients' health needs and provide more targeted care. BACO's missing is to improve the healthcare of the populations its network serves. Faithful to the spirit of partnership and innovation while fulfilling BMC's mission of Exceptional Care without Exception, the BACO will be a leader in the provision of patient care that:

- Improve its patients' experience of care;
- Improve the health of all patients served;
- Address the specific healthcare needs of vulnerable populations; and
- Reduce the costs of the healthcare it provides.

1.4 Existing Campus and Facilities

BMC's main campus is located in Boston's South End. The campus includes 18 BMC owned or controlled buildings, a helipad, and development parcels, and BMC leases space in 5 buildings located on and/or proximate to campus. Total BMC owned or controlled and leased spaces is approximately 1,947,793 square feet of usable space. Buildings range from 1 to 12 stories in height above ground. The buildings were built between 1864 (BCD/FGH) and 2018 (New Inpatient Building Phase I).

There are currently 3,531 structured parking spaces in garages and 286 surface parking spaces (3,817 total on-campus and offsite parking spaces).

See **Table 1-1** and **Figure 1-2** for Ownership and Leases.

Table 1-1 Boston Medical Center Building and Land Ownership / Leases

Facility	Year Built	Principal Uses[1]	Floors Above / Below Grade	Building / Land SF[2]	Own / Lease[3]	Lease Expiration
Yawkey Ambulatory Care	1972	Inpatient/Outpatient/Retail	B+5	221,977	Own	
BCD	1864	Administration	B+5	28,174	Own	
Betatron	1968	Administration	NA	5,912	Own	
Dowling Tower	1937	Administration/Outpatient	B+9	157,376	Own	
Doctors Office Building	1969	Administration/Outpatient	B+12	91,783	Lease	December 2022
Preston	1967	Outpatient	5	65,967	Own	
FGH	1864	Administration	B+5	29,435	Own	
Carl J. & Ruth Shapiro Ambulatory Care Center	2011	Outpatient	B+9	245,000	Own	
Menino Pavilion	1994	Inpatient/Retail	B+8	337,340	Own	
Power Plant	1972	Mechanical/Administration/Support	B+4	64,064	Own	
85 East Concord Street	1928	Administration/Outpatient	B+8	68,452	Own	
125 East Concord Street, Solomon Carter Fuller	1975	Administration	B+9	11,000	Lease	Annual Renewal
Vose Hall	1898	Administration	5	22,695	Own	
Old Evans	1942	Administration/Retail	9	60,070	Own	
Collamore	1936	Administration/Retail	7	41,970	Own	

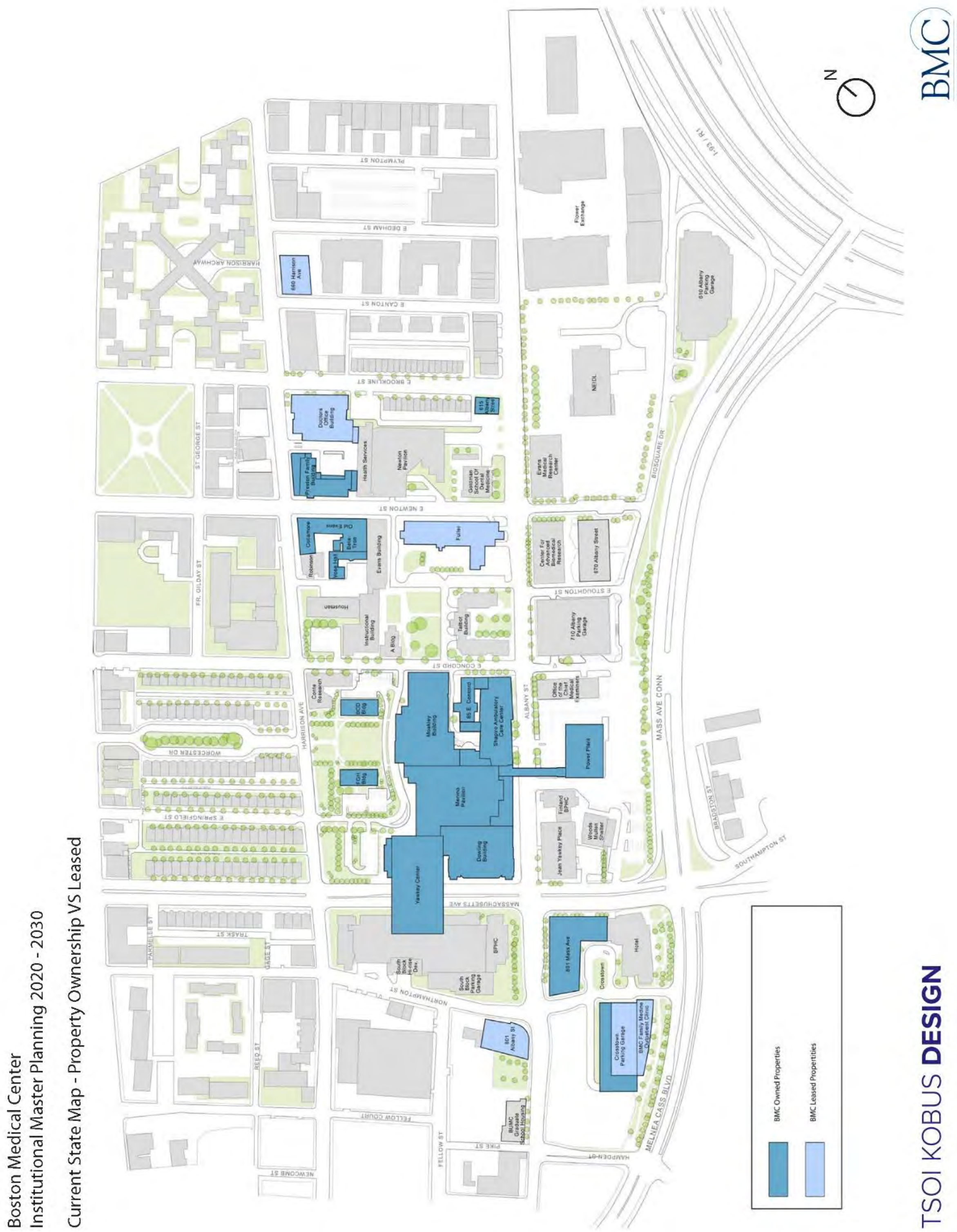
Gambro (660 Harrison)	1990	Administration/Outpatient	3	17,288	Lease	December 2022
Helipad	NA	Helipad	NA	NA	Own	
801 Massachusetts Avenue, Crosstown	2006	Administration/Outpatient/Retail	1st, 2nd, 5th, 6th, 7th	136,771	Own	
Moakley Building & Addition	2006 / 2016	Outpatient	B+3	161,017	Own	
801 Albany Street	1989	Administration	B+9	41,198	Lease	October 2029
New Inpatient Building Phase I	2018	Inpatient	B+5	105,494	Own	
Patient Transport Bridge (w/elevator & stair tower)	2018	Support	3	7,800	Own	
7-11 Melnea Cass, Family Medicine	2006	Outpatient	1	7,300	Lease	September 2027
615 Albany Street	1865	Administration/Research /Instruction	B+5	19,710	Own 50% with BU	

1. The table lists the primary functions located within each building. Hospital sub-uses are frequently relocated within buildings to respond to case mix and service changes and to accommodate ongoing renovations.

2. Owned buildings are expressed as approximate Gross Square Feet (without exclusions). Leased buildings (where the Proponent is the Lessee) are expressed in Rentable Square Feet (without exclusions)

3. The designation Own/Lease is included to differentiate between BMC campus buildings which are controlled or owned by the Proponent and buildings which are leased for a term of years by the Proponent.

Figure 1-2 Property Ownership vs Leased



1.5 Guiding Principles and Planning Assumptions

For the last 10 years, the focus has been consolidation of duplicative services, centralization of clinical services, and alignment of complementary use adjacencies. BMC achieved these objectives through strategic building additions and renovations, leveraging excess real estate assets, and "greening" its campus. These actions have resulted in maximized efficient use of its space and reduced capital expense. The next 10 years will build upon these successful strategies with a continued focus on its facilities to support BMC's mission and its new accountable care model. As a result, campus modifications will be necessary over the next 10 years, including but not limited to, constructing new facilities, leveraging underutilized real estate assets, managing expiring leases, demolishing obsolete buildings, renovating existing structures, and improving infrastructure for energy efficiency and resiliency.

1.5.1 New Healthcare Trends

BMC has experienced patient volume growth during its campus consolidation efforts alongside Boston's population growth. Since 2015, BMC's patient volume has grown annually. The average increase in inpatient admissions has risen steadily alongside Boston's population; BMC's average annual inpatient volume increase has been 2.10% and Boston's annual population increase has been 1.6%. The outpatient visit rates have increased significantly between 2017 and 2018 at 8.42%, with an average annual increase of 5.71% since 2015. In general, BMC's patient population requires more services.

While patient population continues to grow, the Massachusetts healthcare landscape has changed dramatically since 2010. In an effort to contain Massachusetts' Medicaid costs, given the state's Medicaid spending per beneficiary was higher than the national average, MassHealth introduced accountable care organizations in March 2018. Accountable Care Organizations (ACOs) are groups of doctors, hospitals, and other healthcare providers that share the goals of providing coordinated high-quality care to their patients, improving the population's heath, and controlling costs. The goal of coordinated care is to ensure that patients, especially the chronically ill, get the right care at the right time while avoiding unnecessary duplication of services and preventing medical errors. As discussed in **Section 1.3.6**, BMC is part of its own approved Boston Accountable Care Organization (BACO).

Per the Department of Housing and Urban Development (HUD), the Massachusetts homeless rate has increased 14% from 2017 to 2018 as compared to the national average increase of 0.3%. According to the Massachusetts Department of Public Health (DPH), 2014 is the first year that opioid-related fatal overdoses in Massachusetts were more than twice the national average. In 2015, they were four times higher than in 2000.

BMC is experiencing a corresponding high percent of patients who are homeless and/or have substance use disorders. More homeless patients have been admitted which has a challenging impact on length of stay given their comorbidities. As a direct result of becoming a BACO, BMC has experienced an increased demand for its services. BMC's inpatient admissions and outpatient visits reflect these current healthcare trends.

In addition to changes to BMC's patient population, continually evolving building codes and clinical space standards demand larger space to deliver the same care. One example is DPH requirements to convert from semi-private to private inpatient beds.

1.5.2 Vision 2030

BMC's vision is to make Boston the healthiest urban population in the world by 2030. The following priorities and actions will help BMC achieve its Vision:

- **Complex Chronic Diseases** – define a new model of care for complex disease management that improves health outcomes and reduces avoidable healthcare utilization.
- **Substance Use Disorders** – improve access to evidence-based substance use disorder treatment and harm and risk reduction services.
- **Mental Health Disorders** – integrate mental health services into primary care and expand access to mental health services throughout the community.
- **Housing Insecurity and Homelessness** – improve access to safe and affordable housing options and establish supportive housing interventions.
- **Other Key Social Determinants** – sustainably target key social determinants that negatively impact health outcomes in conjunction with community partners.

While BMC is underway with implementing programs, services, and partnerships to enable these actions, the physical support space must also be addressed.

1.5.3 Challenges and Objectives

The following challenges play a role in addressing the Proponent's program needs:

- Building Age and Obsolescence;
- Campus Use Adjacencies;
- Traffic and Parking Demands;
- Open Space Preservation; and
- Energy Efficiency and Resiliency.

To continue to capitalize on the improvements made under the previous 10-year IMP and to address current healthcare trends with the goal of providing quality health care to the neediest individuals while controlling costs, BMC objectives include:

- Accommodate increasing patient volume through leveraging the highest and best use of its building resources, both owned and leased;
- Re-align clinical services to support integration of a coordinated care model;
- Right size and modernize clinical space for current code and clinical standards;
- Optimize operational efficiencies through continued centralization of services and ideal adjacencies;
- Address aging buildings;

- Accommodate changing technologies;
- Improve patient arrival experience and drop-off operations;
- Enhance campus unification, circulation, and accessibility;
- Develop and activate pedestrian-friendly street edges; and
- Strengthen the identity and visibility of BMC.

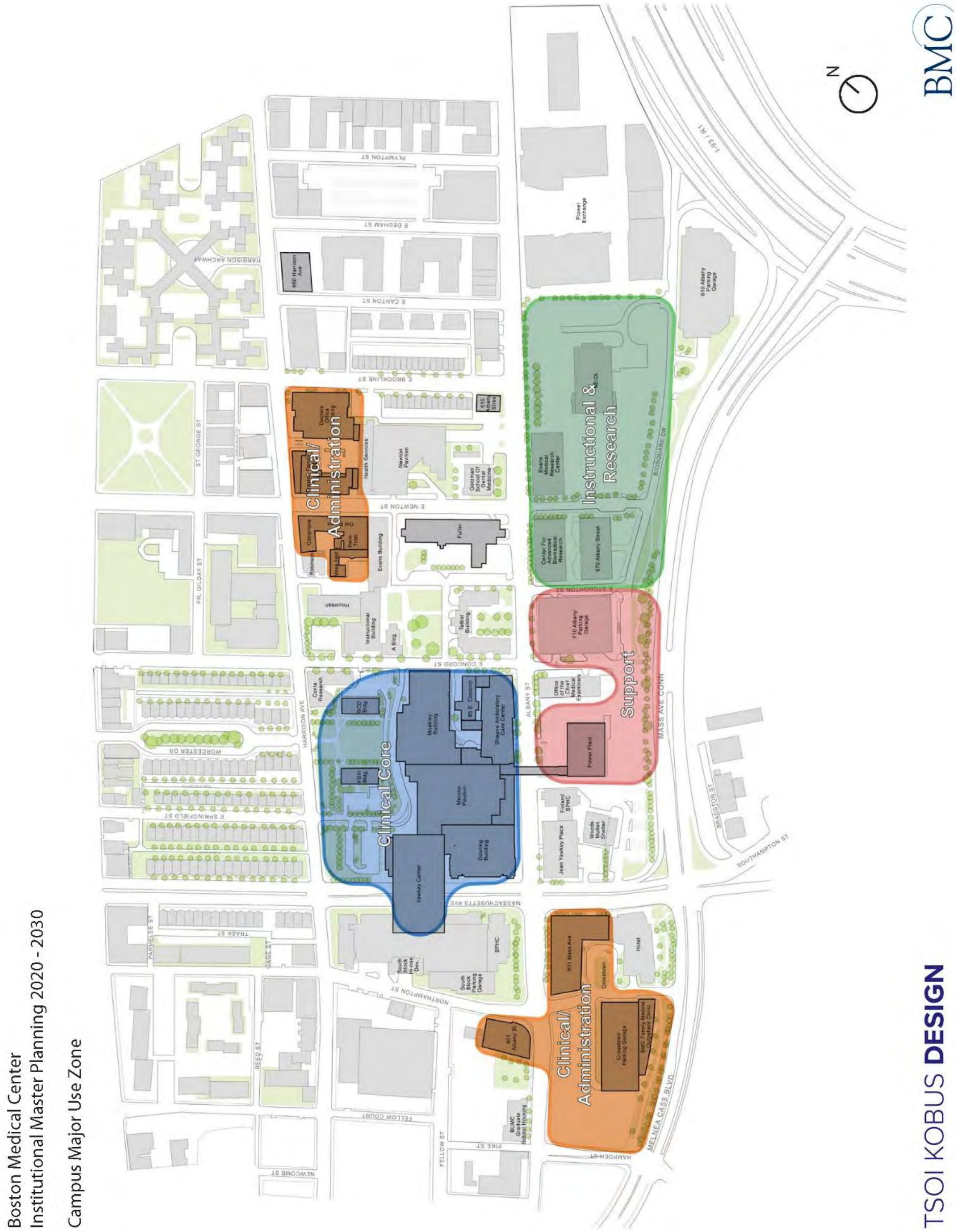
1.5.4 Campus Use Adjacencies

BMC has improved its campus use adjacencies with the completion of the 2010 IMP projects - the Moakley Cancer Center Addition, the New Inpatient Building Phase I and the Patient Transport Bridge. The clinical core is now to the west with more intensive clinical uses within the Menino, Yawkey and Moakley building cluster. Less intensive outpatient clinical services and administration are located west of Massachusetts Avenue (Crosstown and 801 Albany Street). Some outpatient clinical services remain on the east in the Preston Family Building. Medical administrative functions are now better positioned in proximity to clinical services, and general administrative functions have been more appropriately located on the campus perimeter and out of the clinical core, but some still remain to the east in the Doctors Office Building (DOB), Gambro and Solomon Carter Fuller. Other major use zones remain including a Support Zone (Power plant and Parking) and Research (BioSquare) south of Albany Street. See **Figure 1-3** Campus Major Use Zones

BMC's campus design goals and objectives are aimed at positioning BMC's physical space to support integration of a coordinated care model. This is particularly important to being able to address the medical, behavioral and social needs of BMC's patient population.

The master planning objectives of leveraging the highest and best use of its building resources, optimizing operational efficiencies through continued centralization of services and ideal adjacencies, and re-aligning and modernizing clinical services are ideal for ensuring BMC's ability to deliver on its mission to continue high quality patient care, accommodate patient volumes and sustain ever changing healthcare trends.

Figure 1-3 Campus Major Use Zones



1.5.5 Campus Aging Buildings

A facilities assessment was completed to evaluate the physical conditions of the major buildings on the campus. The purpose of this assessment was to prioritize capital investments and determine highest and best use for the buildings for the short-term and long-term. The BMC campus is comprised of buildings of various ages and conditions. The assessment concluded that certain buildings contain major deficiencies and require major improvements to function acceptably as clinical and/or administrative space. These buildings include the Dowling Tower, Vose Hall, Betatron, Doctors Office Building (DOB), and Preston Family Building.

In determining the highest and best use of BMC's building resources, several factors are weighed for clinical and administration buildings and sites. To consider the appropriate location of a building use, the following evaluation criteria is used:

- Adjacency to existing clinical ancillary services;
- Location consistent with BMC master plan objectives;
- Impact on surrounding neighborhoods;
- Ease of access, covered drop-off; and
- Accessibility to parking.

Evaluating criteria for clinical buildings:

- Minimum typical floor plate area of 22,000 – 30,000 square feet;
- Minimum floor plate width of 100 feet;
- Minimum 14'-6" floor-to-floor height to accommodate relative mechanical systems;
- Bay spacing 30x30;
- Floor loading (diagnostics/treatment): 100 to 150 pounds/square feet;
- Floor loading (inpatient): 50 to 100 pounds/square feet; and
- Minimum 10% to 14% space per floor for MEP and Tel-Data.

Evaluating criteria for administration buildings:

- Minimum typical floor plate area of 10,000 square feet;
- Minimum 12'-0' floor to floor height to accommodate relative mechanical systems;
- Structural grid should accommodate 10'-0" planning module for offices;
- Minimum 5'-0" corridor width;
- Floor loading for general office use: 50 pounds/square feet;
- Floor loading for corridors: 80 pounds/square feet; and
- Minimum 10% space per floor for MEP and Tel-Data.

BMC sold the DOB in 2015 and presently leases a small amount of space for its employee health clinic and the majority for administration, which will be vacated during the term of the IMP.

The Dowling Tower was downgraded to administrative use in 1994 due to its deficiencies. Since then, BMC has been relocating outpatient clinical services out of the Dowling building. The outpatient clinics that do remain will be relocated out of the Dowling building during the IMP. The Dowling site was previously approved in the 2010 IMP and subsequent IMP amendments to be replaced with the New Inpatient Building Phase II; this remains the plan for the new IMP.

Due to the facility conditions assessments and the need for extensive renovations to create acceptable clinical and/or administrative space, both Vose Hall and Betatron will be vacated over the term of the IMP.

1.6 Summary of Program Needs

Based upon the guiding principles and planning assumptions presented in **Section 1.5**, BMC proposes a comprehensive facility plan over the next 10 years that includes a matrix of new construction and demolition and renovation projects. Several of BMC's program needs will be accomplished during the term of the IMP. Looking into the future, and beyond the term of the IMP, BMC acknowledges that additional program needs will be warranted as buildings age, leases expire, and healthcare trends continue to evolve, and objectives of the coordinated care model are realized.

1.6.1 Clinical Services

The most dramatic change in healthcare is the introduction of accountable care organizations. While this has been implemented, BMC has experienced continued increases patient volumes as the Boston population has steadily increased. In addition, other factors such as homelessness and substance use disorder have risen have put further demand on BMC's inpatient and outpatient services. BMC also continues to be challenged by aging and obsolete buildings meeting very specific requirements for hospital and clinical functions driven by today's code and clinical space standards, particularly converting semi-private inpatient beds to private. To support a coordinated care model to treat the medical, behavioral, and social needs of its patients, BMC strives to reconfigure and modernize its clinical spaces to integrate these services. BMC proposes a combination of three building additions and three new construction buildings, of which two new construction buildings were previously approved in the 2010 IMP, for inpatient and outpatient to address the changes in patient volume and today's code and clinical space standards.

1.6.2 Administrative

A major objective of BMC that remains is continuing to shift administrative uses away from the clinical areas. Much of this was accomplished under the 2010 IMP, but some Administrative uses remain in less than ideal campus locations that are better suited for clinical expansion or in buildings that BMC plans to vacate over the term of the IMP due to age and obsolescence and/or expiring leases. In addition, modern office space is needed to support dry research in the form of computer data and analytics. This computer research is needed to determine the best interventions for BMC's patients suffering with substance use disorders and behavioral health issues. BMC proposes renovation of two inter-connected existing administrative buildings and one new construction building that will provide new and efficient administrative offices and space for computer data and analytics.

1.6.3 Campus Experience, Access, and Arrival Operations

With the consolidation of its two clinical campuses to the west, BMC endeavors to enhance the patient arrival experience now directed to a single location. This stresses the need for clear hospital location identifiers, which signify a place of high-quality patient care, and organization of functional zones for patient and visitor arrival, entry, drop-off, and pick-up. To effectively manage future patient demands and efficient flow of movement to and through the BMC campus, geometric and operational adjustments may be required to manage vehicular and pedestrian movement at its front door. To address this need, BMC proposes new signage to strengthen its location as viewed from the South East Expressway and Massachusetts Avenue Connector, which is a major gateway area of the City, and construct two hospital entry lobby additions to improve pedestrian and vehicular through-put during the term of the IMP. In addition, BMC will look for opportunities to add retail in existing buildings where appropriate to create improved patient and visitor experience and strengthen connections with the community.

1.6.4 Energy Efficiency and Resiliency

BMC has made significant improvements to its overall support infrastructure focused on energy efficient operations through campus consolidation, installation of more energy efficient equipment, and realized a significant reduction in greenhouse gas emissions. As a safety-net trauma center in a coastal city, which serves the area’s most vulnerable patient population, going green and building for resiliency is critical to BMC delivering on its mission. The events of Hurricane Katrina and Sandy devastated the health care infrastructure in those communities. BMC must ensure that it can care for patients and maintain emergency access to critical care services during a natural disaster. This requires making changes to critical care hospital infrastructure to ensure it is insulated from flooding at the ground level. Over the term of the IMP, BMC will leverage new IMP projects, or pursue independently, opportunities to improve resiliency and maximize energy efficiency through raising electrical infrastructure in buildings, automating the black start islanding of its co-gen plant, energy storage options, assessing the need of remaining utility services in the existing Power Plant, exploring ways to ensure patient transport routes to critical care are insulated from flooding, and other efforts to support its goal of achieving carbon neutrality and strengthening resiliency. In addition, investing in programs and partnerships to improve social equity for its most vulnerable patient population through access to critical medical, behavioral and social services as well as housing will strengthen the resiliency of the BMC community. These investments align with BMC’s vision to make Boston the healthiest urban population in the world. See **Section 3.2** for a detailed description of BMC’s sustainability efforts.

1.6.5 Campus Aging Buildings

BMC is actively working to prioritize capital investment to determine the highest and best use for its buildings for the short-term and long-term and identify buildings that no longer meet the requirements for state-of-the-art medical care and modern administrative office space. Prior reviews have concluded that the Dowling Tower must be replaced, and the previously approved IMP included plans for the replacement of this building with the New Inpatient Building Phase II. The DOB no longer serves the level of patient care requirements and is currently used for administrative office space; BMC sold this building in 2015. The current review includes Vose Hall, Betatron and the Preston Family Building. Vose Hall is and L-shaped 4-story building originally constructed to serve as a nurse's home. Betatron is a small 1-story structure, attached to the east elevation of Vose Hall, originally served as a Linear accelerator vault. Vose Hall and Betatron have been used as administrative office space in recent years and both have significant deficiencies to remain as office space and will be vacated during the term of the IMP. These buildings are planned to be replaced by the 10 Stoughton Street Administration Building. The Preston Family Building continues to house outpatient clinics. Originally built as a hotel, the space is not conducive for state-of-the-art clinical care. BMC plans to relocate the outpatient clinics from Preston to the west over the term of the IMP.

1.7 Summary of Institutional Master Plan Projects

This IMPNF includes a combination of strategic building additions, existing building renovations and new construction projects over the next 10 years. Two of the new construction projects, the New Administration / Clinical Building and the New Inpatient Building Phase II, were previously approved in the 2010 IMP and subsequent Amendments in 2013 and 2017 and these are carried forward in the new IMP.

- Yawkey 6th Floor Addition – Construct an approximately 15,500 square foot addition to enable the creation of a single floor to integrate existing OB clinics from a separate floor within Yawkey and integrate into the existing women's health services on level 6.
- Menino & Yawkey Lobby Addition – Construct an approximately 6,000 square foot entry and lobby addition to improve circulation to and through the buildings and enhance the patient and visitor experience by expanding the ground floor retail and second level cafeteria space. As part of this project, BMC will be studying the need to reconfigure the vehicular operations at BMC Drive through re-establishment of functional use zones within BMC's property as well as potential geometric changes and improvements to traffic and parking operations management.
- Menino 9th Floor Addition – Construct an approximately 37,000 square foot vertical addition to support the increased inpatient volume associated with population growth and increase in the homeless patient population and regulatory requirements to provide private beds.
- Collamore / Old Evans Renovation of Existing Administration – Renovate approximately 102,000 square feet of the existing obsolete administrative space in the two connected buildings to provide modern offices and support areas.
- 10 Stoughton Street10 Stoughton Street – Construct an approximately 138,000 square foot new administrative office space to continue to consolidate administrative functions and improve campus adjacencies as well as provide modern office space for computer data and analytics to support better care and outcomes for its patient population.
- New Administration / Clinical Building (ramp parcel) - Construct an approximately 207,000 square foot building on the ramp parcel adjacent to the Newton Pavilion (BMC has retained the right to develop on the ramp parcel). This building will consolidate administrative functions and provide modern space for computer data and analytics. This building will also accommodate space for clinical services, clinical offices and operational support space as well as provide opportunities for ground floor retail.
- New Inpatient Building Phase II – Construct an approximately 323,000 square foot building on the Dowling Tower site, directly adjacent to the New Inpatient Building Phase I recently

completed. This will necessitate the demolition of the existing Dowling Tower, the remaining portion of the Dowling Tower located at the corner of Massachusetts Avenue and Albany Street. This will support the increased inpatient volume and imaging expansion and provide appropriately sized modern inpatient spaces that meet current code and clinical care standards. This project was previously approved under the 2010 IMP and associated Amendments and is being carried forward into this new IMP.

- New Administration / Clinical Building (Power Plant site) – Construct an approximately 253,000 square foot building on the surface lot located on the north side of the Power Plant along Albany Street to continue to consolidate administrative functions and provide modern space for computer data and analytics. This building will also accommodate space for clinical services, clinical offices and operational support space. When this building is developed, the loading dock will move to its final location at the rear of the building and a new below grade tunnel will be constructed beneath Albany Street to transport materials between the Menino Pavilion and the south side of Albany Street. This project was previously approved under the 2010 IMP and associated Amendments and is being carried forward into this new IMP.

Section 2.2 includes further descriptions of the IMP projects anticipated during the term of the IMP and clarifies ownership and use changes of existing buildings. Additionally, future program needs are also discussed in **Section 2.3**.

1.8 Public Benefits

Boston Medical Center (BMC) provides numerous public benefits to the City of Boston. The IMP projects will directly enhance the Proponent's abilities to administer the services that support its mission within the community.

1.8.1 Community Benefits Introduction

As previously noted, BMC's mission is to "provide consistently excellent and accessible health services to all in need of care regardless of status and ability to pay." Approximately 57 percent of BMC's patients come from underserved populations, including low-income families, elders, people with disabilities, and immigrants. Fifty-seven percent of all patients are from facial and ethnic minority populations and 32 percent do not speak English as a primary language. Unwavering in our commitment to address the health needs of our diverse patient population, BMC provides a wide range of services beyond the traditional medical model. Core to fulfilling our public health mission and consistent with the Community Health Needs Assessment (CNHA) findings, the goals of our community benefits program are to improve access to health services and improve health outcomes for underserved populations in our community. Key findings that emerged from the CHNA included health care access, chronic disease and risk factors, mental health and substance abuse, and violence. Driven by the social determinants of health that impact health outcomes among our patients and community, the goal of our community health improvement activities, or community benefits, is to improve community health.

These programs, including but not limited to, patient navigation, interpreter services, and a food pantry, help reduce barriers to accessing health services and eliminate disparities in health care among the various populations BMC serves.

With more than 26,339 admissions and 1,001,304 patient visits per year, BMC provides a comprehensive range of inpatient, clinical, and diagnostic services in more than 70 areas of medical specialties and subspecialties. The largest 24-hour Level I trauma center in New England, BMC's Emergency Department has more than 130,000 patient visits annually.

BMC serves the urban community of Greater Boston. The majority of the communities that BMC serves are Boston census tracts that are federally designated medically underserved populations. Although Massachusetts' universal care enables individuals to seek chare at any hospital, BMC remains the largest safety net provider in Boston and New England. The implementation of universal care did not reduce the real number or percent of underserved communities served by BMC. An estimated 20.5% of Boston residents live below the federal poverty level.

According to the 2018 Massachusetts Health Insurance Survey, an estimate of 4% of residents were uninsured. Ninety-six percent of Massachusetts residents had coverage during the survey of which 62.7% reported employer-sponsored insurance (ESI) and 37.3% reported other non-ESI. Of BMC's patients in 2018, approximately 11.9% were uninsured and coverage rates for primary insurance were approximately 11.4% Medicare, 47.2% Medicaid, and 29.5% private or ESI.

BMC values its diverse patient population and is committed to honoring their ethnic, religious, and cultural differences. For those who do not speak enough English to safely receive their medical information and care in English, or those who have visual, speech, or hearing impairments, BMC's Interpreter Services

Department works to ensure effective communication between our staff and patients. The Interpreter Services program at BMC is the most extensive in New England as well as one of the largest and oldest in the United States. A team of 60 professional medical interpreters or language facilitators are here to help patients in many languages. Professional person to person medical interpretation services are available in more than 16 languages 24/7 so that patients have the opportunity to speak with their providers in their preferred language. The program uses the latest advances in technology, such as telephonic and video interpreting, to provide services in 250 languages. Last year, BMC handled approximately 200,000 requests for interpreter services.

BMC is committed to addressing health disparities, an issue for the Boston health care community that has been brought to the forefront by several reports and government commissions in recent years. This commitment is reflected in investment in new facilities, technology, and equipment to ensure that patients have access to state-of-the-art care; in cultural competency training for clinical and non-clinical staff and managers; and in specific projects reaching into the community or addressing disparities within disease areas.

In addition to health care services, BMC provides a wide range of social services to meet the basic needs of the many vulnerable people it serves. Leveling the health care playing field for patients goes beyond commitment to providing exceptional health care without exception: BMC realizes that it must work in a multidisciplinary fashion and at multiple levels of patients' needs to help secure its patients' health. BMC services have evolved over many years, including at its predecessor institutions, to provide benefits and services in light with its public health mission. Many programs that started at BMC – like the Reach Out and Read program and the Medical Legal Partnership I Boston – are now nationally replicated models to improve the health and development of vulnerable populations.

BMC's Community Benefits program is not formalized in a specific Community Benefits Plan. The BMC Board of Trustees, BMC senior management, the Boston HealthNet Board of Directors, and individual department leaders annually prioritize programs and services for the vulnerable populations they serve. BMC categories Community Benefits programs by the themes of ensuring access to health care for underserved populations and securing the fundamentals of health in key areas of public health concern. These programs receive significant, dedicated budgetary support from the hospital, Boston HealthNet health centers, or BMC departments in addition to philanthropic or grant funds. There are numerous other community services provided at BMC and in the community by BMC employees and medical staff to foster community health. Many of these programs are supported at the departmental level or through grants, philanthropy, or volunteerism.

1.8.2 Needs Assessment

Unwavering in our long-standing commitment to address the health needs of our community, Boston Medical Center (BMC) has developed programs and initiatives beyond the traditional medical model. Core to fulfilling our public health mission and vision for health equity, our Community Benefits Programs and Initiatives aim to improve health outcomes among underserved populations in our community.

In 2019, BMC conducted a comprehensive Community Health Needs Assessment as a collaborator in the Boston CHNA-CHIP Collaborative, a new initiative created by a number of stakeholders—community organizations, health centers, community development corporations, hospitals, and the Boston Public

Health Commission. The Collaborative aimed to undertake the first large-scale collaborative city-wide Community Health Needs Assessment (CHNA) and Community Health Improvement Planning (CHIP) process.

The Collaborative CHNA focused on the social determinants of health using a health equity lens. The influences of race, ethnicity, income, and geography on health patterns are often intertwined. In the United States, social, economic, and political processes ascribe social status based on race and ethnicity, which may influence opportunities for educational and occupational advancement and housing options, two factors that profoundly affect health. Institutional racism, economic inequality, discriminatory policies, and historical oppression of specific groups are many of the root factors that drive the health inequities we see in the U.S. today.

The CHNA used a participatory, collaborative approach that engaged the community through different avenues. Over 100 Collaborative members representing health care, public health, education, community development, social service, and community-based organizations provided input throughout the CHNA process and played an integral role in data collection efforts. Data collection efforts were focused on engaging hard-to-reach populations who are not typically engaged in these processes or represented in the secondary data.

Existing data were drawn from national, state, and city sources, such as the U.S. Census, Massachusetts Department of Public Health, and Boston Public Health Commission, including datasets such as the Boston Behavioral Risk Factor Surveillance System (BBRFSS). For new data collection, over 91 organizations and 2,404 individuals were engaged in and completed a CHNA community survey administered online and in-person in seven languages, 13 focus groups with a total of 104 community residents, and 45 interviews with organizational and community leaders to gauge their perceptions of the community's needs, strengths, and opportunities.

BMC, other Collaborative members, community members, and community stakeholders undertook a transparent process to distinguish the most pressing community health needs based on the data collected for the CHNA.

A 100-member work group, comprised of representatives from the health care, public health and social service sectors together with community leaders and residents, selected the following shared values to guide prioritization of the CHNA findings: 1) burden: how much does this issue affect the health of Boston; 2) equity: will addressing this issue substantially benefit those most in need; 3) impact: can working on this issue achieve both short- and long-term change; 4) feasibility: is it possible to address this issue given infrastructure, capacity and political will; and 5) collaboration: are there existing groups across sectors willing to work together on this issue? Guided by these shared values, the work group distilled 19 issues identified by the CHNA into four key issues. These shared priorities informed BMC's 2019 Implementation Strategy which serves as our roadmap for Community Benefits Programs and Initiatives for the next three years. BMC has identified six key issues, including the four identified by the Collaborative, which our community benefits programs and initiatives will address over the next three years:

- Access to Services
- Housing

- Financial Security and Economic Mobility
- Violence and Trauma
- Behavioral Health and Substance Use Disorder
- Food Insecurity

1.8.3 Promotion of Community Health

1.8.3.1 Health Care Access

Birth Sisters and Centering Pregnancy

BMC has developed two programs, Birth Sisters and Centering Pregnancy, to improve health outcomes of childbearing women at risk for poor maternal and infant outcomes. Birth Sisters are women who are trained to provide social support and education to mothers from their own communities during pregnancy, labor, and the postpartum period. The Birth Sisters program has been linked to significantly higher breastfeeding rates and fewer cesarean deliveries. Centering Pregnancy is an innovative and proven model of care that offers prenatal care in 10 two-hour group sessions using a curriculum modified to meet the complex social needs of BMC's population. At these sessions, beginning early in the second trimester, patients receive health visits, prenatal and parenting education, and peer group support all in one visit. The programs served over 300 patients in FY18.

Boston Center for Refugee Health and Human Rights (BCRHHR)

The mission of the BCRHHR is to provide comprehensive health care for refugees and survivors of torture and related trauma, coordinated with legal aid and social services; to educate and train agencies and professionals who serve these communities; to advocate for the promotion of health and human rights in the United States and worldwide; and to conduct clinical, epidemiological, and legal research for the better understanding and promotion of health and quality of life for survivors of torture and related trauma. The BCRHHR serves an average of 375 patients annually.

Child Life Program (CLP)

The Child Life Program assists children and families in managing the stresses associated with hospitalization and illness. The CLP team members are all trained developmental specialists, aiming to support children and families through the hospital experience. The goals of the CLP are to: help children express their feelings through play in a safe and supportive environment; advocate for children, offering support to effectively work through pain management; offer children developmentally appropriate choices that increase feelings of independence, self-esteem, and trust; and assist with implementation of coping techniques during stressful situations. The CLP currently covers the areas of Inpatient Pediatrics and the Pediatric Intensive Care Unit, Pediatric Ambulatory Care Clinic, Pediatric Emergency Department, and Pediatric Otolaryngology/OR; we will be adding a position in 2019 for Radiology. The team remains a consult service to children of adult families as needed.

Clothing Bank

BMC's social workers access the clothing bank in real time when a provider contacts Social Work about a basic clothing need (sweatpants, shirts, underwear, socks, shoes, and winter coats) for a low-income patient.

Center for the Urban Child and Healthy Family

The Center for the Urban Child and Healthy Family was established by the Department of Pediatrics in 2016 to develop innovative ways to meet the complex health and social needs of children and their families. The Center's mission is to achieve dramatic improvements in outcomes for children and families facing adversity such that all children have an equal opportunity to be healthy, ready to learn, and to achieve their full potential. This will be achieved through developing, testing, and scaling novel health delivery approaches that serve children with their caregivers and that bring communities, child-serving sectors, and health providers together across disciplines. The Center aims to build the Pediatric Practice of the Future through fundamental systems change - creating & scaling novel health delivery approaches and working with families, inter-disciplinary colleagues, communities, and other family-serving sectors.

Elders Living at Home Program (ELAHP)

The goal of ELAHP is to help older adults who are homeless or at risk for homelessness secure and maintain a permanent residence and live as independently as possible. ELAHP served 211 clients during the 2018 fiscal year. Of this number, 102 received housing search and placement services; 40 received housing stabilization services; 70 received homelessness prevention assistance; and 25 clients were served through the new Living Well at Home Project, a community-based complex care management pilot designed to improve health outcomes for frail residents of an elderly/disabled housing complex in Roxbury. Some clients received more than one type of service. Thirty-six (36) clients received nutritional assistance. All clients suffer from at least one chronic illness, and 177 suffer from two or more disabling medical conditions. Remarkably, all of the program clients who were placed in housing and all who received stabilization services have remained safely housed during this period. Of those clients who received homelessness prevention services, 68 (100% with the exclusion of two clients who passed away before their cases were resolved) have remained in stable housing. Over the last ten years, the success rate of ELAHP's stabilization services remains at an extraordinary 98%.

Grow Clinic

The Grow Clinic was founded in 1984 by Dr. Deborah A. Frank within BMC's Department of Pediatrics. The primary goal of the Grow Clinic is to provide comprehensive multidisciplinary medical, nutritional, and social services as well as developmental support to children from the Greater Boston area diagnosed with Failure to Thrive (FTT). Children with FTT have significant difficulty growing because of malnutrition associated with illness, poverty, and other family stressors. The effects of FTT include shortened attention spans, emotional problems, delayed cognitive development, lasting growth failure, and frequent serious illness, which can result in hospitalization. The Grow Clinic provides medical treatment, nutritional assessment, home health education, social service advocacy, developmental referrals, access to BMC's therapeutic food pantry, nutritional supplements, children's clothes, diapers, books, and educational toys, among other services. There are approximately 200 children treated annually by the Grow Clinic. In FY2018 there were 79 new patients. Thirty-two percent (32%) of clinic patients were 12 months of age or younger; the average age at referral was 36 months; and the average length of treatment was 29 months. There were 956 total clinic visits during this period. Approximately 8.5% of patient families were homeless and living in shelters. Clinicians made 429 home visits in FY18. All patients demonstrated improved growth, and 80% demonstrated significant weight improvement.

Immigrant Health Center

For over 20 years, the *Boston Center for Refugee Health and Human Rights* (BCRHHR) in the Department of Psychiatry has lived this mission, providing not only trauma-informed mental health care to one of BMC's most vulnerable patient populations – survivors of torture – but also working with their clients to address some of their most pressing social needs such as housing, food security and career development services. For many patients, BCRHHR has become not just a medical clinic, but a health home where they are welcomed, safe, respected and cared for. Despite the difficult experiences and circumstances BCRHHR's clients have endured, their resiliency is continually inspiring, as many have gone on to launch careers, get green cards, achieve remission from PTSD and lead healthy, happy and fulfilling lives. From day one, the BCRHHR has been a key partner in visioning the BMC Immigrant Health Center (IHC), lending their decades of experience to inform the development of this center.

The BMC Department of General Internal Medicine has also been a leader in caring for newly arrived immigrant and refugee patients through the *Immigrant and Refugee Health Program* (IRHP). The program serves the complex needs of these patients in a culturally sensitive and multidisciplinary setting, offering integrated medical and mental health, medical case management, women's health specialty services, and care coordination. The IRHP has a broad mandate to improve the physical health of any immigrant or refugee patient who comes to the program through the provision of culturally-appropriate and trauma-informed primary care services, while also addressing those social factors that are an inextricable part of our patients' health stories such as immigration legal needs, health literacy or English language skills.

Because these programs share a vision and perspective that whole health must include physical, mental and social wellbeing, it was natural that they should integrate together in order to build one cohesive BMC Immigrant Health Center. In launching the Immigrant Health Center (IHC), we created a single-entry point where any immigrant or refugee patient can go and be quickly connected with all of the physical, mental and social services they need to heal, rebuild and thrive. By joining our programs under one medical home model, we ensure that all clients are offered a full menu of services, access these services in an efficient way, and are supported by knowledgeable, caring staff who will walk with them to navigate the healthcare system.

Integrative Medicine

Started in 2004, the Program for Integrative Medicine and Health Care Disparities at BMC combines conventional medical treatment, complementary therapies, and lifestyle changes. The core purpose of this program is to pioneer a widely accessible, multicultural, cross-disciplinary, national model of integrative health for all through clinical services, education, research and advocacy. Complementary therapies include yoga, massage, acupuncture, herbal therapy, dietary supplements, meditation, hypnosis, chi gung, tai chi, and reiki. The program offers all clinical services and classes at little or no cost.

Interpreter Services

BMC values its diverse patient population and is committed to honoring their ethnic, religious, and cultural differences. For those who do not speak enough English to safely receive their medical information and care in English, or those who have visual, speech, or hearing impairments, BMC's Interpreter Services Department works to ensure effective communication between our staff and patients. The Interpreter Services program at BMC is the most extensive in New England as well as one of the largest and oldest in the United States. A team of 60 professional medical interpreters or language facilitators are here to help patients in many languages. Professional person to person medical interpretation services are available in more than 16 languages 24/7 so that patients have the opportunity to speak with their providers in their preferred language. The program uses the latest advances in technology, such as telephonic and video interpreting, to provide services in 250 languages. Last year, BMC handled approximately 200,000 requests for interpreter services.

Margaret M. Shea RN Adult Day Health Program

The program holds a license under the Department of Public Health #D06M and offers families peace of mind and a support system to help them care daily for a family member unable to function alone during the day. The program offers intervention programs that provide services in an ambulatory, home-like setting for adults who do not require 24-hour institutional care but, because of physical and/or mental impairment, are not completely able to live independently or remain at home, allowing family members the opportunity to continue to work while their loved one is at a program during the day. A referred participant can look forward to program offerings such as nursing interventions, social services, therapeutic activities, and transportation to and from the program. The program serves 55 individuals with a daily census of 42 and average daily attendance of 31; participants attend the program up to five times per week with a minimum requirement of two days a week.

Pediatric Assessment of Communication Clinic (Autism Program)

The Autism Program at BMC is a multidisciplinary, multi-tiered, comprehensive and culturally competent program that is uniquely equipped to meet the complex needs of patients and families. Our team, comprised of a Program Coordinator, Autism Resource Specialist, multilingual Family Navigator (FN) and Transition Navigator (TN), offers specialized outreach, training and advocacy services, forms effective partnerships with schools, collaborates with local support organizations and draws upon a deep knowledge base of social service agencies to facilitate linkages to resources. Our FN works intensely with patient families to help ensure timely and appropriate treatment for children, which often includes facing financial and economic concerns, language and cultural issues, patient-provider communication, health care system obstacles, transportation problems, and bias/stigma. Our TN provides transition-aged youth (14-22 years old) and their families with information, guidance, and resources regarding the transition from school services to adult life and discusses topics such as goal setting, school IEP planning, adult services, and life skills development. The BMC Autism Program also has a well-established social media presence on Facebook, Twitter, Pinterest, and Tumblr—which each serve as further venues to provide resources, information, and guidance to families. The Autism Program has supported over 7,000 family referrals since its inception in 2007 and approximately 850 in FY18.

Pediatric Comprehensive Care Program (CCP)

CCP served a panel of approximately 550 children with special health care needs and their families in FY18. The clinical staff integrates primary care with specialty care and social services for children with neurodevelopmental and emotional/behavioral needs related to pre-term birth, congenital syndromes and chronic health conditions, and/or have experienced trauma as a result of abuse/neglect, parental abandonment, domestic violence, and parental substance abuse. Most of the children seen in the CCP have complex overlapping health, development and emotional/behavioral issues. Many low-income parents of special needs children tend to engage haphazardly and episodically with the healthcare system and fail to receive appropriate follow-up care and intervention. These parents often face economic hardships, educational barriers, psychosocial stigma, and social isolation as they try to cope with their children's needs and attempt to maintain stability for their families. The CCP, with its multidisciplinary approach, sees from 6 to 8 patients per provider per session, considerably less than the 10-12 patients per session in a regular pediatric clinic. Additionally, these team primary care visits allow for attention to routine health maintenance as well as updating complex care coordination; patients may also see a neurologist, pulmonologist, nutritionist, gastroenterologist, and/or a pediatric endocrinologist, when indicated. The program also utilized two family navigators as mainstays of their capacity to achieve high-touch care management and address the social determinants of health. This "one stop shopping" model of care promotes communication between all members of the child's healthcare team.

Pediatric Pain Clinic

The Pediatric Pain Clinic at BMC manages acute, complex, and chronic pain in children from infancy to age 22. Our team of experts work closely with each patient's primary care physician, striving to help children regain normal lives and participate in typical age-appropriate activities. The Pediatric Pain Clinic is able to treat a wide variety of conditions and offer a variety of specialized therapies. Each patient is given a personalized pain management plan to best fit their needs. Strategies and parenting support are also offered for families who may travel a long distance to receive this specialized care. The team communicates with schools and outside providers to ensure comprehensive and collaborative care. In FY18 the clinic treated approximately 100 new patients.

Preventive Food Pantry and Teaching Kitchen

The Preventive Food Pantry and Teaching Kitchen address hunger-related illness and malnutrition among a low-income, largely underserved and vulnerable patient population of Greater Boston. Individuals at risk of malnutrition are referred to the program by BMC or Boston HealthNet physicians or nutritionists who provide "prescriptions" for supplemental food that best promotes physical health, prevents future illness, and facilitates recovery. The Food Pantry now provides nutritional food prescriptions to approximately 6,794 people each month. In FY18, the Pantry provided nutritious food for more than 80,000 Greater Boston residents. Approximately 12,000 to 18,000 pounds of food supplies are required weekly to stock the Pantry shelves at BMC. The Teaching Kitchen complements the work of the Pantry by educating patients about nutrition through cooking methods that are compatible with their medical and dietary needs, as prescribed by their physicians.

Rooftop Garden

In April 2017, BMC opened its Rooftop Garden to meet the growing need to provide our patients with more fresh produce. The Rooftop Garden has 2,400 ft^2 of growing space located on top of BMC's Albany Street power plant. The garden produces crops such as arugula, bok choy, radishes, Swiss chard, kale, and more. The garden produces approximately 5,000 pounds of fresh produce each growing season, which are used in the Teaching Kitchen and distributed by the Food Pantry.

Shuttle Buses/Taxis/Uber

Community access to BMC is enhanced through a free shuttle bus service. Four buses circulate throughout the system on established routes, from 7am-7pm Monday through Friday, bringing patients to BMC. In FY18, these shuttle buses transported 156,483 patients and their families between BMC and the Boston HealthNet Community Health Centers. A Pilot Uber program has been implemented to service 10 additional Boston HealthNet Health Centers. There is also a direct taxi and van hospital-to-home service for specific cases.

StreetCred

BMC's StreetCred program addresses child poverty by linking low- to moderate-income pediatric patient families to anti-poverty safe-net programs. StreetCred provides free tax-preparation services through well-trained staff and volunteers, who work with families to prepare their taxes and access the EITC and other tax-based programs—for example, SNAP or the FAFSA—for which they may be eligible. The United States Federal Earned Income Tax Credit (EITC) is a refundable tax credit for low- to moderate-income working individuals, particularly those with children. In FY18, the StreetCred program filed 977 returns and provided over $1.7 M in tax refunds. These tax refunds can have a profound positive impact on a family's household budget and, in cases of financial stress, alleviate significant financial burden.

SPARK Center

The SPARK (Supporting Parents and Resilient Kids) Center is a model childcare program offering comprehensive, integrated, state-of-the-art services for children and families whose lives are affected by medical, emotional and/or behavioral challenges. The program serves Boston's highest-risk children, ages infant through 5 year olds: those living with complicated medical conditions (including neuro-developmental challenges, substance/opioid exposure, failure to thrive, and HIV/AIDS) and children who are involved with the Massachusetts Department of Children and Families due to significant family and social concerns (including child abuse and neglect, domestic violence, and adult substance abuse). Located in the heart of Mattapan and serving approximately 40-50 children annually, the SPARK Center represents a unique and powerful collaboration between BMC and the Boston University School of Medicine, the Massachusetts Department of Early Education and Care, and several additional state and federal funders. At SPARK, children learn the skills and values to succeed in school and to develop productive and rewarding adult lives. Additionally, the SPARK Center offers parents and other caregivers the support, guidance and compassionate understanding that promote strength and stability in their parenting responsibilities.

1.8.3.2 Housing

In FY18 Boston Medical Center (BMC) launched a multi-year investment in a supportive housing strategy as part of our Determination of Need (DoN) Community Health Initiative (CHI). This project was designed as a multi-year approach to impact affordable housing and supportive affordable housing in Boston. The following addresses the first of these multi-year commitments.

Bartlett Station, a development by Nuestra Comunidad Development Corporation and Windale Developers, is an innovative urban mixed-use development with 323 housing units (market rate and affordable rental) and 46,000 ft^2 of retail, green space and public plaza located in Roxbury's Dudley Square. BMC provided year 1 of an operating subsidy for an outreach manager to build relationships and engage with the community in anticipation of the opening of Good Food Market, a grocery store dedicated to developing retail solutions that work in, and for, food desert communities. Additionally, BMC provided a $1 million zero interest loan to support the Good Food Market, which is expected to open in October.

The Waldeck Building, recently acquired by Codman Square Neighborhood Development Corporation, is a 59-unit distressed property that is located in Fields Corner, Dorchester. Three buildings located on Waldeck Street provide 35 units of permanent supportive housing for individuals with mental health and/or disability issues. BMC is providing an operating subsidy.

New Franklin is a housing development located in Franklin Field, Dorchester. BMC is supporting one full-time Community Life Program Coordinator (sometimes known as resident services), a new position that serves New Franklin residents and those who live in the surrounding community; supervision; and data tracking. BMC has worked with The Community Builders and the Community Life Program Coordinator to understand the health and wellness needs of the New Franklin development community and create linkages to healthcare and supportive services.

Smith House, at Madison Park Community Development Corporation, provides 132 apartments for the elderly. BMC is supporting one nurse, and one full-time Elders Living at Home Program senior care coordinator, a new position located at Smith House, who helps clients maintain a permanent residence and live independently.

BMC is supporting one full-time service coordinator, a new position at Madison Park Village's *Dewitt Community Center*, whose role is to provide health and wellness programming to residents and community members. The Dewitt Center is a brand-new facility with 21,374 square feet of community space at Madison Park Village in Lower Roxbury celebrating its first year of operation. Since opening, the Dewitt Center has become an important part of Madison Park Village community life offering programming for children, youth, families, adults, and elders, including Health and Wellness Workshops and Senior Fitness Classes.

Through BMC's Elders Living at Home Program (ELAP), a Community Wellness Advocate (CWA) and registered nurse are embedded at both Smith House and Madison Park Village to improve health outcomes for residents and increase access to services and supports. We have learned much from this project, which has become the template for our newest partnership at the Manning Apartments in Cambridge.

This model has been so successful, that BMC is partnering with the Cambridge Housing Authority and Cambridge Health Alliance to place a DoN-funded Cambridge Health Alliance Registered Nurse (RN) and an ELAP CWA onsite at Cambridge Housing Authority's *Manning Apartments* in Central Square, Cambridge. A Memorandum of Understanding (MOU) between all three organizations is in development.

BMC worked with the Codman Square Neighborhood Development Corporation and partners to develop the on-site supportive services plan.

In coordination with *Boston Housing Authority (BHA)*, BMCC invested in modest upgrades to BHA units across Boston to address reasonable accommodations that resulted in more flexible units that better meet residents' health needs, enabling elderly and disabled residents to continue to live independently. BMC also invested in a *Housing Prescriptions* Community Wellness Advocate who is situated at BMC and liaises with BHA when patients are in need of services or eviction prevention.

BMC invested in the *Healthy Neighborhood Equity Fund*, a $22.35 million private equity fund led by the Conservation Law Foundation and the Massachusetts Housing Investment Corporation, is based on a socially responsible investment model that considers the community, environmental, and health benefits as well as the financial risks and returns. Boston projects include Treadmark, Ashmont, Dorchester and Bartlett Station, Dudley Square, Roxbury. This is a one-year investment made in FY18.

In addition to the Healthy Neighborhood Equity Fund, BMC added the *Boston Impact Initiative* to its Social Impact Fund portfolio and is starting the process to make a Solidarity 3 note investment of $10,000 (open to accredited investors and institutions with a 3% annual return over 3 years).

Innovative Stable Housing Initiative (ISHI)

In collaboration with Boston Alliance for Community Health (BACH), Health Resources in Action (HRiA), and the Center for Community Health, Education, Research, and Service (CCHERS), BMC launched the Innovative Stable Housing Initiative (ISHI) and has invested in ongoing community engagement around affordable housing.

BMC initially launched ISHI with the intent to invest $1 million in community engaged housing stabilization, but we are excited to have been able to grow this initiative to include more partners and funding, which has led to a total investment of $2,950,000 in ISHI. On June 6th, we welcomed the broader community to the ISHI Community Launch Event at the NonProfit Center in Downtown Boston. With facilitation by Health Resources in Action and with co-funders Boston Children's Hospital and Brigham and Women's Hospital, we hosted fifty guests representing a diverse group of people, including residents, CBOs, and various ethnic communities and neighborhoods across Boston.

Three funding streams have been identified: the Flex Fund supports swift access to resources for individuals and families to maintain or attain stable housing; the Upstream Fund supports policy and systems change efforts around stable housing; and the Resident-Led Fund supports a democratized process addressing root causes of housing instability.

The Flex Fund's Total Grant Funds are $1,533,400; it is funded by BMC, Boston Children's Hospital, and Brigham and Women's Hospital. In Year 1, up to $166,200 was available to three agencies/community-based organizations. The first three recipients each received approximately $166,200: *Casa Myrna Vasquez, Inc.*, *Urban Revival, Inc.*, and *Homestart, Inc*.

The Upstream Fund has a total of $927,800 available, funded by BMC and Boston Children's Hospital. Its Year 1 funding and awardees have not been finalized yet, but the partners opened a request for Inquiry of Ideas to gather ideas from the Boston community regarding what housing policies and systems should be changed and how.

The Resident-Led Fund has a total of $100,000 available, funded by BMC. The first grant (of $100,000) was awarded to the *Center for Economic Democracy*, *Boston Ujima Project*, and *Right to the City* to plan and implement a democratized process that will seek additional grant funding.

ISHI activities and news can be found at the newly launched https://www.ishiboston.org/. Since BMC's initial Determination of Need Investment, BMC has leveraged the opportunity to bring other health systems to the table – most notably through ISHI in which Boston Children's Hospital and Brigham and Women's Hospital have become partners. With the success of its housing support services collaborations, BMC has been able to use its findings and project model to leverage grant funding toward further expansion of services and housing partnerships.

1.8.3.3 Chronic Diseases and Risk Factors

Avon Breast Health Initiative

From 2001-2018, the Avon Breast Health Initiative supported BMC's breast program in reducing delays in breast cancer care by addressing patient-level barriers to care through patient navigation. BMC's patient navigation model continues to serve its most vulnerable population and works to mitigate racial and ethnic disparities in breast cancer diagnosis and treatment. Under Dr. Battaglia's leadership, the patient navigation model has been recognized regionally, nationally, and internationally for its use of evidence-based practices to improve breast care delivery. Since the program's inception, more than 35,000 women have been served.

Cancer Support Groups

In 2006, BMC established the Cancer Patient Support Services Fund to provide crucial services and programs to complement patients' clinical care. The fund is used for survivorship programs such as support groups and celebrations, assistance with transportation costs to and from the hospital, patient navigation, and the provision of complementary therapies such as yoga and massage. In FY2018, there were 16 on-site cancer support groups, as well as six ongoing activity groups and nine featured programs, each running 1-4 times throughout the year. There were also nine annual events, including a survivorship celebration and a trip to Stowe, Vermont for the Weekend of Hope. Cancer Support Programs also offered a call-in service for caregiver support and a bereavement group for families who had recently lost a loved one to cancer.

Patient Navigation (PN)

BMC's Cancer Center Patient Navigation (PN) Program was launched in 2005. The main focus of this program is to identify and overcome barriers that play a key role in a patient's treatment compliance and completion. Patient navigators do this by providing advocacy and case management to oncology patients who have at least one identified barrier to care and are undergoing active cancer treatment. PNs work to empower patients by linking them to a broad range of services including, but not limited to, oncology support services, transportation, financial assistance, and appropriate community resources.

1.8.3.4 Violence

Child Witness to Violence Project (CWVP)

CWVP is a nationally recognized and award-winning mental health counseling, outreach, and consultation program. CWVP specializes in intervention with very young children exposed to domestic or community violence. The program offers both short- and long-term evidence-based treatments that represent best practice in serving the needs of traumatized children and their families. The program provides a flexible combination of services, including resource advocacy to link families to basic services including health care, childcare, housing, and after-school programs. The CWVP provided referrals, advocacy, assessment, short-term, and/or longer-term clinical care to approximately 300 families each year. In addition to its clinical services, CWVP is engaged in extensive local, statewide, and national training efforts to raise the standard of care for young children experiencing the traumatic effects of violence. The staff have delivered numerous trainings across multiple states and abroad to mental health and other providers across several service sectors and settings, including a presentation at a conference in Prague.

Community Violence Response Team (CVRT)

The Community Violence Response Team addresses the great need for services for victims of community violence and their families, as well as family survivors of homicide victims from the Greater Boston area. Free culturally sensitive and family-focused clinical services provided by the CVRT include crisis intervention, advocacy, case management, and trauma-focused counseling for adults, adolescents, and children (with a focus on age eight and over). CVRT seeks to reduce the effects of trauma by providing therapeutic support throughout the recovery process and ultimately minimizing mental health trauma. CVRT staff reflects the diversity of BMC's patient population. In FY18 the CVRT served approximately 1,000 people.

Domestic Violence Program (DVP)

The DVP provides training and education for staff, students, and community groups interested in learning more about domestic violence and the role we all can play in addressing it. In FY18, the Program Manager developed a comprehensive training that was approved by the Massachusetts Department of Public Health for licensed health care providers who are now required by law to receive specific training in domestic and sexual violence as a condition of licensure. In addition to the four trainings provided to BMC nurses thus far during FY18, the DVP also provided training on how to support survivors of domestic violence safely and effectively to just over 1,000 providers from multiple disciplines across the institution, including nursing, law enforcement, medicine and mental health, and a variety of students at area universities and community partners. The Program also provides assistance with hospital policy and protocol development, consultation on a variety of clinical and research initiatives, and direct advocacy/support services for survivors of domestic and dating abuse.

In FY18, the Program expanded its staffing to four full time Safety and Support Advocates, three of whom speak Spanish and one of whom speaks Haitian Creole. Referrals for direct services come from all inpatient and outpatient settings as well as community providers, and the Program also serves BMC employees. In FY18, the Program's Safety and Support Advocates provided 385 victims and survivors with a range of services including crisis intervention/counseling; risk assessment and safety planning; assistance with accessing protective orders and victim compensation; accompaniment to court, legal, medical, housing and other appointments; referral to community-based DV advocacy/rape crisis counseling, medical/mental health services; emergency financial assistance; and other support as needed. The Program also provided two support groups for women in Spanish. In FY18 the DVP also expanded its capacity to more fully support the Greater Roslindale Medical and Dental Center, a licensed satellite site of BMC, to provide its services more directly to BMC's patients and employees affiliated with the health center.

Violence Intervention Advocacy Program (VIAP)

Conceived in 2006 to help stem the tide of Boston's gun and knife violence, BMC's Violence Intervention Advocacy Program (VIAP) has become a vital component of violence intervention in the city and beyond. VIAP's purpose is to help victims heal so they can avoid future violence and build a positive future. To accomplish this, patient victims and their families are paired with a team comprised of a case manager, a mental health clinician, and a family support advocate to help them overcome barriers and turn their lives around. BMC treats 70% of the city's gunshot and stabbing victims, an average of 475 victims per year, with 68% being boys and young men of color. A powerful VIAP innovation is that the intervention with the patient begins in the safety of the hospital, where they are visited by a Violence Intervention Advocate within 48 hours of admission to initiate case management, taking advantage of the "teachable moment" associated with violent injury. As the victim heals, the VIAP team continues a 360-degree treatment program that includes safety planning, counseling, job and educational training, mental health, and family support services. To date, nearly 5,000 victims of violence have been served by this critical program, and while statistics show that the national rate of recidivism (re-presenting to the ED as a victim of violence) averages 30-40% annually, VIAP's recidivism rate is now 7%, showing a significant decline over the past few years.

1.8.3.5 Mental Health and Substance Abuse

CATALYST Clinic

In May 2016, BMC launched the CATALYST Clinic (Center for Addiction Treatment for Adolescent/Young adults who use Substances), a program designed to treat young people aged 25 and under who are struggling with substance use, or who have experimented with drugs and alcohol and may be at risk for developing an addiction.

The CATALYST Clinic team works to provide interdisciplinary, team-based care that includes physicians, a nurse, a social worker, a community outreach navigator and a program manager. The CATALYST Clinic team works together to offer assessment, diagnosis, and treatment of various substance use disorders, as well as a transition from adolescent to adult care when appropriate. In FY18, the CATALYST Clinic received approximately 191 referrals to the clinic; 446 have been received since the program's inception.

Grayken Center

Through innovative treatment, education, and research programs, the Grayken Center for Addition is committed to making long-term recovery a reality for every patient. From policy makers to clinicians to patients and families in crisis, people across the country turn to BMC for expertise in caring for patients with addiction. The Center was launched in 2017 with a generous gift from the Grayken family. This was the largest private gift in the United States in the last decade in the addition field. Today, the Center serves as the umbrella for all of BMC's work in addition and is a national resource for revolutionizing addition treatment and education, replicating best practices, and providing policy, advocacy, and thought leadership in the field. Since the initial $25 million award, the Grayken center has received multiple awards including an $89 million Mass Heal grant.

The Grayken Center's mission is to (1) increase BMC's reach in developing and testing new care models, bringing together experts to establish metrics against which outcomes can be tracked and more advanced data and analytics infrastructure developed; (2) join with key government agencies, lawmakers, and addiction medicine experts to reduce barriers to addiction treatment; (3) increase the pace of innovative research at BMC, already one of the most highly respected addiction research programs in the country, with a body of published work that has transformed addiction care.

Mental Health Diversion Initiative (MHDI)

In FY18, the MHDI has worked with nearly 240 individuals with mental health and/or co-occurring mental health and substance dependence whose associated behavior brings them to the attention of law enforcement and courts. The MHDI collaborates with the police and courts to first and foremost identify individuals with these risk factors, and then to connect them with appropriate services and treatment as alternatives to arrest and incarceration. The MHDI trains Boston Police Department and Massachusetts Bay Transit Authority officers to identify individuals with mental illness and how to refer individuals to services instead of arresting them. At the court level, approximately 60 MHDI participants have successfully completed probation rather than being incarcerated.

Faster Paths

Faster Paths rapidly evaluates, motivates, and refers patients with substance use disorders to a comprehensive care network of inpatient and outpatient detoxification, treatment, and aftercare services integrated with mental health and medical care. The goal of Faster Paths is to incorporate and build upon the existing substance use services provided by BMC, filling the gaps in care to create a seamless continuum. Backed by 24/7 access via the BMC Emergency Department (ED), Faster Paths enhances existing capacity to: triage patients into medical care; provide medical and psychiatric examinations to match patients with the right level of care; and ensure access to medication therapy. Licensed Alcohol and Drug Counselors from BMC's Project ASSERT from 8 am to 12 am daily provide intake, psycho-social assessments, and referrals to an array of addiction treatment services and shelters, overdose prevention education and naloxone, harm reduction services, and transportation. A key feature of the center is weekday access to Medication for Addiction Treatment (MAT) in the Faster Paths Outpatient Clinic. Addiction Nurses oversee the office initiation of MAT, including buprenorphine/naloxone induction and injectable naltrexone, with Monday-Friday buprenorphine/naloxone administration available for patients who need MAT and are awaiting placement in an OBAT or a methadone maintenance program. Boston Public Health Commission's (BPHC's) PAATHS (Providing Access to Addiction Treatment, Hope, and Support) recovery navigator assist with linkages to external MAT programs and other community services. During the program's first year of operation, Faster Paths treated 1,275 patients who recorded a total of 4,635 visits, during which they were provided with an array of services. Four hundred and seven patients were initiated on medications/ MAT, and of these 177 were transferred to maintenance programs, and 663 were placed and transported to acute treatment programs/detox. In FY2018, the program served 2,400 clients, for a total of 6,568 visits.

Project ASSERT

Project ASSERT (Alcohol & Substance Abuse Services, Education, and Referral to Treatment) was established in 1988 to provide greater access to substance use treatment in the Emergency Department (ED) setting and has expanded to include a variety of social and community healthcare support services. Based in the ED, Project ASSERT counsels patients whose alcohol and/or drug use was directly and indirectly implicated in their need for emergency services. Licensed Alcohol and Drug Counselors (LADCs) consult and collaborate with hospital staff to offer ED patients alcohol and drug screening, brief intervention, and referrals to health and social resources such as substance abuse treatment and primary care services. In FY18, Project ASSERT had 3,703 LADC visits. As a result of negotiations with the patients, the following services were provided: 1,201 unique patients were placed in detox/acute treatment services (there were 1,726 detox services among these patients); 1,679 unique patients were referred to NA/AA; 201 were provided with recovery services; and 350 were provided with transportation services. Shelter services were provided during 524 visits. Project ASSERT LADCs also educated patients at risk for opioid overdose and distributed 145 naloxone rescue kits to patients.

Project RESPECT

Project RESPECT (Recovery, Empowerment, Social Services, Prenatal care, Education, Community and Treatment), is a high risk obstetrical and addiction recovery medical home at BMC and Boston University School of Medicine. Project RESPECT provides a unique service of comprehensive obstetric and substance use disorder treatment for pregnant women and their newborns in Massachusetts. The majority of Project RESPECT patients are in recovery from opioid addiction. In-patient, monitored, acute substance withdrawal treatment and induction of opioid maintenance therapies for pregnant woman seeking addiction treatment are provided. Intensive, individualized out-patient treatment plans are outlined for each patient based on the severity of their disease and their recovery progress. The out-patient medical home model provides on-site, collaborative, and multidisciplinary care for pregnant and post-partum women in recovery. The program supports more than 100 mother/child dyads per year.

SOFAR

The goal of SOFAR (Supporting Our Families through Addiction and Recovery) is to create a medical home in the pediatric primary care clinic for mothers in recovery and their children. SOFAR houses a multidisciplinary team of physicians, social workers, patient navigators, nurse practitioners, and coordinators who provide high-quality, coordinated medical and psychosocial care for families to maximize their ability to successfully navigate parenting and substance use recovery. SOFAR expands on the multidisciplinary prenatal care provided by Project RESPECT for pregnant women with opioid use disorder. SOFAR provides ongoing support for families to enhance child development as well as ongoing support for recovery, with access to specialty care and social services. In FY18, SOFAR served more than 25 mother-child dyads.

TEAM UP

The Child Mental Health Initiative - TEAM UP - is a partnership between BMC and three community health centers (Codman Square Health Center, Lowell Community Health Center, The Dimock Center) that combines mental health care with primary care for children so that families can receive all care in one place. Engagement with the TEAM UP model occurs: when a parent brings in a child with behavioral health issues; when a primary care provider refers a child with behavioral health issues; when a primary care provider expresses concerns about a family; when a child or family experiences a new major stressor (e.g., parental separation, diagnosis of a serious illness); and after a comprehensive psychosocial and behavioral health assessment during a well-child visit in the primary care setting. The goal of TEAM UP is to promote positive child health and well-being through innovation and consistent delivery of evidence-based integrated care.

1.8.4 Affiliated Health Care System: Boston HealthNet Health Care System

1.8.4.1 BMC HealthNet Plan

BMC HealthNet Plan is a non-profit health plan that provides health insurance coverage to Massachusetts residents, including low income, underserved, disabled and elderly populations. We were established in 1997 by BMC, the largest safety net hospital in New England and have more than 20 years of experience delivering accessible care to complex populations. We also provide health coverage to Medicaid members in New Hampshire, where we operate as Well Sense Health Plan. BMC HealthNet Plan serves over 330,000 members across Massachusetts.

1.8.4.2 Boston HealthNet (BHN)

Established in 1995, Boston HealthNet (BHN) is an integrated health care delivery system comprised of BMC, the Boston University School of Medicine, and 14 community health centers (CHCs). Physicians who practice at HealthNet locations provide a wide range of comprehensive health care services to adult and pediatric patients, with a focus on disease prevention and health education. Patients receiving primary care at HealthNet sites have access to highly trained specialists and cutting-edge technology at BMC while maintaining individualized and culturally sensitive care in their neighborhoods. Now in its 24th year, BHN and its CHC partners have extended BMC's presence into Boston-area neighborhoods, significantly impacting the health of their residents.

The accomplishments of the network are evidenced by: the growth of CHC admissions to BMC; the collaborative development of quality improvement initiatives, clinical protocols, and standards of practice; increased access to specialty services; a successful public health outreach campaign; and the significant development and coordination of BHN's information technology programs and services.

Boston HealthNet has partnered with the Massachusetts League of Community Health Centers to participate in a federal Health Center Controlled Network grant, a $900,000 three-year grant (2016-2019) that supported quality improvement, reporting, and clinical EMR training.

In 2015 and in collaboration with BMC, nine of the BHN CHCs began the process of implementing a new EHR and practice management system that facilitates CHC and BMC provider access to mutual patients' EHRs.

A two-year $895,965 Partnership for Community Health grant awarded in 2015 supports BHN's *Improving Community Health*, an initiative that leverages informatics through a patient portal to enhance patient-engagement. Key goals of the project are to improve blood pressure management among patients with hypertension and ensure that patients do not miss routine cancer screenings.

Research

A BHN Research Subcommittee was set up in 2005 to review all research projects that are proposed at the health centers; 244 projects have been reviewed to date.

Increasing Patient Access

Community Access to BMC is enhanced through a free shuttle bus service and an Uber program. One shuttle bus is provided to the East Boston Neighborhood Health Center (EBNHC) that circulates twice and hour and the Uber program is to allow patients greater access to appointments for patients at 10 other health centers. In 2018, the shuttle bus transported 211,199 patients and their families between BMC and the EBNHC. The Pilot Uber program, implemented to service 10 Boston HealthNet Health Centers, increased 83% in its first year transporting 2,237 patients.

Advancing Medical Education

A number of HealthNet CHCs also serve as the primary community-based training sites for Boston University School of Medicine pediatric, family medicine, psychiatry and general medicine residents. BUSM students and physician assistants also round at the CHCs to supplement their training with direct patient contact.

1.8.5 Employment, Workforce Development, and Educational Opportunities

BMC is a major employer in the City of Boston and is committed to promoting employment opportunities for Boston residents, particularly individuals living in adjacent neighborhoods. BMC employs a diverse workforce, with 8,992 full-time and part-time employees, including per diems, temporary staff, and 6,929 full-time equivalent employees (FTEs) who work to provide the highest quality, patient-focused care (See **Table 1-3** below). Forty-three percent of BMC's employees live within the City of Boston and 10% live in six core workforce neighborhoods (Mattapan, North Dorchester, Roxbury, South Dorchester, South Boston, and the South End). BMC offers employees competitive wages and benefits, educational assistance and tuition reimbursement, and skill-based training seminars including cultural diversity forums.

Table 1-2 BMC Employment (FY 18)

	Full-Time	Part-Time	Total
Total Employees	6,929	2,063	8,992
Residents of Boston	3,099	725	3,824
Core Neighborhoods*	785	141	926
*** Zip Codes 02210, 02111, 02118, 02119, 02120, and 02121**			

BMC provides a wide range of workforce development and educational opportunities for its current employees and people wishing to gain the skills necessary to become BMC employees. BMC's workforce development program results compare favorably to benchmarks established by the Massachusetts Department of Education and the U.S. Department of Labor.

BMC connects profoundly to its slogan, "we are the community that we serve," and strives to fulfill this mission by addressing the following:

- BMC encourages broad neighborhood economic development that connects with residents one at a time;
- BMC targets workforce development programs to reach BMC employees from the six Core Workforce Neighborhoods – Mattapan, North Dorchester, Roxbury, South Dorchester, South Boston, and the South End;
- BMC tracks a cohort model – from youth to pre-college to graduate level – thereby increasing expectations, peer support, and performance;
- BMC strives to increase the number of minority health care professionals in Boston;
- BMC mirrors the career advancement "road map" recommended by the Institute of Medicine/National Academy of Sciences; and
- BMC focuses on professions related to volume goals via enhanced patient access for minorities and the underserved (Medical Interpreter, Patient Access Representative, and Health Care Manager).

BMC attempts to break down workforce development barriers with calibrated, neighborhood-oriented opportunities by including:

- On-site courses introducing health care job skills;
- On-site college prep, certificate, and degree programs;
- Up-front payments to colleges and money for books, childcare, and “unrecognized” educational expenses through President Scholarships;
- Win/Win tuition reductions, including bulk purchase of courses by BMC to reduce costs per credit; and
- Promotion of “BMC Employee Scholarships” and connections with a diverse audience who reside in or grew up in Boston.

Through its alliances with several Boston-area higher educational institutions, such as Boston University, Roxbury Community College, Cambridge College, Northeastern University, and Parkway Academy of Technology and Health (PATH), BMC is capable of influencing higher education policies and practices, as follows:

- BMC clinicians and professionals align college curricula with hospital practice;
- Customized programs, created for BMC, become new health care initiatives, provided by colleges and open to the broader community. The Radiology Technology Program at Roxbury Community College has been launched and licensed with BMC as its major clinical site. Interpreter Certificate internships at Greater Roslindale Community health Center expand service capacity and BMC’s patient base; and
- BMC enables on-site access to training in hard-to-fill health career positions, including nursing, radiology, and medical interpreter. Cambridge College provides 18 undergraduate credits in the Medical Interpreter Training Program. Both Cambridge College and Northeastern University credit programs in health care management that can lead to a certificate, a Bachelor’s degree, and a Master’s degree.

BMC reaches many objectives through its commitment to expanding workforce options and educational opportunities for its staff. Since April 2005, the following achievements were documented:

- BMC/PATH Partnership (“Youth Pipeline”): nine students completed the first cycle of internships in challenging roles;
- On-Site College: 161 BMC employees participated in courses located at the BMC campus;
- Off-Site College: 500 employees participated in college courses at affiliated institutions (Cambridge College, Northeastern University, and Roxbury Community College) or at Boston University MET College;
- President’s Scholarships: BMC awarded 36 scholarships totaling $75,000 (average award: $2,083). Nineteen recipients are Boston residents, of whom 16 live in the Core Workforce Neighborhoods of Boston;
- Development: Over a 5-year period (FY 2005 – FY 2010), BMC will have engaged 1,720 employees in Workforce Development;

- Career Advising: 425 employees have participated in career advising services;
- Associate Degree Course Enrollments: 350 employees are enrolled in associate degree courses;
- Bachelor and Graduate Degree Course Enrollments: 188 employees have been or are enrolled in programs since April 2006

BMC supports its employees' career and educational goals by providing access to tuition reduction programs at partnering schools, which can then be combined with BMC's tuition reimbursement programs.

- Drexel University: In 2011, BMC established a partnership with Drexel University Online to offer educational opportunities to staff and their family members. BMC staff can earn a top-ranked degree or certificate and receive special tuition rates when they enroll in one of Drexel's distinguished online programs. Employees may also be eligible for tuition assistance for job-related programs through BMC's benefits policy and deferred tuition payment plans through Drexel.
- Boston University Metropolitan College: In 2006, BMC and Boston University's Metropolitan College established a preferred educational partnership. This relationship has allowed BMC professionals to refine their skills and enhance their careers at one of the nation's most prestigious academic institutions. Metropolitan College offers a wide range of on-campus course to BMC employees at a 50 percent tuition reduction.
- Tuition Reimbursement: BMC offers tuition reimbursement to eligible employees. Depending on their status, employees may receive up to $2,500 per academic year for college studies related to a BMC career.
- Both represented and non-represented employees can use tuition reimbursement benefits to attend the accredited college or university program of their choosing. Benefits can be applied to participation in a certificate- or degree-granting program or can be used for individual classes that enhance an employee's skills or provide career or educational exploration. **Table 1-4** shows Tuition Reimbursement Utilization**.**

Table 1-3 Tuition Reimbursement Utilization

FY18	Associate	Baccalaureate and Above	Certificates
Nursing Union	14	73	109
Non-Union	0	109	32
Total	14	182	141
FY19	**Associate**	**Baccalaureate and Above**	**Certificates**
Nursing Union	0	79	14
Non-Union	0	132	15
Total	0	211	29

BMC employees who are represented by 1199SEIU-Service or AFSCME are eligible for tuition reimbursement and other educational costs through the Training and Upgrading Fund.

The Training and Upgrading Fund is a fund supported by both the service unions and BMC funds to provide education and training for BMC employees who are in service unions. This includes most entry level employees (general cleaner, unit coordinator, and patient access rep, for example). **Table 1-5** shows utilization of these benefits.

Table 1-4 Training and Upgrading Fund Utilization

	Career Advising	Cohort Classes*	Associate	Baccalaureate and Above
FY10	33	4	120	75
FY11	36	55	52	50
FY12	78	58	98	73
Total	147	117	270	198
* Cohort classes include: ESOL, Basic Computer Skills, College Prep				

In addition to Tuition Vouchers and Tuition Reimbursement, the Training and Upgrading Fund provides a variety of educational and career-enhancing opportunities for its members. These opportunities include career advising to help employees explore their career goals while also providing information on healthcare careers with projected growth; College Prep courses which include topics such as time management, test-taking, and developmental math and English; English for Speakers of Other Languages; Basic Computer Skills; and classes for allied health professionals (Medical Terminology, Spanish for Healthcare Providers, CPR/First Aid). **Table 1-6** shows utilization of these benefits.

Table 1-5 Tuition Reimbursement Utilization

FY18	Full-Time	Part-Time	Grand Total
AA	48	29	77
BA	71	4	75
BS	125	38	163
BSN	56	33	89
DNP	9	0	9
MA	18	4	22
MBA	9	0	9
MPH	10	1	11
MS	31	8	39
MSN	15	11	26
MSW	5	7	12
Pharmacy	6	1	7
PhD	5	0	5
Grand Total	412	136	548

As a leading partner in the community, BMC continues to foster relationships with community organizations, professional organizations, schools, and community centers to ensure that the hospital is a respected and integral part of the Boston community and to encourage the support and education of Boston's youth.

BMC demonstrates its commitment in the following ways:

- Exercising corporate social responsibility by promoting and providing training opportunities to youth who live in and attend schools within city neighborhoods so they may gain a better understanding of the business of healthcare and help to influence their career choices and their futures.
- Supporting community events and activities.
- Engaging in a variety of outreach activities that bring value to the community and promote BMC's reputation as an attractive employer and as an "Exceptional" healthcare provider.

BMC has established relationships with schools, school programs, community organizations, and professional organizations. Below are some examples of programs that BMC participates in:

Youth Programs and School Partnerships

- Christo Rey Boston Corporate Work Study Program where students provide services for the organization while gaining valuable work skills and exposure to working in a business environment. Most (65%) of the students live in Boston and are from diverse backgrounds.
- YMCA Youth Achievers Summer Institute is an innovative summer learning experience for middle school and high school students. Through this unique career exploration program, students are introduced to various careers in the arts, government, and health. In July 2010, BMC's Department of Nutrition and Healthy Living staff held a workshop for approximately 20 students on "Nutrition & Fitness for Life Program" and shared information about careers in the Food Services Field.
- Madison Park/Possible Project is an innovative partnership to ensuring students gain hands on training in clinical assessment and support service roles at BMC. Following their training, students can apply and receive employment at the end of the academic year.

Community Partnerships/Organizations

- Morgan Memorial Goodwill Industries provides exemplary job training and related services to help individuals with disabilities and other barriers to self-sufficiency to achieve independence and dignity through work. BMC staff members serve on the general board of trustees, advisory board, and attend career workshops.
- Patient and Family Advisory Council (PFAC) was established to meet BMC's mission of providing "Exceptional Care, Without Exception" through enhanced partnership between patients, families, caregivers, and staff. Members of the PFAC are members of the community BMC serves, employees, patients, and their families.
- YMCA Training, Inc. provides adults with job skills training to help them obtain living-wage employment. Fifty percent of Training, Inc.'s participants are Boston residents. Of the Boston residents, 82% are people of color. BMC and YMCA Training, Inc. have enjoyed a mutually beneficial partnership for more than 12 years by participating in customer service training for interns, offering internship opportunities, and providing a BMC representative to serve on the Partners Council. BMC hired 65 graduates of YMCA Training, Inc. since 1999 and hosted more than 33 interns in the past 5 years. BMC has been Training, Inc.'s Employer of the Year for 6 consecutive years.
- Big Sisters of Boston hosts annual recruitment of Big Sisters from the BMC Campus. More than 40 BMC leaders sign up each year to participate in the Big Sister recruitment event.
- Boston Area Health Education Center has a unique partnership with BMC and send interns to work at BMC for a period of 6 weeks. These are high school students looking to gain clinical experience in healthcare.
- YearUp has BMC as a corporate partner that provides internship and work opportunities or participants in the YearUp program.

Professional Organizations/Partnerships

- Asian American Civic Association (AACV), operating since 1967, provides limited English speaking and economically disadvantaged people with education, occupational training, and social services enabling them to realize lasting economic self-sufficiency.

- Association of Latino Professionals in Finance and Accounting (ALPFA) provides a venue for outreach to Latino professionals and managers. BMC is a corporate member of the Boston Chapter and participates in networking events throughout the year.

- Commonwealth Compact is an initiative embraced by several companies and organizations to make Massachusetts a location of choice for people of color by (1) increasing the representation of people of color and women throughout organizations, especially in management, senior management, and board governance positions; (2) retaining and promoting people of color and women; and (3) encouraging organizations to reflect, and connect with, the diversity of the communities and customers we serve. BMC is one of the 111 original signers of 2007 and maintains an active presence at meetings and events sponsored by the Commonwealth Compact.

- New England Regional Black Nurses Association, Inc. (NERBNA) is a part of the national effort to unify, educate, and increase the number of African American Nurses in this country. NERBNA is dedicated to investigating, defining, and determining the health care needs of African Americans throughout New England. BMC participates in the annual "Excellence in Nursing-Black Nurses Day" recognition award program and recruits at the annual conference.

- YMCA Achiever Award is presented each year to a select group of diverse individuals who are nominated by their employer for their career accomplishments in their profession and in their service to the community. This award recognizes employees, with an emphasis on African American, Hispanics/Latinos, and South Asians, who, in partnership with their employers, commit time and talents to the development of young people. BMC has participated in this program since 1996.

- National Association of Health Services Executives (NAHSE) is a non-profit association of Black health care leaders and elevates the quality of health care services rendered to minority and underserved communities. BMC is a corporate member and has been a supporter of NAHSE on a national and local level by hosting and attending programs and local chapter meetings, recruiting and placing student interns and fellows, and hiring them as employees.

Awards and Recognition

BMC's exceptional work was recognized with a variety of awards and accolades in FY2019

- For the first time, BMC Health System was named a Top Woman-Led Business in Massachusetts by The Boston Globe and Commonwealth Institute

- BMC was named one of the 150 Top Places to Work in Healthcare by Becker's Hospital Review

- BMC received Top 25 Environmental Excellence Award and Circles of Excellence Award from Practice Greenhealth

- BMC was awarded an 'A' Spring 2019 Safety Grade from The Leapfrog Group and received an 'A' in patient safety from The Leapfrog Group's Fall 2018 Safety Grade

- BMC was among 64 organizations to achieve "Top Performer" status on giving and Benchmarking from the Association for Healthcare Philanthropy

- BMC was named a LGBTQ Healthcare Equity Leader by the Human Rights Campaign

- BMC was recognized among 22 organizations by the American Medical Association for efforts to address physician burnout
- BMC won Innovator of the Year and a silver level achievement award from WorkWell Massachusetts

1.8.6 Annual Property Taxes/PILOT

Although much of BMC's property is tax-exempt, BMC contributes annually to the City of Boston's Payment in Lieu of Taxes (PILOT) program.

1.8.7 Other Economic Benefits

BMC's community goals are to continue to provide effective and accessible services to vulnerable populations in the Boston community and to continue to expand efforts that deepen relationships with the communities they serve. In Fiscal Year 2016, BMC invested $7,860,649 in Community Benefits Programs (as reported to the IRS on Form 990 Schedule H, Part I, Line 7e, *net community benefit expense*).

BMC contributes to the local economy through employment of Boston residents and the purchase of goods and services from Boston businesses. BMC spent approximately $188,187,877 in Fiscal Year 2018.

BMC HealthNet plan, founded in 1997, is the largest MassHealth and Commonwealth Care managed care organization in Massachusetts providing health insurance to 260,000 members who are served by participating providers in Greater Boston and in Southeastern and Western Massachusetts. The Plan offers comprehensive coverage, interpreter services, membership cards, and personal physicians providing care for the whole family. It furnishes other member benefits (beyond the mandated benefits) including free car seats, bike helmets, manual breast pumps for nursing mothers, and a member/provider hotline.

1.8.8 Linkage

With the adoption of the new IMP for a new 10-year term commencing in 2020, BMC and the Boston Planning and Development Agency (BPDA) will enter into a new Development Impact Project (DIP) Agreement which will govern all new projects which exceed the thresholds set forth in Article 80B of the Code. Future institutional projects to be undertaken by BMC under the new IMP that are designed to exceed 100,000 square feet will be subject to linkage in accordance with Article 80B, Section 80B-7 of the Code.

1.9 Public Review Process

By filing this IMPNF, the Proponent formally initiates the IMP review process under Article 80D with the Boston Planning and Development Agency.

The Proponent has met with members of the BPDA and BTD. The Proponent will begin meeting with the BMC IMP Task Force following the submission of this IMPNF.

The Proponent is committed to an open and inclusive public process, and as the IMP progresses, will continue to seek input from city agencies, community representatives, neighbors, and stakeholders as well as from public and elected officials.

2.0 PROPOSED INSTITUTIONAL MASTER PLAN

2.1 Introduction

Based upon the guiding principles and planning assumptions presented in Section 1.5, and the program needs identified in Section 1.6, the Proponent is seeking zoning approval for eight projects which include a mix of additions and renovations to existing buildings and new construction. Two of the eight projects, the New Administration / Clinical Building (Power Plant site) and the New Inpatient Building Phase II, were previously approved in the 2010 IMP and subsequent Amendments in 2013 and 2017 and these are carried forward in the new IMP.

This section conceptually presents the proposed institutional projects, anticipated timing of the projects during the term of the IMP and other IMP elements and identifies future programming needs and long-term planning goals.

2.2 Proposed IMP Projects

BMC recognizes an immediate need to address its physical space to support integration of a coordinated care model. This is particularly important to being able to address the medical, behavioral and social needs of BMC's patient population.

The Proponent has developed an IMP that will allow BMC to leverage the highest and best use of its building resources, optimize operational efficiencies through continued centralization of services and ideal adjacencies, and re-align and modernize clinical services to ensure BMC's ability to deliver on its mission to continue high quality patient care, accommodate patient volumes and sustain ever changing healthcare trends.

The proposed IMP Projects will accomplish the following objectives:

- Accommodate changes in patient volume through leveraging the highest and best use of its building resources, both owned and leased;
- Re-align clinical services to support integration of a coordinated care model;
- Right size and modernize clinical space for current code and clinical standards;
- Optimize operational efficiencies through continued centralization of services and ideal adjacencies;
- Address aging buildings;
- Accommodate changing technologies;
- Improve patient arrival experience and drop-off operations;
- Enhance campus unification, circulation, and accessibility;
- Develop and activate pedestrian-friendly street edges; and
- Strengthen the identity and visibility of BMC.

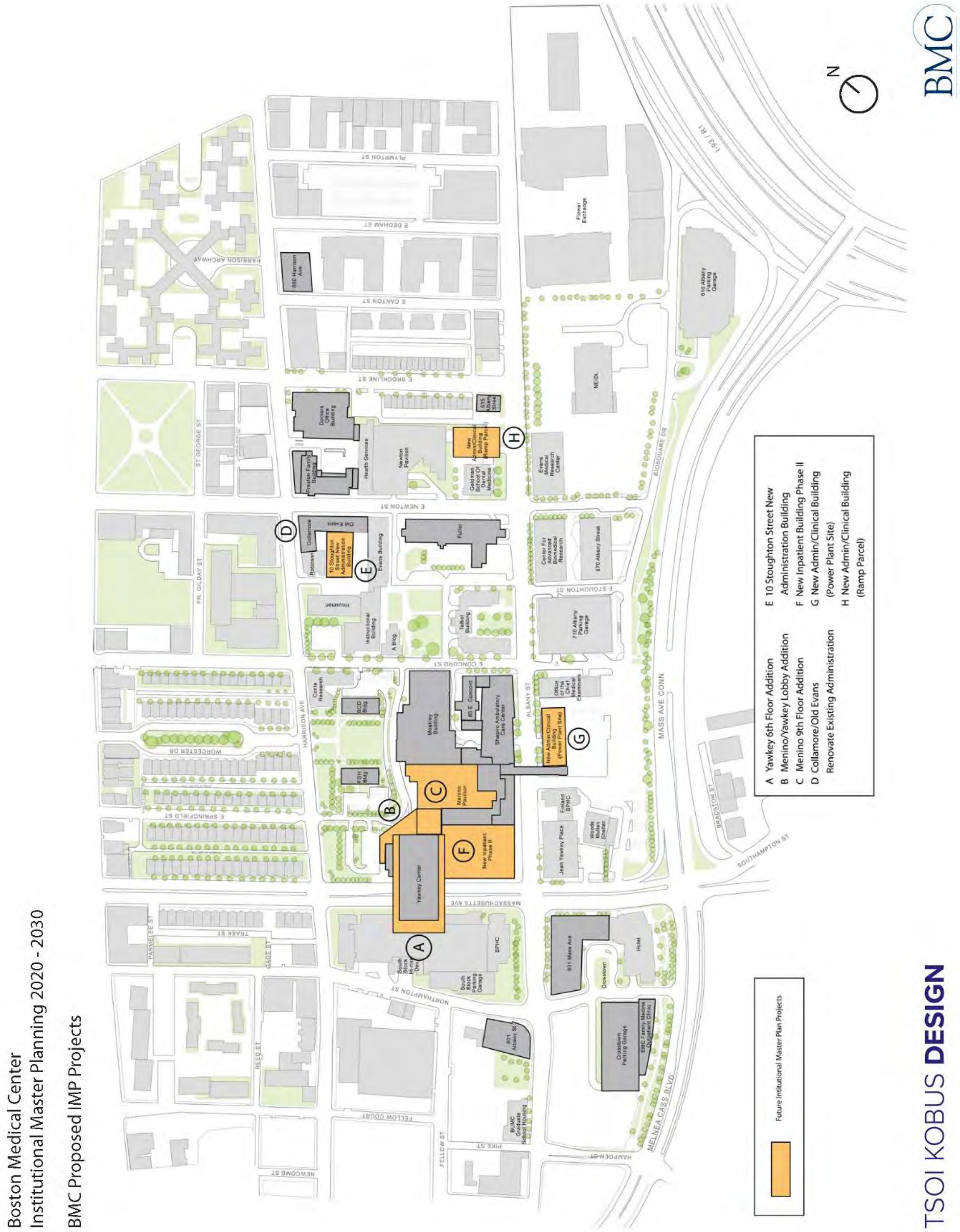
These projects are outlined in **Table 2-1** and shown on **Figure 2-1** along with other IMP elements.

Table 2-1 IMP Projects and Other Elements

IMP Element	Approximate Size	Use
IMP Projects (2020-2030)		
Yawkey 6th Floor Addition	15,500 sf	Women's Health, OB Outpatient Clinic, Cardiology
Menino & Yawkey Lobby Addition	6,100 sf	Lobby, Patient Waiting, Coffee Shop, Gift Shop, Cafeteria
Menino 9th Floor Addition	37,000 sf	Inpatient Beds
Collamore/Old Evans Existing Administration Renovation	102,000 sf	Administration, Retail
10 Stoughton Street	138,000 sf	Administration, Retail
New Administration / Clinical Building (ramp parcel)	207,000 sf	Administration, Clinical, Retail
New Inpatient Building Phase II – approved in 2010 IMP and associated amendments	323,000 sf	Inpatient Beds, Imaging, Surgery, Administration, Support
New Administration / Clinical Building (Power Plant site) – approved in 2010 IMP and associated amendments	253,000 sf	Administration, clinical, loading/service, materials handling / support
Changes to Owned Space (2010-2019)		
Sold Doctors Office Building	91,783 sf	Administration/Outpatient
Sold Gambro Building	35,000 sf	Administration/Outpatient
Sold Perkin Elmer Site, 575 Albany Street North & South, 123 E. Dedham Street, 100 E. Canton Street	129,731 sf	Administration
Sold Newton Pavilion	257,019 sf	Inpatient/Administration/Research/Instruction
Sold Health Services Building	73,651 sf	Inpatient Support/Outpatient
Own 801 Massachusetts Avenue, Crosstown	136,771 sf	Occupy floors 1, 2, 5, 6, 7 for Administration, Outpatient, Retail
Vacated Betatron	5,912 sf	Administration
Vacated Vose Hall	22,695 sf	Administration
Vacated 615 Albany Street, Naval Blood	19,710 sf	Administration/Research/Instruction

IMP Element	Approximate Size	Use
Changes to Leased Space (2010-2019)		
Remove 560 Harrison	19,000 sf	Administration
Add 7-11 Melnea Cass Blvd., Family Medicine	7,300 sf	Outpatient
Add 801 Albany Street	41,198 sf	Administration
Add Gambro Building	17,288 sf	Administration
Add Doctors Office Building	91,783 sf	Administration/Outpatient
Additional IMP Elements		
Power Plant Electronic Signage	NA	BMC identifier signage and public health messaging

Figure 2-1 Proposed IMP Projects



2.2.1 Five-Year Projects

Within the 5-year term of the 10-year IMP, BMC may move forward with these potential projects. At this time, these projects are in the preliminary stage of planning and more detail will be provided in subsequent Large Project Review documentation. The following sections provide a conceptual understand of the minimum massing, height and floorplate requirements may be.

2.2.1.1 Yawkey 6th Floor Addition

A new addition to the existing Yawkey Ambulatory Care Center (YACC) is proposed at the 6th level. This addition will total approximately 15,500 square feet and will add new exam rooms, waiting room, staff support rooms, clinical support rooms, and patient support rooms to the existing women's health clinic. This new addition will enable the relocation of the existing OB clinic from the 5th floor to the 6th, thus creating a single floor to integrate women's health services. Cardiology will be relocated to Yawkey 6th floor in the interim to improve adjacencies to the medical/surgical inpatient units in Menino.

The addition will be constructed around the existing Level 6 Mechanical Penthouse and is proposed to wrap the three sides of the penthouse and sit on what is now the 5th level roof. This project is proposed to take advantage of the existing building structure, infrastructure, and core elements for the vertical expansion. It will not expand the current footprint of the Yawkey Center and in doing so, minimize the impact at ground level. The existing Yawkey Center signage, which includes channel cut letters and the BMC name and logo sign, will need to be relocated to another section of the building façade with this project.

Preliminary design studies for this addition anticipate it will be approximately 95 feet 4 inches above grade and approximately 16 feet 8 inches in height from top of 5th floor roof to top of the new 6th floor roof. Adjustments may be required to existing rooftop equipment which will be determined when the design advances.

2.2.1.2 Menino and Yawkey Lobby Addition

A new 6,100 square foot lobby addition is proposed to the north side of the Menino Pavilion and Yawkey Ambulatory Center to create a unified entry to the Hospital. The Menino Pavilion and Yawkey Ambulatory Care Center currently have separate entrances accessed under adjacent canopies, off the Boston Medical Center Place valet parking location. This addition will create a clear entrance for patients and visitors, provide a bright, inviting functional entry sequence and a new extended canopy for improved weather protection / covered drop off. The existing two-story façade at the Menino Building will be replaced as part of this project. In addition, new signage which will include channel cut letters will be added as part of the new lobby addition.

Entrance Lobby functions, Information Desk, Valet Waiting, Gift & Coffee Shop, Conference Room, Family Rooms, and additional patient spaces will all be accommodated on the ground floor of the addition. The second level will provide additional circulation connections between Menino and Yawkey and expand the existing Yawkey Cafeteria seating. To accommodate the lobby addition, adjustments will be made to the existing traffic lanes on BMC property to ensure continued and improved through-put operations. BMC will also continue to study the need to reconfigure vehicular operations at BMC Drive through re-establishment of functional use zones within BMC's property as well as potential geometric changes and improvements to traffic and parking operations management.

Preliminary design studies for the addition anticipate the lobby addition to be two stories and approximately 31 feet in height. Adjustments may be required to existing rooftop equipment which will be determined when the design advances.

2.2.1.3 Menino 9th Floor Addition

A new 37,000 square foot vertical addition to the existing Menino Pavilion is proposed on top of the Menino 8th floor. This new addition will provide additional inpatient beds to address the growth in inpatient volume and the increase in the homeless patient population. This addition is anticipated to provide increased bed capacity and private rooms with patient support rooms, staff support rooms, and clinical support rooms. It will also allow for expanded space for mechanical and circulation on top of the existing Menino Pavilion. The addition will build on top of the partial roof area on Level 8, at the north and south end of the existing mechanical space, which is at Level 9, and will expand the mechanical space and provide connecting stairs up to Level 9. This addition is expected to extend the existing perimeter of Level 8 to occupy the full building footprint.

This project will take advantage of the existing building structure, infrastructure, and core elements for the vertical expansion. The new addition will not expand the current footprint of the Menino Pavilion and in doing so minimize the impact at ground level.

Preliminary design studies for this addition anticipate a vertical addition of approximately 114 feet in height above grade and approximately 14 feet in height on top of the existing 8th floor. Adjustments may be required to existing rooftop equipment which will be determined when the design advances.

2.2.2 Ten-Year Projects

Towards the end of the 10-year IMP, BMC may move forward with these potential projects. At this time, these projects are in the preliminary stage of planning and more detail will be provided in subsequent Large Project Review documentation. The following sections provide a conceptual understanding of the minimum massing, height and floorplate requirements.

2.2.2.1 Collamore / Old Evans Existing Administration Renovation

A full interior renovation of the two inter-connected buildings, Collamore and Old Evans is proposed to replace the existing obsolete administrative office space with modern office space to support general administrative functions, computer data and analytics and support spaces. The total interior space to be renovated includes approximately 42,000 square feet in Collamore and 60,000 square feet in Old Evans.

Ground floor retail is being considered as part of the interior renovation. This may require the removal of one useable floor level at the first floor. The approximate size of the floor plate that will be removed at the first-floor level is 10,200 square feet, thereby reducing the total combined building square footage from 102,000 square feet to 91,800 square feet.

The renovation of Collamore / Old Evans will also involve exterior improvements including replacement of old windows and doors with architecturally sensitive energy efficient options, as well as the restoration of the existing façade and other exterior elements, where feasible in accordance South End Historic District and Massachusetts Historical Commission design guidelines. Changes to the existing height and footprint are not anticipated. New rooftop equipment may be necessary and will be determined when the design advances.

2.2.2.2 10 Stoughton Street

A new 138,000 square foot building is proposed on the site of the present Vose Hall and Betatron buildings. This new building will necessitate the demolition of the existing 22,695 square foot Vose Hall and the 5,912 square foot Betatron building.

This new building will provide for much needed new administrative office space to continue to support the consolidation of general administrative space in proximity to the campus. This new building will provide additional administrative office needs, computer data and analytics space and ground floor retail.

Preliminary design studies for this building anticipate approximately 10-story building, 120 feet in height above grade. The typical floorplate will be approximately 11,000 square feet. New rooftop equipment may be necessary and will be determined when the design advances.

2.2.2.3 New Administration / Clinical Building (ramp parcel)

A new 207,000 square foot Administration/Clinical Building is proposed on the surface lot at the Newton Pavilion ramp entrance (BMC has retained the right to build on the ramp parcel). The new building will allow BMC to continue to consolidate clinical administrative functions and improve campus adjacencies to core clinical services and provide modern office space for computer data and analytics. The new building will allow BMC to continue to consolidate clinical administrative functions and improve campus adjacencies to core clinical services. This building will also accommodate clinical space and operational support space. Ground floor retail will be incorporated into the building program.

The building will be designed to accommodate the existing parking and loading and service access for the BU Dental School and the State-owned Newton Pavilion. This building design will be coordinated with BU and the State to ensure their building operations are not impacted.

Preliminary design studies anticipate a 207,000 square foot 10-story building plus a mechanical penthouse with a total height of approximately 149 feet above grade and a typical floorplate of approximately 19,450 square feet. This building is anticipated to be constructed in two phases. Phase one will be approximately 7-stories and 104 feet in height above grade. Phase two will add 3-stories plus a mechanical penthouse on top of the 7-stories, bringing the overall height of the building to 149 feet above grade.

2.2.2.4 New Inpatient Building Phase II

A new 323,000 square foot inpatient building is proposed on the site of the present Dowling Tower. This new building is the second phase of the New Inpatient Building Phase I completed in 2018. This new building will necessitate the demolition of the 157,376 square foot Dowling Tower (the remaining portion of the building located at the corner of Massachusetts Avenue and Albany Street).

The new inpatient building will provide appropriately sized modern inpatient spaces that meet today's code and clinical standards and expansion space to accommodate further critical care and imaging functions. The location of this building is critical to take advantage of proximity to other medical services, to leverage adjacency to the helipad and existing critical care functions and to maximize efficient vehicular access. It should be noted there are no other siting options for this building. The site's visibility will enable visitors to quickly orient themselves when they arrive on campus and reinforce the Albany Street image.

Preliminary design studies for this building anticipate a 323,000 square foot building14-story building with approximately 205 feet in height above grade and a typical floorplate of approximately 27,000 square feet. New rooftop equipment may be necessary and will be determined when the design advances.

2.2.2.5 New Administration / Clinical Building (Power Plant site)

A new 253,000 square foot Administration / Clinical Building is proposed on the site of the surface lot located to the north of the BMC Power Plant along Albany Street. This new building will necessitate the demolition of the existing 64,000 square foot Power Plant building.

The new building will allow BMC to continue to consolidate clinical administrative functions and improve campus adjacencies to core clinical services and provide modern office space for computer data and analytics. This building will also accommodate clinical space and operational support space. When this building is developed, the loading dock will move to its final location at the rear of the building and a new below grade tunnel will be constructed beneath Albany Street to transport materials between the Menino Pavilion and the south side of Albany Street. As part of this project, BMC will evaluate an alternative location for the existing helipad to accommodate the new loading dock location for the New Administration/Clinical Building. Moreover, the location for the existing helipad must consider critical care timing needs and long-term resiliency objectives that ensure patient transport routes are protected from flooding.

Preliminary design studies anticipate a 10-story building or 168 feet in height above grade of approximately 253,000 square feet. The typical floorplate will be approximately 22,500 square feet. New rooftop equipment may be necessary and will be determined when the design advances.

2.2.3 Campus and Building Improvement Projects

BMC will undertake internal departmental reconfigurations and relocations within its buildings that support a coordinated care model integrating the medical, behavioral and social needs of its patients. BMC will also continue its ongoing efforts to improve departmental adjacencies, patient flow, operational efficiencies and patient experience. In addition to internal department reconfiguration and relocations, these improvements may include small building additions, renovations to existing space, as well as conversion of underutilized storage space into usable clinical and administration support space.

Internal reconfiguration, relocation and renovation projects currently planned include Pediatrics General Medicine on Yawkey 3rd Floor and the existing women's health services on Yawkey 6th Floor, relocation of adult psychiatric outpatient clinic from the Dowling Building to 85 East Concord Street space previously occupied by administrative office, and relocation of the administrative office space from 85 East Concord Street to those vacated spaces in the Dowling Building previously occupied by adult psychiatric outpatient clinic, relocating clinical and administrative uses out of the Dowling, DOB and Preston buildings as appropriate, continue the shift of less intensive outpatient clinical services and administration space located west of Massachusetts Avenue (Crosstown and 801 Albany Street) as well as ongoing improvements and renovations to inpatient, outpatient and surgery spaces and other enabling projects.

BMC will continue to pursue various building maintenance and open space activities throughout the term of the IMP. These include replacing aging infrastructure throughout the campus, upgrading and replacing finishes in all facilities, replacement and repairs to building facades and envelopes, such as completing the window replacement on the Yawkey Building, ongoing general operational improvements and continuing to maintain the various open spaces that are located throughout the campus.

2.3 Future Program Needs and Long-Term Planning

2.3.1 Clinical Services

BMC anticipates a continued need for both inpatient services and outpatient services to accommodate new healthcare trends that drive changes in patient care volumes and healthcare delivery models. The accountable care model will continue to drive realignment and integration of services to address the medical, behavioral and social needs of BMC’s patient population. As clinical care standards continue to evolve and technology continues to change, they impact space needs and complicate the reuse of many of the older facilities. As a result, existing buildings become functionally obsolete and changing clinical standards will make it harder to reuse many of the older facilities. BMC will continue to evaluate how best to maximize its building resources through renovation and modernization and new construction.

2.3.2 Administration Space

BMC anticipates a continued need for administrative space. In particular, it is anticipated that such space will be necessary to support the increased demand of clinical services and adjustments to permanent locations for administrative functions that may be displaced by continued realignments and integration of patient care services, as well as demands of computer data and analytics to determine best interventions for the care of BMC’s patient population.

2.3.3 Leased Space

As future leases expire and there is further pressure on its building resources to support increased demand for clinical services and administration space to support its clinical operations, BMC may need to lease space from time to time. During the term of the IMP BMC may enter into additional leased space within or proximate to its campus. BMC anticipates the need for approximately 200,000 square feet for administration and/or clinical use.

2.3.4 Energy Efficiency and Resiliency

As advancements in energy efficiency and resiliency technologies improve, BMC will continue its infrastructure investments to strengthen the resiliency of its campus. Expanding on its efforts discussed in

Section 1.6.4, this will include ongoing replacement of aging infrastructure, and planning for climate change and coastal flooding.

2.4 Areas of Interest for Future Expansion

As the Proponent looks into the future as trends continue to change for patient care, BMC will continue to evaluate opportunities for future expansion. BMC recognizes the following sites, if available, as ideal locations for future expansion due to the proximity to the existing BMC campus:

- Solomon Carter Fuller Building
- Chief Medical Examiner's Office Building
- Finland Building
- Miranda Creamer and two-story storefronts along Massachusetts Avenue
- Future development parcels at Crosstown

2.5 Project Schedule and Potential Permits

The Proponent intends to construct three building additions projects, four new construction projects and one substantial renovation of two inter-connecting existing buildings during the term of the IMP.

The Yawkey 6th Floor Addition, the Menino/Yawkey Lobby Addition and the Menino 9th Floor Addition are expected to be initiated in the five-year timeframe of the IMP. The Collamore/Old Evans Existing Renovation, 10 Stoughton Street10 Stoughton Street, New Administration/Clinical Building (ramp parcel), New Inpatient Building Phase II, and New Administration/Clinical Building (Power Plant site) are expected to be initiated in the ten-year timeframe of the IMP. As details of these projects are developed, the Proponent will submit Project Notification Forms to the BPDA to initiate review under Article 80 Large Project Review of the Boston Zoning Code. These PNF's will include a list of potential permits for each IMP Project.

2.3 Zoning

The main campus of BMC is located within the South End Neighborhood Zoning District shown on Map 1P of the Zoning District Maps of the City of Boston. Article 64 of the Boston Zoning Code (Code) established the zoning controls for the South End District. Section 64-24 of the Code provides for the establishment of Institutional Subdistricts within the South End Neighborhood District and specifically established the Boston University Medical Center Institutional Subdistrict. The use and dimension limitations with respect to a project in Institutional Subdistricts are set forth in Section 64-25 and Section 64-26 of the Code. Additionally, Section 64-27 of the Code established requirements for the review and approval of Institutional Master Plans and Proposed Institutional Projects under Article 80 of the Code. Section 64-27.1 of the Code required that the Proposed Institutional Project be consistent with an approved Institutional Master Plan within the meaning of Section 80D-2 of the code except for exempt projects set forth in Subsection 2 of Section 64-27 of the Code.

Notwithstanding the exemption of certain Proposed Institutional Projects, pursuant to Section 80D-2.5, a proponent may elect to include such institutional projects within an Institutional Master Plan. Thus, the institutional projects shall be governed by the provisions of the Institutional Master Plan and Article 80. Additionally, in accordance with the provisions of Section 80D-11 of the Code, with the issuance of a Certification of Consistency pursuant to Section 80D-10 of the Code and, if applicable, a Certification of Compliance under Large Project Review pursuant to Section 80B.6 of the Code, a Proposed Institutional Project shall be deemed to be in compliance with the use, dimensional, parking and loading requirements of the underlying zoning, notwithstanding any provisions of the underlying zoning to the contrary and without the requirement of further zoning relief.

The approval of Proposed Institutional Projects by the BPDA, the Zoning Commission and the Mayor in accordance with Article 80D of the Code establishes the zoning controls for the Proposed Institutional Project within the Institutional Master Plan Area.

In accordance with the provisions of Section 80D-8, the Proponent is filing with the BPDA this IMP seeking approval for a new separate BMC IMP for a ten (10) year period commencing upon its approval in accordance with Section 80D-3 of the Code. The Proponent further seeks for the BPDA and the Zoning Commission to approve the separate BMC IMP as part of the existing Boston University Medical Center Institutional Master Plan Subdistrict zoning overlay.

3.0 ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

3.1 Urban Design

3.1.1 Urban Design Principles and Objectives

The primary urban design objective of BMC is to create a cohesive medical campus thoughtfully integrated into the surrounding urban fabric and neighborhoods. Since the merger of Boston City Hospital and University Hospital in 1996, BMC has endeavored to implement sensitive design, careful open space planning, and conscientious site and streetscape enhancements along the campus periphery to support this objective.

Significant campus improvement projects implemented under the previous 2000 and 2010 Institutional Master Plans refined the presence and aesthetic of the BMC campus, specifically along Harrison Avenue and Albany Street.

Similar master planning design goals are relevant for the next 10 years to support future development on the BMC campus and these include:

- Create a clear and welcoming sense of arrival;
- Strengthen the identity and visibility of BMC;
- Complement the existing context massing, scale, and materials;
- Enhance campus unification, circulation, and accessibility;
- Enable connectivity between parking and existing buildings;
- Enhance open spaces on the campus, both short- and long-term;
- Develop and activate pedestrian-friendly street edges;
- Integrate sustainable design principles and energy efficient and resilient operations; and
- Plan proactively for future growth and transformation.

BMC's master plan goals combined with urban design principles will enrich the physical image of the BMC campus, improve the integration with the surrounding neighborhood, and elevate the perceptions of BMC by its users. Ultimately, the institution strives for consistency, compatibility, and connectivity in the design and location of its buildings, open spaces, streetscapes, pedestrian access, and overall campus circulation.

3.1.2 Existing Urban Fabric

The BMC campus is bound by a residential neighborhood to the north along Harrison Avenue, support and research and development uses to the south along Albany Street, and light industrial and commercial uses to the east and west. The existing campus is also bordered by major roadways, most notably Massachusetts Avenue. This prominent artery forms an important gateway to the BMC campus and links the institution to the City of Boston. Significant pedestrian routes, such as the East Concord Street corridor, weave through the campus.

The existing architectural context is comprised of a variety of scales, styles, and periods. Building heights range from two to 14 stories. Traditional historic buildings such as the BCD and FGH Buildings, were constructed in the late 1800's. The newer Moakley Building and the Shapiro Ambulatory Care Center and recently completed New Inpatient Building Phase 1 and Patient Transport Bridge portray the current, modern campus aesthetic. These diverse buildings represent BMC's sensitivity to historic context through preservation and its commitment to delivering state-of-the-art health care.

3.1.3 Public Realm

The below represents the guidelines established under the 2010 IMP and 2013 Amendment.

3.1.3.1 BMC Public Realm Guidelines

Reinvigorate Campus Connectivity and Streetscapes - Provide visual cues and design features that physically and symbolically connect the different streetscapes of the campus.

- Public sidewalks should provide a direct and continuous pedestrian network connecting blocks and buildings to each other with a clear, unobstructed pedestrian pathway that is designed to accommodate the needs of a broad range of users, including the elderly, those with disabilities, and young children.
- Areas encouraging rest, respite, and campus/community collaboration should be planned for a provided where possible, through the use of appropriate green space, xeriscaping, and other opportunities to optimize open space.

Respect Campus Context - Buildings should continue to complement existing context mass, scale and materiality, while reinforcing the public realm.

- New buildings should be clearly defined and engage the streetscape to provide a consistent urban street edge.
- Appropriate setbacks where possible should be provided to allow for proper public realm enhancements.

Maximize Definition of Campus Gateways - Create well-defined gateways that announce arrival and improve wayfinding at key points.

- Aesthetically pleasing and informative signage shall be provided throughout the campus to help in wayfinding and encourage safe and efficient travel.
- Public signage should be used to announce entry into the campus at key intersections.
- Employ public signage for vehicular, pedestrian, and cyclist wayfinding that is consistent in color, shape, and graphic image.
- Employ public signage which incorporates public health messaging.

Encourage Community Engagement - Enliven the streetscape, invite connectivity, and provide green respite to the public.

- Wherever possible promote positive street activity, both day and night, through retail and /or after-hour program functions.
- In addition to accommodating pedestrian circulation, public sidewalks should provide spaces for more passive activities, where people can remain to observe or participate in public outdoor activities. Seating can be either formal (e.g. chairs and benches, such as those found at a café or transit stop) or informal.
- Integrate the pedestrian experiences of medical students, faculty, staff, visitors, residents, and patients.

Promote Safety and Comfort - Provide a safe and pleasant environment for all users

- Limit conflicts between pedestrian and motor vehicles through reduction of curb cuts (where possible) and by creating clearly marked service zones to limit unsafe pedestrian conditions.
- Universal accessibility principles should be applied to all proposed and future projects in accordance with ADA guidelines.
- Adequate street lighting to maintain a safe environment at night.
- Sidewalk upgrades, planting, and other improvements that make the streetscape comfortable for pedestrians.
- Landscape areas along the street edge for tree and planter improvements to add visual interest, soften urban edges, and provide pedestrians with buffer from traffic.

3.1.3.2 Campus Plan Improvements

As clinical care trends have evolved over the years, so have the physical parameters necessary to support them. Buildings with larger footprints and uninterrupted floor plates are often required. These large-scale designs sometimes result in unfortunate impacts on the urban fabric, such as the elimination of roadways and open spaces. While addressing the ever-changing aspects of clinical care, BMC utilizes a balanced master planning approach with minimal collateral loss to existing infrastructure through its commitment to historical precedents, maximizing the highest and best use of its existing building resources, and open space strategies.

Ongoing planning initiatives sensitively maintain the integrity of the urban fabric and the surrounding neighborhoods while continuing to define a sense of campus and meet the institution’s primary mission of healing. As a result, many of the original streets of the historic urban fabric have been retained and enhanced to better integrate the campus with the neighborhood.

The Moakley Building is an example of integrating the campus with the neighborhood. This structure was strategically located and oriented to reinforce the significant pedestrian connection between the east and west campuses and the centrally positioned medical school. Moakley Green, located north of the Moakley Building, strengthens the urban axis of Worcester Square and provides a landscaped transition between the campus edge and the residential neighborhood. Moakley Green is accessible to the public and provides pedestrian access to the campus from the north.

Recent significant building and circulation improvements were made under the previous IMP. Moakley Cancer Center Addition engages the streetscape at the east facade and helps further define the prominent north/south pedestrian corridor connecting the campus with the surrounding residential neighborhood to the north. The integrated bus stop and canopy provides a clear arrival point for medical students, faculty, staff and visitors accessing the campus via public transportation.

With the completion of the New Inpatient Building Phase 1 and the New Patient Transport Building, the most impactful of the campus plan improvements have been realized. These projects allowed repositioning of two major vehicular functions to create a simplified streetscape condition by eliminating several existing curb cuts. The existing West Campus loading dock was relocated to the existing Power Plant, separating operational service zones from public circulation areas. The Emergency Department patient drive and drop-off was moved to the south side of the Moakley Building via Shapiro Drive. These actions instantly improved pedestrian experience by reducing pedestrian/vehicular conflicts along the north side of Albany Street.

The New Inpatient Phase 1 building infilled gaps in the Albany Street face and better-defined circulation paths by engaging the public street zone. These improvements now create a visual link promoting a unified campus image and established a much-needed visual order to the street edge. This order has heightened the experience through easier patient wayfinding and created an enhanced entry image as viewed from Massachusetts Avenue. Replacing the existing utility tube with the new patient transport Bridge along the Albany Street corridor provides further visual comprehension to a congested and confusing street corridor. See **Figure 3-1 Completed Campus Plan Improvements**.

3.1.3.3 Campus Access and Connectivity

An individual's experience with the BMC campus begins with their approach. The arrival sequence must be clear, and the architecture and open spaces should impart an immediate and welcoming sense of arrival and place. The arrival experience should also convey the image and identity of the institution as a leader in healthcare, education, and research.

The BMC campus is well connected to regional and district roadways while several MBTA bus and rapid transit routes service the area. The intersections of Massachusetts and Harrison Avenues and Massachusetts Avenue and Albany Street form key entry points to BMC. About half of the visitors arriving at the BMC campus by car will go directly to the parking garage located on Albany Street.

Once on the campus, users encounter a range of choices for navigating to their destinations. Wayfinding must be clarified through the careful design and manipulation of building massing and materials, tree planting, sidewalk improvements, and a unified signage system.

Massachusetts Avenue, East Concord Street, East Newton Street, and East Brookline Street are the major north/south vehicular and pedestrian throughways that connect the campus to the neighborhood. East Concord Street is the most important north/south vehicular and pedestrian connection due to its axial relationship with the public parking garage at 710 Albany Street and its central location to the east and west ends of the campus and connection with the BU Medical Campus. Given the East Concord Street importance, it is vital to ensure vehicular and pedestrian through-put operations are functionally efficient.

Harrison Avenue and Albany Street are the major east/west vehicular and pedestrian throughways that connect the campus to Massachusetts Avenue (and I-93) and the neighborhood. Albany Street will provide connectivity to BMC's administrative and clinical services in Crosstown and link future developments and medical and bio-tech clusters to the east and west as envisioned in the Harrison/Albany Study.

On the southern perimeter of the BMC campus, pedestrian pathways facilitate staff movement between the 610 Albany Street parking garage, BioSquare, and the main medical center. The South Bay Harbor Trail also joins the network of BMC connections where it intersects with Massachusetts Avenue.

See Figure 3-3 Existing Major Vehicular Access and Major Entry Points and **Figure 3-4 Campus Connectivity**.

Pedestrian pass-through connections exist via access corridors at the Menino Pavilion and the Moakley Building. The Moakley Building public corridor through the Menino Pavilion links the walk-in Emergency Department entry with the Menino Lobby. A through building connection also exists for staff and visitors between the Power Plant and the Menino Pavilion the New Patient Transport Bridge. There is a limited-access corridor for wheelchair/stretcher patients through the Moakley Building that unites the Moakley/Shapiro Ambulatory Care Center south entry court with the Moakley Lobby. The consolidation of BMC's clinical services from the East Campus to the West Campus as part of the previous master plan has improved the experience for patients, staff and visitors by simplifying movement and connectivity because users now navigate to one campus instead of two.

See **Figure 3-5 Pedestrian Connectivity**.

Figure 3-1 Completed Campus Plan Improvements

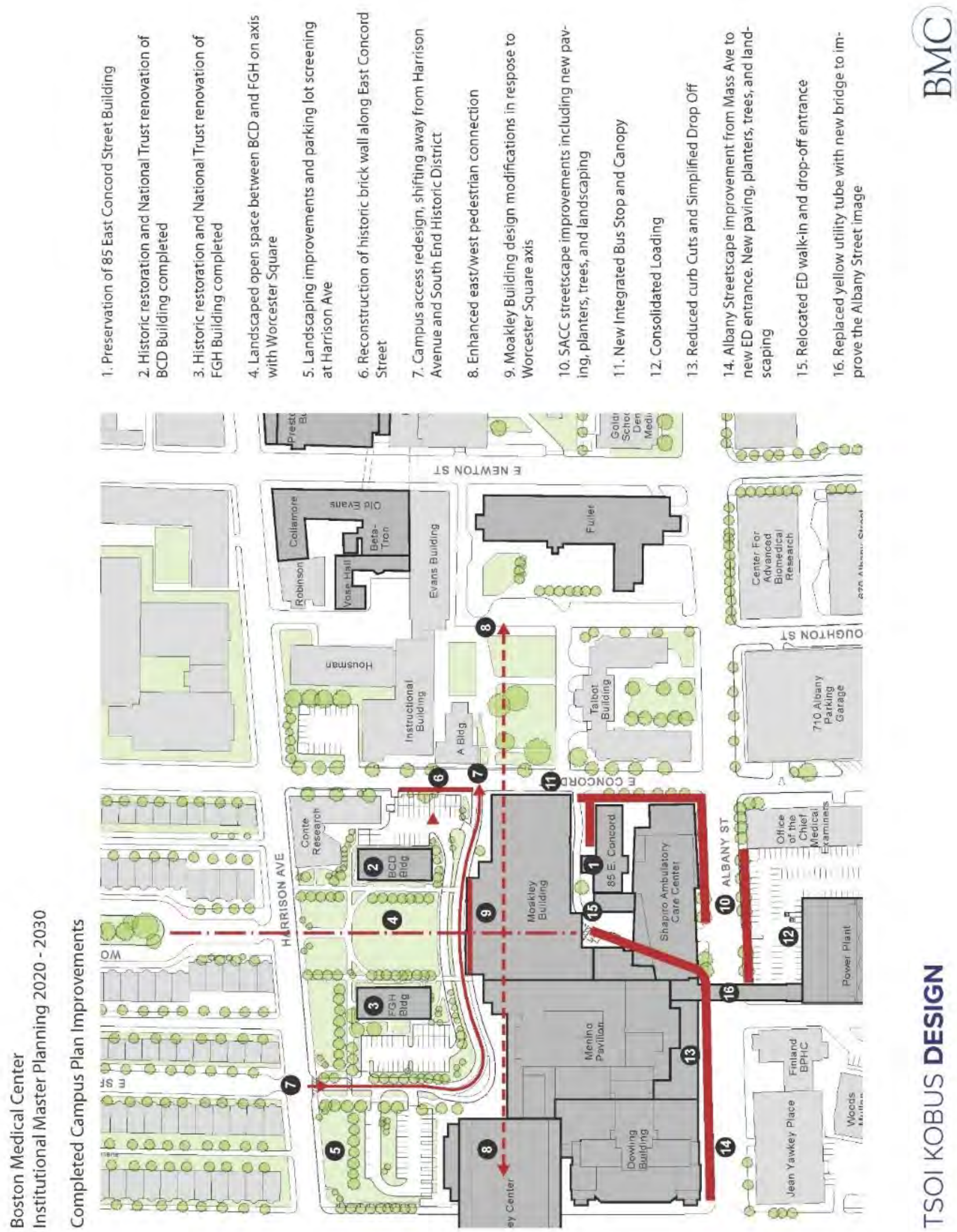


Figure 3-2 Existing Major Vehicular Access and Major Entry Points

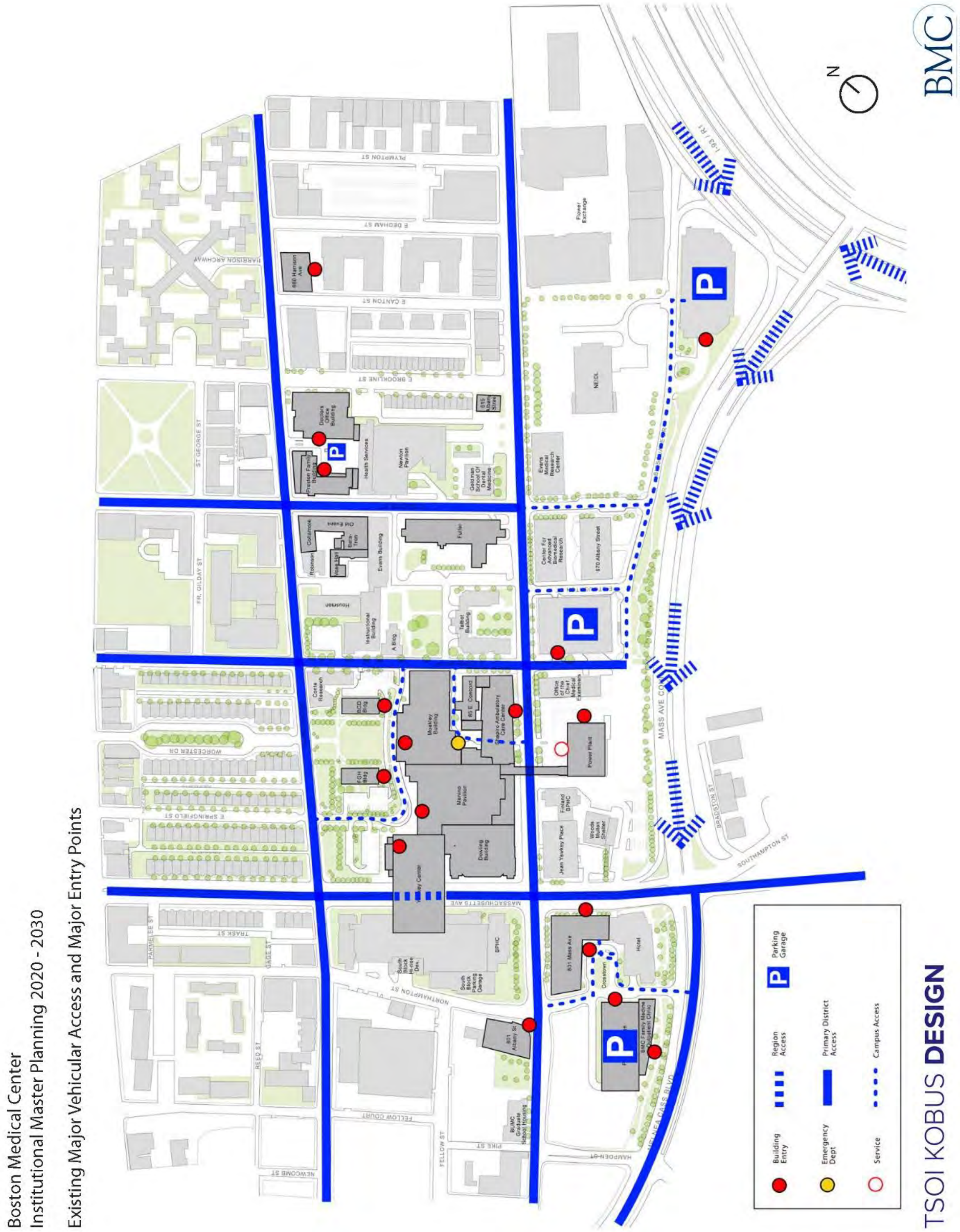


Figure 3-1 Campus Connectivity and Open Space

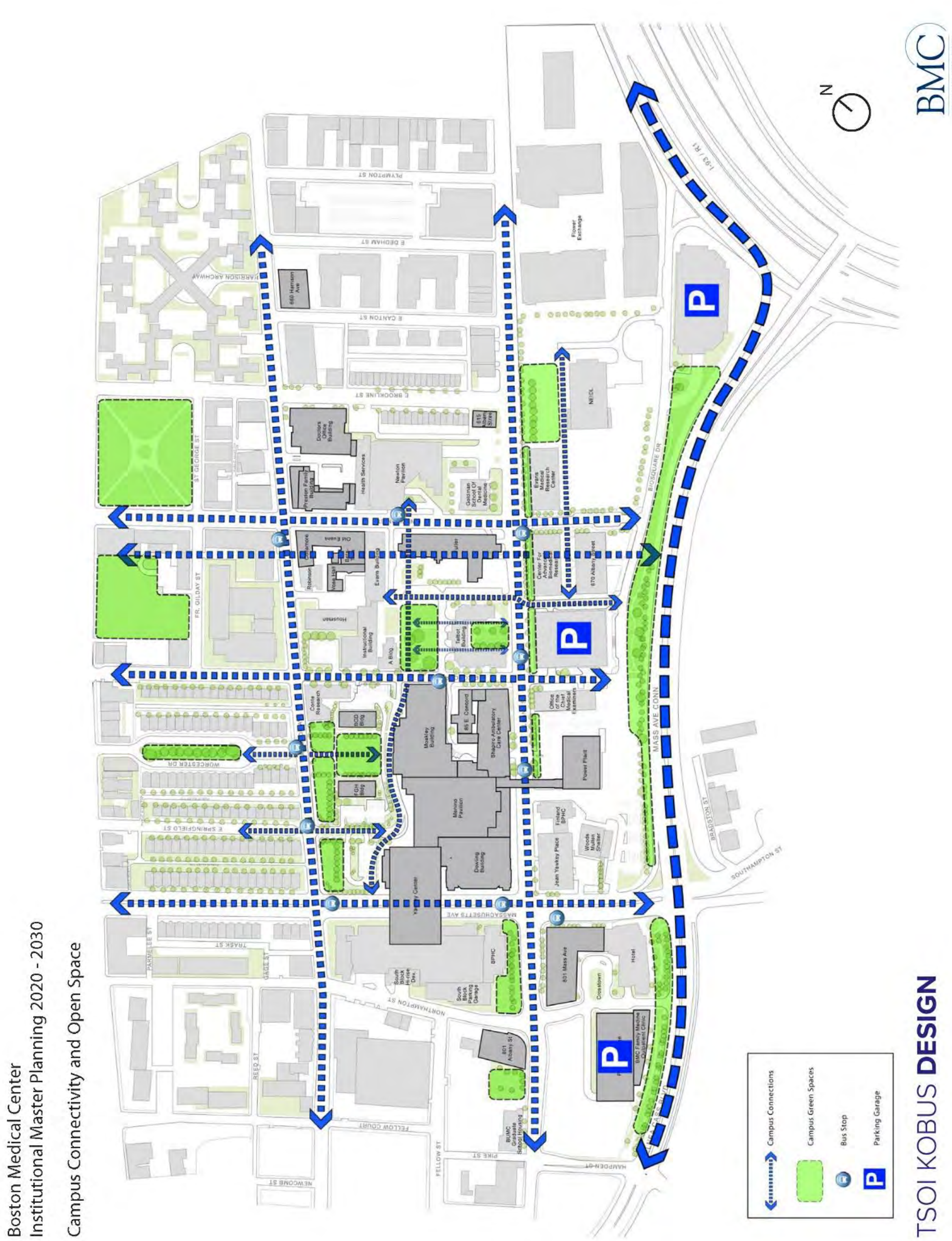
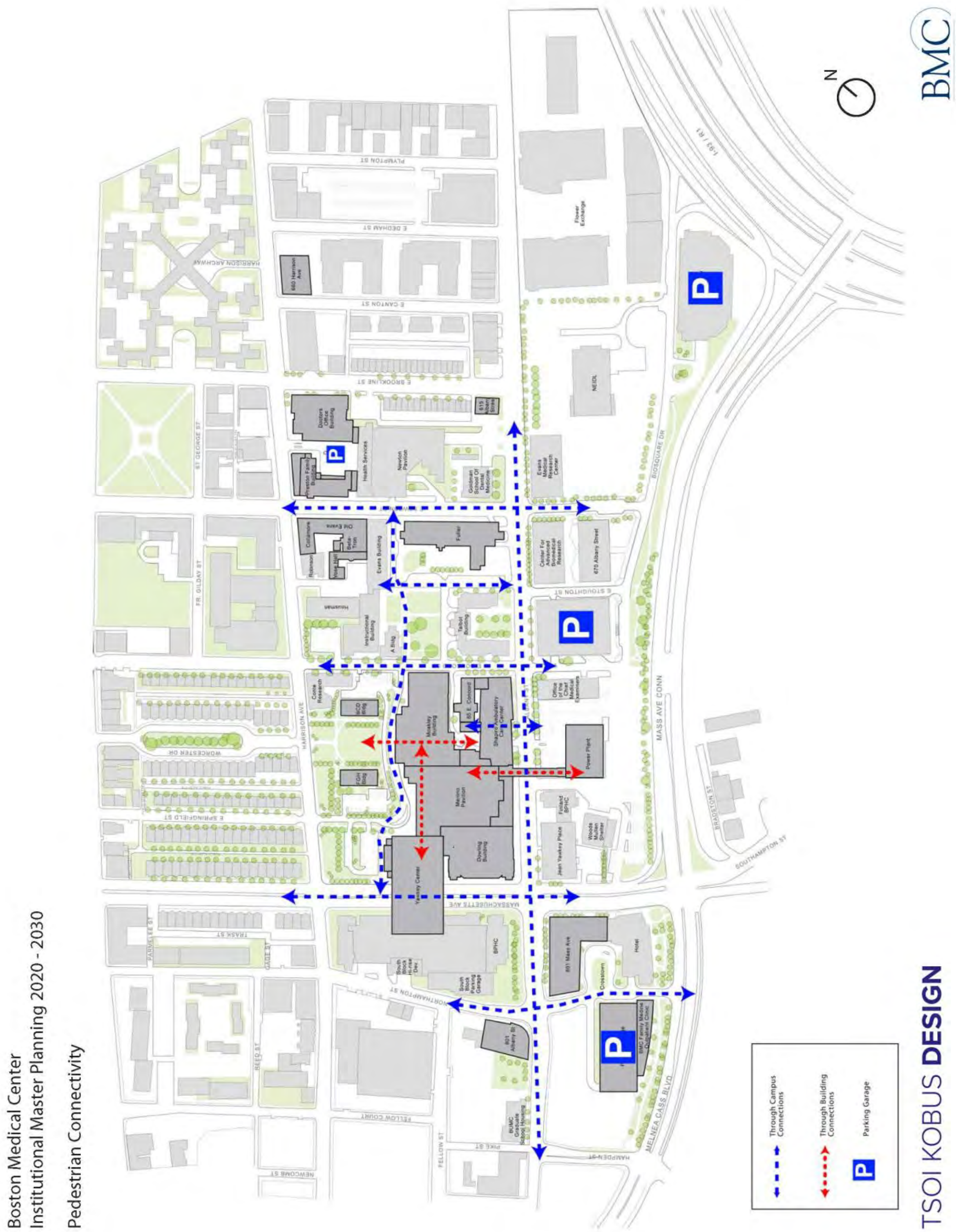


Figure 3-2 Pedestrian Connectivity



In addition, BMC has a very active bicycle program that further promotes movement and connectivity throughout the medical center.

See **Transportation Section 4.2.2** for more information. See also **Figure 4-2** for BMC campus Bicycle Facilities.

3.1.3.4 Campus Open Space

Open spaces play a pivotal role in clarifying wayfinding and enhancing the user's experience. They furnish visual cues for circulation and effective linkages between city streets and campus pathways. One of the unique characteristics of BMC's campus is the amount and quality of its open spaces, virtually unprecedented on urban hospital campuses. **See Figure 3-4.**

While examining equivalent medical institutions within the City of Boston, it is evident that the amount of green space on the BMC campus is comparable and, in some cases, much greater than what is being provided elsewhere. Over recent years the completion of Master Plan improvements has significantly expanded the green space throughout the campus further defining and enhancing the pedestrian experience

The existing network of open spaces features various nodes where the campus and community come together. Examples include the Moakley Green and landscaped public street edges along Harrison Avenue, BU's Talbot Building, and BioSquare. The open spaces also provide gathering areas for medical students, faculty, and staff. In particular, the lawn between the BU's Talbot Building and the BU School of Medicine enables multi-purpose programming for campus events and accommodates pedestrians, bicycles, and vehicles.

With the completion of the Moakley Building and renovations to the BCD and FGH buildings in 2006 and 2007, an enhanced arrival sequence and landscaped open spaces improved the north edge of the West Campus. These modifications benefit both the campus and surrounding neighborhoods through better design, welcoming aesthetics, and greater connectivity. The location of the Moakley Building, with its three-story atrium facing the green to the north, also reinforces an existing east/west pedestrian link. This further unifies the campus both physically and symbolically.

With the completion of the Moakley Cancer Care Addition, the New Inpatient Building Phase 1 and the new Patient Transport Bridge, landscape buffers, planting areas and furnishing zones have been created. Benches were installed at the corner of the Moakley Building to generate places of interaction.

As per the institutional design goals and objectives, the BMC will continue to complement and animate its open space network through additional streetscape refinements and landscaped areas as part of its IMP projects. One area currently planned for immediate improvement includes installing a landscaped buffer edge behind the existing fence along the front of the Power Plant along Albany Street.

3.1.3.5 BMC Campus Edges

Harrison Avenue

Harrison Avenue has historically been and will remain the hospital's primary public face. As such, it has an obligation to create visual as well as physical links between the campus and neighboring South End.

Over the past decade BMC has worked to revitalize this campus edge through extensive landscape, material and architectural improvements. The Moakley Building, green space and repurposed historical buildings adjacent to Worcester Square provide a formal gesture back to the residential neighborhood, while maintaining an appropriate buffer to the larger scale buildings on the BMC campus. Future planning for proposed projects along Harrison Avenue will include exploring additional landscaping buffers that form pedestrian-friendly street edges, place-making opportunities at key intersections and ground-level public amenities to establish destination points along this key corridor in order to sponsor district interconnectivity. In addition, these planning efforts will look at ways to improve patient and visitor arrival experience along Harrison Avenue to BMC's front door.

Massachusetts Avenue

As a major campus arrival point, Massachusetts Avenue is the functional artery tying the BMC campus into the broader city and regional context. It is a connecting street traversing many neighborhoods, maintaining continuous walking, cycling and vehicular connections to the BMC campus. Buildings along this street tend to vary in scale, growing larger as they reach the Massachusetts Avenue Connector. Future development along this corridor should relate to this larger scale and be conscious of the smaller pedestrian scale along the street edge. Future planning for proposed projects at the corner of Massachusetts Avenue and Albany Street will explore pedestrian realm improvements which promote connection to the surrounding context and wayfinding opportunities at major street intersections to improve the user quality at this key juncture.

Albany Street

Street clarity and pedestrian safety are critical in achieving a heightened urban experience. Traditionally Albany Street has lacked a clear unifying identity and has been the functional "back door" to the campus. A myriad of curb cuts, varying building scales and segmented facades created a condition of confusion and an overall unsafe pedestrian experience along the street corridor. As the west campus advances, this street is underscored as a major access point and entry into the campus. BMC has begun to elevate the image of Albany Street unite the campus and provide a better patient environment through the completion of the public realm improvements with the New Inpatient Building Phase I and the New Patient Transport Bridge. These two projects significantly improved the circulation, traffic, accessibility and user experience along the portion of Albany Street closest to Massachusetts Avenue. Establishing a more unified identity along the entirety of Albany Street will enhance the overall cohesiveness and organization of the corridor, simplifying wayfinding and site orientation.

Future planning for projects along this corridor will promote a simplified urban understanding through visual and material clarity. Continuous façade alignments will provide spaces that are critical to the creation of public realm improvements. Future projects will continue to support the development of this "secondary green path" (established in HACSP) through appropriately placed "pocket" green spaces, street planters and existing tree improvements. Strategically placed campus signage and pedestrian-friendly walking links will maintain relationships to buildings that are outside of the immediate campus core.

Future planning goals will be to invite and bolster pedestrian connectivity throughout the Albany Street, Harrison Avenue and Massachusetts Avenue corridors. The proposed and future IMP projects will be designed to align with the HACSP vision for the enhancement of pedestrian circulation, creation of place-making and continual green space expansion to further strengthen the campus' connection to its surrounding context.

3.1.3.6 Master Plan Improvements and Consistency with BPDA Planning Initiatives

The Institutional Master Plan aligns with the vision and goals established in the Harrison Albany Corridor Strategic Plan (HACSP) and the IMP has been developed to enhance BMC’s public service and economic development role in the community. Under earlier master plans, BMC has accomplished preserving and enhancing open space and making significant improvements to the vehicular and pedestrian circulation and experience on both Harrison Avenue and Albany Street through re-directing traffic, eliminating curb cuts and diminishing the congestion and conflicting traffic patterns. The proposed projects under the current master plan will build upon these improvements. The design of the proposed buildings will blend with the historic and modern BMC campus as well as the adjacent neighborhood. The proposed buildings along Albany Street will be designed to align with the HACSP vision for pedestrian realm improvements including paving, lighting and wayfinding. Proposed building setbacks and architectural features such as glass facades at the ground level and canopies are intended amenities for the general public. The proposed buildings will be designed as an integral component of a streetscape that will form and enhance the character of the street. Vehicular, bicycle and pedestrian circulation will continue to be evaluated for improved experience. To that end, HACSP streetscape guidelines will be explored along with the goals and objectives of the Albany Street Redesign Project and BMC’s planning criteria.

All the proposed IMP projects planned in this IMP will continue to transform the appearance of BMC and its campus edges, thereby reinforcing key access corridors, enhancing the pedestrian experience and strengthening the connection beyond the boundaries of the BMC campus. One area currently planned for immediate improvement includes installing a landscaped buffer edge behind the existing fence along the front of the Power Plant along Albany Street.

The proposed IMP projects along Albany Street, two New Administration/Clinical Buildings and the New Inpatient building Phase II, will engage the street edge and establish new landscaped open space where feasible. New trees and sidewalk improvements will also be constructed and serve to improve the pedestrian connectivity along east/west Albany Street corridor. As part of the New Administration/Clinical Building at the ramp site, ground level amenities will be introduced to engage the public. As BMC moves further to the west side of Massachusetts Avenue, similar strategies will be considered, and BMC will look to align and coordinate with other BPDA sponsored initiatives such as the Massachusetts Avenue and Melnea Cass Boulevard Design projects.

The renovation investment in Collamore/Old Evans and the new 10 Stoughton Street building will provide opportunities to improve the pedestrian realm experience at this block by improving the sidewalks, introducing landscaped buffer zones and provide ground level amenities to engage the public.

3.1.3.7 Campus Accessibility Improvements

BMC is committed to coordinating with the Boston Center for Independent Living (BCIL) and Ms. Kristen McCosh, Commissioner of the Mayor’s Commission for Persons with Disabilities, to address existing areas within and around the perimeter of the campus to remove barriers and create universal accessibility. As part of the previous IMP, BMC integrated accessibility planning early in the design process for the IMP projects and will continue to do so for all future IMP projects. BMC will continue to consult with the Institute for Human Centered Design to review new streetscape improvements proposed as part of the new IMP.

BMC's vision is to implement and manage initiatives that promote and maintain accessibility. The following are the strategic objectives of that vision:

- Continuously evaluate and improve existing conditions.
- Enhance organizational understanding of physical and visual barriers.
- Partner with key stakeholders to drive enhanced experience and promote functionality or renovated and new projects.
- Ensure a structured and methodological approach is in place to incorporate human centered design.
- Streamline process from identification of barriers to resolution.
- When feasible, address new regulatory requirements.

In coordination with BCIL, BMC has made significant efforts in completing barrier removal priorities established in the previous IMP. BMC continues to work with a 3rd party review consultant, Linea 5, who reviews all proposed projects over $1M to ensure they are designed without barriers. BMC continues to take the opportunity to make accessibility improvements throughout its campus as new projects are implemented.

3.1.3.8 Campus Wayfinding and Signage

BMC, in partnership with BU Medical Campus, developed a comprehensive medical center signage and wayfinding plan several years ago. The goals of the BMC campus medical center signage plan were to strengthen existing signing programs beyond the site in coordination with Federal, State and City authorities, to implement a program of gateway, directional, and street name signing, and coordinate and strengthen private signing to clarify the identity of each member institution of the medical center. These signage efforts were coordinated with neighbors including representatives of Crosstown, Newmarket Business Association, and the BPDA.

The architectural variation and intensive vehicular traffic in the general area of the BMC campus can present navigational difficulties for a visitor who is unfamiliar with the medical center. To address this issue, BMC, in coordination with BU Medical Campus, implemented a program focused on four primary elements: off-site signing, on-site signing, area identification, and inner and outer loop campus signing. The program includes:

- Installation of trailblazer signage, in coordination with regulatory authorities, which displays the "H" hospital symbol reinforced by the BMC campus logos;
- Installation of a Gateway Pylon which serves as a directional sign, as well as a landmark, to indicate the point of entry into the BMC campus at the intersection of Massachusetts Avenue and Harrison Avenue;
- Installation of channel letters on the main hospital pavilions for area identification; and

- Installation of directional signage for the inner campus loop that links all the individual medical institutions within the inner campus, and outer loop signage that identifies, BMC, BU Medical Campus, and BioSquare.

Building identifiers were also placed near entrances to each campus building. BMC buildings are distinguished with blue and silver leaf signage and BU Medical Campus buildings are distinguished with red and gold leaf signage.

Parking area identification is standardized since BMC, BU Medical Campus, and BioSquare share the same parking facilities. A “P” parking symbol consistent with the City of Boston standard is located at the entrance of each parking facility. In addition, the name of the institution served by the parking facility is listed below the parking symbol.

For pedestrians, map retainer displays are located at key points on the BMC campus. The maps identify each institution and display information regarding roadways, transportation routes, landmarks, public transportation, parking, and other public amenities.

The signage plan allows for future implementation and independent facility updates for each medical center member institution.

The most recent expansion of the signage program was BMC’s inclusion of additional large monoliths and pedestrian monoliths for the New Inpatient Building Phase I project to direct patients and visitors to the relocated emergency department vehicular and pedestrian drop off location. In addition, channel letters were added for building naming of the New Inpatient Building Phase I and the new emergency department entrance and updates were made to all existing wayfinding signage to direct patients to one consolidated campus location to the west and removed wayfinding to the Newton Pavilion.

BMC intends to make further enhancements and expand its campus wayfinding and signage plan during the term of the IMP to incorporate improved wayfinding signage to its administrative and ambulatory clinic locations across Massachusetts Avenue, at Crosstown (801 Massachusetts Avenue) and 801 Albany Street. As building additions and new construction projects are implemented during the term of the IMP, the plan will be updated to include changes to pedestrian and vehicular circulation patterns and cyclist wayfinding and relocate or add new channel letters and BMC name and logo signage.

Immediate planned changes to BMC’s campus wayfinding and signage plan include relocated channel cut letters and the BMC name and logo sign on the Yawkey Ambulatory Care Center replacing the Brigham and Women’s channel cut letters on the Crosstown (801 Massachusetts Avenue) building façade with BMC’s channel cut letters and/or name and logo, and replacing the existing street level signage for ZC Boston restaurant with BMC signage. This street level change is particularly important for street level wayfinding to BMC’s new ambulatory clinics located at Crosstown. In addition, BMC proposes to install an electronic gateway sign on the east façade of the Power Plant. Given its strong visibility along the Massachusetts Avenue Connector and Melnea Cass Boulevard, this will serve to strengthen its location in a major gateway area of the City and offer opportunities for public health messaging. The proposed electronic sign is intended to align with BPDA’s Strategic Plan for Newmarket and neighboring communities by promoting a positive neighborhood appearance, reinforce the identity of the area and the identity of BMC and promote public health, quality of life and safety. See **Figure 3-6 BMC campus Signage Plan and Figure 3-7 BMC Electronic Gateway Sign.**

Figure 3-3 BMC campus Signage Plan

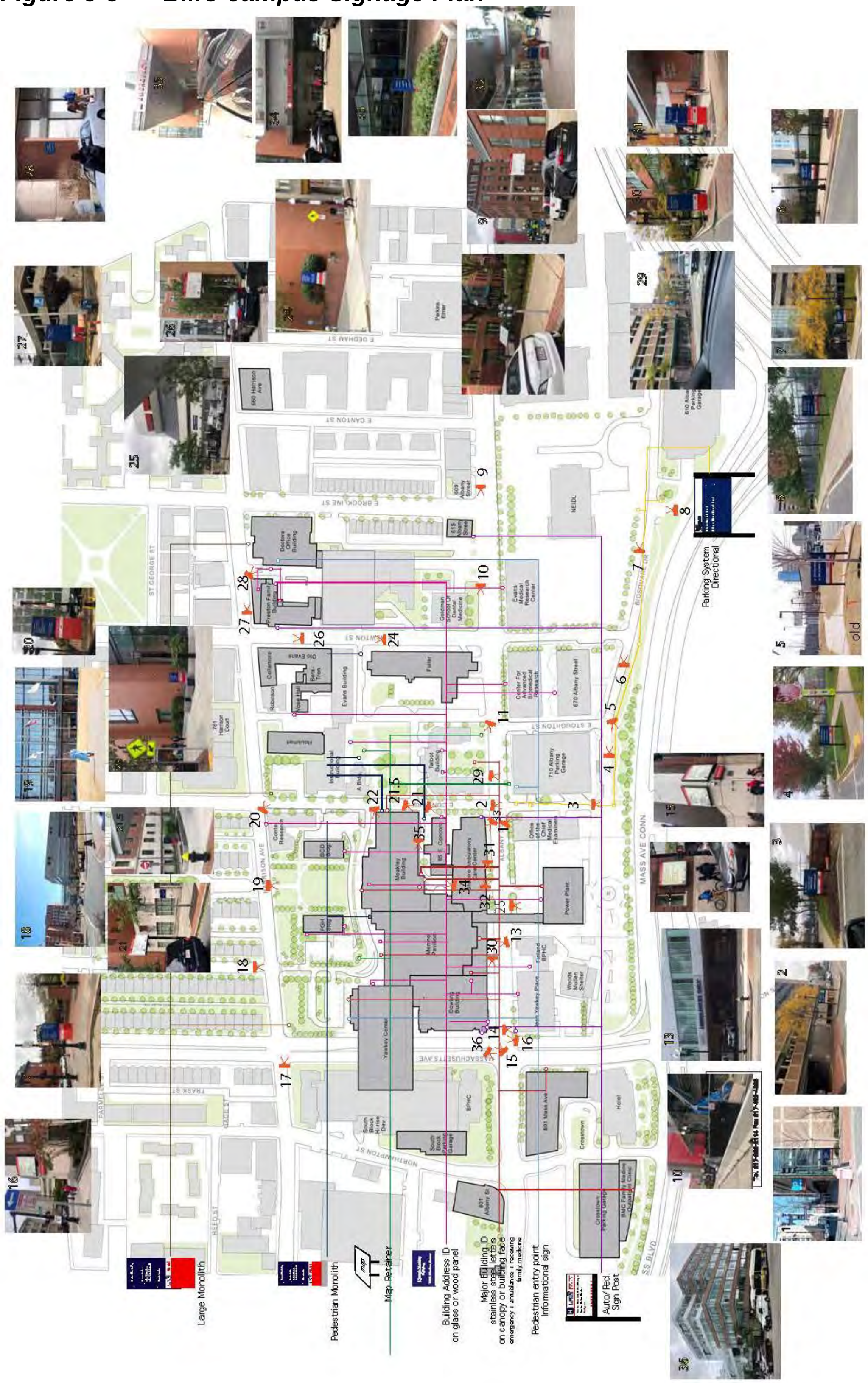
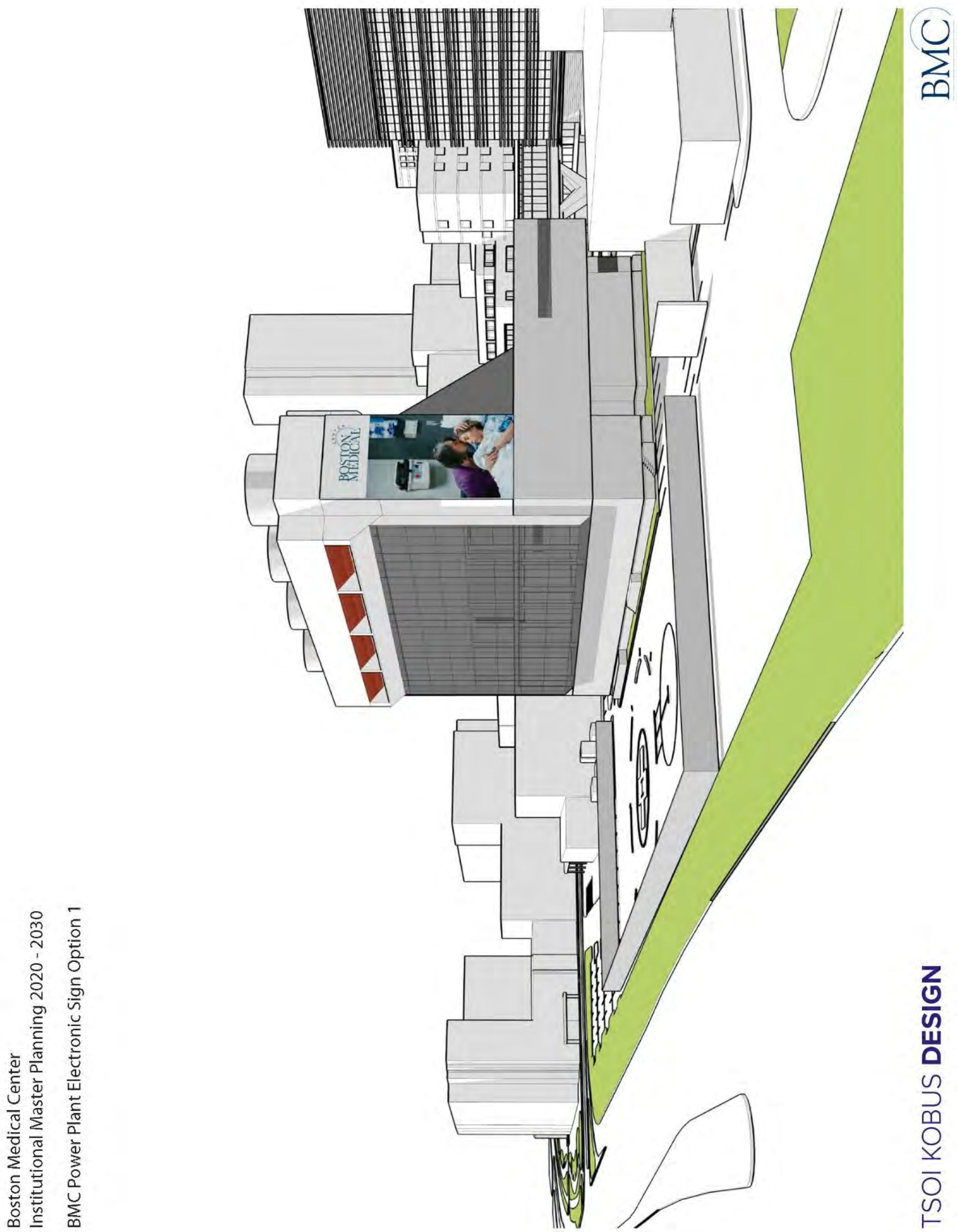


Figure 3-4 BMC Power Plant Electronic Sign



3.1.3.9 Massing and Height

Several key factors drive the proposed massing, height, and location of the four new construction projects and building additions. The key factors include programmatic needs, optimization of existing real estate, architectural context, and previously established urban planning principles. These elements balance the needs of the institution while continuing to strengthen and enhance the relationship between the BMC campus and the neighborhood.

Each project will respond appropriately, both individually and collectively, to the established institutional scale and aesthetic. They will also sensitively acknowledge the character of the South End with appropriate materials, massing, and scale. All of the proposed facilities will enrich the overall campus experience as well as enhance the Harrison Avenue, Massachusetts Avenue and Albany Street Urban Corridors. All proposed locations are consistent with the massing and height of adjacent buildings.

The New Inpatient Building Phase II will be located at the corner of Massachusetts Avenue and Albany Street. A building at this location needs to respond to the surrounding scale and announce the entry to the BMC campus. This building will be approximately 14-stories above grade is consistent with the scale of the existing South Block residential tower at 28-stories above grade and the Albany Fellows Graduate Student Housing development which will range between 6- to 19-stories above grade.

The Administration/Clinical Building at the Power Plant site will be located just to the north of the existing Power Plant and across Albany Street from the Menino Pavilion and the Shapiro Ambulatory Care Center. The building will be approximately 10-stories above grade and is consistent with the institutional scale of the BioSquare development to the east and the Shapiro Ambulatory Care Center to the north.

The Administration/Clinical Building at the ramp parcel will be located just south of the Newton Pavilion, along Albany Street. The building will be approximately 10-stories in height and is consistent with the scale of the Newton Pavilion, the BU Dental School to the west and the institutional scale of the BioSquare development to the south.

The 10 Stoughton Street Building will be located on the site of the existing Vose Hall and Betatron Building which sits behind the existing Robinson Building and has no visibility from Harrison Avenue. This building will be 10-stories above grade, behind the existing Robinson Building which is 6-stories above grade, and the existing Collamore and Old Evans which are 7-to 9-stories above grade. This building is consistent with the scale of other surrounding buildings including BU's Housman Building which is 10-stories above grade, and BU’s Instructional Building which is 14-stories above grade.

The Menino 9th Floor Addition will take advantage of the existing floorplate and infrastructure of the Menino Pavilion. The Floor addition will be built atop the existing Menino 8th Floor and mechanical floor and level 9, maintaining the building at 9-stories above grade. This floor addition will keep the Menino Pavilion consistent in scale with the Shapiro Ambulatory Care Center which is 9-stories above grade located to the south.

See **Figures 3-7 to 3-11 for Aerial Massing Views**.

Figure 3-5 IMP Projects Aerial Looking West

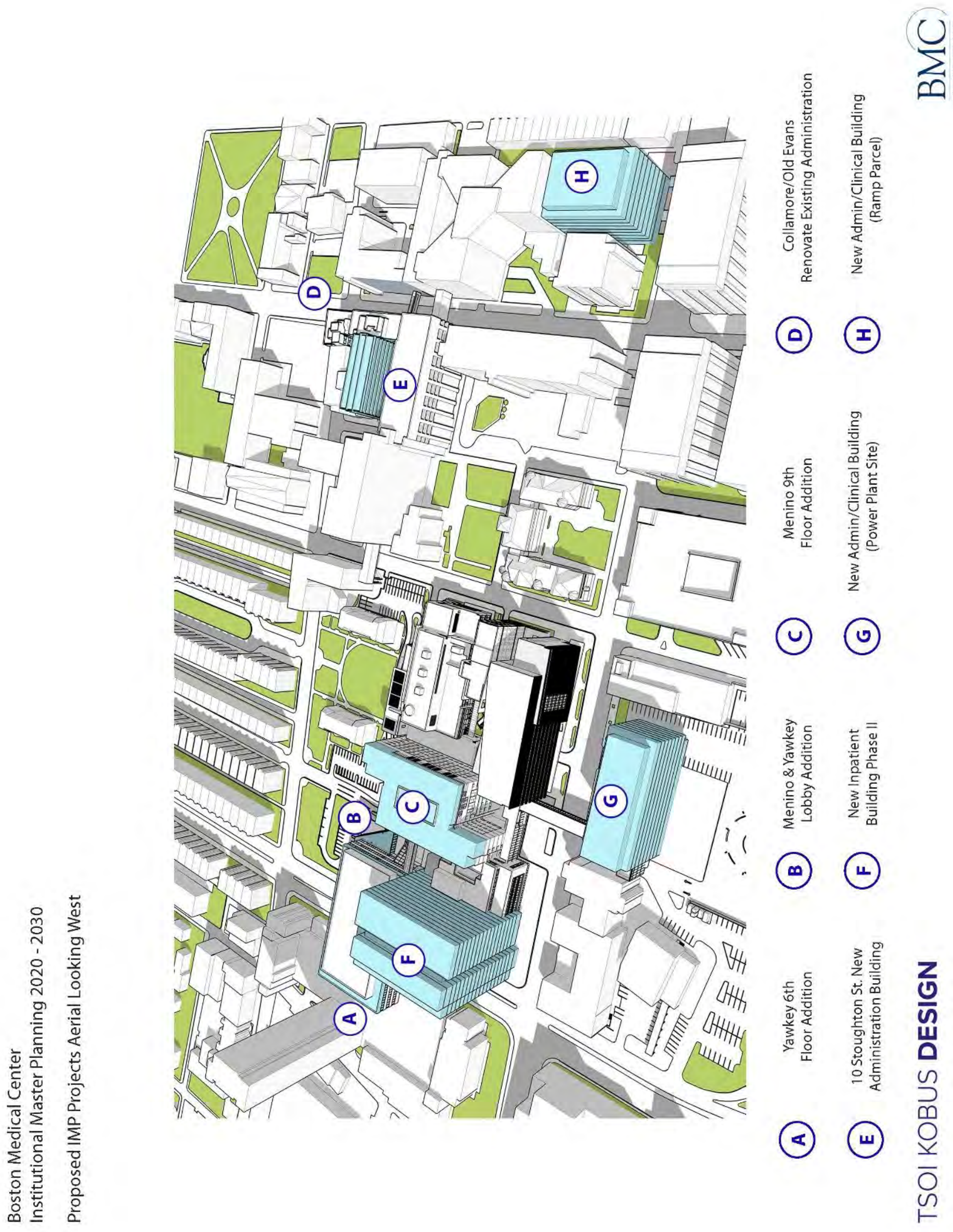


Figure 3-6 IMP Projects Aerial Looking Southeast

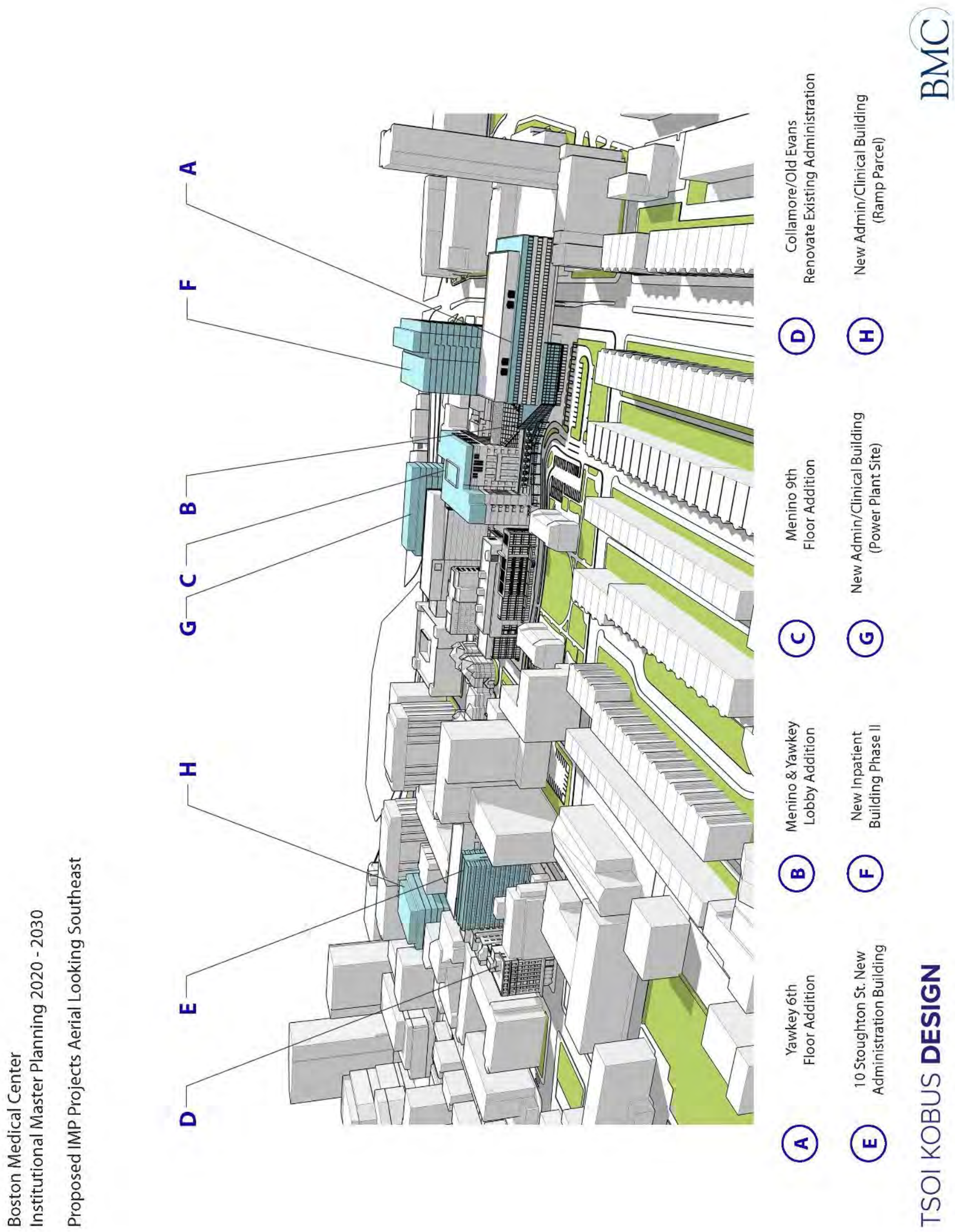


Figure 3-7 IMP Projects Aerial Looking Northwest

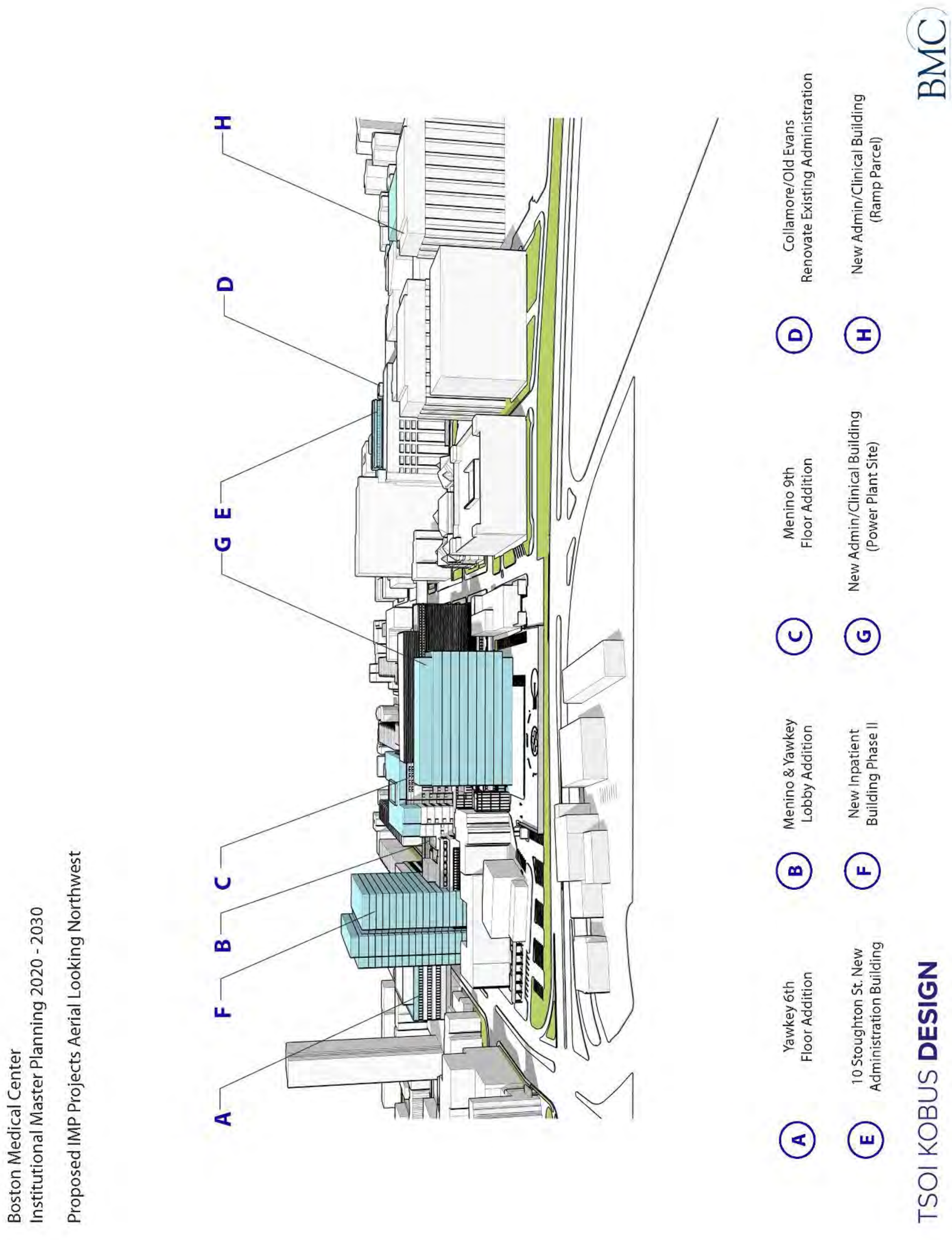


Figure 3-8 IMP Projects Aerial Looking North

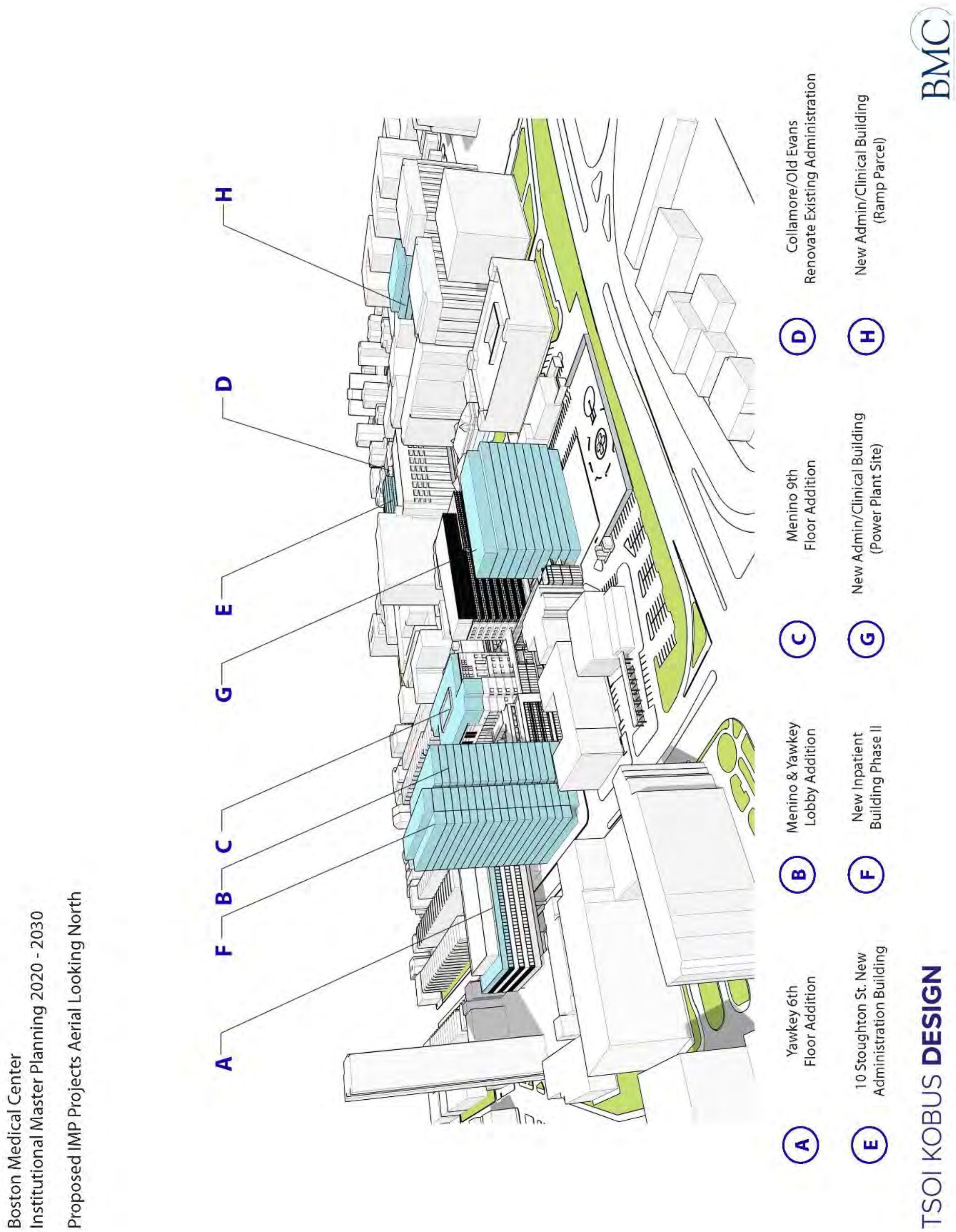
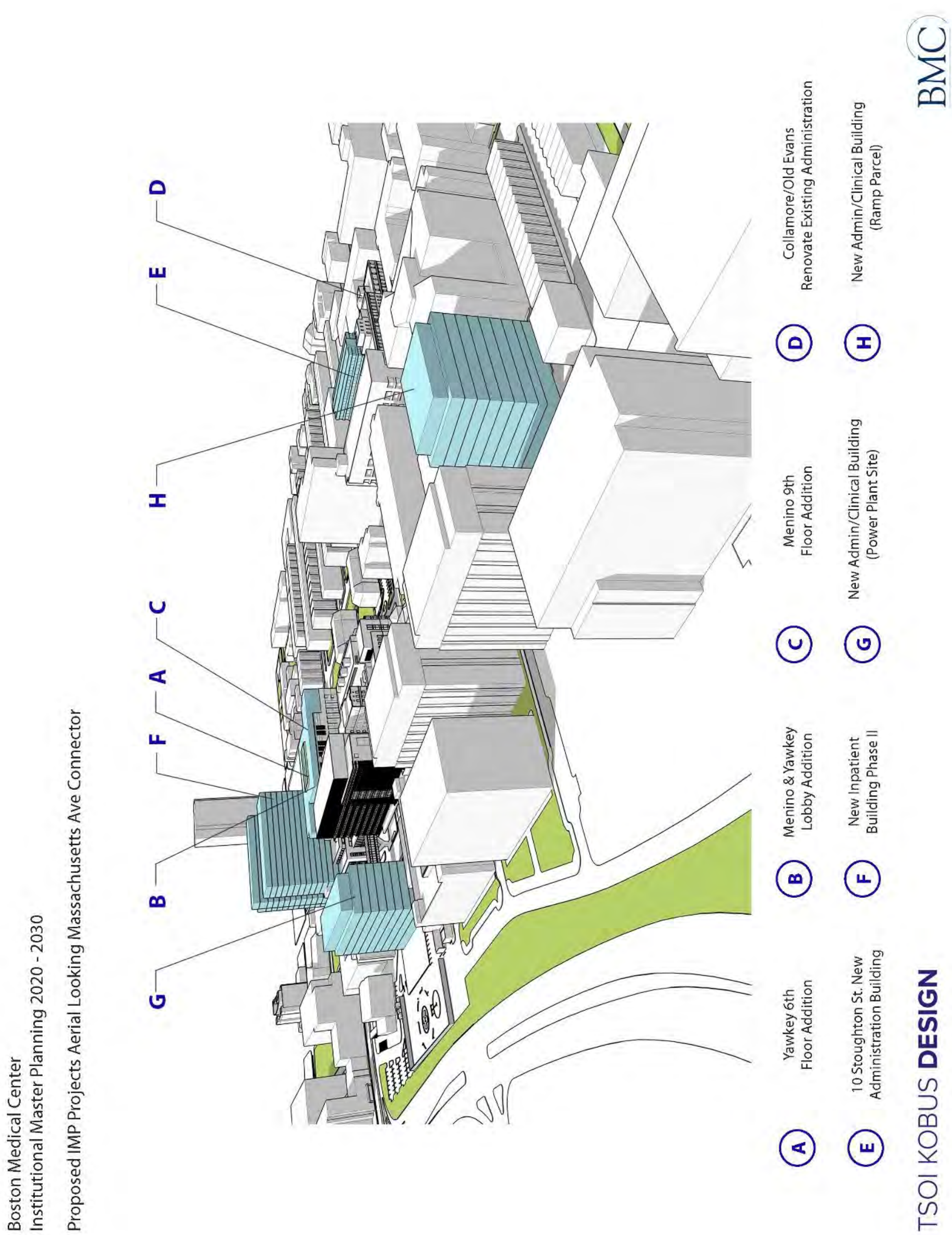


Figure 3-9 IMP Projects Aerial Looking from Massachusetts Avenue Connector



3.2 Sustainable Design

3.2.1 Overview

BMC's leadership as a safety-net provider embeds a focus on keeping its community healthy into its DNA. A healthy community starts with a healthy environment. Studies have shown that the impacts of climate change disproportionately impact its most vulnerable populations. Caring for its communities' environment aligns with its vision to "make Boston the healthiest urban population in the world." Going green provides an opportunity for BMC to proactively engage with the younger, healthier members of its community in a way that providing healthcare cannot. It is a critical part of BMC's mission as a safety-net trauma center which is located in a coastal city sited on over 5,000 acres of man-made land.

In 2018, BMC completed a clinical campus redesign that reduced greenhouse gas emissions by 90 percent, positioning BMC to meet its objectives of achieving carbon neutrality in 2020.

BMC has partnered with Eversource on more than 30 energy efficiency projects in the past several years, achieving more than 20 million kilowatt hours in annual energy savings. The hospital also partnered with Veolia on a 20-year thermal energy agreement to use recycled 'green steam' as a byproduct of electricity generation to provide heat to the hospital campus. BMC has reduced its utility bill from $17.2 million in 2011 to a budget of under $10 million in 2019, money put back into patient care.

In October 2016, BMC announced a solar energy purchase with Massachusetts Institute of Technology and the Post Office Square Redevelopment Corporation that enabled the construction of a 650-acre, 60-megawatt solar facility in North Carolina. This is the largest renewable energy project ever built in the U.S. by an alliance of diverse buyers. BMC's solar purchase is the equivalent of 100 percent of BMC's expected electricity consumption. The solar farm began delivering power into the mid-Atlantic grid in January 2017.

In spring 2017, the hospital began generating much of its electricity and heat through a natural gas-fired, 2-megawatt combined heat and power plant on the roof of its Yawkey Ambulatory Care Center. The cogeneration plant, the size of a tractor trailer, will save $1.5 million a year in energy efficiency, money that can be put back into patient care. The cogeneration plant provides a redundant source of heat and power for the Menino Pavilion campus generating 43% of electric consumption and providing 33% of total heating capacity needs. The cogeneration plant also has 'black start' capability. BMC was the first academic medical center in Massachusetts to install this technology. With its 'black start' capability, BMC can be powered on an island for months at a time if the electric grid goes down, as long as the hospital has a supply of natural gas.

The hospital's green efforts also extend to areas of patient care: all of BMC's Operating Rooms now recycle blue wrap, with more than 12,000 pounds recycled since the program was launched in May 2015.

BMC has joined the Northwest Atlantic Marine Alliance and Health Care Without Harm's Healthy Food in Healthcare Program to buy local seafood whenever possible, benefitting both local fishing communities and the marine ecosystem.

Since BMC rolled out a biodigester in December 2015, the hospital has diverted more than 110 tons of food waste, rather than throwing it in the trash.

In the summer of 2017, BMC launched the first hospital-based rooftop farm in Massachusetts, which provided 15,000 pounds of fresh, healthy food to hospital patients and visitors to date, with 5,000 pounds provided in the 2019 growing season. The food is served to patients, and also through cafeterias and the hospital's food pantry.

The completion of BMC's consolidation into a single clinical campus in 2018 resulted in the reduction of an additional 11 million kilowatt hours of electricity consumption.

BMC, a member of the Green Ribbon Commission's ("GRC") Health Care Working Group, has been recognized nationally for its efficiency and sustainability efforts. Becker's Hospital Review named BMC one of the 50 greenest hospitals in America, and BMC received three prestigious awards from Practice Greenhealth in 2017: the Top 25 Environmental Excellence Award, the higher honor Practice Greenhealth bestows on hospitals, as well as the Greening the OR Recognition Award and the Circle of Excellence award in the energy category. In 2018, BMC received Top 25 Environmental Excellence Award and Circles of Excellence Award from Practice Greenhealth.

Complete List of Awards:

- Becker's Hospital Review 60 Greenest Hospitals in America – 2017
- Becker's Hospital Review 68 Greenest Hospitals in America – 2018
- Becker's Hospital Review 100 Great Hospitals in America – 2017, 2018
- Becker's Hospital Review 150 Top Places to Work in Healthcare – 2017, 2018, 2019
- CHIME and Modern Healthcare Custom Media present HealthCare's Most Wired Level 7 Certification: Hospitals – 2019
- Forbes Magazine list of best midsized employers in the United States – 2017
- Greater Boston American Heart Association awarded BMA with the Community Impact Grant Award – 2017-2018
- Practice Greenhealth: Top 25 Greenest Hospitals Nationally – 2017
- Practice Greenhealth: Top 25 Environmental Excellence Awards – 2017, 2018, 2019
- Practice Greenhealth: Circle of Excellence in Climate Circle – 2018, 2019
- Practice Greenhealth: Circle of Excellence in Energy – 2017, 2018
- Practice Greenhealth: Circle of Excellence in Green Building – 2018
- Practice Greenhealth: Greening the OR Excellence Award – 2017
- Silver Level WorkWell MA Award Winner – 2017, 2018

3.2.2 IMP Projects Compliance with Article 37

The proposed IMP projects will comply with Boston Zoning Code Article 37, particularly the requirement that projects meet the US Green Building Council's LEED v4.1 rating system, both for New and Existing Construction (BD+C) and New and Existing Interiors (ID+C), where applicable to project scope.

BMC commits to demonstrating, at minimum, Silver equivalency through design and construction practices that meet the intent of all prerequisites plus at least 55 of 110 possible points within each respective system. It is not the intent of the project to register and certify these projects with the GBCI. The proposed IMP projects are in the preliminary stage of planning and more detail with a description of strategies for each proposed project and LEED scorecards per each project will be provided in subsequent Article 80 Large Project Review documentation.

3.3 Environmental Protection

Material impacts to water quality, groundwater, flooding and hazardous materials are not anticipated as a result of the proposed projects. Environmental analyses of proposed projects will be evaluated in detail as part the BPDA's Article 80 Large Project Review process. The Proponent intends to file Project Notification Forms, as applicable, for each Institutional Master Plan Project when the design of individual projects has progressed.

Please refer to **Section 3.2.1** for the significant efforts BMC has made to reduce its campus' environmental impact.

3.3.1 Wind

The proposed Yawkey 6th Floor Addition will not increase the overall height of the building. The Menino 9th Floor Addition maintains the existing height of the 9-stories. The Menino & Yawkey Lobby Addition involves the replacement of the existing canopy and reshaping of the northern façade at the 1st and 2nd floors. The Dowling Building will be replaced by the 14-story New Inpatient Building Phase II. The New Administration/Clinical Building (Power Plant site) and New Administration/Clinical Building (ramp site) will both reach 10-stories. 10 Stoughton Street will reach a total of 10-stories and will be located in an area that is enclosed on all sides by the existing buildings and therefore sheltered from prevailing winds. Individual or separate wind studies will be presented in the Project Notification Forms for each individual project as required as part of the BPDA's Article 80 Large Project Review process.

3.3.2 Daylight

The project sites are located within a dense urban environment surrounded by buildings of similar height and massing as the proposed projects. Daylight impacts from the proposed projects are expected to be minimal. A detailed daylight impact analysis will be presented as required as part of the BPDA's Article 80 Large Project Review process.

3.3.3 Shadow

The IMP Projects are proposed on sites currently occupied by buildings or surrounded by buildings of similar height in a developed urban environment that is part of the BMC campus. Therefore, it is anticipated that new buildings will only cast shadows onto other BMC campus buildings. The proposed new projects are not expected to result in significant net new shadow impacts to open spaces. Detailed shadow studies will be presented in the Project Notification Forms as required as part of the BPDA's Article 80 Large Project Review process.

3.3.4 Solar Glare

The Proponent does not anticipate the use of reflective glass or other highly reflective materials on the building facades that would result in solar glare from the proposed additions and new buildings. Detailed review of the proposed façade materials will be presented in the Project Notification Forms as required as part of the BPDA's Article 80 Large Project Review process.

3.3.5 Air Quality

Potential long-term air quality impacts that could result from emissions from vehicular traffic generated by the proposed projects, as well as emergency generators and other energy infrastructure upgrades, are expected to meet applicable air quality standards.

All medical exhaust systems in the buildings will be designed and vented in accordance with applicable air pollution control regulations.

Short-term air quality impacts from fugitive dust may be expected during the early phases of construction from demolition activities, site preparation work, and below grade construction. The construction contract will provide for a number of strictly enforced measures to be utilized by contractors to reduce potential emissions and minimize impacts. Detailed air quality studies will be presented during the Article 80 Large Project Review process.

3.3.6 Noise

Most of the activity associated with the operation of the proposed projects will occur indoors. Operational noise from buildings of this nature may be expected from mechanical equipment that is located outdoors and will be equipped with appropriate noise attenuation mechanisms. Noise impacts associated with new energy infrastructure will be analyzed further as part of the Large Project Review documentation.

Intermittent increases in noise levels will occur in the short-term during construction of the proposed projects. Construction work will comply with the requirements of the City of Boston noise ordinance and noise management measures will be developed and implemented as appropriate. If there are noise impacts associated with future projects, BMC will conduct the appropriate studies as part of the BPDA's Article 80 Large Project Review process.

3.3.7 Water Quality / Wetlands

The proposed projects are located on existing developed sites. The projects are not expected to result in the introduction of any pollutants, including sediments, into the surface waters or local groundwater.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates the FEMA Flood Zone Designations for the Projects' sites (City of Boston, Community Panel Number 25025C 0079G; Effective Date 3/16/2016). The map shows that the Projects' sites are located outside of the 500-year flood plain. The project sites do not contain any wetlands.

3.3.8 Geotechnical / Groundwater

Subsurface conditions for all future projects will be investigated as design progresses. The need for temporary excavation support systems will be evaluated as the designs for the additions and new buildings progress. If needed, the temporary earth support systems will be compatible with subsurface conditions and will be designed in order to provide adequate support and protection of the adjacent streets and utilities. Construction methodology that ensures the protection of existing surrounding buildings will be followed. Dewatering may be required for subsurface construction; if so, all applicable permits will be obtained, and mitigation requirements met. The planned additions will re-use existing foundations to the greatest extent possible. Some supplemental foundations may be required to support portions of the new additions, and those new foundations will extend down to competent soils, below the groundwater level, will be solid, discontinuous, discrete elements that will not cause the groundwater to raise, pond or be lowered.

The proposed IMP Projects are located within the Groundwater Conservation Overlay District (GCOD). The designs for each project will comply with Article 32 and City standards by establishing design and construction methodology which protects groundwater. The Projects will demonstrate that the permanent construction results in no negative impacts to groundwater levels through engineering evaluations. An engineer's report will be submitted to BWSC demonstrating that the standards have been met. Methods to assure these standards include use of fully waterproofed basement (walls and lowest level floor slabs) for the portion of the structure that extends below groundwater levels which will be designed to resist hydrostatic uplift pressures. Design criteria for the Projects will include the provision that no long-term groundwater pumping will be allowed. BMC will conduct the appropriate studies as part of the BPDA's Article 80 Large Project Review process.

3.3.9 Solid Waste, Hazardous Waste and Recycling

The proposed IMP Projects will generate solid waste from employees such as wastepaper, cardboard, glass bottles, aluminum cans, etc. Recycling of this material will be encouraged and managed through BMC's active campus recycling program. Staging areas with recycling bins will accommodate the recyclable material from the projects.

The Projects with clinical programs may involve the generation and processing of biomedical and infectious wastes typical of medical facilities. Management of hazardous waste is highly regulated for the safety of the public, the environment, and the hospital community. BMC has an existing hazardous waste collection program which will be utilized to handle and dispose of all wastes in accordance with applicable laws and regulations.

Demolition and construction activities at the project sites will generate construction debris. The construction contractor will be responsible for off-site disposal of this debris in accordance with applicable public health and safety and environmental laws.

Solid waste generated by construction will consist of excavated material and debris. Excavated material will be composed of miscellaneous fill and underlying natural deposits. Excavation and off-site disposition will be conducted in accordance with a Soil Management Plan developed for the Projects and included in the Construction Documents. The Soil Management Plan will describe procedures for identification, management, and off-site transport of any contaminated soils. Management of soil during excavation and construction will be conducted in accordance with applicable local, state, and federal laws and regulations.

Construction dewatering will be conducted in accordance with a Groundwater Management Plan that will be included as part of the Construction Documents. The Groundwater Management Plan will describe the procedures for maintenance of groundwater levels and for treatment (if necessary) and discharge of effluent from dewatering activities. BMC will conduct the appropriate studies as part of the BPDA's Article 80 Large Project Review process.

3.3.10 Construction

Short-term minor air quality impacts from fugitive dust may be expected during construction of each project. Mitigation measures such as the use of wetting agents where needed and removal of spoils from the site using covered trucks will be utilized. As noted in the Noise section above, noise impacts from construction will be mitigated as appropriate. Construction methodologies that ensure public safety and protect nearby residences will be employed. Detailed Construction Management Plans will be prepared as required for each of the proposed projects as part of the BPDA's Article 80 Large Project Review documentation.

3.3.11 Integrated Pest Management Plan

The Construction Management Plan will include a plan to manage pests. A rodent extermination certificate will be filed with the building permit application to the City. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the proposed Projects, 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.

3.3.12 Wildlife Habitat

The site is within a fully developed urban area and, as such, the proposed IMP Projects will not impact wildlife habitats as shown on the National Heritage and Endangered Species Priority Habitats of Rare Species or Estimated Habitats for Rare Wildlife.

3.4 Historic and Archaeological Resources

3.4.1 Historic Resources

Boston Medical Center (BMC) is located within the South End Harrison/Albany Protection Area, which was established to maintain an architecturally compatible boundary adjacent to the southeast border of the South End National Register and the South End Landmark districts. The present BMC was formed in 1996 as a result of the merger of Boston City Hospital and Boston University Medical Center Hospital, referred to as University Hospital. Boston University Medical Center Hospital was the former Massachusetts Memorial Hospitals. As a result of the merger, BMC now owns some buildings that were originally part of Boston City Hospital and some buildings that were originally part of Boston University Medical Center Hospital (former Massachusetts Memorial Hospitals), with the majority of the other buildings owned by Boston University (BU).

For clarification purposes, historic buildings owned by BMC are separated into two groups: those buildings built as part of Boston City Hospital, and those buildings which operated as part of the Massachusetts Memorial Hospitals. This distinction is as follows:

Boston City Hospital

- BDC Building
- FGH Building

- Dowling Tower
- Surgical Building
  Yawkey Ambulatory Care Center
- Power Plant

Massachusetts Memorial Hospitals

- Anna White Vose Hall
- Helen Collamore Memorial
- Old Robert D. Evans Memorial
- Preston Family Building

One building, the Smith American Organ Company (Naval Blood Research Center), jointly owned by BMC and BU, but was not built as one of the original hospital buildings.

BMC has updated its Preservation Plan, previously submitted to the South End Landmarks District Commission; it is included in **Appendix B**. The purpose of the Preservation Plan is to identify historic resources, which include buildings owned by BMC 50 years of age or older, to research the historical significance and to determine to what extent each resource retains its architectural integrity. The Preservation Plan provides recommendations and guidelines to incorporate preservation planning into the master planning process for BMC buildings and properties and identifies potential challenges to preservation in the near term and long term. In addition, it details the reuse and renovation challenges of the Dowling Tower, Vose Hall and Betatron Building, which are proposed to be demolished. The Preservation Plan is being incorporated into the IMP and will be updated plan is to be updated along with the IMP.

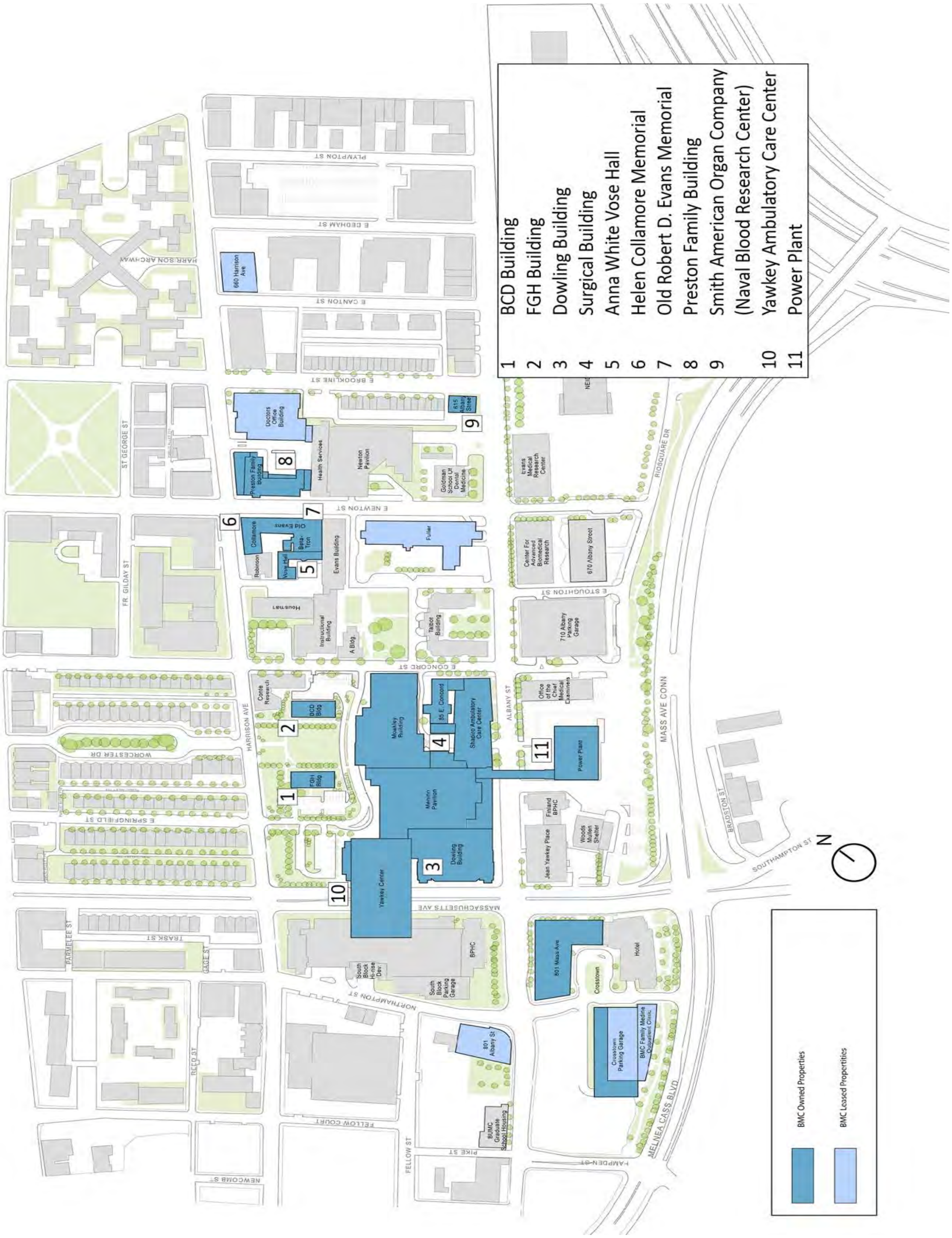
The BMC campus is subject to review by the South End Landmarks District Commission (SELDC) in accordance with the regulations applying to the South End Harrison/Albany Protection Area. Demolition of a structure within the Protection Area Boundaries is subject to review by the South End Landmarks Commission (General Standards and Specific Standard #1). Projects undertaken within the BMC campus are subject to review by the Massachusetts Historical Commission in the event of funding or permitting by a state agency (MGL Chapter 9, Section 26-27c, as amended by Chapter 254 of the Acts of 1988) or in the event the project will require MEPA review. According to the MEPA regulations, demolition of a structure included in the *Inventory of Historic and Archeological Assets of the Commonwealth* will be reviewed by MHC and the owner will engage in consultation with MHC to avoid or mitigate adverse effects to historic structures.

Table 3-1 below provides a list of BMC-owned buildings, additions and structures that have reached and will reach an age of 50 years or older during the term of the IMP. **See Figure 3-14 Historic Resources Map.**

Table 3-1 Buildings 50 Years or Older

No.	Name	Date
1	BDC Building – Surgical Pavilion, 800 Harrison Avenue	1864
2	FGH Building – Medical Pavilion, 820 Harrison Avenue	1864
3	Dowling Tower, 771 Albany Street	1937
4	Surgical Building, 85 East Concord Street	1928
5	Anna White Vose Hall, 88 East Newton Street	1898
6	Helen Collamore Memorial, 746 Harrison Avenue	1936
7	Old Robert D. Evans Memorial, East Newton Street	1942
8	Preston Family Building, 732 Harrison Avenue	1967
9	Smith American Organ Company, 615 Albany Street	R 1865
10	Yawkey Ambulatory Care Center, 850 Harrison Avenue	1972
11	Power Plant, 750 Albany Street	1972

Figure 3-10 Historic Resources Map



3.4.2 Archaeological Resources

A review of the *Inventory of Historic and Archeological Assets of the Commonwealth* identified no previously known archaeological resources within the project site. No archaeological resources are anticipated within IMP project sites, as they are all on previously disturbed urban land parcels.

3.5 Infrastructure Systems

This section provides an overview of the existing infrastructure systems that will support BMC's proposed projects. Please refer to Section 3.2.1 for BMC's extensive efforts in replacing aging infrastructure with energy efficient solutions and achievements in sustainability and resiliency.

Based on initial investigations, the existing infrastructure systems are expected to be able to accommodate incremental increase in demand associated with the proposed projects, but demand for these services will be further evaluated and determined with the utility companies as the design advances for each project.

The design process for the proposed projects will include the required engineering analyses and will adhere to applicable protocols and design standards, ensuring that the proposed Project is properly supported by and properly uses the City's infrastructure.

The systems discussed below include those owned or managed by the Boston Water and Sewer Commission (BWSC), private utility companies, and on-site infrastructure. There will be close coordination between these entities and the project team during subsequent reviews and the design process. All improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC site plan review process. This process includes a comprehensive design review of the proposed service connections, assessment of system demands and capacity and establishment of service accounts.

3.5.1 Regulatory Framework

In addition to a description of existing and future infrastructure connections, below is an outline of the regulatory framework of utility connection reviews and standards. All connections will be designed and constructed in accordance with city, state, and federal standards.

- In the City of Boston, BWSC is responsible for all water, sewer, and stormwater systems.
- The Boston Fire Department (BFD) will review the Proposed Project with respect to fire protection measures such as siamese connections and standpipes.
- Design of the site access, hydrant locations, and energy systems (gas, steam, and electric) will also be coordinated with the respective system owners.
- New utility connections will be authorized by the Boston Public Works Department through the street opening process, as required.
- New steam and water and power conduits between campus buildings, within city streets, will require permitting with the City of Boston Public Improvements Commission (PIC).
- BMC will also comply with the Smart Utilities Policy for Article 80 Development Review, which calls for the integration of five (5) Smart Utility Technologies (SUTs) into Article 80

developments. As the design of the IMP projects advance, BMC will use the Smart Utilities Checklist to assess the requirements for each project and submit with the future Article 80 Large Project Review filings.

3.5.2 Existing Wastewater

Local sewer service in the City of Boston is provided by the BWSC. Wastewater generated at the BMC campus is collected by various sewer mains within the surrounding streets and conveyed to the Massachusetts Water Resources Authority (MWRA) facility on Deer Island via a 66” x 68” combined sewer located in Albany Street.

3.5.3 Domestic Water and Fire Protection

3.5.3.1 Existing Water Supply System

The BMC campus is located in the South End service area of the BWSC public water supply. Albany and East Concord Streets are served by 12-inch high- and low-pressure lines. Hydrant test data will be updated at the time when the proposed projects are ready to advance design.

3.5.4 Stormwater Management

3.5.4.1 Existing Conditions

BMC is served by numerous BWSC drain lines. Harrison Avenue contains a 72-inch storm drain. Massachusetts Avenue contains a 108-inch storm drain. East Concord Street contains 18-inch and 24-inch storm drains. Albany Street contains an 18-inch storm drain. BMC is located within the Groundwater Conservation Overlay District (GCOD). Stormwater management practices the IMP projects will be selected as designs for the projects advance. At this time, it can be expected that the initially explored approach for stormwater management will be infiltration in accordance with BWSC and GCOD requirements. As site conditions are investigated and designs are advanced, BMC will work with BWSC to obtain the necessary BWSC and GCOD approvals.

3.5.5 Anticipated Energy Needs

3.5.5.1 Natural Gas Service

Natural gas for the proposal projects will be provided by National Grid from their existing gas mains from within Albany Street. The specific gas service needs for each project will be determined and coordinated with National Grid during the design phase.

3.5.5.2 Electrical Service

BMC purchases electricity from Eversource in bulk and redistributes from the existing Power Plant Building to other BMC campus buildings.

In addition, BMC produces 2-megawatt of power through its Yawkey building rooftop natural gas-fired combined heat and power plant (CHP or Cogen). Proposed projects within the Menino Pavilion cluster will be an extension of this existing utility and Cogen electrical infrastructure. Projects proposed in other locations will be evaluated as the design progresses.

3.5.5.3 Steam

Steam is currently provided by Veolia Energy and distributed to the BMC campus from the existing Power Plant building. The specific steam needs for each project will be determined and coordinated with Veolia during the design phase.

3.5.5.4 Telecommunications

Verizon will provide telephone and telecommunication services to the proposed projects. There are existing fiber optic services located in Albany and East Newton Streets with sufficient capacity to service new projects.

4.0 TRANSPORTATION

4.1 Introduction

As described previously in **Section 1.7 and 2.0**, BMC is proposing combination of strategic building additions, existing building renovations and new construction projects over the next 10 years. Two of the new construction projects, the New Administration / Clinical Building (Power Plant site) and the New Inpatient Building Phase II, were previously approved in the 2010 IMP and subsequent Amendments in 2013 and 2017 and these are carried forward in the new IMP. These projects are aimed at realigning care models to better integrate the medical, behavioral and social needs of its patients, meeting the demands of increases in inpatient and outpatient volumes and provide modern clinical space that meets the code and clinical space standards for patient care and the latest technologies. Many of the projects involve right-sizing of space and relocations of existing uses from other buildings on campus and creating enhances patient and visitor arrival experience.

This section presents an overview of the existing BMC campus transportation system and a summary of the planned Projects from a transportation perspective. The first part of this section generally describes the existing transportation characteristics of BMC facilities on and around its campus. It describes the existing transportation infrastructure at BMC, including descriptions of public and private transportation, area roadways, pedestrian and bicycle facilities, parking, patient pick-up/drop-off, loading activities, and transportation demand management (TDM) actions that are actively employed by the hospital.

The second part of this section provides a programmatic summary of the future projects that are to be included within the term of the BMC IMP. This section also quantifies a preliminary estimate of the Project-generated trips that are anticipated in connection with the Projects that would be added to the BMC campus. This document does not contain a detailed assessment of the transportation impacts of the Projects. That assessment will be developed and included within a forthcoming Institutional Master Plan (IMP) submission, which will be prepared and submitted by BMC subsequent to this initial IMPNF filing.

As noted previously in this report, the BMC campus has seen several changes since the previous IMP was filed and approved in 2013. The biggest change is the separate IMP filings by BMC and BU. While the 2013 IMP assessed the combined transportation impacts of BMC and BU Medical Campus, this IMPNF (and forthcoming IMP) will focus solely on the existing and future transportation conditions at BMC and the potential transportation-related impacts related to BMC's proposed development projects.

4.2 Existing Transportation Conditions

An evaluation of existing transportation conditions near the BMC campus is important to understanding how the area's transportation system accommodates existing travel demands by patients, visitors, staff, and physicians, and how it can accommodate future anticipated growth on campus. BMC is located in the South End of Boston and is generally bounded by Massachusetts Avenue, Harrison Avenue, Albany Street, and East Brookline Street. These roadways provide local and regional access to the campus. As noted previously, BMC in the past decade has consolidated on the west side of the campus between Massachusetts Avenue, Harrison Avenue, Albany Street, and East Concord Street, and has also shifted some operations to the west side of Massachusetts Avenue, most notably within the nearby Crosstown Center.

The components of the existing transportation system are described in the following sections.

4.2.1 Pedestrian Facilities

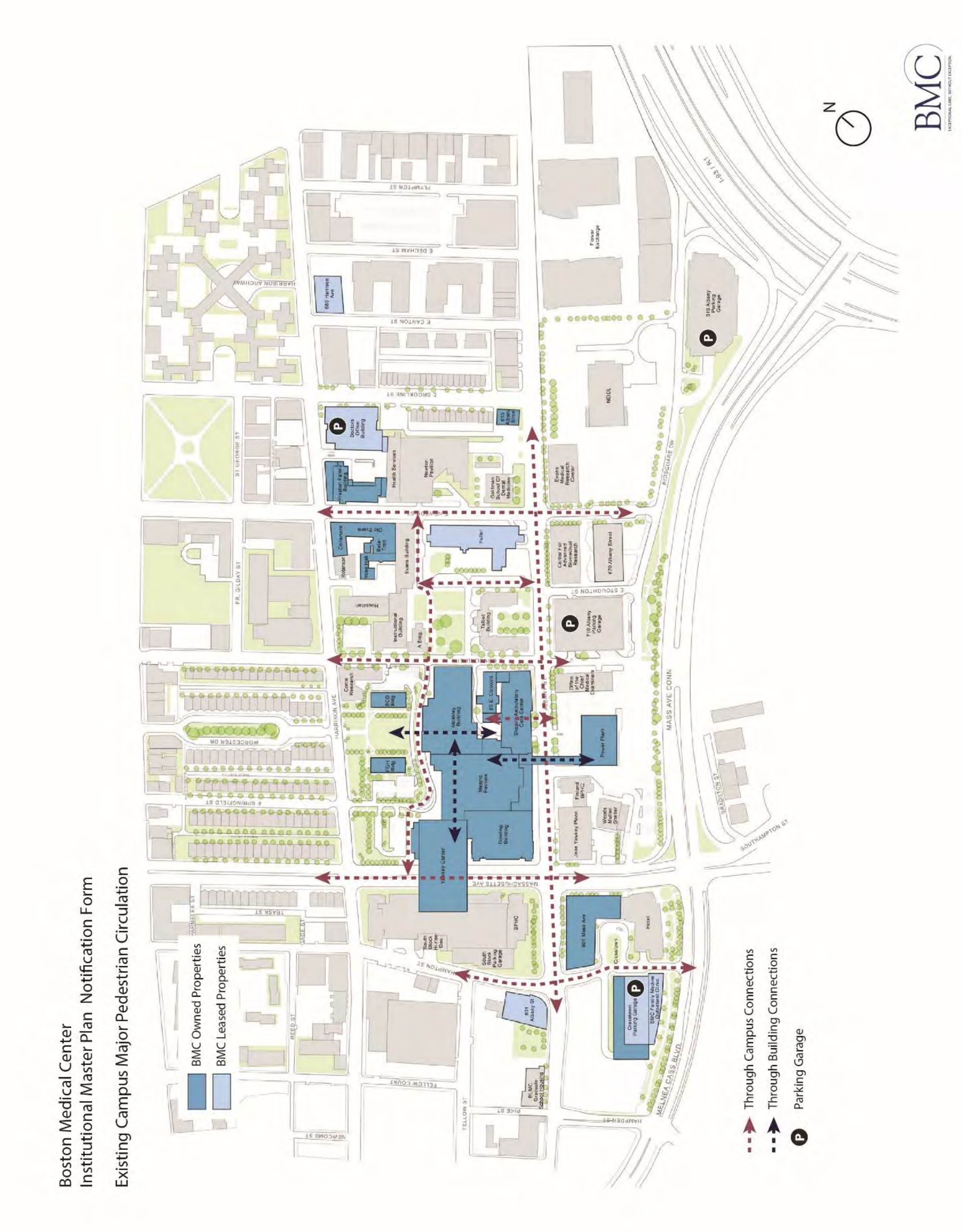
The medical center area generates a significant number of pedestrian trips throughout the area, including trips along and across many of the area roadways and through the campus itself. Pedestrian facilities throughout the campus include sidewalks along each of the key roadways as well as marked crosswalks at most intersections. Generally speaking, the sidewalks on Albany Street, Massachusetts Avenue, and Harrison Avenue are in good condition and are of adequate width. Most sidewalks are 8 to 10 feet wide. Signalized intersections on the edges of the main campus feature pedestrian signals and walk/don't walk indicators; many include exclusive pedestrian phasing.

Existing pedestrian circulation activity near the campus largely follows the pathways used by employees, patients, and visitors using public transportation or accessing area parking garages. Several MBTA bus routes stop adjacent to the BMC campus. Major pedestrian pathways that serve the campus are along Massachusetts Avenue, Albany Street, Harrison Avenue, and East Concord Street. In addition, there are also several pedestrian paths internal to the BMC campus, including the sidewalk along Boston Medical Center Place connecting Yawkey Center, Menino Pavilion, and the Moakley Center. Heavily used roadway crossings include the crosswalk on East Concord Street at Boston Medical Center Place connecting BMC to the BU Medical Campus, the crosswalks across Albany Street at East Concord Street connecting to the 610 and 710 Albany Street parking garages, and the crosswalks across Massachusetts Avenue.

A key feature of the BMC campus are several overhead pedestrian walkways that connect internal buildings across roadways without the need to go outside and cross a roadway. Elevated internal pedestrian accommodations include the overhead walkway connecting the Power Plant and Menino Pavilion over Albany Street, the Yawkey Center which was built over Massachusetts Avenue, and the overhead walkway connecting Old Evans Hall and the Preston Family Building over East Newton Street. In particular, the overhead walkway connecting the Power Plant and the Menino Pavilion allows BMC to operate a sizable, off-street loading and service facility that does not impact traffic flow along Albany Street, and supports patients with immediate, severe medical needs arriving by helicopter to access the rest of the BMC campus without crossing Albany Street.

Existing campus major pedestrian circulation patterns are shown in **Figure 4-1**.

Figure 4-1 Existing Campus Major Pedestrian Circulation



4.2.2 Bicycle Accommodations

Albany Street and Massachusetts Avenue are defined on-street bicycle routes in this area including marked bike lanes and marked shared-travel bike lanes (where geometric limitations do not allow for accommodation of an exclusive bike lane). No bicycle accommodations are provided on Harrison Avenue or East Concord Street. The bicycle lanes on Massachusetts Avenue are a main corridor in Boston's bicycle network running from Melnea Cass Boulevard in the south to Cambridge and the Charles River in the north. The Southwest Corridor bike path can be reached via Massachusetts Avenue as well as Melnea Cass Boulevard.

In addition, once complete the South Bay Harbor Trail is expected to cross the southern portion of the BMC campus and connect to the Fort Point Channel and the Seaport in the east and Roxbury in the west. On the BMC campus, the trail will run on the north side of Melnea Cass Boulevard and the Massachusetts Avenue Connector and will connect to Albany Street through the proposed development on the site of the existing Boston Flower Exchange. While portions of the trail are complete, including the segment along the north side of Melnea Cass Boulevard next to the Crosstown Center, most of this future shared-use path is either under construction or has yet to be constructed.

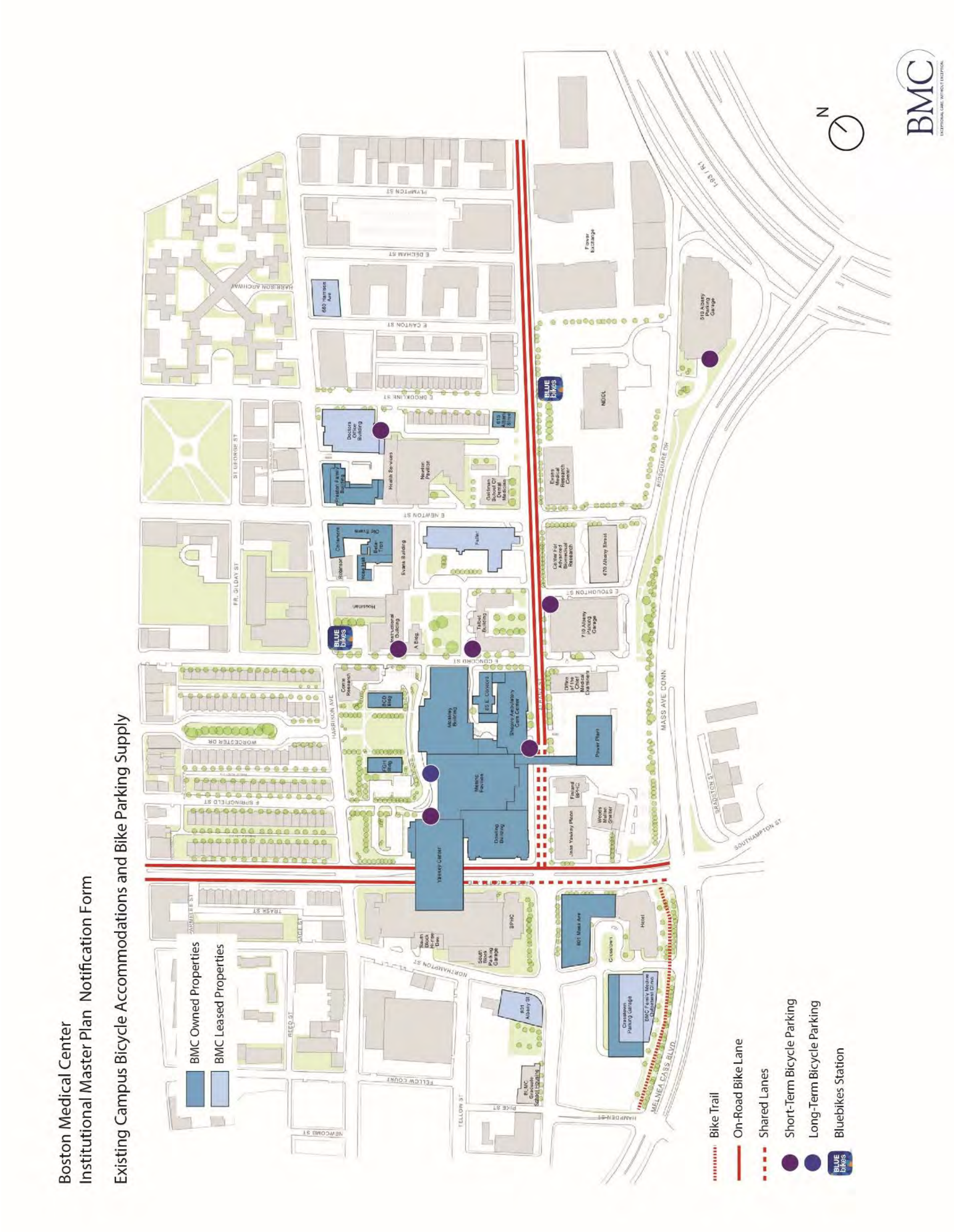
BMC, in coordination with its transportation management association, TranSComm, continues to encourage cycling as a healthy, inexpensive, and environmentally positive alternative to driving alone and provides many amenities and programs, including:

- Installing a secure, weather protected bike parking facility at the Menino Pavilion;
- Providing a bicycle lock loan program for cyclists;
- Providing showers for cyclists;
- Providing umbrellas for walkers and cyclists if it rains;
- Organizing free bike safety and mechanical check-ups;
- Registering bikes online;
- Installing new racks and repairing existing bike racks located throughout the campus;
- Working with Boston's Director of Bike Programs to identify ways to improve bicycle use;
- Providing parking for gas-powered scooters in the 610 Albany Garage;
- Providing electric-powered scooter parking in the 710 Albany Garage, closer to the BMC campus than the gas-powered scooter parking;

The BMC campus has a total of 138 secured, weather-protected bicycle spaces in a bicycle parking facility at the Menino Pavilion. In addition, there are several outdoor bicycle racks throughout the campus that are free to use and available to the public on a first-come, first-served basis.

Figure 4-2 identifies the area bicycle accommodations and the location of short-term and long-term bicycle parking that is provided on the BMC campus. This figure also denotes the location of area Bluebikes stations, which is described in detail below.

Figure 4-2 Existing Campus Bicycle Accommodations and Bike Parking Supply



Bike Share Program

Bluebikes, Metro Boston's public bike share program now has more than 260 stations with 2,500 bicycles available throughout Boston, Brookline, Cambridge, Somerville, and Everett. Near the Project site, there are two Bluebikes stations and each station accommodates between 10 and 20 bicycle docks (see **Figure 2-2**):

- East Concord Street at Harrison Avenue
- Albany Street at East Brookline Street

In addition, there are four additional stations within a 5-10-minute walk of the BMC campus:

- Washington Street at Rutland Street
- Washington Street at Waltham Street
- Washington Street at Lenox Street
- Washington Street at Melnea Cass Boulevard

4.2.3 Public Transportation

This section highlights the transportation routes, schedules, and capacity of public transportation serving the medical center and surrounding area.

MBTA Bus Service

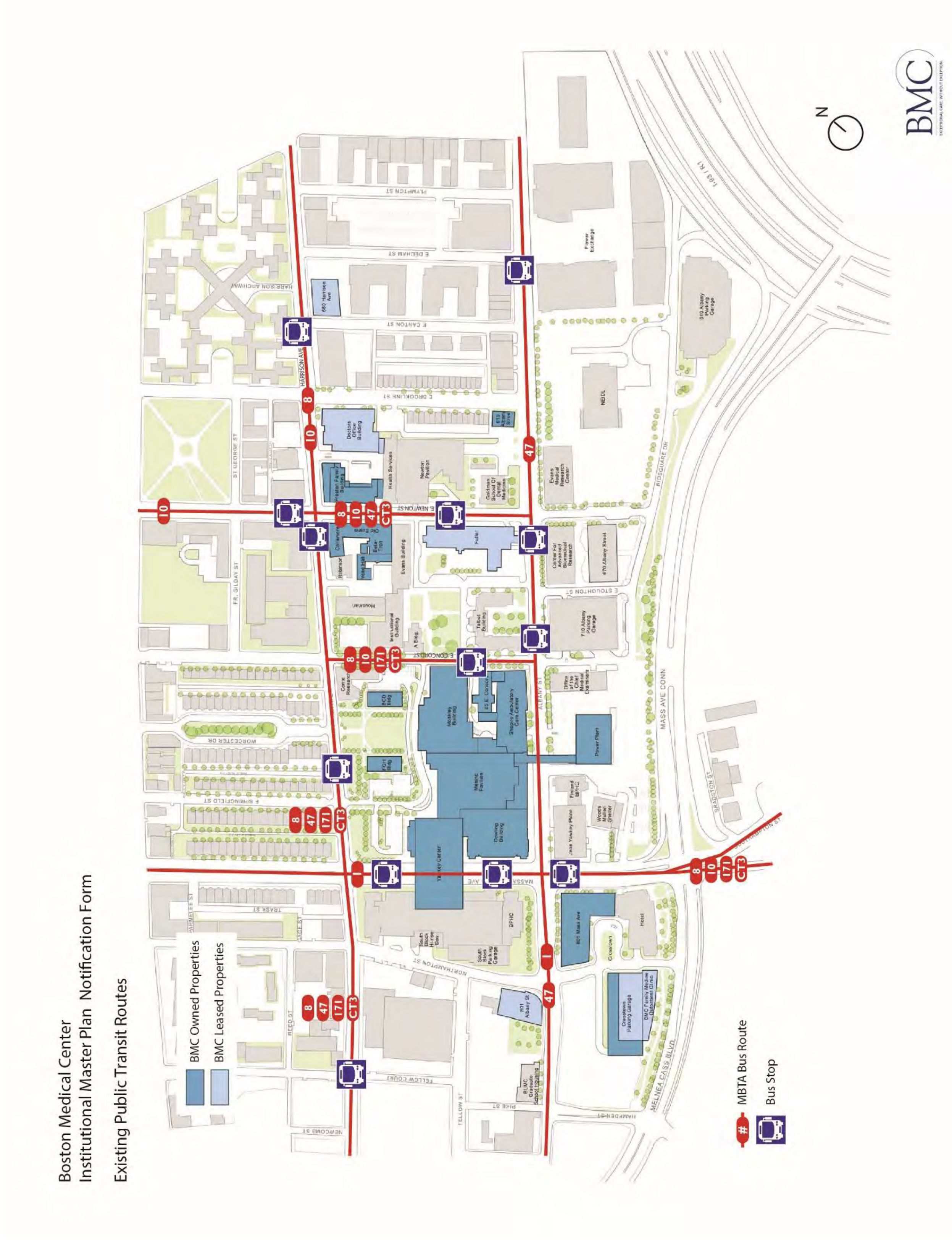
As shown in **Table 4-1** and **Figure 4-3**, seven Massachusetts Bay Transportation Authority (MBTA) bus routes and two Silver Line Bus Rapid Transit routes currently provide public transit service to the site and the medical area. The bus and bus rapid transit routes connect the BMC campus area with Cambridge, Longwood Medical Area (LMA), South Boston, Back Bay/South End, Lower Roxbury, and Downtown, as well as with MBTA subway stations, including the Red Line (Broadway, Andrew, and JFK/UMass) and the Orange Line (Massachusetts Avenue, Back Bay, and Ruggles). Major bus stops with shelters on the BMC campus are located on Massachusetts Avenue between Harrison Avenue and Albany Street. Buses also stop along East Concord Street, Albany Street and Harrison Avenue.

Table 4-1 Existing MBTA Bus Service in the Study Area

Bus Route	Origin - Destination	Rush Hour Frequency (min)
CT3	Beth Israel Deaconess - Andrew	20
1	Harvard - Dudley Square	9-10
8	UMass - Kenmore	15-30
10	City Point - Copley Square	20-30
47	Central Square - Broadway	10-15
170 (PM)	Central Square (Waltham) - Dudley Square	60
171 (AM)	Dudley Station - Logan Airport via Andrew Station	30

Source: www.mbta.com

Figure 4-3 Existing Public Transit Routes



MBTA bus routes CT3, 1, 8, 10, 47, and 171 have stops directly on the BMC campus, while the nearest stop on route 170 is on Washington Street at Massachusetts Avenue or Worcester Street.

MBTA Silver Line

The BMC campus is served by two MBTA Silver Line routes: SL4 and SL5. SL4 runs from Dudley Station to South Station with a 12-minute headway during the peak hours. SL5 runs from Dudley Station to Downtown Crossing at an 8-minute headway during the peak period. Both Silver Line routes travel on dedicated bus lanes along Washington Street, resulting in headways of less than 8 minutes for any Silver Line bus between Dudley Square and downtown. The closest stop for both routes is under a quarter mile north of the BMC campus at the intersection of Washington Street and Worcester Street, with additional nearby stops at the intersection of Washington Street and Massachusetts Avenue as well as at the intersection of Washington Street and East/West Newton Street.

MBTA Commuter Rail Service

The closest commuter rail stations to the BMC campus are located at Newmarket and Ruggles, with Newmarket Station serving the Fairmount and Franklin Lines, and Ruggles serving the Needham, Providence/Stoughton, and Franklin Lines. Newmarket Station is situated under three-quarters of a mile southeast of the site adjacent to the South Bay Center. Newmarket is easily accessed by MBTA bus routes 8 and 10 or walking from BMC. Ruggles Station is approximately 0.8 miles northwest of the BMC campus on the Northeastern University campus. This station can also be accessed by walking or by bus routes 8, 47, and CT3 from BMC.

4.2.4 Roadway Network

The BMC campus is located in the South End neighborhood and is comprised of two areas which are separated by Massachusetts Avenue and Albany street. West of Massachusetts Avenue, the campus is generally bound by Albany Street in the north, Hampden Street in the west, Melnea Cass Boulevard in the south, and Massachusetts Avenue in the east. Opposite the intersection of Massachusetts Avenue and Albany Street, the campus is generally bound by Harrison Avenue in the north, Massachusetts Avenue in the west, Albany Street in the south, and East Brookline Street in the east.

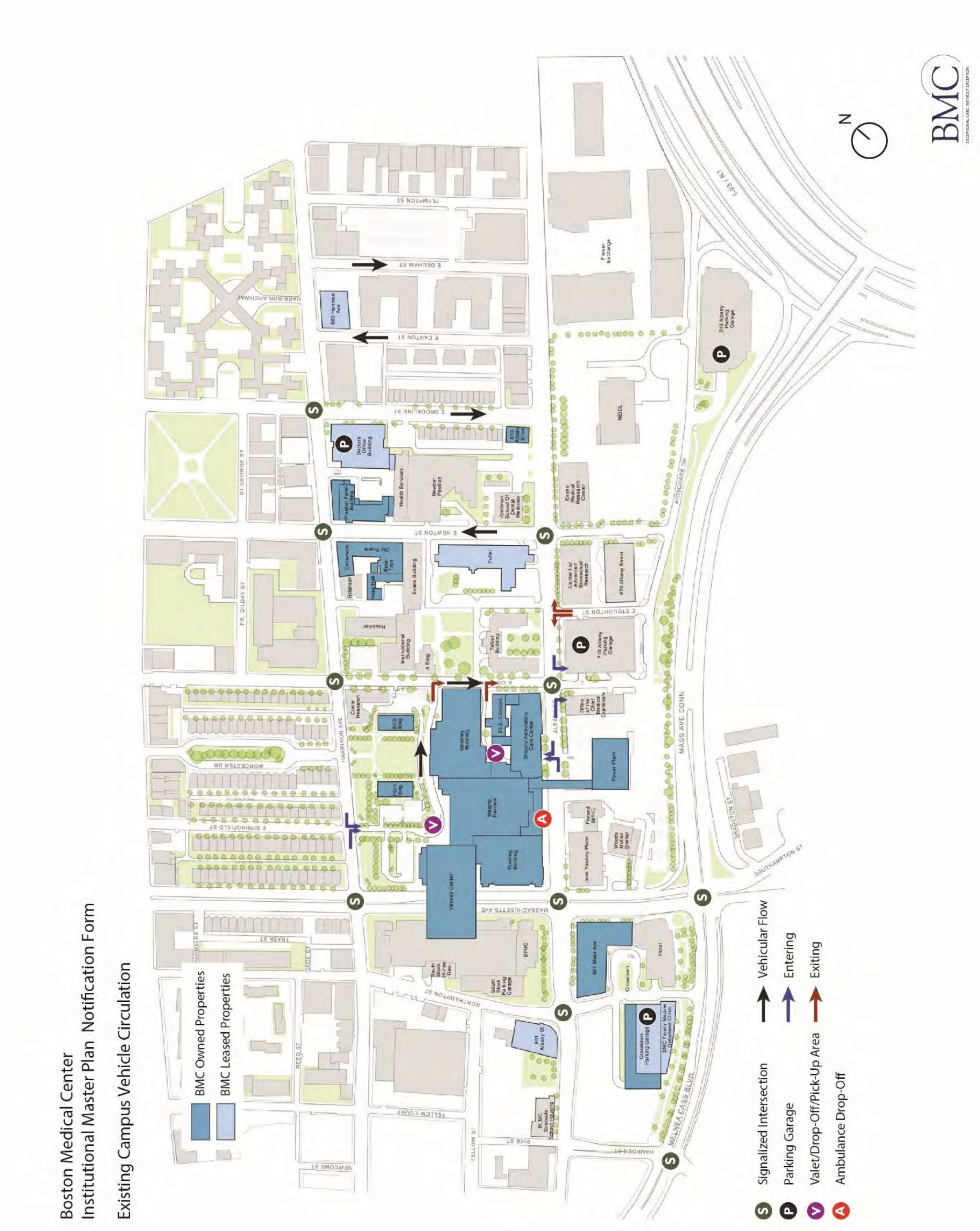
Regional access to the BMC campus via I-90 from the east and west and I-93 from the north and south is provided via Exit 18 on I-93 and the Massachusetts Avenue Connector. South of the BMC campus, the Massachusetts Avenue Connector intersects Massachusetts Avenue, providing access to Albany Street, Harrison Avenue, and the designated parking and pick-up/drop-off areas on campus.

Once at the BMC campus, different buildings and parking areas are accessed directly via Massachusetts Avenue, Albany Street, Harrison Avenue, Northampton Street, East Concord Street, and East Newton Street. These six streets listed above are all public streets under jurisdiction of the City of Boston. Massachusetts Avenue, Albany Street, Harrison Avenue, and Northampton Street are all two-way roadways while East Concord Street is one-way southbound and East Newton Street is one-way northbound.

Internal to the site are Boston Medical Center Place and Shapiro Drive. Both of these roadways are under control of BMC and serve as the main pick-up/drop-off areas on campus. Boston Medical Center Place is one-way from Harrison Avenue to East Concord Street while Shapiro Drive is one-way from Albany Street to East Concord Street. A description of the specific pick-up/drop-off operations is described in the following section.

Figure 4-4 summarizes the existing key campus vehicular circulation patterns.

Figure 4-4 Existing Campus Vehicle Circulation



4.2.5 Pick-Up/Drop-Off Operations

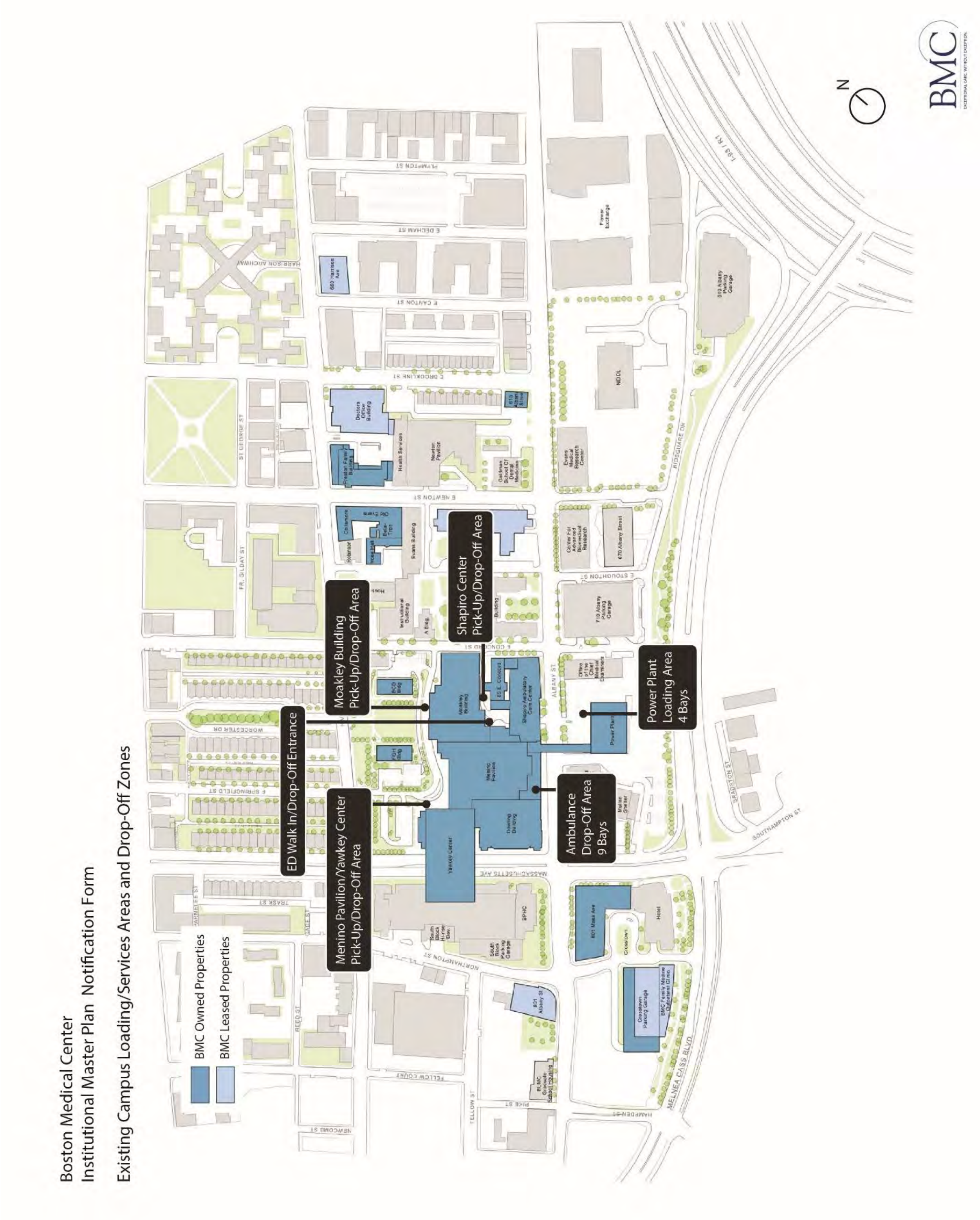
BMC has two main pick-up/drop-off areas on campus, on Boston Medical Center Place and on Shapiro Drive. The pick-up/drop-off areas on Boston Medical Center Place serve the Yawkey Center, Menino Pavilion, and Moakley Building, while the pick-up/drop-off area on Shapiro Drive serves the Shapiro Ambulatory Care Center. Curbside accommodations are designated near the main doors of each facility for vehicles to pick-up and drop-off patients and visitors. Both driveways allow for one-way traffic only, with Boston Medical Center Place accessed via Harrison Avenue and Shapiro Drive accessed via Albany Street. Vehicles exit both pick-up/drop-off areas onto East Concord Street, which is one-way southbound toward Albany Street.

Valet services are provided in front of the Shapiro Ambulatory Care Center and in front of the Menino Pavilion. Patients and visitors can leave their vehicles with valet attendants at these locations, and the valet attendants will move the vehicles to designated valet parking lots. Patients are able to pick up their vehicles in the same locations where they drop them off.

BMC is planning geometric and operational enhancements to the Yawkey Center/Menino Pavilion pick-up/drop-off area in order to improve vehicle operations and circulation. These actions are intended to support improved, premiere arrival experience for their patients and visitors. A more detailed description of these planned improvements is described later in this IMPNF.

Figure 4-5 illustrates the location of the pick-up/drop-off areas, as well as the loading dock and ambulance areas described in the following sections.

Figure 4-5 Existing Campus Loading/Service Areas and Drop-Off Zones



4.2.6 Loading and Service

A major component of BMC's operations involves managing the hospital's loading and service needs, and scheduling deliveries over the course of each day helps to minimize impacts. BMC is served by one centralized, primary loading dock located at the Power Plant off Albany Street. The loading dock has four dedicated bays, with room for smaller delivery vehicles to park and unload to the sides of the loading dock. Delivery trucks are able to turn into the Power Plant parking lot from Albany Street and maneuver to park/back-up within BMC property and off-of Albany Street. Its operating hours are 6:00 AM to 4:00 PM, Monday through Friday, although there is one additional delivery service around 8:00 PM The Power Plant dock accommodates vehicles ranging from a small van to a 53' truck.

Goods and deliveries are transported from the loading area in the Power Plant throughout the hospital on hand carts via the skybridge across Albany Street connecting the Power Plant building to the Menino Pavilion and through designated service corridors and freight elevators. The skybridge was constructed within the last five years and allowed for all primary loading and service to be relocated from across the campus to the Power Plant. See **Figure 4-5**.

4.2.7 Ambulances

The BMC Emergency Department walk-in and drop-off entrance is located at the rear of the Moakley Building via the Shapiro Drive accessed from Albany Street. There is a separate Ambulance-only designated drop-off area located to the south of the Menino Pavilion along Albany Street. Ambulances reach this area from either direction on Albany Street and can pull off of the roadway into the ambulance area to maneuver to park. The ambulances unload in the covered area, which has 9 ambulance bays, and then can depart in either direction on Albany Street.

Since BMC is a Level 1 trauma center accepting trauma patients from across the region, it is critical to have an efficient ambulance drop-off area. The current ambulance drop-off area was completed in 2017 and provides an improved circulation and flow through the drop-off area.

4.2.8 Taxicabs and Transportation Network Companies (TNCs)

Some patients and visitors choose to take a taxicab to get to and from the hospital. Taxicabs often pick up and drop off patients and visitors on Boston Medical Center Place, in front of the Menino Pavilion or Moakley Center, or on Shapiro Drive. Taxis are directed to the designated pick-up/drop-off areas in order to contain all activity in the designated areas and to reduce conflicts of vehicles stopping and idling on local roadways, such as Albany Street, Massachusetts Avenue, and Harrison Avenue.

As TMCs are becoming a more utilized mode of transportation in the city, many patients, visitors, and staff are choosing to get to and from the medical campus using these ride-hailing services. TNC activity is directed to occur on Boston Medical Center Place, in front of the Menino Pavilion or Moakley Center, or on Shapiro Drive. Similar to taxicabs, TNC activity is encouraged in these areas to prevent drivers from blocking through operations on local roadways surrounding the medical campus.

4.2.9 Parking

This section documents the existing off-street parking facilities owned or controlled by BMC. The parking inventory distinguishes between spaces to BMC employees, visitors and patients.

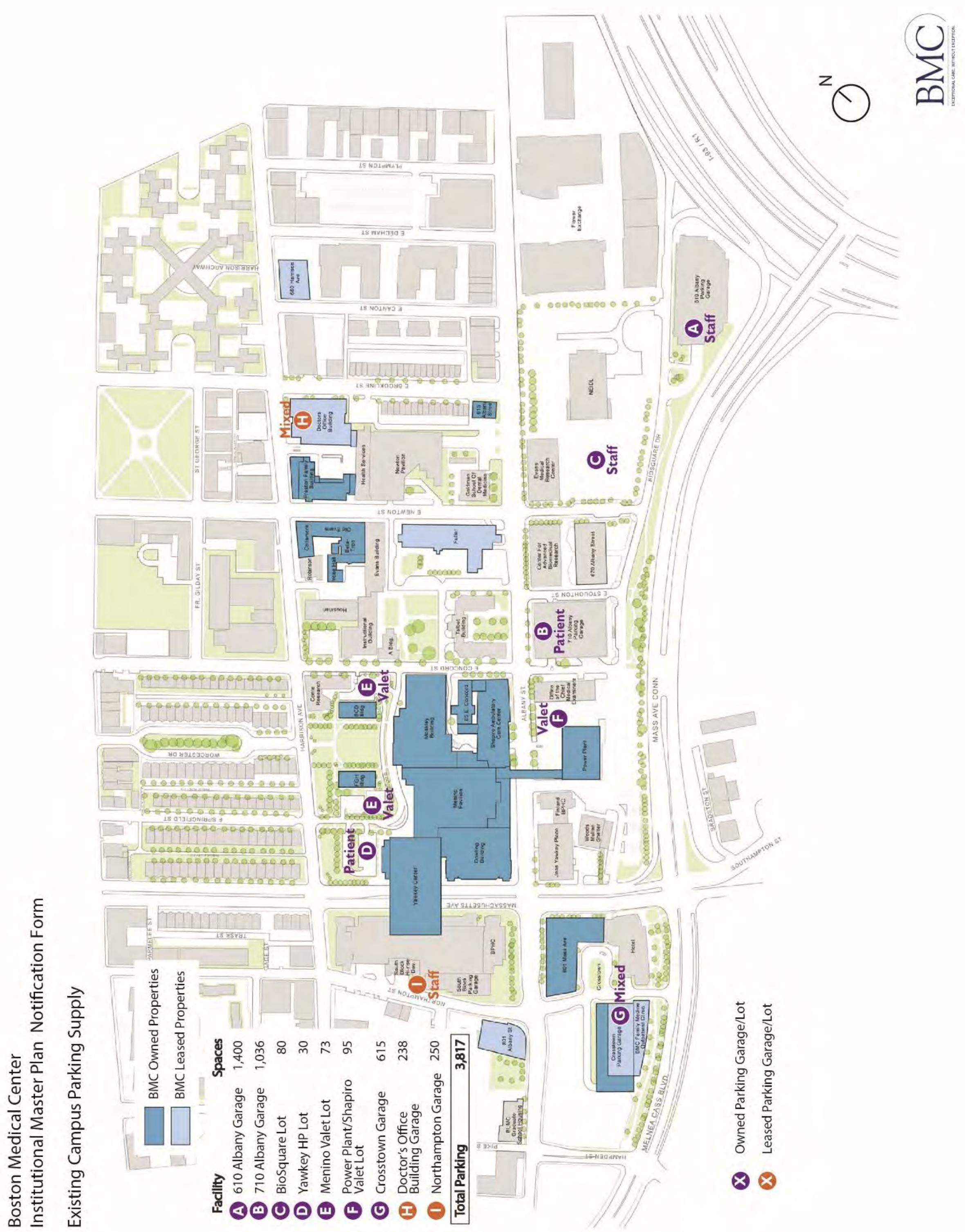
Figure 4-6 illustrates the locations of the existing off-street BMC-owned and leased parking garages and surface lots. Currently, BMC owns three parking garages and four surface parking lots and leases parking in two additional parking garages. Capacity and users of each respective facility are shown in **Table 4-2.**

Table 4-2 BMC Existing Parking Space Inventory

Map Key	Facility	Existing Spaces	Control	User
A	610 Albany Garage	1,400	BMC/BU Shared Ownership	Staff
B	710 Albany Garage[1]	1,036	BMC/BU Shared Ownership	Patients[2]
C	BioSquare Lot	80	BMC/BU Shared Ownership	Staff
D	Yawkey HP Lot	30	BMC Owned	Patient (Accessible)
E	Menino Valet Lot	73	BMC Owned	Patient / Valet
F	Power Plant / Shapiro Valet Lot	95	BMC Owned	Patient / Valet
G	Crosstown Garage	615	BMC Owned[3]	Mixed Use
H	Doctor's Office Building Garage[4]	238	BMC Leased	Mixed Use
I	Northampton Garage	250	BMC Leased	Staff
	Total Parking	**3,817**		

Source: BMC 10/23/2019
1 – Including 14 reserved spaces outside garage
2 – Approximately 12-percent of all spaces provided for staff
3 – BMC owns 600 parking spaces in the Crosstown Garage and leases another 15 parking spaces
4 – Including 8 reserved spaces outside garage

Figure 4-6 Existing Campus Parking Supply



As shown, BMC operates 3,817 parking spaces today, of which 3,314 spaces (87-percent) are owned and 503 spaces (13-percent) are leased off-site. Of the total, 3,517 spaces (92-percent) are found in parking garages and 300 spaces (8-percent) are found in surface lots.

The BMC campus currently has approximately 2,087 public parking spaces (including accessible and valet parking) available for patients and visitors of the campus. The Doctors Office Building Garage, the 710 Albany Garage, and the Crosstown Garage are open to the public on a market rate, hourly basis, although approximately 12-percent of the 710 Albany Street Garage and 70-percent of the Crosstown Garage is permitted for staff parking. The BMC website and signage on campus directs patients to the three garages listed above, as well as the two valet parking locations in front of the Menino Pavilion entrance and the Shapiro Center entrance. Valet vehicles dropped-off at the Menino Pavilion are parked in the Menino Valet Lot and valet vehicles dropped-off at the Shapiro Center are parked in the Power Plant/Shapiro Valet Lot. When the Menino Valet Lot and Boston Medical Center Place reach capacity, valet vehicles from the Menino Pavilion are parked in the Power Plant/Shapiro Valet Lot. The 610 Albany Garage is reserved for medical center employees who pay market rate for spaces on a monthly basis.

Of the three parking facilities shared by BMC and BU Medical Campus, the 610 Albany Street Garage consists of approximately 80-percent BMC staff and 20-percent BU Medical Campus staff while the BioSquare Lot consists of approximately 10-percent BMC staff and 90-percent BU Medical Campus staff. The 710 Albany Street Garage is available to patients and guests of both BMC and BU Medical Center, with the 12-percent of staff parking split with 2-percent for BMC staff and 10-percent for BU Medical Campus staff.

Due to BMC's location in the South End of Boston, there are many opportunities for patients and employees to use alternative modes of transportation instead of driving a personal vehicle, which may influence the parking occupancy rates at the medical center's parking facilities. Based on data from the 2018 DEP Rideshare Survey jointly conducted by BMC and BU Medical Campus, approximately 29-percent of employees use an automobile to commute to and from campus, while 52-percent use public transit and 19-percent walk, bike, or telecommute. Due to the varied mode share of patients and employees, it should be noted that parking is only part of the transportation equation along with pick-up/drop-off facilities, sidewalks, and transit accommodations.

Electric Vehicle Parking Stations

There is currently a total of 26 parking spaces for electric vehicles on the BMC campus, with plans to add 12 more spaces in the near future. Four electric vehicle charging stations (serving eight parking spaces) are provided in both the 610 and 710 Albany Street garages and five electric vehicle charging stations (serving ten parking spaces) are provided in the Power Plant / Shapiro Valet Lot. Three more electric vehicle charging stations (serving six parking spaces) are anticipated to be added to the 610 Albany Street and 710 Albany Street Garages in the near future.

TransSComm Services

Founded in 1991 as one of the first organizations of its kind in Boston, BMC's Transportation Management Association (TMA) is called Transportation Solutions for Commuters, Inc. (TranSComm). TranSComm's members include BMC, the BU Medical Campus (the BU Schools of Medicine, Public

Health, Graduate Medical Science and Dental Medicine), Boston Public Health Commission, and Boston Health Care for the Homeless Program.

TranSComm works to bring more frequent and accessible public transportation to the Medical Center community and provides information on transportation services in the area. Additional information on TranSComm programs is found in the following section.

BMC provides the following shuttle services for patients and employees:

- **VA Shuttle** –The VA shuttle operates direct between the VA Hospital in Jamaica Plain and 85 East Concord Street on the BMC campus. The shuttle operates hourly between 10:00 AM and 5:00 PM, departing the VA Hospital at the top of every hour and departing BMC on the half-hour.
- **Evening Shuttle** – The evening shuttle service travels on request from a central stop at 710 Albany Street on the BMC campus to MBTA subway stations at Andrew, Broadway, Ruggles, Back Bay and Copley stations, and to nearby South End neighborhood locations. The shuttle runs hourly from 5:15 PM to 12:15 AM.
- **BU Charles River Campus Shuttle** – The BU Medical Campus bus travels between the main Boston University Campus on the Charles River and the BU Medical Campus, with one intermediate stop at the intersection of Massachusetts Avenue and Huntington Avenue. While the shuttle is operated by Boston University, it is free for BMC employees. The shuttle runs every 10-20 minutes between 7:00 AM and 11:30 PM during the school year, with reduced service on Saturdays and when school is not in session.
- **East Boston Neighborhood Health Center Shuttle** – A HealthNet shuttle is provided between BMC and the East Boston Neighborhood Health Center at 20 Maverick Square in East Boston. The service is provided for patients of the East Boston Neighborhood Center with appointments at BMC. The shuttle runs direct between the two facilities from 6:30 AM to 9:00 PM, with headways of 30 minutes between 8:00 AM and 6:00 PM and headways of 60 minutes earlier in the morning and later in the evening.

BMC also provides evening and weekend escort service for commuters and visitors to all BMC parking facilities as well as the Broadway Station of the MBTA. The escort service is available all day on weekends and between 12:00 AM and 6:00 AM Monday through Friday. The escort service can be requested at the Menino Pavilion security desk.

In the past, TranSComm used to provide shuttle services direct to neighborhood health centers in Mattapan, Roxbury, and Dorchester. That service has been replaced with a free Uber ridership program where patients under the HealthNet Plan insurance at local neighborhood health centers with appointments at BMC are eligible for free Uber rides to and from the hospital. The free Uber program is provided between BMC and the following neighborhood health centers presented in **Table 4-3**.

Table 4-3 HealthNet Uber Ridership Program Neighborhood Connections

Eligible Neighborhood Health Center	Neighborhood	Distance from BMC
Codman Square Health Center	Dorchester	3.6 miles
The Dimock Center	Roxbury	1.9 miles
Dorchester House Multi-Service Center	Dorchester	2.6 miles
Greater Roslindale Medical and Dental Center	Roslindale	4.5 miles
Harvard Street Neighborhood Health Center	Dorchester	2.5 miles
Mattapan Community Health Center	Mattapan	4.9 miles
South Boston Community Health Center	South Boston	1.8 miles
Upham's Corner Health Center	Dorchester	2.1 miles
Whittier Street Health Center	Roxbury	4.2 miles

4.3 Transportation Impacts

This section provides a preliminary evaluation of the anticipated transportation impacts related to the proposed BMC IMP Projects. Included is a preliminary trip generation estimate for the proposed IMP projects and a discussion of proposed site access and circulation improvements that are proposed at the BMC Main Entrance.

4.3.1 Changes Since 2013 IMP Amendment

Several changes have occurred on the BMC campus since the previous IMP was filed and approved in 2013. One change includes the separate IMP filings by BMC and the BU Medical Campus. While the previous IMP in 2013 was submitted for the combined BMC and BU Medical Campus, this IMPNF (and forthcoming IMP) will focus solely on the BMC campus.

The approved 2013 IMP described the BMC campus square footage at that time as well as all BMC projects that were expected to be constructed and fully occupied between 2013 and 2019. While several projects have been completed since 2013, BMC has also sold or transferred several additional facilities resulting in an overall net reduction in square footage and beds on the BMC campus between 2013 and 2019. During this period of time, the BMC campus has decreased by over 270,000 square feet (SF), which has been attributable to BMC vacating several buildings on the east side of the campus (most notably the Newton Pavilion and Perkin Elmer building). It should be noted that the reduction in square footage is independent from the separation between BMC and BU Medical Campus, as comparisons to the 2013 IMP are only made in respect to the BMC-controlled parcels at that time.

Table 4-4 summarizes the existing building program summarized in the approved 2013 IMP and delineates the total change in BMC campus square footage since the 2013 IMP.

Table 4-4 BMC Development Summary 2013 to 2019

	SF	Beds
BMC Building Program in 2013 IMP	2,125,740	496
Assets Sold/Transferred since 2013	- 516,823	-206
Projects completed since 2013	+ 245,656	+ 124
Total Change since 2013	- 271,167	- 82
2019 BMC Total Existing Building Program	1,854,573	414

As summarized in **Table 4-4**, BMC has completed nearly 250,000 sf of new development projects as contemplated in their approved IMP. However, because of the recent disposition of some existing facilities, the hospital has actually been reduced in size by approximately 270,000 sf. Similarly, the overall net patient beds count has been reduced from 496 beds in service to 414 beds in service (versus licensed beds), which is a loss of 82 patient beds. A large majority of this reduction in square footage is due to BMC selling the 257,000 sf Newton Pavilion and selling/vacating other various buildings on the eastern side of the campus east of East Concord Street. Since 2013, BMC has focused on consolidating on the core campus bounded by Massachusetts Avenue, Albany Street, Harrison Avenue, and East Concord Street, and expanding the footprint to the west end of the campus.

4.3.2 Crosstown Center Occupancy

In addition to the changes on campus between 2013 and 2019 described above, BMC is also continuing to shift operations to the west of Massachusetts Avenue and expand operations in the existing Crosstown Center at 801 Massachusetts Avenue. BMC will occupy approximately 68,510 square feet in the Crosstown Center in the immediate future. The occupation of portions of the Crosstown Center will relocate existing administrative and ambulatory clinic programs from other areas of the BMC campus and will replace existing uses in the Crosstown Center and therefore is not expected to generate any additional trips. Since the occupation of the Crosstown Center is already approved and will occur soon, these future occupations are not included in the proposed IMP Projects.

Table 4-5 summarizes the upcoming additional occupancy of the Crosstown Center and presents the total square footage of the existing BMC campus with Crosstown Center occupancy included.

Table 4-5 Crosstown Center Occupancy

	SF
2019 BMC Total Existing Building Program	1,854,573
Crosstown 1st Floor Coffee Shop and Pharmacy	5,171
Crosstown 1st Floor Imaging / Phlebotomy / PT	11,067
Crosstown 5th Floor Outpatient	26,136
Crosstown 7th Floor Administration	26,136
Total Approved Crosstown Center Additional Occupation	68,510
BMC Total Existing Building Program with Crosstown Center	1,923,083

4.3.3 Proposed BMC IMP Projects

BMC has categorized all future projects as being immediate (within the first year of the IMP, listed as "One-Year Projects"), short-term (within the first five years of the IMP, listed as "Five-Year Projects"), and long-term (within the full ten-year term of the IMP, listed as "Ten-Year Projects"). Some of the Ten-Year Projects were previously approved as part of the previous BMC IMP and some are new and only are in the conceptual design phase.

Table 4-6 outlines the proposed one-year, five-year, and ten-year projects. A detailed description of each of these projects was summarized and illustrated previously in **Section 2.0**.

Table 4-6 BMC IMP Projects

One-Year Projects	SF
85 East Concord Street Lobby Addition (not subject to Article 80)	1,460
Yawkey 3rd Floor Addition (not subject to Article 80)	3,569
85 East Concord Interior Renovations (not subject to Article 80)	17,230
Total One-Year Projects 1	5,029
Five-Year Projects	**SF**
Yawkey Center 6th Floor Addition	15,560
Menino / Yawkey Lobby Addition 1st Floor	3,807
Menino / Yawkey Lobby Addition 2nd Floor	2,271
Menino Pavilion 9th Floor Addition	37,205
Gambro Lease Expiration	-17,288
Doctors Office Building Lease Expiration	-91,783
Total Five-Year Projects	-50,228
Ten-Year Projects	**SF**
New Inpatient Building Phase II (requires Dowling demo, approved in 2010 IMP)	323,000
New Admin / Clinical Building (requires Power Plant demo, approved in 2010 IMP)	252,742
New Admin / Clinical Building (ramp parcel)	206,750
10 Stoughton Street (requires Vose Hall / Betatron demo)	138,000
Collamore / Old Evans Buildings Interior Renovations	102,040
Dowling Demolition	-157,376
Power Plant Demolition	-64,064
Vose Hall Demolition	-22,695
Betatron Demolition	-5,912
Total Ten-Year Projects[1]	670,445

1 – Total change in square footage does not include interior renovations

As shown in **Table 4-6** above, the One-Year Projects will result in the addition of only approximately 5,029 SF of net new development while the renovation of approximately 17,230 SF will be of existing occupied space and therefore are not subject to Article 80 review, but are included in this Transportation section for purposed of full consideration of transportation impact analysis. The proposed new development projects include a very small lobby addition to support improved patient arrival and internal circulation, and a small building addition that will relocate existing hospital uses from other areas within the existing Dowling and Yawkey Buildings. It is not expected that these new developments will noticeably increase the number of trips to the BMC campus.

The Five-Year Projects will result in the addition of only approximately 58,843 SF of net new development. These projects are intended to modernize existing clinical space and create improved programmatic adjacencies within the overall BMC campus. In addition, the completion of these projects will allow BMC to terminate leases in the Gambro Building and Doctors Office Building. Taking those actions into consideration, the overall size of the BMC campus will decrease by approximately 50,228 SF upon completion of the Five-Year Projects. Therefore, the Five-Year Projects are also not expected to generate any additional trips, as the total square footage will be reduced from the 2019 Existing Conditions and significantly reduced from the 2013 conditions presented in the previous IMP.

The Ten-Year Projects will result in the addition of a total of approximately 670,445 of net new development taking into consideration related building demolition and lease terminations. The Ten-Year Projects will increase overall institutional GSF, but that total is reduced by about one-third when compared to BMC's programmatic conditions in 2013.

4.3.4 Campus Accessibility and Circulation Improvements

In addition to the proposed IMP projects described above, during the term of the IMP, BMC will also study improvement efforts aimed at supporting more effective patient and visitor access and circulation. These efforts include improvements to the pick-up/drop-off areas in front of Yawkey Center, Menino Pavilion, and Moakley Building. A description of this effort is described below.

BMC Main Entrance Access/Circulation Improvements

At the beginning of a patient's experience, the drop-off/pick-up area is often the place where they first step out and absorb the environment. The functionality of a well-designed and managed drop-off/pick-up zone is often overlooked by patients and visitors, while a poorly operating drop-off/pick-up zone never goes unnoticed and adds to the stress and frustration of a sick patient. Well-designed curbside drop-off/pick-up areas are critical to the functionality of any major healthcare campus. These amenities provide the opportunity for patients and visitors to quickly reach the location where patient care services are being provided, without the need to park their vehicle or having to walk long distances, often times unprotected from adverse weather conditions. Certain healthcare environments, such as ambulatory/outpatient care centers, will tend to experience higher curbside demands for patient drop-off/pick-up activities because this type of patient care often involves shorter visits and higher turnover. Conversely, inpatient care centers have less turnover, but more patients with urgent medical concerns who need a higher level of site accessibility. In addition to general patient access and egress by private vehicles, the BMC Menino and Moakley Pavilions will also experience other demands created by taxis, transfer ambulances, short-term deliveries (e.g. flowers, etc.), and staff, wherein vehicles do not necessarily park or valet.

Under existing conditions, the Moakley Building and the Menino Pavilion share one driveway, which has geometric and operational constraints and frequently backs up onto Harrison Avenue. BMC plans to improve the geometric and operational constraints while maintaining the same flow of movement through the BMC campus. The planning for improvements to this location will include consideration to the following key design parameters:

- **Accommodate expected future patient demands:** The curbside drop-off zone, when supported by other key operational provisions within the BMC complex, will be right sized to accommodate expected future patient demands. The functionality of the drop-off zone will be dependent on its efficient operation by BMC, and as required, provision to accommodate some drop-off uses elsewhere. For example, chair cars and transfer ambulances may be directed to load and unload at an alternate location. Similarly, valet operations may be adjusted to maximize utilization of the curbside area and reduce vehicle queuing.
- **Avoid impeding Harrison Avenue traffic:** The modified BMC drop-off will continue to be accessed by Harrison Avenue. Thoughtful solutions will be put in place to reduce and/or eliminate queuing back onto this corridor, which can happen at times during peak patient arrival periods under existing conditions.
- **Attract drivers to the drop-off area:** The newly designed entrances and valet operations will be studied such that main entrance doors will be located as close to the end of the drop-off area as possible (downstream) to maximize its utilization. Drivers will naturally gravitate to the door location and tend to not fully utilize drop-off area downstream of the door location.
- **Provide adequate pedestrian space:** Consideration will be given to generously sized sidewalks in this new zone, allowing for comfortable interchange between automobile movement and pedestrian travel into the facility that the amenity is serving. These walking areas are envisioned to be flush to the curb to allow for the most flexible accessible access scheme for all motorists who intend to drop-off at this location.
- **Provide dedicated space for taxicabs and buses:** Taxicabs and TNCs operators will be accommodated with designated curbside access.

4.3.5 Preliminary IMP Trip Generation Analysis

It is important to note that although standard methodology for trip generation estimates has been employed for the IMPNF, many of the proposed projects are intended to right-size and update outdated building space for existing hospital programs. Therefore, some of the building area to be constructed will not necessarily generate additional incremental traffic and the actual transportation impact of these projects may be overstated. However, to present a conservative analysis, the proposed site-generated trips were estimated based on the total existing and proposed square footage of the hospital, including any additions that do not directly add capacity to the hospital.

The Institute of Transportation Engineers (ITE) *Trip Generation 10th Edition* (2017) was used as the basis for trip generation estimation. ITE Land Use Code (LUC) 610 (Hospital) was used to estimate the volume of new trips generated by the proposed IMP projects. As stated previously, the volumes of new trips were estimated based on the total square footage of all buildings on the BMC campus. LUC 610 (Hospital) includes all building uses on the hospital campus, including inpatient, outpatient, and administrative uses.

A summary of the additional unadjusted vehicle trips expected to be generated by the one-year, five-year, and ten-year projects on the BMC campus is presented below in **Table 4-7**. It is important to note that these “unadjusted” trips do not take into account the heavy reliance on public transportation and alternative modes of travel used at BMC, which is discussed in the following sections.

Table 4-7 IMP Unadjusted New Project Generated Trips

	New Trips due to One-Year Projects[1]	New Trips due to Five-Year Projects[2]	New Trips due to Ten-Year Projects[3]
Daily			
Total	30	-266	3,676
In	15	-133	1,838
Out	15	-133	1,838
Weekday Morning Peak Hour			
Total	4	-34	463
In	3	-23	315
Out	1	-11	148
Weekday Evening Peak Hour			
Total	4	-38	525
In	1	-12	168
Out	3	-26	357

New trips as compared to 2019 Existing Conditions plus Crosstown Center (total square footage of 1,923,083 sf)
1 – Based on ITE LUC 610 (Hospital) for 1,928,122 sf
2 – Based on ITE LUC 610 (Hospital) for 1,877,884 sf (includes one-year projects)
3 – Based on ITE LUC 610 (Hospital) for 2,548,329 sf (includes one-year and five-year projects)

As shown in the table above, the BMC campus is expected to generate a negligible number of new trips due to the One-Year Projects and a reduction in trips due to the Five-Year Projects. Trip generation attributable to the Ten-Year Projects is measurable. As noted previously, **Table 4-7** presents the unadjusted trips generated by the IMP Projects, and the following sections present the actual number of vehicle trips that will be generated when taking into account the use of different travel modes given the urban context of the BMC campus.

4.3.5.1 Mode Splits

Separate mode shares were developed for patients and employees. This approach provides a more accurate representation because of the documented low auto use by BMC employees. Sources for the mode share assumptions are discussed below.

Boston Transportation Department (BTD) mode split data for the Medical Area (BTD Area 15) was used to estimate the patient mode share. The “All Purposes” category was used to capture the travel patterns of patients. The daily mode shares, shown in **Table 4-8**, were used to estimate the vehicle, public transit, and walk/bike trips generated by patients to BMC.

Table 4-8 BTD Area 15 Daily Mode Shares

Mode	Percentage
Auto	56%
Public Transportation	17%
Walk/Bike/Other	27%
Total	100%

BMC employee mode shares as derived from 2018 DEP Rideshare Survey data of its employees are shown below in **Table 4-9**. The survey is conducted to determine travel patterns at BMC and BU Medical Campus, as required by the Massachusetts Department of Environmental Protection. As the table indicates, existing employees have a significantly lower auto use than reflected by the BTD mode share rates.

Table 4-9 Boston Medical Center Employee Daily Mode Shares

Mode	Percentage
Auto	29%
Public Transportation	52%
Walk/Bike/Other	19%
Total	100%

The survey results reflect the strong transportation demand management program and low auto use in effect at BMC.

4.3.5.2 Adjusted Trip Generation Summary

The mode shares presented above and vehicle occupancy rates (VOR) based on Federal Highway Administration's 2017 *National Household Travel Survey Summary of Travel Trends* were applied to the unadjusted trip generation volumes to develop the change in adjusted Site-generated trips based on the one-year, five-year, and ten-year projects. **Table 4-10** summarizes the total projected new Site vehicle trips, transit trips, and walk/bike trips for BMC IMP Projects.

Table 4-10 New Project Generated Trips by Mode as compared to 2020 Conditions[1]

	New Site Trips due to One-Year Projects			New Site Trips due to Five-Year Projects[2]			New Site Trips due to Ten-Year Projects[3]		
	Vehicle Trips	Transit Trips	Bike/Walk Trips	Vehicle Trips	Transit Trips	Bike/Walk Trips	Vehicle Trips	Transit Trips	Bike/Walk Trips
Daily									
Total	12	18	8	-102	-136	-84	1,396	1,884	1,234
In	6	9	4	-51	-68	-42	698	942	617
Out	6	9	4	-51	-68	-42	698	942	617
Weekday Morning Peak Hour									
Total	2	2	1	-12	-17	-11	177	237	156
In	1	2	1	-8	-12	-8	120	161	107
Out	1	0	0	-4	-5	-3	57	76	49
Weekday Evening Peak Hour									
Total	1	2	0	-13	-20	-12	201	270	175
In	0	1	0	-4	-6	-4	65	87	56
Out	1	1	0	-9	-14	-8	136	183	119

1 – 2020 Existing Baseline Condition includes total BMC square footage as of October 2019 and occupancy of Crosstown Center 1st, 5th, and 7th floors
2 – New trips due to Five-Year Projects includes the trips generated by the One-Year Projects
3 – New trips due to Ten-Year Projects includes the trips generated by the One-Year and Five-Year Projects

As shown in **Table 4-10**, the BMC campus is expected to generate a negligible number of new trips due to the One-Year Projects, a reduction in trips due to the Five-Year Projects, and a measurable number of new trips due to the Ten-Year Projects. The one-year IMP projects as compared to the 2019 Existing Conditions are expected to add approximately 12 additional vehicle trips over the course of a typical weekday, with only 2 additional vehicle trips during the weekday morning peak hour and 1 additional vehicle trip during the weekday evening peak hour. The five-year IMP projects are expected to generate approximately 102 fewer vehicle trips over the course of a typical weekday, with 12 fewer vehicle trips during the weekday morning peak hour and 13 fewer vehicle trips during the weekday evening peak hour. The ten-year IMP projects are expected to add approximately 1,396 additional vehicle trips over the course of a typical weekday, with 177 addition vehicle trips during the weekday morning peak hour and 201 additional vehicle trips during the weekday evening peak hour.

Trip Generation Summary as Compared to the 2013 IMP

To consider the proposed projects on the BMC campus in context of recent changes, the new site-generated trips have also been compared against 2013 Conditions presented in the previous IMP. As presented in **Table 4-4**, the BMC campus has seen a net reduction in square footage and beds in the time period between 2013 and 2019. With the additional space added with the One-Year and Five-Year projects, the BMC campus is expected to have significantly less square footage than compared to the existing at the time of the 2013 IMP. **Table 4-11** summarizes the change in site-generated vehicle trips, transit trips, and walk/bike trips, between the 2013 IMP Conditions, and the One-Year, Five-Year, and Ten-Year Projects.

Table 4-11 New Project Generated Trips by Mode as compared to 2013 Conditions[1]

	New Site Trips due to One-Year Projects			New Site Trips due to Five-Year Projects[2]			New Site Trips due to Ten-Year Projects[3]		
	Vehicle Trips	Transit Trips	Bike/Walk Trips	Vehicle Trips	Transit Trips	Bike/Walk Trips	Vehicle Trips	Transit Trips	Bike/Walk Trips
Daily									
Total	-440	-596	-364	-554	-750	-456	944	1,270	944
In	-220	-298	-182	-277	-375	-228	472	635	472
Out	-220	-298	-182	-277	-375	-228	472	635	472
Weekday Morning Peak Hour									
Total	-55	-75	-46	-69	-94	-58	120	160	-55
In	-38	-50	-31	-47	-64	-40	81	109	-38
Out	-17	-25	-15	-22	-30	-18	39	51	-17
Weekday Evening Peak Hour									
Total	-64	-85	-53	-78	-107	-65	136	183	-64
In	-21	-27	-17	-25	-34	-21	44	59	-21
Out	-43	-58	-36	-53	-73	-44	92	124	-43

1 – 2013 IMP Existing Conditions based on total BMC square footage at the time of the most recent IMP submission (September 2013)
2 – New trips due to Five-Year Projects includes the trips generated by the One-Year Projects
3 – New trips due to Ten-Year Projects includes the trips generated by the One-Year and Five-Year Projects

As shown in **Table 4-11**, the BMC campus is expected to generate a reduction in trips due to the One-Year and Five-Year Projects, and a smaller number of new trips due to the Ten-Year Projects when compared to the 2013 Conditions as compared to the 2019 conditions. The one-year IMP projects as compared to the 2013 Conditions are expected to generate approximately 440 fewer vehicle trips over the course of a typical weekday, with 55 fewer vehicle trips during the weekday morning peak hour and 64 fewer vehicle trips during the weekday evening peak hour. The five-year IMP projects as compared to the 2013 Conditions are expected to generate approximately 554 fewer vehicle trips over the course of a typical weekday, with 69 fewer vehicle trips during the weekday morning peak hour and 78 fewer vehicle trips during the weekday evening peak hour. The ten-year IMP projects as compared to the 2013 Conditions are expected to add approximately 944 additional vehicle trips over the course of a typical weekday, with 120 addition vehicle trips during the weekday morning peak hour and 136 additional vehicle trips during the weekday evening peak hour.

4.3.6 Transportation Impact Overview

Based on the assessment of the program and anticipated trip generation of the proposed BMC IMP Projects, it is envisioned that the forthcoming study of transportation impacts in connection with the preparation, submission of the IMP would be developed taking into consideration the following initial conclusions:

- The One-Year Projects have no measurable transportation impacts. Further, these projects collectively do not rise above the threshold to warrant their study and approval via Article 80, given their modest size. As such, the One-Year projects will be permitted to be reviewed via their own, separate design approval and not require the conduct of comprehensive transportation study and analyses.

- The Five-Year IMP Projects are expected to result in a net reduction in overall measurable transportation impacts.
- The Ten-Year Projects are anticipated to have some measurable impact. BMC is prepared to move forward and develop a full transportation and traffic analysis for the Ten-Year Projects that will be included in the IMP. This will provide important contextual data for the City and the neighborhood as development planning is discussed and evolves through the term of this IMP.

Further, and in accordance with Article 80D IMP submission requirements, BMC will prepare a detailed assessment of their existing transportation conditions, including:

- Access/Circulation/Drop-off/Pick-up provisions
- Parking for its patients, visitors, staff, and physicians
- Emergency Department and emergency vehicle access
- Loading and service operations
- Pedestrian and bicycle amenities and accommodations
- Shuttle bus operations
- Summary of its Transportation Demand Management Program and proactive measures that are employed to strongly encourage the use of alternative forms of transportation and discourage single occupant driving

4.2 Transportation Demand Management

BMC has consistently worked to reduce the number of drive- alone trips to the medical area, both through efforts of the individual institution and through TranSComm, the area's Transportation Management Association. TranSComm and BMC have won several awards in recent years – the 2012 Mayor's Silver Award for Bike Friendly Business, a Silver Aware from the prestigious National League of American Cyclists and the "Pinnacle Award" for excellence in commuter options. They also participate in a member sustainability committee; BMC's Green Committee.

As indicated previously, existing employees at BMC have a significantly lower auto use than the BTD mode share rates, at only 28 percent. This rate reflects the strong and effective transportation demand management program that is in place. Through TranSComm, BMC will continue to encourage and assist its employees, as well as patients and visitors to use many of the demand management and trip reduction programs offered. These are listed below.

- BMC offers a 50 percent transit subsidy through payroll deduction to full-time employees who do not have parking permits.
- Full-time employees who work on the Medical Campus may sign up for monthly MBTA passes through pre-tax payroll deduction. Up to $230 per month is tax deductible.
- On-site non-discounted transit pass sales and schedules are provided.

- On-line transit and rideshare information are provided on the TranSComm web site.
- A transit rider "read and ride" library is provided for commuters in the TranSComm office lobby.
- TranSComm operates a "borrowed belongings program" where members of the BMC community may borrow an umbrella or bicycle lock for up to 48-hours.
- TranSComm works with the MBTA and BTD to improve bus service, wayfinding, and pedestrian safety around the campus.
- BMC provides several private shuttle routes to connect employees and patients/visitors with the surrounding neighborhood (the shuttle service is described in detail in the previous section).
- Preferential parking is provided for Carpool/Hybrid program participants and hybrid / electric vehicles on the first level of the 610 Albany Garage.
- Two Zipcars are provided on Albany Street Extension for employees who commuted via public transportation, walking, or biking, but may need a private vehicle during the day.
- TranSComm provides a Guaranteed Ride Home program for carpoolers, ensuring that carpoolers will have a ride home in case of emergency.
- TranSComm participates in Bay State Commute, a free website/app and tool provided by MassDOT to reward travelers for taking "green" trips – i.e. walk, bike, telecommute, carpool, vanpool, subway, train, bus, or ferry trips, or even working a compressed week. Travelers log their transit, bus or walk trips to work on the website or app and are rewarded with discounts to stores, restaurants, entertainment, etc. Bay State Commute also serves as the state's rideshare database for finding carpool partners.
- Gas-powered scooter parking is provided in the 610 Albany Garage. Electric-powered scooters can park in the 710 Albany Street Garage, closer to the BMC campus than the gas-powered scooter parking.
- TranSComm offers sheltered and secured bicycle parking at several locations, participation in the Annual Bike to Work/School week, a free Cyclists' Luncheon and a free Bike Safety Checkup.
- TranSComm publishes a medical area walking map and offers neighborhood walks for the South End's medical history and South of Washington Area (SOWA) at lunchtime for employees and others. Besides designating short and long "neighborhood walking" loops covering areas like the Southwest Corridor Park, Discover Roxbury, Medical History, and the SOWA arts district, this map shows restaurants and community services such as ATM's and dry cleaners, as well as the mileage from BUMC to the neighboring MBTA stations.
- TranSComm publishes a periodic transportation newsletter and holds events to encourage its employees and students to use the alternative commuter transportation system. TranSComm also contributes a column in the MassCommuter newsletter once a year.

5.0 COORDINATION WITH OTHER GOVERMENTAL AGENCIES

5.1 Introduction

As IMP Projects move forward, the Proponent will initiate consultation with other governmental agencies as required.

5.2 Architectural Access Board Requirements

IMP projects that involve new occupiable space or modifications to the public realm (e.g., sidewalk improvements) will comply with requirements of the Massachusetts Architectural Access Board and will be designed to comply with the standards of the Americans with Disabilities Act.

5.3 Massachusetts Environmental Policy Act

The renewal or the approval of a new Institutional Master Plan by the BPDA is not a trigger under the Massachusetts Environmental Policy Act (MEPA) and the Regulations set forth in 301 CMR 11, and the filing of the IMP will not require a simultaneous filing with the MEPA office. However, as in the past when a proposed institutional project is the subject of a filing with the BPDA as a project within an Institutional Master Plan Application and is subject to MEPA, BMC will meet with the MEPA Office to coordinate the filing of documentation required by MEPA, including, if necessary, an Environmental Notification Form (ENF) or Notice of Project Change (NPC) for a proposed project. The ENF or NPC will be consistent with the project documentation filed with the BPDA for such proposed institutional project.

5.4 Massachusetts Historical Commission / South End Landmark District Commission

In the event that a proposed institutional project requires state permits or receives state funding such as HEFA bond financing, such action will require the filing and consultation with the Massachusetts Historical Commission (MHC). As in the past, BMC has filed copies of the relevant documentation, including an ENF or PNF, with MHC to seek MHC approval of the proposed project.

The majority of the land and buildings in the BMC IMP are located within the South End Harrison/Albany Protection Area of the South End (Protection Area). Activities relating to demolition, land coverage, height of structure, topography and landscaping are subject to review by the South End Landmarks District Commission (SELDC). BMC will submit an application for a certificate of design approval to the SELDC for each proposed project when Article 80 Large Project Review is initiated for each project.

5.5 Boston Civic Design Commission

The Proponent will meet with the Boston Civic Design Commission (BCDC) to review the proposed IMP. The IMP documentation will be submitted to the BCDC in accordance with the provisions of Article 28 of the Boston Zoning Code.

5.6 Mayor's Commission for Persons with Disabilities

The Proponent will meet with the Mayor's Commission for Persons with Disabilities to review proposed pedestrian improvement plans as each IMP project moves forward. The Commission will be consulted with to ensure that paths of travel are designed for universal accessibility and will comply with the standards of the Americans with Disabilities Act.

5.7 Boston Groundwater Trust

The proposed IMP Projects are located within the Groundwater Conservation Overlay District (GCOD). BMC will incorporate systems into the proposed IMP projects designs that meet the groundwater conservation standards set forth in Article 32 of the Boston Zoning Code. BMC will obtain a written determination from the Boston Water and Sewer Commission as to whether said standards are met and will provide a copy of this letter to the BPDA and the Boston Groundwater Trust prior to the issuance of a Certificate of Consistency. Accordingly, BMC will comply with the requirements of Article 32 and so will not be required to obtain a conditional use permit from the Board of Appeals for its proposed IMP Projects.

5.8 Other Permits and Approvals

Anticipated permits and approvals for proposed IMP Projects will be identified in the applicable Article 80 Large Project Review Project Notification Forms.

APPENDIX A

BOSTON UNIVERSITY MEDICAL CENTER INSTITUTIONAL MASTER PLAN BACKGROUND / HISTORY

A.1 2000 Boston University Medical Center IMP History and Background

Boston Medical Center (BMC) originally filed a joint Institutional Master Plan with Boston University. The first filing in 2000 was the original Boston University Medical Center Institutional Master Plan (BUMC IMP) approved by the Boston Redevelopment Authority (BRA) on May 18, 2000 and the Boston Zoning Commission on June 28, 2000, effective July 13, 2000. Boston University Medical Center was listed as comprised of Boston Medical Center (BMC) and Boston University Medical Campus (BU Medical Campus) which includes three of Boston University's health science schools – the School of Medicine, Goldman School of Dental Medicine; and the School of Public Health. The Proponents were Boston Medical Center Corporation (BMC) and the Trustees of Boston University (BU).

Only one new BMC construction project, the Medical Services Center, was contemplated as part of the 2000 BUMC IMP. The BMC Medical Services Center included a five-story, 92,010 square foot outpatient care center to be located northeast of the BMC Menino Pavilion and related circulation, parking and landscaping improvements. The circulation system included a two-way interior road connecting to both Harrison Avenue and Albany Street. The then existing 176 parking spaces on the site were reconfigured to accommodate 111 spaces. A new 32,000 square foot landscaped courtyard was proposed off Harrison Avenue and East Concord Street between BMC buildings BCD and FGH. The project also included the demolition of BMC's Thorndike, Administration and Sears Buildings, and the renovation of BMC's buildings BCD and FGH. While the building demolition activities occurred and BMC buildings BCD and FGH have been preserved, BMC's proposed Medical Services Center building was never constructed. However, the 2003 Second Amendment, as described below, substituted the BMC Medical Services Center with the BMC Moakley Building.

BMC and BU jointly renewed the original 2000 BUMC IMP. The BUMC IMP Renewal was approved by the BRA on June 22, 2010 and the Boston Zoning Commission on August 4, 2010.

Three new construction projects were contemplated by BMC as part of the 2010 BUMC IMP Renewal.

- **Energy Facility** - Construct an approximately 48,000 sf building on the existing surface parking lot located to the east of the Power Plant to improve energy efficiencies, ensure reliability, and support greener campus growth.

- **Administration/Clinical Building** – Construct an approximately 160,000 s.f. building on the surface parking lot located on the north side of the Power Plant along Albany Street to consolidate administrative functions and improve campus adjacencies. This building will also accommodate space for outpatient offices and operational support space.
- **New Inpatient Building** - Construct an approximately 405,000 sf building on the Dowling Building site to support the increased inpatient volume and the growth in Emergency Service and Trauma volume. This project will necessitate the demolition of the Dowling Building.

A discussion of IMP Amendments, Notices of Project Change, and Notices of Exemption follows, while **Table A-1** summarizes the history of the BUMC Campus IMP to date.

A.1.1 Boston University Medical Center IMP Amendments

On May 14, 2001, BMC proposed its first amendment to the BUMC IMP; the rehabilitation of the Surgical Building, an administrative building, located at 85 East Concord Street. This building is an existing eight-story, 66,952 square foot building including an adjoining one-story entry building. BMC proposed to rehabilitate the building for office uses and replace the entry building with a new one-story lobby. The amendment was approved by the BRA on July 17, 2001 and the renovation was completed in September 2003.

On July 31, 2003, BMC submitted a Notice of Project Change ("NPC") to the BRA. The NPC considered the replacement of the approved BMC Medical Services Center in the 2000 IMP with the proposed BMC Moakley Building as an Institutional project; modifications and additions to the existing BMC Ambulatory Care Center; and, inclusion of circulation and parking changes associated with the Moakley Building. The 133,217 square foot BMC Moakley Building at 830 Harrison Avenue has a program of consolidated cancer related care, a patient-centered ambulatory surgery center, a center for digestive disorders, and a new otolaryngology clinic. The NPC also represented a biannual update to the BUMC IMP. The NPC was approved by the BRA on October 7, 2003 and the building was completed in the Fall of 2006.

On December 1, 2004, BMC submitted its second BUMC IMP amendment for several minor modifications, which considered the reuse of basement, office and administrative space in BMC's BCD and FGH buildings and BU's 761 Harrison Avenue building, and to remove from the BUMC IMP list of buildings, the Mallory building which is no longer leased to BMC. The second amendment to the IMP was approved by the BRA on January 26, 2006.

On April 30, 2007, a third IMP Amendment was filed for the new 245,000 s.f. BMC Shapiro Ambulatory Care Center (SACC) at 725 Albany Street. The new facility allowed for the relocation of BMC's clinical services in the DOB to appropriately sized new space consistent with Department of Public Health requirements and BMC

clinical standards. This solution also allowed BMC to further its goal to consolidate clinical departments by shifting some outpatient services from its Dowling, Yawkey and other locations on campus to the proposed SACC. The SACC's design did not result in significant new outpatient space on campus, rather it created more efficient use of outpatient space resulting in higher throughput of patients. The third amendment was approved by the BRA in December 2007.

On June 8, 2009, BMC and BU submitted an Institutional Master Plan Notification Form for the Renewal and Amendment of the BUMC IMP (IMPNF for Renewal and Amendment), which IMPNF for Renewal and Amendment described the minor expansion of the BMC Menino Pavilion by the construction of a single-story slab-on-grade addition of approximately 845 square feet on the southwest end of the BMC Menino Pavilion (the ED Project). Notice of receipt by the BRA of the IMPNF for Renewal and Amendment was published in the Boston Herald on June 9, 2009 initiating a comment period that ended on July 9, 2009. On July 16, 2009, the BRA approved the IMPNF for Renewal and Amendment for a two-year renewal of the BUMC IMP and approval of the ED Project.

On August 14, 2009, BU filed an IMPNF for Amendment of the IMP in connection with the incorporation in the IMP of the Albany Fellows Site, which is an approximately 1.7 acre site lying between Albany Street and Fellows Street, and the construction on a portion of the Albany Fellows Site of a proposed project known as the Graduate Student Housing Project for Boston University Medical School. The Albany Fellows Site consists of three parcels: Parcel 1, which fronts on Fellows Street and contains approximately 15,324 square feet of land area; Parcel 2A, which fronts on Albany Street and contains approximately 38,920 square feet of land area; and Parcel 2B, which is bounded by Parcel 2A, former Pike Street, Fellows Street and Parcel 1 and contains approximately 20,766 square feet of land area. Notice of receipt by the BRA of the Amendment IMPNF was published in the Boston Herald on August 14, 2009 initiating a comment period that ended on September 25, 2009. On January 12, 2010, the BRA approved the IMP Amendment for inclusion of the Albany Fellows Site and Graduate Student Housing Project, and on February 10, 2010, the Boston Zoning Commission approved the same.

For purposes of ensuring that the approved (January 2010) Albany Fellows Site and the Graduate Student Housing Project were included in the renewal IMP, the 2010 BUMC IMP incorporated the site and project in the filing.

In June, 2013, BMC filed an IMP for Amendment of the 2010 IMP to add and make revisions to the New Inpatient Building in two phases, with immediate construction of the New Inpatient Building Phase I, which includes the infill and addition to Menino Pavilion of approximately 82,300 square feet and new construction of an 7,800 square feet Patient Transport Bridge to replace the yellow utility tube that crossed Albany Street. A new addition was also proposed to the Moakley Building of approximately 27,800 square feet to enable the relocation of outpatient clinical services from the Menino Pavilion to enable the New Inpatient Building Phase I construction. This amendment enabled BMC to consolidate its clinical core to the west and close Newton Pavilion.

In August, 2017, BU filed an IMP for Amendment to add the renovation and expansion of the Henry M. Goldman School of Dental Medicine as a Proposed Institutional Project. The project involves a new addition of up to 50,000 square feet and renovation of up to 65,000 square feet of existing building space for clinical, office, instructional and student collaboration spaces.

A.1.2 Notices of Exemption

On October 2, 2006, BMC submitted an Institutional Master Plan Notification Form to the BRA proposing an addition of approximately 10,000 square feet to the Newton Pavilion inpatient care building located on East Newton Street. The existing Newton Pavilion is eight floors and has an elevator penthouse. The Newton Pavilion was originally built in 1986, at which time all inpatient care floors below the eighth floor were built with three pods per floor. The existing eighth floor has two pods. The IMPNF proposed filling in the last pod of the eighth floor in order to provide approximately 12 beds of additional care. On November 7, 2006, the BRA issued a Notice of Exemption for the Newton Pavilion eighth floor addition exempting it from Article 80 Institutional Master Plan Review because it was not affecting a gross floor area of more than 20,000 square feet and was not a phase of another Institutional project.

On February 23, 2007, BMC submitted a Request for a Notice of Exemption to the BRA proposing an addition of approximately 17,500 square feet to the Menino Pavilion located on Albany Street. BMC determined that the need for a third MRI and 11 additional Emergency Department beds to ease overcrowding of existing patient flows could not be accommodated within existing space and therefore requested approval for the addition to the Menino Pavilion. On April 5, 2007, the BRA issued a Notice of Exemption for the Menino Pavilion addition exempting it from Article 80 Institutional Master Plan Review because it was not affecting a gross floor area of more than 20,000 square feet and was not a phase of another Institutional project.

Table A-1 Summary of Institutional Master Plan Submissions and Amendments

Date	Action	Subject
May 18 2000	IMP BRA Board Approval	Original joint BMC and BU BUMC IMP and including proposed five-story, 92,010 s.f. BMC Medical Services Center (outpatient care) and related circulation, parking and landscaping.
July 14 2001	IMP Amendment BRA Board Approval	Rehabilitation of the BMC Surgical Building for administration uses. Involved an existing eight-story, 66,952 square foot building including an adjoining one-story entry building. Amendment included replacement of the adjoining building with one-story lobby.
October 7 2003	NPC BRA Board Approval	Replacement of the BMC Medical Services Center with the BMC Moakley Building (133,217 s.f. – cancer care, ambulatory care, digestive disorder center, and otolaryngology clinic), modifications to existing Ambulatory Care Center and circulation/parking changes associated with Moakley.
January 26 2006	IMP Amendment BRA Board Approval	BMC and BU amendment for minor modifications including reuse of basement, office and administrative space in BMC's BCD and FGH buildings and BU's 761 Harrison Avenue, and removed from the BUMC Campus IMP list of buildings, the Mallory building which is no longer leased to BMC.

November 2006	Notice of Exemption Granted	BMC exemption for expansion of the Newton Pavilion to create 10,000 s.f. with 12 new inpatient beds.
April 5 2007	Notice of Exemption Granted	BMC exemption for addition of 17,500 s.f. to the Menino Pavilion for MRI and ER beds.
December 2007	IMP Amendment BRA Board Approval	BMC demolition of existing building and construction of the new 245,000 s.f. Shapiro Ambulatory Care Center at 725 Albany Street to create more efficient use of existing outpatient space shifted from other campus locations.
July 16 2009	IMP Renewal and Amendment BRA Board Approval	BMC and BU renewal of the 2000 BUMC IMP for a 2-year term and minor expansion of the BMC Menino Pavilion by construction of a single-story slab on grade addition of 845 s.f. to the ED.
January 12 2010	IMP Amendment BRA Board Approval	BU amendment to IMP to include the approximately 1.7 acre site lying between Albany Street and Fellows Street (the “Albany Fellows Site”) in the Boston University Medical Center IMP and the construction on a portion of the Albany Fellows Site of a proposed project known as the Graduate Student Housing Project for Boston University Medical School consisting of a nine story building of approximately 84,033 square feet with approximately 12,000 square feet of on-site landscaped open space, which building will provide 104 two bedroom units to house up to 208 graduate students of the BU Medical Campus and will also contain approximately 5,000 square feet of ground floor retail space.
June 22 2010	IMP Renewal BRA Board Approval	BMC and BU renewal of the 2010 IMP to include 3 proposed IMP Projects for BMC. The construction of a 48,000 square foot Energy Facility, the construction of a 160,000 square foot Administration/Clinical Building and demolition of an existing building and the construction of a 405,000 square foot new Inpatient Facility. Removal of leased space at the Finland and Kakas Building. Inclusion of leased space at the Crosstown Site, clarification of the Ownership of the Gambro Building and a change in use for the Doctors Office Building from Outpatient to Administration.

December 2013	IMP Amendment BRA Board Approval	BMC amendment to add and make revisions to the New Inpatient Building in two phases, with immediate construction of the New Inpatient Building Phase I, which includes the infill and addition to Menino Pavilion of approximately 82,300 square feet and new construction of an 7,800 square feet Patient Transport Bridge to replace the yellow utility tube that crossed Albany Street. A new addition was also proposed to the Moakley Building of approximately 27,800 square feet to enable the relocation of outpatient clinical services from the Menino Pavilion to enable the New Inpatient Building Phase I construction. This amendment enabled BMC to consolidate its clinical core to the west and close Newton Pavilion.
August 2017	IMP Update and IMP Amendment BRA Board Approval	BMC 2-year IMP update and BU amendment to add the renovation and expansion of the Henry M. Goldman School of Dental Medicine as a Proposed Institutional Project. The project involves a new addition of up to 50,000 square feet and renovation of up to 65,000 square feet of existing building space for clinical, office, instructional and student collaboration spaces.

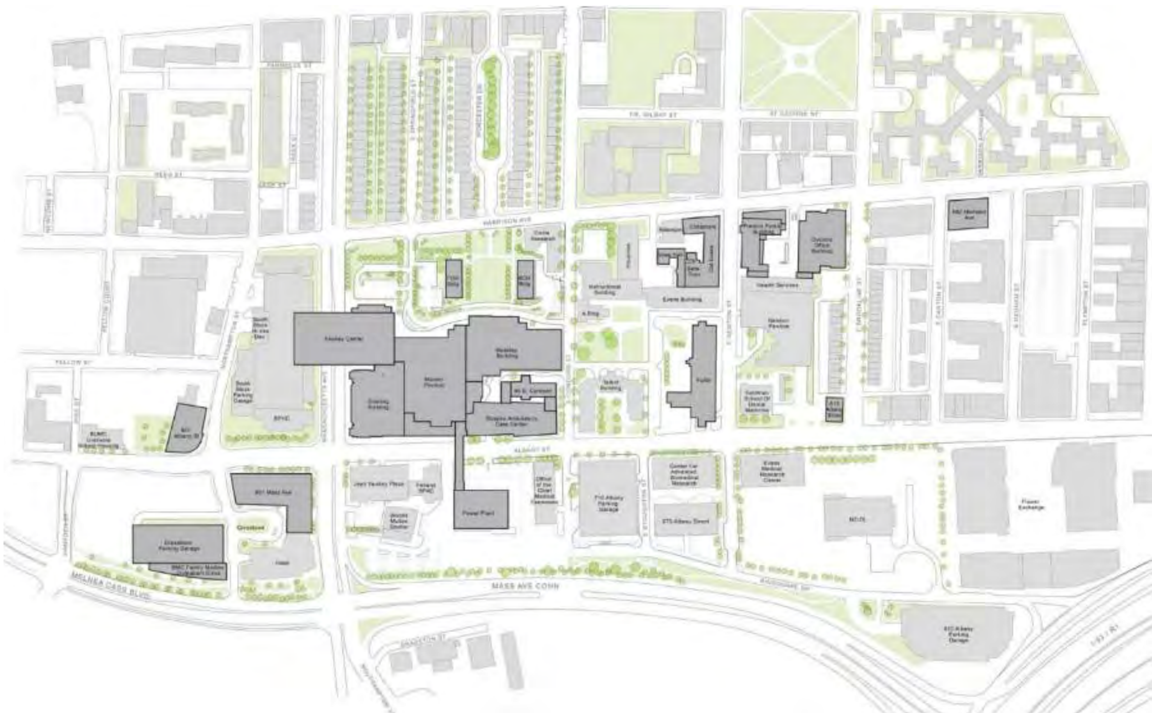
A.2 2020 New Boston Medical Center IMP

The original approved 2000 BUMC IMP and 2010 BUMC IMP Renewal and associated IMP Amendments, were joint submissions with the BMC and BU. Following the approval of the 2017 IMP Amendment, BMC and BU evaluated options for moving forward and have determined that developing separate IMPs better serves the needs of each institution in the face of changing priorities and goals. While BMC and BU will be filing separate IMP’s, both institutions will remain partners in some instances regarding area planning and shared Transportation Demand Management functions.

BMC is submitting an IMPNF to initiate the Article 80D IMP review process for a separate BMC IMP to govern the next 10 years of BMC campus planning. The 2020 BMC IMP includes a combination of minor building additions, existing building renovations and new construction projects over the next 10 years. Two of the new construction projects, the New Inpatient Building Phase II and the New Administration/Clinical Building (Power Plant site), were previously approved in the 2010 BUMC IMP and subsequent Amendments in 2013 and 2017, and these are carried forward in the new BMC IMP.

APPENDIX B

PRESERVATION PLAN



BOSTON MEDICAL CENTER PRESERVATION PLAN

AUGUST 23, 2016, UPDATED NOVEMBER 20, 2019

SUBMITTED TO:
South End Landmarks District Commission
Boston City Hall, Room 709
Boston, MA 02201

SUBMITTED BY:
Boston Medical Center Corporation
One Boston Medical Center Place
Boston, MA 02118

PREPARED BY:
Boston Conservation Associates, Inc.
10 Langley Road, Suite 202
Newton Centre, MA 02459

IN ASSOCIATION WITH:
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226 Causeway Street
Boston, MA 02114

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1.0 INTRODUCTION

1.1 Background

Boston Medical Center (BMC) completed an extensive Institutional Master Planning (IMP) process from 2007 to 2010. The goal of that IMP process was to create a balanced approach to its ability to meet ever-changing clinical care requirements with the physical parameters necessary to support them and its commitment to historic preservation. According to a Certificate of Design approval with the South End Landmarks District Commission (SELDC) dated September 17, 2007, the 2007 to 2010 IMP processes initially included collaboration with a subcommittee of the SELDC to discuss current and planned uses of major buildings and historic resources on the medical campus. This was a commitment BMC made under the approvals for the demolition of the former maternity building at 91 East Concord Street and the construction of the Shapiro Ambulatory Care Center. A facility condition assessment was completed in 2007 by Tsoi/Kobus & Associates (now Tsoi-Kobus Design) and was submitted to the SELDC. The assessment evaluated the use and physical conditions of the major buildings on the medical campus and, in part, established a framework for the 2010 IMP approved by the BRA, now the BPDA. In addition, BMC worked with a preservation consultant, Tremont Preservation Services, to complete a survey of the historic resources (buildings 50 years and older) on the medical campus. This was included in the 2010 IMP.

BMC is submitting a new 2020 IMP and with its submission, the 2016 Preservation Plan is being updated and incorporated into the new 2020 IMP. This current update to the 2016 Preservation plan is completed by preservation consultant Building Conservation Associates, Inc. as part of the new BMC 2020 IMP.

One of the projects approved in the 2010 IMP, as amended in 2013 and approved by the BPDA, was the new inpatient building on the site of the Dowling Tower. The new inpatient building will be constructed in two phases; phase 1 was completed in 2018. The new Inpatient Building Phase 1 was approved by the SELDC in 2014, which involved the demolition of the three-story Dowling Connector and construction of the new four-story addition to the Menino Pavilion. As part of the 2014 SELDC approval, BMC committed to developing a Preservation Plan of its campus to be reviewed and approved by the SELDC.

Phase II of the new inpatient building is being carried forward into the new BMC 2020 IMP. The possible reuse, renovation or replacement of the Dowling Tower was included in the 2016 Preservation Plan and alternative building locations for a new inpatient building were reviewed with the SELDC at the September 5, 2017 Commission meeting. See Section 7.0 for an in-depth evaluation of the alternatives and the final letter to SELDC and approved Option A location of the new inpatient building.

An updated facility condition assessment was completed in 2015 by Tsoi/Kobus & Associates, now Tosi-Kobus Design. Both in the 2007 and 2015 assessments, the Dowling Tower, among others, was identified as being in fair to poor condition and requiring significant infrastructure investment. Through these assessments, it has been determined that the Dowling Tower cannot be restored to its original 1937 design nor can it be reused to deliver the best possible patient care that meets current healthcare standards. A detailed discussion of the potential for reuse of the Dowling Tower for medical, clinical and inpatient rooms is included in section 7.0.

The 2015 facility condition assessment also identified Vose Hall, including the attached Betatron building, as being in fair to poor condition with significant infrastructure improvements required to make the building a viable modern office and administrative building. As part of the new 2010 IMP, a new Administration Building is proposed to replace the Vose Hall. A detailed discussion of the potential for reuse of Vose Hall has been added to this Preservation Plan which is included in Section 8.0.

1.2 Purpose and Scope of Preservation Plan

The BMC Preservation Plan completed in 2016 was created to serve as a supplement to the 2010 Institutional Master Plan Renewal, amended in 2013, approved by the BPDA (then the BRA). The ongoing purpose of the Preservation Plan is to identify historic resources, which include buildings owned by BMC 50 years of age or older, to research the historical significance and to determine to what extent each resource retains its architectural integrity. The Preservation Plan provides recommendations and guidelines to incorporate preservation planning into the master planning process for BMC buildings and properties and identifies potential challenges to preservation in the near term and long term. The BMC 2016 Preservation Plan has been updated for inclusion in the new 2020 Institutional Master Plan and will be updated concurrently with future IMPs.

1.3 Boston Medical Center Mission and Objectives

BMC was incorporated as a Massachusetts charitable corporation July 1, 1996 with the merger of Boston City Hospital and the Boston University Medical Center Hospital, referred to as University Hospital. Boston Medical Center (BMC) is a private, not-for-profit, 514-licensed-bed, urban academic medical center located in Boston's Historic South End, which emphasizes community-based, accessible care and the mission to provide consistently accessible health services to all in need of care regardless of status and ability to pay. The primary teaching affiliate for Boston University School of Medicine, BMC is the largest safety net hospital and busiest trauma and emergency services center in New England. BMC provides a full spectrum of pediatric and adult care services from primary to family medicine to advance specialty care.

The mission of BMC is "to provide consistently excellent and accessible health services to all in need of care regardless of status or ability to pay" – exceptional care, without exception.

In order to ensure a sustainable future, the objectives of BMC include:

- Accommodate increasing patient volume through leveraging the highest and best use of its building resources, both owned and leased;
- Re-align clinical services to support integration of a coordinated care model;
- Right size and modernize clinical space for current code and clinical standards;

- Optimize operational efficiencies through continued centralization of services and ideal adjacencies;
- Address aging buildings;
- Accommodate changing technologies;
- Improve patient arrival experience and drop-off operations;
- Enhance campus unification, circulation, and accessibility;
- Develop and activate pedestrian-friendly street edges; and
- Strengthen the identity and visibility of BMC.

1.4 Methodology

Research was compiled for buildings BCD and FGH while they were undergoing rehabilitation (2006 – 2008). These two buildings are part of Gridley J. F. Bryant's original 1864 design for Boston City Hospital. Documentation was also submitted to Boston Landmarks Commission for the former Maternity Building at 91 East Concord Street in compliance with the Massachusetts Historical Commission Memorandum of Agreement (2007) for construction of the Shapiro Ambulatory Care Center at 725 Albany Street. A survey of Boston City Hospital (1988) conducted for the Central Artery/Third Harbor Tunnel Project is contained in the Draft Environmental Impact Report (DEIR) dated August 1988. The Boston City Hospital survey in the DEIR was consulted for this report. In 2008, an initial survey of historic resources at BMC provided a description and statement of significance for buildings over 50 years old (included in the 2010 IMP).

The 2016 Preservation Plan identified eight historic buildings owned by BMC built prior to 1966 and one building constructed in 1967, which has also been included in this plan. Two additional buildings, built prior 1972, have been included in the 2020 Preservation Plan Update. The buildings owned by BMC built before 1972 are shown on Figure 3.1 and listed in Table 3.1 in Section 3.0 and the designated historic districts and potential historic districts are indicated in Section 2.0 and shown on the map in Figure 2.2 and listed in Table 2.1. A history of BMC is included in Section 3.2

2.0 BOSTON MEDICAL CENTER CAMPUS CONTEXT

2.1 Introduction

Boston Medical Center (BMC) is located on the site of the former Boston City Hospital (BCH). Built in 1864, BCH experienced expansive growth through the 19^{th} century on the site bounded by East Concord Street, Harrison Avenue, Massachusetts Avenue and Albany Street. Due to the expansion, East Springfield Street was terminated at Harrison Avenue prior to 1897 in order to capture the area of the street for BCH. To the north of East Concord Street, other medical institutions began to appear such as, the Massachusetts Homeopathic Hospital, which expanded with the construction of the Massachusetts Memorial Hospitals, and the Boston University School of Medicine, which in 1962 merged with other BU Medical programs to form Boston University Medical Center Hospital.

Harrison Avenue forms the eastern boundary of the South End Landmark District, a local landmark district designated by the Boston Landmarks Commission and of the South End Historic District, which is listed in the National Register of Historic Places. Harrison Avenue also functions as the western boundary of the South End Harrison/Albany Protection Area. The South End Landmark District is one of the largest urban Victorian neighborhoods in the country. Comprised of residential, commercial and institutional buildings, parks and green spaces, the district encompasses over 300 acres. The boundaries of the Landmark and the National Register Districts differ somewhat on the southeast and southwest borders.

The South End Harrison/Albany Protection Area designated by the Boston Landmarks Commission is irregular in plan; it extends southeast from Harrison Avenue to the Massachusetts Avenue Connector and north from Northampton Street to the Mass Turnpike connector. All of the Boston Medical Center campus is included within the SE Harrison/Albany Protection Area. Many of the BMC buildings are connected and are located on the block bounded by East Concord Street, Harrison Avenue, Massachusetts Avenue and Albany Street. Additional buildings are located at the corner of East Newton Street and Harrison Avenue and at the corner of East Brookline Street and Albany Street. The Power Plant is located across Albany Street from the core buildings. The Yawkey Ambulatory Care Center (1972), the Menino Pavilion (1994), the Moakley Building (2006), and the Shapiro Ambulatory Care Center (SACC, 2014) comprise the core of Boston Medical Center.

The BMC campus is at the southern end of the Protection Area. To the north of BMC in the Protection Area is the Boston University Medical Center Hospital. Other buildings in the protection area include some open areas, parking garages, research buildings and residential buildings. Some of the buildings are relatively new and most are less than 50 years old.

See Figures 2.1 and 2.2 and Table 2.1.

Figure 2.1 Boston Medical Center Campus Map

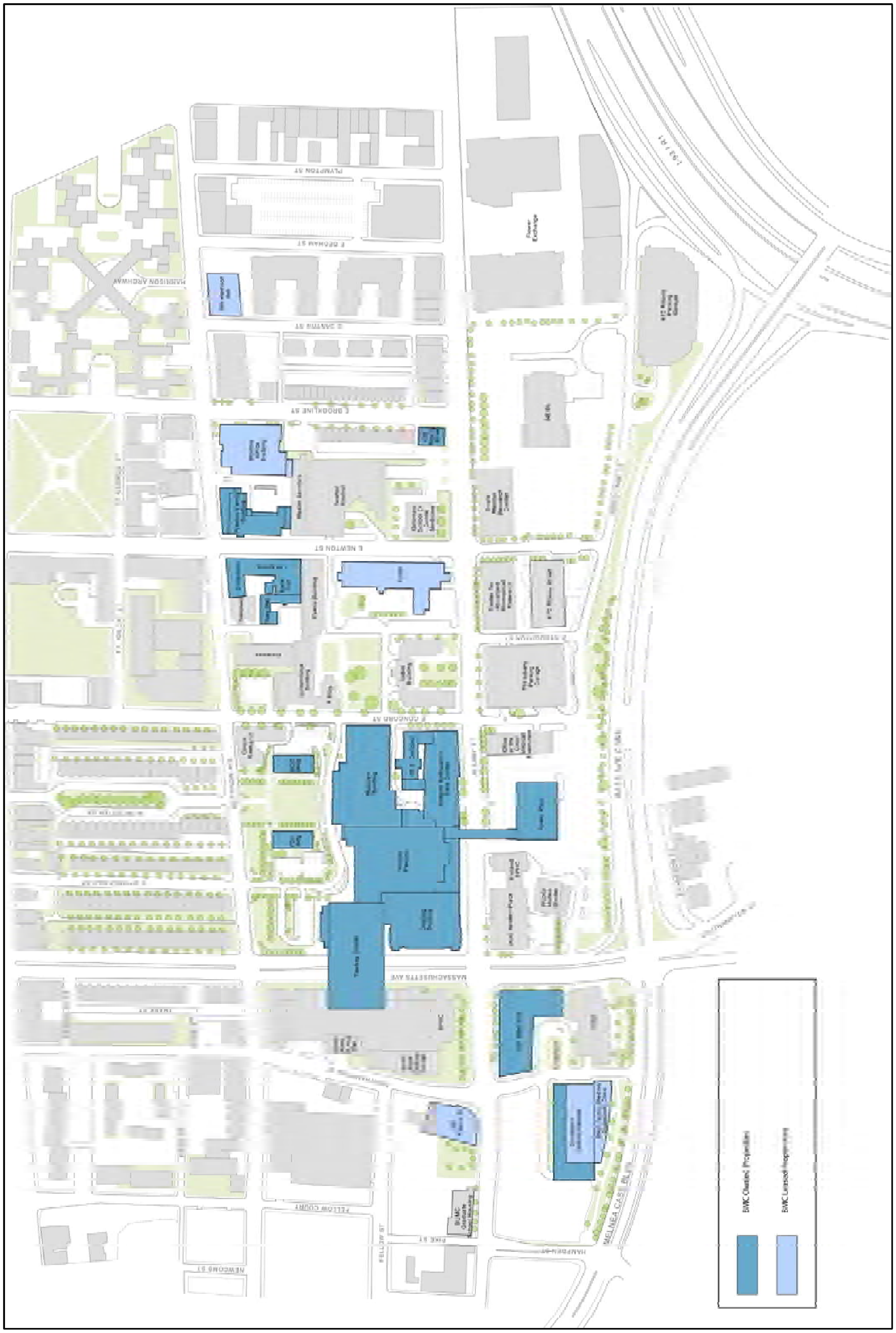

Figure 2.2 Historic Districts and Potential Districts

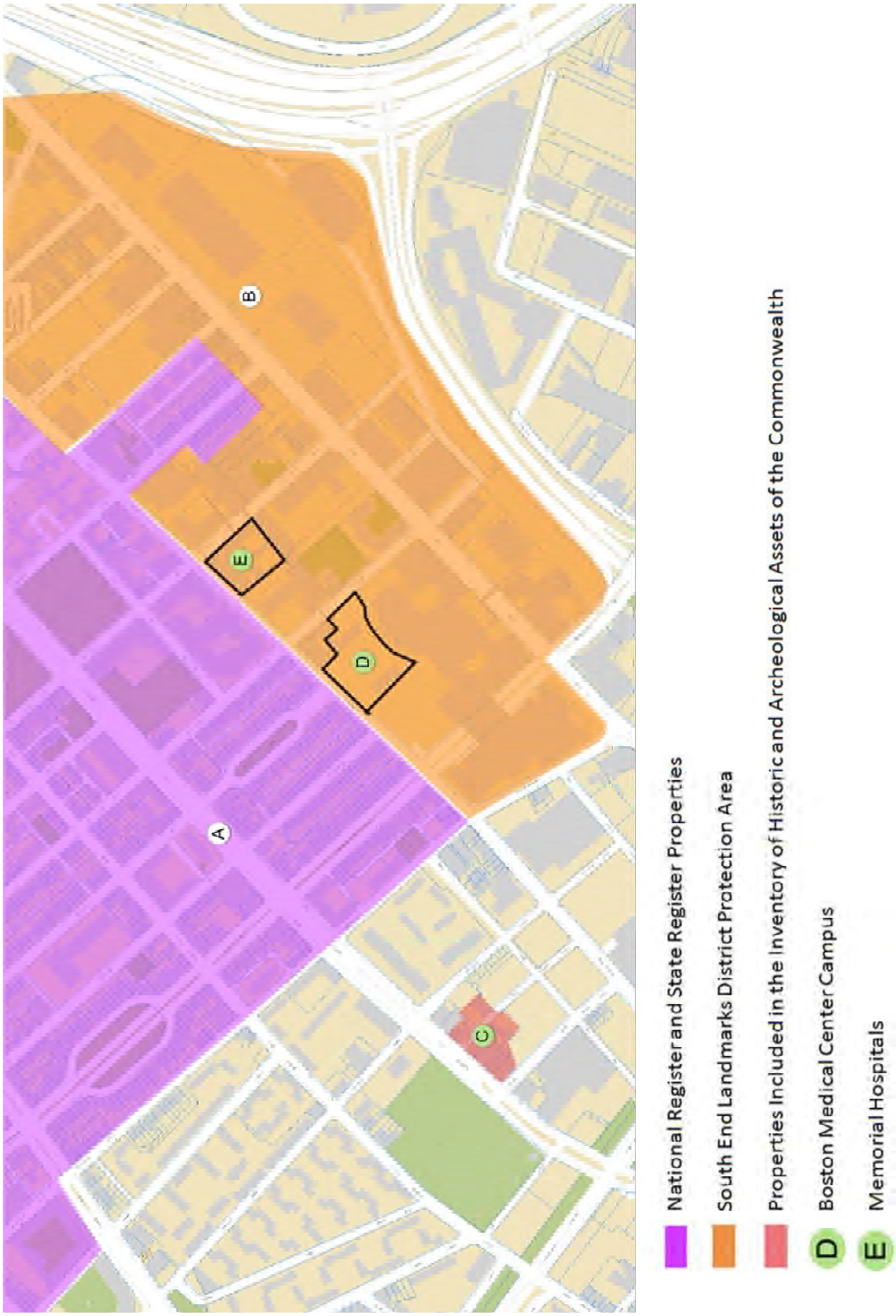

Table 2.1 Historic Districts and Potential Districts

Identified on Figure 2.1	Building/District Name	Address	Date	Designation
	EXISTING AND POTENTIAL DISTRICTS			
A	South End Landmark District	Roughly bounded by Penn Central RR, Camden St., Harrison Ave., and East Berkeley & Tremont streets		NRDIS; LDIS
B	South End Harrison/Albany Protection Area	Roughly bounded by Harrison Ave. Frontage Road, Albany Street, Washington Street & Northampton Street		LPA
C	Ascension-Caproni Historic District	Roughly bounded by Washington, Thorndike, Newcomb streets		INV – Proposed & Accepted by MHC
D	Boston City Hospital	Harrison Avenue		NRDOE 4/18/1990, LPA
E	Memorial Hospitals	Harrison Avenue & East Newton Street		LPA, NR Eligible

NRDIS – National Register District
NRDOE – Determined Eligible for National Register Listing
LDIS – Local Historic District
LPA – Local Protection Area
INV – Inventory Form or included in Historic Resources Survey

Boston Medical Center-Owned Buildings

BMC is located on what is referred to in previous regulatory filings as the Boston University Medical Center campus. The Boston University Medical Center campus, in addition to BMC, is comprised of the Boston University Medical Campus (BU Medical Campus) which includes three of BU's health science schools - the School of Medicine, the Henry M. Goldman School of Dental Medicine and the School of Public Health. BMC and BU are, and operate as independent entities which have separate ownership and control over specific buildings located on the Boston University Medical Center campus. Buildings under the ownership and control of BU are not the subject of this Preservation Plan.

In addition, BMC recently sold some of its properties. The properties sold include Newton Pavilion, Doctors Office Building, H-Building, Gambro, and the former Perkin Elmer buildings. See Section 3.1 and Figure 3.1 for BMC owned buildings.

3.0 HISTORIC AND ARCHAELOGICAL RESOURCES

3.1 Introduction

Boston Medical Center (BMC) is located within the South End Harrison/Albany Protection Area, which was established to maintain an architecturally compatible boundary adjacent to the southeast border of the South End National Register and the South End Landmark districts. This section of the Preservation Plan contains inventory forms and information on buildings owned and controlled by BMC that were built before 1972.

The present Boston Medical Center (BMC) was formed in 1996 as a result of the merger of Boston City Hospital and Boston University Medical Center Hospital, referred to as University Hospital. Boston University Medical Center Hospital was the former Massachusetts Memorial Hospitals.

As a result of the merger, BMC now owns some buildings that were originally part of Boston City Hospital and some buildings that were originally part of Boston University Medical Center Hospital, with the majority of the other buildings owned by Boston University (BU).

For clarification purposes this section separates the historic buildings owned by BMC on the medical campus into two groups: those buildings built as part of Boston City Hospital, and those buildings which operated as part of the Massachusetts Memorial Hospitals. This distinction is as follows:

Boston City Hospital

- BDC Building
- FGH Building
- Dowling Tower
- Surgical Building
- Yawkey Ambulatory Care Center
- Power Plant

Massachusetts Memorial Hospitals

- Anna White Vose Hall
- Helen Collamore Memorial
- Old Robert D. Evans Memorial
- Preston Family Building

One building, the Smith American Organ Company (Naval Blood Research Center), is currently owned by BMC and discussed in this section but was not built as one of the original hospital buildings. A survey of several of the original Boston City Hospital buildings is available in the Draft Environmental Impact Report for the Central Artery/Third Harbor Tunnel Project and was consulted for this survey. Potential impacts of proposed projects on the historic buildings are discussed in Section 5.0 of this report. See Figures 3.1 and 3.2 and Tables 3.1 and 3.2.

Figure 3.1 Boston Medical Center Owned Buildings Built Before 1972

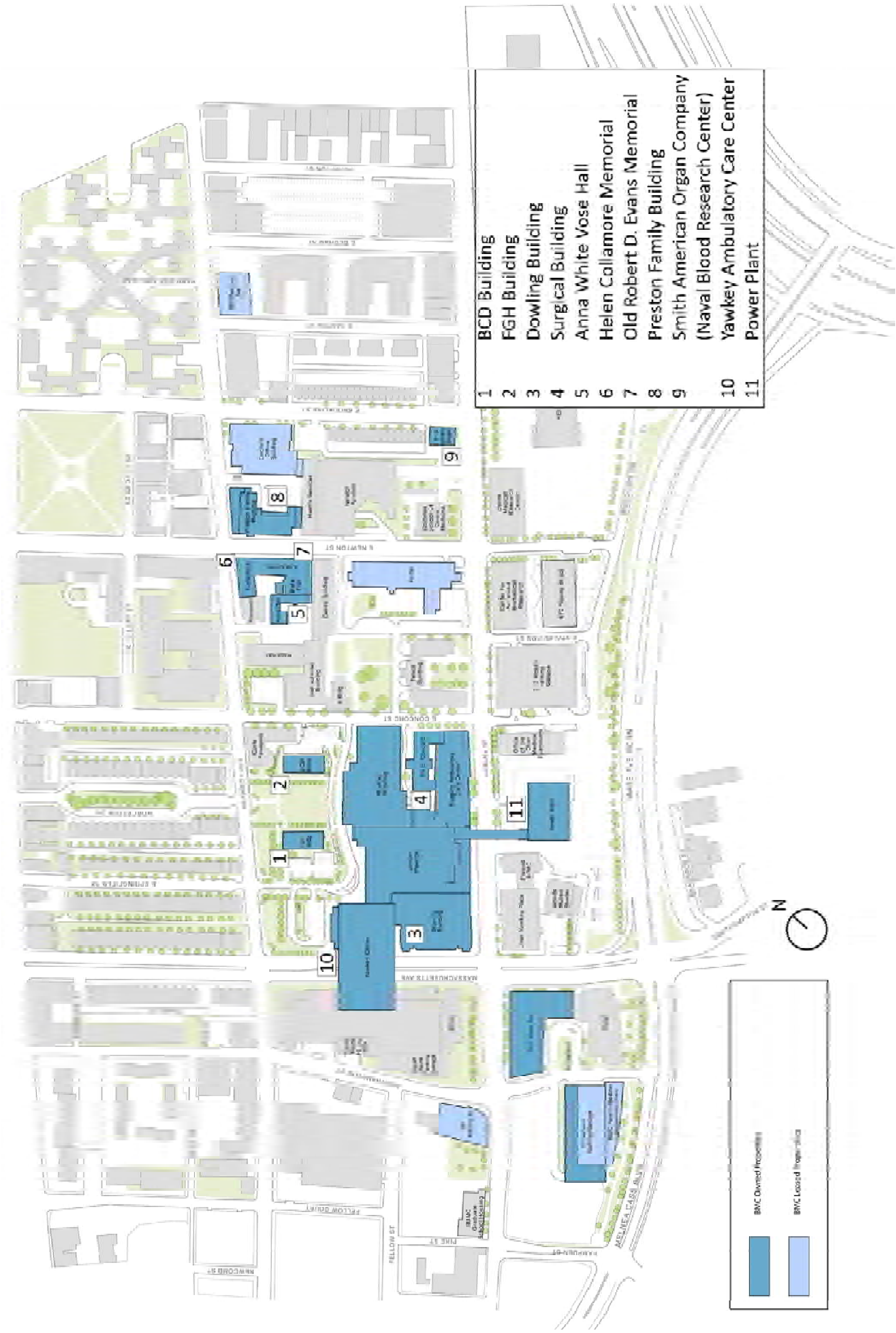

Table 3.1 Buildings Owned by Boston Medical Center Built Before 1972

Building No.*	Name	Address	Date	Designation	Survey Reference
1	BCD Building – Surgical Pavilion	800 Harrison Avenue	1864	NRDOE – 4/18/1990	BOS.1479, BOS.AE
2	FGH Building – Medical Pavilion	820 Harrison Avenue	1864	NRDOE – 4/18/1990, LPA	BOS.1479, BOS.AE
3	Dowling Tower	771 Albany Street	1937	LPA	
4	Surgical Building	85 East Concord Street	1928	LPA	
5	Anna White Vose Hall	88 East Newton Street	1898	LPA	
6	Helen Collamore Memorial	746 Harrison Avenue	1936	LPA	
7	Old Robert D. Evans Memorial	East Newton Street	1942	LPA	
8	Preston Family Building	732 Harrison Avenue	1967	LPA	
9	Smith American Organ Company (Naval Blood Research Center)	615 Albany Street	R 1865	LPA	BOS.1457
10	Yawkey Ambulatory Care Center	850 Harrison Avenue	1972	LPA	
11	Power Plant	750 Albany Street	1972	LPA	

**The building numbers and letters are used here only for the purpose of identification on the maps and associated materials. They are not historical numbers assigned to the buildings.*

3.2 History of Boston City Hospital

The original Boston City Hospital (BCH) three-building complex was the result of a decade-long campaign of planning.[1] Since 1849, when a cholera epidemic struck Boston, there were efforts aimed at establishing a free hospital, not for indigents but for those who were classified as "the worthy poor."[2] When the Boston City Hospital opened in 1864, it combined a sense of "civic responsibility" with a socially progressive and elegant architectural design. Gridley J. F. Bryant (1816-1899), one of Boston's most prominent architects won the competition to design BCH.

[1] The name first proposed for the institution was the "Free City Hospital." This name was dropped to discourage people who were not sick from seeking help. Later the term "City Hospital" was used, until in 1893 it became "Boston City Hospital."

[2] Committee of the Hospital Staff. *A History of the Boston City Hospital from its Foundation Until 1904*. (Boston: 1906): 1.

Members of BCH's medical community were also influential in planning the new hospital. Together physicians and architects implemented a collaborative design that was "humanitarian in spirit" and modern in its approach to medical care.

The decision to locate BCH in the South End was the most economical solution for the City Council, since the city already owned the land, formerly the site of the Agricultural Fair Grounds. In 1858 the City of Boston was authorized to establish a City Hospital, and the Committee on the City Hospital was given a budget not to exceed $100,000.[3] In 1859 the City Council set aside the lot on Albany Street for the purpose of building the hospital.

Bryant's building of the Boston City Hospital (1861-64) was acknowledged as a major civic accomplishment.[4] On completion, BCH occupied 6.7 acres and was assessed at $73,000. The domed central Administrative Building, which was also the location of the operating theatre, was flanked by pavilions on either side and connected by ¼-circle open colonnades. At this time, the pavilion plan, which contained separate wards for medical and surgical patients, was considered the latest reform for a modern hospital. A significant feature was the open ward with no central corridor. It allowed ample cross-ventilation within the ward area, keeping the air fresh and not stagnant.

This plan stood from June 1, 1864, when the hospital was opened, remaining substantially unchanged for the next decade. In 1875, the first major expansion of BCH occurred when five new buildings were added. Since that time, BHC continued to grow through expansion, acquisition and construction, including closing the southern end of Springfield Street and extending the main campus to Massachusetts Avenue (prior to 1897).

The architect, Gridley J. F. Bryant, began his practice in 1838. He was responsible for a number of prominent institutional buildings throughout New England including the innovative plan for the Charles Street Jail on which he worked in collaboration with a social reformer Louis Dwight in 1848.

BCH's original design was the result of the cooperation between a skilled architect, Gridley J. F. Bryant, and the medical community associated with the founding of a new "free" hospital. In the second half of the nineteenth century, BCH set out to serve the needs of the working class including the burgeoning immigrant population of Boston. From its inception to the present, Boston City Hospital and Boston Medical Center are evidence of the progressive social values and civic responsibility shown by members of Boston's community.

Building Survey

1 and 2. Buildings BCD (1864) [1] and FGH [2]

<u>a. Significance</u>

Buildings BCD and FGH were built as the Medical and Surgical wards, two of the three original buildings from Gridley Bryant's original pavilion plan for Boston City Hospital. The three original

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[3] Members of the Committee were Thomas C. Amory, Jr., Elisha T. Wilson, Prescott Barker, Sumner Crosby, George W. Sprague.

[4] Reed, *"To Exist for Centuries:" Gridley Bryant and the Boston City Hospital,* 73.

buildings consisted of two ward buildings framing a tall Administration Building set back with open colonnaded connectors. The first Administration Building was demolished in 1934 following construction of a new administration building sitting at Harrison Avenue. The two ward buildings sit parallel to each other set back from Harrison Avenue on the interior of the block bounded by Harrison Avenue, East Concord Street, Albany Street and Massachusetts Avenue. The wards were originally named ABCD and EFGH, however, it was soon discovered that because the lowest floor in each building was partially below grade, it created an environment that was unhygienic. Ward floors A and E were therefore decommissioned.

b. BCD & FGH Description

Bold and classic examples of the Second Empire Style, the two buildings are 2 1/2-story red brick structures sitting on a raised granite base with mansard roofs. Rectangular in plan with the long elevations running north-south, the stories above the basement are actually I-shaped in plan with the central seven bays recessed. Originally, the two buildings were identical, three bays wide by nine bays long. The south end of Building FGH was demolished in 1928, leaving eight bays (in length) of the original building. The ninth bay was reconstructed in 2007 on the original footprint. The buildings sit on a rubble foundation with a dressed granite block basement story. The red brick walls rise to a bold metal modillion cornice, which is surmounted by a bellcast slate mansard. At BCD only, four paneled red brick chimneys are centered in the roof, two at either end of the narrow section of the building. The center of the roof rises in a gable monitor. A row of regularly spaced ventilators pops up along the ridge of the monitor. Two additional ventilators rise from the north end of the roof; one is centered over a large ventilation duct near the NW corner, the second is near the N edge of the roof.

Windows set in regularly-spaced bays are a major feature of the buildings. Basement window openings have segmental arches cleanly punched in the granite and brick walls. The tall, flat-arched masonry openings at the first and second stories provide an imposing scale to the building and are detailed with elaborate window caps. The first story windows have architrave cornices set above a recessed flush frieze and supported on shallow scroll brackets. The second story windows have paneled hood molds with a molded cap and simpler shoulders. The center bays at the north elevation and at the second story of the south elevation have round-arched window openings trimmed by a molded hood mold. At the roof, segmental arched dormers project out from the mansard.

The granite base is simply detailed with a shallow watertable at the lower course and a projecting beltcourse marks the top of the granite base. Other contrasting stone detail includes typical dressed window sills, projecting sills supported on tab brackets at the second story of the end pavilions, and a deep molded sill course rims the building at the second story. A focal point of the north elevation, an arched molded surround set on paneled pilasters on low pedestals frames the center window at the first story. Suggesting a ceremonial opening, this bay on each building has its original wooden balustraded balcony reinstalled. The wooden balconies were replaced by elaborate cast iron balconies on openwork scrolls that appear in an 1895 photo.

Aluminum replacement windows designed to match the originals have fixed 6/6 sash. The tall windows at the first and second stories originally held two sets of sash (an interior set and an exterior set) and all of the windows had a set of interior shutters. Basement and attic windows are 3/3 with a segmental arched upper sash. The windows in the returns of the end pavilions are 4/4 at the first and second stories and 2/2 at the attic story.

c. BCD Exterior Alterations

Changes have occurred over time and have been partially reversed by a ca. 2000 exterior rehabilitation and a full rehabilitation completed in 2006. The 2006 rehabilitation was conducted in compliance with the *Secretary of the Interior's Standards for Rehabilitation* and the two buildings, BCD and FGH, were listed in the National Register of Historic Places. The circulation from BCD and FGH to the original Administration Building and to the later Medical and Surgical Buildings was formerly at the first floor by means of an open colonnade on a granite base connected to the center bay at the south elevation. The colonnade was later altered to a three-story connector and BCD had been connected at the east elevation to a later addition. That addition and the three-story connector have since been removed and the north end of BCD restored to its original form. A large opening at the basement level, south elevation of BCD would have provided access to the enclosed lower level of the colonnade. The opening presently serves as the main entrance. Historic views of the building also show a stone balustrade along the east and west elevations at the first story set at the edge of the granite base and which is not extant.

d. FGH Exterior Alterations

Originally a matching partner to BCD, FGH has experienced different alterations. As mentioned, the south end pavilion of FGH (three bays wide by one bay deep) was removed in 1928 in order to construct a new Medical Building, which was linked by a narrow connector to the south elevation of FGH. Also at that time (according to the Draft EIR Survey) the gable-roofed monitor was removed, the stone balustrades at the east and west elevations were replaced with iron railings, and a one-story brick entry porch was built on the west elevation. A one-story brick and concrete tunnel enclosure may have been part of the 1928 work. Presumably the existing iron fire escape on the west elevation was installed and the chimneys were removed at that time as well. The fire escape and railings on the east elevation appeared to have been a later addition.

An extensive remodeling in 1963 included the removal of the windows, the installation of single 6-light sash, the infill of the top of the first and second story window openings with a stucco panel, infill at the bottom of the first story windows and a remodeling of the interior. Other later accretions, including a stucco elevator tower on the south elevation, may have been part of the 1963 renovation. Several window openings had been infilled completely. The windows were replaced with smaller sashes.

During a rehabilitation in 2007, the added accretions were removed, including the elevator tower, the fire escapes the entrance vestibule and the window infill. Aluminum replacement windows were installed to match those at Building BCD and a rectangular enclosure with no roof will conceal the mechanical equipment on the roof, and suggest the former rooftop monitor. The south bay of FGH was rebuilt with a brick façade and cast stone detail. The new roof is slate. One altered dormer on the west elevation was reconstructed to its original dimensions and one original wooden dormer window has been retained and reinstalled at the north elevation of the fifth floor.

3. Dowling Tower (1937) [3]

a. Significance

Refer to Sec. 7.2.2 for the significance statement for the Dowling Tower.

b. Description

The Dowling Tower anchors the corner of Albany Street and Massachusetts Avenue covering the former site of the Pathological Building. Irregular in plan and built up of a series of stepped blocks, Dowling is built of red brick with limestone ornament and sits on a stone first story. The building sits slightly back from the sidewalk along Massachusetts Avenue and Albany Street facing west across Massachusetts Avenue. The stone first story occupies the full footprint of the building. The red brick upper stories form a U in plan. The main block rises nine stories and has a 6-bay projecting central pavilion, which rises to 10 stories. The north and south ends of the main block step down to 7 stories and the north and south wings step down again to 6 stories and project west from the main block. At the west end of each wing, a metal panel one-bay addition may enclose a fire stair. Columns of tightly spaced windows separated by narrow brick and metal mullions emphasize the verticality. The window openings have flat arches and cast stone sills. Stone ornament is concentrated at the base and at the top stories of the central pavilion and the end pavilions. Vertical stone ornament in a stylized pattern is set into the wall above the 10th story windows. Two windows have a projecting sill with a carved stone head with wings in high relief. Stone ornament at the north and south wings includes vertical elements at the corners with stylized detail and horizontal panels at the cornice with carved scrolls and horizontal bands. The stone first story fills the lot between the north and south wings. Clean, punched window openings are symmetrically spaced along Massachusetts Avenue. Large stone scrolls sit at the corners of the main block atop the first story framing blocks carved with shields. Other stone detail found at the north and south elevations include carved panels above the seventh story, window surrounds, round panels and a carved surround at a central oculus window.

Fenestration varies throughout the building, including single punched openings, windows bays spaced in groups of 2 and oversized windows at the upper stories. At the end pavilions and the central pavilion of the main block, metal spandrel panels between each story have vertical stylized ornament. Spandrel panels on the ends of the wings appear to have been replaced with flush panels. Typical aluminum replacement windows are 1/1 double-hung with a transom. Some original windows appear to be double hung and others appear to be jalousie windows. Many openings have been filled with louvers, air conditioners, infill panels and brick.

Red brick one- and three-story ells extend from the rear of the main block. A stone frieze with rounded moldings and carved stylized panels at the sills enrich the brick walls.

4. Surgical Building (1926-28) [4]

a. Significance

Plans for the Surgical Building were prepared in 1926 by Ritchie, Parsons and Taylor. The contract was awarded to Joseph Kugo in February 1927 and it was opened to patients in October 1928. The basement contained the indoor branch of the Department of Physical Therapeutics with facilities for baths, muscle training, massage, etc. The first floor was equipped as an accident ward with two special rooms for patients entering the hospital in surgical shock. Four of the upper floors contained rooms for female patients while three were set aside for males. The Surgical Building replaced the two story Surgical Ward, W,X of 1895. b. Description

The Surgical Building is a large, eight-story, brick clad structure rising from a basement platform defined by iron rails to a flat roof. Like its contemporaries from the late 1920s, it incorporates elements of the Neo-Federal and Beaux Arts styles in an institutional composition, it is rectangular in plan with a central cross piece rising above the rest of the building. The corners of the main block and the cross piece are defined by brick quoins. The basement and first-story are faced with limestone and set off by a simple beltcourse. Projecting limestone cornices encircle the building above the third and seventh stories and swags and rondels are dispersed above the eighth story. Fenestration is symmetrical, and above the first story most windows are headed by splayed limestone lintels; some windows aligned at the second and eighth stories are set in round arched frames. The northeast elevation facing East Concord Street is defined by a quatrastyle screen of modified Corinthian pilasters, paired at the corners; the pilasters rise from the rusticated first story to the third story cornice. At the opposite end, decorative iron porches topped by slender urns stretch out from the crosspiece.

10. Yawkey Ambulatory Care Center (1972) [10]

<u>a. Significance</u>

In the first half of the 20th century, BCH was known as a leading medical facility not only in Massachusetts but in the country. However, by the mid-1960s, its position had significantly diminished. It was during this time that the City of Boston embarked on a broad program to modernize and improve the medical complex to reestablish "the Hospital's prominence as the center of high quality medical care."[5] Planning for BHC's future began in 1967 with the creation of a long-range development plan "aimed at achieving a hospital reflecting the most advanced 'state of the art' in health care facilities." [6]

A Preliminary Planning Analysis, prepared in June 1968 by Lester, Gorsline, and Associates, International, was commissioned by the Public Facilities Department (PFD), who were acting on behalf of the city. This report outlined 103 recommendations covering all aspects of the Hospital's operations. In November 1968, the Hugh Stubbins/ Rex Allen Partnership was formed in order to fine-tune these recommendations, and in 1969 they develop a master plan that would not only usher BHC into a modern era but also address the desires of the community which would shift BHC from a research-based facility to a more family-centered community hospital.[7] An essential component of this plan was to replace the "dingy outpatient facilities where patients were herded like cattle through clinics" with a "modern ambulatory care center cast in

[5] Hugh Stubbins / Rex Allen Partnership. Boston City Hospital, Master Plan. 1969. 7
[6] Ibid.
[7] Cobb, Carl. Boston Globe (1960-1988). Mar 2, 1973. ProQuest Historical Newspapers: The Boston Globe. 3

concrete, steel, and glass."[8] In the 1960s and 1970s, Boston became a center for architects focusing on concrete modernism. This resulted in the city becoming a "laboratory of experimentation" for examining "[concrete's] structural and sculptural qualities in reshaping the public realm and symbolizing a progressive civic vision through monumentality and robust architectural expression."[9]

The collaboration of Hugh Stubbins and Rex Allen combined the talents of two premier designers. Hugh Stubbins was known for his large-scale structures that became recognizable landmarks such as Harvard University's Francis A. Countway Library of Medicine (1965), Boston's Federal Reserve Bank (1977), and Manhattan's Citicorp Center (1977). Rex Allen was an acclaimed architect specializing in hospital and healthcare facilities during the mid to late 20th century– his work aimed to create a more patient-friendly environment. He designed more than 100 health care facilities, and authored "The Hospital Planning Handbook," a comprehensive guide to hospital designs, which has become an influential text for health care architects."[10] Not only did the Hugh Stubbins / Rex Allen Partnership develop the 1969 Master Plan for the hospital, but this partnership also designed the new outpatient building.

When completed in 1973, the building, known as BCH's Ambulatory Care Center, became a symbol of a modern hospital facility catering to a changing focus from inpatient to outpatient care in the city.[11] The new center provided a "400 percent increase in space devoted to the care of clinic patients", along with contemporary programmatic features such as modern treatment rooms, a daycare center with an outdoor play area for children, and commercial space for a beauty parlor, bank, and other consumer-focus facilities.[12] At the October 27, 1971 groundbreaking ceremony, David Nelson, the chairman of BHC's board of trustees declared, "Today we breaking ground for the most modern facility of its kind in the city. We are determined that when it opens Boston City Hospital will have the finest program of ambulatory care in the city to go with it… [and that building the new outpatient center should be seen as a] renaissance that will return Boston City Hospital to a place of greatness."[13]

The new ambulatory care center incorporated features meant to cater to the comforts of patients and staff such as air conditioning and a communications system that interconnected all of the departments. There was also a spacious, wood-trimmed reception area on the ground floor connected to the emergency ward that served walk-in patients, directed patients to their primary care physician-nurse team, and dispensed prescriptions. Contemporary signage, such as special color-coded wall graphics, helped to guide patients to their destinations.[14]

The creation of the ambulatory center was a critical step in the evolution of BCH and by extension BMC. Not only did design of the building involve two influential 20th century architects, Rex Allen and Hugh Stubbins, but this building also represents a hospital in an era of change -

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[8] McLaughlin, Loretta. Boston Globe (1960-1988). Jun 13, 1976. ProQuest Historical Newspapers: The Boston Globe. 2
[9] Pasnik, Mark, et al. Heroic: Concrete Architecture and the New Boston. Monacelli Press, 2015. 15.
[10] Rubenstein, Steve. "Service Set for Architect Rex Whitaker Allen." SFGate, San Francisco Chronicle, 17 May 2008, www.sfgate.com/bayarea/article/Service-set-for-architect-Rex-Whitaker-Allen-3283991.php.
[11] McLaughlin. 2.
[12] Cobb, Carl. BCH breaks ground for a $22 million out-patient building. Boston Globe; Oct 28, 1971; ProQuest Historical Newspapers: The Boston Globe pg. 46
[13] Ibid.
[14] McLaughlin. 2.

change in a health care focus from inpatient to outpatient care; incorporating new and changing design philosophies of patient and consumer comfort in design; and using modern materials, concrete and glass, to express a changing progressive vision of the hospital, the city, and patients.

b. Description

The Yawkey Ambulatory Care Center [YACC] is a five-story modernist concrete building spanning 20 feet above Massachusetts Ave, between Harrison Avenue and Albany Street. The building partially sits on the site of former Vose House, which was demolished between 1969 and 1971. Primarily horizontal in form, the YACC acts as a bridge, connecting the Main Block of the campus with the South Block. Similar to other modernist structures, the overall form of the building is comprised of simple geometric shapes— two rectangular prisms stacked on top of each other. The building is clad with precast concrete panels, with horizontal bands of glass to ease the heavy appearance of the concrete. These ribbon windows stretch the full length of the east and west elevations and are located on all five levels of the building. Level Five steps back from the plane of Levels Two through Four and houses the mechanical systems. The top portion of this level does not contain any windows. Despite the lack of fenestrations in this area, the spirit of the using simple geometric forms continues here with four large circular vents. These vents help to break apart the wall of solid concrete panels. The void at the base of the building allows for vehicles to past underneath the structure on Massachusetts Avenue. In this area, the structure above is supported by nine piers, clad in the same concrete panels as the rest of the building. In 2015 and 2018, the original 1972 windows were replaced on Level Five, and partially on Level Four. 13 original windows still exist near the northwest corner of Level Four. In 2016, a co-generation system and air handler were installed on the roof of the building, and metal horizontal slat screens were installed to block views of the mechanical system from the ground.

11. Power Plant (1972) [11]

a. Significance

Like the Yawkey Ambulatory Care Center, the Power Station was part of a critical step in the evolution of BMC. The Power Station (also known as the BCH Mechanical Plant) was initially developed as part of the Hugh Stubbins/ Rex Allen Partnership's 1969 Boston City Hospital master plan to replace the original dilapidated power plant for the hospital. The master plan report states that "the existing physical plant which has been developed over the last 100 years is in obsolete and deteriorating condition, with the exception of the Mallory Building and its Annex. The existing power plant and the utility distribution system are inadequate and fragmented and cannot support any new facilities".[15] To create the new modern hospital complex, desired by the hospital board, the city, and the surrounding community, BCH had to construct a new power plant to operate new facilities such as the ambulatory care center. The new service building was constructed in the same location as the original power plant/boiler facility in the East Block of the medical campus (bounded by Albany Street to the west, Massachusetts Avenue to the south, East Concord Street to the north and the Inner Belt Expressway to the east). According to the master plan, the construction of specific "portions of the new plant [had to] be

[15] Hugh Stubbins / Rex Allen Partnership. Boston City Hospital, Master Plan. 1969. 11.

built early to provide a cooling system for the Outpatient Building"[16] The mechanical plant was to be "equipped with the mechanical, electrical, and telephone equipment for the existing facilities and [the new outpatient building]."[17]

The Power Station was designed by Hugh Stubbins/Rex Allen Partnership and utilized modern materials such as glass, concrete, and pre-formed metal panel siding. The building was listed as a finalist for the Harleston Parker Medal in 1983;[18] an annual award given by the Boston Society of Architects that recognizes "the most beautiful piece of architecture, building, monument or structure within the City or Metropolitan Parks District limits."[19] Keeping with the tradition of being a key component in the service of the hospital, a rooftop farm was installed on the roof of Level Two in 2017.

Accessible from Level Three, the Rooftop Farm (which also contains two beehives) supports not only BMC's cafeterias and inpatient population, but also the Food Pantry and The Teaching Kitchen; and reduces BMC's carbon footprint by increasing green space, adding carbon-breathing plants, and reducing the building's energy use. The Power Station's Rooftop Farm was the first hospital-based rooftop farm in Massachusetts and is part of BMC's efforts to become the first carbon-neutral hospital in the state. The eco-friendly efforts at the Power Station, in conjunction with the hospital's overall sustainability plan, resulted in BMC being awarded as one of the 50 greenest hospitals in America by Becker's Hospital Review. In 2017 BMC was also the recipient of three prestigious awards from Practice Greenhealth: The Top 25 Environmental Excellence Award (the highest honor Practice Greenhealth bestows on hospitals), the Greening the OR Recognition Award, and the Circle of Excellence Award (in the energy category). [20]

b. Description

The BMC Power Station is a six-story glass and vertical metal panel modernist building. The 1972 building is located on Albany Street between East Concord Street and Massachusetts Avenue. The building sits on the site of the former BCH Power Plant/Boiler facility. The form of the building is comprised of simple geometric volumes such as rectangular and triangular prisms. Like other modernist structures, the exterior of the Power Station contains little ornamentation, but uses modern building materials and details such as glass curtain walls, ribbon windows, aluminum metal cladding, steel trusses, and a simple color palette to provide the embellishment.

The receiving dock is located on the first floor of the northeast elevation, which faces Albany Street. This area was renovated in 2017 when the stair tower and elevated pedestrian walkway were constructed to provide a connection above Albany Street from the Power Station to the Shapiro Center. The stair tower, which is attached to the building, is also clad with vertical metal panels. These sheets are slightly wider than the 1970s panels but have the same finish. Above the receiving dock (Level Two), is a ribbon window that wraps around the north and west corners of

[16] Ibid. 15.
[17] Ibid. 166.
[18] Campbell, Robert. Architecture Robert Campbell; Hancock Tower Wins Harleston Parker Medal Boston Globe. Boston, Mass. [Boston, Mass]06 Dec 1983: 1.
[19] "Harleston Parker Medal." Boston Society of Architects, 24 Oct. 2019, www.architects.org/2019-design-awards/harleston-parker-medal.
[20] "Boston Medical Center Grows First Hospital-Based Rooftop Farm in Massachusetts." Boston Medical Center, 13 July 2017, www.bmc.org/news/press-releases/2017/07/13/boston-medical-center-grows-first-hospital-based-rooftop-farm.

the building and continues into the side elevations. Level Three and Four contain the triangular prism-shaped glass curtain wall. A second glass curtain wall is located on the southeast elevation of the building, stretching from Level Two through Four. Above the curtain walls on both elevations are large orange louver exhaust vents (four on each elevation). The Rooftop Farm located on Level Three, facing Albany Street, contains 7,000 square feet of growing space and green features to reduce the hospital's carbon footprint. As of 2019, the Power Station still housed chillers and electrical generators for the hospital.

3.3 Massachusetts Memorial Hospitals

The Massachusetts Memorial Hospitals was originally founded as the Massachusetts Homeopathic Hospital in 1855. The name was changed to Massachusetts Memorial Hospitals in 1929 in recognition of the fact the hospital was formed by a group of memorial buildings. The group of buildings included the Talbot Building, Vose Hall, Robinson Memorial, Evans Memorial and Collamore Memorial. Boston University eventually took over the Memorial Hospitals. In 1962, the Massachusetts Memorial Hospitals and Boston University School of Medicine, Boston University School of Public Health and the University's Goldman School of Graduate Dentistry were combined as the Boston University Medical Center Hospital. The Boston University Medical Center Hospital was a private non-profit hospital independent of Boston University. In 1965 the name of Massachusetts Memorial Hospitals was changed to University Hospital to reflect the important commitment of the Hospital to medical education and research, as well as to patient care.

The former Memorial Buildings currently owned by BMC include: Vose Hall, Old Evans Memorial, Collamore Memorial and Preston Family Building.

5. Anna White Vose Hall (1898) [5]

<u>a. Significance</u>

In 1896 as a result of a bequest from Mrs. White Vose, it was possible for the Trustees to begin building a permanent Nurses Home which would bear her name. Land was granted for this purpose by the City of Boston, on the easterly side of Stoughton Street adjoining the Medical Dispensary. Construction began in 1897, and the building was finished in 1898 at a cost of $100,000. Vose Hall was designed to accommodate 100 nurses.

In the years leading up to building a permanent Nurses Home, the nurses' Training School had continued to grow and expand. There was a feeling on the part of the Trustees that the hospital needed a permanent, well-equipped Home for Nurses. Once Vose Hall was built, the Training School was extended to three years. Applicants increased year by year, and the curriculum was extended.

In 1900, Miss Fanny Farmer of the Boston Cooking School helped to develop a formal dietary service for the Hospital, as well as a course in dietetics and cookery for nurses in the Training School.

b. Description

Vose Hall is set toward the interior of the block bounded by East Concord, Albany and East Newton streets and Harrison Avenue. The building is shaped like an L with a serif at the end with a one-bay return. It sits south of the Robinson Bldg. and west of the Old Evans Building. The one-story Betatron, constructed in 1968, is attached to the east elevation and the top of the L attaches to the (new) Evans Building. Built of red brick with stone detail, the building rises four stories to deep overhanging eaves supported on scroll brackets. The westernmost section of the building is the most elaborate. The remaining long shaft of the L retains some of the features of the west section, but is detailed as a secondary elevation. The windows are set in punched openings that change at each story. Stone detail includes a simple projecting beltcourse above the first story, a frieze (with the building name carved in the stone) and a molded cornice above the 3rd story, window sills and pilaster capitals. The cornice continues on the south elevation with a simpler plain brick frieze and single stone cap. The shaft of the L has stepped rows of projecting brick, but no molded stone cornice. The first story beltcourse continues on the rest of the building.

Two-story brick pilasters delineate the bays at the second and third stories. The pilasters are set in from the building corners creating a notched detail contributing to the vertical emphasis. Narrow paneled pilasters separate the bays at the fourth story. The basement windows have brick segmental arches, windows at the second story are framed by round brick arches with keystones, the second story has segmental arches, the third and fourth stories have flat arches. The window height diminishes as you rise up the building. Typical windows have 6/6 double-hung sashes, except the first story which has tracery at the top of the round arched sashes.

Cast iron balconies at the first story windows match the railing on the open brick porch along the south elevation, where the main entrance is located within a segmental arch. A bowed cast iron fire balcony projects at the third story, south elevation.

6. Collamore Memorial (1936) [6]

a. Significance

In 1915, the Trustees learned of the death of Helen Collamore, a valued colleague who had been a Trustee for thirty-eight years. She had a profound knowledge of the affairs of the hospital. Helen Collamore's will left funds in memory of her family for the construction of a building for the Hospital. The building was to bear her name as well as free beds at the Collamore Ward. She also made the Hospital one of her residuary legatees. The building was not built for many years, but in 1936 the Hospital was in need of space. Built to relieve this shortage, the Collamore Building when it opened contained wards, private rooms, operating rooms, an X-Ray Laboratory and various other laboratories. Its wards and outpatient services were used in connection with the clinical instruction of the students of the Boston University School of Medicine.

b. Description

Located at the South West corner of the intersection of Harrison Avenue and East Newton Street, Collamore is a red brick, 7- story building, L-shaped in plan and ornamented with cast stone belt courses delineating the zones of classical architecture: base, shaft and capital. The Robinson

Building is attached to the west end of the north wing and the Old Evans Building connects to the south end of the east wing. Collamore sits on a high basement with a granite sill; windows are framed by flat, splayed brick arches and concrete sills; and the walls rise to a flat roof with a brick parapet. The belt courses include a heavy watertable above the basement story, a molded sill course at the second story windows, a shallow lintelcourse above the fifth story and a molded cornice above the sixth story. The first story windows have contrasting cast stone keystones. On the Harrison Avenue (north) elevation, shallow pilasters articulate the asymmetrical 8-bay façade. The third bay, over the round-arched main entrance, is double width. Framed by a cast stone paneled surround with a bold scroll keystone, the main entrance doors have been replaced with a flush metal double door and panel system. The original wooden, multi-light fanlight remains in place above the doors. The windows typically have been replaced with a variety of double-hung, hopper, or fixed windows and louvers. Some openings have been entirely filled and many openings have been widened. An original first story window remains intact with its 12/12 double hung sash and 8-light transom. The corner bays and the first story windows are filled with brick on both the north and east elevations.

The six-bay East Newton Street (east) elevation is also asymmetrical and has two copper oriels at the 3rd story. The beltcourses continue around to this elevation, but there are no pilasters. Window openings are typically single or double width. Extremely narrow openings alternate with single windows at the first story and are stacked above one oriel at the 4th and 5th stories. The second- and 3rd-story openings are blocked down with blank metal panels. Window openings at stories 4 – 6 have been partially infilled with brick and replacement windows installed. Collamore turns the corner well, connecting the more ornate Robinson building to the west with the simpler Old Evans Building connected to the south end of the east wing.

7. Old Evans (1942) [7]

a. Significance

The first Evans Memorial building dates from 1912. In 1910, Mrs. Maria Antoinette Evans gave the Hospital funds for a building in memory of her husband, to be called the Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine. The building was constructed on East Concord Street on land transferred to the Hospital by Boston University. However, the distinction was in name only, since the Evans Memorial was connected to the Boston University School of Medicine from the beginning by a narrow connector.

Under the direction of Chester Keefer, M.D., the Evans Memorial Department of Clinical Research expanded, and a second Evans building was opened in 1942. The Old Evans Building (1942) was built with funds from the will of Maria Antoinette Evans. The bequest was given in memory of her husband Robert Dawson Evans for clinical research, preventative medicine, and for the study and treatment of neuroses. Evans Memorial was among the earliest of such centers. It set three goals: public education, clinical research, and research training. In 1942, most of the members of the permanent staff were also on the Faculty of the BU School of Medicine. It is currently called the Old Evans Building to distinguish it from the "New Evans Building," an 11-story Doctors' Office Building, which opened in 1971.

Robert Dawson Evans was a manufacturer and financier, born in St. John, New Brunswick in 1843. His family moved to Boston soon after his birth. Evans served in the Civil War with the 13th Massachusetts volunteers and rose to the level of Captain. Robert Dawson Evans saw the potential in the manufacture of rubber. From 1870 to 1898, he was identified with the development of various rubber companies in Massachusetts. In 1892 he became the President of the United States Rubber Company, at that time the largest industrial corporation in America. He invested in copper and for several years served as President of the United States Mining Company. He later organized and became President and principal owner of a gold-dredging enterprise in California. Robert Dawson Evans died in 1909 after being thrown from a horse.

Evans was a connoisseur of fine art and his painting collection is displayed in the famed Robert Dawson Wing of the Boston Museum of Fine Arts. Only two years after the completion of the first phase of architect Guy Lowell's colonnaded design, Mrs. Robert Dawson Evans donated funds to cover the entire cost of building the next section of the Museum's master plan, a wing along the Fenway to house painting galleries. Through Mrs. Evan's gift of more than $1 million, the new wing enlarged the Museum by 40% providing extensive gallery spaces and an auditorium. The Evans Wing opened in 1915.

Over time, Mrs. Dawson Evans added large sums of money to the endowment of the Hospital, and during her lifetime took great interest in its activities. The donor was determined to found an institution where the investigation of the cause, prevention and treatment of disease might be carried out. Her endowments enabled Evans to attract the most qualified and able scientists and practitioners. Dr. Frank C. Richardson, a personal friend and physician to the Evans family, was appointed the first Medical Director of Evans Memorial by the Trustees. Dr. Allen Winter Rowe succeeded Dr. Richardson as Evans' Director. Dr. Rowe, a renowned scientist, published forty-seven papers, and under his leadership the Evans flourished and expanded. The Evans endowment proved to be one of the most enduring for the hospital and the School of Medicine.

b. Description

The Old Evans Building is red brick, eight stories tall, rectangular in plan and sits at the sidewalk along East Newton Street. It is connected to Collamore at the west end of the north wing and to the (new) Evans Building to the south. The one-story Beta-tron is attached to the west elevation between Old Evans and Vose Hall. Designed with minimal ornament, it reflects its 1940 construction date, 5 years after Collamore. The red brick walls sit on a granite foundation and rise to a simple frieze and cast stone coping at the parapet. Thirteen bays in length, the East Newton Street façade is symmetrical with a 3-bay central pavilion. The central main entrance, in the Art Moderne style, consists of a two-story granite frontispiece with a double door set deep in an opening with splayed sides and top. Paired pilasters with stylized capitals frame the openings of the three bay granite entry. Windows are located at the second story of the entrance and flank the main door. The floor of the entry consists of colorful pink, gray and green terrazzo set in a geometric pattern with the street number (65) at the center.

The first story is rusticated with exaggerated rowlock detail above each flat-arched opening. A granite sillcourse runs across the façade at the 2nd story windows; otherwise, window openings typically have flat brick arches and concrete sills. The brick walls are unrelieved from the second story to the 7th story, above which there is a denticulated brick beltcourse. Corbelling topped by molded brick courses terminate the façade. Some of the flat-arched window openings have been partially or entirely filled with HVAC louvers or partially blocked down with panels. Most of the windows have been replaced with double-hung or hopper sashes. Some existing steel windows appear to be original. The windows have a central 3-light section with vertical muntins and a single horizontal top and bottom light.

8. Preston Family Building (1967) [8]

<u>a. Significance</u>

The Preston Family Building was named for Jerome Preston Sr., an investment banker and the founding chairman of Boston University Medical Center Hospital. It was also named for his son Jerome Preston Jr., an attorney at the Boston firm of Foley, Hoag & Eliot, who served on the hospital's board after it had been renamed The University Hospital. Known for his community service and philanthropy, Preston Jr., was instrumental in establishing Foley, Hoag's pro bono services for the poor. Previously called Building F, the Preston Family Building was renamed in 1983 to honor the Preston's contribution to the hospital, which also included contributions to the hospital from the Iva and Jerome Preston Trust. Having previously served as an intermediate care facility, Preston was used in 1991 for inpatient, outpatient, diagnostics and administration departments. Currently it houses the Center for Endocrinology, Diabetes, Nutrition and Weight Management and Cardiovascular Center Outpatient Clinic among others.

The 1991 Master Plan for Boston University Medical Center attributed the building to architect Louis G. Ost Jr. Ost was listed as an architect in Memphis, TN in 1956 and 1960. He graduated in 1950 from Southwestern College, also in Memphis (the name was changed in 1984 to Rhodes College). It is unknown what architecture school Ost attended. It is assumed that this is the same architect referred to in the 1991 master plan. Louis G. Ost Jr. died in December 1971.

3.4 Former Non-Hospital Building Currently Owned by Boston Medical Center

9. Smith American Organ Company (R 1865) [9]

<u>a. Significance</u>

The Smith American Organ Company building appears on the 1874 atlas and by 1887, the Sanborn map identifies the occupant as Smith Organ & Piano Cos. Case Factory. Functions inside the building included sawing & planing at the 1st floor, bench work at floors 2 – 5, and filling at the 6th (it is not clear what filling meant). In 1897, although the Organ Company continued to operate next door, #615 was a Laboratory for Drs. F.E. & J.A. Greene, no doubt a spin-off from the hospitals. Subsequently, Dr. Earl S. Sloan Inc., producing *Sloan's Liniment,* is the primary tenant in 1908, 1912 and 1917. In 1922, the tenant is listed as Marks Bros. Co. Toy Manufacturers, with Louise F. Pfeiffer shown as the owner. She remains the owner through 1928 and 1938, but the Toy Manufactory does not appear in those years, and no other tenant is identified. The building now has a painted sign on the east elevation for the Naval Blood Research Laboratory, and is presently vacant.

b. Description

The Smith Organ Building is a four story red brick building set on a raised basement and surmounted by a flat-sided mansard roof. Located at the corner of the intersection of Albany and East Brookline streets, it is rectangular in plan, 6 bays wide by 8 bays long. A utilitarian structure, its restrained ornament includes segmental brick window arches, stone sills and a narrow brick dentil course at the eaves. Square plates for tied rods are visible between the windows at each story on the Albany Street elevation. The main entrance is deeply recessed under a segmental brick-arched opening and is approached by stairs within the opening. The mansard roof is sheathed in asphalt shingle and the dormers are recessed into the roof plane. Windows and doors have been replaced. Windows are 1/1.

3.5 National Register and Boston Landmark Evaluations

Of the eleven historic properties identified in the enclosed survey, six were constructed by Boston City Hospital, four functioned as part of the Memorial Hospitals and one served as the home of the Smith American Organ Co. as early as 1874.

Boston City Hospital

Buildings BCD and FGH were rehabilitated in from 2006 - 2008 in accordance with the *Secretary of the Interior's Standards for Rehabilitation*. They face each other across an open lawn and pedestrian walks between the buildings which were reconstructed based on prints of the original 1864 three-building composition. A metal picket fence has been installed at the sidewalk along Harrison Avenue to suggest an original iron fence at this location. As the remaining examples of Gridley Bryant's innovative pavilion plan, the two buildings were determined eligible for listing in the National Register prior to the rehabilitation and remain eligible in their current appropriate setting.

The 1988 architectural survey of Boston City Hospital observed that the 19th century was the major period of significance and that,

> Extant 20th century buildings at Boston City Hospital do not contribute to its historical/architectural significance. If fact, many have played a detrimental role by adversely impacting the 19th-century structures (B, C, D and F, G, H and Sears) through inappropriate scale and massing.[21]

Other remaining historic buildings on the original site of Boston City Hospital are the Outpatient Building (aka Conte Research Building; 1904 & ca. 1923), the Surgical Building (1928) and the Dowling Tower (1937). The Conte Building (not owned by BMC) is located at the corner of East Concord Street and Harrison Avenue adjacent to Building BCD. It is assumed that the L-shaped plan of Conte was influenced by the need to leave BCD operational. Since it was not part of Bryant's original plan, and due to its much later date, this building may not be eligible for National Register Listing with BCD and FGH.

[21] Central Artery/Third Harbor Tunnel DEIR, 1988. p. 6-31

The Surgical and Dowling Towers are physically and visually separated from the other Boston City Hospital Buildings and in isolation have lost the context in which they were constructed. Changes to the Dowling Tower have also impaired its architectural integrity. It is unlikely either building is eligible for individual National Register Listing.

The Yawkey Ambulatory Care Center and the Power Plant were constructed in 1972 as an outcome of the 1969 Master Plan prepared by Hugh Stubbins/Rex Allen Partnership. While not deemed to be significant in the 1988 architectural survey, they will surpass the 50-year period within the IMP timeframe and will be evaluated as part of the IMP and Preservation Plan update to determine their significance.

Structures and Landscape

The landscape bounded by the sidewalk at Harrison Avenue, BCD Building, the driveway in front of the Menino Pavilion and the Moakley Building, and the FGH Building has been reconstructed to suggest its historic appearance. While it is not an exact reproduction, the existing landscape was designed to recreate an appropriate historic setting along Harrison Avenue around BCD and FGH and it should be maintained.

The red brick wall on the south side of East Concord Street east of the Conte Research Building is a reconstruction of an earlier wall that had been located here. The existing wall, piers and gates should be retained. The wall was reconstructed at the time of the rehabilitation of Building BCD to replicate a remnant of an earlier brick wall which lined the south side of East Concord Street. It also screens views of the adjacent parking lot.

The Memorial Buildings

The group of Memorial Buildings constructed between 1898 and 1947 are connected in an irregular plan, which forms a central courtyard. Each building was built and named to honor one person and to contribute to the work of the Massachusetts Homeopathic Hospital, the Massachusetts Memorial Hospitals and later to the Boston University Medical Center Hospital. The Preston Family Building (1967), located across East Newton Street from the earlier group, was acquired by University Hospital and continued that tradition of private contributions to support the hospital's growth, encourage research and teaching, improve patient care and enable the hospital to bring innovation to healthcare.

The Massachusetts Memorial Hospitals were constructed for a variety of hospital departments and have functioned as part of the surrounding medical institutions since they were built.[22] Representing a variety of hospital functions and designed over a period of 70 years, the buildings are each an example of the areas that Boston University Medical Center Hospital and its predecessors needed to expand its facilities. They are a core of buildings significant to the functioning of the hospital and together are eligible for listing in the National Register of Historic Places under criterion C at the local level.

[22] One exception is the Preston Family Building, which was reportedly built in 1967 as a hotel and was acquired prior to 1983 by University Hospital.

Smith Organ Company / Naval Blood Research Building

The Smith Organ Building, at the intersection of Albany and E. Brookline Streets, abuts the edge of the South End Landmark District. A finger of the South End district projects into the South End Harrison/Albany Protection Area along E. Brookline Street due to long blocks of row houses typical of the South End district on both sides of E. Brookline Street. The Smith Organ Building is potentially eligible for inclusion in the South End District due to its construction date (1865) and because it has a straight-sided mansard roof. It is not individually eligible for National Register Listing due to physical alterations and it is not close to Boston Medical Center or the Memorial Buildings.

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4.0 REGULATORY REVIEWS AND STATUS

4.1 Reviews Previously Completed

For projects approved under the 2010 IMP as amended in 2013 and approved by the BPDA, BMC has obtained the following approvals:

- June 2010 Institutional Master Plan approved by BPDA and Boston Zoning Commission for New Inpatient Building, New Energy Facility, and New Administration/Clinical Building.
- June 2010 Large Project Review Approval by the BPDA for the New Energy Facility.
- May 2010 Notice of Project Change Approval by Massachusetts Environmental Protection Agency for New Energy Facility.
- December 2013 Institutional Master Plan Amendment approved by BPDA and Boston Zoning Commission for New Inpatient Building Phase 1, Patient Transport Bridge, Moakley Cancer Care Addition, and modifications to the New Energy Facility.
- December 2013 Large Project Review Approval by BPDA for New Inpatient Building Phase 1, Patient Transport Bridge, and Moakley Cancer Care Addition.
- April 2014 Determination of Need approved by Massachusetts Department of Public Health for the new construction and renovations associated with the approved IMP projects.
- December 2014 SELDC Certificate of Design Approval for demolition of 3 Story Dowling Connector Building and new four story addition to the Menino Building including a pedestrian bridge across Albany Street.
- March 2015 Notice of Project Change Approval by Massachusetts Environmental Protection Agency for New Inpatient Building Phase 1, Patient Transport Bridge, and Moakley Cancer Care Addition.
- March 2015 Massachusetts Historical Commission Approval for New Inpatient Building Phase 1, Patient Transport Bridge, and Moakley Cancer Care Addition.

BMC is now submitting a new 2020 IMP lay out a new 10-year plan. As part of the new 2020 IMP, there will be new reviews and approvals as projects move forward.

4.2 Review Agencies and Summary of Historical Reviews

Federal and state laws protecting historic and archeological resources are typically triggered when a proposed project is to be undertaken, funded, licensed or permitted by a state or federal agency. Depending upon whether it is a state or federal agency and the nature of the impact, the extent of the regulatory process will vary. In order to comply with the regulations, the project proponent is directed to begin the review process early in the planning phase of the project. This will help to avoid delays and unexpected costs once the project has begun. Some of the laws that are most likely to apply to projects undertaken at Boston Medical Center are discussed in this section. See Table 4.1.

Federal Laws

Federal projects and private projects funded, licensed, permitted or assisted by a federal agency are subject to the provisions of federal laws and regulations that have been promulgated to preserve and protect historic and archeological resources that are listed or are eligible for listing in the National Register of Historic Places.

Section 106

Section 106 of the National Historic Preservation Act of 1966, as amended and regulations implementing Section 106 (36 CFR 800) require federal agencies to identify properties located within the area of the project's potential environmental impact that are included in or eligible for inclusion in the National Register. The federal agency is directed to take into account the effect of the project on National Register listed or eligible properties. and As part of the Section 106 process, the federal agency must consult with the State Historic Preservation Officer (in MA, it is the Executive Director of the Massachusetts Historical Commission) to identify properties eligible for or listed in the National Register that are likely to be affected by the project and to evaluate the nature of the effects on such properties. In consultation with the federal agency involved, the SHPO will assist in considering alternative to avoid or mitigate adverse effects of the project on cultural resources.

In addition to the consultation with the SHPO, Sec. 106 calls for participation in the Sec. 106 review process by local governments, interested parties and the public. Such parties should be provided an opportunity to offer their views on impacts to cultural resources that could potential result from the project. The South End Landmarks District Commission, representing the certified local government, shall be consulted by the federal agency during Sec. 106 review. The federal agency also must allow the Advisory Council on Historic Preservation an opportunity to comment and participate in cases where the State Historic Preservation Office (SHPO) and the federal agency do not concur.

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) mandates that federal agencies use all practicable means and measures to preserve historic, cultural and natural aspects of our national heritage. Impacts to historic resources are specifically mentioned as part of that review. As part of the required consultation, federal, state and local agencies may be asked to comment. A Draft and Final Environmental Impact Report may be required for compliance with NEPA.

State Laws

Chapter 254

Compliance with laws and regulations protecting historic and archeological properties listed in the State Register of Historic Places is required for projects undertaken, funded, licensed, permitted or approved by a state body (M.G.L. c. 9 ss. 26 – 27C as amended by ST 1988, c. 254). The Massachusetts Historical Commission (MHC) must be given an opportunity to review and comment on proposed projects to be undertaken, funded, licensed or permitted by state agencies. MHC will determine whether or not the project will affect the State Register listed properties and will consult with the project proponent and the state body to discuss measures to avoid or mitigate adverse impacts.

A permit must be obtained from the State Archeologist before conducting any field investigation of sensitive archeological sites.

Massachusetts Environmental Policy Act (MEPA)

The Massachusetts Environmental Policy Act (MEPA) (M.G.L. c. 30 ss. 61 – 62H) and its regulations (301 CMR 11.00, apply to projects where a state agency is the project proponent or where a state agency provides financing or permits to the project. MEPA requires review of such projects to identify impacts and determine all feasible alternatives to minimize damage to the environment. The review of environmental impacts under MEPA must include a discussion of impacts and mitigation measures for significant historic and archeological properties. It also requires that all feasible means and measures be used to avoid or minimize damage to the environment. The completion of an EIR may be required by MEPA. The MEPA process, administered by the Executive Office of Environmental Affairs, also provides for review and comment by the MHC regarding impacts to significant cultural resources.

Local Preservation Laws

Boston Landmarks Commission/South End Landmark District Commission

Boston is a Certified Local Government as defined in Sec 101 (d) (1) of the National Historic Preservation Act of 1966, as amended. As part of its role, the Boston Landmarks Commission (BLC) recommends properties for nomination to the National Register of Historic Places and reviews and comments on all NR nominations for properties in the City of Boston. As a CLG, BLC also participates as an interested party during Sec 106 and Chap 254 reviews.

The South End Landmark District Commission is responsible for design review for all properties in the South End Harrison/Albany Protection Area and also in the adjacent South End Landmark District. In compliance with the design review criteria included in appendix 8.4, private and public projects must be submitted for review to the SELD Commission.

Table 4.1 Boston Medical Center Potential Regulatory Reviews - Future

HISTORIC PRESERVATION - RELATED REVIEWS AND AGENCIES

	Trigger	Review Agencies	First Submissions	Review Period
Local				
Article 85: Review by BLC*	Demolition of some or all of a building that is more than 50 years old. All properties in the South End Harrison/Albany Protection Area are reviewed by the South End Landmark District Commission	SELDC or BLC	Article 85 Application	If determined by BLC Staff to be significant, hearing before the Commission; file application at least 2 weeks prior to next BLC hearing
State				
M.G.L., Chap 9, Section 26 – 27C (aka Chap. 254)	Use of state funds or permits or involvement by a state agency (such as tenant)	MHC; (consultation with BLC required, also consultation with state agency involved and interested parties)	Project Notification Form (PNF)	30 days upon first complete submission
MEPA	Demolition of Property listed in the State Register of Historic Places or in the MHC Inventory of the Historic and Archeological Assets of the Commonwealth	MHC; MEPA; BLC if building is more than 50 years old	PNF or ENF (consultation with MHC required)	PNF - 30 days for first submission; ENF - 45 days for first submission
Federal				
Section 106	Use of federal funds or permits, or involvement by a federal agency	federal agency involved; MHC; interested parties; Advisory Council on Historic Preservation	PNF Case Study if required	PNF - 30 days for first submission
NEPA	Major federal action	MHC - Coordinate with MEPA; NEPA	PNF; ENF; EIR	

BLC Boston Landmarks Commission
MHC Massachusetts Historical Commission
NEPA National Environmental Protection Agency
PNF Project Notification Form
EIR Environmental Impact Report
SELDC South End Landmark District Commission
MEPA Massachusetts Environmental Protection Agency
ENF Environmental Notification Form

*Project design and planning reviews with the BPDA (then the BRA) are required for certain projects under Article 80 of the Boston Zoning Code. Article 80 also requires preparation and review of Institutional Master Plans (IMP) for hospitals and other institutions with more than 150,000 gross sq. ft. of property. BMC is subject to the Article 80 IMP review and is up to date with IMP review in compliance with Article 80.
http://www.bostonredevelopmentauthority.org/projects/development-review/what-is-article-80

5.0 PRESERVATION PLANNING

5.1 Current Plans and Proposed Undertakings

Boston Medical has completed the following projects that were approved as part of the 2010 IMP as amended in 2013 and approved by the BPDA, and as approved by other regulatory agencies outlined above in Section 4.1:

- Moakley Cancer Center Addition
- New Inpatient Building Phase I
- New Patient Transport Bridge
- Yawkey Phase I Renovations
- Yawkey 5th Floor Window and Frame Replacements
- Yawkey Roof CoGen and MEP Equipment Enclosure
- Yawkey 1st Floor Santander Bank Exterior Storefront
- Power Plant Loading Dock Enclosure

BMC is planning eight future projects as part of the new 2020 IMP, two of which were approved as part of the 2010 IMP and 2013 IMP Amendment and may be completed within the 10-year term of the IMP. The timing of the projects is still to be confirmed. They include the following:

IMP Projects (2020-2030)		
Yawkey 6th Floor Addition	15,500 sf	Women's Health, OB Outpatient Clinic, Cardiology
Menino & Yawkey Lobby Addition	6,100 sf	Lobby, Patient Waiting, Coffee Shop, Gift Shop, Cafeteria
Menino 9th Floor Addition	37,000 sf	Inpatient Beds
Collamore/Old Evans Existing Administration Renovation	102,000 sf	Administration, Retail
10 Stoughton Street (replace Vose Hall)	138,000 sf	Administration, Retail
New Administration / Clinical Building (ramp parcel)	207,000 sf	Administration, Clinical, Retail
New Inpatient Building Phase II (replace Dowling) – approved in 2010 IMP and associated amendments	323,000 sf	Inpatient Beds, Imaging, Surgery, Administration, Support
New Administration / Clinical Building (Power Plant site) – approved in 2010 IMP and associated amendments	253,000 sf	Administration, clinical, loading/service, materials handling / support

BMC, as of right, has ongoing work to maintain and upgrade its buildings and campus to better serve the community. This include interior reconfigurations and renovations, small additions, ongoing campus and building maintenance activities which include replacing aging infrastructure, upgrading and replacing finishes in all facilities, replacing and repairing building facades and envelopes and ongoing general operational improvements, maintaining campus open spaces. Please refer to Section 2.2.3 of the BMC IMPNF.

5.2 Potential Challenges to Preservation

As New England's largest safety-net hospital and the largest and busiest provider of trauma and emergency services in the region, Boston Medical Center must continue to ensure that it can consistently provide accessible health services to all, including vulnerable populations. The facilities within which it operates are critical to achieving their mission.

Boston Medical Center owns buildings dating from 1864 to 2018 on its South End campus. Eleven buildings were identified in the enclosed survey (see Section 3) that were constructed prior to 1972. Of those, six were constructed by Boston City Hospital, four were part of the Memorial Hospitals and one served as the home of the Smith American Organ Co. as early as 1874. Later, the Smith Organ Co. building was acquired by the hospital.

BMC has rehabilitated the Surgical Building (2001) and Buildings BCD and FGH (2006 and 2008) for use as administration and office space. While office uses seem to be more likely adaptable to the older buildings, adaptive reuse can still be a challenge. For example, a full steel structure was inserted at great cost within Building BCD in order to add some floor area and to comply with seismic code.

Among the potential upcoming projects is the development of the site of the Dowling Tower. The project was included in the 2013 IMP Project Notification Form. A more detailed discussion and evaluation of the Dowling Tower is included in Section 7.0. Another potential upcoming project is the demolition of Vose Hall, including the attached Betatron building. A more detailed discussion and evaluation of Vose Hall is included in Section 8.0.

Functional Obsolescence

Because hospital-related building codes and specifications for medical, clinical, research and lab spaces have changed substantially in the past century and have very specific requirements, it is unlikely that the historic hospital buildings can serve those uses. Lack of flexibility in the structure, undersized structure, bay spacing and floor to floor heights make current hospital uses within the historic buildings infeasible. Older systems such as HVAC and elevators are obsolete, and code-compliant upgrades for hospital uses can't be accommodated within the historic buildings. The need for connections between buildings and departments in the core hospital area is another restriction that limits the use of the historic buildings for hospital purposes.

Programmatic Needs

Preservation goals must be combined with BMC's mission, its need to serve a growing population, and to adapt to changing technologies and methods of serving their patients. Detailed discussions of the evaluation of the Dowling Tower and Vose Hall for hospital uses is included in Sections 7.0 and 8.0 and address specific issues related to retrofitting these buildings for potential hospital uses. Buildings constructed between 1972 and 2018 in BMC's core hospital area have been planned and designed to provide cost effective, safe and efficient hospital facilities. The planning for continued improvement to departmental adjacencies and building organization has been part of the Institutional Master Plan process that has been approved by the BPDA (then the BRA). New healthcare trends to be addressed under the new 2010 IMP include increased population growth, decoupling semi-private inpatient beds and redesign care models to integrate the medical, behavioral and social needs of BMC's patient population make it increasing difficult to accommodate these demands in aging buildings.

The smaller historic buildings already are deficient for the purpose of hospital requirements. As BMC continues to relocate departments to the newer buildings south of East Concord Street, the buildings north of East Concord Street will have less utility for BMC. BMC has therefore planned to begin to vacate the Memorial Hospital Buildings during the term of the new 2020 IMP. In the meantime, BMC is committed to maintaining the historic buildings to avoid deterioration of building fabric and to avoiding where possible any exterior physical changes to the buildings or site that would negatively impact their architectural and historical integrity.

Maintenance of the historic buildings owned by BMC is discussed below in Section 5.3 No. 3 Preserve and Maintain Historic Resources.

5.3 Recommendations

1. A Balanced Approach to BMC's Mission, Historic Preservation Best Practices and Regulatory Reviews

Boston Medical Center (BMC) is submitting this updated preservation plan in compliance with its commitment to the South End Landmark District Commission (SELDC). BMC will continue consultations and filings with the SELDC and staff and will comply with all required filings in compliance with Boston's Article 80 and Article 85 of the zoning code, the state Chap. 254 and MEPA and federal Sec. 106 and NEPA laws and regulations.

As mentioned in the Introduction, BMC completed an extensive Institutional Master Planning (IMP) process from 2007 to 2010. An objective set forth in BMC's IMP was to create a balanced approach for BMC to meet ever-changing clinical care requirements through physical spaces necessary to support them while maintaining its commitment to historic preservation. The 2007 to 2010 IMP process initially included collaboration with a subcommittee of the SELDC to discuss current and planned uses of major buildings and historic resources on the medical campus. A portion of the historic buildings survey was included in the 2010 IMP. This preservation plan is being updated and incorporated into the new 2020 IMP.

2. Internal Preservation Advisory Committee and Director of Design and Construction

In order to better integrate preservation into the planning process for Boston Medical Center, BMC has established an internal advisory committee to deal with preservation-related issues on the campus. The committee meets regularly, as needed, and is comprised of the Director of Design and Construction, the Preservation Consultant, and the IMP Consultant.

This internal advisory committee functions as a subcommittee to the Design and Construction Department. The committee has an advisory capacity and does not have decision-making authority. They make recommendations to the Design and Construction Department on planning and design issues that impact historic resources and especially on the renovation of existing buildings over 45 years old and landscapes near the existing historic buildings. The committee ensures that historic building surveys are conducted to incorporate BMC-owned buildings into preservation planning as they become 50 years or older. Buildings that are not yet surveyed, are included in the historic building survey.

The Internal Preservation Advisory Committee are familiar with the design guidelines and the boundaries for the South End Harrison/Albany Protection Area. They should consult with the SELDC staff at the Boston Landmarks Commission to get assistance in understanding how the review process operates in the district. Members of the Internal Preservation Advisory Committee can be assigned to subcommittees. For example, one or two members of the committee can be involved in designer selection for work on historic buildings. Certain members can assist with the selection of mortar color, replacement slate, planting materials and similar details of the construction. In some instances, members of the maintenance and construction crew have been trained to consult the committee prior to beginning work on features that would come under the committee's review.

The historic campus buildings should be given a rating of 1 to 4 based on the significance of the structure, the integrity of the historic fabric and would reflect the scope of review for any proposed work on that structure. Buildings BCD and FGH would receive rating 1, indicating the greatest effort should be made to comply with the *Secretary of the Interior's Standards for Rehabilitation*. The interiors were entirely gutted; a mezzanine was added in BCD and a floor has been added in FGH, so no interior review will be needed. All buildings in the South End Harrison/Albany Protection Area should at least receive a rating of 4, which would indicate that any significant changes must comply with the "Standards and Criteria for the South End Harrison/Albany Protection Area" as determined by the SELDC

Changes to the Memorial Buildings also should follow the *Secretary of the Interior's Standards for Rehabilitation* when possible. The most common alteration that has already occurred to these buildings has been the replacement of windows and doors and the infill of masonry openings. Unsympathetic alterations should be reversed when new work is being considered.

3. Preserve and Maintain Historic Resources

Adaptive Use

The Internal Preservation Advisory Committee should be involved in future updates of the BMC Institutional Master Plan. Because the building codes and specifications for medical, clinical, research and lab spaces in the hospital have changed substantially in the past century and have very specific requirements, it seems unlikely that the historic hospital buildings can serve those uses. Ongoing planning should identify uses that can more easily operate within historic buildings and that don't need to be directly connected to the core hospital areas. Offices are often suitable for such spaces and where possible, they should be located in the historic buildings. Buildings BCD and FGH were successfully adapted to new office and conference room space and were very well received by the new occupants. Opportunities should be identified as early as possible where a compatible use can be found for each of the historic buildings.

Maintenance

The exterior of the historic buildings and the landscapes at Boston Medical Center are generally in fair to excellent condition and appear to be maintained on a regular schedule. One key to the preservation of historic building materials is to identify problems before they can cause deterioration. All of the historic buildings should be part of a regular inspection and maintenance schedule, which currently appears to be in place, that would investigate existing conditions and provide for maintenance as needed.

This section addresses issues that are typically considered part of regular maintenance on the exterior of the building. To assist with project planning BMC will consult the Standards and Criteria, South End Harrison/Albany Protection Area, revised July 2013. The staff person for the South End Harrison/Albany Protection Area at the Boston Landmarks Commission will also be consulted with as needed to provide direction in preparing for project review.

The *Secretary of the Interior's Standards for Rehabilitation* (Sec. 8.3) provides general guidance for rehabilitation of historic buildings and the *Illustrated Guidelines for Rehabilitating Historic Buildings* https://www.nps.gov/tps/standards/rehabilitation/rehab/entrance01.htm is an excellent resource that discusses work listed by feature and provides examples of work that does and work that does not meet the *Standards.*

Masonry

Significant features of the masonry should be conserved and repaired. For example, the buildings that date prior to 1966 have red brick walls with contrasting stone ornamental detail. In buildings such as BCD, FGH, Vose, Collamore and Old Evans, there are details including belt courses, rustication, pilasters, sign bands and round-arched and segmental-arched openings that are important elements of their style. The Surgical Building on East Concord Street has a bold window surround with a swan's neck pediment, urns, pilasters and rondels, all of which are carved stone and should be retained.

In several locations, original window and door openings have been filled with masonry. Window openings in Collamore have been infilled with brick that is not compatible with the original masonry. Collamore also has copper oriels on the East Newton Street elevation which should be retained and repaired.

The Yawkey Building, built in 1972, will reach the 50-year mark in 2022. It is constructed predominantly of concrete panels. These materials require a different set of repair materials and methods than 19th century traditional masonry materials.

Mortar

There are many good examples of repointing of historic buildings with colored mortar at BMC, however many of the buildings are built of stone and brick masonry and in some instances, the buildings should also be analyzed separately from the original building to ensure that the repointing mortar is compatible. Important details of the pointing, should be replicated.

Masonry Cleaning

Abrasive cleaning of historic masonry, especially exterior brick, limestone, sandstone, brownstone, any ornamental carved stone, and concrete surfaces is not recommended. It can damage the masonry so that original craftsmanship and texture are destroyed and the integrity of the masonry can be impaired.

Cleaning of historic masonry should use the gentlest means possible. The use of certain chemical cleaners are typically not permitted in the City of Boston. The City of Boston Environment Department should be consulted. The use of cold water or warm water through direct application or in a soaking method may be effective. A series of cleaning tests should be conducted on an inconspicuous location to determine the weakest concentration of cleaner necessary to clean the building. When cleaning historic masonry, the water pressure should not exceed 600 p.s.i. and the nozzle should be fitted with a wide fan tip.

The use of water proof and water repellent coatings is not recommended for historic masonry.

Identifying Sources of Moisture

Detecting sources of moisture and preventing infiltration contributes to the longevity of historic buildings. Regular repair and cleaning of roof gutters and minor leaks in roofs will help to avoid significant water infiltration that can cause damage to and staining of masonry walls and building interiors. The down spouts should be inspected to make sure that there are no leaks along the wall and that water is being directed away from the building at the base. Another source is the drainage from window air conditioning units which can stain the masonry and eroded the mortar directly below the units. The ventilation of buildings is important in order to avoid the buildup of moisture in the walls or in the roof structure that can accelerate deterioration of the building.

Snow buildup against historic buildings can cause problems such as rising damp that in turn can accelerate mortar deterioration and spalling of brick or stone. A draining area should be left between impervious paved surfaces and the wall of a masonry building in order to allow for water drainage. The use of salt on icy roads and walks adjacent to a building can also contribute to the deterioration of the masonry. The salt and drainage from the roads and walks should be directed away from the buildings.

Paint Colors

Appropriate paint colors should be selected that are compatible with the building's architectural style and period. Historic paint colors can be uncovered by taking paint samples from selected locations and viewing them under a microscope or by carefully sanding an area to uncover each of the accumulated layers of paint. Historic windows and doors are features that are typically painted on a regular basis and their color contributes to the appearance of the structure. Paint samples from less exposed areas such as joints can often provide information on historic paint colors. Historically appropriate colors can also be selected using style and paint color books such as Century of Color, Exterior Decoration for American Buildings - *1820/1920* by Roger Moss, 1981, that provide information on appropriate colors by age and style of building.

Masonry should not be painted if it was not painted historically.

Windows

An important feature of an historic window is the number of panes in each sash. If aluminum replacement windows are selected, it is recommended that the sash have true divided lights or exterior muntins that are integral to the frame and a muntin grid between the glass. The muntins should also have an appropriate profile that reproduces the appearance of the exterior glazing bead. Windows with only muntin grids between the glass are not recommended. The profile of the exterior window trim (brick mold) should be reproduced as closely as possible.

Existing replacement windows at Collamore and Old Evans are standard size with panels or masonry filling the remainder of the original opening. Glass block, louvers and other infill are also visible at street level. The Collamore windows on the Harrison Ave. elevation are varied and many openings are filled with brick, which obscures the regular bays and fenestration that defines this façade. The original Old Evans windows are unusual and the unsympathetic replacement windows detract from the consistency and the original texture and fenestration. When the windows are to be replaced, new replacement windows should fit the original opening and should closely match the original windows. In original openings where glass is not suitable, an alternative solution can be designed using frosted glass with a gypsum board wall on the interior.

Roofs

Significant roof materials such as the slate roof sheathing, copper flashing and gutters on Buildings BCD and FGH should be retained or replaced in kind. The slate roofs are 10 years old and should last for several decades. The bell-cast mansard roof form and the segmental-arched dormers on BCD and FGH are character-defining features, which should be retained.

BCD and Vose Hall have original brick chimneys that are important features of the buildings and can be seen against the sky. The chimneys should be retained and repaired as needed rather than removing the chimney in whole or in part. They can often be reused for flues or ventilation ducts.

The bold copper cornice at BCD and FGH should be retained or replaced to match the existing because they are such significant features of the buildings.

Doors

Many of the original doors to the historic buildings have been replaced. The most significant doors are typically the front entry doors, and it is often the case that the original doors deteriorate over time due to the heavy use they experience on a medical campus. In other cases, new doors are preferred to improve energy efficiency. The metal frame, glass panel doors installed in many of the historic buildings are not appropriate to the original design. Options that retain the original doors should be considered. The original doors can be fixed open and a contemporary metal frame and glass panel system can be installed inside of the original doors. The new system would not be visible when the original doors are closed. As existing incompatible doors need to be replaced, new doors that are more compatible with the historic architecture or re-installing historic doors should be considered.

In instances where original doors are not going to be used, the opening, surround and doors should be retained. The doors can be fixed closed and the wall covered on the interior if necessary. It is preferable not to fill the opening with masonry or alter the opening to a window.

The granite entrance pavilion at Old Evans is the building's most interesting feature. A second story connector that extends across East Newton Street cuts through the granite and interrupts the architectural detail. If the connector is ever removed, the granite should be restored.

HVAC Equipment

The installation of mechanical and HVAC equipment should be carefully designed to minimize the visual impact to the historic structure. Roof-mounted chillers should be set back from the facades of the buildings which have flat roofs and should not be installed on the roof of a building where it will be prominent on a significant elevation. Where possible, ventilation ducts, grills and chases can be installed sensitively in window or door openings on secondary elevations, in existing chimneys and in new additions rather than protruding from a primary elevation of a historic roof or façade.

Equipment mounted on the ground and screened by plantings may be preferable in some instances. Creating new penetrations through masonry walls should be avoided.

Landscaping

A typical problem is the need to remove climbing vines from historic masonry buildings. In addition, planting should be located away from historic buildings and existing plantings that have grown over time and are now too close to the building should be removed, or moved. The buildup of moisture in the masonry will accelerate deterioration.

The new landscape between Buildings BCD and FGH has recreated the sense of the original setting based on historic photographs. Some of the early photographs show views of the landscape and plantings. There are limited outdoor spaces for landscape and vehicular access must be accommodated for the hospital. The BCD – FGH open lawn with trees and walks should be retained and maintained as a relief from the dense development through much of the BMC campus.

The pruning and maintenance of landscaping, especially trees, vines and shrubs that are adjacent to historic structures are critical to minimizing deterioration of exterior masonry. Currently, this is not a problem for the historic buildings at BMC. Over the long term, plantings and vines growing on or against the building can contribute to the buildup of moisture that will deteriorate mortar and masonry. Replacement of existing planting should be carefully planned to be appropriate to the setting within the historic district.

4. Recommendations for Further Documentation

As BMC's Core Campus continues to develop, a program to document existing buildings as they achieve 50 years of age will be implemented. Additionally, existing and future buildings and additions will also be considered for documentation and evaluation of significance. This will serve to ensure that existing newer buildings and future buildings will continue to be evaluated for their historical significance and a historical record of evolution of the campus will be maintained as BMC grows and continues to contribute to the history of providing quality healthcare to the neediest individuals and to the built environment of the South End and medical campus area.

Historic documents such as original drawings, specifications, written correspondence, historic maps, and photographs should be retained in a safe archive. There are historic images displayed at the first floor of Building FGH and historic photographs in the Menino Building in the lobby and on the upper floors. The remaining documents, mainly drawings, are kept in the files at the Design and Construction Department.

Document Conservation and Indexing

It is recommended that all of the information relating to the historic structures be scanned in order to make the information easily accessible. Some of the drawings are blueprints, which are difficult to conserve, so these should be given priority for scanning. Originals should be filed in a climate controlled environment using archival filing materials. Drawings on linen or mylar, although they are more durable, will also deteriorate over time with extensive use and should be filed using acid free files.

Additional Documentation

In addition to the documents available at Boston Medical Center, there are other possible sources of documentation that should be consulted for additional information. For buildings constructed between 1889 and 1981, it is likely that a set of drawings may be found in the collections of the Massachusetts State Archives. The collection consists of documents filed with the Massachusetts Department of Public Health during that period and some documents include specifications.

For drawings dating between 1889 and 1981 contact:

The Massachusetts State Archives
220 Morrissey Boulevard
Boston, MA 02125
(617)727-2816

The Boston Public Library has an extensive collection of drawings that came from City of Boston Inspectional Services Department. The collection is held in the Fine Arts Department of the Boston Public Library. It is not a complete archive and many drawings have been lost over time. Notations on the building permits will provide information on the location of the drawings if they are held at BPL.

Boston Public Library, Main Branch
Fine Arts Department
McKim Building, 3rd Floor
(617)859-2275

5. Develop New Construction and Infrastructure Sensitive to Historic Resources

BMC will consult its Internal Preservation Advisory Committee during the preliminary phases of planning and design for new construction and infrastructure as well as substantial rehabilitation to ensure that the project is compatible with the historic buildings, districts and setting. During the early planning phases, BMC will also meet with the South End Landmark District Commission. The current medical core of BMC is densely spaced and buildings are connected in order to improve efficiency and functionality among departments. Future new construction will be at the edges of the core or elsewhere. New construction should not encroach on the historic buildings and should be compatible with the massing and materials of the historic buildings.

The most sensitive historic areas include those along Harrison Avenue and in the vicinity of BCD and FGH. The Memorial Hospitals are also a significant historic grouping which has no setbacks from the sidewalk and occupies most of the site.

Review on the BMC campus by the South End Landmark District Commission will include demolition, land coverage, height, landscape and topography. Additional features such as materials, massing and fenestration should be considered in proximity to the historic buildings mentioned above. All work visible from the exterior of BCD and FGH should comply with the *Secretary of the Interior's Standards for Rehabilitation.*

6. Preservation of Historic Artifacts

BMC has salvaged and reinstalled an exterior metal spandrel panel from the former Maternity Building (demolished). The panel, with its bas relief figure of an infant, was installed in the new maternity ward with an interpretive exhibit designed to tell the story of the Maternity Building and the maternity services provided at Boston City Hospital.

The preservation and display of historic artifacts from the historic buildings can help to tell the history of Boston City Hospital and of its many health care achievements, its personnel and its patients. Interpretation of the historic artifacts or materials and display of historic images is also recommended to illustrate the developmental history of the campus and the evolution of its various departments.

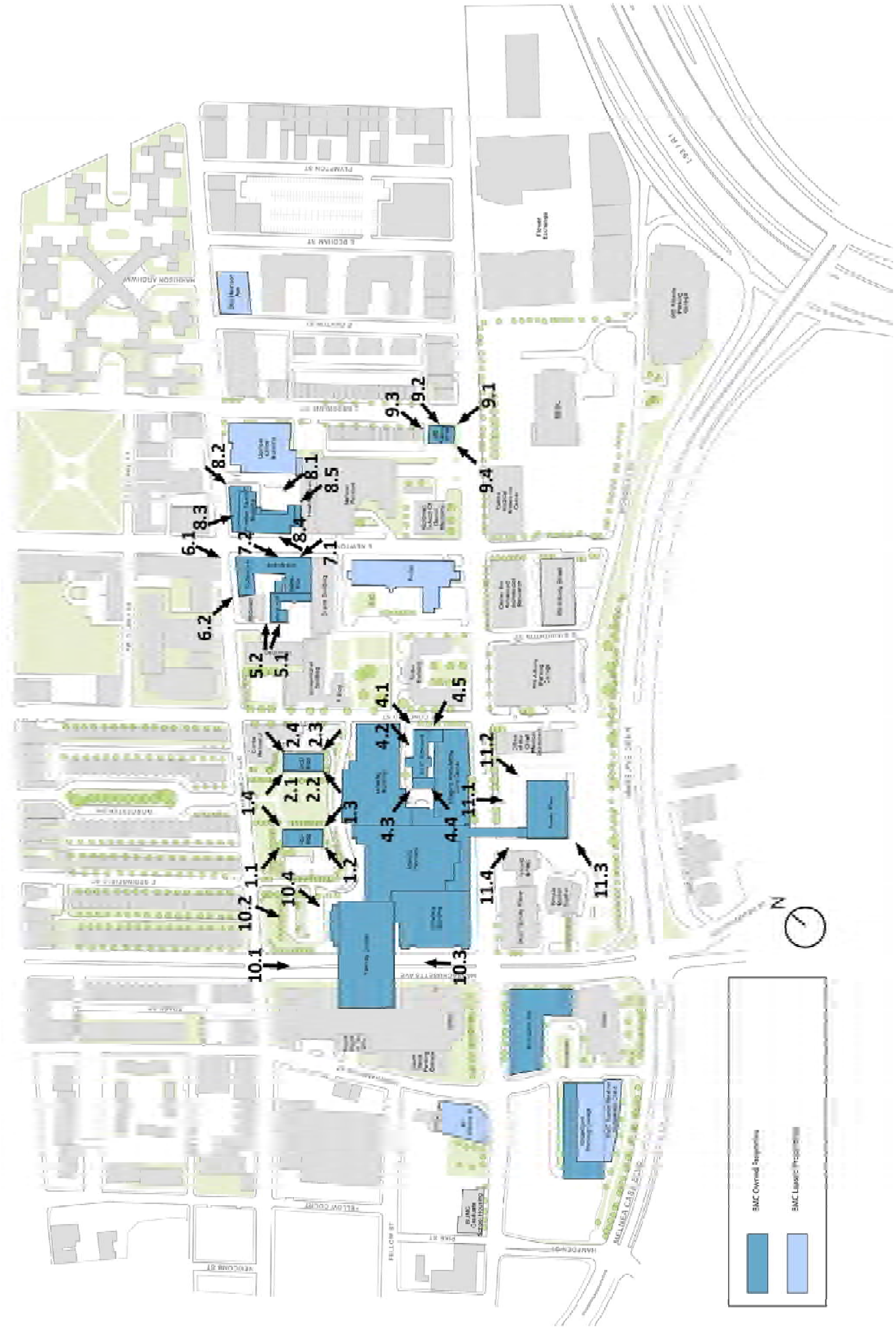
7. Future Updates to the Preservation Plan

Boston Medical Center (BMC) has been in a long-term consultation and review process with the South End Landmark District Commission (SELDC). BMC is committed to informing SELDC early in the planning phase for any exterior projects or demolition within the South End Harrison/Albany Protection Area.

BMC will update their preservation plan on a five-year schedule or will incorporate the preservation plan in updates of the IMP, whichever comes first. This 2020 update of the Preservation Plan will be incorporated into the IMP. All updates will include BMC-owned buildings and completion of an MHC Form B - Building inventory form for BMC-owned buildings, additions and structures that have reached an age of 50 years. For this update, the Yawkey Ambulatory Care Building and the Power Plant will reach the 50-year mark and will have a Form B submitted for review. A copy of the preservation plan updates will be submitted to the SELDC.

6.0 PHOTOGRAPHS

Figure 6.1 Boston Medical Center Photo Key Plan



1.1 Building FGH

1.2 Building FGH

1.3 Building FGH

1.4 Building FGH

2.1 Building BCD

2.2 Building BCD

2.3 Building BCD

2.4 Building BCD


3.1 Dowling Building


4.1 85 East Concord Street


4.2 85 East Concord Street


4.3 85 East Concord Street

4.4 85 East Concord Street

4.5 85 East Concord Street

5.1 Vose Hall

5.2 Vose Hall

6.1 Collamore

6.2 Collamore


7.1 Old Evans

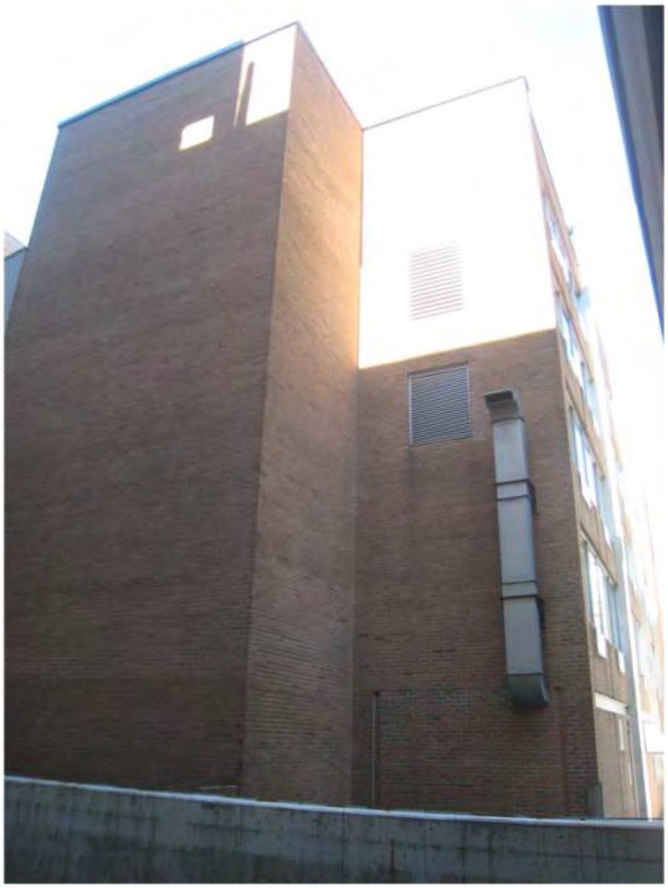

7.2 Old Evans


8.1 Preston Family Building

8.2 Preston Family Building


8.3 Preston Family Building


8.4 Preston Family Building



8.5 Preston Family Building

9.1 Smith American Organ

9.2 Smith American Organ

9.3 Smith American Organ


9.4 Smith American Organ


a.1 Talbot Building

b.1 A Building

c.1 Conte Research

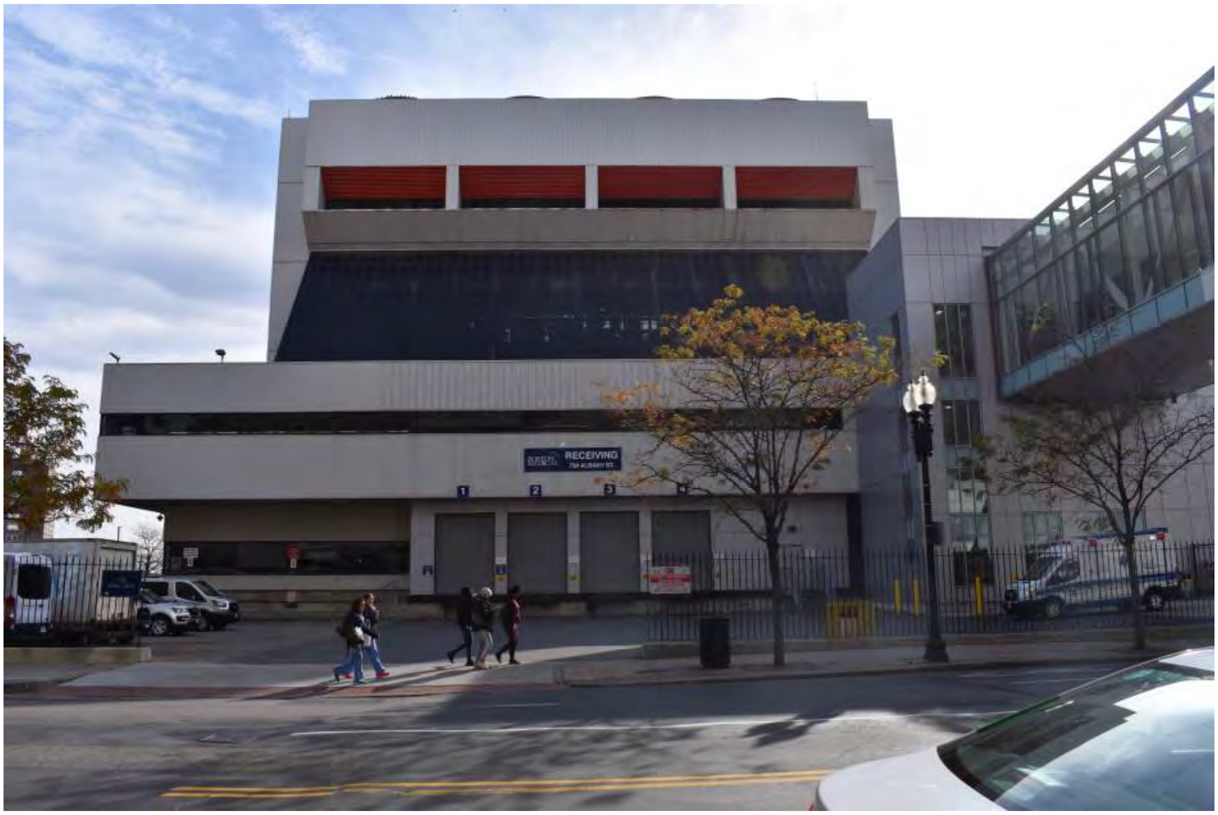
d.1 Robinson Memorial

10.1 Yawkey Ambulatory Care Center

10.2 Yawkey Ambulatory Care Center

10.3 Yawkey Ambulatory Care Center

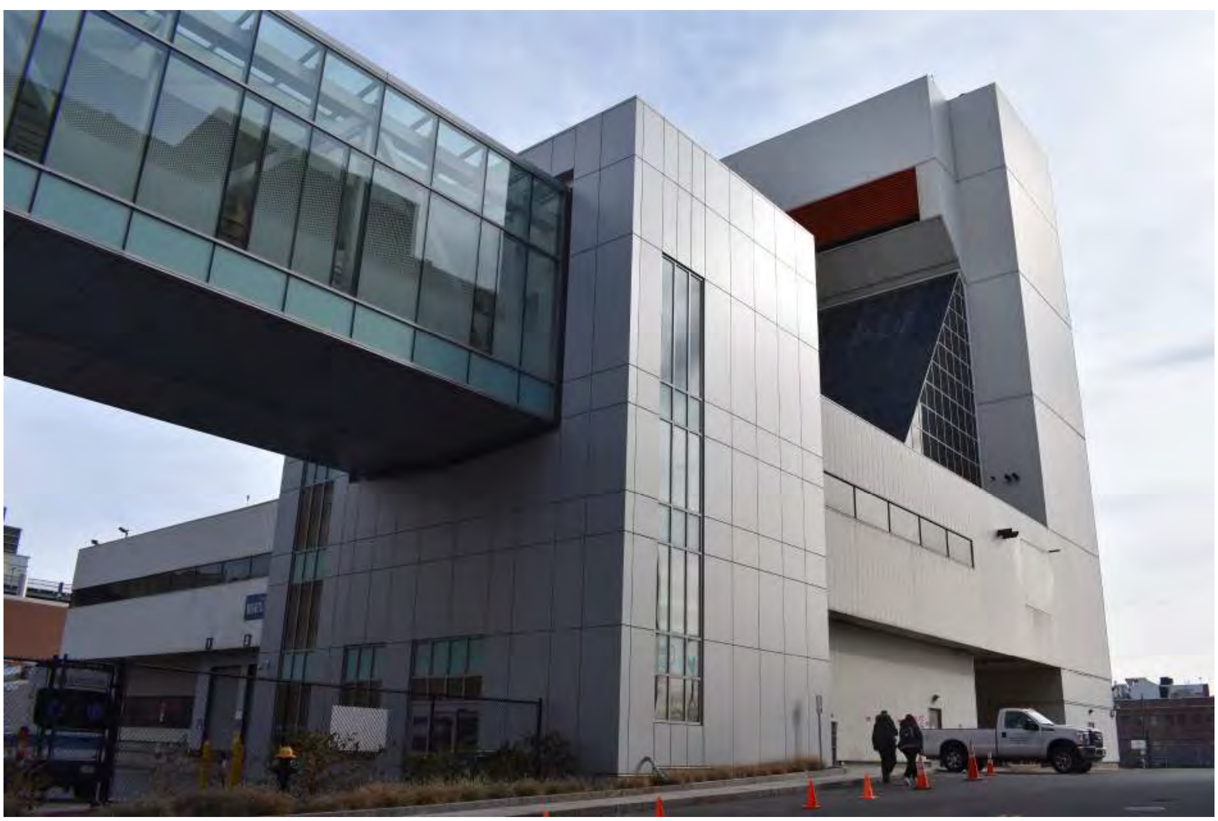
10.4 Yawkey Ambulatory Care Center



11.1 Power Plant


11.2 Power Plant


11.3 Power Plant


11.4 Power Plant

7.0 DOWLING TOWER REUSE STUDY

7.1 Introduction

Boston Medical Center (BMC) completed an extensive Institutional Master Planning (IMP) Process from 2007 to 2010. The IMP process was in part a result of a facility condition assessment completed in 2007 which evaluated the physical conditions of the major buildings on the campus. The purpose of this assessment was to prioritize capital investments and determine the highest and best use for the buildings for the short and long term. The assessment concluded that certain buildings contain major deficiencies and require major improvements to function acceptably as clinical, medical education, or administrative space. The Dowling Tower was included in the assessment and was identified as requiring significant infrastructure investment.

The Dowling Tower's primary function as an inpatient building was downgraded to administrative office space in 1994. It was phased out of use as an inpatient building because of its numerous physical and infrastructure deficiencies. The facility condition assessment was updated in 2015 which resulted in the same conclusion; it has become increasingly challenging to adapt the Dowling Tower to meet the needs of a modern medical center. BMC must provide modern medical facilities that satisfy current codes and provide maximum efficiencies and flexibility for long term sustainability.

The approved 2010 IMP, as amended in 2013 and approved by the BPDA, and the approved 2013 Draft Project Impact Report included the Dowling Tower site as vital to the growth of BMC's inpatient, emergency and trauma care needs. A new inpatient building, constructed in two phases, was approved to replace the Dowling Tower. Phase 1 has been constructed and replaced the three story connector portion of Dowling. In this context, the remaining Dowling Tower has been evaluated for potential rehabilitation and reuse taking into account its potential historical significance as well as BMC's specific requirements for hospital and clinical functions driven by today's code and clinical space standards. Alternative building locations for a new inpatient building were reviewed with the SELDC at the September 5, 2017 Commission meeting. Enclosed is a copy of the final letter to SELDC and approved Option A location of the new inpatient building.

The new 2020 IMP carries forward the New Inpatient Phase II building to replace the existing Dowling Tower, as previously approved in the 2010 IMP and 2013 Amendment.

7.2 History

Built in 1937, the Dr. John J. Dowling Surgical Building replaced the Pathological Building, which occupied this site between ca. 1902 and 1936. The building was named after Dr. John J. Dowling, who served in the military during WWI. Soon after the United States entered the war in 1917, Dowling, Superintendent of Boston City Hospital, was appointed commanding officer of a Base Hospital. In 1918, Major Dowling was appointed as the Director of his Unit, which was sent to locations in France. Upon his return, Dowling continued working at Boston City Hospital until at least 1930.

The Dowling Tower has housed several departments within Boston City Hospital, including clinical, surgical and educational departments. Among these was the Fifth Surgical Service, established in 1865 and originally located in the eastern wing of the original Boston City Hospital campus in Building BCD and later expanded into the Thorndike and Sears Buildings (formerly on East Concord Street, now demolished). Most likely to allow for additional expansion and for upgrading the facilities, the Fifth Surgical Service was assigned to the Dowling Tower in 1937 occupying the fourth floor and a portion of the fifth floor. The Fifth Surgical Service occupancy reached a high of 105 beds in 1949. Maintaining its long-term connections with Harvard Medical School, the Fifth Surgical Service developed a single-unit Intensive Care Division. Among its clinical activities, the Service operated the Surgical Out-Patient Department.

Dowling also housed the Cheever Amphitheater. Named after David W. Cheever, the first Harvard Professor of Surgery at Boston City Hospital; the amphitheater was previously located in one of the earlier Surgical Buildings. In 1937, at the time of its opening, the name of the Cheever Amphitheater was assigned to a new amphitheater in the Dowling Tower.

Dowling has been adapted over time to new uses. In 1951, a one-story infill building was inserted within the courtyard created by the main block and the north and south wings of the Dowling Tower. Built at a cost of $500,000, it was named the Shortell Fracture Unit for Dr. Joseph Shortell, Chief of the Sixth Surgical Service at Boston City Hospital. The Urology Service at Boston City Hospital moved to the Dowling Tower in July 1961. The male quarters were transferred to the 5th floor, south wing of Dowling, while female patients were assigned to Dowling 2 North. At this time, surgery was also performed on the 7th floor of Dowling. Trauma surgery, the Emergency Entrance and the Boston EMS have all been located in this building.

Most recently, the Dowling Tower has contained the department of radiation on the first floor, operating rooms at the second floor and administrative offices at the upper floors.

7.3 Physical Description

The Dowling Tower sits at the north corner at the intersection of Albany Street and Massachusetts Avenue near the southeast corner of the Boston Medical Center campus. Irregular in plan and built up of a series of stepped blocks, Dowling has red brick walls, limestone trim and sits on a granite first story. The building is set slightly back from the sidewalk along Massachusetts Avenue and Albany Street facing southwest across Massachusetts Avenue. The granite first story, known as the Shortell Building, an infill building, together with the original Dowling U shaped footprint now creates the full footprint of the building at the ground level. The red brick upper stories form a U in plan. The main block raises nine stories and has a 6-bay projecting central pavilion, which rises to 10 stories. The north and south ends of the main block step down to 7 stories and the north and south wings step down again to 6 stories and project west from the main block. At the west end of each wing, a metal panel one-bay addition encloses a fire stair.

Fenestration varies throughout the building, including single punched openings, window bays spaced in groups of 2 and oversized windows at the upper stories. At the end pavilions and the central pavilion of the main block, metal spandrel panels between each story have vertical stylized ornament. Spandrel panels on the ends of the wings appear to have been replaced with flush panels. Typical aluminum replacement windows are 1/1 double-hung with a transom. Some original windows appear to be double hung and others appear to be jalousie windows. Many openings have been filled with louvers, air conditioners, infill panels and brick.

Columns of tightly spaced windows separated by narrow brick and metal mullions emphasize the verticality. The window openings have flat arches and cast stone sills. Stone ornament is concentrated at the base and at the top stories of the central pavilion and the end pavilions. Vertical stone ornament in a stylized pattern is set into the wall above the 10th story windows. Two windows have a projecting sill with a carved stone head with wings in high relief. Stone ornament at the north and south wings includes vertical elements at the corners with stylized detail and horizontal panels at the cornice with carved scrolls and horizontal bands. Faced in stone, the one-story Shortell Building (1951) fills the lot between the north and south wings. Clean, punched window openings are symmetrically spaced along Massachusetts Avenue. Large stone scrolls sit at the corners of the main block atop the first story framing blocks carved with shields. Other stone detail found at the north and south elevations include carved panels above the seventh story, window surrounds, round panels and a carved surround at a central oculus window.

7.4 Changes to the Original Building

As building codes, technologies and uses changed over time, alterations to the Dowling Tower have been made to keep the building up to code. Originally built for inpatient use, what once were surgical and clinical spaces and patient rooms on the upper floors, have been converted to administrative office uses. The Dowling Tower has primarily been functioned as administrative use since 1994.

Among the exterior changes are the addition of the metal-clad fire stairs built at the south end of each of the two wings, the installation of window air-conditioning units in many of the window openings and a tall one-story fence has been installed on the roof of the Shortell Building (the one-story infill between the north and south wings added in 1951), in order to conceal HVAC equipment. Windows have been replaced throughout the building and the metal spandrel panels on the west end of the north and south wings have been replaced with flat metal panels. In order to preserve the building's historic character, the remaining historic exterior features of the building would be retained, but these incremental changes are considered unsympathetic to the original architecture and therefore are not identified for preservation. The interior finishes of the building have been altered over time, they are outdated and would be removed for any modern use.

See Figures 7.1 through 7.6.

Recently, a red brick one- and three-story ell, which extended from the rear (north) of the main block has been replaced with a new four-story masonry building (2015). This new replacement building is Phase 1 of the new inpatient building approved as part of the 2010 IMP and was also included in BMC's 2013 IMP Project Notification Form.

7.5 Current Setting

The Dowling Tower is set near the sidewalk at Massachusetts Avenue and Albany Streets. It is located within the clinical core of BMC's campus, surrounded by modern medical facilities including the five-story Yawkey Ambulatory Care Center to the west and the eight-story Menino Pavilion to the north. The Menino Pavilion houses the Trauma Center and Emergency Department and the Radiology Department. A new four-story masonry building was constructed in 2015 between the Dowling Tower and Menino Pavilion providing vital connections between these core clinical buildings. This four-story building is the new phase 1 inpatient building that houses the expanded Trauma Center and Emergency Department, the expanded Radiology Department, and consolidated interventional procedure space and inpatient beds from the Menino Pavilion. In order to achieve the necessary continuity in the delivery of critical patient care, the clinical programs in the Dowling Tower location would be connected directly to these adjacent buildings.

7.6 Building Reuse Study

7.6.1 Alternative Uses

Reuse of the Dowling Tower was evaluated during the BMC Master Planning process for other BMC programmatic needs including administrative and outpatient clinic uses. BMC's planning objectives outlined in the 2010 IMP and 2013 IMP include establishing ideal adjacencies between complementary uses. This involves shifting administrative functions away from the clinical core and locating clinical programs in proximity to core medical services and operational support functions. These planning objectives discounted the Dowling for administrative use and outpatient clinic use. Given its proximity to the existing and newly expanded Trauma Center and Emergency Department and Radiology Department, the Med Flight helipad, and critical care functions in the Menino Pavilion, the Dowling Tower site was determined to be the ideal location for new inpatient use.

7.6.2 Inpatient Use

The new inpatient program is proposed in two phases. The combined program for phase 1 and phase 2 calls for a capacity of 336 beds, 20,300 square feet for operating rooms and support areas and 20,300 square feet for radiology, support and Emergency Room space. Phase 1 of the new inpatient building was constructed in 2015.

The Dowling Tower's superstructure, including floor to floor heights, U-shaped floor plan, the size of the floor plates, the structural bay spacing and the structure itself, as well as building services and infrastructure, including mechanical, electrical, plumbing, and conveying systems, were evaluated for the potential to reuse the building for the new inpatient program. Primary considerations were given to areas that would impact code requirements and patient safety.

In determining the feasibility of re-using the Dowling Tower for modern day clinical use, the following evaluation criteria were used as presented in the comparative on the next page. See Table 7.1.

Table 7.1 Inpatient Use Evaluation Criteria

Criteria	Modern Healthcare Facility	Existing Dowling Building	Meets Criteria	Notes
Shell Limitations				
Floor Plate Size	22,000 SF - 28,000 SF	9,000 SF - 15,000 SF	N	
Floor Plate Width	100'-0"	46'-8'	N	
# of Beds/Floor (Nursing unit size)	24	6 to 8	N	1
Structural Limitations				
Floor-to-Floor Heights	14'-6"	11'-8"	N	
Standard Grid Dimensions	Yes	No	N	
Bay Spacing	30' x 30'	15' x 15'	N	
Floor Alignment	No ramping	Ramping required	N	
Floor Loading (Diagnostic/Treatment)	100 to 150 lbs/SF	40 to 50 lbs/SF	N	2,7
Floor Loading (Inpatient Rooms)	50 to 100 lbs/SF	40 to 50 lbs/SF	N	2,7
Isolated Concrete Slabs	Will Accommodate	Does Not Accommodate	N	8
Vibration Requirements	4,000 Micro-Inch/Sec	30,000 Micro-Inch/Sec	N	3,4,7
System Limitations				
Elevators	4 Passanger; 4 Service	4 Passanger	N	5
Space per Floor for MEP/Tel-Data	10% - 14%	5%	N	6
Penthouse/Roof Space for AHU's	Accommodate Excess Space for Expansion	Does Not Accommodate	N	

1. Bed # is industry standard (about 1,000 sf/bed).
2. The actual lbs/sf of the existing Dowling is unknown. Number is based on typical building and construction type of its era.
3. Numbers refer to rms vibration velocity between frequencies of 8 to 80 Hz. Micro-inch/sec is typical requirement for modern imaging equipment.
4. Existing Dowling number is based on typical construction of its era.
5. Calculation based on 1 passenger elevator per 40,000 sf and need for 4 service elevators (2 dedicated for clean/dirty).
6. Calculation based on floor area take off's of existing Dowling and new facility.
7. 100 to 150 lbs/sf is required to support current day MRI and other imaging equipment requirements.

7.6.2.1 Floor to Floor Heights

Medical facilities must provide adequate space, either above ceilings or below floors, to house distribution networks for mechanical systems (ventilation air, med gasses, etc.) and for medical equipment. To achieve this, certain floor-to-floor heights are needed for specific programs to function and also meet minimum ceiling heights to meet Department of Public Health (DPH) regulations. Floor to floor heights between 15' and 16' are industry standard for spaces with large floor-mounted or ceiling-hung medical equipment, such as imaging and operating room suites, to allow for a 9'-6" DPH minimum floor to ceiling height for imaging, and a 10' DPH minimum floor to ceiling height for an operating room. Slightly lower ceilings, between 13'-6" and 15', are industry standard for most patient bed floors and clinical spaces to allow for an 8'-6" DPH minimum floor to ceiling height. These heights serve contemporary demands for infrastructure and equipment and provide additional programmatic flexibility for inevitable future changes.

The existing Dowling floor to floor height is 12' at the lower level and 11'-8" at the upper levels. After accounting for the existing structure and allowing room for the ventilation and mechanical ducts that are required, the maximum floor to ceiling height that is achievable is 7'. The 7' floor to ceiling height is well below the DPH minimum required floor to ceiling heights as noted above. (See Figures 7.7 through 7.9).

It is not economically reasonable nor is it physically feasible to change the structure to increase the available floor to ceiling heights.

7.6.2.2 Floor Plate Size & Configuration

According to current healthcare standards, the optimum floor plate is 25,000 – 30,000 square feet with a minimum floor width of 100 feet. The upper floors at Dowling consist of three connected narrow wings forming a "U" in plan; each floor has a floor area between 10,000 square feet to 14,000 square feet. Although the first level, programmed for radiology, has a rectangular floor plate of 30,000 square feet which could meet the current standard, existing structural elements and infrastructure shafts preclude realizing the full program need (see Figures 7.10 through 7.12).

7.6.2.3 Bed Unit Efficiency

At their current size, Levels 3 – 9 in the Dowling Tower would have a total capacity of 48 beds (See Figure 7.12), far short of the 336 beds needed. Adding support space (patient, mechanical and IT Infrastructure) and right sizing rooms in the existing building consumes a majority of the floor area, leaving minimal space for the beds themselves.

Typical bed units are grouped by an efficient number of beds (usually 4 beds for every 1 nurse) for most effective nurse staffing and shortest traffic flow, usually from 24 to 36 beds. Staffing floors below this bed count leads to staff over/under utilization and increased operational cost.

A diagrammatic test fit of the existing Dowling Tower (level 4) determined that each floor could support a bed-unit composed of 8 beds, which would be extremely ineffective to operate and would not be sufficient for the overall patient volumes seen today (See Figure 7.12). In reality, due to travel distances, these floors would actually function as two independent bed-units of 4 beds each. These unit sizes would be extremely undersized for a modern bed floor unit and would result in a tremendous amount of time lost due to the number of vertical transfers being made in order to serve these units. Additionally, as the levels decrease in size as you move up the building (levels 6, 7, 8, & 9 are about 10,000 SF each) they would only house close to 6 units per level. These numbers are not only very low, but they would create inefficiency caused by redundancy and staff underutilization in order to meet patient needs.

7.6.2.4 Imaging and Surgical Floors

At levels 1 and 2, where surgery and imaging expansion are planned, the size and irregularity of the floor plate make it completely impractical to locate the full program need here (see Figure 7.10). Much larger and wider spaces are needed to support the room types associated with these programs and the existing floor plate is not able to accommodate the program.

7.6.2.5 U-Shaped Floor Plan/Floor Width

The width of a building directly affects the efficiency of floor layouts, as well as travel distances and the number of beds per floor. As mentioned previously, modern inpatient facilities of this type are usually around 100 feet wide. This width accommodates a typical "race-track" configuration with patient beds at the perimeter and shared spaces in the center of the floor. This layout type has become the standard over the single corridor due to its ability to increase efficiency in staff expenditure, since fewer staff members can cover more square footage with fewer steps (See Figure 7.12).

At roughly 46-48 feet, the current Dowling floor plate width is very narrow and would only support one corridor (8' wide standard min.) and one row of bed units (22' wide standard). After adding nurse stations, aligning with existing structural elements, and adding the required support spaces (decentralized nurse stations, infrastructure, localized med stations, etc.) the total number of beds per floor is greatly diminished. (See Figure 7.12).

The increased acuity level of today's typical inpatient population, as well as increasing efforts to reduce accidents and the risk of falls, has resulted in an imperative for nurses to have improved visibility and auditory connection with the patient rooms. Irregular floor layouts detract from this connection between provider and patient. Instead of one decentralized nursing unit for each end of the building, two additional sub-stations would have to be provided at each of the end "wings". The location of these added stations, coupled with the 90 degree turns in the floor layout, would result in the lack of visualization between the providers themselves (from substation to substation) and create additional concerns when considering staff teaming within a unit. The outcome is ineffective space utilization on each of the floor levels, leading to operational, cost overruns, and patient care issues.

Additionally, the existing single corridor can create material and patient flow issues as opposed to the race-track organization employed in modern inpatient facilities today. The race-track not only provides more overall space for support functions, but it also designates circulation for back-of-house activities to occur. The existing double-loaded corridor of the Dowling Tower would force all public and private actions to occur within the same limited space, creating potential conflicts and cross contamination issues.

7.6.2.6 Structural Bay Spacing and Structure

Structural bay spacing has a large impact on the use of an existing facility for modern healthcare practices. Small grid spacing is unsuitable for the dimensional requirements needed for patient bed rooms, imaging rooms and operating rooms. Based on standard practices, a consistent bay spacing of 30 feet by 30 feet is typically required to support these spaces. The existing Dowling Tower contains a column grid spacing of roughly 15 feet x 15 feet, which is very undersized for the types of typical hospital spaces seen today. This column spacing is very tight and cannot be modified to accommodate larger spaces such as those required for operating rooms.

The irregular layout of the existing column grid poses layout difficulties as well. Columns are arranged in two rows down the center of the floor, supporting a double loaded corridor. In this case, there is a 15' bay on one side and an 18' bay on the other (see typical plan Figure 7.12). After placing a 22' wide bed module, a row of columns still remains down the center of the corridor. As rooms and corridors are adjusted to align with the existing grid location, the plan becomes increasingly compromised. In order to align with the existing structure and maintain the mandatory 8 foot minimum corridor width, the bed count on each floor is extremely diminished. The outcome is an unbalanced ratio of support space to beds on each floor. Typical academic medical center nursing units for higher acuity levels have roughly a ratio of 66% inpatient beds, 20% support space, 11% staff facilities, and 3% public. The Dowling Tower would yield ratios closer to 38% inpatient beds, 43% support space, 13% staff facilities, and 6% public. Ultimately, this results in too much support space and too few beds on each floor to be economically feasible to operate.

Moreover, the existing internal columns happen to be offset from each other along the center of the floor plan, which impose additional planning constraints. Instead of being able to utilize flexible modular spaces, typical in most modern hospitals, each area would end up being slightly different than the adjacent space. This would make renovations or additional future changes very challenging to execute.

7.6.2.7 Location of Existing Shafts and Structure

The existing shafts and penetrations for stairs, elevators and mechanical systems occupy a large percentage of space on each floor. (See Figures 7.10 through 7.12) With today's increased infrastructure demand, additional floor space must be allotted for shaft space, tel-data closets, and various other MEP systems networks. Dowling was not constructed with an HVAC system and the current retrofitted system is inadequate and does not service the entire building. The existing shafts interfere with a floor layout and corridors that could accommodate the U-shaped floor plans; the increased floor area to be consumed for MEP systems will further reduce efficiency and inhibit functional floor layouts.

Even if there was enough floor area in the existing building, new shaft construction would be problematic due to the floor composition. The existing structural assembly consists of steel columns with cast-in-place concrete beams and slabs. The floors appear to be made up of one-way concrete joists spanning between concrete beams, with the slab cast integrally with the joists. In order to provide additional shaft space, steel beams would be required below the existing concrete joists to frame these new openings. This would not be practical due to the low floor to floor heights and the amount of MEP elements needed above the ceiling for a contemporary healthcare building.

7.6.2.8 Operational Requirements

- Circulation Patterns - Larger floor plates provide ample space to utilize efficient and safe circulation patterns. These "safe" circulation patterns support infection control goals by allowing for the separation of public and private, clean and soiled traffic.

- Support Space Requirements - The U-shaped floor plan with narrow wings increases the amount of support space that must be provided per patient, thus making the floors extremely inefficient. Smaller floor sizes do not support modern healthcare practice requirements for more decentralized and localized support space, which aim at reducing large travel distances.

- Vertical Travel Distances - Smaller floors create operational inefficiency due to increased floor transfers.

- Material Distribution - Larger floors provide area for much-needed support spaces to house decentralized materials and medications, as well as decentralized nursing stations.

- Space Utilization - Larger floor plates provide more overall space to operate in and the flexibility for departments to fluctuate as needed with inevitable changes in patient population, acuity and census.

- Floor Alignment - Modern healthcare design limits floor transitions as much as possible within floor plates. These transitions break up spaces and are inefficient due to the valuable space used to provide ramps and stairs. None of the existing Dowling Tower floors align with the adjacent buildings. In order for Dowling to connect to its neighbors as required in the program plan, floor transitions will be required at every level.

7.6.2.9 Floor Loading and Vibration Criteria

Another significant hurdle to utilizing the Dowling Tower as a modern healthcare facility would be the structural support requirements posed by medical imaging and inpatient equipment. The existing structure was not designed for the high loads, around 100 to 150 lbs/SF, required to support current day MRI and other imaging equipment.

In addition, vibration requirements of imaging equipment are typically very stringent and significant additional supports/reinforcement of the existing structure would likely be required to meet these requirements. This type of equipment often has additional shielding requirements, slabs would likely need to be recessed to allow for shielding which would require portions of the existing slab to be removed and re-built to support the heavy shielding plates. The low floor-to-floor heights leave no room for these added requirements to be executed.

7.6.2.10 Considerations for Adding New MEP Systems

- Conveying Systems - Vertical transportation within a healthcare facility also has a large impact on operational efficiency. While the existing Dowling Tower would be able to meet ADA standards, there would be an issue with serving the program specific needs seen in a modern inpatient building.

  Industry standards recommend that one passenger elevator should be provided for every 40,000 square feet of building area. This equates to a total of four passenger elevators to satisfy this demand. In addition, at least three other elevators would be needed to service the floors and to move patients to and from imaging and surgery functions below and for distribution of materials, food and services. Ideally, there would be "one" clean and one "dirty" cab for the distribution of materials, food and services, and one for the patients. The existing Dowling Tower currently only has four passenger elevators. Because Dowling has limited floor area on each level, there is a lack of space to add three new elevators. In order to service the entire building, additional outboard elevators would have to be constructed outside of the original footprint and shell.

- Mechanical/Electrical/Plumbing - Currently the systems within the existing Dowling Tower would not be sufficient to support contemporary healthcare functions. New HVAC, steam, domestic hot & cold water, chilled water, normal power and emergency power systems would all need to be upgraded substantially. The biggest challenge in converting the existing Dowling Tower to a modern facility is the overall lack of space required to support all of these systems. Lack of space for electrical unit substations with proper egress, for rated electrical closets on each floor, for rooftop air handling units, for new domestic water supplies, for the installation of medical gases and vacuum infrastructure, and for air distribution systems. Typically 10% to 14% of an average floor plate is reserved for MEP and tel-data services. Currently, the existing building has about 5% per floor. Locating all these elements within the minimal footprint and low floor-to-floors is not feasible without losing significant program area or having to make structural changes.

  Shaft space appears to be the biggest concern when assessing the existing facility. If the existing shaft locations are to be maintained, they impose tremendous constraints on the floor layout with regard to planning. Excess space to route new duct risers (as well as plumbing, electrical, tel-data, and med gasses) does not exist, resulting in the need for a large amount of new shaft space to be provided. This lack of shaft space provides further challenges associated with isolation room exhaust duct routing and ensuring that the exhaust air is discharged at the code required minimum distance from the outside air intakes. As mentioned previously, the lack of overall floor area and the logistics of creating these spaces are not feasible within the existing structure.

  To serve high systems demands within the Dowling Tower, a majority of the new mechanical infrastructure would need to be run outside the existing footprint. There is no available space within in existing basements of adjacent buildings because they are fully occupied with program. This would force ducts, risers, pipes, and conduit to be located along the exterior of the building façade. However, this is not feasible because there is no available interior (non-public facing) façade.

7.7 Conclusion

Originally designed as an inpatient building in 1937, the Dowling Tower's primary function was downgraded to administrative office space in 1994 as a result of its many physical and infrastructure deficiencies. The Dowling Tower is not able to handle current patient volumes and it lacks the flexibility for future growth in patient volumes and new medical equipment requirements. Higher patient acuity also requires larger private rooms to control infection that the Dowling Tower is unable to accommodate. Overall, renovating the existing structure would not provide adequate space to support state-of-the-art healthcare programs, would not provide the number of patient beds to satisfy current volumes, and would fall short of code requirements and patient safety standards. As a result, this facility would diminish BMC's ability to operate efficiently and would hinder its ability to provide the best possible patient care.

Consistent with BMC's planning objectives, administrative functions must shift away from its clinical core and clinical programs must be located in proximity to core medical services and operational support functions. The proximity to existing Trauma and Emergency, the Med Flight helipad, and critical care functions in the Menino Pavilion make the Dowling Tower site the ideal location for the new inpatient building (See Figures 7.13 and 7.14 that show the future connections of the newly constructed phase 1 and future phase 2 inpatient buildings). For these reasons, the Dowling Tower cannot be restored to its original 1937 design nor can it be reused to deliver the best possible patient care that meets current healthcare standards. As previously approved in the 2010 IMP as amended in 2013, the Dowling Tower will be replaced with the new Phase 2 Inpatient Building.

Figure 7.1 Existing Dowling Building

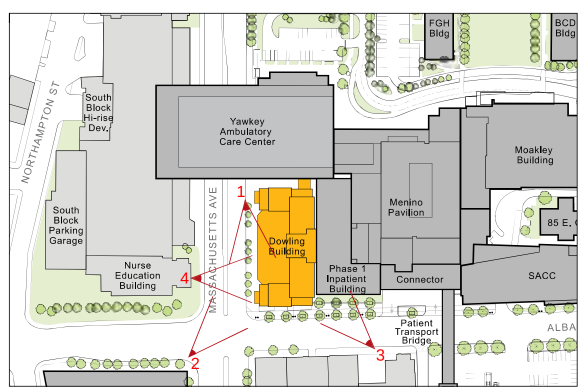
EXISTING CONDITIONS PHOTOGRAPHY

1. At grade along Massachusetts Avenue looking Southeast.

2. Massachusetts Avenue and Albany Street looking North.

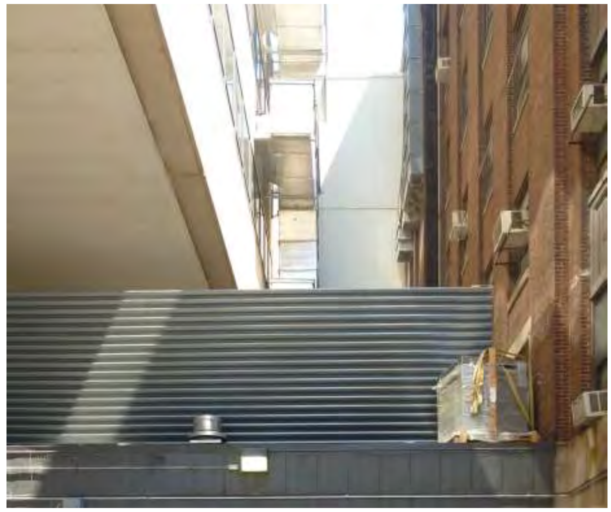
3. Albany street looking West towards Dowling Building.

4. Massachusetts Avenue looking East.

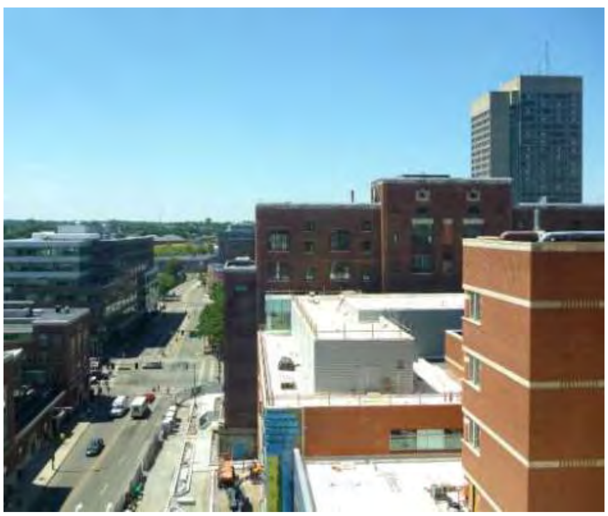


EXISTING CONDITIONS PHOTOGRAPHY

1. At grade along Massachusetts Avenue looking Northeast.

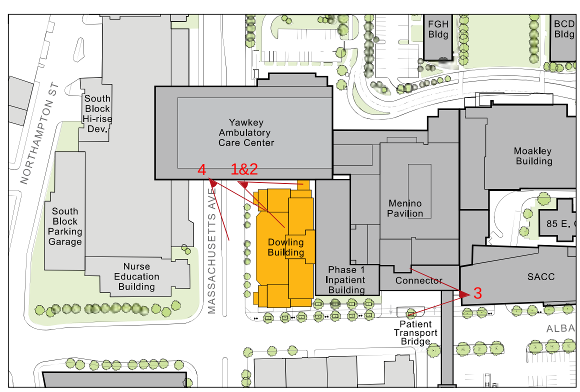


2. At grade along Massachusetts Avenue looking Northeast.

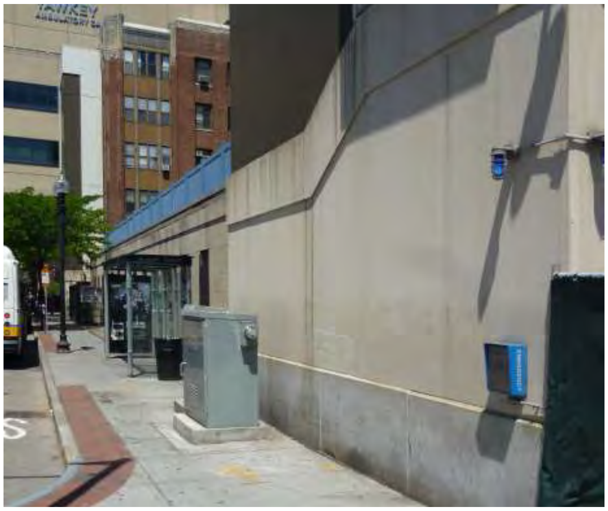


3. View from 9th floor of Shapiro building looking Southwest

4. View from Yawkey level 5 looking Southeast



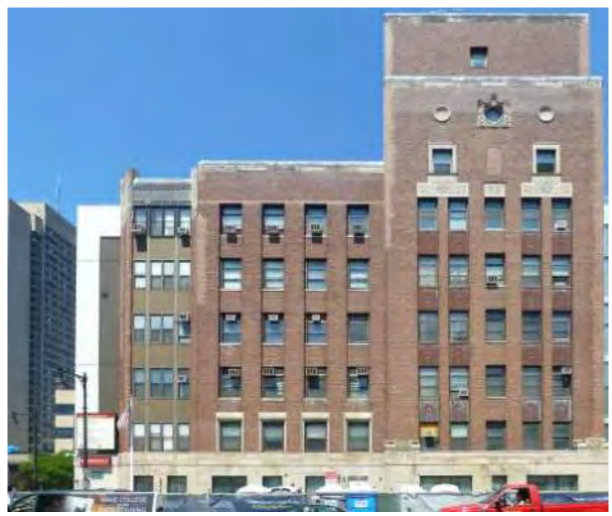
EXISTING CONDITIONS PHOTOGRAPHY



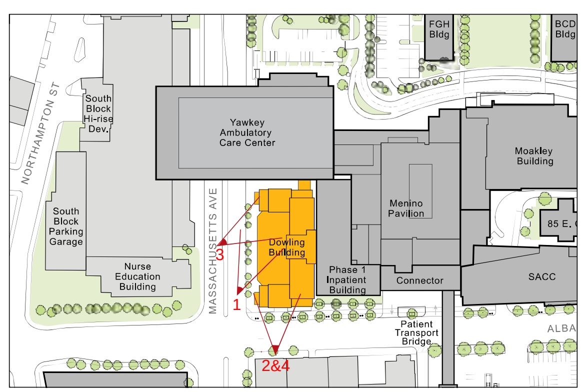
1. At grade along Massachusetts Avenue looking North.

2. Massachusetts Avenue and Albany Street looking North.

3. Massachusetts Avenue looking North.



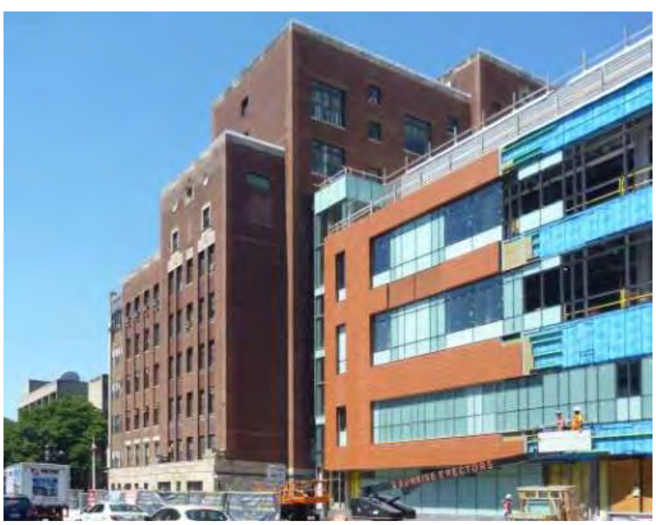
4. Albany Street looking North



EXISTING CONDITIONS PHOTOGRAPHY

Albany Street looking North at Dowling Building

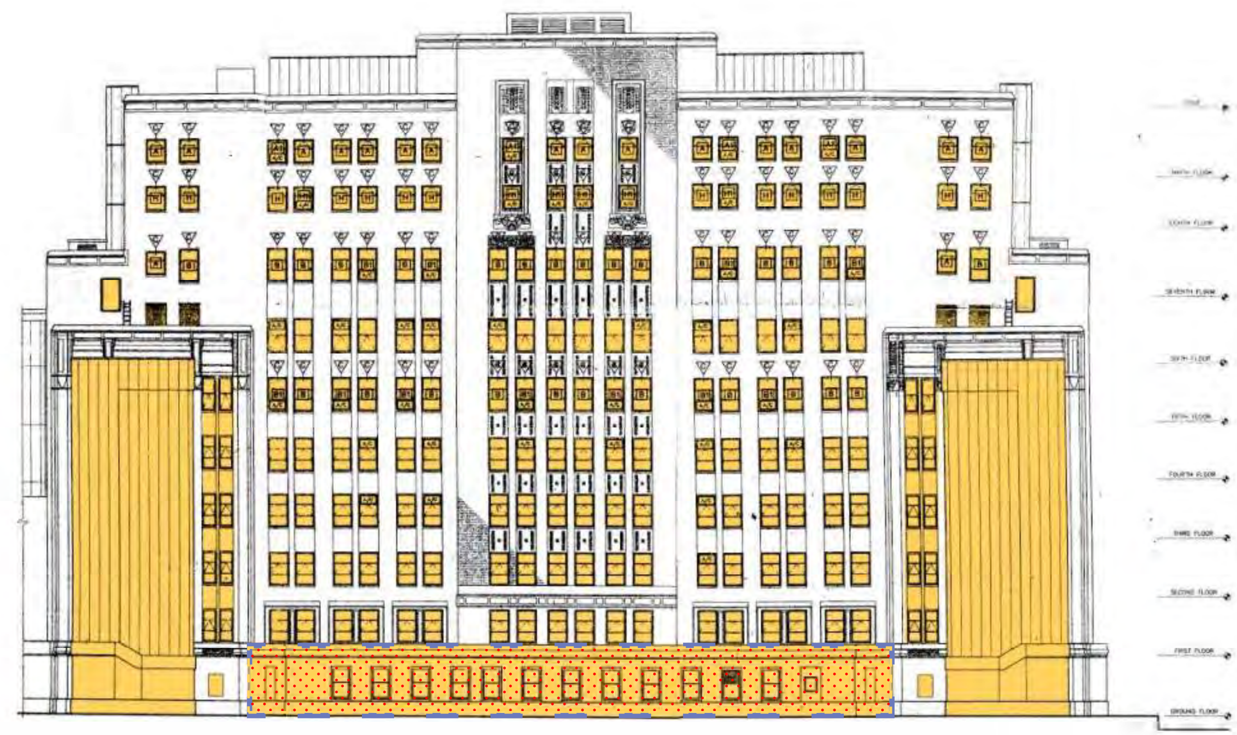
Massachusetts Avenue looking East



Albany Street looking West at new IP Building

Figure 7.5 Dowling Building Modified Building Elements

MODIFIED BUILDING ELEMENTS



SOUTH ELEVATION

1951 Addition

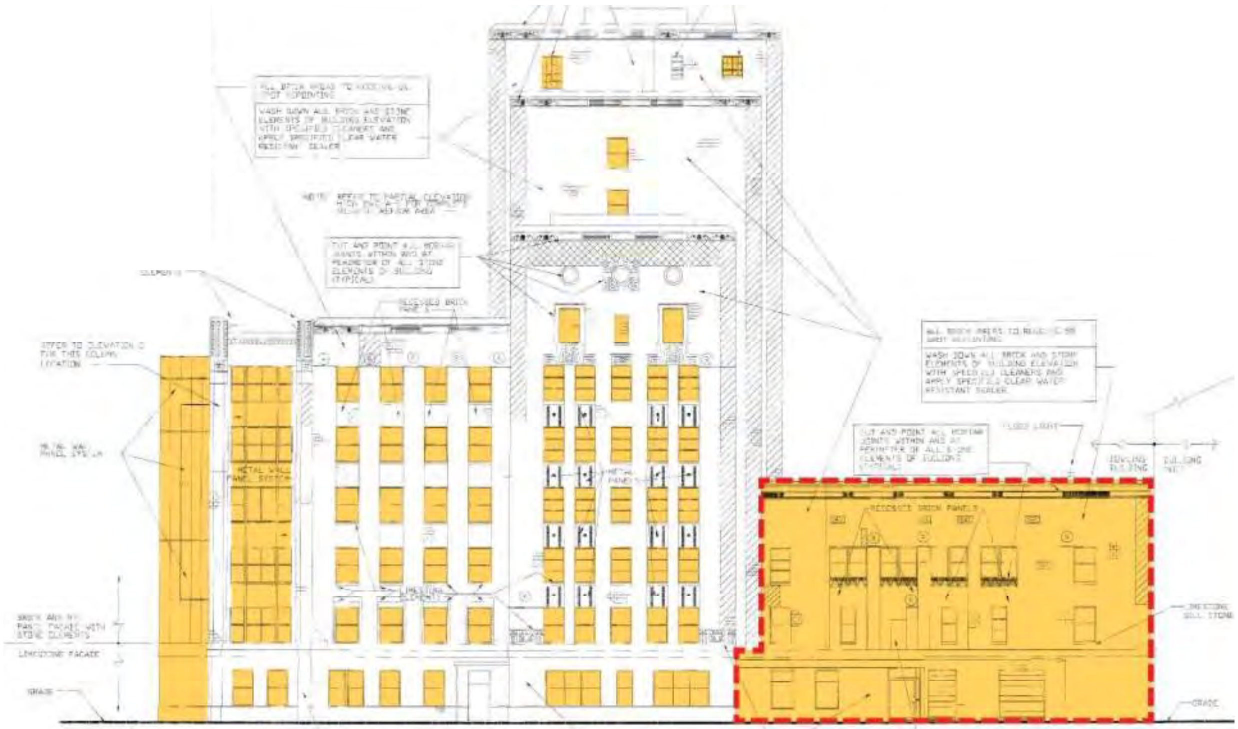
NORTH ELEVATION

Indicates area of modification

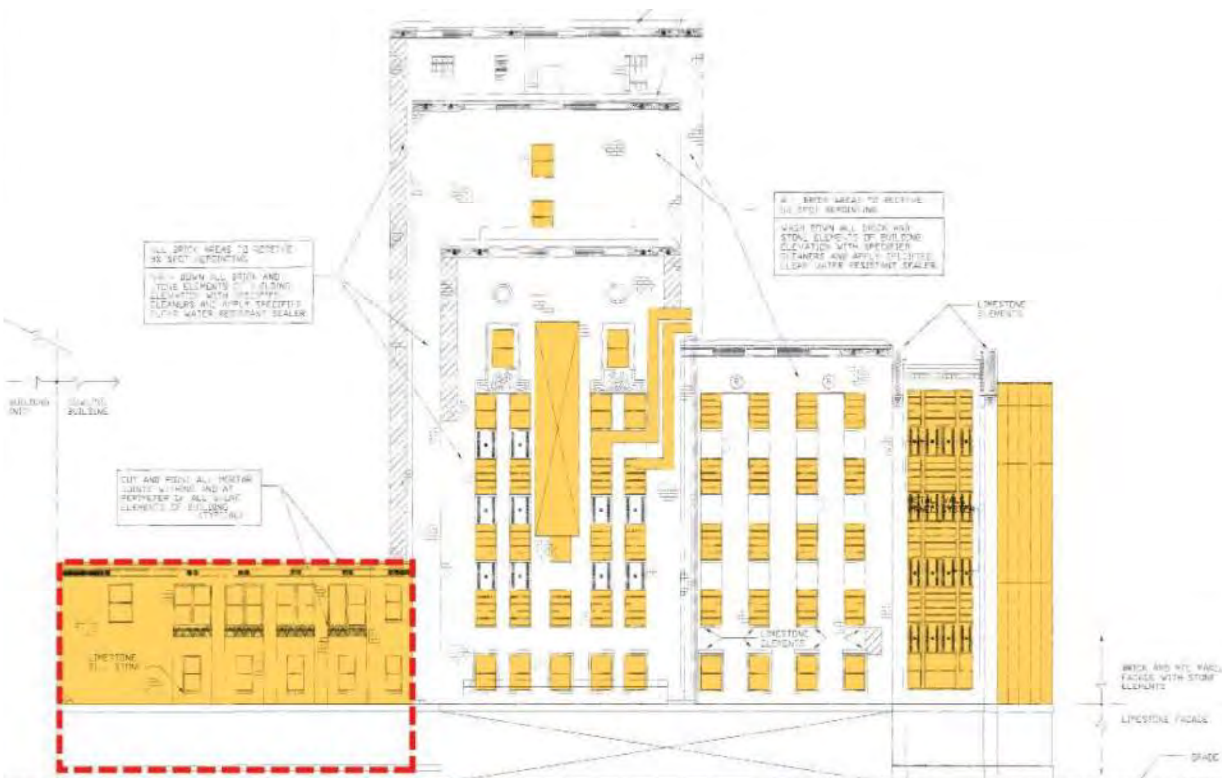
Area demolished as part of Phase 1 Inpatient Building

Figure 7.6 Dowling Building Modified Building Elements

MODIFIED BUILDING ELEMENTS



EAST ELEVATION



WEST ELEVATION

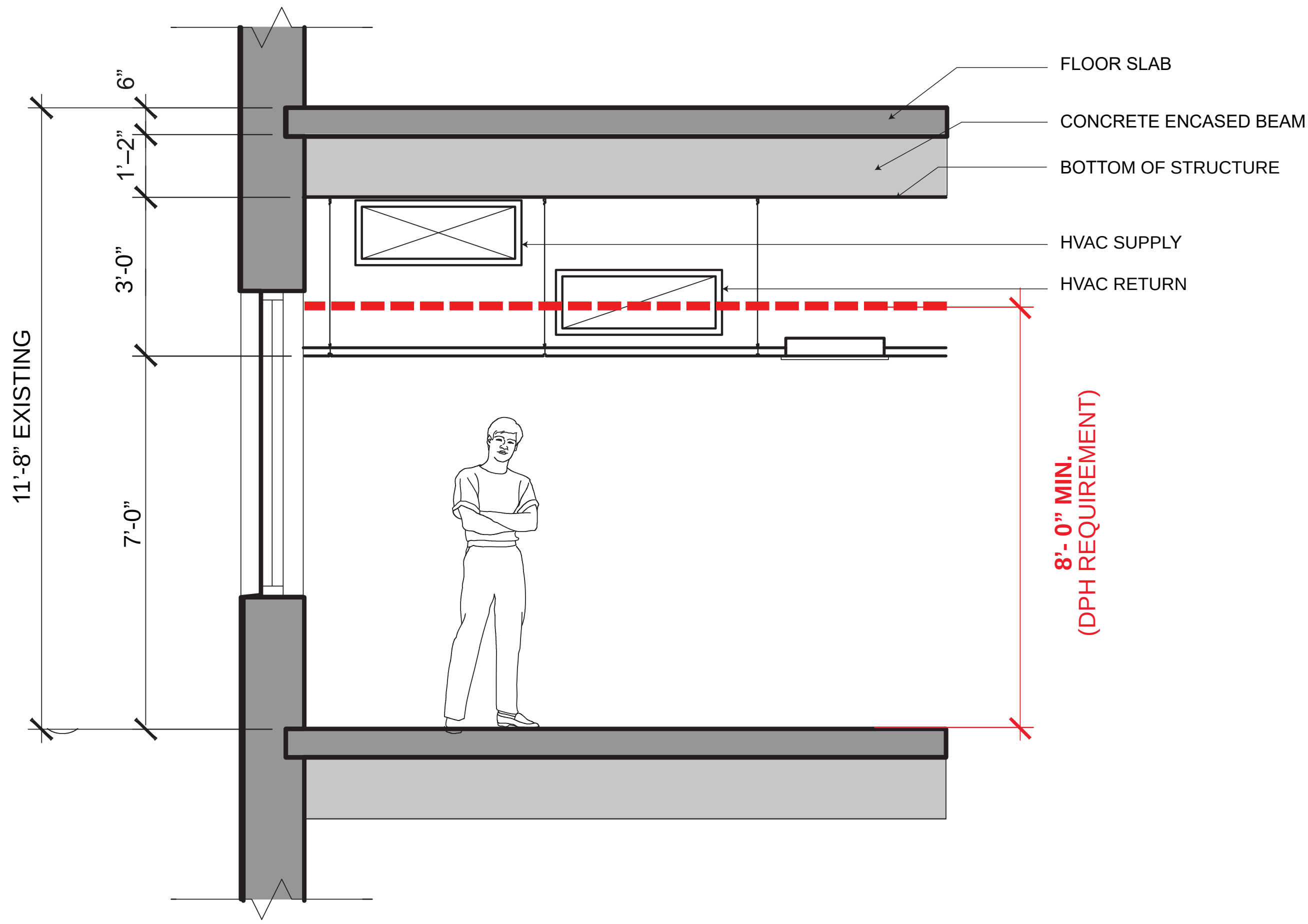
Indicates area of modification

Area demolished as part of Phase 1 Inpatient Building

Figure 7.7

EXISTING DOWLING BUILDING — TYP. FLOOR SECTION

TYPICAL UPPER FLOOR LEVEL
INPATIENT BEDS



INPATIENT FLOOR

	PROPOSED	INDUSTRY STD.	DEPT. OF PUBLIC HEALTH REQUIREMENTS	Notes
Floor to Floor	11'-8" (Existing)	14' - 15'	n/a	
Ceiling Height	7'-0"	9'-0"	8'-0"	1,3
Interstitial Space	3'-0"	3' - 4'	n/a	

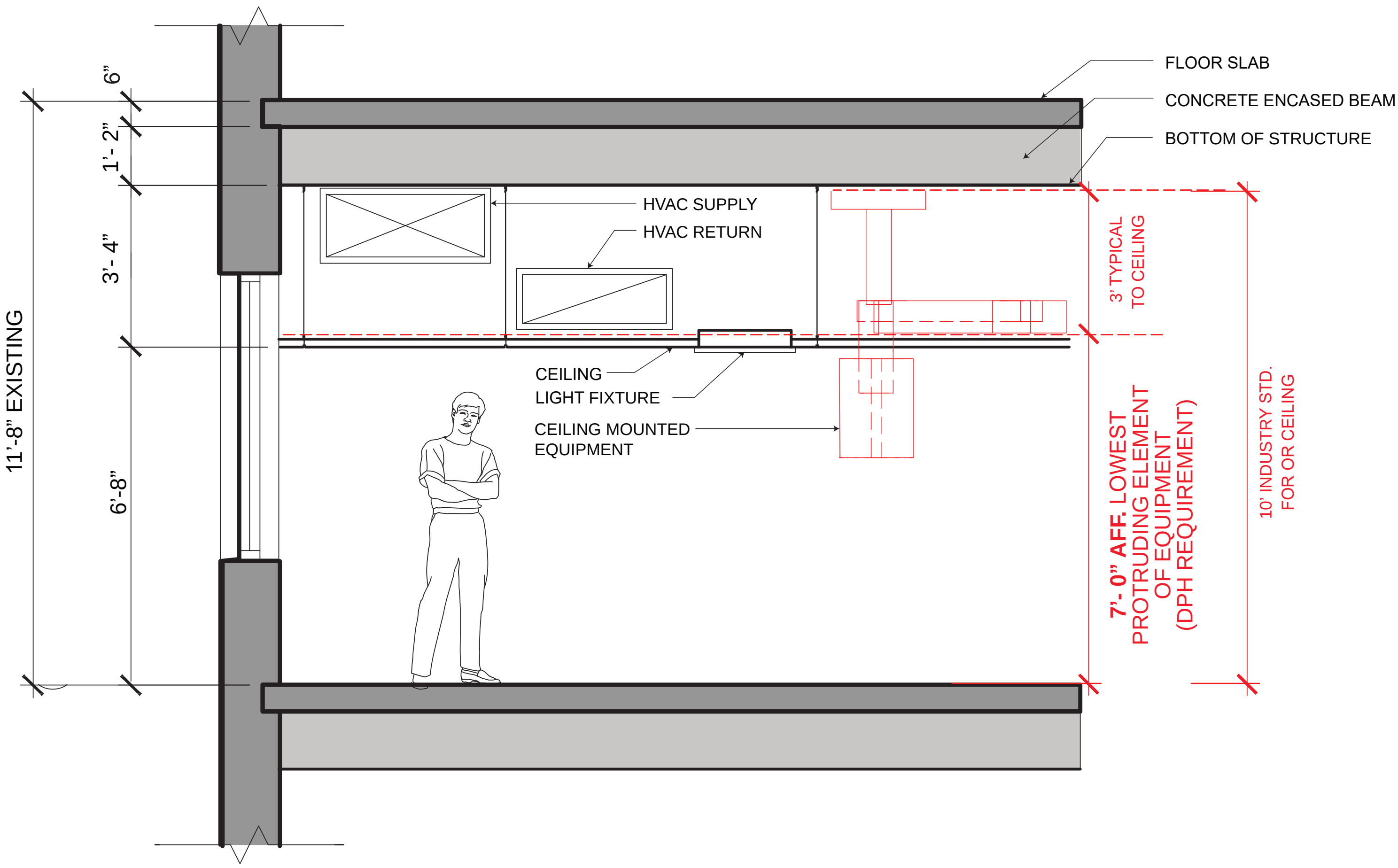
Notes:

1. Proposed ceiling height is result of typical MEP requirements for Inpatient Space
2. Industry Std. are based on typical equipment clearance requirements
3. DPH Information based on 105 CMR 151.320*

Figure 7.8

EXISTING DOWLING BUILDING — TYP. FLOOR SECTION

LEVEL 1
OPERATING ROOM EXPANSION



OR FLOOR

	PROPOSED	INDUSTRY STD.	LIFE SAFETY/DEPT. OF PUBLIC HEALTH	Notes
Floor to Floor	11'-8" (Existing)	15' - 16'	n/a	
Ceiling Height	6'-8"	10'-0"	7'-0" to lowest protruding element of equipment	1,3
Interstitial Space	3'-4"	3' - 4'	n/a	

Notes:

1. Proposed ceiling height is result of typical MEP requirements for Inpatient Space
2. Industry Std. are based on typical equipment clearance requirements
3. DPH Information based on DPH Complience Checklist IP14: Surgical Services

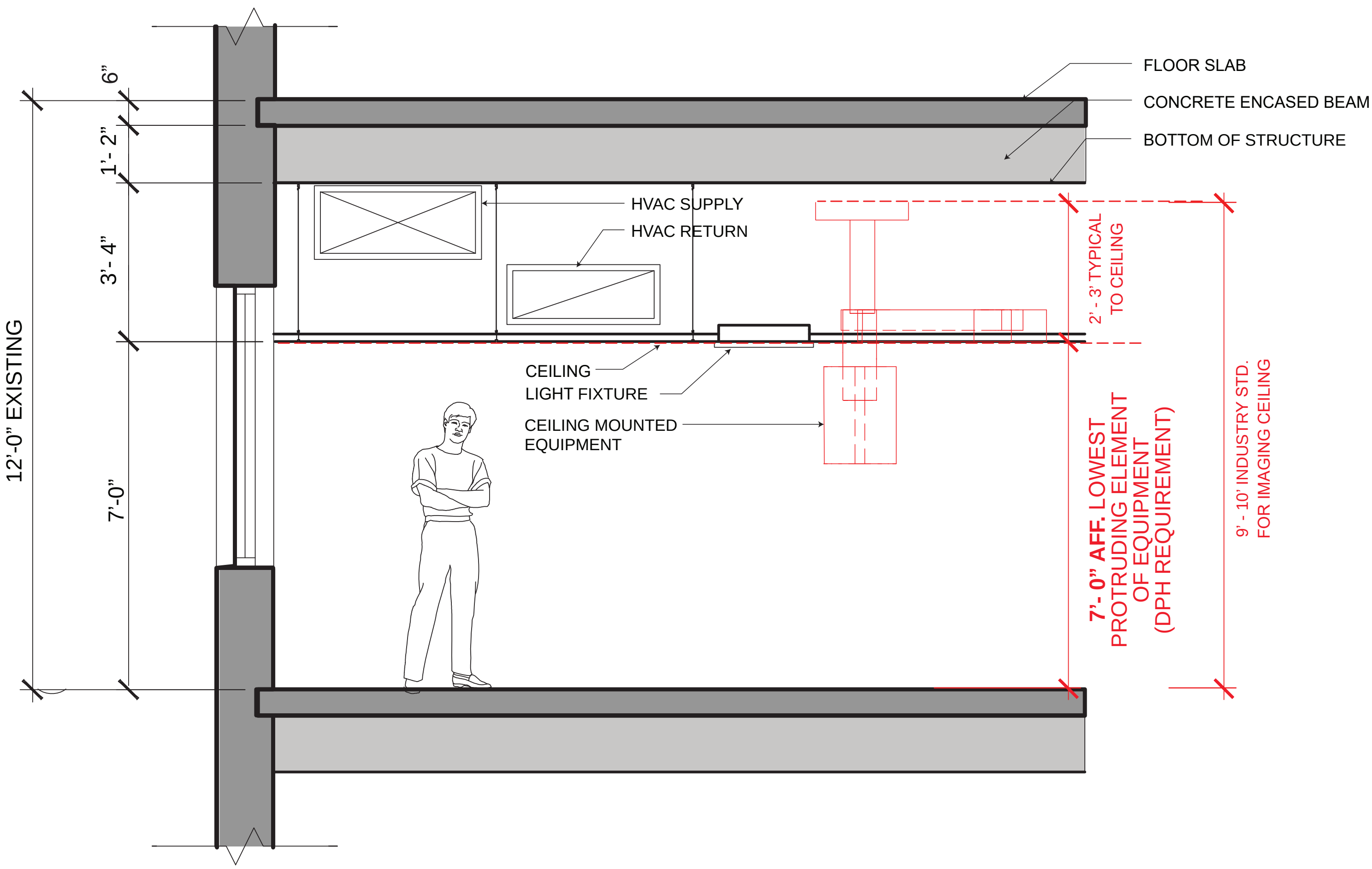
BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

TK&A ARCHITECTS

Figure 7.9

EXISTING DOWLING BUILDING — TYP. FLOOR SECTION

LEVEL G
RADIOLOGY EXPANSION



IMAGING FLOOR

	PROPOSED	INDUSTRY STD.	LIFE SAFETY/DEPT. OF PUBLIC HEALTH	Notes
Floor to Floor	12'-0" (Existing)	15' - 16'	n/a	
Ceiling Height	7'-0"	9' - 10'	7'-0" to lowest protruding element of equipment	1,3
Interstitial Space	3'-4"	3' - 4'	n/a	

Notes:

1. Proposed ceiling height is result of typical MEP requirements for Inpatient Space
2. Industry Std. are based on typical equipment clearance requirements
3. DPH Information based on DPH Complience Checklist IP4: Critical Care Nursing Units

Figure 7.10

DOWLING TEST-FIT (Ground) | Proposed Imaging Program

ROOM TYPE	PROPOSED PROGRAM	DOWLING RETROFIT	NON-COMPLIANT PROGRAM SPACES
FLUOROSCOPY	2	2	0
RADIOLOGY	3	0	3
GAMMA CAM	2	0	2
CT SCAN/SPECTRAL CT	4	4	0
PET CT	1	1	0
ULTRASOUND	4	3	1
MRI	2	0	2

Analysis Notes:

1. Non-compliant spaces: Spaces that do no t within the existing building foot print or are obstructed by existing building elements.
2. Existing building infrastructure creates layout con icts.
3. Existing column layout does not work with planning con guration.
4. Not enough elevators to serve new population.

LEGEND

- PUBLIC CIRCULATION
- RESTRICTED ACCESS
- PROGRAMMED MAJOR SPACE
- PROGRAMMED SUPPORT SPACE
- OR CLEAN CORRIDOR
- EXISTING BLDG INFRASTRUCTURE (STAIRS/ELEVATORS/STRUCTURE/SHAFTS)

Figure 7.11

DOWLING TEST-FIT (Level I) | Proposed OR Program

ROOM TYPE	PROPOSED PROGRAM	DOWLING RETROFIT	NON-COMPLIANT PROGRAM SPACES
OPERATING ROOM	9	0	9
EP LAB	3	0	3
INTERVENTIONAL RADIOLOGY	2	0	2
CATH LAB	2	0	2

Analysis Notes:

1. Non-compliant spaces: Spaces that do no t within the existing building foot print or are obstructed by existing building elements.
2. Existing building infrastructure creates layout con icts.
3. Existing column layout does not work with planning con guration.
4. Not enough elevators to serve new population.

LEGEND

- PUBLIC CIRCULATION
- RESTRICTED ACCESS
- PROGRAMMED MAJOR SPACE
- PROGRAMMED SUPPORT SPACE
- OR CLEAN CORRIDOR
- EXISTING BLDG INFRASTRUCTURE (STAIRS/ELEVATORS/STRUCTURE/SHAFTS)

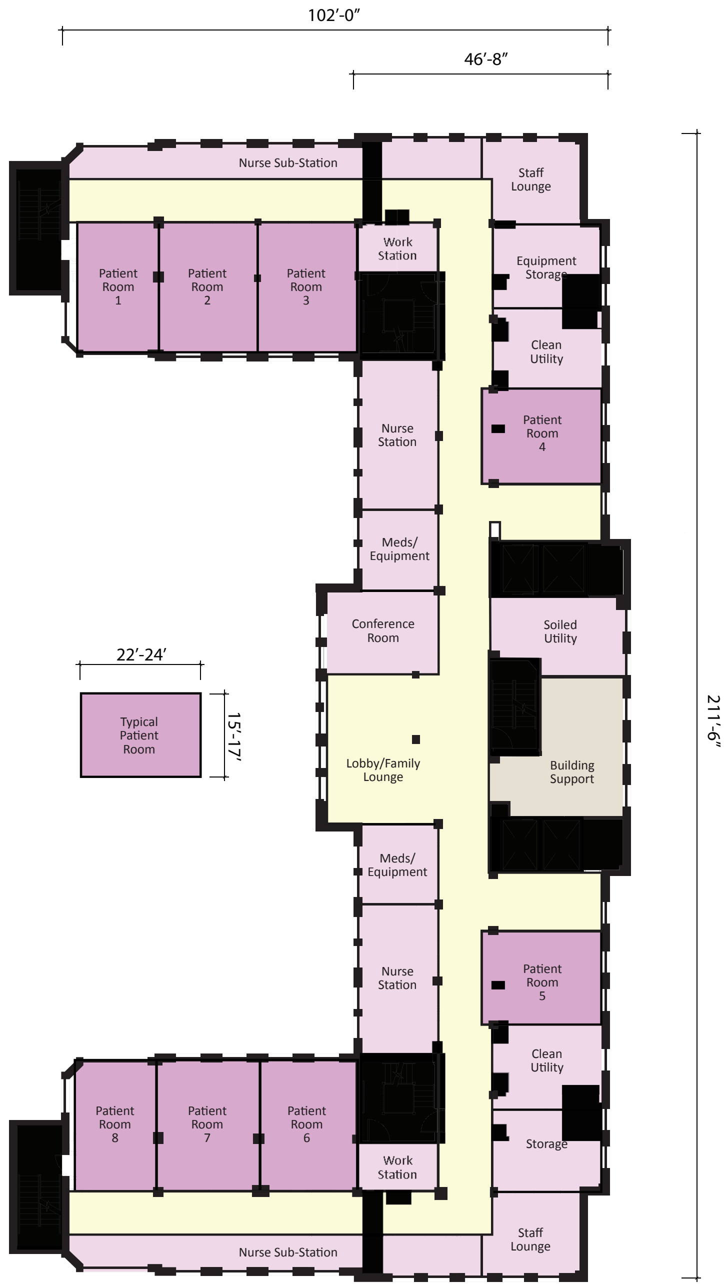
Figure 7.12

DOWLING TEST-FIT (Level 4) | Proposed Typical Inpatient Floor

ROOM TYPE	PROPOSED PROGRAM	DOWLING RETROFIT	NON-COMPLIANT PROGRAM SPACES
PATIENT ROOMS/FLOOR	28	8	20

Analysis Notes:

1. Non-compliant spaces: Spaces that do no t within the existing building foot print or are obstructed by existing building elements.
2. Patient rooms are oversized in order to align with structure, creating inef ciencies.
3. Visual site lines are impeded between nurse station and sub-station, due to U-shap oor plan.
4. Existing structure limits the number of beds provided. Result is ratio of too much support space, to not enough beds.
5. Existing building infrastructure creates layout con icts.
6. Single loaded corridor allows for no public/private separation.
7. Not enough elevators to serve new population.



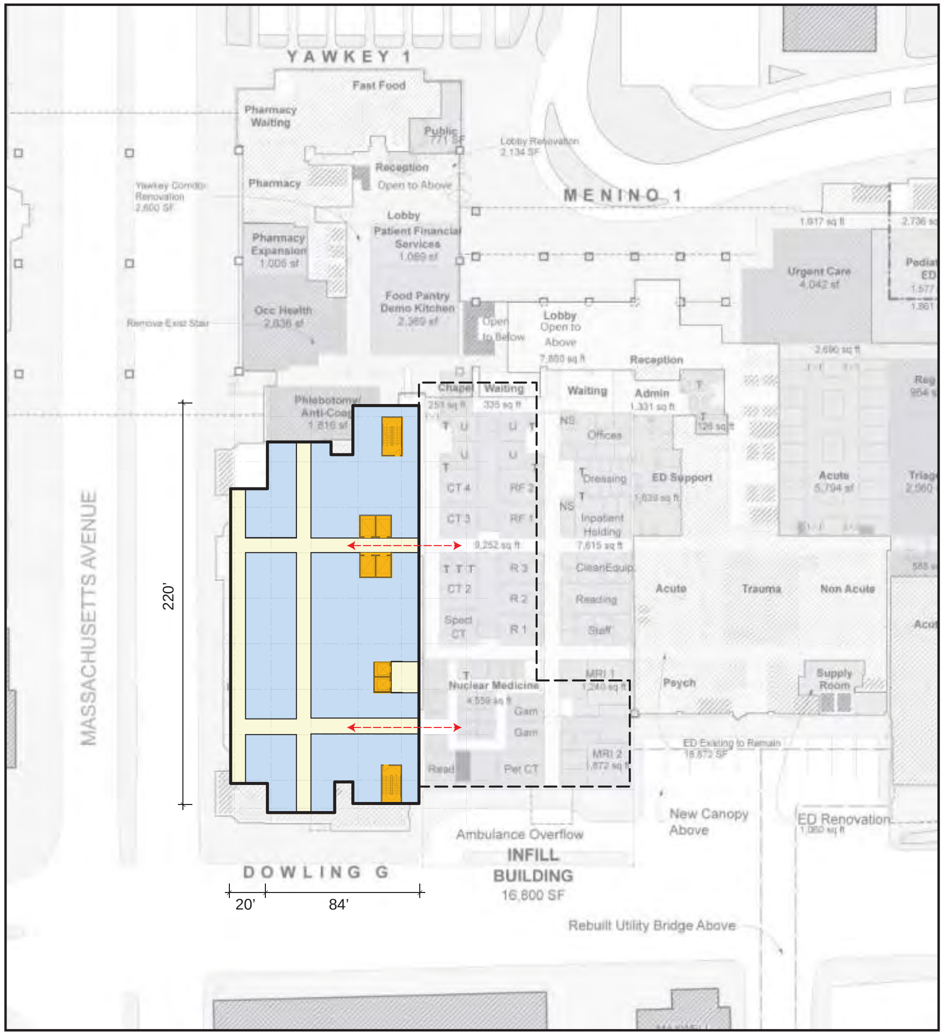
LEGEND

- PUBLIC CIRCULATION
- RESTRICTED ACCESS
- PROGRAMMED MAJOR SPACE
- PROGRAMMED SUPPORT SPACE
- OR CLEAN CORRIDOR
- EXISTING BLDG INFRASTRUCTURE (STAIRS/ELEVATORS/STRUCTURE/SHAFTS)

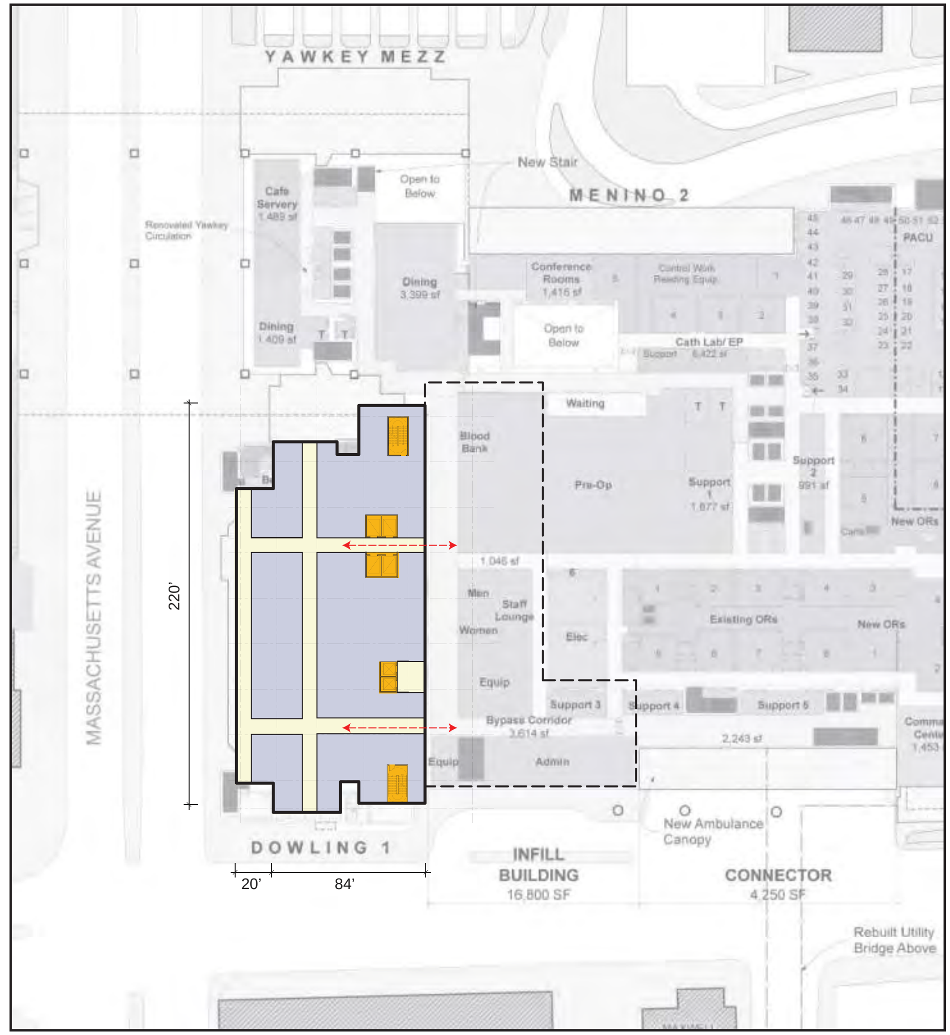
Figure 7.13

New Inpatient Building - Phase 1 + Phase 2 Connected

February 22, 2013



Level 1 - 20,300 sf
Radiology / ER Expansion

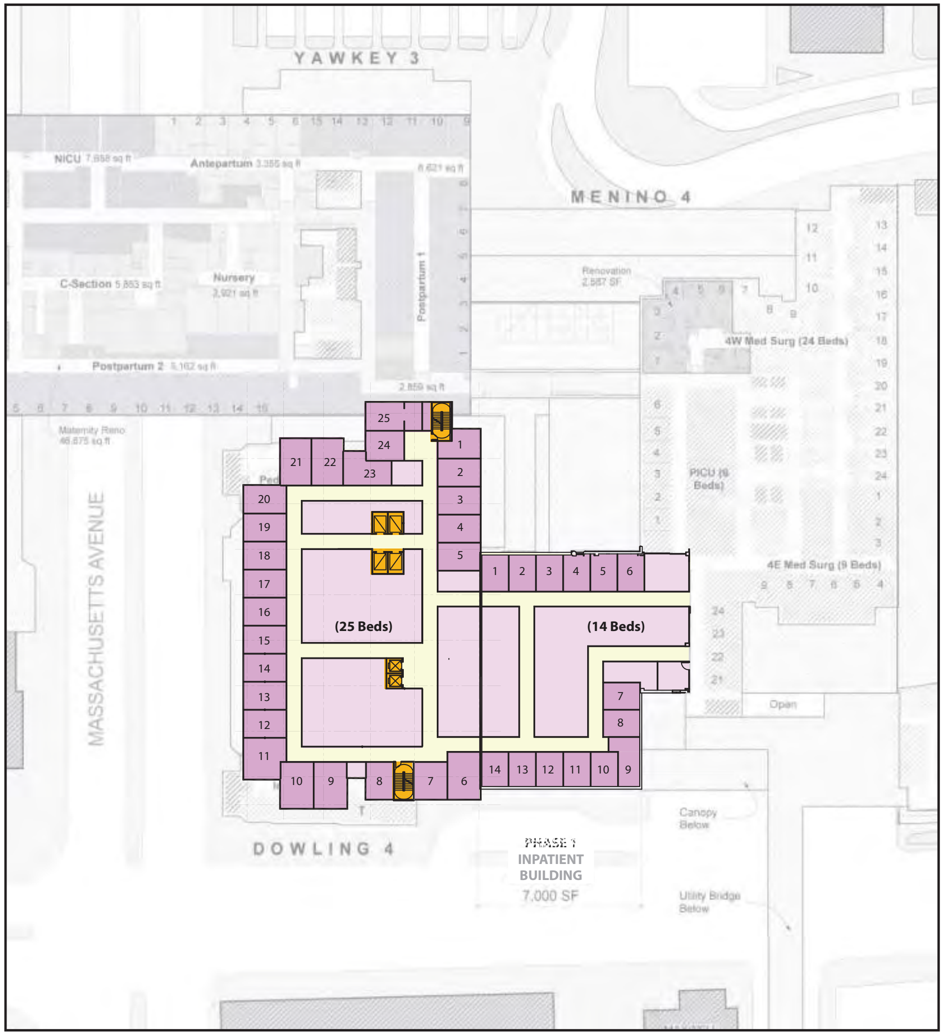


Level 2 - 20,300 sf
Surgery Expansion

Figure 7.14

New Inpatient Building - Phase 1 + Phase 2 Connected

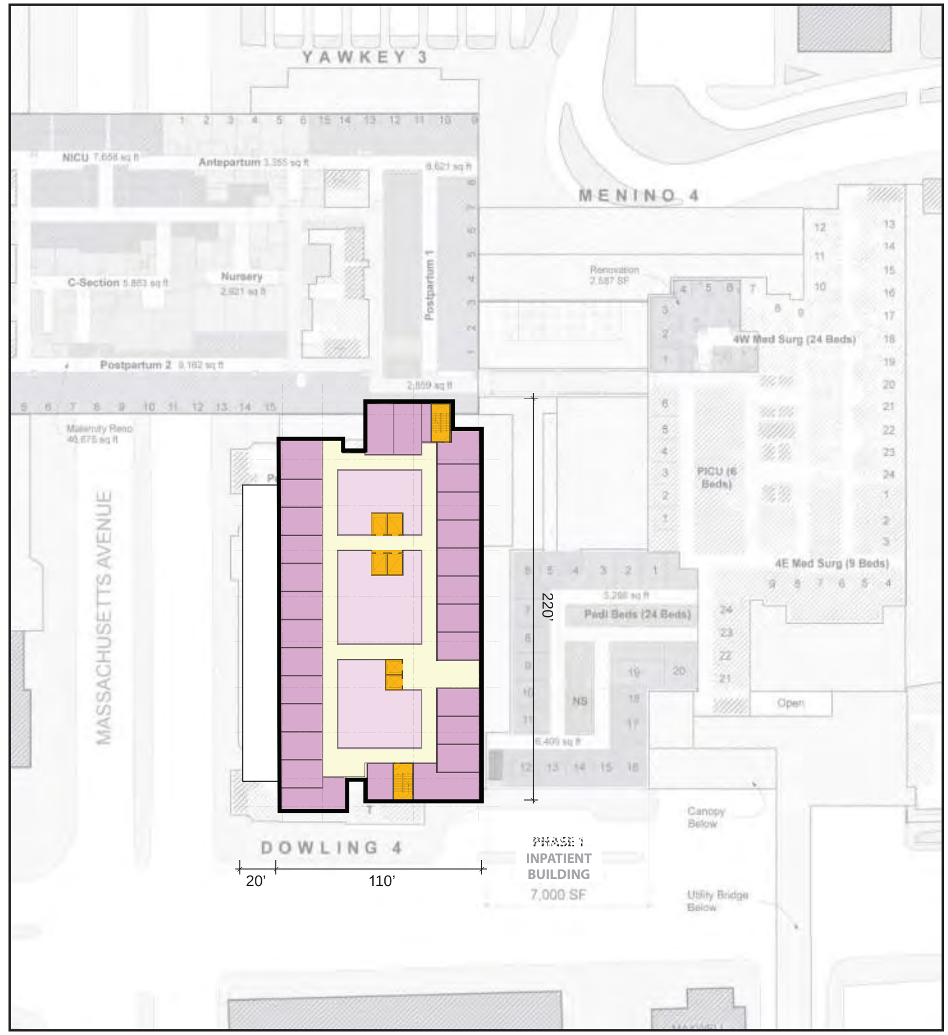
February 22, 2013



Level 3 & 4 (Phase 1&2 connected) - 26,000 sf

Phase 1 - 14 Beds

Phase 2 - 25 Beds



Levels 5 - 10 (Typical Inpatient Floor) - 23,000 sf

28 Beds/Floor

336 Total Beds (12 Levels @ 28 Beds)

8.0 ANNA WHITE VOSE HALL BUILDING REUSE STUDY

8.1 Introduction

Boston Medical Center (BMC) completed an extensive Institutional Master Planning (IMP) Process from 2007 to 2010. The IMP process was in part a result of a facility condition assessment completed in 2007 which evaluated the physical conditions of the major buildings on the campus. The purpose of this assessment was to prioritize capital investments and determine the highest and best use for the buildings for the short and long term. The assessment concluded that certain buildings contain major deficiencies and require major improvements to function acceptably as clinical, medical education, or administrative space. Anna White Vose Hall (Vose Hall) was included in the assessment and was identified as requiring significant infrastructure investment.

Vose Hall's primary function was as administration and office use. It is currently being vacated due to its numerous physical and infrastructure deficiencies. The facility condition assessment was updated in 2015 which resulted in the same conclusion. It is challenging to adapt Vose Hall to meet all applicable codes for a modern administrative office building. The building does not contain an elevator, narrow corridors make future accessibility difficult to achieve, and low floor to floor heights make it difficult to incorporate upgrades to the required mechanical, electrical and plumbing systems.

8.2 History

In 1896 as a result of a bequest from Mrs. White Vose, it was possible for the Trustees to begin building a permanent Nurses Home which would bear her name. Land was granted for this purpose by the City of Boston, on the easterly side of Stoughton Street adjoining the Medical Dispensary. Construction began in 1897, and the building was finished in 1898 at a cost of $100,000. Vose Hall was designed to accommodate 100 nurses.

In the years leading up to building a permanent Nurses Home, the nurses' Training School had continued to grow and expand. There was a feeling on the part of the Trustees that the hospital needed a permanent, well-equipped Home for Nurses. Once Vose Hall was built, the Training School was extended to three years. Applicants increased year by year, and the curriculum was extended.

In 1900, Miss Fanny Farmer of the Boston Cooking School helped to develop a formal dietary service for the Hospital, as well as a course in dietetics and cookery for nurses in the Training School.

The building had been adapted over time to house offices. The corridors are narrow and there is no elevator in the building, making the upper floors inaccessible. Most recently, the building contained administrative offices. The offices were being relocated to other buildings in 2019, leaving the building vacant in 2020.

8.3 Physical Description

Built of red brick with stone detail, the building rises four stories to deep overhanging eaves supported on scroll brackets. The westernmost section of the building is the most elaborate. The remaining long shaft of the L retains some of the features of the west section but is detailed as a secondary elevation. The windows are set in punched openings that change at each story. Stone detail includes a simple projecting beltcourse above the first story, a frieze (with the building name carved in the stone) and a molded cornice above the 3rd story, window sills and pilaster capitals. The cornice continues on the south elevation with a simpler plain brick frieze and single stone cap. The shaft of the L has stepped rows of projecting brick, but no molded stone cornice. The first story beltcourse continues on the rest of the building.

Two-story brick pilasters delineate the bays at the second and third stories. The pilasters are set in from the building corners creating a notched detail contributing to the vertical emphasis. Narrow paneled pilasters separate the bays at the fourth story. The basement windows have brick segmental arches, windows at the second story are framed by round brick arches with keystones, the second story has segmental arches, the third and fourth stories have flat arches. The window height diminishes as you rise up the building. Typical windows have 6/6 double-hung sashes, except the first story which has tracery at the top of the round arched sashes.

Cast iron balconies at the first story windows match the railing on the open brick porch along the south elevation, where the main entrance is located within a segmental arch. A bowed cast iron fire balcony projects at the third story, south elevation.

See Figures 8.1 to 8.3 Existing Photography.

8.4 Changes to the Original Building

As building codes, technologies and uses changed over time, alterations to Vose Hall have been made to keep the building up to code. Originally built to house nurses, the building was converted to administrative office uses.

The major change was the addition of the Betatron in 1968. The condition of the existing facades is fair to poor with open mortar joints, missing brick, deteriorated wood windows and trim, and deteriorated cast iron elements. Changes to the interior have been extensive to convert the dorm style rooms to offices and to fit modern systems into the building, unsuccessfully.

8.5 Current Setting

Vose Hall is set toward the interior of the block bounded by East Concord, Albany and East Newton streets and Harrison Avenue. The building is shaped like an L with a serif at the end with a one-bay return. It sits south of the Robinson Bldg. and west of the Old Evans Building. The one-story Betatron, constructed in 1968, is attached to the east elevation and the top of the L attaches to the (new) Evans Building. Vose Hall is not visible from the public way and is located behind a secured gate.

8.6 Preliminary Building Reuse Study

Reuse of Vose Hall and the attached Betatron building was recently evaluated. Vose Hall was built as nurse's home, which is a 5-story wood framed structure, and the attached Betatron building was constructed for its original use as a linear accelerator vault. The Vose Hall superstructure, including floor to floor heights, L-shaped floor plan, the size of the floor plates, the structural bay spacing and the structure itself, as well as building services and infrastructure, including mechanical, electrical, plumbing, and conveying systems, were evaluated for the potential to reuse the building for a modern office program. Primary considerations were given to areas that would impact code requirements and remaining area to accommodate mode administrative office program.

In determining the feasibility of re-using the Vose Hall, including the 1-story Betatron addition, for modern administrative office use, the following evaluation criteria was used.

- **Current building(s)**
  - 22,695 sf (Vose), 5,912 sf (Betatron)
  - 5 floors (Vose), 1 story (Betatron)
  - Typical bay dimensions: 13' x 17' (Vose)
  - Average typical floor area: 4,500 sf (Vose)
  - Typical floor to floor height: 10'-6" (Vose)
  - Steam heating (Vose)
  - No air conditioning or ventilation system (Vose)
  - AC window units or manual operated windows (Vose)
  - No fire protection system

- **Administrative Office Program Evaluation Criteria Recommendations**
  - 10,000 sf floor plate minimum
  - Rectangular floor shape is ideal for optimized layout
  - 12'-0' minimum floor to floor height
  - 8'-0" minimum ceiling height, 8'-6" preferred
  - 10'-0" wide x 12'-0" private office minimum
  - 5'-0" minimum corridor width
  - Structural grid should accommodate 10'-0" planning module for offices
  - Repetitive structural grid dimensions are preferred
  - Floor loading for general office use: 50 pounds/square foot
  - Floor loading for corridors: 80 pounds/square foot
  - 1 passenger elevator
  - 2 egress stairs
  - Space for MEP, tele/data, IT: minimum 10%

- **Program Need and Use**
  - Intended use is Administrative Office program for BMC
  - Need 110,000 sf of new program space
  - Less than 30% of intended / needed program will fit into current footprint with all the required upgrades
  - Need floor space for new core elements: 1 passenger elevator, toilet rooms, janitor closet, egress stairs

- Need floor space for electric room, tele/data closet, mechanical shafts

- **Floor to floor heights**
  - Average existing floor to floor height is 10'-6"
  - Inadequate floor height to accommodate mechanical system, lighting, fire protection
  - Minimum ceiling height is 8'-0"
  - Ideal ceiling height is 8'-6"
  - Recommended minimum floor to floor height is 12'-0"

- **Floor plate size & configurations**
  - Current floor plate shape is L shaped with different width at each leg
  - Ideal floor plate shape for office layout is a rectangular shape
  - Recommend floor plate size of 11,000 sf

- **Office layouts**
  - Corridor width too narrow
  - Recommended corridor width of 5'-0"
  - Recommended typical private office size: 10' x 12'

- **Structural Bay spacing**
  - Current bay dimensions are inconsistent, not on a planning module for private offices or systems furniture

- **Structure**
  - Existing wood framed structure
  - Fire rating issues
  - Seismic code requirements – non-compliant

- **Floor loading**
  - Unknown existing floor loading
  - Vibration concerns

- **Existing shafts**
  - No mechanical shafts exist in the building

- **Adding new MEP systems**
  - Insufficient floor to floor height to add new MEP/FP systems
  - Insufficient roof loading for rooftop mechanical equipment

- **Codes**
  - Building – non-compliant
  - Energy – non-compliant
  - Accessibility – non-compliant

- **Architecture**
  - All new window replacement required
  - Brick masonry needs repointing / replacement
  - Original masonry detail has been removed

- Potential asbestos abatement required
- No visibility from street or campus
- Building envelope would need to be significantly altered to meet energy code

8.7 Conclusion

Originally designed as nurse’s home in 1898, the Vose Hall’s use over the past several years has been for administrative office space. Given the number of infrastructure deficiencies, BMC has been relocating offices out of the Vose Hall, including the attached Betatron building. The heating and ventilation systems are poor or non-existent, corridors are narrow, the wood frame structure does not meet current building codes, and the small bay space limits the number of required offices that can be accommodated. The Vose Hall and attached Betatron building, are not able to handle modern office space, code and technology requirements. Overall, renovating the existing structure would not provide adequate space to support administrative and computer data and analytics programs, once all the required code and infrastructure upgrades were implemented. As a result, less than 30% of the required administrative office program would be accommodated within the existing building footprint.

Figure 8.1 Existing Conditions Photography – Vose Hall

1. Southwest elevation of Vose Hall

2. Portion of northwest elevation.

3.Original cast iron balcony with some deterioration.

4. Brackets/supports for balcony.

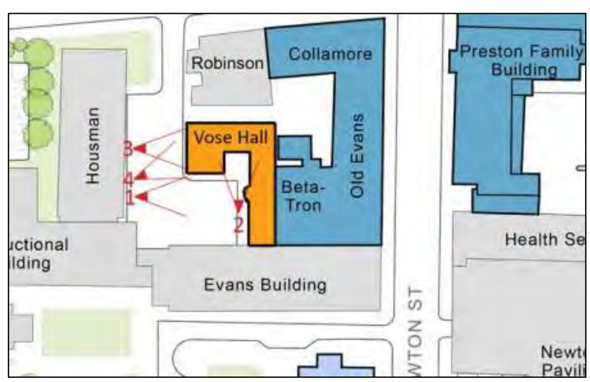


Figure 8.2 Existing Conditions Photography – Vose Hall

1. Area of missing and displaced brick under cast iron railing. Area also shows deteriorated and open joints.

2. Limestone inscription band is in good condition despite heavy soiling. Copper cornice above is missing components and has open seams.

3. Area of missing brick and deteriorated mortar joints.

4. Several bricks at the north corner are chipped or have spalls. Area also has numerous open and deteriorated mortar joints.

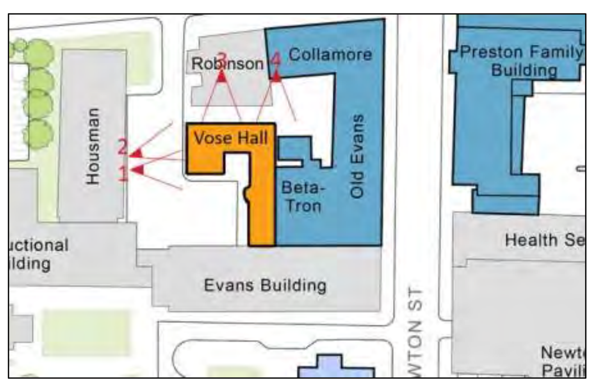


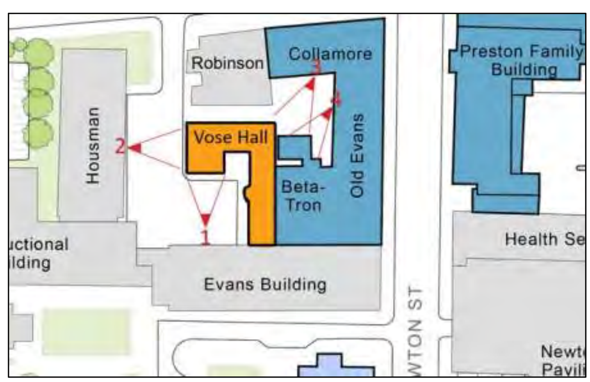
Figure 8.3 Existing Conditions Photography – Vose Hall

1. Cast iron railing is in poor condition and the brick pier has significant mortar loss and rust jacking.

2. Deteriorating paint and wood board over basement windows, along with soiling on limestone and granite and vegetation growing on brick wall.

3. Back of Vose Hall (northeast elevation) with elevated walkway to the Robinson Building (on right).

4. One-story Betatron attached to the northeast elevation of Vose Hall.



9.0 ATTACHMENTS

DOWLING BUILDING SUMMARY

Built
1937

Principal Use
Administration/
Office

Floors
B+9

SF
144,895

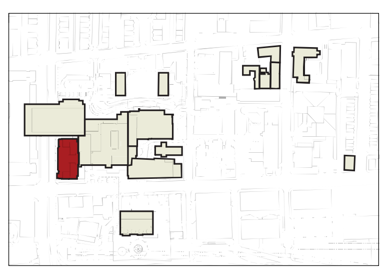
Status
Approved for demolition under 2010 IMP

Site of future clinical and inpatient service expansion

Architectural
Fair/Poor condition
- Building is 78 years old (1978)
- High visibility
- Very small and narrow floor plates are inefficient
- No access from city streets - enter through Yawkey or Menino
- Irregular floor plan
- Poor arrival sequence
- Poor pedestrian experience
- Minor street parking
- Very small and restrictive structural grid
- Low floor-to-floor
- In general, exterior envelope is in good condition
- Windows have been replaced in past 10 years
- Roof appears to be new
- Steel columns and beams with concrete joists - limited shaft expansion capabilities
- No expansion potential
- Some asbestos - need verification

Systems
Fair/Poor condition
- Lack of a designated transformer or electrical service
- Reduced service feeder from Yawkey building
- Switch board damaged from fire
- Lack of critical branch emergency system
- Life safety emergency system at capacity
- Emergency power from Yawkey building no spare capacity available.
- Branch circuit distribution insufficient for clinical use.
- Limited capacity HW and CHW risers added in 2013
- 4-pipe FCUs serving floors 7-9
- Lack of AHUs for ventilation. Operable windows currently utilized.
- Lack of shaft space for new risers and system upgrades
- Lack of ATC control on floors ground thru 6.
- Ground floor AHUs 1A and 1B beyond their useful life and should be replaced.

Structural
Poor condition
- Low floor-to-floor
- Tight column grid spacing
- Irregular column spacing



PHYSICAL CONDITION DETAIL — DOWLING BUILDING

Infrastructure Analysis	Category	Data	Comments
History and Site Context			
Age (years)		1937 (79)	
GSF		157,376 GSF	
Bldg. Construction	Type		Steel Frame with Brick Cladding
No. of Stories		10	High Rise
Historical Designation		No	
Structure/Expandability			
Structural System		Steel Frame	Steel Columns & Beams; Concrete Joists
Vertical Expansion Capacity		No	
Bay Spacing	East/West	18'	Columns at central cooridoor, 1 bay on each side
	North/South	16'	
Floor Plate Average			
	Level 8,9	9,000 sf	small floor plate
	Level 6,7	10,000 sf	small floor plate
	Level 1,2,3,4,5	15,000 sf	small floor plate
	Level G,B	30,000 sf	
	Limiting Dimension	40' to 48' wide	narrow floor plates
Floor to Floor Heights			
	Ninth	12'-0"	Appears to have some interstitial spaces
	Eigth	10'-0"	Appears to have some interstitial spaces
	Seventh	13'-11.5"	
	Sixth	11'-8"	Low Floor to Floor
	Fifth	11'-8"	
	Fourth	11'-8"	
	Third	11'-8"	
	Second	11'-8"	
	First	11'-8"	
	Ground	12'-0"	
General Construction			
Building Skin Analysis	Punched Windows	3 to 4	Wndws have been replaced in past 5 years - Operable exterior windows
	Brick	3 to 4	Some exterior corners rebuilt
Roof Analysis	Type	EPDM with Ballast	Appears new
	Condition	4	
Finishes, Typical	Partitions	Plaster/GWB	
	Flooring	Carpet/VCT/Wood	Condition: 3
	Ceilings	GWB/Plaster/ACT	Condition: 3

PHYSICAL CONDITION DETAIL — DOWLING BUILDING

Infrastructure Analysis	Category	Data	Comments
	Doors	HM	
	Frames	HM	
Finish Condition	Public Areas	Fair	
	OP Clinical	Fair	
Vertical Transportation	Elevators		
	Quantity	3	
	Condition	2	Old relay control technology needs replacement
Pneumatic Tube		No	
ADA		Yes	Through Yawkey/Menino
Hazardous Materials		Asbestos, VAT	Verify
Life Safety			
Fire Walls/Shafts			
Sprinklers		Fully Sprinklered	
Smoke detection System		Yes	
Fire Alarm System		Yes	
CMS/JCAHO Analysis		N/A	
Building Egress		5 Egress Stairs	
Function & Space Utilization			
Parking Relationship		Fair	On Street or Albany Street Garage
Dept. Assessment			
	Level 9	Admin Offices	
	Level 8	Admin Offices	
	Level 7	Admin Offices	
	Level 6	Admin Offices	
	Level 5	Admin Offices	
	Level 4	Admin Offices	
	Level 3	Admin Offices	
	Level 2	Admin Offices	
	Level 1	Auditorium	
	Ground	Office	
Present Use		Office/Admin	
Proposed Use		Inpatient Facility	Previously Approved by SEHLC

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

Attachment 9.1

BUILDING GRADING FORM - DOWLING BUILDING

Category	Data	Condition	Comment
GENERAL			
Age (years)	1937 (79)	1	
Typical Bay Dimen.	16' x 18'	1	Does not meet min. requirements for Inpatient Use
Ave. Typical Floor Area	10,000 sf	1	Does not meet min. requirements for Inpatient Use
Typ. Floor Plate Width	40' to 48'	1	Does not meet min. requirements for Inpatient Use
Avg. Fl. To Fl. Height	11'-8"	1	Does not meet min. requirements for Inpatient Use
Total Area (GSF)	157,376 GSF		
Bldg. Type by Code	?		
Occupancy	B		
Historical Designation	No		
No. of Stories	10		
PHYSICAL			
Roof		4	
Exterior Skin		3	
Life Safety		2	At Capacity
Finishes		3	
PTS	No		
Hazardous Mat'l		2	Some asbestos/VAT-Verify
ADA		3	
Vertical Transporation		2	
Overall Deficiency Rank		2	
FUNCTIONAL			
Present Use	Office	2	Some Ambulatory Care
Potential Use	Inpatient	1	
SITE			
Arrival Experience		1	Through Yawkey or Manino
Visibility		5	
Identity/Image		2	
Future Expansion Potential		1	
Parking		2	Albany Street Garage
Landscaping		1	Minimal on Albany Street

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

Attachment 9.1

BUILDING INFRASTRUCTURE GRADING - DOWLING BUILDING

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	mixed	1	none	needs new AHU's
Air Distribution Systems	minimal	1	none	needs new destitution
Cooling Systems	2013	2	minimal	Risers upsized to support office space in 2013.
Heating Systems	2013	2	minimal	Risers upsized to support office space in 2013.
Boiler Plant	CUP	CUP	CUP	from Central Utility Plant
Chillers	CUP	CUP	CUP	from Central Utility Plant
Pumping System	CUP	CUP	CUP	from Central Utility Plant
Cooling Towers	CUP	CUP	CUP	from Central Utility Plant
Piping Distribution	2013	3	none	Risers upsized to support office space in 2013.
Exhaust Systems	minimal	2		needs new vetilation sysrem
Automatic Temperature Controls	2013	2	none	No ATC's for levels G thru 6
Fuel Oil Tanks	n/a	n/a	n/a	
ELECTRICAL				
Normal System	Mixed	2	no	Equipment needs upgrade to accommodate new mechanical systems, no critical branch distribution.
Transformers	2010	2	no	Service sized for current use, will need upgrade for Clinical / Inpatient use
13.8kv feeders	1970	3	minimal	15 kV feeders to Yawkey substation from CUP.
Highrise Substations	2000	1	no	Substation damaged by fire, supplied by Yawkey building via a reduced feeder.
Secondary distribution	mixed	2	minimal	Equipment needs upgrade to accommodate new mechanical equipment or clinical occupancy.
Generators	2013	2	minimal	Emergency system from Yawkey building sized for existing loads. New Genorator needed for Clinical / Inpatient use
Emergency Distribution	2005	3	minimal	Life safety seperated, no critical branch power distribution existing.
Automatic transfer switches	2013	2	minimal	More capactity needed for Clinical / Inpatient use
PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	2013	4	has spare capacity	Domstic HW heat exchanger replaced in 2013.
Sanitary Drainage	1970s	2	minimal	approaching the end of its useful life.
Special Drainage	N/A	N/A	N/A	
Natural Gas System	N/A	N/A	N/A	
Purified Water System	N/A	N/A	N/A	
Fire Protection/Sprinkler	2013	5		Added to Yawkey fire pump in 2013.
Plumbing fixtures		3	N/A	

OVERALL CONDITION		2		

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable
CUP	Central Utility Plant

STANDARDS AND CRITERIA
SOUTH END HARRISON/ALBANY PROTECTION AREA
Revised July 2013

General Standards

As provided in Section 4, St. 1975, C.772, as amended, the only items subject to design review in the Protection Area Are:

Demolition;
Land Coverage:
Height of Structures:
Landscape; and
Topography.

The goals of the Protection Area are to protect views of the proposed adjacent Landmark District, to ensure that new development of major alterations adjacent to the District is architecturally compatible in massing, setback and height and to protect light and air circulation within the District.

Specific Standards and Criteria

1. Demolition: In general, demolition of structures in the Protection Area may be allowed subject to prior approval by the Commission.

2. Land Coverage: Setbacks may not exceed ten (10) feet from the back of the sidewalk line unless otherwise approved by the Commission except that a setback of greater than ten (10) feet may be allowed of the setback is consistent with adjacent setbacks or if the site is adequately landscaped.

3. Height of Structures: Please see maps for Protection Area Sub-districts: http://www.cityofboston.gov/images_documents/Article%2064%20Maps_tcm3-39595.pdf.
For additional information on allowable heights, please see Article 64, South End Neighborhood District: http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article64.pdf.

4. Topography   No major changes in topography are allowed within the Protection Area,

5. Landscape   In general, landscape changes within the Protection Area must not obstruct views of the elements of the adjacent Landmark District from any public ways in the Protection Area.

If surface parking adjacent to streets is proposed, then a visual barrier of landscaping is encouraged.

SIGNIFICANCE

In this portion of the study the historical significance of the complex is evaluated in terms of its medical, social, and architecural history, and with regard to its urban design.

Introduction

Evaluation has been undertaken by examining four areas of potential significance: medical history, social history, architecture and urban design. Additionally, the integrity of the complex has been evaluated by comparing it to other Boston hospitals. This process has led to the conclusion that the 19th century is the major period of significance for the hospital. Thus the following text concentrates on events of the 19th century.

Extant 20th century buildings at Boston City Hospital do not contribute to its historical architectural significance. In fact, many have played a detrimental role by adversely impacting the 19th century structures (B,C,D and F,G,H and Sears) through inappropriate scale and massing. Specifically these buildings include:

- Administration
- House Officer's Building
- Kitchen/Cafeteria
- Medical
- Maternity (OB/GYN)
- Peabody
- Pediatric
- Surgical
- Thorndike
- X-ray Annex
- Warehouse

The remaining 19th century buildings may be significant, and may merit Boston Landmark or National Register designation. This issue is addressed in the following chapters.

SIGNIFICANCE

Medical History: The Nineteenth Century Context

The 19th century was characterized by important discoveries that led to great advances in the diagnosis and treatment of diseases, and in the development of advanced surgical techniques. While some of these discoveries, such as the development of the stethoscope to detect chest disorders, occurred in the early part of the century, the major advances occurred at mid-century and after. In the 1840's, German physicians made discoveries that led to general abandonment of the traditional humoral theory which postulated that disease was seated in the bodily fluids, and depended upon such practices as bleeding to effect cures. Their work culminated in pathologist Rudolph Virchow's (1821-1902) doctrine that the cell is the seat of disease, a theory which remains a cornerstone of modern medicine. Frenchman Louis Pasteur (1822-95) and German Robert Koch (1843-1910), working separately, are generally given equal credit for developing the ensuing "germ theory" of disease. Called by some the greatest single advance in medical history, this theory recognized that disease did not develop spontaneously, but was carried by air-borne micro-organisms. It led, within a few decades, to discovery of the causes of contagious diseases such as leprosy, plague, diptheria and tuberculosis.

Another major advance of the period was the introduction of general anesthetics such as ether (1842), nitrous oxide (1844) and chloroform (1847), and of cocaine as a local anesthetic (1800). Anesthesia removed a major barrier to surgery, but the problems of infection leading to complications such as gangrene and septicemia remained until British surgeon Joseph Lister (1827-1912) applied the germ theory to surgery and formulated new theories regarding sepsis (a bacterial invasion of the body) and antisepsis (destruction of sepsis producing organisms). His demonstration of the effectiveness of carbolic acid as an antiseptic agent to prevent infections in wounds in 1868 removed another major obstacle to surgical progress, leading to a great increase in numbers of operations performed.

Later turn-of-the-century events leading to major medical breakthroughs included Wilhelm Konrad Roentgen's accidental discovery of the X-ray in 1895, and the recognition that immunization could control pathogenic diseases such as diptheria, tetanus and typhoid, in the first decade of the 20th century. Immunization eventually led to great changes in hospital design practice which had previously relied on isolated Pavilion wards to prevent the spread of infectious disease.

Initial Staff Organization and Members

From the beginning, BCH was closely associated with the area's established medical institutions--Massachusetts General Hospital (MGH) and Harvard Medical School (HMS)--and its practices reflected contemporary standards, but were generally not inovative themselves. When BCH opened on June 1, 1864, its staff consisted of a mix of experienced older advisors, and younger working residents, much as today's hospitals do. At the top was the Board of Consultation made up of six older doctors who acted as senior advisors. Most were associated with Massachusetts General Hospital, and many had been trained by Dr. John G. Warren, the surgeon who had performed the first ground breaking operation in the Ether Dome. They were Augustus Addison Gould (1805-66), President of the Massachusetts Medical Society and physician at MGH; Edward Reynolds (1793-1881), student of Warren, distinguished opthalmic surgeon and co-founder of the Eye and Ear Infirmary; Solomon David Townsend (1793-1869), senior surgeon at MGH and Warren's successor; Winslow Lewis (1799-1875), surgeon at MGH, student of Warren and City Physician in 1861; John Jeffries (1796-1876) co-founder of the Eye and Ear Infirmary; and Silas Durkee (1799-1878), a specialist in veneral diseases.

Serving beneath these men were six Visiting Surgeons. These somewhat younger men provided direct supervision to the hospital residents both on the ward and in the operating theater. All twelve were graduates of the

Harvard Medical School. The Visiting Physicians included John Phillips Reynolds (1825-1909), son of Edward Reynolds and specialist in obstetrics; John George Blake (1837-1918), a specialist in obstetrics, founder of the hospital's gynecological service in 1892 and unrivalled clinical teacher. Fitch Edward Oliver (1819-1892), editor of the Boston Medical and Surgical Journal; William Wallace Morland (1818-1876), secretary of the Massachsuetts Medical Society and later medical director of the New England Mutual Lfe Insurance Company; John Nelson Borland (1828-1890), a general practitioner in the City; and Jabez Baxter Upham (1820-1902), another general practitioner.

The Visiting Surgeons included David W. Cheever (1831-1915), a surgeon and editor of Boston City Hospital Reports as well as the Boston Medical and Surgical Journal; Algernon Coolidge (1830-1912), a surgeon; Duncan McBeane Thaxter (1828-1873), a general practitioner from South Boston; Charles Dudley Homans (1826-1886), a surgeon and president of the Massachusetts Medical Society in 1881-86; Charles Edward Buckingham (1821-1877), a specialist in obstetrics and gynecology, founder of the Boylston Medical School of 1847, and former practitioner at the Cholera Hospital of 1849; and Charles Harrison Stedman (1805-1866) a specialist in pathology and former superintendant of the U.S. Marine Hospital and of the Boston Lunatic Hospital. Henry Willard Williams (1821-1895), considered one of the leading opthamologists in the United States and co-founder of the American Opthalmological Society (1864) as well as the Boston Eye and Ear Infirmary, was also a visiting surgeon and was largely responsible for the hospital's early interest in treatment of diseases of the eye.

The doctors most directly responsible for patient care were the Resident Staff or House Officers. It had initially been planned that these men be graduated physicians, but due to the exigencies of the Civil War, second and third year medical students at the Harvard Medical School were selected instead. Michael Freebern Gavin (1844-1915) and David Francis Lincoln (1841-1916) were chosen to be resident graduate surgeons; John Dole (1838-1873) and Clarence John Blake (1843-1919)were chosen as resident graduate physicians; and Edward Greeley Loring (1837-1888) was the resident graduate in opthamology. Loring and Blake went on to achieve national reputations in opthamology and otology, respectively.

These original staff members and their 19th century successors are described by hospital historian Dr. John T. Byrne as good and dedicated doctors whose hospital rounds and private practices "tended to leave little time for original investigation or independent clinical discoveries." However, he went on to praise their knowledge of current medical practice, gained through medical school training, European study and reading of current journals. He said, "They quickly recognized the value of the clinical thermometer in 1869, first found a useful sedative the same year in chloral, witnessed the beginning of bacteriology with Koch, antisepsis with Lister, appendicitis with Fitz (1886), antitoxin for diptheria (1890), roentgenology in 1895 and the recording of blood pressure in 1903....Although no outstanding advances could be credited to these sound practitioners, one feels that they kept pace with the times, adopting promptly the discoveries of others and were recognized as leaders of American medicine, so much so that the Association of American Physicians could be formed (in 1885 with BCH staff) as primary organizers." He also cited the effect of Lister's discoveries on surgical practice at Boston City Hospital; sepsis was controlled, greatly increasing the number of operations performed and eventually lead to the construction of the Surgical Building with its larger and more conveniently located operating theater in 1875-77. Toward the end of the century in 1896, the X-ray Department was established just one year after Roentgen's discovery.

Development of Special Departments

When BCH opened in 1864, it consisted of one Pavilion Ward to treat medical cases and one to treat surgical cases, with an Administration Building housing opthalmic patients and a surgical amphitheater. Outpatients were handled in the tiny Porter's Lodge. Within a year, the Foul Ward had been added to contain contagious diseases such as small pox and a small autopsy room was provided for clinical research. All of the buildings were isolated and freestanding in accordance with current medical practice to halt the spread of the disease. Medical students were welcome from the beginning and a special course of lectures was provided.

During its first decade, the hospital expanded markedly in numbers of patients and in the structure required to treat them. Pathology was established as the first new department with construction of the autopsy room in 1865. It did not come into its own however until the end of the century. The second separation into specialties occurred in the out-patient department in 1868 when a Dermatology Division was established by Howard Franklin Damon (1833-1884). The year after he joined the BCH staff in 1868, he published a major work on dermatology called Atlas of Skin Disease." The second specialty was established in 1869, also in the outpatient department. John Orne Green (1841-1922) an aural surgeon at the Eye and Ear Infirmary and at MGH, was chosen to develop this discipline. The division for diseases of women, also in the outpatient department, was established in 1874 with William Elbridge Boardman (1844-1921) in charge. Boardman had spent the two previous years in Europe studying gynecology and was considered one of the most learned men in Boston on the subject; in 1876 he became a co-founder of the American Gynecological Service. Gynecology did not become firmly established at the hospital however until the 1890's under the leadership of John George Blake, one of the original visiting physicians. The Division of Neurology was established in the outpatient department, headed by Samuel Gilbert Webber (1838-1926) who had initiated a similar department at the Boston Dispensary in 1868. Webber was initially referred to as the "electrician" as was his counterpart at MGH. Later in 1876 the last outpatient Department Division was established. This was the division for diseases of the throat headed by Ernest Watson Cushing (1847-1916) who had recently returned from study of that subject in Vienna. Surgical procedures for throat diseases were developed under the second division head, Thomas Amony DeBlois (1848-1921) who made laryngology one of the strongest departments in the hospital by century's end.

Boston City Hospital continued to expand during the first half of the 20th century to a peak of about 2000 beds in the 1950's. Much of this growth was due to the efforts of Mayor Curley who took a special interest in the hospital during his several terms in office, committing both City and WPA funds to its expansion. The present Pediatric Building of 1930-33 was originally known as the Mary E. Curley Pavilion in honor of his wife. While the hospital was expanding hysically during the depression years, it was also developing world famous departments of medicine, surgery, infectious disease and pathology.

Federal health insurance legislation passed in the 1960's, combined with new City administrations less interested in maintaining a hospital for the poor, led to a gradual reduction in beds to today's level of about 450 beds. The hospital's diminished role can also be seen in a larger context of general public withdrawl from health care systems established in the 19th and 20th centuries. Other comparable examples are the State Hospitals established to treat mental illness and the County Hospitals established primarily to treat tuberculosis.

Finally, in 1974, the hospital's teaching service, which initially had faculty and house staff from Harvard University, and more recently from Tufts and Boston University, was considered under the aegis of Boston University.

SIGNIFICANCE

Social History: The Nineteenth Century Context

Concern for the disadvantaged, including the poor, the sick and the mentally disturbed, has been recognized as a responsibility of the public sector in Massachusetts since its early 17th century settlement period. The Colonial period response to the needs of the disadvantaged citizens was profoundly different from the Post-Industrial response however. Until the time of the Revolution, there was little attempt to differentiate between various types of misfortune, and all were encompassed under the general heading of poverty; misfortune was accepted as part of the natural order, and there was little attempt to eradicate its causes; specialized institutions were not considered, but rather, the problem was dealt with on a personal and local community level. Social historians such as David J. Rothman have identified many causes for the shift in attitude during the early years of the new Republic. These included a sharp jump in the rate of immigration, great improvements in transportation networks and rapid industrialization, coupled with the rise of Enlightenment philosophy which emphasized the power of human reason and the basic improvability of mankind. All of these physical and philosophical changes tended to disrupt the homogeneity, parochialism, and religious determinism of the established social order which provided for local support of the poor, supplemented by limited state remuneration for those without legal residence in any town or city.

Massachusetts was on the forefront of the 19th century movement to establish public and private institutions to care for and improve the condition of various classes of dependent citizens. ~~As early as the mid-18th century, the state established a pauper hospital/almshouse at Rainsford Island that was subsequently taken over by the City. This was followed by the City's establishment of a pauper hospital on Deer Island in the early 19th century.~~ In addition, several private or quasi-private institutions were being established, such as the Boston Female Asylum for Orphans (1800), The Boston Dispensary (1801), Massachusetts General Hospital (1811) and The McLean Asylum (1818). A major state study on the subject of pauperism in the 1820's led to the opening of the first state insane asylum at Worcester in 1832 and to the construction of three state almshouses at Bridgewater, Tewksbury and Monson in 1851. No statewide provision was made for those in need of medical or surgical attention however.

The Origins of Boston City Hospital

Discussions concerning the need for a City Hospital in Boston began as early as 1849, and, in the opinion of hospital historian Dr. John J. Byrne, they sprang from three sources. One was the successful example set by a temporary hospital established by the city in 1849 to combat a severe cholera epidemic. Located in a large existing building on Fort Hill, the hospital was in operation from June 29 - November 15; it treated 262 patients, 166 of whom died. The second impetus was a long-standing sense of concern and pity for the City's sick poor whose numbers were rapidly increasing due to immigration. Finally, Byrne cites a sense of pride in the progress of both public and private entities in establishing innovative charitable institutions for the care of dependent citizens.

The establishment of a city hospital was given a major boost in 1851 when Elisha Goodnow bequeathed $26,000 to the City for the purpose of constructing a hospital for the poor in either South Boston or the new South End (during the 19th century, charitable institutions have generally migrated from South Boston to the South End to the Fenway or outlying towns as each became more densely developed.) Nevertheless, it was not until March 22, 1858 that the City authorized the establishment of a City Hospital through Chapter 113 of the Acts of 1858 which stated:

> "Section 1. The City of Boston is hereby authorized to erect, establish and maintain a Hospital for the reception of persons who by misfortune or poverty may require relief during temporary sickness.
>
> Section 2. The City Council of said city shall have power to make such ordinances, rules and regulations as they may deem expedient for the appointment of trustees and all other necessary officers, agents and servants, for managing the said Hospital.
>
> Section 3. Said Hospital shall not be erected or located within three hundred feet of any schoolhouse or church now built. (The impetus for this clause came from previous citizen objections to locating the Lying-in Hospital of 1832 in the residential South End.)

Section 4. This act shall take effect from and after its passage."

During 1860-61, a Joint Standing Committee on the Free City Hospital was established to define the purpose of the institution, to select a site and to develop architectural plans.

The Social Purpose of Boston City Hospital

The social purpose of Boston City Hospital was defined in several major papers published in 1860-61. One was the report of the Standing Committee itself, presented to the City Council on June 6, 1861. The others were authored by physicians who were consulted by the Committee and included: "Outlines of a Plan for a Free City Hospital" (1860) by Dr. Henry G. Clark, City Physician and surgeon at Massachusetts General Hospital; and "City Hospitals" (1861) by Dr. John Green, Fellow of the Massachusetts Medical Society. After examination of Boston's existing hospitals--Massachusetts General Hospital, Rainford Island Hospital and Deer Island Hospital--all concluded that there was still a large population within the City whose medical needs were not being met. This is despite Mass General's attempts to convince Committee members that it was meeting the City's medical needs, and through expansion, would continue to do so. However, Committee members found that Massachusetts General Hospital made it a rule to admit neither cases of contagious or epidemic disease nor chronic or incurable cases, and was too overcrowded in any event to serve the needs of the entire City. The hospitals at Rainsford and Deer Island, known as the Quarantine and Marine Hospitals, accepted such cases but had come to serve the large numbers of European immigrants arriving at Boston Harbor almost exclusively. Furthermore, they were inaccessible in winter, for as the Joint Committee stated, "...humanity shudders at the removal, in winter, of unfortunate victims of disease clinging to existence by but a thread, across six miles of ice-filled or storm tossed waters...Physicians in charge of these hospitals speak feelingly of the numbers who are brought to them, for whom proper accommodations should be provided within the City limits."

Thus, the population for which a new hospital was most needed was defined by Dr. Clark as:

"1. Those sick of measles, variola, scarlatina and CONSUMPTION, and who are not paupers.

2. Lying-in cases in the same class, and for those poor persons also who are not able to reach any of the more distant public institutions.

3. The industrious poor, who support themselves while in health, when attacked by acute diseases, or who are affected with chronic diseases capable of relief by temporary nursing and medical treatment; for all those, in short, who cannot be accommodated at the Massachusetts Hospital, and who when sick find their means diminished while their expenses are increased.

4. A variety of diseases which come under the notice of the police, such as convulsions, temporary delirium and various accidents.

5. The treatment of the sick, during any epedemic, such as cholera, when immediate attention and ample accommodations are indispensible, not only for the sick but for the comfort and security of the whole community."

In less specific terms, the Joint Committee members described the hospital's potential population as , "Numbers of the poor in miserable dwellings, domestics in out-of-the-way attics, strangers at hotels, (who) are suffering from the want of proper care, who should find, within the walls of some hospital adapted to their condition and wants, comfortable and well-ventilated apartments for their restoration." They also cited the temporary needs of soldiers injured in the Civil War then beginning.

SIGNIFICANCE

ARCHITECTURE

Introduction

This section examines the potential architectural significance of the hospital. It concentrates primarily on the original design by prominent Boston architect, Gridley J.F. Bryant. The remaining components of his design--B,C,D, the Surgical Pavilion Ward, F,G,H, the Medical Pavilion Ward--along with Sears, the old Surgical Building, are the extant buildings evaluated as architecturally significant.

SIGNIFICANCE

Selection of the Architect

The Joint Standing Committee on the Free City Hospital was appointed to determine the need for a city hospital, to locate an appropriate site, to select an architect, and to finalize plans. Their report, which includes Gridley Bryant's expanation of his design, was presented to the City Council on June 6, 1861, and remains the best source on these issues.

The report states that the Committee advertised for the plans in February, 1861, offering a first place prize of $300. Fourteen designs were submitted "of various degrees of merit, essentially differing in arrangement, and embracing a wide scope for selection." The architects cited as submitting designs were Gridley J. F. Bryant (1816-1899) of Boston; a Mr. Ropes who was probably George Ropes, a Boston native who moved to the mid-west in 1875; Elbridge Boyden (1819-1896) of Worcester; a Mr. Rand, possibly James H. Rand, architect of the 1856 Lowell Jail; a Mr. Fehmer, probably Carl Fehmer (b. 1835), a Boston native educated in Germany; a Mr. Richards, possibly James Richards (died c. 1902) who had restored the Vermont State Capitol in 1859; and the firm of Woodcock and Meecham. The Committee lavishly praised the "thought, intelligence, and professional skill" exhibited by all of the designs, and confessed their difficulty in making a choice.

Seemingly unable to completely make up their minds, the committee finally decided to split the prize and awarded first place with $200 to Bryant, and second place with $100 to Ropes. A special honorarium of $50 was awarded to Boyden. As explanation of their choice, the committee stated: "The plan of Bryant seemed not only best adapted for a general hospital and the treatment of every variety of disease, from the isolation of its several pavilions, but to combine an imposing appearance with great economy in construction. It has the especial recommendation of being susceptible of gradual and indefinite extension, admitting of a commencement involving little outlay, yet complete as far as it goes." Expandibility and economy seem to have been major factors in Bryant's selection, as the onset of the Civil War meant that fewer city funds would be available.

Rope's plan is mentioned only briefly with its internal arrangement cited as its chief merit. Boyden's plan is described in more detail, possibly because he collaborated with Dr. John Green of the Massachusetts Medical Society and author of "City Hospitals" (1861) which examined European models, described ideal qualities that city hospitals should possess, and used Boyden's plans as illustration.

The Committee seemed much taken by the beauty of Boyden's elevation drawing, but felt that the estimated cost was far beyond their reach. Boyden's French Renaissance style design featured a large main building constructed on the Kirkbride plan popular for insane asylums, with eight pavilion wards symmetrically arranged around a rear courtyard.

The ultimate selection of Gridley James Fox Bryant as architect for the Boston City Hospital is not surprising since he was already well known for his commercial and civic commissions. Born on August 29, 1816, Bryant was the son of an engineer and builder noted for his design of the Granite Railway in Quincy. Bryant seems to have been influenced by his father's vocation, for he decided to become an architect at an early age, and is especially noted for his works in the "Granite Style." He trained with Alexander Parris, one of Boston's most respected early 19th century architects, and maintained his own practice in Boston from 1837 until 1894, five years before he died at his retirement home in Scituate. During his career, Bryant at times collaborated with Arthur Gilman (1821-1882), and from 1868-1875 he was associated with L.P. Rogers. When Bryant was awarded the Hospital Commission in 1861, he was already well-established as one of the most important architects of his time, both in Boston and in many other parts of the country. The previous year he had been selected, with Arthur Gilman, to design the Boston City Hall, and earlier he had received national recognition for his design of the Suffolk County (Charles Street) Jail (1848-51). Bryant was also acclaimed for his many downtown commercial structures, 152 of which were sadly lost in the Great Fire of 1872. Survivors, however, include two prototypical examples of the granite style - the Mercantile Wharf of 1857 and the State Street Block of 1858. His medical and surgical pavilions at Boston City Hospital remain as excellent examples of his work executed in brick. Other extant brick buildings designed by Bryant include Ballou Hall at Tufts University (1853), Hawthorne Hall at Bates College (1856) and Gloucester City Hall (1870).

Bryant's Design and Client Modifications

Bryant's competition design consisted of a central administration building flanked by two pavilion wards on each side, with two slightly smaller wards behind, all connected by curving, open colonnades. The two-story administration building was square in plan with a projecting, quatrastyle portico, and a large crowning dome with raised ribs and pendentives. The two story pavilion wards were hip-roofed structures with projecting end pieces whose corners were defined by quoins.

To secure the most favorable exposure to sunlight, Bryant oriented his design toward East Springfield Street, and extended the pavilion wards out laterally toward Harrison and Albany Streets. In his explanatory letter to the Joint Committee, dated April 12, 1861, Bryant stated that his design was based on the pavilion plan "now universally conceded to be the true basis of a successful arrangement of any large or general hospital." He described his design as a "central building with a portico surmounted by a bold and picturesque dome, and connected laterally by means of open colonnades, with advanced pavilions of a corresponding style of architecture, presents in its own absolute requisitions the groundwork for artistic effect of the highest order...the particular style chosen is the modern style of Renaissance architecture, a style which, from its own inherent beauties, not less than from its almost universal susceptibility of adaptation to structures of a dignified and monumental character, stands at the head of all the forms of modern secular architecture in the chief capitals of the world."

Bryant also enumerated fourteen points explaining why his design "provides the conditions essential to secure the health of a hospital." These included its east-west exposure to take advantage of sunlight and air, the complete separation of the administration building and its encircling pavilion wards to prevent spread of disease, the fire-proof nature of its construction, the ingenuity of its ventilating system, and its flexibility "making extensions and additions to the capacity of the hospital easy and practicable, without marring the general plan or increasing the cost or size of the central building." On June 13, 1861, the City Council voted to appropraite $100,000.00 "for the erection of a City Hospital on Harrison Avenue...in general accordance with the plans of G.J.F. Bryant...."

Before ground was broken on September 9, Bryant's proposed design was modified in plan and elevation to reflect the comments and concerns of the Standing Committee and their consulting physicians. First, the administration building was turned to face Harrison Avenue and the curvature of the colonnades connecting it to the paired pavilion wards on Harrison Avenue and Albany Street was reversed. These four pavilion wards remained essentially in their original positions while the two smaller wards facing East Concord Street were deleted. Additionally, a boiler house/laundry building was inserted between the Albany Street pavilion wards. This plan, without accompanying elevation drawing, was published with the "Procedings at the Dedication of the City Hospital" on May 24, 1864. From the actual buildings however, we know that the administration building received a slightly different and more lofty dome, that the pavilion wards were enclosed by mansard rather than low-hip roofs. The change in orientation to Harrison Street reflected the many concerns about the hospital's proximity to the Roxbury Canal, concerns the city had earlier attempted to allay by extending the site up to Harrison Avenue. Orientation toward Harrison Avenue also made the hospital face the residential South End where its landscaped forecourt complemented the open space established previously by Worcester Square. The changes in the administration building probably reflected an attempt to economize on a non-patient oriented building, for even though Bryant had specifically tried to keep the central building as small and simple as possible, Henry G. Clark, one of the consulting physicians, had commented, "The elegant French facade plan is too complicated, and sacrifices too much of the hospital apartments to the central and less essential parts." The pavilion wards were most likely built with mansard rather than hip roots, to gain a fully usable attic story for patient accomodation

By the time the first annual report was published, the design had been modified once again. This time, the rear wards strectching out to Albany Street were turned 90 degrees so that their long sides paralleled the street, and they were connected the the boiler house/laundry room rather than the administration building. This change was probably made to allow better air circulation and to remove the pavilions as far as possible from the other buildings, for when the southerly pavilion was erected in 1865 it was called the "Foul Ward" and housed contagious cases. Although Bryant's plan was not built exactly as designed, the modifications do confirm his assertions about its flexibility.

Origins of Bryant's Design

Bryant's design reflected current thought about medical and psychiatric hospital planning. The most prevalent hospital model throughout most of the 19th century consisted of a central administrative core flanked by wings, either attached of detached, containing wardspace and sometimes rooms for nurses and attendants. The most obvious antecedent for Boston City Hospital was its immediate predecessor, Massachusetts General Hospital, designed by Charles Bulfinch in 1811. This imposing granite structure consisted of a four story domed central section with pedimented portico flanked by lower, attached, three story wings. An even closer parallel is to found in the original McLean Asylum, opened in Somerville in 1816, and also designed by Charles Bulfinch. As was the case with many other early medical institutions, McLean initially reused an existing house - here the brick Federal style Joseph Barrell House, designed by Bulfinch in 1792 with a monumental Neo-classical pedimented portico. To adopt the house to hospital purposes, Bulfinch added two flanking but free standing wings attached to the old mansion house by covered walkways. The wings were built on a T-plan with shallow domes surmounting the cross and with the stems extended forward to form a forecourt as at Boston City Hospital. A third antecedent, probably known to Bryant, is the Taunton State Hospital designed by his fellow BCH competitor, Elbridge Boyden. It followed the recently popularized (for insane asylums) Kirkbride plan of a central administrative core flanked by stepped back patient wings. Importantly for Boston City Hospital it introduced Renaissance Revival style detailing to the central building in the form of Corinthian pilasters and a lofty crowning dome. Also of interest is the fact that at Taunton, the outermost wings are set perpendicular to the rest of the building and are connected only by curved glazed walkways at the second story. The ultimate sources of the pavilion hospital with landscaped forecourt(s) were discussed by Dr. John Green in his 1861 tract "City Hospitals." The European models cited there were La Salpetriere and La Riboisiere in Paris, and Allgenmeine Krankenhaus in Vienna.

Subsequent Growth of Boston City Hospital

Within its first decade, Boston City Hospital had become overcrowded in both its patient and staff accomodations, and in its medical and surgical facilities. Thus, after several years of increased patient rejections, the City Council was convinced to appropriate $190,000 for enlargement. When construction commenced in 1875 however, Bryant's scheme was abandoned in favor of one that reinforced the hospital's division into medical and surgical sides by aligning the new buildings directly behind the existing medical (F,G,H) and surgical (B,C,D) pavilions. Credit for the revised layout is given to George W. Pope, master builder and current President of the Trustees, in consultation with Dr. Edward Cowles, the hospital superintendent.

The changes appear to reflect two important factors. One was Joseph Lister's 1867 discovery of antiseptics which greatly increased the opportunities for surgery, and made the original operating theater in the administration building dome seem hopelessly cramped and out of the way. Thus, new surgical and medical buildings were erected behind the existing pavilions, directly centered on the old connecting colonnades. Importantly the new surgical building contained a larger and more conveniently situated operating theater which remains today as the Cheever amphitheater. Although antiseptics had been discovered eight years previously, the importance of using non-porous materials inside medical facilities was apparently not understood. This is apparent in two areas. First, the Surgical Building had to be completely stripped and new interior surfaces (marble, glass, hard cement plaster) applied during its enlargement of 1894-98. Further, the Medical and Surgical wards of 1875, known as the "Iron Clad" Wards, were specifically constructed as temporary, inexpensive buildings that could be demolished without regret when they became too permeated with germs.

The other factor leading to abandonment of Bryant's design may have been the desire to keep most patient facilities away from the Roxbury Canal, and to set aside that back Albany Street portion of the site for support buildings and contagious wards. Indeed, the 1875 expansion removed the kitchen, with its accompanying odors, from the basement of the Administration Building to a new structure, stretching out behind, toward the boiler house/laundry room.

Ensuing construction at BCH has tended to reinforce the pattern of bi-lateral symmetry with well-defined medical and surgical sides that was established in 1875-77. The result of wards placed around a rear courtyard reflects Boyden's competition design and remains readily apparent today despite extensive 20th century rebuilding with substantially taller buildings.

SIGNIFICANCE

Urban Design

Boston City Hospital is directly adjacent to the South End National Register District (1973) and the South End Landmark District (1983) and it is within the Landmark Protection Area (1983). The significance of the South End, as stated in the reports which led to its historic designations, lies in the cohesive quality of its 19th and early 20th century architecture which includes a mix of residential rowhouses, apartment hotels and institutional complexes. The reports also cite the plan of the South End, with its small, English style squares, as significant.

Worcester Square, opposite Boston City Hospital is noted as the most important of those small, self-contained parks. The National Register form calls Worcester Square the "most cohesive and uniform" and goes on to cite the importance of its relationship to Boston City Hospital. The Landmarks Report says, "Architecturally the most cohesive of the South End squares, Worcester Square is also significant in having had the first City Hospital buildings, designed by Gridley J. F. Bryant in 1861-64, laid out on the axis of the square. Prior to renovations, these buildings terminated the view to the east with a central dome."

The Landmarks report goes on to further define the significance of the South End..."the South End is historically important as a large area of intact 19th century urban architecture and city planning, as well as the port of entry for many ethnic groups. The importance of building heights and vistas from within the Landmark area are essential to the character of the district..."

Boston City Hospital as originally constructed was a work of masterful urban design. The complex as originally designed, and throughout its growth in the nineteenth and early twentieth century was strongly integrated with the urban fabric of the South End by the form and location of its entry court.

This entrance, symmetrically framed by Wards B,C,D and F,G,H and anchored by the domed Administration Building, simultaneously served to extend the pattern of open space of the South End into the Hospital site, as well as act as a visual closure to Worcester Square.

The curved connecting colonnades of the original design formed the public space and linked the buildings while freely admitting light and air, and providing adequate physical separation of the Wards. The domed Administration building--although appropriately smaller than the Ward buildings--through its central position and architectural design served admirably to unite the complex.

As the complex developed and advancing medical technology allowed the construction of buildings closer together, the colonnades were infilled with new structures, which in turn reinforced the form of the entry court. These new buildings were the first elements of a pattern of growth which would serve to organize the hospital construction until 1940: two parallel rows of medical and surgical pavilion hospitals located symmetrically on either side of the central axis of the original complex.

Gridley Bryant pointed out in his presentation letter that in his design, "the very necessities of the plan are of themselves the source of some of the highest architectural beauty." This statement is equally true of the urban design.

Throughout the design process the building committee and the architect sought to provide state-of-the-art hospital buildings in an architecture which expressed the institution' larger social purpose and significance. The wrestled with competing demands of designing a building which is strongly related to the community and at the same time removed to insure against the spread of disease; of massing the building for good exposure to sun and light while maintaining a scale compatible with the continuous building massas of the South End; and of zoning the uses of the site so that the contagious and more obnoxious aspects of the complex could be screened from the public facade. The entry court, as ultimately designed by Bryant was a brilliant design solution which accomplished these goals by using the form of urban space as the point of relationship to the larger context.

As the accompanying block plans show, as the campus grew, the Hospital maintained a vital relationship to the surrounding city. When a new Administration Building was built on Harrison Avenue (see Block plan, 1938) the urban design was radically changed. While ~~the new building fronted the end of Worcester Square, the spatial interlock was lost.~~ While the new building--because of its intermediate size--may mitigate between the residential scale of the neighborhood and the highrise construction of the

1930's builing program, it is much less effective than the original complex, which acheived a compatible scale through a language of continuous repetitive building fabric similar to the South End fabric. Finally, the new Administration building did not serve to unite the parts of the campus into a coherent whole, nor did it create an open realtionship between the campus and the community. Rather, it created an abrupt end to the rich pattern of open space which at one time had culminated in the dome of the original Administration Building.

The images of accessibility, of community purpose and civic pride very much in the minds of the original committee and architect were exemplified in an architecture of "defined and monumental character" in which all the parts are related to the whole. As the hospital grew, it was necessary to add to the existing facility in ways that would not interupt hospital operations. Accordingly, open space was filled in, and buildings were built taller. Once the original Administration Building was removed its central portion became available for support departments to serve the new row of hospital towers, accodingly the court was eventually infilled by the kitchen/cafeteria building. Similarly, a portion of Ward F,G,H was removed to make way for the medical highrise. As the space was infilled, the clarity of the campus as a strong, spatial element in the urban fabric was lost.

The campus remained two rows of tall hospital buildings marching from Administration on Harrison Avenue to the warehouse on Albany Street until the 1970's. At that time Ambulatory Care Center and associated facilities on the South Block was constructed. This building program represented another design approach - this time of an architecture institutional in image through its neutrality and mass, and expressive of technical achievement in its ability to span Massachusetts Avenue to link the South Block to the main campus for the first time. Rather than relate to the intricate scale of the South End, the building provides a plaza on the corner of Harrison Avenue and Massachusetts Avenue to serve as an entrance to the building setback far from Harrison Avenue. This plaza is more in scale with automobile traffic and related to the space of the avenue itself and open sites south of the Hospital, than related to the urban structure established by the rhythm of street and square and the enclosing building masses of the South End.

Attachment 9.3

Massachusetts Cultural Resource Information System
Scanned Record Cover Page

Inventory No:	BOS.1479	Digital Photo Not Yet Available
Historic Name:	Bryant, Gridley Pavilion - Boston City Hospital	
Common Name:		
Address:	717 Harrison Ave E. Springfield & E. Concord St	
City/Town:	Boston	
Village/Neighborhood:	South End	
Local No:		
Year Constructed:		
Architect(s):	Bryant, Gridley James Fox	
Architectural Style(s):	Italianate	
Use(s):	Hospital	
Significance:	Architecture; Health Medicine	
Area(s):	BOS.AB: South End District BOS.AD: South End Landmark District Protection Area	
Designation(s):	Nat'l Register District (5/8/1973)	
Building Materials(s):	Wall: Brick; Stone, Cut Foundation: Granite; Stone, Cut	

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on:

Saturday, March 26, 2016 at 7:43: PM

South End

Attachment 9.3

#1479

BOS.1479

ADDRESS 717 Harrison Ave. COR. E. Springfield & E. Conc

NAME Boston City Hospital - Gridley Bryant Pavillions
present original

USGS. BOST, S

MAP No. 21-11 SUB AREA

Areas AB & AD

DATE 1861
source

NRDIS 5/6/73

ARCHITECT Gridley Bryant
source

BUILDER
source

OWNER City of Boston City of Boston
original present

PHOTOGRAPHS SE-2-D-22-88

TYPE (residential) single double row 2-fam. 3-deck ten apt.
(non-residential) hospital wards

NO. OF STORIES (1st to cornice) 2 plus basement & mansard

ROOF mansard cupola dormers

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) brick stone concrete iron/steel/alum.

BRIEF DESCRIPTION Bryant's two extant Boston City Hospital Pavillions are two-story structures built on a base of granite which is formed into ballustrades. Windows are equally spaced and feature stone lintels. A string course divides first and second floors and the buildings are topped with Mansard roofs.

EXTERIOR ALTERATION minor moderate drastic

CONDITION good fair poor LOT AREA sq. feet

NOTEWORTHY SITE CHARACTERISTICS

SIGNIFICANCE (cont'd on reverse)

The Boston City Hospital's Bryant Pavillions are two French- and Italian-influenced brick structures, designed by one of this country's most well-known granite construction architects.

Historically, establishment of a free Boston City Hospital is significant as an integral part of Boston's medical past. Founded during the Civil War, the notion of providing a place for free medical treatment resulted from both a desire to serve the poor and to tend to those who did not meet the criteria for admission at Massachusetts General Hospital

A

Moved; date if known ________________

Themes (check as many as applicable)

Aboriginal		Conservation		Recreation	
Agricultural		Education		Religion	
Architectural	X	Exploration/ settlement		Science/ invention	X
The Arts		Industry		Social/ humanitarian	X
Commerce		Military		Transportation	
Communication		Political			
Community/ development	X				

Significance (include explanation of themes checked above)

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

CENTRAL ARTERY/THIRD HARBOR TUNNEL PROJECT
Updated Survey of Historic Resources

717 Harrison Ave. South End

B.C.H. - Gridley Bryant Pavillions

LOCATION:

Map Number: 21-11

Subarea: South Bay/Fort Point Channel Area

Corridor: primary

NATIONAL REGISTER STATUS

INDIVIDUAL STATUS:

___ Individual NR-Listed

___ Individual DOE

X Individual NR-Eligible
determined by MHC 4/18/90

DISTRICT STATUS:

___ In NR District

___ In DOE District

___ In NR-Eligible District

Name of District: None

BOSTON LANDMARKS COMMISSION STATUS:

Landmark Status: Petitioned/Pending

Survey Category: n/a

BLC District: South End Landmark District Protection Area

Boston Affiliates, Inc.
January, 1989

Community: Boston - South End

MHC OPINION: ELIGIBILITY FOR NATIONAL REGISTER

Date Received: Date Due: 11·30·88 Date Reviewed: 11·30·88

Type: Individual District (Attach map indicating boundaries)

Name: Boston City Hospital Inventory Form: See BCH Draft EIR August, 1988 AE

Address: Harrison Ave., Boston

Requested by: BCH

Action: Honor ITC Grant R & C Other:

Agency: Staff in charge of Review: MAC

INDIVIDUAL PROPERTIES

X Eligible - 19th century bldgs. only.
_ Eligible, also in district
_ Eligible only in district
_ Ineligible
_ More information needed

DISTRICTS

_ Eligible
_ Ineligible
_ More information needed

CRITERIA: A B C D

LEVEL: Local State National

STATEMENT OF SIGNIFICANCE by Maureen Cavanaugh

See attached statement of significance prepared by Candace Jenkins.

MHC Staff concur with the finding, as do BLC staff.

The complete report is contained in the Draft Environmental Impact Report of August, 1988

Summary Statement

Boston City Hospital is comparable to these other Boston hospitals suggested for National Register and/or landmark listing in terms of architectural integrity and architectural/historical significance. It is particularly important because it retains elements of its original construction as the City's second permanent hospital. It is clear that the Ward Buildings -- in particular B,C,D -- are historically and architecturally significant remnants of early hospital design and the work of a significant Boston architect.

However, while the surviving elements of the nineteenth century complex (Wards B,C,D, F,G,H and Sears) compare favorably with the surviving fabrics of other hospitals recommended for National Register designation, it is not clear that they will be designated.

The urban space formed by the original complex was perhaps its most significant feature and the separations between these minimally connected buildings, the key aspect of their design as a nineteenth century hospital complex. The integrity of this space is severely impaired by the absence of the original Administration Building, and its connecting colonnades, and mildly affected by the fragmentary condition of F,G,H. Taken together B,C,D and F,G,H help define the original forecourt. However the combination of the loss of the original domed Administration Building which linked them with the infilling of the original forecourt with the new Administration Building in 1930 has destroyed the integrity of the original space.

South End Citizens have nominated Gridley Bryant's Ward Buildings for designation as landmarks and their petition is presently before the Landmark Commission for review.

Attachment 9.3

Massachusetts Cultural Resource Information System
Scanned Record Cover Page

Inventory No:	BOS.1457
Historic Name:	Smith American Organ Company
Common Name:	
Address:	615 Albany St
City/Town:	Boston
Village/Neighborhood:	South End
Local No:	
Year Constructed:	r 1865
Architect(s):	
Architectural Style(s):	Second Empire
Use(s):	Factory Other; Laboratory - Research Facility
Significance:	Architecture; Industry
Area(s):	BOS.AD: South End Landmark District Protection Area BOS.AI: East Brookline Street Historic District
Designation(s):	
Building Materials(s):	Roof: Asphalt Shingle Wall: Brick; Stone, Cut

Digital Photo Not Yet Available

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on:

Saturday, March 26, 2016 at 8:18: PM

Attachment 9.3

BOS.1457

#1457

ADDRESS 615 Albany St. COR.

NAME Smith American Organ Company — original

Pl. South End

MAP No. 21-12 SUB AREA Sect B

DATE 1860s — Peter Stott — source

ARCHITECT ______ source

BUILDER ______ source

OWNER ______ original ______ present

PHOTOGRAPHS SE-1-D-21-88

TYPE (residential) single double row 2-fam. 3-deck ten apt.
(non-residential) factory

NO. OF STORIES (1st to cornice) 4 plus 1

ROOF mansard cupola ______ dormers ______

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) brick stone ______ concrete iron/steel/alum.

BRIEF DESCRIPTION 4½ story 1860s red brick industrial structure with mansard roof. Windows have segmental arches and stone sills. Main entrance is segmentally arched opening on Albany Street. Building has a finely detailed cornice.

EXTERIOR ALTERATION minor moderate drastic ______

CONDITION good fair poor ______ LOT AREA ______ sq. feet

NOTEWORTHY SITE CHARACTERISTICS ______

SIGNIFICANCE (cont'd on reverse)

The South End Industrial ~~District~~ area is a largely intact grouping of late 19th to early 20th century brick industrial buildings with related tenements and worker housing. Many of the industries, attracted here by proximity to rail and wharf facilities, were engaged in woodworking, stonecutting, shoe, piano and organ manufacturing and related industries. These buildings form a remarkably cohesive built environment, an industrial corollary to the adjacent South End residential district.

This building contributes to the streetscape of the South End Industrial District and shares historical and architectural characteristics with other industrial structures in this district.

A

Moved; date if known ________________

Themes (check as many as applicable)

Aboriginal		Conservation		Recreation	
Agricultural		Education		Religion	
Architectural		Exploration/ settlement		Science/ invention	
The Arts		Industry	X	Social/ humanitarian	
Commerce	X	Military		Transportation	
Communication		Political			
Community/ development	X				

Significance (include explanation of themes checked above)

"One indication of the size of the business conducted by the Smith American Organ Company is the existence of two separate substantial factories operated in tandem. Most of the other Boston organ and piano firms either contracted with outside firms for their cases or else constructed independent shops close to the source of raw material.

The Smith case factory was probably built in the 1860s on the South Bay waterfront to take advantage of the local lumber wharves and yards. Like the parent plant on Tremont Street before 1885, the four-story brick plant on Albany Street includes a fifth attic story beneath a mansard roof. Approximately 38X75 feet in plan, the building occupies only part of the block. An apparently contemporaneous section, 75X100 feet, occupied originally by the carpenters Cummings & Carlisle, was taken down in 1938. Today the case factory houses a research laboratory."[1]

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

Contributing structure in the Potential East Brookline Street National Register District.

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

[1] Stott, Peter, Industrial Archaeology of Boston Proper. Cambridge: M.I.T. Press, 1984.

Attachment 9.3

CENTRAL ARTERY/THIRD HARBOR TUNNEL PROJECT
Updated Survey of Historic Resources

615 Albany St. South End

Smith American Organ Company

LOCATION:

Map Number: 21-12

Subarea: South Bay/Fort Point Channel Area

Corridor: primary

NATIONAL REGISTER STATUS

INDIVIDUAL STATUS:		DISTRICT STATUS:	
____	Individual NR-Listed	____	In NR District
____	Individual DOE	____	In DOE District
____	Individual NR-Eligible	X	In NR-Eligible District

Name of District: East Brookline Street District
determined by MHC 4/13/90

BOSTON LANDMARKS COMMISSION STATUS:

Landmark Status: None

Survey Category: n/a

BLC District: South End Landmark District Protection Area

Boston Affiliates, Inc.
January, 1989

Attachment 9.3

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	BOS.1458
Historic Name:	Massachusetts Homeopathic Hospital
Common Name:	University Hospital
Address:	685 Albany St Albany and East Concord Sts
City/Town:	Boston
Village/Neighborhood:	South End
Local No:	
Year Constructed:	
Architect(s):	Allen and Kenway; Emerson, William Ralph
Architectural Style(s):	High Victorian Gothic
Use(s):	Hospital
Significance:	Architecture; Health Medicine
Area(s):	BOS.AD: South End Landmark District Protection Area
Designation(s):	
Building Materials(s):	Roof: Slate Wall: Brick

Digital Photo Not Yet Available

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

Attachment 9.3

BOS.1458

1458

ADDRESS 685(?) Albany COR. E. Concord

Pr SOUTH END

NAME Mass. Homeopathic Hospital
present original USGS BOST.S SECT B

MAP No. 21-11 SUB AREA

ABOM AD-

DATE 1876, 1884
source

ARCHITECT Allen & Kenway
William R. Emerson
source

BUILDER
source

OWNER Mass. Homeopathic Hospital/University Hospital
original present

PHOTOGRAPHS SE-2-C-18-88

TYPE (residential) single double row 2-fam. 3-deck ten apt.
(non-residential) hospital

NO. OF STORIES (1st to cornice) 2-4 plus ROOF

ROOF mansard, gable cupola dormers

MATERIALS (Frame) clapboards shingles stucco asphalt asbestos alum/vinyl
(Other) brick stone concrete iron/steel/alum.

BRIEF DESCRIPTION Complex of 2½ to 4½ story red brick, High Victorian Gothic buildings featuring numerous turrets, gables, chimneys, oriels, and bays.

EXTERIOR ALTERATION minor moderate drastic

CONDITION good fair poor LOT AREA sq. feet

NOTEWORTHY SITE CHARACTERISTICS

SIGNIFICANCE (cont'd on reverse) →

(Map)

A.

Attachment 9.3

Moved; date if known ________________

Themes (check as many as applicable)

Aboriginal	____	Conservation	____	Recreation	____
Agricultural	____	Education	____	Religion	____
Architectural	X	Exploration/ settlement	____	Science/ invention	X
The Arts	____	Industry	____	Social/ humanitarian	____
Commerce	____	Military	____	Transportation	____
Communication	____	Political	____		
Community/ development	____				

Significance (include explanation of themes checked above)

This complex of High Victorian Gothic structures, designed by William R. Emerson (Main Building, 1876) and the firm of Allen and Kenway (other structures, 1884) originally housed a homeopathic hospital renowned for its high cure rate. Homeopathic medicine, popular in the 19th century, involved the treatment of diseases by the administration of minute doses of a remedy which in healthy patients would produce symptoms of the disease treated. The complex is significant as a relatively intact and rare example of institutional architecturein the High Victorian Gothic style.

Preservation Consideration (accessibility, re-use possibilities, capacity for public use and enjoyment, protection, utilities, context)

Bibliography and/or references (such as local histories, deeds, assessor's records, early maps, etc.)

CENTRAL ARTERY/THIRD HARBOR TUNNEL PROJECT
Updated Survey of Historic Resources

685 Albany St. South End

Mass. Homeopathic Hospital

LOCATION:

Map Number: 21-11

Subarea: South Bay/Fort Point Channel Area

Corridor: primary

NATIONAL REGISTER STATUS

INDIVIDUAL STATUS:		DISTRICT STATUS:	
___	Individual NR-Listed	___	In NR District
___	Individual DOE	___	In DOE District
X	Individual NR-Eligible determined by MHC 4/18/90	___	In NR-Eligible District

Name of District: None

BOSTON LANDMARKS COMMISSION STATUS:

Landmark Status: None

Survey Category: n/a

BLC District: South End Landmark District Protection Area

Boston Affiliates, Inc.
January, 1989

Attachment 9.4

The Secretary of the Interior's Standards for the Treatment of Historic Properties

The Secretary of the Interior's Standards for rehabilitation were developed to help protect the nation's irreplaceable cultural resources by promoting consistent preservation practices. The Standards are a series of concepts about maintaining, repairing and replacing historic materials, as well as designing new additions or making alterations; as such, they cannot, in and of themselves, be used to make essential decisions about which features of a historic property should be saved and which might be changed.

The *Standards for Rehabilitation* provides guidelines for rehabilitation and adaptive reuse of historic properties. The Standards were originally published in 1977 and revised in 1990 as part of Department of the Interior regulations (36 CFR Part 67, Historic Preservation Certifications). They pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior of historic buildings. They also encompass related landscape features and the building's site and environment as well as attached, adjacent or related new construction. The Standards may be applied to all properties listed in the National Register of Historic Places: buildings, sites, structures, objects, and districts.

The four treatment approaches are Preservation, Rehabilitation, Restoration, and Reconstruction, outlined below in hierarchical order and explained:

The first treatment, **Preservation**, places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a building's continuum over time, through successive occupancies, and the respectful changes and alterations that are made.
Rehabilitation, the second treatment, emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work. (Both Preservation and Rehabilitation standards focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships that, together, give a property its historic character.)
Restoration, the third treatment, focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods.
Reconstruction, the fourth treatment, establishes limited opportunities to re-create a non-surviving site, landscape, building, structure, or object in all new materials.

Definitions:

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project

Attachment 9.4

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location

See http://www2.cr.nps.gov/tps/standguide/index.htm for more information about the Standards

Secretary's Standards for Rehabilitation

The Standards apply to historic buildings of all periods, styles, types, materials, and sizes. They apply to both the exterior and the interior of historic buildings. The Standards also encompass related landscape features and the building's site and environment as well as attached, adjacent, or related new construction.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Guidelines for Rehabilitating Historic Buildings

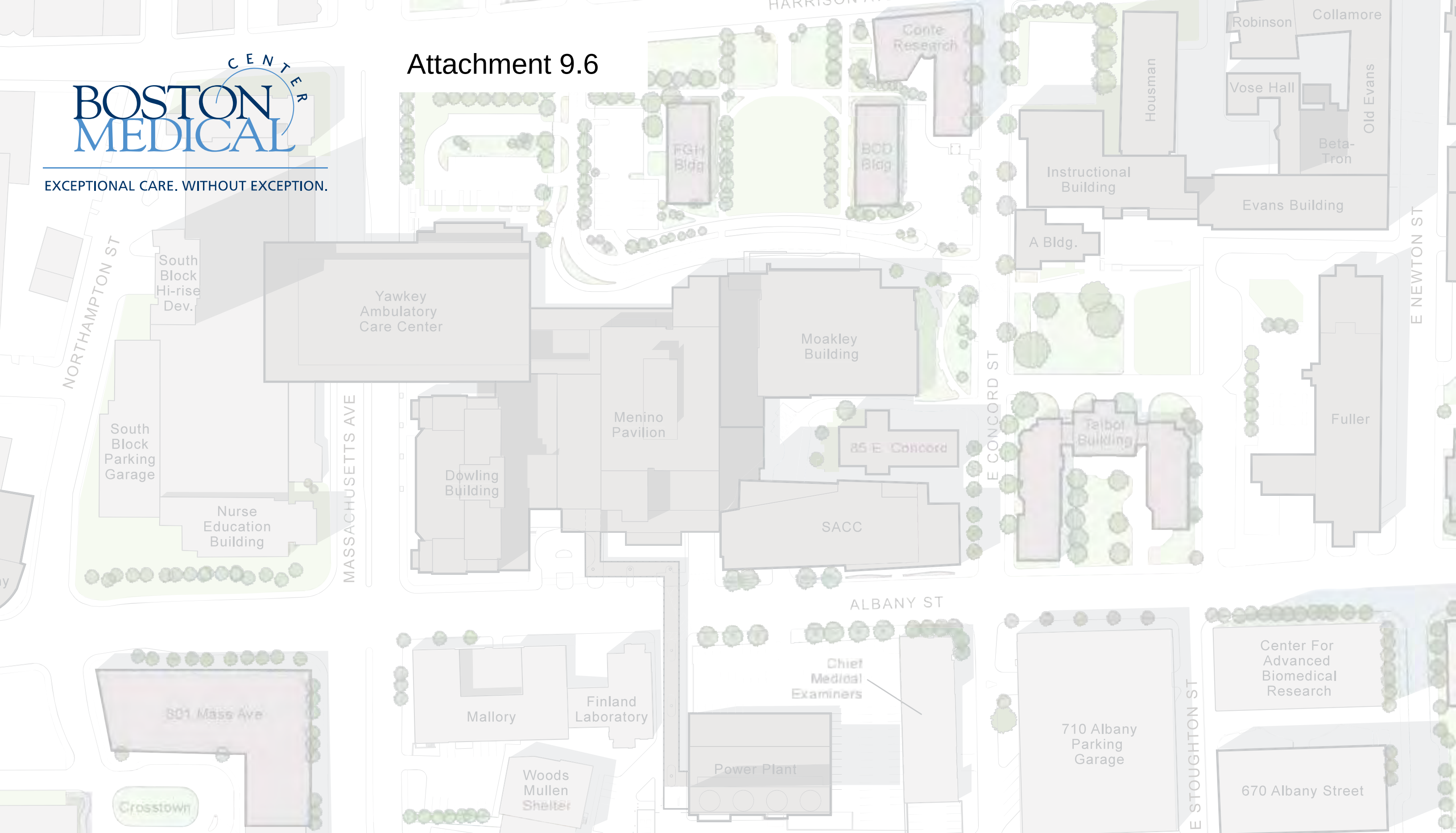
The Guidelines assist in applying the Standards to rehabilitation projects in general; consequently, they are not meant to give case-specific advice or address exceptions or rare instances. For example, they cannot tell a building owner which features of an historic building are important in defining the historic character and must be preserved or which features could be altered, if necessary, for the new use. Careful case-by-case decision-making is best accomplished by seeking assistance from qualified historic preservation professionals in the planning stage of the project. Such professionals include architects, architectural historians, historians, archeologists, and others who are skilled in the preservation, rehabilitation, and restoration of the historic properties. These Guidelines are also available in PDF format.

http://www.nps.gov/tps/standards/rehabilitation.htm

Attachment 9.6

BOSTON MEDICAL CENTER

EXCEPTIONAL CARE. WITHOUT EXCEPTION.





Boston Medical Center Campus Facilities Building Assessment

August 05, 2015

PREPARED BY:
Tsoi Kobus & Associates
Odeh Engineers
Engineered Solutions Inc.

INDEX

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INTRODUCTION

In 2007 Tsoi Kobus & Associates and xx collaboratively prepared a campus building survey report for Boston Medical Center. In response for an Updated Preservation Plan requested by the South End Landmarks District Commission, the building survey report has been updated by TK&A, ESI, and Odeh Engineers. This new report reflects the most current BMC campus building conditions as observed in the spring of 2015.

Boston City Hospital/Boston Medical Center

Boston City Hospital (BCH) was built in 1861-64 after a decade-long campaign of planning.[1] Since 1849, when a cholera epidemic struck Boston, there were efforts aimed at establishing a free hospital, not for indigents but for those who were classified as “the worthy poor.” [2] When the Boston City Hospital opened in 1864, it combined a sense of “civic responsibility” with a socially progressive and elegant architectural design. Gridley J. F. Bryant (1816-1899), one of Boston’s most prominent architects won the competition to design BCH. Members of BCH’s medical community were also influential in planning the new hospital. Together physicians and architect implemented a collaborative design that was “humanitarian in spirit” and modern in its approach to medical care.

The decision to locate BCH in the South End was the most economical solution for the City Council, who already owned the land, formerly the site of the Agricultural Fair Grounds. In 1858 the City of Boston was authorized to establish a City Hospital, and the Committee on the City Hospital was given a budget not to exceed $100,000.[3] In 1859 the City Council set aside the lot on Albany Street for the purpose of building the hospital.

The architect Gridley Bryant began his practice in 1838. He was responsible for a number of prominent institutional buildings all over New England including the innovative plan for the Charles Street Jail on which he worked in collaboration with a social reformer Louis Dwight in 1848.

Bryant’s building of the Boston City Hospital (1861-64) was acknowledged as a major civic accomplishment.[4] On completion, BCH occupied 6.7 acres and was assessed at $73,000. The domed central Administrative Building was flanked by pavilions on either side and connected by circular open colonnades. At this time, the pavilion style was considered the basis of a modern hospital.

This plan stood from June 1, 1864, when the hospital was opened, remaining substantially unchanged for the next decade. In 1875, the first major expansion of BCH occurred when five new buildings were added. Since that time, BHC continued to grow through expansion, acquisition and construction, including closing the southern end of Springfield Street and extending the main campus to Massachusetts Avenue (prior to 1897).

More recently, Boston City Hospital became part of a new institution, which continues to function as a teaching hospital. On July 1, 1996, Boston City Hospital, Boston Specialty and Rehabilitation Hospital, and Boston University Medical Center Hospital were consolidated and merged into the Boston Medical Center Corporation.

BCH was the result of the cooperation between a skilled architect Gridley J. F. Bryant, and the medical community associated with the founding of a new “free” hospital. In the second half of the nineteenth century, BCH set out to serve the needs of the working class including the burgeoning immigrant population of Boston. From its inception to the present, Boston City Hospital and Boston Medical Center are evidence of the progressive social values and civic responsibility shown by members of Boston’s community.

1 The name proposed for the institution was the “Free City Hospital.” This name was dropped to discourage people who were not sick from seeking help. Later the term “City Hospital” was used, until in 1893 it became “Boston City Hospital.”

2 Committee of the Hospital Staff. *A History of the Boston City Hospital from its Foundation Until 1904*. (Boston: 1906): 1.

3 Members of the Committee were Thomas C. Amory, Jr., Elisha T. Wilson, Prescott Barker, Sumner Crosby, George W. Sprague.

4 Reed, *“To Exist for Centuries”: Gridley Bryant and the Boston City Hospital,* 73.

History

Boston University Medical Center is a private non-pro t hospital; chartered by the Commonwealth of Massachusetts in 1855 in the name of the Massachusetts Homeopathic Hospital.

Boston University (BU) School of Medicine at 80 East Concord Street was founded in 1873, sited opposite the Boston City Hospital. The Hospital opened its doors in the South End in 1876. Teaching facilities were shared by the Medical Schools of Harvard, Boston University and Tufts Schools of Medicine. In May 1962, the Hospital and Boston University School of Medicine, Boston University School of Public Health and the University's Goldman School of Graduate Dentistry were combined as the "Boston University Medical Center."

In 1996, Boston Mayor Thomas Menino recommended the merger of Boston University Medical Center Hospital and Boston City Hospital. In the same year, Boston University Medical Center Hospital, in collaboration with Boston City Hospital, received Level One Trauma veri cation from the American College of Surgeons.

Massachusetts Memorial Hospitals

These buildings on the campus of the Boston University School of Medicine, are located on a quadrant of land that lies southwest of the intersection between Harrison Avenue and East Newton Street. This group of buildings was formerly part of Boston University School of Medicine. In 1929 the Hospital's name was changed to Massachusetts Memorial Hospital in recognition of the fact the hospital was formed by a group of memorial buildings. Throughout the 1930s, government policy boosted relief, recovery and reform. At the same time, the Hospital began a period of resolution, reorganization and rededication.[1] Going forward, the combined memorial buildings, the association with the Medical School and the University, including the productive research program of the Evans Memorial, made it "in fact, if not in name" a medical center.[2] In 1965 the name was changed to University Hospital to re ect the important commitment of the Hospital to medical education and research, as well as to patient care. At that time, this group of structures was known as the Memorial Buildings. The Memorial Buildings include: Anne White Vose Hall, Collamore Memorial and Old Evans.

1 Henry J. Bakst, M.D. "The Story of The Massachusetts Memorial Hospitals." Boston: 1955. p. 25
2 Henry J. Bakst, M.D. "The Story of The Massachusetts Memorial Hospitals." Boston: 1955. p.25

SOLD PROPERTIES

LEGEND

SOLD PROPERTIES

BUMC BUILDINGS

In 2013, the Boston Redevelopment Authority reviewed and approved Boston Medical Center's Institutional Master Plan Amendment. This amendment modi ed the original master plan to consolidate and right size clinical services in support of new trends in health care delivery and patient volume, upgrade and expansion of the Emergency Department and Trauma Center, and moving clinical campus core to the west. The development associated with this amendment will provide space for existing programs currently located in the Doctor's Of ce Building, the Newton Pavilion, and the Health Services Building. As a result, Boston Medical Center has already or is in the process of selling these properties.

BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

DOCTORS OFFICE BUILDING (SOLD)

Built
1969

Principal Use
Outpatient

Floors
B+12

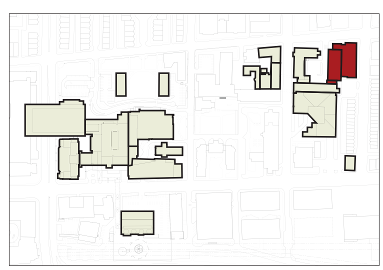
SF
91,783

Status
Feasibility for reuse under study

Architectural
Good condition
- Uninsulated glazing
- Localized spalling of concrete
- Small floor plate

Systems
Fair Condition
- Antiquated elevator controls
- Cooling system in need of repair
- Heating system problematic during unseasonable weather

Structural
Fair condition
- Low floor-to-floor heights



BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

HEALTH SERVICES (SOLD)

Built
1973

Principal Use
Outpatient

Floors
B+6

SF
73,651

Status
Feasibility for reuse under study

Architectural
Good condition

Systems
Fair Condition
- Cooling system does not meet demand, requires replacement and increased capacity

Structural
Good condition

BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

NEWTON PAVILION (SOLD)

Built
1986

Principal Use
Inpatient

Floors
B+8

SF
246,951

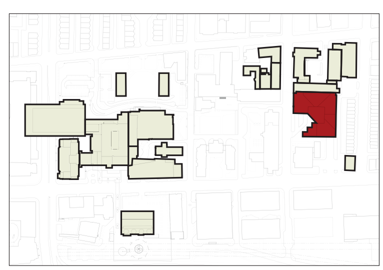
Status
Feasibility for reuse under study

Architectural
Good condition

Systems
Good/fair condition

- Cooling system at life expectancy
- Humidification and associated controls require replacement

Structural
Good condition



BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

EXISTING CAMPUS PLAN

BCD BUILDING

Built
1864

Principal Use
Administration/

Floors
B+5

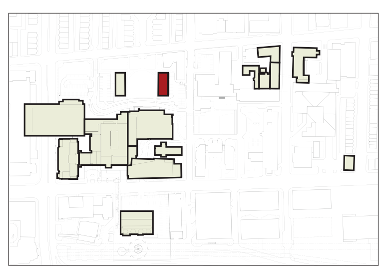
SF
28,174

Status
Historic Preservation Project - Renovated in 2008

Architectural
Good condition
- Building is 151 years old (1864)
- Small floor plates support administrative functions
- Building envelope in very good condition
- High visibility and recognizable image for the institution
- Easy access from city streets
- Some convenient short term parking on grade.
- Low floor-to-floor
- Mezzanine in-fills at level 2 and level
- Exterior envelope in good condition
- Roof in good condition

Systems
Good Condition
- Most systems meeting current requirements
- Major renovation in 2008 All electrical systems sufficient for present use
- Five AHUs provide supplemental ventilation to FCUs
- Finned-tube radiation provides perimeter heating
- ATC system is fairly new and full DDC
- Steam and chilled water provided from CUP

Structural
Good condition
- Low floor-to-floor heights
- In-flexible grid spacing
- Mezzanine in-fill structure at levels 2 & 4



FGH BUILDING

Built
1864

Principal Use
Administration/

Floors
B+5

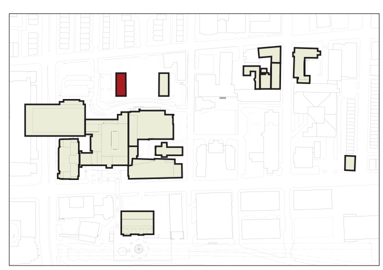
SF
29,435

Status
Historic Preservation Project - Renovated in 2005

Architectural
Good condition
- Building is 151 years old (1864)
- Small floor plates support administrative functions
- High visibility and recognizable image for the institution
- Easy access from city streets
- Some convenient short term parking on grade.
- Mezzanine in-fills at level 2 and level
- Exterior envelope in good condition
- Roof in good condition

Systems
Good Condition
- Most systems meeting current requirements
- Major renovation in 2005
- All electrical systems sufficient for present use
- Three rooftop AHUs provide ventilation to VAVs and FCUs
- Finned-tube radiation provides perimeter heating
- ATC system is fairly new and full DDC
- Metered steam and chilled water provided from CUP with booster pumps in basement

Structural
Good condition
- Low floor-to-floor heights
- In-flexible grid spacing
- Mezzanine in-fill structure at levels 2 & 4



Exterior

Buildings BCD and FGH site parallel to each other set back from Harrison Avenue on the interior of the block bounded by Harrison Avenue, East Concord Street, Albany Street and Massachusetts Avenue. Bold and Classic examples of the Second Empire Style, the two buildings are 2 1/2-story red brick structures sitting on a raised granite base with mansard roofs. Rectangular in plan with the long elevations running north-south, the stories above the basement are actually I-shaped in plan with the central seven bays recessed. Originally, the two buildings were identical, three bays wide by nine bays long. The south end of Building FGH was demolished in 1928, so that it is now only eight bays long and the upper stories are T-shaped in plan. The buildings sit on a rubble foundation with a dressed granite block basement story. The red brick walls rise to a bold metal modillion cornice, which is surmounted by a bellcast slate mansard. At BCD only, four paneled red brick chimneys are centered in the roof, two at either end of the narrow section of the building. The center of the roof rises in a gable monitor that is presently sheathed in rubber membrane. Underneath the rubber sheathing, the monitor is intact with its glazed roof and solid sides. A row of regularly spaced ventilators pops up along the ridge of the monitor. Two additional ventilators rise from the north end of the roof; one is centered over a large ventilation duct near the NW corner, the second is near the N edge of the roof.

BCD Exterior Description

Windows set in regularly spaced bays are a major feature of the building. Basement window openings have segmental arches cleanly punched in the granite wall. The tall, at-arched masonry openings at the rst and second stories provide an imposing scale to the building and are detailed with elaborate window caps. The rst story windows have architrave cornices set above a recessed ush frieze and supported on shallow scroll brackets. The second story windows have paneled hood molds with a molded cap and simpler shoulders. The center bays at the north elevation and at the second story of the south elevation have round arched window openings trimmed by a molded hood mold. At the roof, segmental arched dormers project out from the mansard.

The granite base is simply detailed with a shallow watertable at the lower course and a projecting beltcourse marks the top of the granite base. Other contrasting stone detail includes typical dressed window sills, projecting sills supported on tab brackets at the second story of the end pavilions, and a deep molded sill course rims the building at the second story. A focal point of the north elevation, an arched molded surround set on paneled pilasters on low pedestals frames the center window at the rst story. Suggesting a ceremonial opening, this bay on each building originally had a wooden balustraded balcony supported on large consoles. The balconies were replaced by elaborate cast iron balconies on openwork scrolls that appear in an 1895 photo.

Original windows were 6/6 double hung wood sash. The tall windows at the rst and second stories originally held two sets of sash and all of the windows had a set of interior shutters. Basement and attic windows were 3/3 with a segmental arched upper sash. The windows in the returns of the end pavilions were 4/4 at the rst and second stories and 2/2 at the attic story. The window openings are currently lled with plywood painted to appear as if they were multi-light sash.

BCD Exterior Alterations

Changes have occurred over time and have been partially reversed by a recent (ca. 2000) exterior rehabilitation. The basement openings in the north bay of the east and west elevations have concrete in ll where the granite sill should be. These openings appear to have been doors leading into the basement level, one of which is visible in the 1895 view of the hospital. The circulation from BCD and FGH to the original Administration Building and to the later Medical and Surgical Buildings was formerly at the rst oor by means of an open colonnade on a granite base connected to the center bay at the south elevation. The colonnade was later altered to a three-story connector and BCD had been connected at the east elevation to a later addition. That addition and the three-story connector have since been removed and the north end of BCD restored to its original form. A large opening at the basement level, south elevation of BCD would have provided access to the enclosed lower level of the colonnade. The opening presently is blocked down with plywood and holds a single ush metal pedestrian door. A window in the eighth bay of the east elevation has been converted to a door, leading into the basement. Historic views of the building also show a stone balustrade along the east and west elevations at the rst story set at the edge of the granite base.

FGH Exterior Alterations:

Originally a matching partner to BCD, FGH has experienced different alterations. As mentioned, the south end pavilion of FGH (three bays wide by one bay deep) was removed in 1928 in order to construct a new Medical Building, which was linked by a narrow connector to the south elevation of FGH. Also at that time (according to the BLC Study Report) the gable-roofed monitor was removed, the stone balustrades at the east and west elevations were replaced with iron railings, and the one-story brick entry porch was built on the west elevation. A one-story brick and concrete tunnel enclosure may have been part of the 1928 work. Presumably the existing iron fire escape on the west elevation was installed and the chimneys were removed at that time as well. The fire escape and railings on the east elevation appear to be a later addition.

An extensive remodeling in 1963 included the removal of the double windows, the installation of single 6-light sash, the infill of the top of the first and second story window openings with a stucco panel, infill at the bottom of the first story windows and a remodeling of the interior. Other later accretions, including a stucco elevator tower on the south elevation, may have been part of the 1963 renovation.

An entrance has been created in the central bay at the basement of the north elevation. Several window openings have been in-filled completely. Similar to BCD, the basement openings in the north bay of the east and west elevations have brick or concrete window sills suggesting that these had served as doors.

The south elevation of FGH is the red brick former interior wall. The former openings have been filled with brick, a window has been installed at the third story, and a flush metal door has been installed at the first story and at the basement. The first story door leads out to a broad metal landing and stair. FGH does appear to retain its original brick mold at the windows and it is possible that some of the sash at the attic dormers may be original.

BCD Interior

The interior of BCD retains a metal dogleg stair at the southern end of the building and a full turn metal stair with winders at the northern end of the building. They both have slate treads and run from the basement to the attic story. The interior plaster walls and ceilings have been removed exposing wood structure (including joists and studs) and masonry walls. The basement floor has a central corridor with brick walls. Ornamental cast iron columns with flared caps remain in the center room of the basement on both sides of the corridor. Rooms are otherwise divided by brick walls. The concrete floor has settled, cracked and is noticeably sloped. The first floor has been removed from the room at the southwest corner of the building.

The first and second floors are similar. The tall floors measure approximately 17 feet to the underside of the joists. The wider end pavilions of the building have a central corridor running north-south and are divided on either side of the corridor into a stair hall and separate rooms. The plaster walls enclosing the stairs are partially in place and are set on metal lath, while the ghost of wood lath is evident on the wood studs partitioning the corridor and separate rooms. A mezzanine level with a wooden stair has been added to the room at the northwest end of the building on each floor. A large square ventilation duct also rises up through the floor within this room. The central corridor at each end creates a strong visual axis from the north to the south end of the building. At the center shaft of the building, the floors are entirely open, with no partition walls or columns. These were formerly the open wards. The floors are wood and otherwise no interior detail remains.

The attic floor is shorter and has sloped exterior wood frame walls alternating with the tightly spaced dormers. The west corridor walls at the south end of the building on every floor are brick. Most of the roof structure is intact with additional reinforcement added. The central dormer/bay at the south end of the building was reconstructed as part of the recent rehabilitation.

FGH Interior

The ceilings at the first and second floors have been lowered; the full turn metal stair with winders (matching BCD) remains at the NW corner of the building. The original floors are covered with vinyl tile, and no original fireplaces, doors or door surrounds have been located. The floors have been subdivided into offices on each floor with an off-center corridor running north-south with access to the elevator on the west elevation. The basement corridor is centered with brick corridor walls and brick partition walls separating some of the rooms.

Despite the changes to FGH, the significant features of Gridley J. F. Bryant's Second Empire Pavilions remain and in concert with BCD continue to frame his axial plan in line with Worcester Square. The two buildings represent Bryant's expression of the pavilion model that he introduced here at Boston City Hospital. The pavilion plan, the buildings' large windows and open wards provided the desired light and ventilation that were the character-defining features of Bryant's design. Bryant's use of the mansard on the pavilion buildings not only supplied an added floor for more beds, it also intentionally reflected the architecture of Worcester Square.

NAVAL BLOOD RESEARCH

Built
1865

Principal Use
Vacant

Floors
B+5

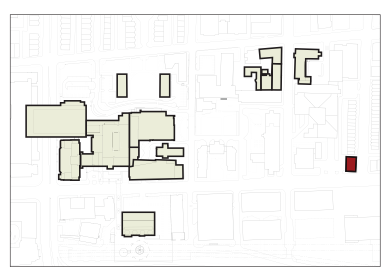
SF
18,594

Status
Not currently in use - original use was administration & research

Architectural
Fair to poor condition
- Building is 150 years old (1865)
- Very small and narrow floor plates are inefficient
- Low floor-to-floor heights
- Aluminum double hung windows in good shape
- Floors not level
- Some signs of foundation distress
- High visibility on campus
- Brick bearing wall and heavy timber construction
- Easy access from city streets
- Roof is in poor to fair condition
- Envelope is in fair condition - some repointing work is needed
- Parking access at Albany Street garage

Systems
Poor condition
- Most systems need to be upgraded
- AHU in basement in poor condition - replacement needed
- Minimal duct distribution - upgrade needed
- Steam system and PRVs in poor condition - upgrade needed
- Minimal HVAC controls
- Majority of fan systems need upgrades
- Electrical systems beyond their useful life - upgrade needed
- Medical gas system in poor condition - upgrade needed
- No central acid neutralization system

Structural
Fair condition
- Low floor to floor
- Floors not level
- Some foundation distress



ANNA WHITE VOSE HALL

Built
1898

Principal Use
Administration/

Floors
5

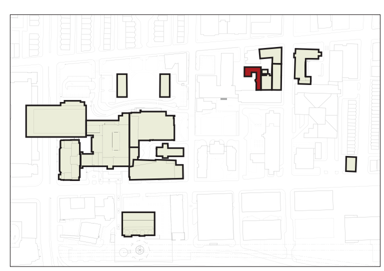
SF
22,695

Status
Feasibility for reuse under study

Architectural
Fair/poor condition
- Building is 117 years old (1898)
- Small/narrow floor plates
- Needs new windows
- Brick needs repointing
- Details have been stripped from exterior
- Very small and narrow floor plates are inefficient
- Wood frame double hung windows - need replacement
- Some asbestos
- Limited visibility on campus
- EPDM roof over old asphalt roof
- Envelope is in fair condition

Systems
Poor condition
- Poor heating system
- Minimal ventilation
- Window air conditioning
- Insufficient air distribution system - upgrades needed
- Window AC utilized for cooling - upgrades needed
- Steam perimeter heat with minimal controls - upgrade needed
- Electrical distribution system at end of useful life with no spare capacity

Structural
Fair condition
- Wood frame
- Small bay spacing



ANNA WHITE VOSE HALL

Anna White Vose Hall is shaped like an L in plan with a serif at the end with a one-bay return. Built of red brick with marble detail, the building rises four stories to deep overhanging eaves supported on scroll brackets. The westernmost section of the building is the most elaborate.

The windows are set in punched openings that change at each story. Stone detail includes a simple projecting beltcourse above the first story, a frieze (with the building name carved in the stone) and a molded cornice above the 3rd story, window sills and pilaster capitals. Two-story brick pilasters delineate the bays at the second and third stories. The basement windows have brick segmental arches, windows at the second story are framed by round brick arches with keystones, the second story has segmental arches, the third and fourth stories have flat arches. The window height diminishes as you rise up the building. Typical windows have 6/6 double-hung sashes, except the first story which has tracery at the top of the round arched sashes.

Cast iron balconies at the first story windows match the railing on the open brick porch along the south elevation, where the main entrance is located within a segmental arch. A bowed cast iron balcony projects at the third story, south elevation.

In 1897 – 1898, Vose Hall was built as a permanent Nurse's Home with a bequest from Mrs. White Vose. Expansion of the (Nurse's) Training School, was the catalyst for building the residence, which housed 100 nurses. Once Vose Hall was finished, the Training School was extended to three years, applicants continued to increase and the curriculum was extended.

85 EAST CONCORD STREET (SURGICAL BUILDING)

Built
1928

Principal Use
Administration/

Floors
B+8

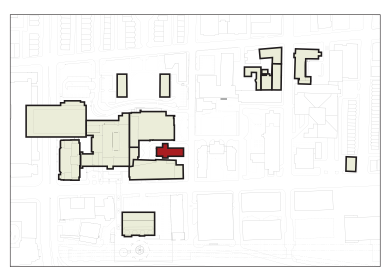
SF
66,952

Status
Historic Preservation Project - Renovated in 2001

Architectural
Good condition
- Building is 87 years old (1928)
- Renovated in 2001
- Very small and narrow floor plates are inefficient
- Low floor-to-floor heights
- Aluminum double hung windows in good shape
- Low visibility on campus
- Easy access from city streets
- Roof is in good condition
- Envelope is in good condition
- Parking access at Albany Street garage

Systems
Good Condition
- Systems are meeting current requirements
- All electrical systems sufficient for present use
- Major renovation in 2001
- AHU in basement provides 100% OA to FCUs
- 4-pipe FCUs throughout the building provide heating and cooling
- Chilled water from CUP provided to building with deny valve and pump at building entrance

Structural
Good condition
- Small bay spacing
- Decent floor-to-floor



85 EAST CONCORD STREET (SURGICAL BUILDING)

Surgical Building, 1926–28
Ritchie, Parson & Taylor

Description

The Surgical Building is a large, eight-story, brick clad structure rising from a basement platform de ned by iron rails to a at roof. Like its contemporaries from the late 1920s, it incorporates elements of the Neo-Federal and Beaux Arts styles in an institutional composition. It is rectangular in plan; with a central cross piece rising above the rest of the building. The corners of the main block and the cross piece are de ned by brick quoins. The basement and rst story are faced with limestone and set off by a simple beltcourse. Projecting limestone cornices encircle the building above the third and seventh stories and swags and rondels are dispersed above the eighth story. Fenestration is symmetrical, and above the rst story most windows are headed by splayed limestone lintels; some windows aligned at the second and eighth stories are set in round arched frames. The northeast elevation facing East Concord Street is de ned by a quatrastyle screen of modi ed Corinthian pilasters, paired at the corners; the pilasters rise from the rusticated rst story to the third story cornice. At the opposite end, decorative iron porches topped by slender urns stretch out from the cross piece.

History

Plans for the Surgical Building were prepared in 1926 by Ritchie, Parsons and Taylor. The contract was awarded to Joseph Kugo in February 1927, and it was opened to patients in October 1928. The basement contained the indoor branch of the Department of Physical Therapeutics with facilities for baths, muscle training, massage, etc. The rst oor was equipped as an accident ward with two special rooms for patients entering the hospital in surgical shock. Four of the upper oors contained rooms for female patients while three were set aside for males. The Surgical Building replaced the two story Surgical Ward, W.X. of 1895.

COLLAMORE BUILDING

Built
1936

Principal Use
Administration/

Floors
8

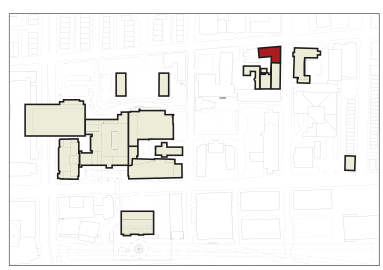
SF
41,970

Status
Administrative support functions - Continued use anticipated

Architectural
Fair condition
- Building is 79 years old (1936)
- Very small and narrow floor plates are inefficient
- Level 2 windows have been in-filled with brick
- Good floor-to-floor heights
- Wood frame double hung windows - need replacement
- High visibility on campus
- No direct access - Access is through Robinson or New Evans buildings
- Roof is in poor to fair condition
- Envelope is in good condition - some repointing work is needed
- Parking access at Harrison Ave garage

Systems
Fair condition
- Most systems need to be upgraded
- Rooftop AHUs beyond useful life - replacement needed
- Window AC units utilized for cooling - upgrade needed
- Steam heat with minimal controls
- Chilled water - upgrade needed
- District steam heating system - upgrade needed
- Normal and emergency electrical systems beyond useful life - upgrade needed
- Plumbing systems in poor condition - upgrade needed

Structural
Fair condition
- Small bay spacing
- Good floor-to-floor heights



COLLAMORE BUILDING

Collamore is a red brick, 8- story building, L-shaped in plan and ornamented with cast stone belt courses. Collamore sits on a high basement with a granite sill; windows are framed by flat, splayed brick arches and concrete sills; and the walls rise to a flat roof with a brick parapet. On the Harrison Avenue (north) elevation, shallow pilasters articulate the asymmetrical 8-bay façade. The six-bay East Newton Street (east) elevation is also asymmetrical and has two copper oriels at the 3rd story.

The windows typically have been replaced or filled. The original first story windows were 12/12 double hung sash topped by an 8-light transom. The corner bays and the first story windows are filled with brick on both the north and east elevations.

In 1915, Helen Collamore left funds in memory of her family for the construction of a building for the Hospital. Helen Collamore had been a Trustee of the Hospital for thirty-eight years. The project was not begun for over twenty years, but in 1936 the Hospital was in need of space. Built to relieve this shortage, the Collamore Building contained wards, private rooms, operating rooms, X-Ray and various laboratories when it opened. Its wards and outpatient services were used in connection with the clinical instruction of the students of the Boston University School of Medicine.

DOWLING BUILDING SUMMARY

Built
1937

Principal Use
Administration/

Floors
B+9

SF
144,895

Status
Approved for demolition under 2010 IMP

Site of future clinical and inpatient service expansion

Architectural
Fair/poor condition

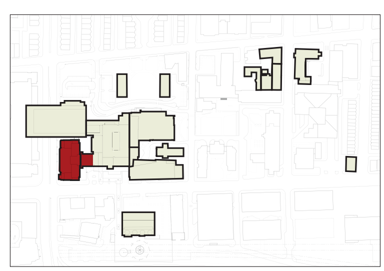
- Building is 78 years old (1978)
- High visibility
- Very small and narrow floor plates are inefficient
- No access from city streets - enter through Yawkey or Menino
- Irregular floor plan
- Poor arrival sequence
- Poor pedestrian experience
- Minor street parking
- Very small and restrictive structural grid
- Low floor-to-floor
- In general, exterior envelope is in good condition
- Windows have been replaced in past 10 years
- Roof appears to be new
- Steel columns and beams with concrete joists - limited shaft expansion capabilities
- No expansion potential
- Some asbestos - need verification

Systems
Poor condition

- Lack of a designated transformer or electrical service
- Reduced service feeder from Yawkey building
- Switch board damaged from fire
- Lack of critical branch emergency system
- Life safety emergency system at capacity
- Emergency power from Yawkey building no spare capacity available.
- Branch circuit distribution insufficient for clinical use.
- Limited capacity HW and CHW risers added in 2013
- 4-pipe FCUs serving floors 7-9
- Lack of AHUs for ventilation. Operable windows currently utilized.
- Lack of shaft space for new risers and system upgrades
- Lack of ATC control on floors ground thru 6.
- Ground floor AHUs 1A and 1B beyond their useful life and should be replaced.

Structural
Poor condition

- Low floor-to-floor
- Tight column grid spacing
- Irregular column spacing



DOWLING BUILDING

Constructed in 1937, the Dowling Building anchors the corner of Albany Street and Massachusetts Avenue. The building was named after Dr. John J. Dowling, who was a Superintendent of BCH before being sent to ght in WWI as commanding of cer of a military Base Hospital. Over the years the Dowling Building has housed several departments including clinical, administration, patient beds, surgical and educational activities. Originally designed as an inpatient building, it's primary function was downgraded to administrative of ce space in 1994 due to its numerous physical and infrastructure ciencies.

Irregular in plan and built up of a series of stepped blocks, Dowling is constructed of red brick with limestone ornament and sits on a stone rst story. The limestone rst story occupies the full footprint of the building. The red brick upper stories form a U in plan, and step down in sequence from the center 10-story pavilion to 6 stories at the wings. Columns of tightly spaced windows separated by narrow brick and metal mullions emphasize the verticality. Stone ornament is concentrated at the base and at the top stories of the central pavilion and the end pavilions. Stone detail is also found at the corners and parapet of the wings.

Over the years the spandrel panels on the ends of the wings appear to have been replaced with ush metal panels. Typical aluminum replacement windows are 1/1 double-hung with a transom. Many openings have been lled with louvers, air conditioners, in ll panels and brick. A one-story mass, referred to as the Shortell, was added along Massachusetts Avenue in lling between the two projecting wings. Two re-egress stairs were also added to the massing facing Massachusetts Avenue, clad in white and bronze colored metal panel.

Recently, as part the rst phase outlined in the 2012 IMP, the two-storey portion of the building located to the northeast has been demolished. This modi cation has provided vital space for the consolidation of emergency and imaging functions within the Menino Pavilion expansion.

OLD EVANS BUILDING

Built
1942

Principal Use
Administration/

Floors
9

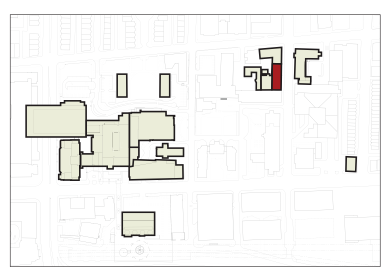
SF
60,070

Status
Administrative support functions - Continued use anticipated

Architectural
Fair condition
- Building is 87 years old (1928)
- Very small and narrow floor plates are inefficient
- Double hung wood - need replacement
- High visibility on campus
- Easy access from city streets - access through New Evans building
- Roof is in fair condition
- Envelope is in good condition
- Parking access at Harrison Avenue garage

Systems
Fair condition
- AHUs over 20 years old - upgrade needed
- 4-pipe FCUs throughout the building in fair condition.
- 150 ton Carrier chilled in fair condition provides building cooling.
- Minimal ATC controls - upgrade needed.
- Normal and emergency electrical system beyond useful life - upgrade needed
- Plumbing and domestic hot water system in fair condition.

Structural
Fair condition
- Good floor-to-floor heights
- Small bay spacing



OLD EVANS BUILDING

The Old Evans Building (1942) is red brick, nine stories tall and rectangular in plan. Designed with minimal ornament, the red brick walls sit on a granite foundation and rise to a simple frieze and cast stone coping at the parapet. Thirteen bays in length, the East Newton Street façade is symmetrical with a 3-bay central pavilion. The central main entrance, in the Art Moderne style, consists of a two-story granite frontispiece. Paired pilasters with stylized capitals frame the openings of the three bay granite entry. The rst story is rusticated and a granite sillcourse runs across the façade at the 2nd story windows. Otherwise, the brick walls are unrelieved from the second story to the 7th story, above which there is a denticulated brick belt-course. Corbelling topped by molded brick courses terminate the façade.

The Old Evans Building (1942) was built as an inpatient facility with funds from the will of Maria Antoinette Evans, in memory of her husband Robert Dawson Evans for clinical research, preventative medicine, and for the study and treatment of neuroses. The Evans endowment proved to be one of the most enduring for the hospital and the School of Medicine.

The building is currently called the Old Evans Building to distinguish it from the “New Evans Building”, which opened in 1971 to provide additional inpatient and clinical research oors. There was also an earlier Evans Memorial building dated from 1912, which was funded by Mrs. Maria A. Evans in memory of her husband for similar medical uses. The building was constructed on East Concord Street on land transferred to the Hospital by Boston University.

PRESTON FAMILY BUILDING

Built
1967

Principal Use
Outpatient

Floors
5

SF
63,325

Status
Originally a hotel, the building was renovated to meet increased outpatient demand

Architectural

Poor to Fair Condition

- Building is 48 years old (1967)
- High visibility
- Easy access from city street
- Entrance through interior courtyard
- On-street parking (or in adjacent DOB garage)
- Very low floor-to-floor height
- Small floor plate
- Light weight construction (former motel)
- Possible asbestos in cavity wall - Need to verify
- Slow hydraulic elevator-additional capacity required

Systems

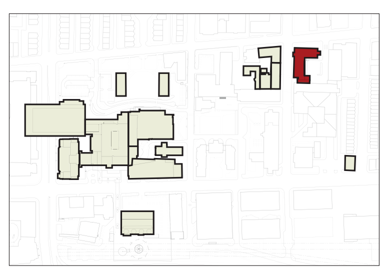
Fair to Good condition

- Limited ATC controls
- New AHU added in 2007 for supplemental ventilation for FCUs. In good condition.
- Ongoing renovations, but majority of building contains limited ATC controls.
- Normal electrical system has no spare capacity - upgraded needed
- Chilled water from Newton Pavilion chiller plant supplied to Preston via Doctor's Office Building.
- District steam from Veolia on Harrison ave.
- Oxygen distribution provided to 4th floor only

Structural

Poor condition

- No excess capacity
- Low floor-to-floor



BETATRON

Built
N/A

Principal Use
Outpatient

Floors
N/A

SF
5,912

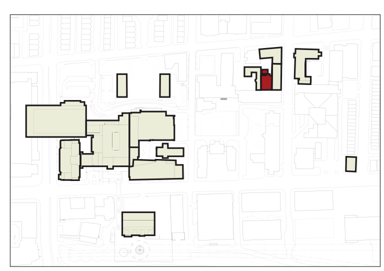
Status
Linear Accelerator vaults and support for cancer treatment

Feasibility for reuse under study (program moved to Moakley)

Architectural
Fair Condition
- No visibility
- Not open to public
- No identity
- Feasibility for reuse under study

Systems
Good condition
- Packaged AHUs in fair condition.
- Chilled water system from Evans building in fair condition.
- Partial DDC controls ATC upgrade. Remainder of building requires DDC upgrade.
- Electrical distribution system has no spare capacity and requires upgrade.

Structural
Fair condition



Built
1972

Principal Use
Outpatient

Floors
B+5

SF
218,477

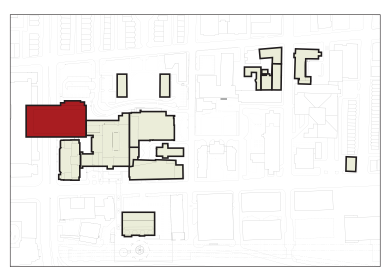
Status
Renovations ongoing including major architectural and MEP elements

3rd & 4th windows under repair

Architectural
Good condition
- Large floor plate
- Inefficient layout with perimeter circulation
- Refer to appendix-A
- Building is 33 years old (1972)
- High visibility and recognizable image for the institution
- Easy access from city streets
- Some convenient short term parking on grade. Valet option available to users
- Flexible structural grid
- Tall floor-to-floor (although interstitial mechanical space is questionable advantage)
- Level 5 horizontal expansion the only possible expansion opportunity
- Inefficient layout with perimeter circulation
- In general, exterior envelope in good condition

Systems
Good Condition
- Major renovations to basement, 1st floor, mezzanine and 3rd floor in 2015
- New duct mains, piping mains, and DDC terminal boxes added.
- New server on Mezzanine level
- New maternity unit on 3rd floor
- Normal power electrical distribution upgrade 2012
- Emergency power electrical distribution upgrade 2015
- Critical branch emergency system new 2015
- Duct distribution upgrade in 2012
- Steam piping infrastructure upgrade in 2015
- New 35,000 CFM Maternity RTU added in 2015
- New domestic hot water system added in 2015
- New campus wide medical air and medical vacuum infrastructure added in 2015

Structural
Good condition
- Good floor-to-floor heights
- Flexible grid spacing



Built
1972

Principal Use
Mechanical

Floors
B+4

SF
64,064

Status
Interim materials handling location

Approved for demolition under 2010 IMP

Architectural

Good Condition

- Building is 43 years old (1972)
- High visibility and recognizable image for the institution
- Easy access from city streets
- Some convenient short term parking on grade.
- Additional parking at Albany Street garage
- Flexible structural grid
- Tall floor-to-floor
- In general, exterior envelope in good condition

Systems

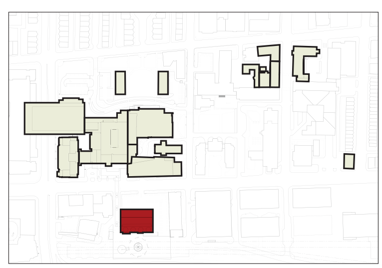
Fair condition

- One of two unit substations at end of life.
- Electrical distribution system at end of life
- Lack of 2 hour separation on life safety branch circuit distribution.
- AHUs approaching end of useful life
- Air distribution terminal boxes beyond their useful life and should be replaced.
- Chillers upgraded in 2006 and in good condition.
- Chiller and condenser water sequences upgraded in 2014
- Steam pressure reducing station in basement requires upgrades

Structural

Good condition

- Good floor-to-floor heights



MENINO PAVILION

Built
1994

Principal Use
Inpatient

Floors
B+8

SF
337,340

Status
Currently under expansion and renovation for increased ED/ Radiology and inpatient demands.

Yellow tube to be replaced by pedestrian overpass; SELDC Approved 2012

Architectural

Good Condition

- Building is 21 years old (1994)
- Renovation and expansion currently occurring - outlined in BMC Institutional Master Plan
- Medium visibility
- Easy access from city streets - main entrance off of Harrison Ave
- Some convenient short term parking on grade - Valet option at drop-off
- Additional parking at Albany Street garage
- Flexible structural grid
- Tall floor-to-floor
- Exterior envelope in good condition
- Good column bay spacing

Systems

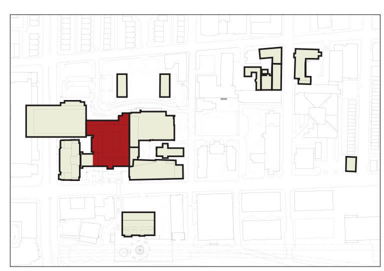
Good condition

- New normal and emergency electrical distribution proposed 2016
- AHUs approximately 20 years old and require mechanical upgrades
- The majority of the original pneumatic terminal boxes are not controlled by the ATC system.
- Medical air and medical vacuum systems are beyond their useful life, and will be cutover to the Yawkey infrastructure systems in 2015.
- Smoke control system to be upgraded in 2016.
- Fire protection system to be cut over to Yawkey fire pump in 2015.
- Sanitary drainage underslab piping in bad condition
- Steam PRV station valves beyond their useful life. Proposed to be replaced in 2015.
- Kitchen and basement HV-1 to be upgraded in 2015.

Structural

Good condition

- Good floor-to-floor heights



MOAKLEY BUILDING

Built
2006

Principal Use
Outpatient

Floors
B+3

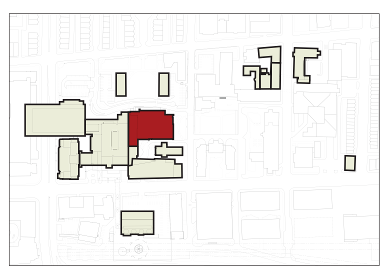
SF
133,217

Status
30K sf addition approved uneder 2012 IMP Amendment is currently under construction

Architectural
Very good Condition
- Building is 9 years old (2006)
- 30,000 sf addition currently under construction
- High visibility and recognizable image for the institution
- Easy access from city streets
- Some convenient short term parking on grade. Valet option available to users
- Flexible structural grid
- Tall floor-to-floor
- Envelope in good condition

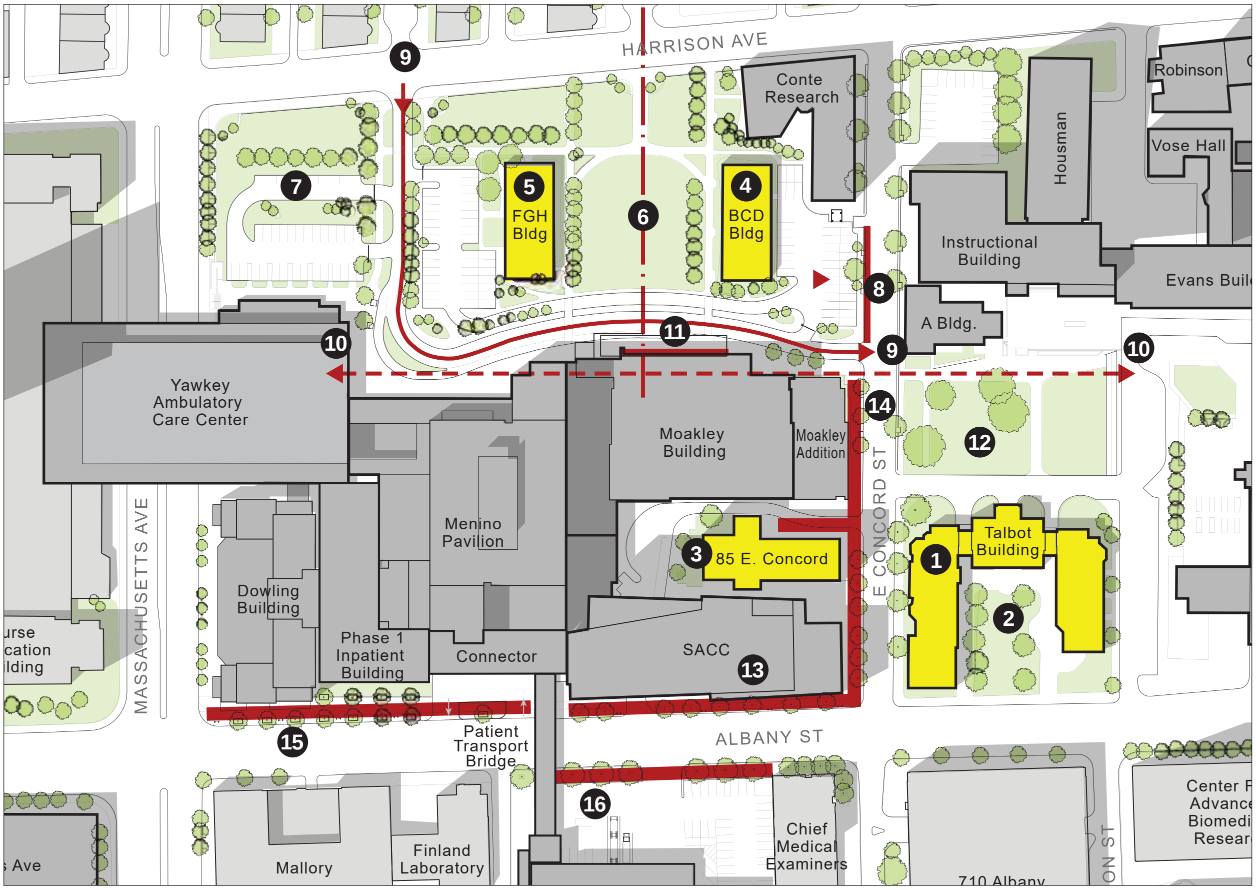
Systems
Good condition
- All electrical systems sufficient for present use
- Four AHUs are in good condition but require repairs to the following:
  - Difficulty maintaining temperature and humidity requirements
  - Stratification problems during winter months
- Domestic hot water system in good working order
- Fire protection systems in good working order
- Chilled water cross-connect between Menino and Moakley added in 2012
- Medical air and medical gas systems in good working order with future capacity

Structural
Good condition
- Good floor-to-floor heights

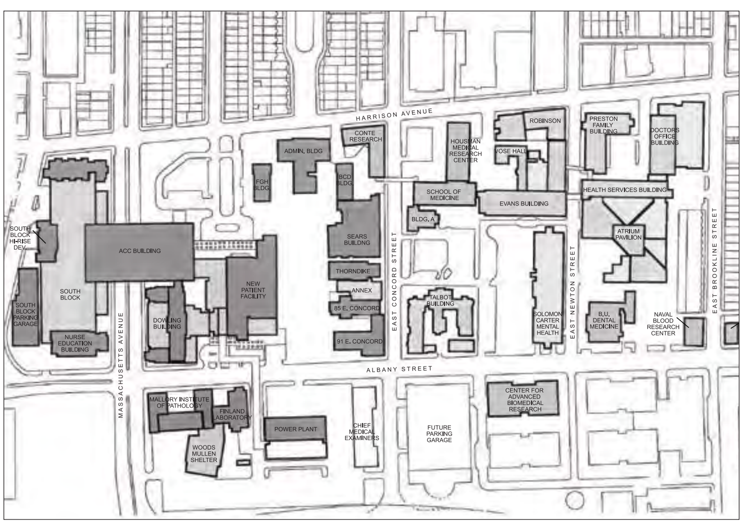


BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

Note: Refer to Appendix-C for Building Infrastructure Forms



Campus Plan Improvements



1994 Campus Plan

1. Preservation of Talbot Building
2. New green space on Albany Street behind Talbot Building
3. Preservation of 85 East Concord Street Building
4. Historic restoration and National Trust renovation of BCD Building
5. Historic restoration and National Trust renovation of FGH Building
6. Landscaped open space between BCD and FGH on axis with Worcester Square
7. Landscaping improvements and parking lot screening at Harrison Ave
8. Reconstruction of historic brick wall along East Concord Street
9. Campus access redesign, shifting away from Harrison Avenue and South End Historic District
10. Enhanced east/west pedestrian connection between Newton Campus and Menino Campus
11. Moakley Building design in response to Worcester Square axis
12. Elimination of parking lot and development of the Talbot green park
13. SACC streetscape improvements including new paving, planters, trees, and landscaping
14. Moakley Addition streetscape improvements including new paving, planters, and trees.
15. Phase 1 Inpatient Building streetscape improvements including new paving, planters, trees, landscaping, and reorganized vehicular circulation
16. Relocation of truck deliveries to Power Plant site to reduce pedestrian and vehicular

BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

APPENDIX A:
BUILDING GRADING FORMS

BUILDING: **BCD**
800 Harrison Ave

Category	Data	Condition	Comment
GENERAL			
Age (years)	1864 (151)	1	
Typical Bay Dimen.	Varies	2	Bearing wall construction with infill floors- Infill structural bay 25' x 18'-8"
Ave. Typical Floor Area	4,787 sf	1	
Typ. Floor Plate Width	30'	3	
Avg. Fl. To Fl. Height	8'-6"	2	
Total Area (GSF)	28,174		
Bldg. Type by Code	1A		
Occupancy	B		
Historical Designation	No		Within SELDC Protection Area
No. of Stories	6		
PHYSICAL			
Roof	EPDM	4	
Exterior Skin	Brick/Aluminum Wndws	5	Building Renovated in 2007
Life Safety		4	
Finishes		5	
PTS	No		Confirm?
Hazardous Mat'l	No	4	Verify
ADA	Yes	4	
Vertical Transporation		5	
FUNCTIONAL			
Present Use	Office		Information Technology
Potential Use	Office		Information Technology
SITE			
Arrival Experience		4	
Visibility		5	
Identity/Image		5	
Future Expansion Potential		1	
Parking		3	
Landscaping		5	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **FGH**

820 Harrison Ave

Category	Data	Condition	Comment
GENERAL			
Age (years)	1864 (151)	1	
Typical Bay Dimen.	Varies	2	Bearing wall construction with infill floors- Infill structural bay 25' x 18'-8"
Ave. Typical Floor Area	4,842 sf	1	
Typ. Floor Plate Width	30'	3	
Avg. Fl. To Fl. Height	8'-9"	2	
Total Area (GSF)	29,435 sf		
Bldg. Type by Code	1A		
Occupancy	B		
Historical Designation	No		Within SELDC Protection Area
No. of Stories	6		
PHYSICAL			
Roof	EPDM	4	
Exterior Skin	Brick/Aluminum Wndws	5	Building Renovated in 2005
Life Safety		4	
Finishes		5	
PTS	No		Confirm?
Hazardous Mat'l	No	4	Verify
ADA	Yes	4	
Vertical Transporation		5	
FUNCTIONAL			
Present Use	Office		Administration
Potential Use	Office		Administration
SITE			
Arrival Experience		4	
Visibility		5	
Identity/Image		5	
Future Expansion Potential		1	
Parking		3	
Landscaping		5	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Naval Blood Lab**
615 Albany Street

Category	Data	Condition	Comment
GENERAL			
Age (years)	c. 1865 (150)	1	
Typical Bay Dimen.	N/A		
Ave. Typical Floor Area	3,000 gsf	1	
Typ. Floor Plate Width	45'	2	
Avg. Fl. To Fl. Height	App. 11'-0"	1	
Total Area (GSF)	18,594 approx.	2	
Bldg. Type by Code	4		
Occupancy	B		
Historical Designation	No		Landmarks Commission review likely if demolition or expansion contemplated
No. of Stories	B+5		
PHYSICAL			
Roof		3	
Exterior Skin		2	
Life Safety		1	
Finishes		1	
PTS	No		
Hazardous Mat'l		3	
ADA		1	
Vertical Transporation		1	
FUNCTIONAL			
Present Use	Vacant		
Potential Use	Office		
SITE			
Arrival Experience		3	
Visibility		4	
Identity/Image		3	
Future Expansion Potential		2	
Parking		2	Urban site
Landscaping		1	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Vose**
10 Stoughton Street

Category	Data	Condition	Comment
GENERAL			
Age (years)	1898 (117)	1	
Typical Bay Dimen.	13' x 17'	1	
Ave. Typical Floor Area	4500 sf	1	
Typ. Floor Plate Width	23' to 27'	1	
Avg. Fl. To Fl. Height	10'-6"	2	
Total Area (GSF)	30,500		
Bldg. Type by Code	?		
Occupancy	B		
Historical Designation	No		Within SELDC Protection Area
No. of Stories	5		
PHYSICAL			
Roof	EPDM	3	
Exterior Skin	Brick	2	
Life Safety		2	
Finishes		3	
PTS	No		
Hazardous Mat'l		2	Verify
ADA		1	
Vertical Transporation		2	Elevator access via Robinson/Evans
FUNCTIONAL			
Present Use	Administrative Offices		
Potential Use	Administrative Offices		
SITE			
Arrival Experience		1	
Visibility		2	
Identity/Image		3	
Future Expansion Potential		1	
Parking		2	Harrison Ave Parking Garage
Landscaping		1	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **85 East Concord**
820 Harrison Ave

Category	Data	Condition	Comment
GENERAL			
Age (years)	1928 (87)	2	
Typical Bay Dimen.	Varies	2	Refer to Detail Sheet
Ave. Typical Floor Area	7,100 sf	2	
Typ. Floor Plate Width	40'	2	
Avg. Fl. To Fl. Height	11'-7"	3	
Total Area (GSF)	66,952 sf		
Bldg. Type by Code	?		
Occupancy	?		
Historical Designation	No		Within SELDC Protection Area
No. of Stories	B+8		
PHYSICAL			
Roof	EPDM	4	
Exterior Skin	Brick/Aluminum Wndws	4	Building Renovated in 2007
Life Safety		4	
Finishes		4	
PTS	No		Confirm?
Hazardous Mat'l	No	4	Verify
ADA	Yes	4	
Vertical Transporation		5	
FUNCTIONAL			
Present Use	Office		Administration
Potential Use	Office		Administration
SITE			
Arrival Experience		3	Small entry off E. Concord
Visibility		2	Tucked behind Shapiro
Identity/Image		2	Tucked behind Shapiro
Future Expansion Potential		1	
Parking		4	Close to Albabny Garage
Landscaping		1	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Helen Collamore**
76 Harrison Ave.

Category	Data	Condition	Comment
GENERAL			
Age (years)	1936 (79)	2	
Typical Bay Dimen.	Varies	2	Refer to detail Sheet
Ave. Typical Floor Area	5,560 sf	1	
Typ. Floor Plate Width	50'-2"	3	
Avg. Fl. To Fl. Height	Varies	4	10'-8" to 15'-10" (3 Flrs @ 13'-6")
Total Area (GSF)	41,970 GSF		
Bldg. Type by Code	2A		Verify
Occupancy	B or E		Verify
Historical Designation	No		
No. of Stories	8		Partial Basement for Mech
PHYSICAL			
Roof	Asphalt/Ballast	2	
Exterior Skin	Brick/Precast	3	
Life Safety		4	Appear to meet code
Finishes		3	
PTS			
Hazardous Mat'l			Verify
ADA		2	Must enter through Evans
Vertical Transporation	2 Elev.	2	1 Locked
FUNCTIONAL			
Present Use	Admin/Office		
Potential Use	Admin/Office		
SITE			
Arrival Experience		1	Enter through other buildings
Visibility		5	
Identity/Image		4	
Future Expansion Potential		1	
Parking		4	
Landscaping		1	

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Helen Collamore**
76 Harrison Ave.

Category	Data	Condition	Comment
GENERAL			
Age (years)	1942 (73)	2	
Typical Bay Dimen.	Varies	2	Refer to detail Sheet
Ave. Typical Floor Area	7,275 sf	1	
Typ. Floor Plate Width	50'-2"	3	
Avg. Fl. To Fl. Height	Varies	4	10'-8" to 15'-10" (3 Flrs @ 13'-6")
Total Area (GSF)	60,070 GSF		
Bldg. Type by Code	2A		Verify
Occupancy	B or E		Verify
Historical Designation	No		
No. of Stories	9		Partial Basement for Mech
PHYSICAL			
Roof	Asphalt/Ballast	2	
Exterior Skin	Brick/Precast	3	
Life Safety		4	Appear to meet code
Finishes		3	
PTS			
Hazardous Mat'l			Verify
ADA		3	Must enter through Evans
Vertical Transporation	3 Elev.	4	
FUNCTIONAL			
Present Use	Admin/Office		
Potential Use	Admin/Office		
SITE			
Arrival Experience		1	Enter through other buildings
Visibility		4	
Identity/Image		3	
Future Expansion Potential		1	
Parking		4	
Landscaping		1	

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Preston**
732 Harrison

Category	Data	Condition	Comment
GENERAL			
Age (years)	1967 (48)	3	
Typical Bay Dimen.	25' x 20'	3	
Ave. Typical Floor Area	12,800 sf	2	
Typ. Floor Plate Width	60'	3	
Avg. Fl. To Fl. Height	9'-9"	1	
Total Area (GSF)	63,325 GSF		
Bldg. Type by Code	?		
Occupancy	B		
Historical Designation	No		
No. of Stories	5		
PHYSICAL			
Roof		4	
Exterior Skin		2	
Life Safety	?	3	
Finishes		4	
PTS	Yes		
Hazardous Mat'l		1	Verify in cavity wall
ADA	?	3	
Vertical Transporation		2	
FUNCTIONAL			
Present Use	Ambulatory		
Potential Use	Ambulatory/Office		
SITE			
Arrival Experience		3	
Visibility		4	
Identity/Image		2	
Future Expansion Potential		2	
Parking		3	
Landscaping		2	Minimal landscaping

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Betaron**

Category	Data	Condition	Comment
GENERAL			
Age (years)	?	C	
Typical Bay Dimen.		N/A	
Ave. Typical Floor Area		N/A	
Typ. Floor Plate Width		N/A	
Avg. Fl. To Fl. Height		N/A	
Total Area (GSF)	6400 GSF		
Bldg. Type by Code	1B		
Occupancy	I 2		
Historical Designation	No		
No. of Stories	1		
PHYSICAL			
Roof		C	
Exterior Skin		C	
Life Safety		B	
Finishes		C	
PTS	No		
Hazardous Mat'l	No		
ADA		C	
Vertical Transporation	N/A		
FUNCTIONAL			
Present Use	Radiation Therapy		
Potential Use	Storage/Office		Concrete vaults have limited re-use potential
SITE			
Arrival Experience		N/A	
Visibility		N/A	
Identity/Image		N/A	
Future Expansion Potential		Undetermined	
Parking		N/A	
Landscaping		N/A	

KEY

F	Poor
D	Fair
C	Good
B	Very Good
A	Excellent
NA	Not Applic.

BUILDING: **Yawkey**
850 Harrison Ave.

Category	Data	Condition	Comment
GENERAL			
Age (years)	1972 (43)	4	
Typical Bay Dimen.	61' x 61'	5	
Ave. Typical Floor Area	51,000 GSF	5	
Typ. Floor Plate Width	61'	5	
Avg. Fl. To Fl. Height	17'	5	8' interstitial space at levels 2, 3, & 4
Total Area (GSF)	250,815 GSF		
Bldg. Type by Code	1B		
Occupancy	B		
Historical Designation	No		
No. of Stories	5		
PHYSICAL			
Roof		4	
Exterior Skin		3	
Life Safety		3	
Finishes		3	
PTS	YES		
Hazardous Mat'l		?	
ADA		?	
Vertical Transporation		3	
FUNCTIONAL			
Present Use	Ambulatory Care		
Potential Use	Ambulatory Care		
SITE			
Arrival Experience		4	
Visibility		5	
Identity/Image		4	
Future Expansion Potential		2	Limited expansion capability at level 5.
Parking		3	
Landscaping		4	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Power Plant**
750 Albany Street

Category	Data	Condition	Comment
GENERAL			
Age (years)	1972 (43)	3	
Typical Bay Dimen.	36' x 26'	4	
Ave. Typical Floor Area	Varies	3	5,500 sf to 20,500 sf
Typ. Floor Plate Width	100'	5	
Avg. Fl. To Fl. Height	22'-8"	5	
Total Area (GSF)	64,064 GSF		
Bldg. Type by Code	1B		
Occupancy	B		
Historical Designation	No		
No. of Stories	B+4		
PHYSICAL			
Roof		4	
Exterior Skin		4	
Life Safety		2	
Finishes		2	Finishes only in office areas
PTS	YES		
Hazardous Mat'l		?	
ADA		?	
Vertical Transporation		2	
FUNCTIONAL			
Present Use	Mech/Facilities		
Potential Use	Materials Handling		
SITE			
Arrival Experience		3	
Visibility		4	
Identity/Image		5	
Future Expansion Potential		2	Needs verification
Parking		4	Some surface and near Albany garage
Landscaping		1	Minor streetscaping

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Menino Building**
840 Harrison Ave.

Category	Data	Condition	Comment
GENERAL			
Age (years)	1994 (21)	4	
Typical Bay Dimen.	25' x 25'	4	
Ave. Typical Floor Area	51,000 GSF	5	
Typ. Floor Plate Width	141'	5	
Avg. Fl. To Fl. Height	15'	5	
Total Area (GSF)	337,340 GSF		
Bldg. Type by Code	1B		
Occupancy	B		
Historical Designation	No		
No. of Stories	B+8		
PHYSICAL			
Roof		4	
Exterior Skin		4	
Life Safety		4	
Finishes		4	Finishes to be updated with renovation
PTS	YES		
Hazardous Mat'l		?	
ADA	YES		
Vertical Transporation		4	
FUNCTIONAL			
Present Use	Ambulatory Care		
Potential Use	Ambulatory Care		
SITE			
Arrival Experience		4	
Visibility		4	
Identity/Image		4	
Future Expansion Potential		3	
Parking		4	
Landscaping		3	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Moakley Building**
830 Harrison Ave.

Category	Data	Condition	Comment
GENERAL			
Age (years)	2006 (9)	4	
Typical Bay Dimen.	25' x 26'	4	
Ave. Typical Floor Area	35,000 GSF	4	
Typ. Floor Plate Width	128'	5	
Avg. Fl. To Fl. Height	16'	5	
Total Area (GSF)	133,217 GSF		
Bldg. Type by Code	1B		
Occupancy	B		
Historical Designation	No		
No. of Stories	B+3		
PHYSICAL			
Roof		5	
Exterior Skin		5	
Life Safety		5	
Finishes		4	Finishes to be updated with renovation
PTS	YES		
Hazardous Mat'l	No		
ADA	YES		
Vertical Transporation		5	
FUNCTIONAL			
Present Use	Ambulatory Care		
Potential Use	Ambulatory Care		
SITE			
Arrival Experience		5	
Visibility		5	
Identity/Image		5	
Future Expansion Potential		4	
Parking		3	
Landscaping		5	

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

BUILDING: **Dowling**
771 Albany Street

Category	Data	Condition	Comment
GENERAL			
Age (years)	1937 (68)	2	
Typical Bay Dimen.	16' x 18'	2	Tight for IP use
Ave. Typical Floor Area	10,000 sf	2	Small overall
Typ. Floor Plate Width	40' to 48'	2	Tight for IP use
Avg. Fl. To Fl. Height	11'-8"	2	Low for IP use
Total Area (GSF)	157,376 GSF		
Bldg. Type by Code	?		
Occupancy	B		
Historical Designation	No		
No. of Stories	10		
PHYSICAL			
Roof		4	
Exterior Skin		3	
Life Safety		3	
Finishes		3	
PTS	No		
Hazardous Mat'l		2	Some asbestos/VAT-Verify
ADA		3	
Vertical Transporation		2	
Overall Deficiency Rank			
FUNCTIONAL			
Present Use	Office		Some Ambulatory Care
Potential Use	Office		Some Ambulatory Care
SITE			
Arrival Experience		1	Through Yawkey or Manino
Visibility		5	
Identity/Image		2	
Future Expansion Potential		1	
Parking		2	Albany Street Garage
Landscaping		1	Minimal on Albany Street

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
NA	Not Applic.

APPENDIX B:
BUILDING INFRASTRUCTURE FORMS

BUILDING: BCD
800 Harrison Ave.

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	2005	4	Yes	5 AHUs in good capacity
Air Distribution Systems	2005	4	Yes	FCUs and VAVs in good condition
Cooling Systems	2005	4	Yes	FCUs and VAVs in good condition
Heating Systems	2005	4	Yes	FCUs and VAVs in good condition
Boiler Plant	1990's	3	No	LPS from Evans building sized to existing capacity.
Chillers	1990's	4	No	Chilled water from Moakley sized to existing capacity.
Pumping System	2005	4	Yes	Pumps in good condition
Cooling Towers	1990's	3	No	Chilled water from Moakley sized to existing capacity.
Piping Distribution	2005	4	No	Piping system sized to existing capacity.
Exhaust Systems	2005	4	No	
Automatic Temperature Controls	2005	4	Yes	DDC controls in good condition
Fuel Oil Tanks	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	2005	4	yes	
Transformers	2005	4	yes	Exterior pad mount
13.8kv feeders	2005	3	yes	Partial upgrade
Highrise Substations	2005	4	yes	upgraded in 2005
Secondary distribution	2005	4	yes	upgraded in 2005
Generators	N/A	N/A	N/A	N/A
Emergency Distribution	N/A	N/A	N/A	N/A
Automatic transfer switches	N/A	N/A	N/A	N/A
PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	2005	4	yes	upgraded in 2005
Sanitary Drainage	2005	4	yes	upgraded in 2005
Special Drainage	N/A	N/A	N/A	N/A
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	2005	4	yes	upgraded in 2005
Plumbing fixtures	2005	4	yes	upgraded in 2005

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: FGH
820 Harrison

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	2007	4	some capacity	capacity
Air Distribution Systems	2007	4	some capacity	FCUs, VAVs in good condition
Cooling Systems	2007	4	Sized to existing capacity	FCUs, VAVs in good condition
Heating Systems	2007	4	Sized to existing capacity	FCUs, VAVs and FTR in good condition
Boiler Plant	1990s	3	CUP	CUP
Chillers	1990s	4	CUP	CUP
Pumping System	2007	4	some capacity	Booster CHW pumps and HW pumps in basement sized for existing capacity.
Cooling Towers	1990s	4	CUP	CUP
Piping Distribution	2007	4	some capacity	Sized for existing capacity.
Exhaust Systems	2007	4	some capacity	Good condition
Automatic Temperature Controls	2007	4	some capacity	DDC system in good condition
Fuel Oil Tanks	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	2007	4	some capacity	Upgraded in 2007
Transformers	2007	4	some capacity	Exterioir pad mount
13.8kv feeders	2007	3	some capacity	partial upgrade in 2007
Highrise Substations	2007	4	some capacity	Upgraded in 2007
Secondary distribution	2007	4	some capacity	Upgraded in 2007
Generators	N/A	N/A	N/A	N/A
Emergency Distribution	N/A	N/A	N/A	N/A
Automatic transfer switches	N/A	N/A	N/A	N/A
PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	2007	4	some capacity	Upgrade in 2007
Sanitary Drainage	2007	4	some capacity	Upgrade in 2007
Special Drainage	N/A	N/A	N/A	N/A
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	2007	4	some capacity	Upgrade in 2007
Plumbing fixtures	2007	4	some capacity	Upgrade in 2007

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Naval Blood Lab**
615 Albany

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	1980's	1	no spare capacity	There are 2water cooled units per floor units need to be replaces and a central AHU in Basement which needs to be replace
Air Distribution Systems	NA	2	no spare capacity	The duct layout is minimal and would require new distribution
Cooling Systems	1970's	2	no spare capacity	The cooling is from a outdoor cooling tower which serves the individual AHU's the tower would need to be replaced
Heating Systems	1970's	1	no spare capacity	The heating system is steam radiation throughout the perimeter (poor control and steam traps). Steam PRV station in basement needs replacement.
Boiler Plant	1970's	2	no spare capacity	The boiler is an oil fired steam boiler needs repair
Chillers	1970's	1	no spare capacity	AHU needs to be replace
Pumping System	1970's	2	no spare capacity	serving cooling tower and Air cooled system
Cooling Towers				
Piping Distribution	1970's	1	no spare capacity	Steam distribution piping requires repair. Steam piping leaking and needs replacement.
Exhaust Systems	1980's	1	no spare capacity	Most of the fans are not operating
Automatic Temperature Controls	1970	1	no spare capacity	Controls need to be replaced with new state of the art control system/BAS
Fuel Oil Tanks	1970,s	1	no spare capacity	underground tank needs to be replaced
Major Renovation				
ELECTRICAL				
Normal System	40	1	no spare capacity	requires upgrade
Transformers	20	1	no spare capacity	Exterior pad mounted
Primary feeders	40			requires upgrade
Highrise Substations	NA	NA	NA	NA
Secondary distribution	40	1	no spare capacity	requires upgrade
Generator	38	1	no spare capacity	125kw exterior unit
Emergency Distribution	38	1	no spare capacity	Not code compliant
Automatic transfer switches	38	1	no spare capacity	Not code compliant

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	1	No	No medical gas systems. Lab gas systems are in poor shape. Exterior bulk nitrogen tank
Domestic Water Systems		1	minimal	Booster pump limits size of expandabilty.
Sanitary Drainage		2	minimal	
Special Drainage		2	minimal	Limited acid resistant piping but no central acid neutralization capabilities
Natural Gas System		2	minimal	
Purified Water System		2	No	Poor system quality
Fire Protection/Sprinkler		2	minimal	
Plumbing fixtures		2	N/A	

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Vose**
10 Stoughton Street

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units				no ahu's
Air Distribution Systems				no distribution
Cooling Systems	w/ac	1	no spare capacity	window ac units
Heating Systems	1970s	1	no spare capacity	Steam radiators controlled by out side temperature
Boiler Plant	1970s	2	no spare capacity	District steam
Chillers	NA			
Pumping System	NA			
Cooling Towers	NA			
Piping Distribution	1970s	2	no spare capacity	steam piping only
Exhaust Systems	1970s	2	no spare capacity	toilet exhaust fans throughout
Automatic Temperature Controls	1970s	1	no spare capacity	minimal controls
Fuel Oil Tanks	NA			
ELECTRICAL				
Normal System	1970's	1	no spare capacity	requires upgrade
CEI vault (3) transformers	1970's	1	no spare capacity	from Evans vault
11.4 kV feeders to highrise	1970's	1	no spare capacity	from Evans vault
Highrise Substations	N/A	N/A	N/A	
Secondary switchgear PBS fused type	1970's	1		requires upgrade
Generators	2000's	3		From Newton Pavilion
Emergency Switchgear (parallel)	1970's	2	minimal	requires upgrade
Automatic transfer switches	1970's	2	minimal	requires upgrade
PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	1980's	3	minimal	equipment
Domestic Water Systems	1970's	3	minimal	
Sanitary Drainage	1970s	3	minimal	
Special Drainage	N/A	N/A	N/A	
Natural Gas System	N/A	N/A	N/A	
Purified Water System	N/A	N/A	N/A	
Fire Protection/Sprinkler	1970's	2	No	
Plumbing fixtures	1970's	2	N/A	Fixtures are old, tank type floor mtd.

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: 85 East Concord

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	2001	4	None	AHU-1 is a 100% OA dedicated to supplemental FCU ventilation. No spare capacity.
Air Distribution Systems	2001	3	Some	The ducts are sized for 100% supplemental ventilation for FCUs. Some capacity available for expansion.
Cooling Systems	2001	3	Some	capacity.
Heating Systems	2001	3	Some	capacity.
Boiler Plant	1990s	CUP	CUP	CUP
Chillers	2001	CUP	CUP	CUP
Pumping System	2001	3	Some	Pumps are sized for existing capacity with some room for expansion.
Cooling Towers	2001	CUP	CUP	CUP
Piping Distribution	2001	4	none	Sized for existing capacity.
Exhaust Systems	2001	3	None	
Automatic Temperature Controls	2001	3	Yes	Full building DDC controls.
Fuel Oil Tanks	N/A	N/A	N/A	N/A
Major Renovation	2001	-	-	-
ELECTRICAL				
Normal System	2008	4		
Transformers	2008	4		Located in Menino Addition
13.8 feeders	2008	3		Partial upgrade
Substations	2001	4		Located in Menino Addition
Secondary distribution	2001	4		
Generators (2) 675kw	2001	4		Moakley Plant
Emergency distribution	2001	4	no	
Automatic transfer switches	2013	5	yes	Located in Moakley
Automatic transfer switches	2008	4	yes	Located in Moakley

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	2001	3	none	DHW system in good condition
Sanitary Drainage	2001	3	none	Sanitary in good condition
Special Drainage	N/A	N/A	N/A	N/A
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	2001	3	none	in good condition
Plumbing fixtures	2001	3	none	in good condition

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Collamore**
76 Harrison Ave

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	1980's	1	none	Roof top units need replacement
Air Distribution Systems	1980's	1	none	existing ventilation needs upgrade
Cooling Systems	1980's	1	none	Window AC units should be replaced with central ventilation system
Heating Systems	1980's	2	none	Steam heat with minimal controls.
Boiler Plant	1980's	2	none	District steam.
Chillers	N/A	N/A	N/A	N/A
Pumping System	1980's	1	none	
Cooling Towers	N/A	N/A	N/A	N/A
Piping Distribution	1980's	1	none	
Exhaust Systems	1980's	2	none	
Automatic Temperature Controls	1980's	1	none	
Fuel Oil Tanks	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	1980s	1	no spare capacity	requires upgraded
Transformers	1980s	1	no spare capacity	requires upgraded
13.8kv feeders	1990s	2	no spare capacity	requires upgraded
Highrise Substations	1980s	1	no spare capacity	requires upgraded
Secondary distribution	1980s	1	no spare capacity	requires upgraded
Generators	2000s	3	minimal	requires upgraded
Emergency Distribution	1980s	2	minimal	requires upgraded
Automatic transfer switches	1980s	2	minimal	requires upgraded
PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	1980's	2	none	
Sanitary Drainage	1980's	2	none	
Special Drainage	N/A	N/A	N/A	N/A
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	1980's	2	none	
Plumbing fixtures	1980's	2	none	

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Old Evans**
66 East Newton

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	1990s	2	no spare capacity	
Air Distribution Systems	2000s	2	no spare capacity	
Cooling Systems	2000s	3	some spare capacity	4 pipe FCUs from chiller system in good condition. Chillers have spare capacity.
Heating Systems	1990s	3	some spare capacity	steam radiators served via district heat.
Boiler Plant	1990s	2	some spare capacity	District steam
Chillers	2000s	3	some spare capacity	150 ton carrier chiller has some spare capacity.
Pumping System	2000s	2	none	Sized for existing distribution.
Cooling Towers	2000s	3	some spare capacity	150 ton carrier chiller has some spare capacity.
Piping Distribution	1980s	1	none	Sized for existing distribution.
Exhaust Systems	1990s	2	none	Fair condition
Automatic Temperature Controls	1990s	1	no spare capacity	requires upgrade
Fuel Oil Tanks	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	1980s	1	no spare capacity	Requires upgrade
Transformers	1980s	1	no spare capacity	Requires upgrade
13.8kv feeders	1990s	2	no spare capacity	Requires upgrade
Highrise Substations	1980s	1	no spare capacity	Requires upgrade
Secondary distribution	1980s	1	no spare capacity	Requires upgrade
Generators	2000s	3	minimal spare capacity	Requires upgrade
Emergency Distribution	1980s	2	minimal spare capacity	Requires upgrade
Automatic transfer switches	1980s	2	minimal spare capacity	Requires upgrade

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	Decommissioned
Domestic Water Systems	1980s	2	minimal spare capacity	Requires upgrade
Sanitary Drainage	1970s	2	capacity	Fair condition
Special Drainage	N/A	N/A	N/A	N/A
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	1980s	2	none	Fair condition
Plumbing fixtures	1980s	2	none	Fair condition

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: Preston
732 Harrison Ave.

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	2000-2007	3	no spare capacity	New RTU installed in 2007 to provide ventilation air to FCUs and building distribution.
Air Distribution Systems	2007	3	no spare capacity	Fair condition due to renovations in 2000's.
Cooling Systems	2000's	3	no spare capacity	FCUs upgraded in 2000's. Thru-wall OA systems removed.
Heating Systems	2000's	2	no spare capacity	FCUs upgraded in 2000's. Thru-wall OA systems removed.
Boiler Plant	2000's	2	no spare capacity	steam from DOB
Chillers	2000's	3	no spare capacity	from Newton chillers via DOB
Pumping System	2000's	2	no spare capacity	from DOB
Cooling Towers	2000's	3	no spare capacity	from Newton chillers via DOB
Piping Distribution	1990's	2	no spare capacity	
Exhaust Systems	1970's/2000's	2	no spare capacity	
Automatic Temperature Controls	1990's	2	no spare capacity	DDC conrols
Fuel Oil Tanks	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	1970's	1	no spare capacity	requires upgrade
Transformers	2010	4		
11.4 kV feeders to highrise	N/A	N/A	N/A	N/A
Highrise Substations	N/A	N/A	N/A	N/A
Secondary switchgear	1970's	4	no spare capacity	
Generators	2000	3	no spare capacity	from Newton Pavilion
Emergency Switchgear (parallel)	1970's	3	no spare capacity	
Automatic transfer switches	1970's	3	no spare capacity	

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum		2	No	Medical Vac and Ox on 4th Fl only.
Domestic Water Systems		2	No	too small for expansion.
Sanitary Drainage		2	minimal	
Special Drainage	N/A	N/A	N/A	
Natural Gas System	N/A	N/A	N/A	
Purified Water System	N/A	N/A	N/A	
Fire Protection/Sprinkler		3	minimal	
Plumbing fixtures		2	N/A	Floor mounted, tank type fixtures

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Betatron**
Address

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	2000	3	none	package unit with chilled water and preheat.
Air Distribution Systems	2000	3	none	single duct reheat
Cooling Systems	2000	3	none	package unit
Heating Systems	2000	3	none	District steam to HW heat exchangers for reheat.
Boiler Plant	1980's	2		District steam
Chillers	1990's	3		Chilled water from Evans building
Pumping System	1990's	2	none	
Cooling Towers				Cooling towers in Evans building
Piping Distribution	1990's	2	none	Fair condition
Exhaust Systems	1990's	2	none	Requires upgrade
Automatic Temperature Controls	2000's	1	none	Siemens upgrade in 2000. Remainder of building requires upgrade.
Fuel Oil Tanks	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	1980's	1	none	Requires upgrade
CEI vault (3) transformers	1980's	1	none	from Evans
Feeders	1980's	1	none	from Evans
Highrise Substations	1980's	1	none	
Secondary switchgear	1980's	1	none	from Evans
Generators	2000's	3	none	from Newton Pavilion
Emergency Switchgear (parallel)	1980's	3	none	Requires upgrade
Automatic transfer switches	1980's	3	none	Requires upgrade
PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum		3	No	Supplied from other buildings
Domestic Water Systems		3	No	Supplied from other buildings
Sanitary Drainage		3	No	
Special Drainage	N/A	N/A	N/A	
Natural Gas System	N/A	N/A	N/A	
Purified Water System	N/A	N/A	N/A	
Fire Protection/Sprinkler		2	No	
Plumbing fixtures		2	N/A	

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Yawkey ACC**
850 Harrison Ave.

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	1970's	3	Spare capacity available	AHUs upgraded in 2012.
Air Distribution Systems	2012	4	Spare capacity available	Major renovation in 2012 included new return aoir duct system, and doubled the supply air duct area.
Cooling Systems	1970's	4	on going	chilled water from chiller plant
Heating Systems	1970's	4	yes	hot water system is adequate and undergoing upgrades in 2015.
Boiler Plant	1970's	4	yes	Upgraded steam piping and pressure reducing station installed in 2015.
Chillers	2000's	4	on going	chilled water from chiller plant
Pumping System	1990's	4	on going	VFD's being added to hot water pumps in 2015.
Cooling Towers	1980's	3	on going	in central plant
Piping Distribution	1970's	3	on going	HW and steam piping being upgraded in 2015.
Exhaust Systems	1970's	2	F -No spare capacity	most exhaust systems are not providing required CFM
Automatic Temperature Controls	2000's	4	on going	Majority of building contains DDC controls.
Fuel Oil Tanks	1970's	3	No spare capacity	Upgraded pumps and level controls in 2015.
Major Renovation				
ELECTRICAL				
Normal System	2013	5	yes	new
Transformers	2013	5	yes	new
13.8 feeders	2013	5	yes	From CUP
Substations	2013	5	yes	new
Secondary distribution	2013	5	yes	some new
Generators (2) 675kw	2013	5	yes	new
Emergency distribution	2013	5	yes	new
Automatic transfer switches	1970's	3	no	equipment branch
Automatic transfer switches	2013	5	yes	critical life safety

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	2015	5	Yes	New campus wide medical air and vaccuum infrastructure installed in 2015.
Domestic Water Systems	2015	5	Yes	New steam instantaneous domestic HW HX system installed in 2015.
Sanitary Drainage	1970's	3	D -minimal	
Special Drainage	2015	N/A	D -minimal	Lab waste system decommissioned in 2015.
Natural Gas System	N/A	N/A	N/A	
Purified Water System	N/A	N/A	N/A	
Fire Protection/Sprinkler	2015	5	Yes	New fire pump installed in 2015
Plumbing fixtures	2015	4	N/A	Over 50% of building plumbing fixtures upgraded in 2015.

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: **Power Plant**

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	1970s	2	no spare capacity	AHUs are original to the building and require upgrade.
Air Distribution Systems	1970s	1	no spare capacity	Pressure dependant terminal boxesrequire upgrade.
Cooling Systems	1990s	2	no spare capacity	Terminal boxes and duct should be upgraded.
Heating Systems	1980s	2	no spare capacity	Terminal boxes and duct should be upgraded.
Boiler Plant	1970s	3	yes	District steam. PRVs should be upgraded.
Chillers	1970s	4	yes	condition
Pumping System	1970s	3	yes	Original pumping system. Pumps should be upgraded.
Cooling Towers	1980s	3	yes	Cooling towers in good condition.
Piping Distribution	2000s	4	yes	Piping upgraded in 2000. Good condition.
Exhaust Systems	1970s	3	none	Requires upgrade.
Automatic Temperature Controls	2000s	3	none	Requires upgrade.
Fuel Oil Tanks	1999	3	none	10,000 gallon fuel oil tank
Major Renovation	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	1970s	2	yes	Needs upgrade
Transformers	1970s	2	yes	Needs upgrade
13.8 feeders	1970s	2	yes	Needs upgrade
Substations (2)	1970s	3	minimal	Needs upgrade
Secondary distribution	1970s	3	yes	Needs upgrade
Generators (1) 550 (1) 400	1990s	3	yes	Needs upgrade
Emergency distribution	1970s	3	yes	Needs upgrade
Automatic transfer switches	1970s	3	yes	Needs upgrade

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	1970s	2	yes	Needs upgrade
Sanitary Drainage	1970s	2	yes	fair
Special Drainage	N/A	N/A	N/A	N/A
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	1970s	2	none	Building is not fully sprinkled
Plumbing fixtures	1970s	2	none	needs upgrade

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: Menino
840 Harrison Ave.

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	1990s	2	some capacity	AHUs 2 & 5 have spare capacity. All other AHUs are operating at full capacity.
Air Distribution Systems	1990s	2	some capacity	Ongoing renovations with major upgrades in 2015.
Cooling Systems	1990s	3	some capacity	upgrades in 2015.
Heating Systems	1990s	3	some capacity	upgrades in 2015.
Boiler Plant	1990s	3	CUP	Steam PRV station expected upgrade in 2015. Condensate system upgrade needed.
Chillers	1990s	3	CUP	8" chilled water sized at building capacity.
Pumping System	1990s	3	none	Pumps sized for building capacity
Cooling Towers	1990s	3	CUP	8" chilled water sized at building capacity.
Piping Distribution	1990s	3	none	Piping sized for building capacity
Exhaust Systems	1990s	2	none	Exhaust fans and ducts in poor condition.
Automatic Temperature Controls	1990s	3	none	Ongoing renovations. Patient rooms require DDC upgrade.
Fuel Oil Tanks	2015	5	none	New fuel tank in 2015.
Major Renovation	2015			
ELECTRICAL				
Normal System	1990s	3	has spare capacity	Proposed upgrade in 2016
Transformers	1990s	3	has spare capacity	Proposed upgrade in 2016
13.8 feeders	1990s	3	has spare capacity	Proposed upgrade in 2016
Substations	1990s	3	has spare capacity	Proposed upgrade in 2016
Secondary distribution	1990s	3	has spare capacity	Proposed upgrade in 2016
Generators (2) 675kw	1990s	3	has spare capacity	Proposed upgrade in 2016
Emergency distribution	1990s	3	has spare capacity	Proposed upgrade in 2016
Automatic transfer switches	1990s	3	has spare capacity	Proposed upgrade in 2016

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	1990s	1	none	Medical air and vacuum system in poor condition
Domestic Water Systems	1990s	3	none	Domestic HW system sized for current capacity.
Sanitary Drainage	1990s	1	none	Underslab piping not properly picthed and causes plumbing backup.
Special Drainage	1990s	1	none	and causes plumbing backup.
Natural Gas System	1990s	3	none	Serves kitchen equipment.
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	1990s	5	none	Upgraded to Yawkey fire pump in 2015
Plumbing fixtures	1990s	3	none	Ongoing upgrades. Underslab piping limits added capacity.

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: Moakley
830 Harrison Ave.

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	2008	4	none	(4) AHUs with controls and stratification problems. AHUs do not have spare capacity.
Air Distribution Systems	2008	4	some capacity	Most ducts sized for existing building capacity.
Cooling Systems	2008	4	some capacity	CUP chilled water from Shapiro Tunnel and Menino to Moakley bridge.
Heating Systems	2008	4	some capacity	CUP steam from Shapiro tunnel in good condition.
Boiler Plant	2008	4	CUP	CUP
Chillers	2008	4	CUP	CUP
Pumping System	2008	4	some capacity	Pumps in good condition
Cooling Towers	2008	4	CUP	CUP
Piping Distribution	2008	3	some capacity	Piping system in good condition
Exhaust Systems	2008	4	none	no spare capacity. Fans in good condition
Automatic Temperature Controls	2008	4	spare capacity	DDC controls throughout the building
Fuel Oil Tanks	N/A	N/A	N/A	N/A
Major Renovation	N/A	N/A	N/A	N/A
ELECTRICAL				
Normal System	2008	4	yes	minimal loads on system
Transformers	2008	4	yes	minimal loads on system
13.8 feeders	2008	3	yes	minimal loads on system
Substations	2008	4	yes	minimal loads on system
Secondary distribution	2008	4	yes	minimal loads on system
Generators (2) 675kw	2008	4	yes	minimal loads on system
Emergency distribution	2008	4	yes	minimal loads on system
Automatic transfer switches	2008	4	yes	minimal loads on system

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	2008	4	yes	minimal loads on system
Domestic Water Systems	2008	4	yes	minimal loads on system
Sanitary Drainage	2008	4	yes	in good condition
Special Drainage	2008	4	yes	in good condition
Natural Gas System	N/A	N/A	N/A	N/A
Purified Water System	N/A	N/A	N/A	N/A
Fire Protection/Sprinkler	2008	4	yes	in good condition
Plumbing fixtures	2008	4	yes	in good condition

KEY

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

BUILDING: Dowling
771 Albany Street

Category	Equipment Age (Years)	Equipment Condition	Capacity / Expandability	Comments
HVAC				
Air Handling Units	mixed	1	none	needs new AHU's
Air Distribution Systems	minimal	1	none	needs new destitution
Cooling Systems	2013	2	minimal	Risers upsized to support office space in 2013.
Heating Systems	2013	2	minimal	Risers upsized to support office space in 2013.
Boiler Plant	CUP	CUP	CUP	from CUP
Chillers	CUP	CUP	CUP	from CUP
Pumping System	CUP	CUP	CUP	from CUP
Cooling Towers	CUP	CUP	CUP	from CUP
Piping Distribution	2013	3	none	Risers upsized to support office space in 2013.
Exhaust Systems	minimal	2		needs new vetilation sysrem
Automatic Temperature Controls	2013	2	none	New DDC controls added to floors 7-9 in 2013.
Fuel Oil Tanks	n/a	n/a	n/a	
ELECTRICAL				
Normal System	Mixed	2	no	Equipment needs upgrade to accommodate new mechanical systems, no critical branch distribution.
Transformers	2010	4	no	Service from Yawkey sized for existing use. Will need upgrade for new mechanical systems and clinical occupancy.
13.8kv feeders	1970	3	minimal	15 kV feeders to Yawkey substation from CUP.
Highrise Substations	2000	1	no	Substation damaged by fire, supplied by Yawkey building via a reduced feeder.
Secondary distribution	mixed	2	minimal	Equipment needs upgrade to accommodate new mechanical equipment or clinical occupancy.
Generators	2013	5	minimal	building sized for existing loads, no
Emergency Distribution	2005	3	minimal	Life safety seperated, no critical branch power distribution existing.
Automatic transfer switches	2013	5	minimal	No spare capacity on emergency system.

PLUMBING/FIRE PROTECTION				
Medical Gas & Vacuum	N/A	N/A	N/A	N/A
Domestic Water Systems	2013	4	has spare capacity	Domstic HW heat exchanger replaced in 2013.
Sanitary Drainage	1970s	2	minimal	may be approaching the end of its
Special Drainage	N/A	N/A	N/A	
Natural Gas System	N/A	N/A	N/A	
Purified Water System	N/A	N/A	N/A	
Fire Protection/Sprinkler	2013	5		Added to Yawkey fire pump in 2013.
Plumbing fixtures		3	N/A	

1	Poor
2	Fair
3	Good
4	Very Good
5	Excellent
N/A	Not Applicable

Attachment 9.7

BOSTON MEDICAL CENTER

EXCEPTIONAL CARE. WITHOUT EXCEPTION.

The primary teaching affiliate of the
Boston University School of Medicine.

February 20, 2017

South End Historic Landmarks Commission
1 City Hall Square
Boston, MA 02201

Boston Medical Center
Preservation Plan

Commissioners:

Thank you again for meeting with us to review Boston Medical Center's 2016 Preservation Plan and in particular, a discussion over the demolition or reuse of the Dowling Building located at the NE corner of Massachusetts Avenue and Albany Street.

As a follow-up to our meeting, BMC was requested to respond in writing to the commissioner's request to explain in writing how a potential restoration and use of the Dowling Building for non-clinical functions would affect patient care and to state alternative locations for future inpatient clinical spaces and patient bed expansion areas.

As stated in the 2010 Institutional Master Plan (IMP) and again in the 2013 IMP Amendment, BMC's intention is to replace the Dowling Building with a new inpatient facility. The approved 2013 IMP Amendment consolidates all inpatient functions to the Menino Campus located between Harrison and Albany Streets along Massachusetts Avenue. In the approval, BMC's primary location for future growth of inpatient services is the Dowling Building Replacement. The reasons that the Dowling site is uniquely suited for the expansion of inpatient services are:

1) Inpatient bed growth will most likely be driven by increased acuity of our inpatient population and the requirement that inpatients be accommodated in single bed rooms .vs. shared patient rooms.
2) It is conceivable that many of these new beds will be critical care (ICU) beds.
3) Direct access and adjacency to our surgical and diagnostic platforms is essential, as is accessibility to our Emergency Department. All of these services are located in our Menino building, where we are currently making major investments to continue to meet the demands of our patient populations.
4) These critical adjacencies and connectivity required can only be acheived on the Dowling site.

Since 2013, BMC has experienced tremendous growth in demand for our inpatient clinical services and a critical need for expanded inpatient bed counts. BMC currently has a request to amend our approved Clinical Campus Redesign (CCR) Determination of Need (DoN) to add 34 new licensed beds in both the Menino and Yawkey Buildings. With the completed construction of the new beds and the closure of the Newton Pavilion in October 2018, BMC will have very few options for required inpatient growth if demolition of the Dowling Building is not approved. The only other alternative would be to build in the green spaces along Harrison Avenue for future inpatient buildings; BMC has NO intention to present this as an option for discussion since the required adjacencies and connectivity cannot be achieved and the existing green spaces are valued by the hospital community and our neighbors.

Attachment 9.7

BOSTON MEDICAL CENTER

EXCEPTIONAL CARE. WITHOUT EXCEPTION.

The primary teaching affiliate of the
Boston University School of Medicine.

The Dowling Building is an antiquated building with little capacity for conversion to a modern outpatient clinical or office building. Challenges include inefficient structural bay spacing and low floor to floor heights. The need for new code compliant elevator shafts and egress stairs and new vertical shafts for modern mechanical, fire protection and plumbing services would further reduce useable floor area. All of these vertical penetrations would substantially reduce floor area making an already small and inefficient floor plate much worse. Rewiring the building's high and low voltage electrical infrastructure, including new high and low voltage electrical rooms on each floor to accommodate the needs and demands for today's healthcare environment would further negatively impact floor efficiency and functionality. And Dowling's floors do not align with the adjacent buildings requiring multiple stairs and ramps that further detract from functionality and efficiency. But at the end of the day, the most compelling reason for replacing the Dowling Building is that there is simply no other viable location for the expansion of our inpatient services.

Boston Medical Center has a need for both inpatient and outpatient clinical spaces in the foreseeable future, BMC can find adjacent sites to accommodate growth of our outpatient populations and office needs in a safe environment near our campus. Not allowing BMC to use the Dowling Building site for future inpatient growth would impose a serious restriction on our ability to continue our mission to provide quality inpatient care to our patients, who predominately come from the South End and our surrounding City of Boston neighborhoods.

Dino DiFronzo is BMC's representative for all city related issues, please do not hesitate to reach out and work directly with him to address any questions and comments you may have and if a follow-up meeting is required.

Sincerely,

Brendan R. Whalen
Director, Design and Construction

cc:	Katie Reed	City of Boston Landmarks
	Bob Biggio	Boston Medical Center
	Dino DiFronzo	Boston Medical Center
	Kristi Dowd	Stantec Consulting
	Leslie Donovan	Tremont Preservation Services

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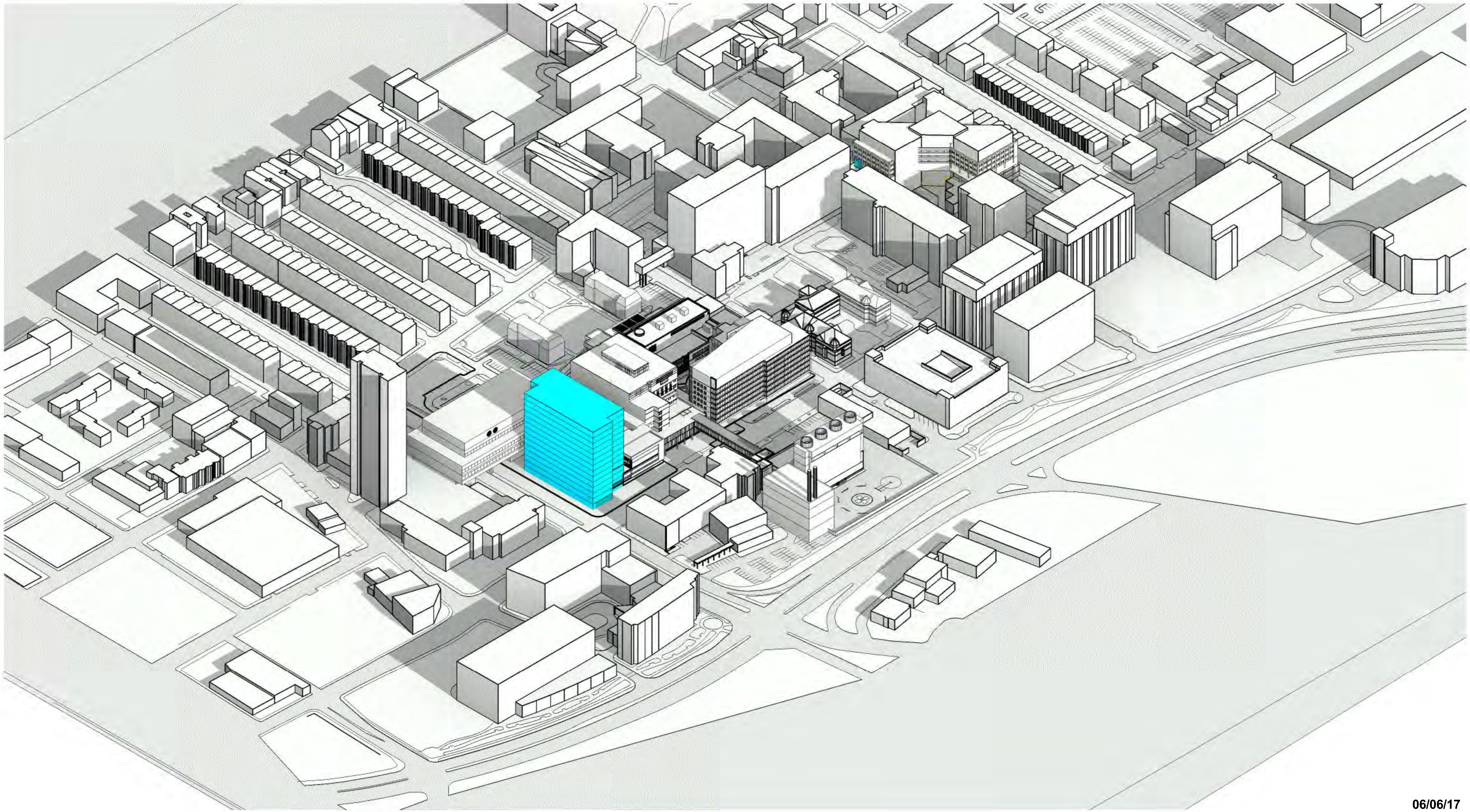
BMC MASTERPLAN STUDIES OPTION A APPROVED IMP TOWER



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