INSTITUTIONAL MASTER PLAN RENEWAL

BOSTON UNIVERSITY MEDICAL CENTER

MARCH 22, 2010

SUBMITTED TO:

BOSTON REDEVELOPMENT AUTHORITY
ONE CITY HALL SQUARE
BOSTON, MA 02201

SUBMITTED PURSUANT TO ARTICLE 80D OF THE BOSTON ZONING CODE

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Section 1

1.0 OVERVIEW

1.1 Introduction

Boston University Medical Center is 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, the Henry M. Goldman School of Dental Medicine and the School of Public Health. Boston Medical Center Corporation and the Trustees of Boston University (collectively known as the "Proponents"), are pleased to submit this Institutional Master Plan ("IMP") in accordance with the Boston Redevelopment Authority ("BRA") Article 80 Institutional Master Plan review process for the renewal of the Boston University Medical Center Institutional Master Plan ("IMP"). This is pursuant to Section 80D-8 of the Boston Zoning Code ("the Code").

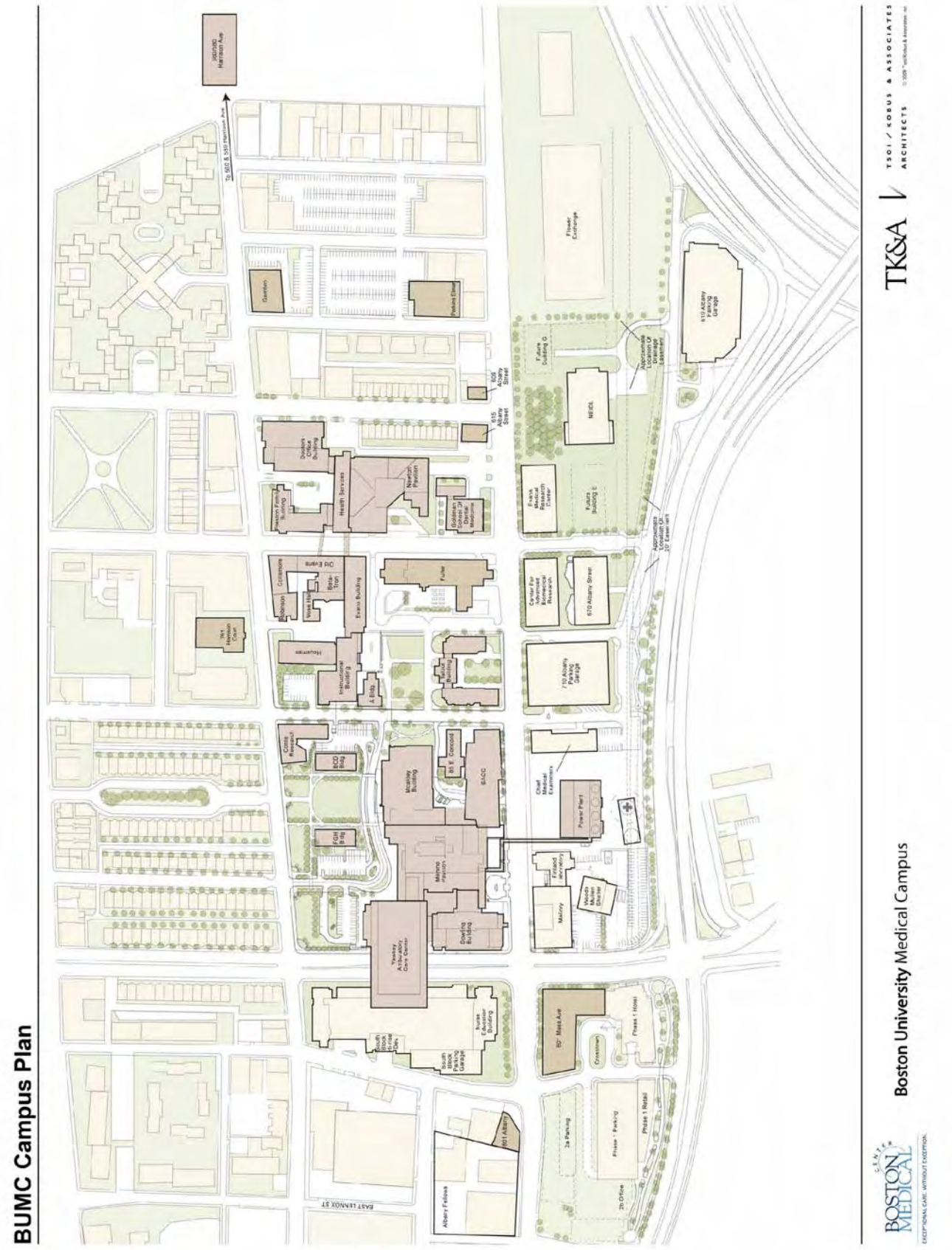
On May 18, 2000, the BRA approved the existing Boston University Medical Center IMP. Since that time, IMP amendments, Notices of Project Change ("NPC") and proposals for small additions have been filed to obtain approval for new construction or rehabilitation projects, or to revise and update uses as previously reported. The most significant of these include: the rehabilitation of the 66,952 s.f. Surgical Building (May 2001 IMP Amendment); the replacement of the approved Medical Services Center with the 133,217 s.f. Moakley Building (July 2003 NPC); and the approximately 245,000 s.f. new Shapiro Ambulatory Care Center (August 2007 IMP Amendment). Most recently, the BRA approved the Renewal and Amendment of the IMP (June 2009) extending the term for 2 years including a minor 845 s.f. expansion to the Emergency Department. Additionally, the BRA approved the IMP Amendment (January 2010) for the addition of the Albany Fellows Site and Graduate Student Housing Project. Such site and project are included in the renewal IMP.

A more detailed history of the Boston University Medical Center IMP is provided as Appendix A.

This IMP does not include the area known as BioSquare, which is subject to a separate Planned Development Area Master Plan.

With this submission, the Proponents request that the BRA renew the Boston University Medical Center Institutional Master Plan for a period of 10 years. Figure 1-1 illustrates the general location of the Boston University Medical Center Campus ("BUMC Campus").

Figure 1-1 BUMC Campus Plan and IMP Area



1.2 Project Identification

Project Name: Boston University Medical Center Institutional Master Plan Renewal

Address/Location: The BUMC Campus is located in Boston's South End. The campus is comprised of approximately 20 acres including 28 BUMC Campus-owned or controlled buildings, a helipad and development parcels. BMC and BU Medical Campus also leases space in 8 buildings located on and/or proximate to the campus.

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1.3 Boston University Medical Center Mission and Objectives

Boston University Medical Center is dedicated to serving the needs of the community. Comprised of BMC and BU Medical Campus, the synergy among these institutions and the incorporation of teaching and research with the clinical programs is essential to improving health for the general public.

1.3.1 Boston Medical Center

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. BMC is a private, not-for-profit, 626-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. Emphasizing community-based care, BMC, with its mission to provide consistently accessible health services to all, is the largest safety net hospital in New England. BMC provides a full spectrum of pediatric and adult care services, from

primary to family medicine to advanced specialty care. With the largest 24-hour Level 1 trauma center in New England, the Emergency Department had more than 129,169 visits in 2008. With 29,411 admissions and 953,510 patient visits in 2008, BMC provides a comprehensive range of inpatient, clinical and diagnostic services in more than 70 areas of medical specialties and subspecialties. In Fiscal Year 2008, the BMC operating budget was $1 billion.

Unwavering in its commitment to serve the community, BMC is dedicated to providing accessible health care. Approximately 70 percent of BMC patients represent underserved populations including low-income families, elders, people with disabilities, minorities, and immigrants. Seventy percent of all patients are from racial and ethnic minority populations and 30 percent do not speak English as a primary language. Approximately 200,000 of patients have MassHealth, Commonwealth Care or no insurance at all and more than 75 percent live in Suffolk County. Fifty percent of BMC patients have an annual income at or below $20,420.

With its strong focus on urban health, in 1997 BMC was a founding partner in Boston HealthNet, an integrated service delivery network that includes BMC, Boston University School of Medicine, and 15 community health centers throughout the greater Boston area. In 2008, Boston HealthNet patients comprised 30% of all inpatient admissions to BMC.

Boston Medical Center HealthNet Plan is a managed care organization founded by Boston Medical Center in 1997. Offering MassHealth and Commonwealth Care coverage, BMC HealthNet Plan serves more than 240,000 members statewide.

BMC is a recognized leader in groundbreaking medical research. BMC received more than $93 million in sponsored research funding in 2008, and oversees 431 research and service projects separate from research activities at Boston University School of Medicine. BMC is a major employer in the City of Boston and is committed to promoting employment opportunities for Boston residents. See Section 1.8.1.2 - Employment, Workforce Development, and Educational Opportunities for more information.

The mission of BMC is “to provide consistently excellent and accessible health services to all in need of care regardless of status and ability to pay.” The objective of BMC is to meet the health needs of the people of Boston and its surrounding communities by providing high quality, comprehensive care to all, particularly mindful of the needs of the vulnerable populations through an integrated delivery system in an ethically and financially responsible manner. The goals of the integrated system of care are to promote health and well being, meet the medical and public health needs of all served, and educate future physicians and caregivers.

In compliance with the mission statement above, and in an effort to create a community-based system of services in collaboration with Boston HealthNet (see Section 1.8.1.1 – Community Benefits for more information), BMC has committed itself to seven equally important values.

BMC will:

- Serve patients and their families, physicians, staff and communities with dignity;
- Integrate public health, preventative, emergency and rehabilitative programs with a full range of primary to tertiary medical service;
- Serve the ever-changing need of urban and suburban populations, while honoring their ethnic, religious and cultural differences;
- Apply a high degree of medical, nursing and technical management in a professional and accountable manner;
- Collaborate with Boston University, its schools and other institutions to support a premier learning environment for all members of the community;
- Conduct research that will lead to major improvements in health care and health status for all people, and further scientific advances in medicine; and
- Develop and participate in community-based and managed care programs that promote affordable, responsible and high-quality health care.

1.3.2 Boston University Medical Campus

BU Medical Campus has a rich history dating back to 1848 when its School of Medicine began as the New England Female Medical College, the first institution in the world to offer medical education to women and graduated the first black woman physician. In 1873, the medical college merged with Boston University, becoming the first coeducational medical school in the nation. In addition to the School of Medicine ("BUSM", with its Division of Graduate Medical Sciences), the BU Medical Campus is also comprised of the Goldman School of Dental Medicine ("SDM") and the School of Public Health ("SPH").

Renowned for the quality of teaching and research and for service to the community, these schools provide education and training in the most current thinking and techniques in their fields, with a particular focus on serving the disadvantaged, underserved and indigent populations. Together the schools employ more than 2,700 full time equivalent faculty members, many who are leading experts in their fields, and train a diverse group of more than 3,000 students.

1.3.2.1 Boston University School of Medicine

The mission of the Boston University School of Medicine is to educate physicians who will have the knowledge, skills, and dedication needed to provide the best care to every patient from all communities in a diverse society, within an ever-changing health care environment. Other specific objectives are:

- The Vision – Patients, peers, and mentors will recognize the BUSM graduate as an exemplary clinician who maintains the highest standards of medical care and professional conduct and who is fully prepared for postgraduate training;

- Clinical Arts - The graduate will: possess excellent diagnostic skills, a broad foundation of medical knowledge, and the clinical experience needed to deliver effective and efficient medical care; demonstrate excellence in communicating with and educating patients from diverse cultures, races, and ethnicities; work effectively and collaboratively within interdisciplinary teams; use information technology effectively to find and evaluate the best clinical evidence to guide patient care; be dedicated to preventing illness and improving the health of the community in which he or she practices while responsive to the family, psychosocial, cultural, and spiritual/religious determinants of health and illness; and

- Professionalism - The graduate will: treat all patients in a caring, compassionate, and altruistic manner; adhere to the highest ethical standards of medical practice; possess the attitudes, abilities, and self-knowledge necessary for leading a life-long pattern of learning; support improvements in access to health care for all populations, a reduction in racial and ethnic disparities in health status, and improvements in the social conditions of disadvantaged populations; contribute to the advancement of scientific knowledge.

BUSM promotes these qualities via: establishment of a supportive, respectful, and nurturing educational environment; maintenance of the highest standards of student performance; commitment to achieving and supporting a diverse student body; engagement of students in curricular evaluation; maintenance of a curriculum inclusive of evidence-based educational methods and through leadership in developing, applying, and evaluating innovative methods of medical education.

To achieve a dynamic curriculum responsive to rapid social and biomedical changes, and to insure that student and curricular goals are met and the highest educational standards of excellence are maintained, BUSM continuously evaluates its learners, faculty, programs, and its mission and goals.

1.3.2.2 Goldman School of Dental Medicine

The mission of the Henry M. Goldman School of Dental Medicine is to provide excellent education to dental medicine professionals throughout their careers; to shape the future of dental medicine and dental education through research; to offer excellent health care services to the community; to participate in community activities; and to foster a respectful and supportive environment. Other specific objectives include:

- Educate DMD and postdoctoral candidates to pursue basic science and clinical science research on the academic level; and

- Support faculty development, thereby improving the quality of dental education, research and clinical care; and

- Contribute to advances in oral biology and dental medicine by pursuing basic, applied and clinical research and disseminating important findings to the dental community; and

- Provide high quality cost-effective, accessible dental care for children and adults, with an emphasis on prevention.

1.3.2.3 School of Public Health

The mission of the School of Public Health is to improve the health of local, national and international populations, particularly the disadvantaged, underserved and vulnerable, through excellence and innovation in education, research and service. In keeping with the SPH's service-oriented philosophy, each department combines research and academics with a practicum requirement, resulting in a rigorous, well-rounded curriculum enhanced by work experience in the public health environment. Strategic themes of the SPH include:

- Involved: Emphasize real-world involvement and meaningful partnerships
- Interconnected: Emphasize interdisciplinary efforts and integrated programs
- Global: Emphasize global health issues and perspectives.

Through longstanding collaborations with such institutions as the Massachusetts Department of Public Health, the Boston Public Health Commission, and the Veterans Affairs Administration; and international alliances with the Red Cross, the Peace Corps, and foreign governments, the students, faculty, and alumni draw on their own diverse backgrounds to carry out the SPH's mission in a variety of settings.

1.4 Existing Campus and Facilities

The BUMC Campus is located in Boston's historic South End. The main campus includes 28 Boston University Medical Center owned or controlled buildings, a helipad and development parcels that are individually-owned or controlled and shared facilities associated with each or both of the institutions. In addition to the property owned or controlled by the Proponents, each institution also leases office, residential, and/or clinical space in 8 buildings located on and/or proximate to the campus. Total Boston University Medical Center owned or controlled and leased space is approximately 3,000,000 square feet of usable space. Buildings range from 2 to 14 stories in height above ground. The buildings were built between 1864 (BCD/FGH) and 2006 (Moakley Building). The Ambulatory Care Building, recently named the Carl J. & Ruth Shapiro Ambulatory Care Center ("SACC"), was approved by the BRA in 2007 and is currently under construction.

The Dr. Solomon Carter Fuller Mental Health Center, a state mental health facility, is also located on the BUMC Campus.

There are currently 2,973 structured parking spaces within six garages and 282 surface parking spaces (3,255 total on-campus and offsite parking spaces).

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

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

Facility	Year Built	Principal Uses	Floors Above / Below Grade	Building SF*	Own/ Lease**
Boston Medical Center					
Newton Pavilion	1986	Inpatient	B+8	257,019	Owned
Yawkey Ambulatory Care	1972	Outpatient	B+5	218,477	Owned
BCD	1864	Administration	B+5	28,174	Owned
Betatron	NA	Administration/Outpatient	NA	5,912	Owned
Dowling	1937	Administration	B+9	157,376	Owned
Doctors Office Building	1969	Administration/Outpatient	B+12	91,783	Owned
Preston	1967	Outpatient	5	65,967	Owned
FGH	1864	Administration	B+5	29,435	Owned
Health Services	1973	Inpatient Support/Outpatient	B+6	73,651	Owned
Carl J. & Ruth Shapiro Ambulatory Care Center	2011	Outpatient	B+9	245,000	Owned
Menino Pavilion	1994	Inpatient	B+8	337,340	Owned
Power Plant	1972	Mechanical	B+4	64,064	Owned
Northampton Square (formerly South Block)	1970	Public Health	6	20,070	Leased
85 East Concord Street	1928	Administration	B+8	66,952	Owned
125 East Concord Street, Solomon Carter Fuller Mental Health Center	1975	Administration	B+9	11,000	Leased
Vose Hall	1898	Administration	5	22,695	Owned
Old Evans	1942	Administration	9	60,070	Owned
Collamore	1936	Administration	7	41,970	Owned
Gambro (660 Harrison)	1990	Administration/Outpatient	3	35,000	Owned
Helipad	NA	Helipad	NA	NA	Owned
Perkin Elmer	NA	Administration	B,1st, 3rd	36,524	Leased
801 Massachusetts Avenue, Crosstown Center	2006	Administration	1st	12,197	Leased
Moakley Building	2006	Outpatient	B+3	133,217	Owned

Table 1-1 Boston University Medical Center Building and Land Ownership / Leases (Continued)

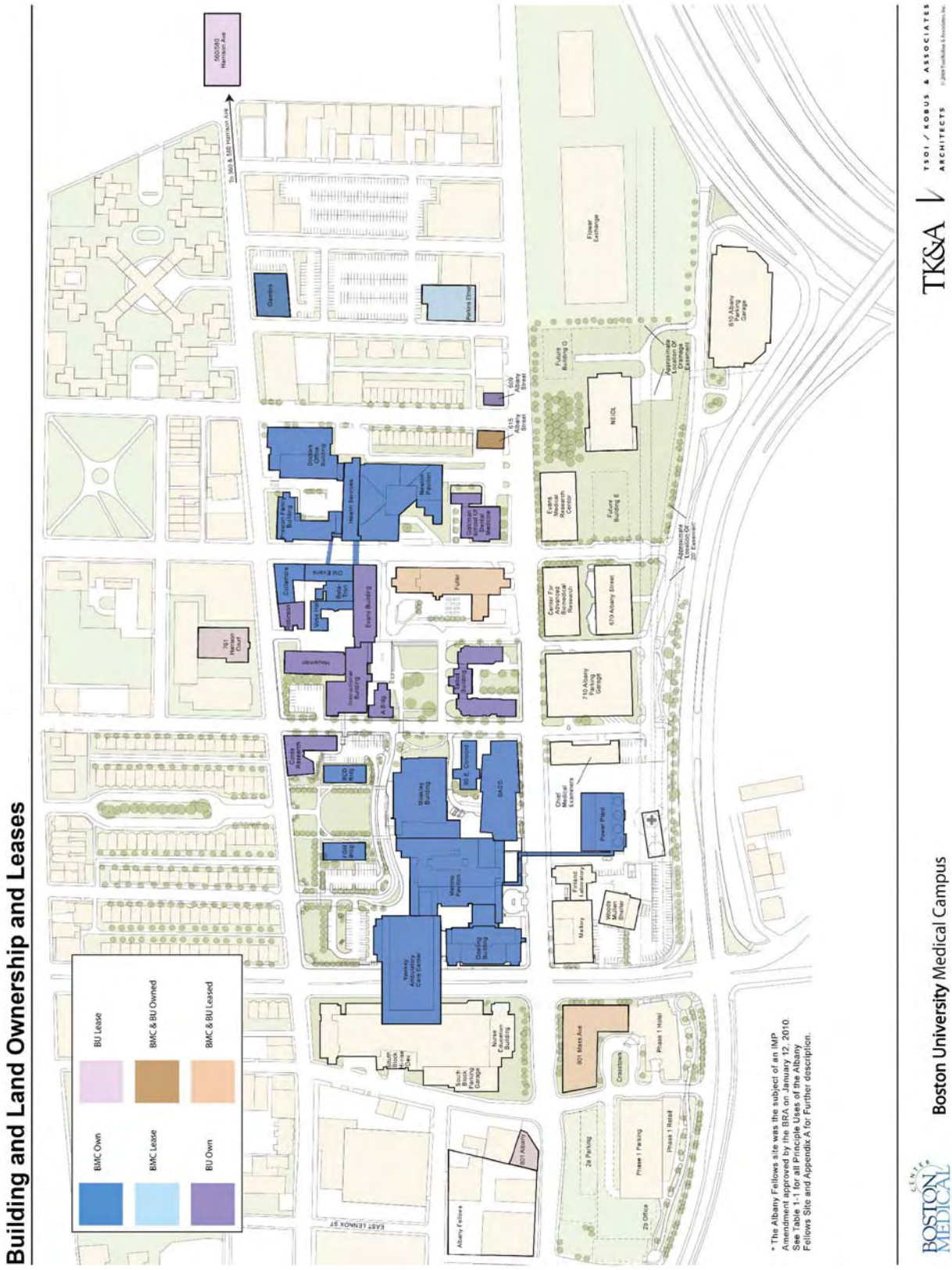
Facility	Year Built	Principal Uses	Floors Above / Below Grade	Building SF*	Own/ Lease**
Boston University Medical Campus					
680 Harrison Avenue, Robinson ("B") Building	1915	Administration/Research/Instruction	B+6	56,487	Owned
75 East Newton Street, Evans ("E") Building	1972	Administration/Research/Instruction	B+9	180,099	Owned
82 East Concord Street, Talbot ("T") Building	1876/1884/1891	Administration/Research/Instruction	B+4	87,080	Owned
80 East Concord Street, Medical School ("A") Building	1912	Administration/Research/Instruction	B+5	25,931	Owned
100 East Newton Street, Goldman Dental School ("G") Building	1969	Administration/Research/Instruction	B+7	89,406	Owned
70 East Concord Street, Medical School Instructional ("L") Building	1968	Administration/Research/Instruction	B+14	215,002	Owned
778 Harrison Avenue, Housman ("R") Building	1959	Administration/Research/Instruction	B+10	119,987	Owned
609 Albany Street, Dermatology ("J") Building	1990	Administration/Research/Instruction	B+6	34,692	Owned
615 Albany Street, Naval Blood ("N") Building (jointly owned w/BMC)	ca. 1865	Administration/Research/Instruction	B+5	19,710	Owned
790 Harrison Avenue, Conte ("K") Building	1905 / ca.1922-1928	Administration/Research/Instruction	B+7	77,886	Owned
560 Harrison Avenue	1894	Administration/Research/Instruction	3rd	14,786	Leased
580 Harrison Avenue	1896	Administration/Research/Instruction	3rd	18,952	Leased
801 Albany Street, Gilmore/Nine Building	1989	Administration/Research/Instruction	B+4	41,198	Leased
801 Massachusetts Avenue, Crosstown Center	2006	Administration/Research/Instruction	2nd, 3rd, 4th	101,114	Leased
125 East Concord Street, Solomon Carter Fuller Mental Health Center	1975	Administration/Research/Instruction	B+9	43,589	Leased
761 Harrison Avenue, Harrison Court Apartments	ca 1861-1863	Administration/Research/Instruction/Residential	B+4	122,922	Leased
815 Albany Street, Albany Fellows, Parcel 2A	N/A	Administration/Research/Instruction/Residential/Retail	38,920 s.f. (Land)	***	Owned
Albany Fellows, Parcel 1	N/A	Administration/Research/Instruction/Residential/Retail	15,234 s.f. (Land)	***	***
Albany Fellows, Parcel 2B	N/A	Administration/Research/Instruction/Residential/Retail	20,766 s.f. (Land)	***	***

* Owned buildings are expressed as approximate Gross Square Feet (without exclusions). Leased buildings (where the Proponents are the Lessee) are expressed as Rentable Square Feet (without exclusions).

** The designation "Own/Lease" is included to differentiate between BUMC Campus buildings which are controlled or owned by the Proponents and buildings which are leased for a term of years by the Proponents.

*** The Albany Fellows Site was the subject of an IMP Amendment approved by the BRA on January 12, 2010 and the Zoning Commission on February 10, 2010. See Section 1.1 and Appendix A for further description.

Figure 1-2 Building and Land Ownership and Leases



1.5 Guiding Principles and Planning Assumptions

An Institutional Master Plan has been developed for Boston University Medical Center that allows the Proponents to create a campus supportive not only of the institutions' common goals, but also of their unique needs and individual missions now and in the future. BMC endeavors to sustain the highest expected standard of patient care while BU Medical Campus strives to maintain an exceptional environment for students interested in basic science, clinical investigation, or public health and health services oriented research, and medical educational programs. Aging buildings, deficient infrastructure components, and inefficient operational adjacencies create challenges for each institution to keep up with current advancements in health care and academic trends. As a result, campus modifications will be necessary over the next 10 years, including but not limited to, constructing new facilities, demolishing obsolete buildings, renovating existing structures, and improving infrastructure.

1.5.1 Shared Planning Assumptions and Objectives

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

- Building age (and obsolescence);
- Traffic demands;
- Parking needs;
- Open space preservation; and
- Utilities, power plant, and other energy infrastructure upgrades.

The Proponents acknowledge the following planning design drivers as elements critical to the successful realization of their objectives:

- Planning for long-term future growth and transformation;
- Transformation of the Albany Street campus image;
- Sensitivity to context through massing, scale and materials;
- Creation of a clear and welcoming sense of arrival;
- Implementation of unified site signage and enhanced wayfinding;
- Development of pedestrian-friendly street edges; and
- Enhance accessibility to parking and existing buildings.

1.5.2 BMC Planning Assumptions and Objectives

While patient volume continues to grow, a primary issue in providing care is cost management, especially during times when state and local governments struggle with rising expenses and decreasing revenues.

BMC's inpatient admissions and outpatient visits reflect the current trends in patient care. The number of admissions increased 33% from 22,162 (in 2000) to 29,411 (in 2008). Outpatient visits also increased 33% from 714,481 visits (in 2000) to 953,510 visits (in 2008). See Table 1-2. While patient volume dipped slightly from 2007-2008, the trend for 2009 is that inpatient volume will increase 2.7% and total outpatient volume will increase 4.8% from 2008. Patients are referred to BMC for its full spectrum of pediatric and adult care services from many sources, including the 15 community health centers in BMC's service region.

Both inpatient and outpatient visits are anticipated to continue to increase in the coming years. Inpatient volume grows as the population ages. Outpatient volume grows as advances in technology allow physicians to treat certain conditions (which previously required an inpatient stay) through outpatient surgery, treatment or therapy.

Table 1-2 Inpatient Admissions and Outpatient Visits at BMC

	2000	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***	***2007***	***2008***
Inpatient Admissions	22,162	25,141	24,874	27,563	28,173	27,616	28,035	29,471	29,411
Outpatient Visits	714,481	759,210	798,010	803,490	815,785	855,593	908,043	985,356	953,510

To address these clinical trends and achieve the primary goal of providing quality health care to the neediest individuals, BMC objectives include:

- Accommodate increasing patient volume;
- Consolidate clinical services;
- Upgrade and expand the Emergency Department and Trauma Center;
- Right size space for current clinical standards;
- Accommodate new technology;
- Upgrade materials handling/receiving/distribution and waste removal facilities;
- Implement an efficient and sustainable energy infrastructure program to ensure reliability and redundancy of services and support future growth;

- Integrate sustainable design principles and operations;
- Facilitate access to the campus and improve campus image;
- Consolidate Medical Administrative functions in proximity to clinical services;
- Locate General Administrative functions on the campus perimeter; and
- Move the core of the Clinical campus to the west.

1.5.3 BU Medical Campus Planning Assumptions and Objectives

The BU Medical Campus outlines three areas of concern regarding their current instructional facilities:

1.) Quantity – BU Medical Campus currently struggles to meet space needs within their existing buildings as academic programs in medical and research studies and enrollment grow. In addition to the current demand limitations, the American Association of Medical Colleges is calling on medical schools to increase their class size by 30% over the next decade.

2.) Quality – Certain types of academic spaces need to be planned specifically to meet the requirements of the curriculum. These spaces can be more traditional classroom settings or creative solutions driven by instructional technology and strategy. Rooms retrofitted into existing structures are often limited by size, layout, technical infrastructure, and available resources and subsequently do not adequately meet the needs of the university.

3.) Proximity – It is imperative that new instructional spaces designed to meet growth needs are located in an area considered core to current instructional facilities. Developing instructional space in BU Medical Campus-owned or rented buildings that are not proximate to the current core has a detrimental effect on the operational and didactic aspects of the academic effort. Moving students around for breakout classes for large lectures (as is required for the medical school curriculum) or between classes (as is typical for other curricula) contributes to a loss of instructional time. The issue of proximity also creates issues for ancillary services in supporting rooms for the delivery of instruction. Offering and maintaining support services over a wider geographic area deteriorates the quality of that service. Distance creates limitations in availability of the staff to clean, set up and maintain rooms, provide initial and ongoing audiovisual support, respond to technology/systems troubleshooting requests or other needs and services sought by the instructor in support of their class.

These areas of concern are also relevant for current research facilities needed to support the long term needs of the medical and educational institutions.

In order to support the primary goal of educating future health care professionals, BU Medical Campus objectives include:

- Provide student housing consistent with City's desire to reduce demand on off-campus rental housing stock;
- Expand academic programs;
- Upgrade student services;
- Consolidate and upgrade research facilities; and
- Consolidate administrative support functions.

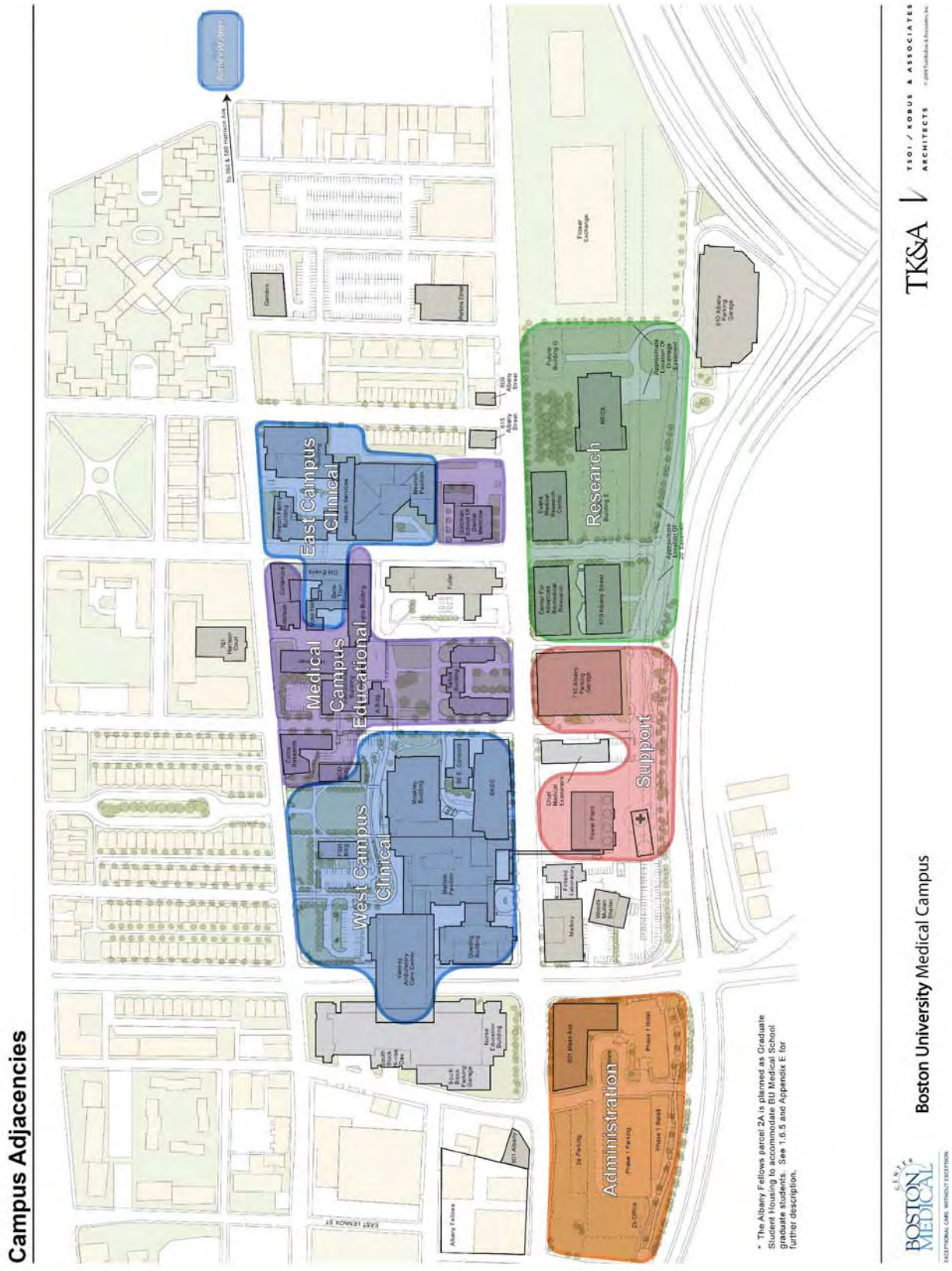
1.5.4 Campus Adjacencies

The existing BUMC Campus uses are generally zoned with educational functions centrally located, flanked by clinical uses to the east and west. This relationship is primarily a function of the remnants of the pre-merger of the original two campuses. Other major zones include a Support Zone (Power Plant and Parking) and Research (BioSquare) south of Albany Street, and Administration (Crosstown) west of Massachusetts Avenue. See Figure 1-3.

Campus design goals and objectives are specifically associated with enhancing institutional functions, primarily through the establishment of ideal adjacencies between complementary uses. This is particularly important for a campus that delivers medical services, where efficiency is not simply desirable, but may be critical to delivery of patient care in a timely manner. At the same time, it is also advantageous to create synergies between the delivery of medical services and academic instruction in health sciences.

Boston University Medical Center's master planning objectives of shifting administrative functions away from the inner clinical core location is ideal for inpatient clinical expansion to be situated proximate to other key clinical programs as well as situating academic spaces proximate to the instructional core.

Figure 1-3 Campus Adjacencies



1.5.5 Addressing 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 and long term. The BUMC Campus is comprised of buildings of various ages and conditions, from the recently completed Moakley Building to the 145-year-old BCD and FGH Buildings. The assessment concluded that certain buildings contain major deficiencies and require major improvements to function acceptably as clinical, medical education and/or administrative space. These buildings include Vose Hall and the Dowling Building. Others, such as the Yawkey Building and the Doctors Office Building ("DOB") were also identified as needing significant infrastructure investment. (The 91 East Concord Building was included in this assessment, but has since been demolished for the new Shapiro Ambulatory Care Center).

In determining the highest and best use of Boston University Medical Center's building resources, several factors are weighed. Evaluating criteria for clinical buildings and sites include:

- Minimum typical floor plate area of 25,000-30,000 square feet;
- Minimum floor plate width of 100 feet;
- Adequate floor-to floor height to accommodate relative mechanical systems;
- Adjacency to existing clinical ancillary services;
- Location consistent with Boston University Medical Center master plan objectives;
- Impact on surrounding neighborhoods;
- Ease of access, covered drop-off; and
- Accessibility to parking.

1.6 Summary of Program Needs

Based upon the guiding principles and planning assumptions presented in Section 1.5, Boston University Medical Center proposes a comprehensive facilities plan over the next 10 years that includes a matrix of new construction, demolition and renovation projects. Several of Boston University Medical Center's program needs will be accomplished during the term of the IMP. Looking into the future, beyond the term of the IMP, Boston University Medical Center acknowledges that additional program needs will be warranted as trends in patient care and health sciences continue to advance.

1.6.1 Clinical Services

Increasing inpatient and outpatient volumes and technological advancements in medical equipment necessitate that new space be obtained. Due to very specific requirements for hospital and clinical functions driven by today's code and clinical space standards, it is impractical to rehabilitate certain buildings. BMC strives to consolidate its clinical programs in proximity to core medical services and operational support functions. This is a particularly important consideration in locating medical facilities to allow for time and continuity of care as well as efficiency for staff and convenience for visitors. BMC proposes a new construction project to address the more than 50% growth in Emergency Service and Trauma volume in the last 10 years as well as the increased inpatient volume.

1.6.2 Administrative

A major objective of Boston University Medical Center is to consolidate campus functions while shifting administrative uses away from the clinical and instructional cores. Administrative uses are scattered through the campus creating inefficiencies and occupying space that is ideal for clinical expansion and academic programming. To consolidate these functions and improve campus adjacencies, BMC proposes a new construction project that will provide new and efficient space for administrative offices. BMC as well as BU Medical Campus also anticipate leasing and reusing existing space.

This IMP seeks to add space for administrative use in the near term through a combination of renovating existing space and including administrative uses in new construction projects. Additional administrative space, whether renovation of existing space or construction of new space, is also identified as a long-term goal.

1.6.3 Support Operations and Infrastructure

Boston University Medical Center includes many older structures and has expanded over the years. As Boston Medical Center's clinical programs have expanded, the infrastructure that supports day-to-day operations for loading and receiving and materials handling and trash removal has remained unchanged. Servicing these buildings and projected future programming requires new and upgraded facilities to support BMC's operations. As part of BMC's new construction project for administrative use, new support space for loading and receiving and materials handling and trash removal will be programmed to support BMC's clinical programs and existing operations will be relocated from Albany Street.

1.6.4 Energy Service

The BUMC Campus relies on many utilities that are approaching operating capacity. In order to support the growth of the campus, keep up with advancements in technology, and deliver clinical services 24/7, Boston University Medical Center is faced with the challenge of managing the availability and reliability of energy service which is critical to

a major medical center. The goal is to reduce Boston University Medical Center's demand on existing taxed infrastructure, create redundancy, and to install more energy-efficient equipment that will set the foundation for supporting greener campus growth. The new Energy Facility, being undertaken by BMC, will address infrastructure and energy service needs for the BUMC Campus as well as the adjacent BioSquare.

1.6.5 Student Housing

Boston University is seeking to increase student housing to reduce student demand for rental apartments in the neighborhood that might otherwise be available for workforce housing. This is consistent with Mayor Thomas Menino's most recent strategy for housing, as published in Leading the Way II. One of the goals of this strategy is to encourage academic institutions to build more on campus housing, especially for graduate students.

In February 2008, Boston University acquired ownership of Parcel 2A, and acquired control over the remaining Parcels 1 and 2B of the Albany Fellows Site. The construction on a portion of the Albany Fellows Site of the Graduate Student Housing Project for BU Medical Campus is wholly consistent with the City's policy that each of the educational institutions in the City of Boston provide housing for its students, who otherwise would compete for affordable housing stock in Boston's neighborhoods. The Graduate Student Housing Project will provide such housing for up to 208 students who currently attend the Graduate School of Medicine and the Division of Graduate Medical Sciences but who live in private apartments in the City of Boston. Current statistics maintained by Boston University for students enrolled in these two graduate programs show that of a current student body of 1,457 full-time students, only 111 are currently housed in Boston University owned housing, leaving 1,346 students to find their own housing. Of that number, 800 students live within the City of Boston. Thus, construction of the Graduate Student Housing Project addresses an important segment of Boston's need for additional housing. Moving up to 208 graduate students into the 104 units of housing will return an approximately equal number of affordable housing units to the City's available housing inventory.

See Table 1-3 below for BU Medical Campus Enrollment.

Table 1-3 Medical Campus Enrollment – Fall 2008

	Full Time	***Part Time***	***Total***
School of Medicine			
Medicine	655	33	688
Graduate Medical Sciences	802	152	954
School of Dental Medicine	781	9	790*
School of Public Health	405	478	883*
Total Medical Campus Enrollment	***2,643***	***672***	***3,315***

* Includes non-degree students

As approved through the IMP Amendment by the BRA on January 12, 2010 and the Zoning Commission on February 10, 2010, Boston University intends to proceed with the Graduate Student Housing Project as a nine story building of approximately 84,000 square feet and the planned 12,000 square foot landscaped open space on a portion of Parcel 2A. The 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. See Section 1.6.5 and Appendix E for project detail.

1.6.6 Academic and Student Services

BU Medical Campus anticipates the need to accommodate additional academic functions to serve its increasing enrollment and to respond to advancements in medical sciences. Some advancements may involve specific requirements for educating future caregivers, such as space needs for new types of equipment or laboratory work space for instructional purposes. No specific space requirements have been identified at this time. However, the ideal location for future academic programming would be in close proximity to the instructional core on the BUMC Campus. The D Lot and L Building Annex located at the corner of Harrison Avenue and East Concord Street are likely locations for a future academic building.

1.7 Summary of Institutional Master Plan Projects

This IMP includes three new construction projects over the next 10 years:

- Energy Facility - Construct an approximately 48,000 s.f. 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 s.f. 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.

Section 2.3 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 2.4

1.8 Public Benefits

Boston University Medical Center provides numerous public benefits to the City of Boston. The IMP projects will directly enhance the Proponents' abilities to administer the services that support their missions within the community.

1.8.1 Boston Medical Center

1.8.1.1 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." Over 50 percent of BMC patients have incomes at or below 200% of the federal poverty level. Over 30% do not speak English or require an interpreter to access health care. BMC's core patient population demographics are racial, ethnic or cultural minorities of lower socioeconomic status who have MassHealth, Commonwealth Care, or no insurance at all. Many are newcomers to the community or first generation Americans; some are refugees and asylum seekers.

BMC values its diverse patient population and is committed to honoring their ethnic, religious and cultural differences. The Interpreter Services program at BMC is the most extensive in New England and one of the largest in the country. In addition to providing person-to-person interpreters on-site in more than 30 languages, 24 hours a day, the program uses the latest advances in technology, such as telephonic and video interpreting. BMC interpreters help break language barriers as well as serve as cultural brokers to patients and staff. In 2008, BMC handled approximately 197,406 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 fore 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 line with its public health mission. Many programs that started at BMC – like the Reach Out and Read program and the Medical-Legal Partnership – 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 annual 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 categorizes 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.

A comprehensive review of BMC's Community Benefits program in 2008 is attached in Appendix B. lt highlights BMC's work in five areas: addressing domestic and community violence, outreach to individuals living with HIV/AIDS, services for children with autism spectrum disorder, expansion of the Medical-Legal Partnership (formerly the Medical-Legal Partnership for Children), and diet and exercise interventions for obese children.

In FY08, the various community benefits programs of BMC included the following achievements:

- Provided more than 3,000 visits at the Pediatric Dental Clinic. Supported 197,406 on site patient interactions with Interpreter Services with over 30 languages.
- Provided Shuttle Service rides to 167,055 patients and families.
- Provided food from the Preventive Food Pantry to 61,500 patients and their household members (an average of 5,125 individuals monthly).
- Screened 1,819 men for prostate cancer at 48 events throughout the Boston community and assisted 1,134 women in accessing breast cancer screening and treatment through our Women's Health Network site.
- Continued to expand our patient navigation programming, adding three additional navigators to programs.
- Distributed free winter coats, hats, and gloves to 1,500 low-income adults and children.
- Supported over 1,100 women through Birth Sisters™ during pregnancy, childbirth, and early motherhood. We also expanded services to support breastfeeding

women on the postpartum hospital floor through peer counseling, where we reached an additional 450 women in FY08.

1.8.1.2 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 5,957 full and part-time employees including per diems and temporary staff, 4,647 full-time equivalent employees (FTEs), who work to provide the highest quality, patient-focused care. (See Table 1-4 below.) Forty-one percent of BMC's employees live within the city of Boston and 26% 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 1-4 BMC Employment (FY08)

	Full-time	Part-time	Total
Total Employees	4,647	1,310	5,957
Residents of Boston	2,091	362	2,453
Core Neighborhoods*	1,311	234	1,545

*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 US 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 resides 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 provide credit programs in health care management that can lead to a certificate, a Bachelor's degree and 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 five year period (FY 2005-FY2010), 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.

1.8.1.3 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.

1.8.1.4 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.

Estimated hospital direct expenses on community benefit programs in fiscal year 2008 totaled $18,434,426. Total community benefits programs expenditures in fiscal year 2008 per the Attorney General's guidelines were $30,204,021. In addition, this expenditure and budget summary does not include the costs associated with numerous other programs and projects of BMC that make valuable contributions to the community.

BMC contributes to the local economy through employment of Boston residents and the purchase of goods and services from Boston businesses. BMC spent $111 million in fiscal year 2008 for goods and services provided by Boston suppliers.

The BMC HealthNet Plan, founded in 1997, is the largest MassHealth and Commonwealth Care managed care organization in Massachusetts providing health insurance to 242,000 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.

1.8.2 Boston University Medical Campus

1.8.2.1 Community Benefits Introduction

The Boston University Medical Campus schools (School of Medicine, Goldman School of Dental Medicine, and School of Public Health) share a long history and commitment to community service and public health through student service-learning and faculty service.

Boston University School of Medicine offers medical students a unique service-learning experience through community based medicine and social advocacy programs. The programs include:

- Outreach Van Project - Founded in 1997 by School of Medicine and School of Public Health students, students under the supervision of a licensed physician provide food, clothing, and reliable, consistent medical care to the underserved, predominately Hispanic community of East Boston where 25 percent of children live below the poverty line. The Outreach Van Project is currently the only outreach agency supporting the underserved community in East Boston.

- Project MED HEALTH (Helping Educate Adolescents to Live Tomorrow Health) – School of Medicine students lead interactive, technology based educational workshops for Boston Public School children on key health issues such as nutrition, fitness, safety, puberty, and sex education.

- Codman Square Fiscal Health Survey & Intervention – A partnership of School of Medicine students and leaders of Codman Square community based organizations working together to explore the links between community economics, community health, effective listening, effective advocacy, and racism.

The Henry M. Goldman School of Dental Medicine has an unwavering commitment to improving oral health and quality of life in communities through strategic partnering, health education and promotion, and implementation of public health initiatives. The

Goldman School of Dental Medicine programs serve as national models for training dental students and non-dental health professionals to provide oral health services for disadvantaged populations.

The Goldman School of Dental Medicine's work includes:

- City-wide dental health programs operating in 59 public schools in Boston, Chelsea, Framingham, Lawrence, and Natick. The programs provide oral screenings, sealant placement, fluoride applications, and oral health education. Similar services are provided at Early Head Start, Head Start, and other preschool programs in the greater Boston metropolitan area.

- Chelsea School Dental Center where oral health services have been offered since opening in 2003. This bilingual treatment center provides free care for close to 1,000 Chelsea children annually, ranging in age from preschool to high school.

- Over 50 other oral health promotion programs for underserved populations with programs targeted to serve the homeless, financially disadvantaged, uninsured and underinsured, elders, survivors of torture, refugees, and individuals with HIV.

The Boston University School of Public Health has a long standing, service-oriented philosophy evidenced by the combination research and academics with a practicum requirement involving work experience in a public health environment. Through longstanding collaborations with the Massachusetts Department of Public Health, the Boston Public Health Commission, and the Veterans Affairs Administration; and international alliances with the Red Cross, the Peace Corps, and foreign governments, School of Public Health students, faculty, and alumni draw on their own diverse backgrounds to carry out the School's mission in a variety of settings.

Boston University Medical Campus schools provide numerous educational and community service programs free of charge to neighborhood residents and the greater Boston community. Students, faculty, and staff donate considerable time and resources to these service programs focusing on health-related issues. In collaboration with other University schools and colleges, BU Medical Campus schools offer access to more 200 community service programs and initiatives described in Appendix C.

1.8.2.2 Employment, Workforce Development, and Educational Opportunities

In addition to educating future health care professionals focused on community, the schools of the BU Medical Campus extend employment and professional development opportunities to the people of Boston and the surrounding communities and help fuel the local economy by purchasing goods and services.

BU Medical Campus employs approximately 2,798 full-time equivalent employees and 471 part-time employees. See Table 1-5 on the next page. Of these, 872 are Boston residents. Approximately 5.7% (186 employees) reside in the core neighborhoods.

Employment at the BU Medical Campus is expected to increase in proportion to moderate increases in student enrollment and the development of research programs.

Table 1-5 BU Medical Campus Employment (2009)

	Full-time	Part-time	Total
Total Employees	2,798	471	3,269
Residents of Boston	783	89	872
Core Neighborhoods*	166	20	186

*Zip codes 02110, 02111, 02118, 02119, 02120, and 02121

Boston University Medical Center has a longstanding relationship with Career Collaborative, a not-for-profit organization that focuses on finding employment for Boston resident immigrants and individuals returning to the workforce following a significant lapse in employment.

BU Medical Campus offers a variety of workforce development and educational opportunities for employees. The University's Office of Human Resources offers monthly professional development seminars to Boston University employees. The seminars offer a wide array of workshops to improve current skills and give employees the opportunity to develop new skills.

Boston University conducts employment presentations and workshops at social services agencies, and attends other similar career events addressing, and presenting job search related topics such as resume writing and interviewing skills. As a participant in The Boston Private Industry Council-Summer Jobs program, Boston University hires four to six local high school students for the summer.

The Boston University Office of Human Resources also sponsors Element K, an instructor-facilitated training and collaborative online learning resource catering to specific career tracks. This online training includes the following programs:

- Corporate Comprehensive: A full suite of Element K authored information technology (IT) and business courses, from office applications to advanced programming, networking, design and media, and general business skills training.
- Business Complete: Element K authored business courses with a diverse array of business, sales, and customer service skills and leadership training.
- Computer Professional: A comprehensive collection of IT training topics, such as networking, OS, programming, web development, database, and design courses.

BU Medical Campus employment professionals regularly attend area job fairs including:

- Diversity Job Fair in October 2007 sponsored by the NAACP and other organizations. The booth was shared by representatives of both the University's Medical and Charles River Campuses.

- Diversity Career Fair at the Courtyard-Marriott sponsored by Banner Publications on April 3, 2008.

- A joint job fair sponsored by the University's Human Resources Office, Boston Medical Center, and CityLab Academy was held on the Medical Center Campus on May 8, 2008.

- A job fair at Roxbury Community College on April 13, 2008.

1.8.2.3 Annual Property Taxes/PILOT

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

1.8.2.4 Other Economic Benefits

Each of the BU Medical Campus schools contribute toward a variety of health-related programs offered free of charge to area residents.

BU Medical Campus spent approximately $18,700,000 in fiscal year 2007 for goods and services provided by Boston suppliers.

1.8.3 Linkage

Upon approval of the Boston University Medical Center IMP in 2000, Boston University Medical Center entered into a Development Impact Project ("DIP") Agreement with the BRA for its institutional projects which exceeded the threshold requirements of Article 80B of the Code. With the adoption of the new IMP for a new 10 year term commencing upon its approval, Boston University Medical Center and the BRA will enter into a new DIP Agreement which will govern all new projects which exceed the thresholds set forth in Article 80B of the Code. Due to the size of the proposed Energy Facility of approximately 48,000 square feet, such project will not be a Development Impact Project. Future institutional projects to be undertaken by Boston University Medical Center under the new IMP that are designed to exceed 100,000 square feet, including the Administration/Clinical Building and the New Inpatient Building, will be subject to linkage in accordance with Article 80B, Section 80B-7 of the Code.

1.9 Public Review Process

The Proponents file this IMP in accordance with Boston Redevelopment Authority's Article 80D Institutional Master Plan review process and the BRA Scoping Determination dated 11/16/09. (A copy of the BRA Scoping Determination is included in Appendix F.) Response to the BRA Scoping Determination for the Energy Facility Project is included in the Draft Project Impact Report ("DPIR") filed separately and concurrently with this IMP submission.

The Proponents have met with members of the BRA, the Boston Civic Design Commission and representatives of the South End Landmark District Commission.

Additionally, the Proponents have had several meetings with the Task Force designated for the Boston University Medical Center IMP and will continue to meet with the Task Force following submission of this IMP. The Proponents have also met with numerous public and city regulatory agencies. The Proponents are committed to an open and inclusive public process and will continue to seek input from community representatives, neighbors and stakeholders, as well as public and elected officials.

Table 1-5 below provides a list of meetings that have been held on the IMP and Energy Facility Project since the filing of the Boston University Medical Center IMPNF and Energy Facility PNF in September 2009.

Table 1-5 Community, Public, City Agency Meetings

Date	Group	Location
9/22/09	Worcester Square Neighborhood Association	Newton Pavilion, Conf. Rooms C/D
9/28/09	Task Force – BUMC IMP Introduction	Newton Pavilion, Conf. Rooms C/D
10/8/09	South End Landmarks Staff Planner	City Hall, Rm. 805
10/8/09	BRA Design Staff	City Hall, 9th Floor
10/13/09	Boston Water & Sewer Commission	980 Harrison Avenue
10/13/09	BRA Scoping Session	City Hall, 9th Floor, BRA Board Room
10/13/09	Task Force – Energy Facility	Menino Pavilion, Conf. Room A
10/14/09	Public Improvements Commission	City Hall, 7th Floor
10/19/09	Boston Transportation Department	City Hall, Rm. 721
10/20/09	BRA Public Meeting	BioSquare, 670 Albany Street
10/23/09	Office of Jobs & Community Services	43 Hawkins Street
11/9/09	Task Force – BUMC Campus Tour	Talbot Building
11/10/09	Boston Civic Design Commission (BCDC) – IMP	City Hall, Rm. Piemonte Room
12/22/09	BCDC Subcommittee – Energy Facility	City Hall, Rm. 937A
2/23/10	BCDC Subcommittee – Energy Facility	City Hall, Rm. 933A
3/4/10	South End Landmarks District Commission	City Hall, Rm. 801

Section 2

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 Proponents seek zoning approval for three new construction projects during the term of the IMP.

This section provides an overview of primary campus design objectives that underlie the organization of the campus, conceptually presents the proposed institutional projects, and identifies future programming needs and long term planning goals. See Section 3.0 for more information regarding urban design objectives that influence campus planning.

2.2 Underlying Campus Design Goals and Objectives

While related to urban design, campus design goals and objectives are specifically associated with enhancing institutional functions, primarily through the establishment of ideal adjacencies between complementary uses. This is particularly important for a campus that delivers medical services, where efficiency is not simply desirable, but may be critical to delivery of patient care in a timely manner. At the same time, it is also advantageous to create synergies between the delivery of medical services and academic instruction in health sciences.

The primary BUMC Campus design goals are to accommodate increased demand for space due to increasing patient volumes and student populations, to address aging buildings, and to consolidate functions for improved patient access and provider efficiency. Several other objectives stem from these primary goals, such as management of traffic and parking, and upgrading infrastructure.

These campus design goals and objectives underlie the proposed organization of uses within the IMP Area and are discussed in further detail in the context of overall urban design objectives that seek to meet institutional needs while responding to the context of the neighborhood in which Boston University Medical Center is located.

The Proponents' shared goal of evaluating aging buildings is driven by the specific nature of medical services and instruction in health sciences. Addressing aging buildings may involve substantial renovations, or may necessitate demolition. In either instance, the functions presently housed in aging buildings must be accommodated in the interim condition, either during renovations or permanently. The need to address aging buildings is discussed below. The urban design objectives that drive the organization of displaced uses are discussed further in Section 3.0.

2.2.1 Addressing Aging Buildings

The BUMC Campus has buildings in a wide range of conditions and usefulness. Boston University Medical Center recognizes some of its older buildings are vital to the architectural and historical development of the campus. Over the years, Boston University Medical Center has worked to preserve its unique and important historic resources including the Talbot Building, the BCD and FGH Buildings, and 85 East Concord Street. By recognizing and preserving these important structures, Boston University Medical Center has demonstrated an ongoing commitment to historic preservation. Boston University Medical Center will continue to assess its buildings throughout the term of the IMP to determine opportunities to preserve historic structures while ensuring that buildings meet the requirement for state-of-the-art medical and academic institutions.

As outlined in Section 1.5.5, many of its aging buildings contain major deficiencies and are increasingly challenging for the institutions to meet the needs of a modern academic medical center. Some buildings require substantial renovations that would still not meet the needs of patients, accommodate advancements in technologies, or meet new regulations.

Based upon campus design goals and objectives, Boston Medical Center has determined that two of its aging buildings – the Dowling Building and the DOB – warrant action in the very near term. These buildings are discussed further below. In the longer term, BMC will continue to evaluate the efficiency of Vose Hall which is in fair to poor condition and has small, narrow floor plates which could limit options for re-use.

2.2.1.1 Dowling Building

The growth in inpatient, emergency and trauma patient volume has resulted in the need to identify how hospital facilities can expand to serve the current and projected increase in demand. The site of the existing Dowling Building, which currently houses primarily administrative functions, has been identified as an ideal location to meet these future needs because of its proximity to the existing Emergency Department and Trauma Center, the Med Flight helipad, and critical care functions within the Menino Pavilion.

Originally designed as an inpatient building in 1937, the Dowling Building's primary function as an inpatient building was downgraded to administrative office space in 1994 upon the opening of the Menino Pavilion. The Dowling Building was phased out of use as an inpatient building due to its numerous physical and infrastructure deficiencies. It does not meet current hospital construction standards and is obsolete as a clinical building. Renovating the existing structure is not an option as the floor plates are too small to yield the clinical space required as well as the infrastructure upgrades that would be required. The Dowling Building is irregular in plan and is built-up of a series of stepped blocks. The first story is the only level that occupies the full footprint of the site

at approximately 30,000 square feet. The upper stories form a U and step-down in sequence from the 10-story center pavilion to 6-stories at the wings with a typical floor only yielding approximately 10,000 square feet.

Current industry standards for clinical buildings suggest floor plates in the range of 25,000 to 30,000 square feet with a minimum floor plate width of approximately 100 feet (Dowling typical floors are 40-48 feet wide). Similarly, floor-to-floor heights are inadequate in Dowling, with industry standards suggesting approximately 15 feet to accommodate appropriate mechanical systems.

Even as an administrative office building, Dowling does not meet current standards for similar reasons, with limited floor-to-floor heights, minimal air conditioning and ventilation and obsolete elevators. Relocation of administrative functions away from the clinical core will also reinforce the BUMC Campus Master Plan objective of focusing clinical functions within the campus core.

2.2.1.2 Doctors Office Building

In 2005 the Department of Public Health ("DPH") reviewed the conditions in the DOB, which was constructed in 1969, and determined that the building no longer met expectations and requirements related to space allocation and HVAC air volumes for outpatient care. The cost to upgrade the DOB to current clinical and DPH standards was deemed substantial and would result in fewer services being provided due to the limitations of space per outpatient clinic. A renovation project was also determined to be extremely intrusive and lengthy, as systems would need to be updated in an occupied building, requiring many smaller phases of construction.

As a result, BMC determined that the preferred solution was to construct a new facility to meet current outpatient clinical standards and provide an improved patient care environment. This new facility, the Shapiro Ambulatory Care Center ("SACC"), was approved as an amendment to the BUMC IMP in 2007 and is currently under construction.

Upon completion of the SACC in the spring of 2011, existing ambulatory services in the DOB will relocate to the new facility. As proposed in the 2007 IMP Amendment, the DOB will be downgraded and will undergo some interior renovations and be converted to use as administrative office space.

2.3 Proposed IMP Projects

Boston University Medical Center recognizes an immediate need to address the space and physical constraints of its existing campus through new construction, demolition and renovations. The Proponents have developed an IMP that will allow the BUMC Campus to develop in a manner that will support the institutions' missions and ensure that both

BMC and BU Medical Campus maintain leadership roles in providing quality patient care, medical education and research.

The proposed IMP projects will accomplish the following objectives:

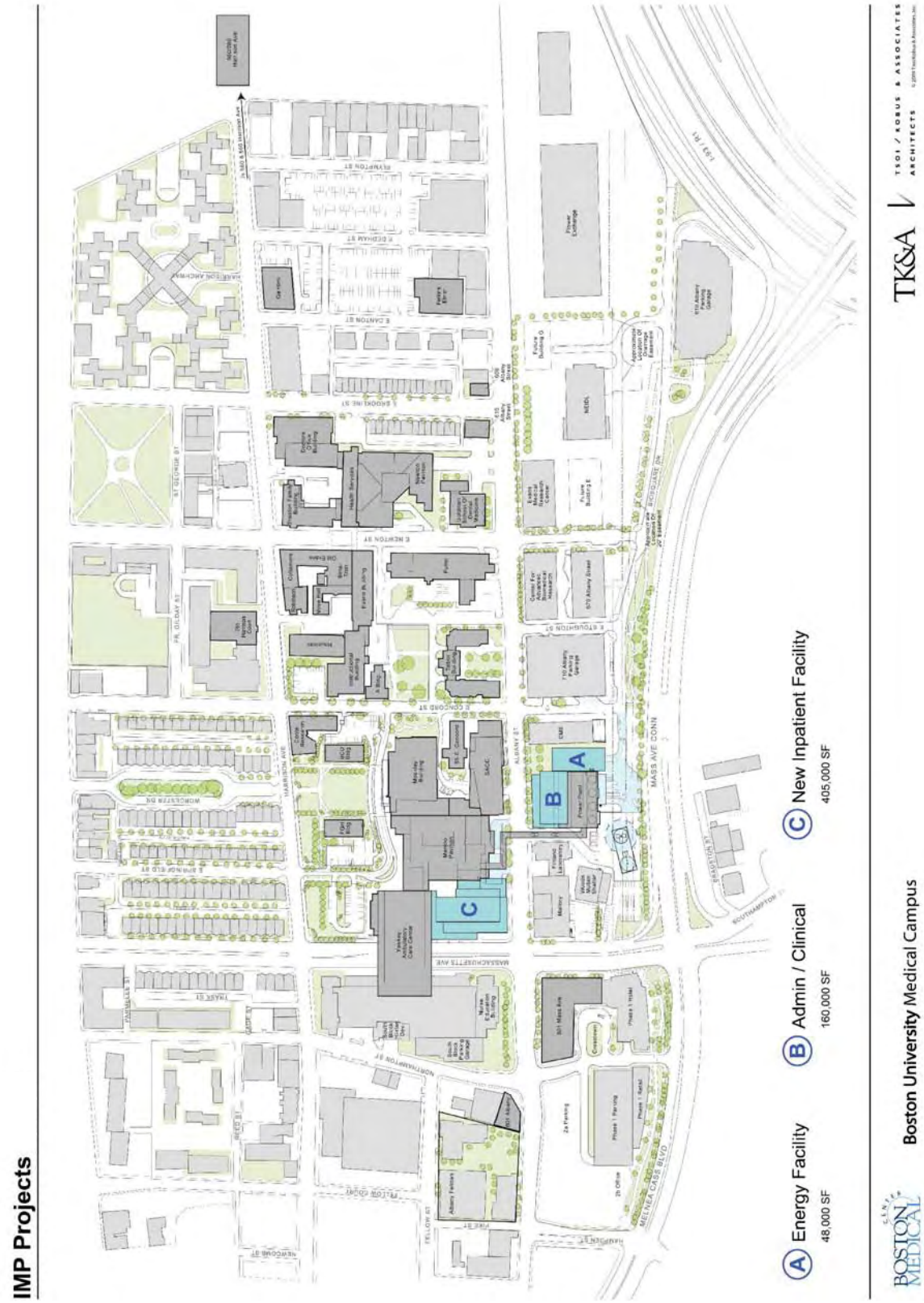
- Accommodate the increase in inpatient volumes and evolving patient care trends;
- Meet current patient care standards and improve the patient care environment;
- Consolidate clinical functions in proximity to core medical services;
- Enhance day-to-day operations to support clinical programs;
- Improve energy efficiencies and ensure reliability to support 24/7 clinical services;
- Consolidate administrative functions toward the campus perimeter;
- Improve staff efficiency and convenience for visitors;
- Improve access and connectivity to and through the campus; and
- Continue the transformation of the Albany Street image.

These projects are shown on Figure 2-1 and outlined in Table 2-1.

Table 2-1 IMP Projects and Other IMP Elements

IMP Element	Approximate Size	Use
IMP Projects – New Construction		
Energy Facility	48,000 s.f.	Utility
Administration / Clinical Building	160,000 s.f.	Administrative; clinical; materials handling/support; loading/receiving
New Inpatient Building	405,000 s.f.	Inpatient Use; Emergency Department and Trauma Center
Leased Space		
Add leased space	101,144 s.f. Crosstown	Administrative; Research; Instruction
Remove leased space	35,309 s.f. Finland	Research
	8,000 s.f. Kakas	Administrative
	17,784 s.f. 19 Bradston Street	Administrative; Research; Instruction
Additional IMP Elements		
Ownership of Gambro	34,905 s.f.	Administrative; Outpatient
Change of Use - DOB	91,783 s.f.	Administrative

Figure 2-1 IMP Projects



2.3.1 Energy Facility

A new 48,000 s.f. combined heat and power energy facility is proposed at the site of the existing surface parking lot located to the east of the chiller Power Plant building on the BUMC Campus. This facility will use state-of-the-art technologies to produce electricity and steam. It will be the first new construction project initiated during the term of the IMP. (The existing Power Plant supplies chilled water to the BUMC Campus and is the steam and electric distribution center for the BUMC Campus – it is not a true Power Plant.)

Currently Boston University Medical Center relies on a steam distribution system that is at capacity to meet heating and instrument sterile processing load requirements, as well as an electrical distribution system that is not designed to support future growth. Creating independent and redundant energy sources will improve reliability and eliminate the possibility of energy service failure or disruption that would be detrimental to the delivery of patient care in a 24/7 environment. The primary objectives of this project are to improve reliability, reduce energy expenses and decrease the carbon footprint to support greener campus growth.

The Energy Facility is intended to meet the majority of the electrical demand and all of the high pressure steam demand required by BUMC Campus buildings and BioSquare through cogeneration. Cogeneration is the simultaneous production of electric power and steam. The Energy Facility will contain two combustion turbine generators ("CTG's"). Each CTG will have a heat recovery steam generator ("HRSG"). The Energy Facility will connect to the existing steam headers in the Power Plant building. Steam will be distributed from the existing plant to the campus.

The Project will be a 4-story building above grade and approximately 48,000 s.f. with a typical floorplate of 11,000 s.f. Detail information and analysis is provided in the Draft Project Impact Report ("DPIR") that is being filed in accordance with Article 80B Large Project Review. The DPIR is being submitted to the Boston Redevelopment Authority concurrently with this IMP submission.

2.3.2 Administration / Clinical Building

A new 160,000 s.f. Administration/Clinical Building is proposed on the site of the surface parking lot located to the north of the BMC Power Plant along Albany Street. This building will allow for the consolidation and relocation of administrative offices from spaces within the clinical core. New outpatient clinic space will also be provided for BMC's existing Behavioral Health program relocating from the Dowling Building.

Preliminary design studies anticipate a 9-story building above grade of approximately 160,000 s.f. The building floorplates average approximately 17,000 s.f. The north face of the building engages the sidewalk along Albany Street, helping to better define the urban

fabric for pedestrians. The length of the building is held away from the proposed Energy Facility to reduce the overall length of the street wall so that it is more consistent with the finer grain of the Albany Street context. This results in the creation of a new landscaped open space in front of the Energy Facility Project. The penthouse level along Albany Street will also be set back to help reduce the overall scale of the building.

This building will be consistent with Boston University Medical Center's broader urban design goal which is to continue to transform the Albany Street image and improve the image of the BUMC Campus. Specifically, this building is intended to obscure the less desirable view of the Power Plant enhancing the experience for visitors and neighbors.

Together with the proposed new Inpatient Building and the Shapiro Ambulatory Care Center presently under construction, this new building will further concentrate medical functions in this easily-accessible campus location along Albany Street.

The Administration/Clinical Building is in a preliminary stage of planning, and more detail will be provided in a subsequent Large Project Review documentation.

2.3.3 New Inpatient Building

A new 405,000 s.f. Inpatient Building is proposed on the site of the present Dowling Building. This new building will necessitate the demolition of the existing 157,376 s.f. Dowling Building currently used for administrative and support functions.

The New Inpatient Building will provide additional inpatient units to address the growth in inpatient volume. This Building will also provide expanded space for the Emergency Department and Trauma Center to accommodate the growth in Emergency Service and Trauma visits. The expanded Emergency Department and Trauma Center will also consolidate the Emergency Department function on campus. Presently there are two Emergency Departments: the primary Emergency Department including the Trauma Center is at the Menino Pavilion while a smaller Emergency Department has remained in operation at the Newton Pavilion due to patient volume. Consolidating the two departments will enhance patient care by locating all required resources in one location. This will facilitate staff efficiency, add convenience for patients and visitors, and improve continuity of critical care.

Preliminary design studies for this building anticipate a 14-story building above grade of approximately 405,000 s.f., and a typical floorplate of approximately 27,000 s.f. including the expanded Emergency Department and Trauma Center and mechanical and support services.

The New Inpatient Building is proposed in this location to take advantage of proximity to other medical services, to leverage adjacency to the existing helipad and existing critical care functions, and to maximize efficient vehicular access. The site's visibility will enable

visitors to quickly orient themselves when they arrive on the BUMC Campus. For those traveling by car, seeing the Inpatient Building will assist in their wayfinding before they have parked. Emergency and trauma access will continue to be along Albany Street while patients and visitors will utilize the Harrison Avenue access loop to the Menino Pavilion lobby. This building is in a preliminary stage of planning, and more detail will be provided in a subsequent Large Project Review documentation.

2.3.4 Support Operations and Infrastructure

The existing loading dock at the Menino Pavilion is undersized for the future needs of the hospital's west clinical campus and existing below-grade tunnels used for materials handling, medical waste and trash removal operations have space constraints due to aging infrastructure that limits their use by staff.

The Administration/Clinical Building will facilitate the creation of a central location within BMC's west clinical campus for support services including materials handling, medical waste and trash removal functions proximate to the clinical core. When this building is constructed, a new loading dock will be located at the rear of the Power Plant, eliminating this function from Albany Street, and space will be created within the Power Plant to manage clean and soiled materials. Either existing tunnels beneath Albany Street will be upgraded or new below-grade tunnels will be constructed to connect support service functions and utility infrastructure from the new locations at the Administration/Clinical Building and the Power Plant to continue to serve the BUMC Campus. The new loading dock at the rear of the Power Plant will require the relocation of the helipad to the south of the Finland Building. The ambulance route from the helipad to the Emergency Department and Trauma Center will be maintained.

2.3.5 Inclusion of Leased Space

Since the filing of the existing IMP, the Proponents have periodically entered into lease agreements for existing space proximate to the BUMC Campus to meet immediate space needs. The Proponents request that certain leased space, which is subject to a long-term lease agreement and listed in Table 1-1, be formally included in the renewal of the Boston University Medical Center IMP.

2.3.5.1 Crosstown

The Proponents will seek approval to incorporate a portion of the Crosstown Site (801 Massachusetts Avenue, shown on Figure 2-1) as additional leased property for Administration/Research/Instruction use for BU Medical Campus. This site has already undergone Large Project Review, and no change to that project's BRA approval is required to enable BU Medical Campus to occupy 101,144 s.f. of space although it must be approved for institutional use through the BUMC IMP. BMC subleases a portion of the 101,144 s.f. leased by BU Medical Campus. BMC's sublease area is 34,203 s.f. for

administrative purposes. BMC also directly leases 12,197 s.f. of space in Crosstown Center for administrative purposes, which was included in the 2007 IMP Amendment for the Shapiro Ambulatory Care Center.

2.3.6 Removal of Leased Space

Since the filing of the existing IMP, the Proponents are no longer leasing space that has been approved for institutional use.

BMC wishes to remove the following buildings from the BUMC IMP as institutional use:

- Finland Building – BMC terminated its lease of 35,309 s.f. for Research use. BMC no longer occupies space in the Finland Building at this time.
- Kakas Building - BMC terminated its lease of 8,000 s.f. for Administrative use. BMC no longer occupies space in the Kakas Building at this time.

BU Medical Campus wishes to remove the following building from the BUMC IMP as institutional use:

- 19 Bradston Street – BU Medical Campus terminated its lease of 17,784 s.f. for Administration/Research/Instruction use. BU Medical Campus no longer occupies space at 19 Bradston Street at this time.

2.3.7 Clarification of Ownership

2.3.7.1 Gambro Building

BMC had been leasing 22,000 s.f. of the 34,905 s.f. Gambro Building, for office use. BMC has since purchased the Gambro Building, and intends to continue utilizing approximately 19,047 s.f. of the building for administrative space, and to lease approximately 16,000 s.f. for outpatient use. Seventeen off-street parking spaces are associated with the Gambro Building.

2.3.8 Change in Use

2.3.8.1 Doctors Office Building

The DOB is currently classified as “Outpatient” in the 2000 IMP. As presented in the 2007 IMP Amendment for the new Shapiro Ambulatory Care Center, the outpatient services from the DOB will be relocated to the new Shapiro Ambulatory Care Center when complete in 2011. BMC plans to use the DOB to accommodate its immediate need for administrative uses.

2.3.9 Campus Improvement Projects (Infrastructure and Open Space)

2.3.9.1 Campus Improvement Projects

Boston University Medical Center will be undertaking sidewalk improvements as part of the Shapiro Ambulatory Care Center that is presently under construction. Similar improvements will be made in the vicinity of the proposed IMP projects, when advanced, to establish a unified streetscape and to assist patients and visitors in wayfinding. These improvements will include new sidewalk paving, landscaping and signage. See Section 3.1 and Figure 3-1 for Campus Improvement Projects that details campus improvements previously undertaken by Boston University Medical Center as well as previously approved improvements associated with the Shapiro Ambulatory Care Center.

2.3.9.2 Campus and Building Maintenance Projects

Boston University Medical Center will continue to pursue various campus and building maintenance activities throughout the term of the IMP. These include: replacing aging infrastructure throughout the campus; maintaining plant materials in the soon-to-be constructed planters in the median strips on Massachusetts Avenue upon completion of the Massachusetts Avenue Reconstruction Project; and improvements to the Albany Street sidewalk to improve the pedestrian experience along the street and to assist patients and visitors in wayfinding.

During the term of the IMP, Boston University Medical Center will also continue to maintain the various open spaces that are located throughout the campus, including the new 12,000 s.f. park to be constructed in conjunction with the Albany Fellows Graduate Student Housing Project.

2.4 Future Program Needs and Long Term Planning

2.4.1 Anticipated Program Needs Beyond the Term of the IMP

The Proponents have identified possible longer-term program needs to advance their respective institutional missions based on the anticipated volume increases for both inpatient and outpatient services, coupled with the mission to educate the next generation of health care professionals. Future space programming is anticipated to occur beyond the term of the IMP.

2.4.1.1 Clinical Services

Boston University Medical Center anticipates a continued need for both inpatient services and outpatient services to accommodate future patient care trends and rapid advancements in medical technology. Current and future patient care standards impact space needs and complicate the reuse of many of the older facilities. As a result, existing buildings become functionally obsolete. As existing buildings continue to enter functional obsolescence, future patient care standards will make it harder to reuse many

of the older facilities. Consistent with BMC's long term plan to move its clinical core to the west, BMC will continue to evaluate opportunities south of Albany Street as an ideal location for future clinical care space due to its proximity to existing medical services and the campus parking and support zone.

Locating future clinical buildings adjacent to existing clinical space and support services will establish ideal adjacencies between complementary uses and further enhance the continuity of patient care. However, this underscores the need to develop a continuous and convenient travel route between clinical buildings south of Albany Street to the remainder of the BUMC Campus for patients, visitors and staff. This may necessitate the need for an above grade connection that extends a direct path across Albany Street to the west campus core.

2.4.1.2 Support Operations and Infrastructure

BMC's West Campus operations are supported by mechanical services routed through the yellow utility tube from the Power Plant to the Menino Pavilion. BMC recognizes the impact of this infrastructure along the Albany Street corridor. As part of its long term planning efforts, BMC will study various options for reconfiguring or replacement of this infrastructure.

2.4.1.3 Energy Service

Boston University Medical Center must continue to assess its options for reliable energy sources and infrastructure that supports clinical operations. Continued planning and upgrades will be necessary to keep up with the pace of new technology requirements for powering patient care and research space. Initiatives previously undertaken by Boston University Medical Center and future planning objectives related to infrastructure systems are further described in Section 5.3.

2.4.1.4 Academic & Student Services Building

BU Medical Campus anticipates the need for additional space to serve its increasing enrollment and future academic program requirements. Although no specific space requirements have been identified at this time, it is anticipated that new space would be proximate to the campus instructional core and other academic uses. The D Lot and L Building Annex located at the corner of Harrison Avenue and East Concord Street are likely locations for a future academic building. BU Medical Campus will continue to evaluate its academic program needs during the term of the IMP.

2.4.1.5 Additional Administrative Space

Boston University Medical Center anticipates a continued need for administrative space. In particular, it is anticipated that such space will be necessary to support the growth of inpatient and outpatient services and academic trends in medical and research studies as well as to provide a permanent location for administrative functions that may be

displaced by other IMP projects. Additional administrative space will be sought in the area within or proximate to the campus. Boston University Medical Center will continue to evaluate its administrative space needs during the term of the IMP as projects move forward.

2.4.1.6 Future Plans Albany Fellows Remaining Parcels

As presented in the IMP Amendment approved by the BRA on January 12, 2010, it is anticipated that future development on Parcels 1 and 2B of the Albany Fellows Site will be consistent with the development density studied by the BRA for the prior Albany Fellows development. Under this assumption, total development on Parcel 1 and Parcel 2B (including the remainder of Parcel 2A, not used for the open space and the Graduate Student Housing Project) will be limited to approximately 358,500 square feet of above-grade building space and up to 322 parking spaces. Potential uses for these future facilities may include: housing (either student housing or housing for faculty and staff of Boston University or Boston Medical Center), ground level retail, office, backstreets, research & development, and academic space.

As currently envisioned, the density of development of these two remaining building sites, Parcels 1 and 2B, is expected to be more evenly distributed than that which was proposed in a prior development, with the Parcel 2B site having a range of between 110,000 and 190,000 square feet of program (exclusive of parking), and the Parcel 1 site (with the remainder of Parcel 2A area) having a range of between 80,000 and 170,000 square feet of program (exclusive of parking). This more even distribution of development density would result in two buildings of moderate height (i.e., in a range from 9 to 14 stories) and therefore substantially less high than the 19 story building studied in a prior development. As and when specific projects are proposed for Parcels 1 and 2B, a further evaluation will be made of the nature of the proposed uses, the density, dimensions and scale of such proposed development, and the anticipated impacts which such development will generate. To the extent that the uses and impacts are generally within the impacts previously studied for the Albany Fellows Site, further notices of project change may be filed pursuant to Article 80. However, if there is a materially different use, or significant increase in impacts from those studied impact levels, new studies under Large Project Review would be undertaken pursuant to Article 80. In any event, all future projects will be subject to review under Article 80D, Institutional Master Plan Review.

2.4.2 Areas of Interest for Future Campus Expansion

As the Proponents look into the future and patient demand and academic needs exceed supply, they will continually evaluate opportunities for future expansion. Although there is no planning being considered at this time, the Proponents recognize the following sites, if available, as ideal locations for future expansion due to the proximity to the existing BUMC Campus:

- Perkin Elmer Site, 575 Albany Street
- Solomon Carter Fuller Building
- Chief Medical Examiner's Office Building
- Finland Building
- Flower Exchange
- Jacobson Floral
- Immaculate Conception Church and the attached Link Building

2.5 Project Schedule and Potential Permits

The Proponents intend to construct three projects during the term of the IMP – an Energy Facility, an Administration/Clinical Building and a New Inpatient Building. Design for the Energy Facility is currently underway and a DPIR is being submitted separately to the BRA concurrently with this IMP submission. Project details and the anticipated schedule will be presented in the DPIR in accordance with Article 80B Large Project Review requirements.

The Administration/Clinical Building and New Inpatient Building are expected to be initiated in the 5 to 10 year timeframe of the IMP, with the New Inpatient Building being the last project to proceed at the end of the 10 years. As details of the Administration/Clinical Building and New Inpatient Building are developed, the Proponents of the proposed projects will submit Project Notification Forms to the BRA to initiate review under Article 80B Large Project Review of the Boston Zoning Code. These PNFs will include a list of potential permits for each IMP Project. Scheduling of potential future projects is unknown at this time and is expected to occur beyond the term of the IMP.

2.6 Zoning

The main campus of Boston University Medical Center 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") establishes 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 dimensional 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 establishes 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 requires that the Proposed Institutional Project be consistent with an improved 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 provision of the underlying zoning to the contrary and without the requirement of further zoning relief.

The approval of Proposed Institutional Projects by the BRA, 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, Renewal of Institutional Master Plan, the Proponents are filing with the Authority this IMP seeking the renewal of the previously approved Institutional Master Plan for a ten (10) year period commencing upon its approval in accordance with Section 80D-3 of the Code. The review and approval requirements for Institutional Master Plan renewal are the same as those for the initial approval of the 2000 Boston University Medical Center IMP.

Section 3

3.0 URBAN DESIGN

3.1 Urban Design Objectives

Section 1.5 provides details regarding the shared planning assumptions, the consolidation of campus functions, and the optimization of operational adjacencies. This section outlines the broader urban design goals that benefit neighbors and visitors, as well as students, patients, faculty, and staff, and describes how all users engage and experience the campus.

The primary urban design objective of Boston University Medical Center is to create a cohesive medical campus thoughtfully integrated into the abutting institutional and commercial uses and the adjacent residential neighborhood. Since the merger of Boston City Hospital, Boston Specialty and Rehabilitation Hospital, and University Hospital in 1996, sensitive design, careful open space planning, and conscientious site and streetscape enhancements have supported this objective. Projects implemented under the previous master plan refined the aesthetic of the BUMC Campus, specifically along Harrison Avenue. (See Figure 3-1 - Campus Improvement Projects.)

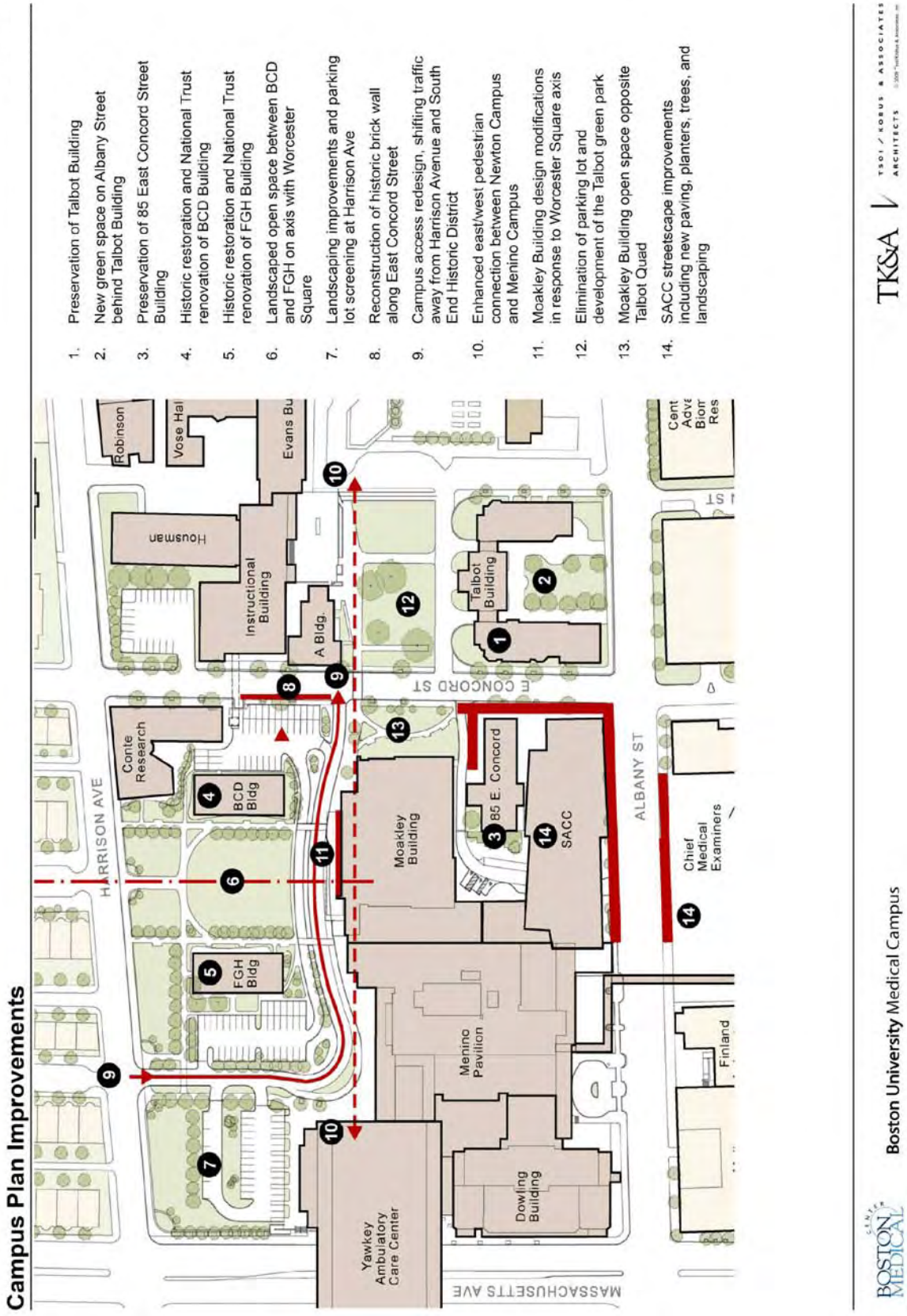
Additional master planning design goals to support future development on the BUMC Campus include:

- Transform the Albany Street campus image.
- Complement the existing context, i.e. massing, scale, and materials.
- Create a clear and welcoming sense of arrival along Albany Street.
- Enhance open spaces on the campus.
- Develop pedestrian friendly street edges.
- Enhance accessibility to parking and existing buildings.
- Integrate sustainable design principles and operations.
- Plan proactively for long-term future growth and transformation.

These master plan goals, combined with the previously applied design principles, will enrich the physical image of the BUMC Campus, improve the integration with the surrounding neighborhood, and elevate the perceptions of the Boston University Medical Center by its users, particularly on Albany Street.

Ultimately, the vision of this IMP is to continue a consistent, compatible, and connected campus as it relates to the surrounding neighborhood through the design and location of its buildings, open spaces, streetscapes, pedestrian access, and overall campus circulation.

Figure 3-1 Campus Plan Improvements



3.2 Existing Urban Fabric

The BUMC 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 BUMC 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 2- to 14-stories. Historic buildings, such as the Talbot Building, BCD, and FGH Buildings, were constructed in the late 1800's. The recently completed Moakley Building and the Shapiro Ambulatory Care Center (currently under construction) portray the current, modern campus aesthetic. These diverse buildings represent Boston University Medical Center's sensitivity to historic context through preservation and its commitment to delivering state-of-the-art healthcare.

3.3 Public Realm

3.3.1 Campus Development, Past and Present: A Balanced Approach

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 contemporary design responses sometimes result in a need to carefully weave these healthcare solutions into existing urban settings. While addressing the ever-changing aspects of clinical care, the BUMC Campus utilizes a balanced master planning approach with minimal collateral loss to existing infrastructure through its commitment to historical precedents and open space strategies.

Recent planning initiatives have sensitively recognized the surrounding neighborhoods while continuing to define a sense of campus and meet the institutions' primary mission of healing and education. As a result, many of the original streets of the historic neighborhood configuration have been retained and enhanced to better integrate the campus with the neighborhood.

The Moakley Building is a recent example of careful campus planning. This structure was strategically placed 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, aligns with 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.

3.3.2 Current Access and Connectivity

The experience with the BUMC Campus begins with the approach. The arrival sequence along Harrison Avenue is clear and the architecture and open spaces impart an immediate and welcoming sense of arrival and place. The arrival experience also conveys the image and identity of the institution as a leading healthcare, education, and research center.

The BUMC Campus is well connected to regional and district roadways in addition to several MBTA bus and rapid transit routes that service the area. The intersections of Massachusetts and Harrison Avenues and Massachusetts Avenue and Albany Street form key entry points to Boston University Medical Center. About half of the visitors arriving at the BUMC Campus by car will go directly to the parking garage located on Albany Street.

The block between Massachusetts Avenue and East Concord Street along Albany Street is host to entry points for several critical institutional uses including BMC's West Campus Emergency Department and Trauma Center, BMC's loading, trash, and materials management, the BUMC Campus Power Plant and other non-Boston University Medical Center related institutional buildings.

Currently the arrival experience along this block of Albany Street consists of a ragged edge of buildings of varying styles, ages, and conditions. This is the primary Trauma Center access route for both east and west campuses. As previously stated, transforming and refining the Albany Street edge is essential to the future development of the BUMC Campus. (Section 3.4.2 demonstrates how future campus master plan refinements will support this design objective.)

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. Section 3.3.4 describes campus wayfinding and signage plan details.

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 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 medical campuses and the medical school.

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 the Boston University Albany Fellows Graduate Student Housing and link future developments and medical and bio-

tech clusters to the east and west as envisioned in the Harrison/Albany Strategic Planning Study.

On the southern perimeter of the BUMC Campus, pedestrian pathways facilitate staff movement between the 610 parking garage, BioSquare, and the main medical center. The South Bay Harbor Trail also joins the network of Boston University Medical Center connections where it intersects with Massachusetts Avenue. See Figure 3-3, Neighborhood Connectivity and Open Space Network.

There are several pedestrian pass-through connections on the BUMC Campus. These include access corridors at the Menino Pavilion, Moakley Building, and Talbot Building. The public corridor through the Menino Pavilion links the walk-in Emergency Department and Trauma Center entry with the Menino Lobby. 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. All users (public and institutional) access the Talbot Green along Albany Street through the Talbot Building's two archways. Some public access through buildings that would connect Harrison Avenue to Albany Street is limited due to security concerns.

Additionally, Boston University Medical Center has a very active bicycle program that further promotes movement and connectivity throughout the medical center. See Transportation Section 4.3.5 for more information. See also Figure 4-9 for BUMC Campus Bicycle Facilities.

3.3.3 Current Open Space

Open space is useful in clarifying wayfinding and enhancing the user's experience. Visual cues for circulation and effective linkages between city streets and campus pathways are the effective results of well sited open spaces. One of the unique characteristics of Boston University Medical Center is the amount and quality of its open space, virtually unprecedented on Boston hospital campuses.

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 the Talbot Building, BioSquare, and Harrison Avenue. The open spaces also provide gathering areas for students, faculty, and staff. In particular, the lawn between the Talbot Building and the Boston University 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 that is adjacent to the South End Landmark District. This campus feature benefits both the campus and surrounding

neighborhoods through better design, welcoming aesthetics, and greater connectivity. The location of the new 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. See Figure 3-3, Neighborhood Connectivity and Open Space Network.

As per the institutional design goals and objectives, the BUMC Campus will continue to complement and animate its open space network through additional streetscape refinements and landscaped areas along the Albany Street corridor.

3.3.4 Current Campus Wayfinding and Signage Plan

Boston University Medical Center developed a comprehensive signage and wayfinding plan several years ago. The goals of the BUMC Campus 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. Boston University Medical Center signage efforts were coordinated with its neighbors including representatives of Crosstown, Newmarket Business Association, and the BRA.

The architectural variation and intensive vehicular traffic in the general area of the BUMC Campus can present navigational difficulties for a visitor who is unfamiliar with the medical center. To address this issue, Boston University Medical Center 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 BUMC 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 BUMC 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 BUMC Campus. The maps identify each institution and display information regarding roadways, transportation routes, landmarks, public transportation, parking, and other public amenities.

The most recent expansion of the signage program was the inclusion of BioSquare Drive. The signage plan allows for future implementation and independent facility updates for each member institution. See Figure 3-4, BUMC Campus Signage Plan.

The proposed IMP projects and all previously approved projects will be consistent with the BUMC Campus signage plan.

Figure 3-2 Major Vehicular Access and Major Entry Points

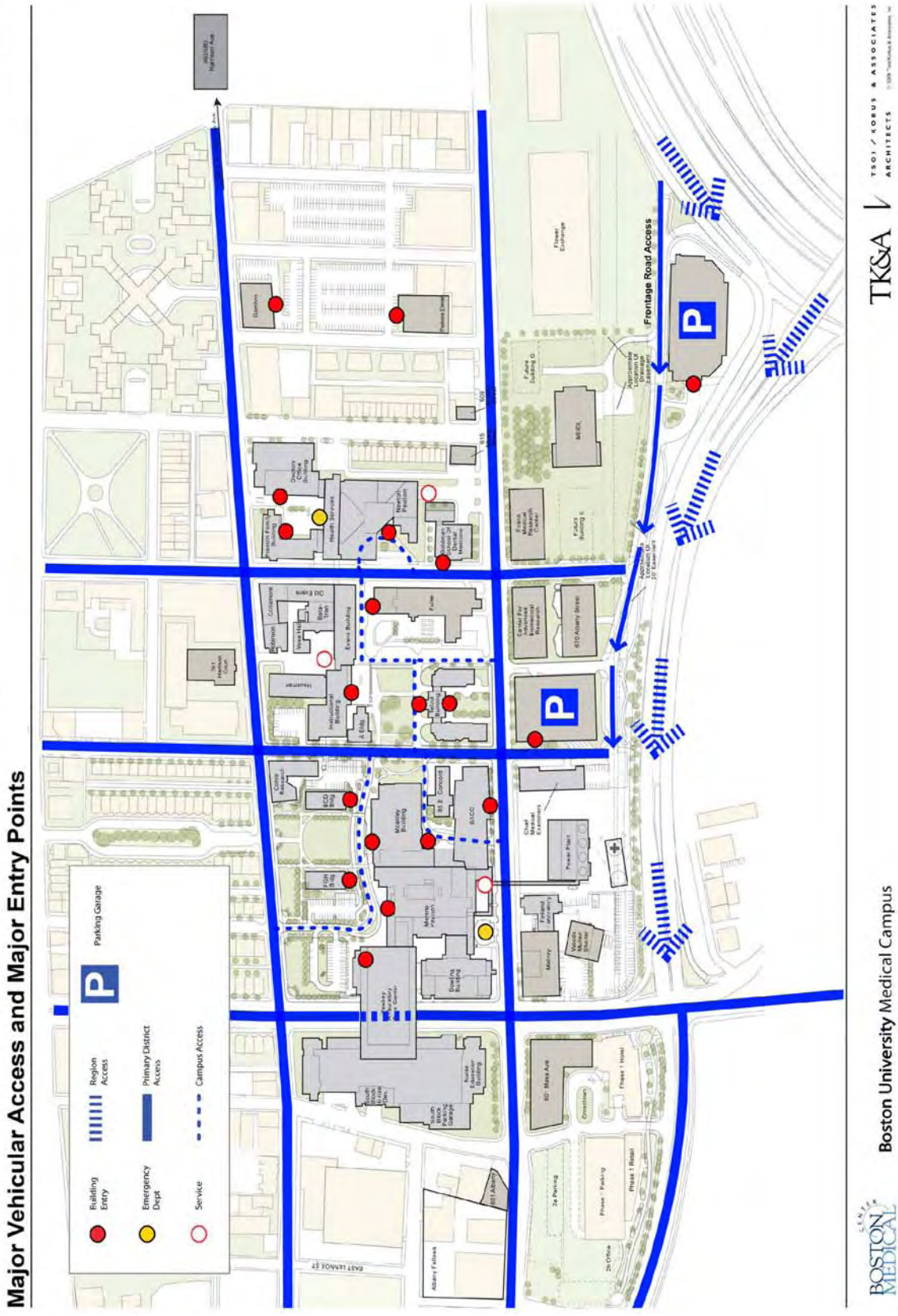


Figure 3-3 Neighborhood Connectivity and Open Space Network

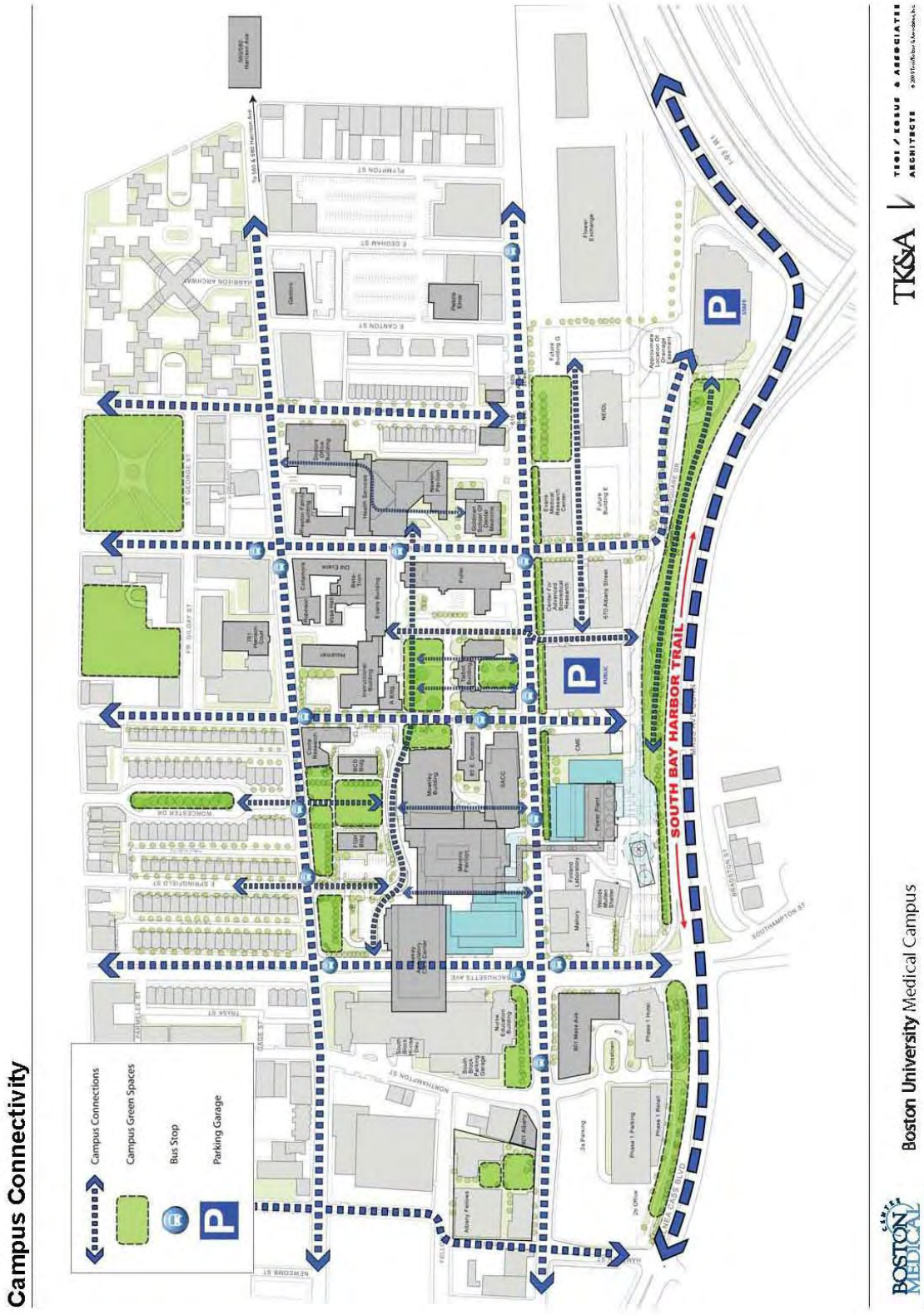
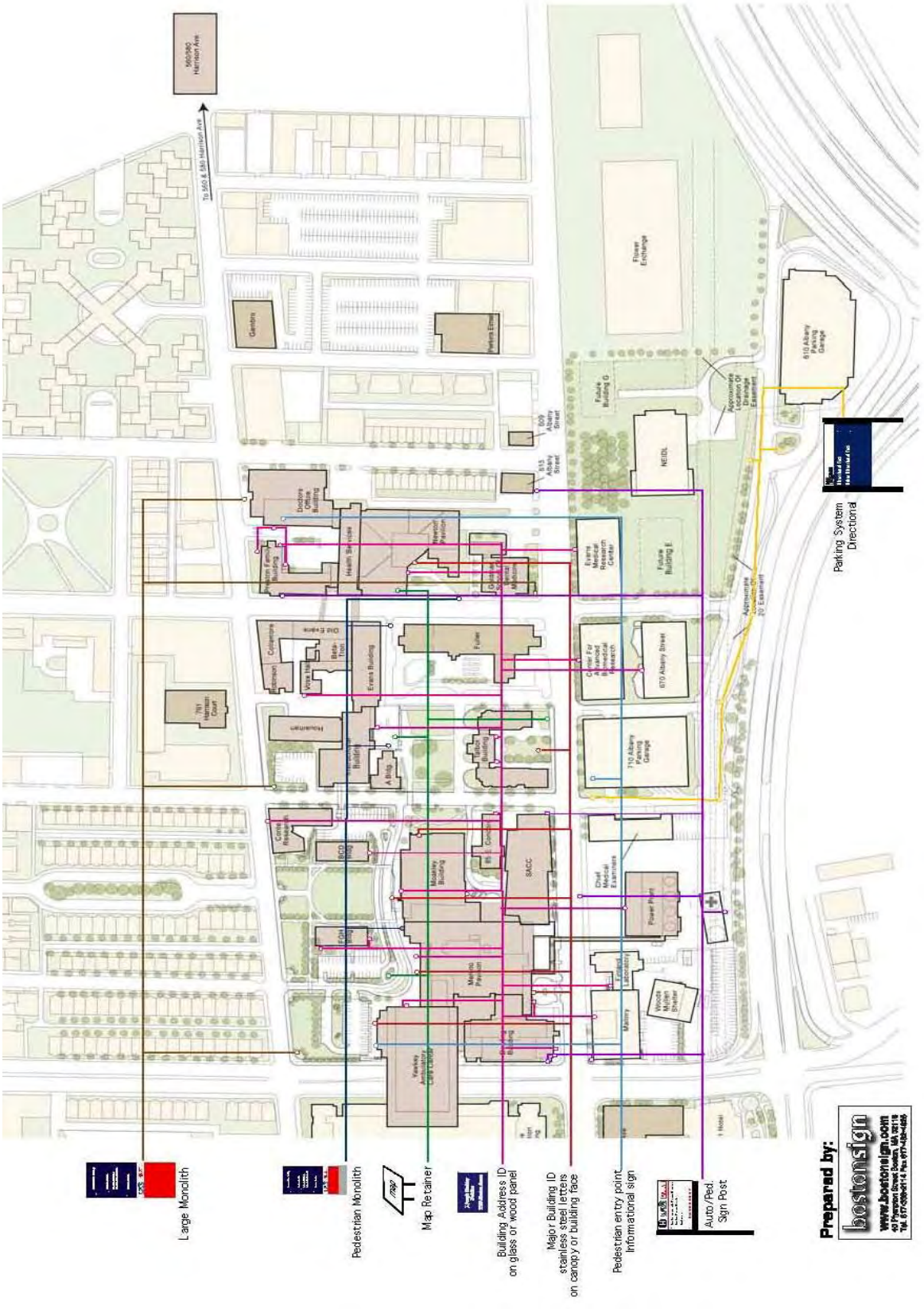


Figure 3-4 BUMC Campus Signage Plan



3.4 The Master Plan

3.4.1 Massing and Height

There are several key influences that drive the proposed massing, height, and location of the three master plan projects. These include programmatic needs, optimization of existing real estate, architectural context, and urban planning principles previously established in the 2000 Boston University Medical Center IMP. Continuing to balance the needs of the institutions while strengthening and enhancing the relationship between the BUMC Campus and the neighborhood has been the prime objective of the Proponents.

Each project responds appropriately, both individually and collectively, to the established institutional scale and aesthetic. The proposed projects will sensitively acknowledge the character of the South End via materials, massing, and scale. All three proposed buildings will be located on Albany Street and will enrich the overall experience of that urban corridor.

See Figures 3-5 through 3-11.

Energy Facility

The new Energy Facility will be located next to the existing Power Plant on Albany Street as necessitated by its function and operational adjacencies. As described in the Large Project Review documentation, the new Energy Facility will tie in to the existing utility system and infrastructure in that location in order to enhance the overall operational efficiency. The height and massing are directed primarily by dimensional clearances required for the large turbines and other equipment housed within the building envelope. The building will be approximately 4-stories above grade with an overall height of approximately 100 feet to the top of the partially enclosed rooftop mechanical penthouse. This is shorter than the adjacent existing Power Plant.

The materials and architectural forms of the Energy Facility will be simplified to reflect the utilitarian function and maintain consistency with other architectural statements along the Expressway and Massachusetts Avenue Connector. The Energy Facility will complement the existing utilitarian nature of this area and highlight the forward-thinking approach to “green” technology by Boston University Medical Center and the City of Boston.

Administration/Clinical Building

The proposed Administration/Clinical Building will be north of the existing Power Plant and across Albany Street from the Menino Pavilion and the Shapiro Ambulatory Care Center. The location of this building is strategic as it will accommodate medical administrative functions that support the adjacent clinical facilities. Prior to construction

of the New Inpatient Building, all administrative functions will be relocated from the Dowling Building to the Administration/Clinical Building. This building will be pivotal to the phasing of the proposed developments along Albany Street.

The building will be approximately 9-stories above grade and is consistent with the institutional scale of the BioSquare development (to the east) and the new Shapiro Ambulatory Care Center currently under construction.

The building is sited in front of the existing Power Plant allowing the north face of the building to engage the sidewalk along Albany Street. This will reinforce the pedestrian environment along the street edge and partially shield the less desirable impact of the parking lot and the Power Plant beyond. As shown in Figure 3-5, the plan configurations of the proposed Administration/Clinical Building and the proposed Energy Facility create an open landscape space on Albany Street. This offers additional embellishment to the street edge. The open space reduces the overall length of the street wall so that frontage dimensions will be contextual with the area. See Section 3.4.2 for more information.

New Inpatient Building

The New Inpatient Building will be located on the present site of the existing Dowling Building (at the corner of Massachusetts Avenue and Albany Street) due to essential operational adjacencies. To ensure the continuity of critical care, the New Inpatient Building will work in conjunction with the existing critical care functions in the Menino Pavilion, such as the Emergency Department and Trauma Center. The New Inpatient Building will also be in close proximity to the existing helipad. Continuous projected future growth and steady increases in inpatient admissions, Emergency Department visits, and Trauma visits dictate the height and massing of the structure. Additionally, current clinical care standards require more square footage per patient.

This strategic location is essential for the need to connect to the existing diagnostic and clinical adjacencies. It should be noted that there are no other siting options for this building. Looking at the campus in terms of an urban design response, the Dowling parcel is key in that it needs to respond to the surrounding scale, announce the entry to the BUMC Campus, and anchor a corner that has been historically weak and not in scale or supportive of the pedestrian experience. This existing condition is the lost link between the Crosstown development, the South Block development and the BUMC Campus. The New Inpatient Building will be a major connection to the development that is now occurring on the other side of Massachusetts Avenue.

The New Inpatient Building will be approximately 14-stories above grade and near other buildings of similar size. The existing South Block residential tower is 28-stories above grade. The approved Albany Fellows Graduate Student Housing Project (Parcel 2A) will proceed as a 9-story building above grade. Consistent with the development density

studied by the BRA for the prior Albany Fellows development, Albany Fellows future development parcels (Parcels 1 and 2B) will range between approximately 6- and 19-stories above grade. Collectively, these buildings will work as an urban composition within the city fabric. They will also create a counterpoint to the monolithic building masses of previous developments along the Albany Street corridor. Placing the New Inpatient Building at the intersection of Massachusetts Avenue and Albany Street reinforces the important gateway quality of this intersection (See Figure 3-11). Along with the South Block residential tower, the New Inpatient Building anchors this major crossroad, serves as a landmark to announce the BUMC Campus, and provides a visual cue for wayfinding. At a macro scale, these vertical accents and variations in the skyline emphasize Boston University Medical Center's greater civic role and importance in the City of Boston.

3.4.2 Master Plan Improvements

The three projects planned in this IMP will continue to transform the appearance and thereby reinforce the importance of the Albany Street corridor, enhance the pedestrian experience, and strengthen the connections to the City of Boston beyond the boundaries of the BUMC Campus. Together, these projects are of similar height, massing, and appearance to other structures in their immediate vicinity as seen in the aerial renderings included in this section.

The existing loading dock facilities on the north side of Albany Street (at the Menino Pavilion) will be relocated to the south side of the existing Power Plant as part of the future Administration/Clinical Building. This will greatly improve vehicular traffic and pedestrian movement along Albany Street.

On the south side of Albany Street, the configuration of the proposed Energy Facility and Administration/Clinical Building will infill current gaps in the street face and eliminate existing surface parking in that location. These projects will engage the street edge and establish a new landscaped open space in front of the Energy Facility, emulating the configuration of the nearby Talbot quadrangle. This new open space will be aligned with the public elevator lobbies of the Shapiro Ambulatory Care Center providing great views of the streetscape.

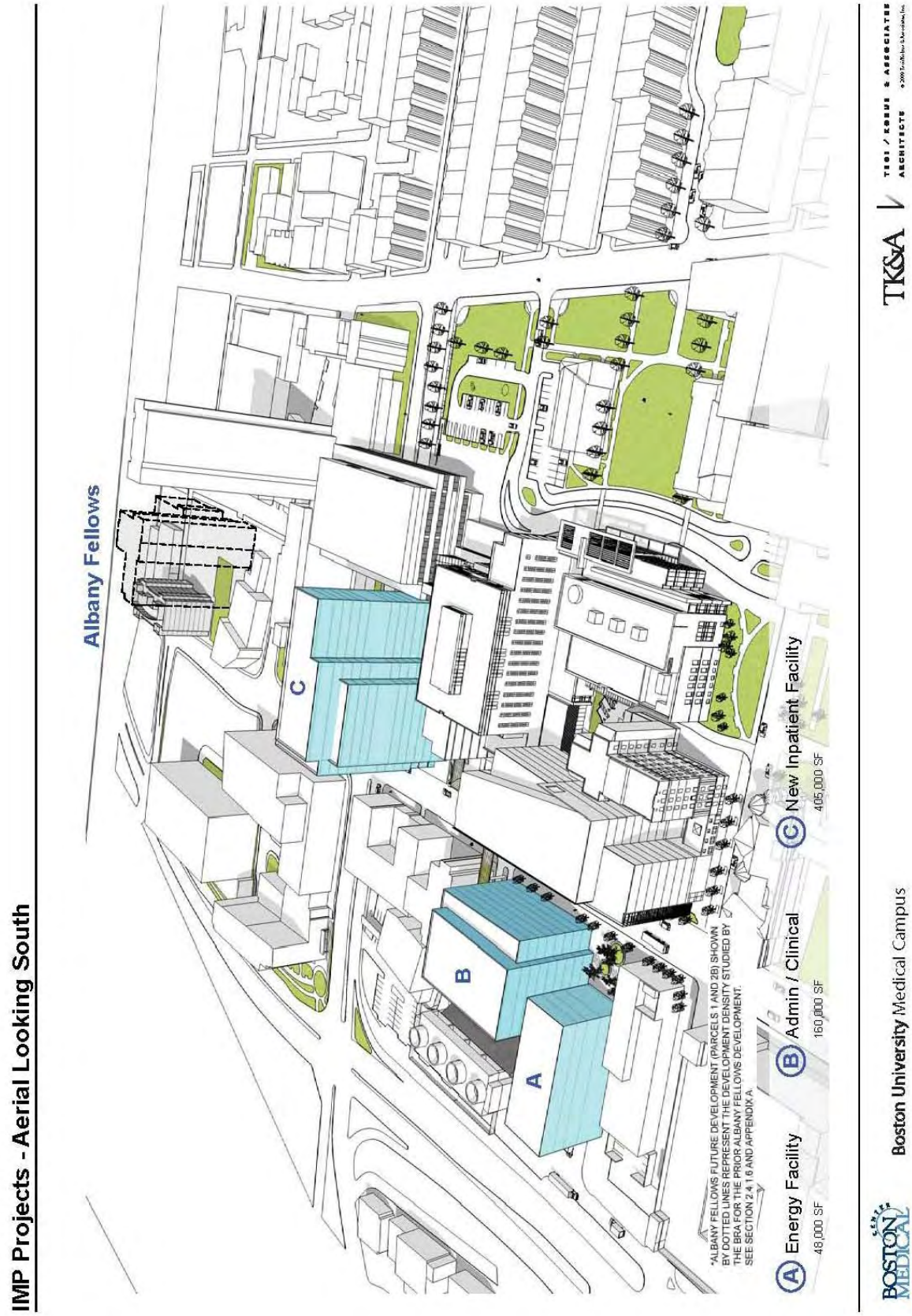
In addition to this green space, new trees and sidewalk embellishments approved under the Shapiro Ambulatory Care Center project will be constructed in front of the proposed Energy Facility and Administration/Clinical Building. These refinements will invite and bolster pedestrian connectivity along the significant east/west Albany Street corridor. Other streetscape improvements associated with the New Inpatient Building project will maximize the pedestrian experience. Sidewalk extensions, site lighting, and supplemental landscaping established on the Shapiro Ambulatory Care Center project will continue along the street.

Together the Albany Street enhancements will:

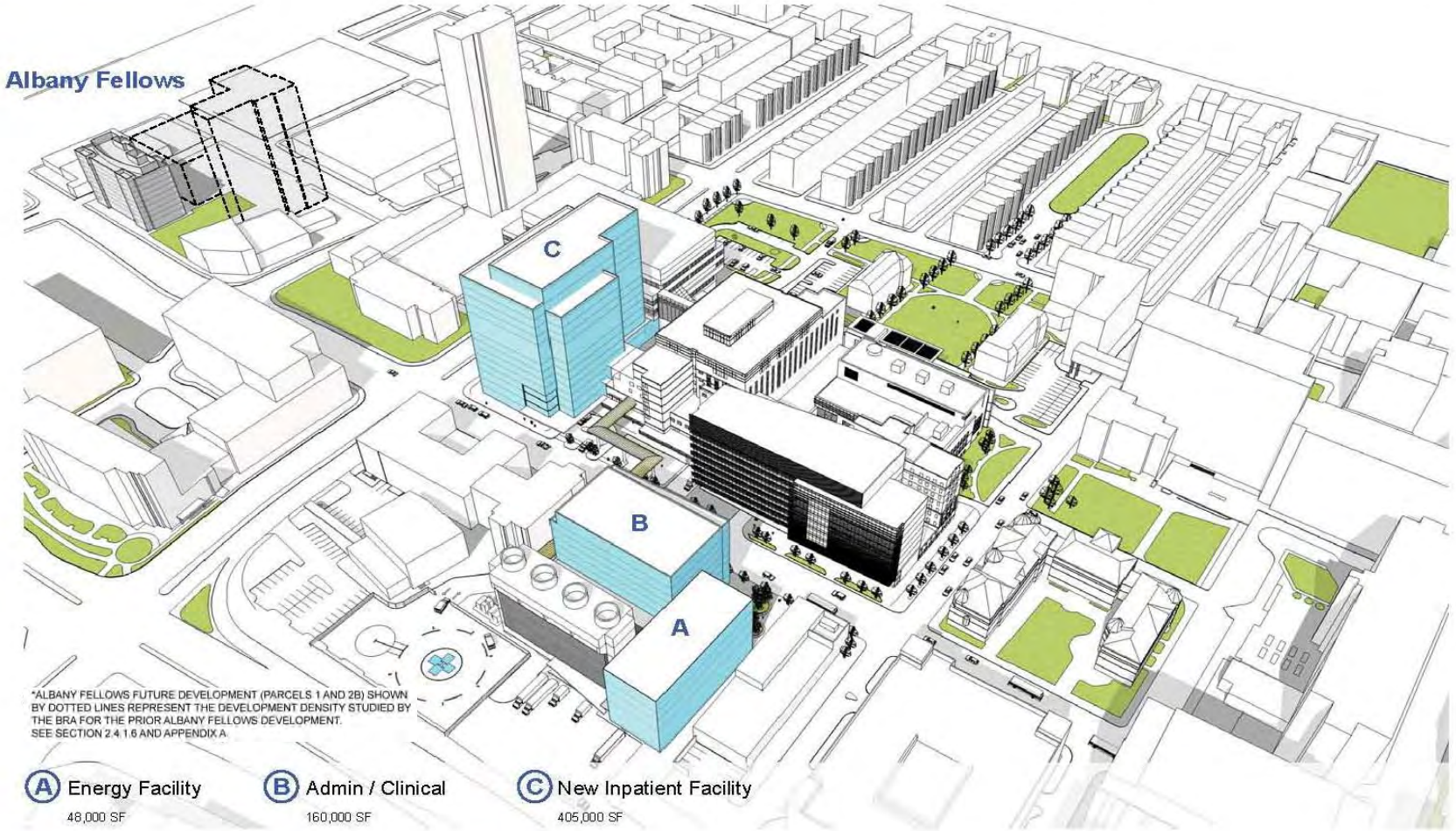
- Beautify this important circulation route;
- Enliven the streetscape, invite connectivity, and provide green respite to the public;
- Integrate the pedestrian experiences of students, faculty, staff, visitors, residents, and patients;
- Provide a safe and pleasant environment for all users;
- Establish a gateway to the campus and create a clear and welcoming sense of arrival;
- Improve wayfinding by adding key entry points;
- Reinforce campus links to the City of Boston via the South Bay Harbor Trail along the Roxbury Canal;
- Expand the established network of open spaces; and
- Energize the connections between the Albany Fellows Graduate Student Housing, BioSquare and its promenades, and the BUMC Campus;

A series of BRA sponsored initiatives will also contribute to the importance of the Albany Street corridor. The City has identified potential enhancements that will reinforce connectivity to future developments in nearby neighborhoods such as the Crosstown Corridor, Dudley Square, and Melnea Cass Boulevard. In addition, links to other medical and bio-tech clusters such as the Longwood Medical and Academic Area, Tufts, and Massachusetts General Hospital will be amplified.

Figure 3-5 Aerial View A Looking South



IMP Projects - Aerial Looking West



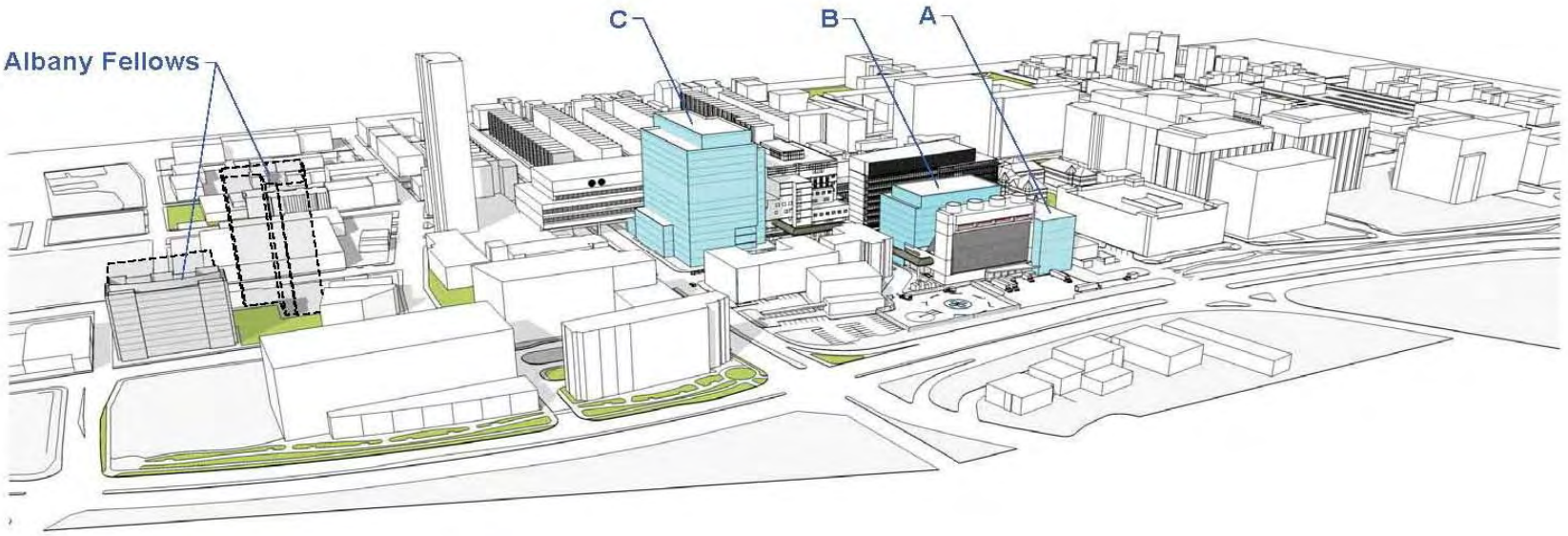
BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

Boston University Medical Campus

TK&A | TSOI / KOBUS & ASSOCIATES ARCHITECTS

Figure 3-6 Aerial View B Looking West

Aerial Looking North



*ALBANY FELLOWS FUTURE DEVELOPMENT (PARCELS 1 AND 2B) SHOWN BY DOTTED LINES REPRESENT THE DEVELOPMENT DENSITY STUDIED BY THE BRA FOR THE PRIOR ALBANY FELLOWS DEVELOPMENT. SEE SECTION 2.4.1.6 AND APPENDIX A.

(A) Energy Facility
48,000 SF

(B) Admin / Clinical
160,000 SF

(C) New Inpatient Facility
405,000 SF

BOSTON MEDICAL CENTER
EXCEPTIONAL CARE. WITHOUT EXCEPTION.

Boston University Medical Campus

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Figure 3-7 Aerial C Looking North

Figure 3-8 Aerial View D Looking South East

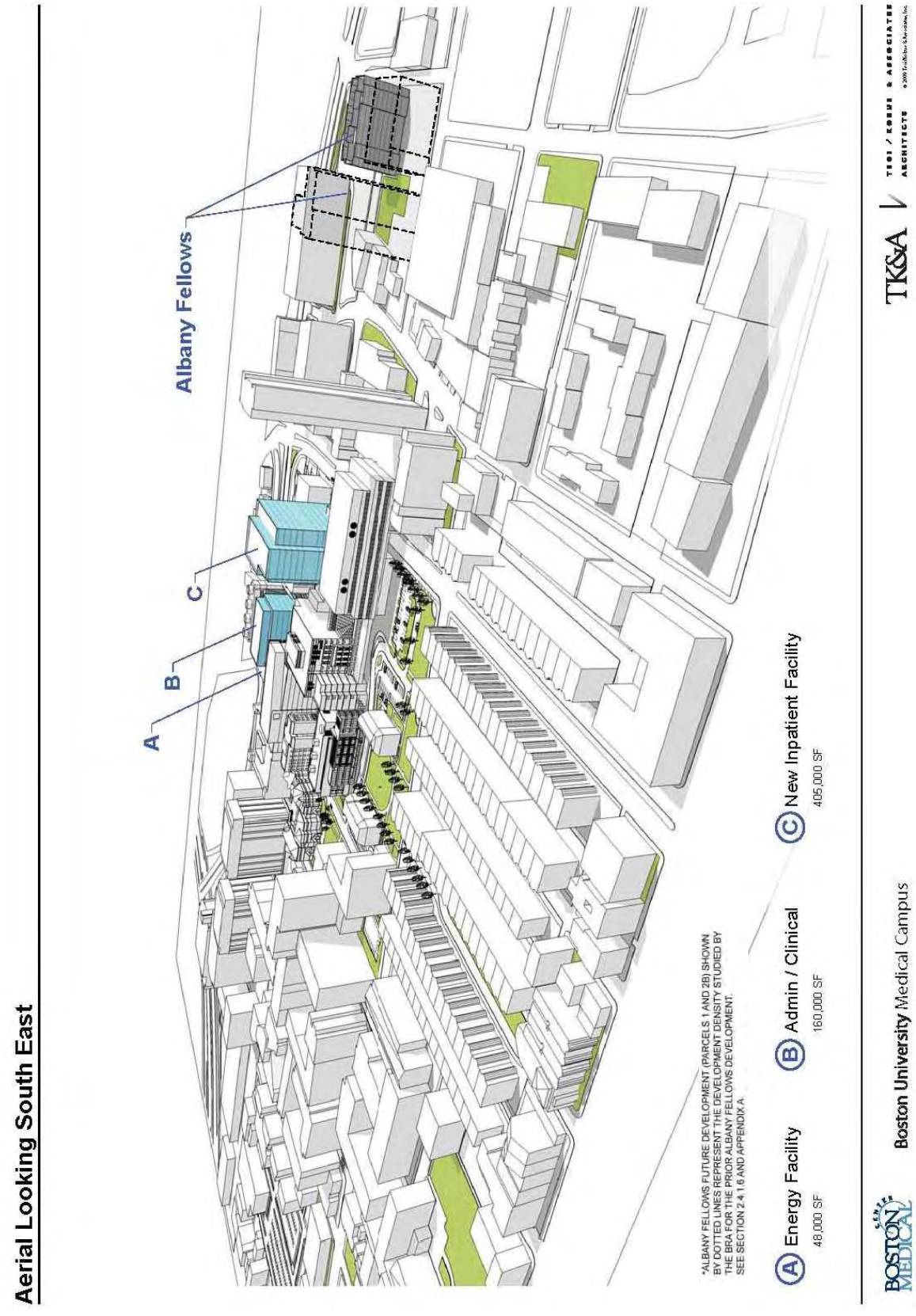
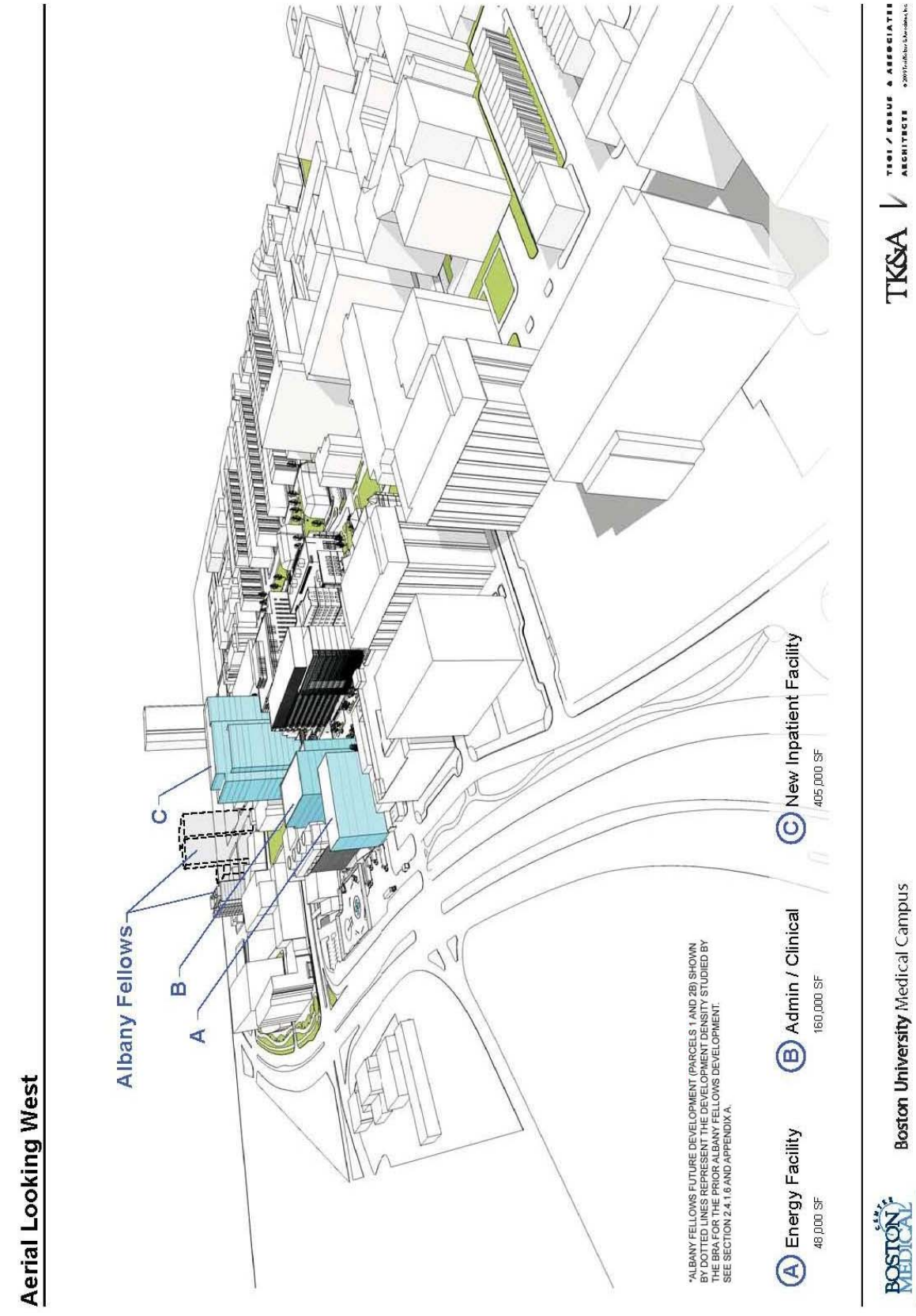
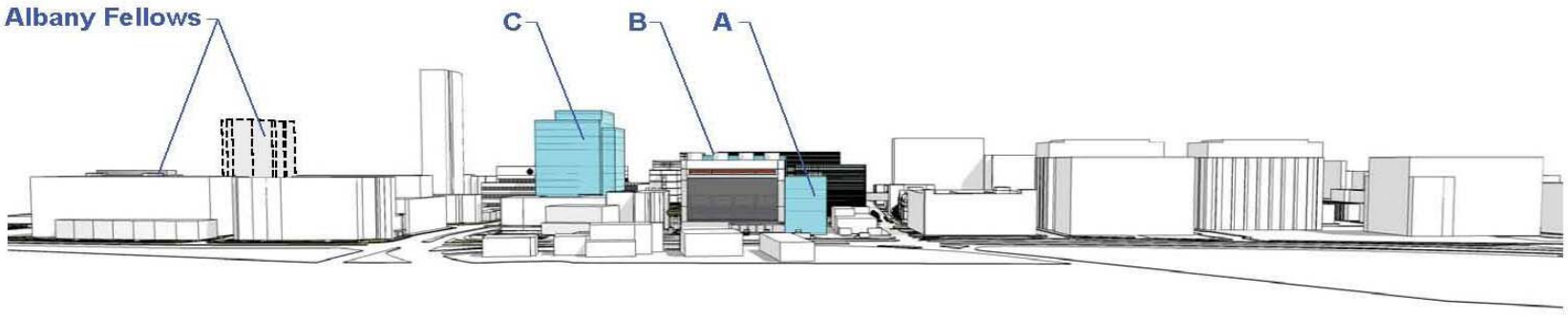


Figure 3-9 Aerial View E Looking West



Perspective Elevation Looking North West



*ALBANY FELLOWS FUTURE DEVELOPMENT (PARCELS 1 AND 2B) SHOWN BY DOTTED LINES REPRESENT THE DEVELOPMENT DENSITY STUDIED BY THE BRA FOR THE PRIOR ALBANY FELLOWS DEVELOPMENT. SEE SECTION 2.4.1.6 AND APPENDIX A.

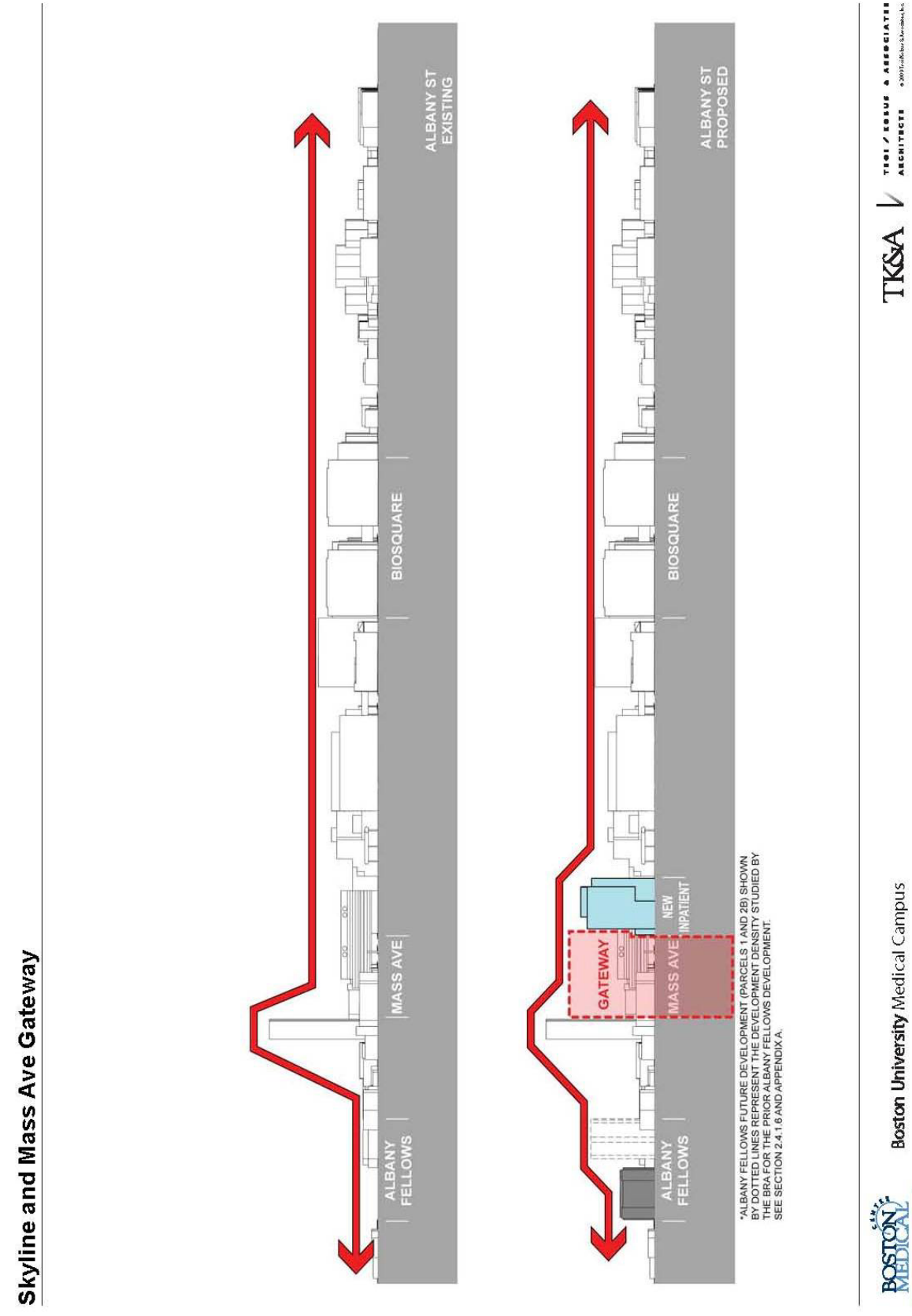
(A) Energy Facility
48,000 SF

(B) Admin / Clinical
160,000 SF

(C) New Inpatient Facility
405,000 SF

Figure 3-10 Aerial View F Looking North West

Figure 3-11 Skyline and Massachusetts Avenue Gateway



Section 4

4.0 TRANSPORTATION

4.1 Introduction and Purpose of Report

This section provides an overview of the Boston University Medical Center transportation system and its history of successful transportation management on the BUMC Campus as well as its commitment to managing transportation impacts related to future development.

Article 80 of the Boston Zoning Code proscribes that an Institutional Master Plan (IMP) include a description of the institution's existing transportation and parking characteristics, a description of future parking characteristics, a projection of any impacts associated with the IMP, and a set of transportation goals and mitigation measures to address any impacts. These items, as well as a discussion of other important characteristics of the campus transportation network, are addressed in the following sections of this chapter.

4.2 BUMC Campus Growth and Sustainability

4.2.1 Background

Since 1980, Boston University Medical Center has expanded its campus through an ambitious program of renovation and new construction to ensure its viability as an academic medical center as the delivery of healthcare, education and research in health sciences has evolved. In addition, development of the BioSquare research park and two parking garages have been added since 1991. Since the 2000 Boston University Medical Center IMP study, other recent projects have included the rehabilitation of 85 East Concord Street, completion of the Moakley Building, and the Shapiro Ambulatory Care Center which is currently under construction. With over 3 million square feet in operation or under construction today, the overall transportation network has been able to accommodate campus growth through a dedicated approach to careful site planning and transportation demand management.

As the area has become more densely developed, Boston University Medical Center has initiated a number of transportation and parking management strategies to help ensure convenient, environmentally friendly, and efficient access for its staff, students, patients, and visitors while minimizing negative effects on residential neighbors. Many of these strategies are managed through Boston University Medical Center's Transportation Management Association (TMA) and its Transportation Solutions for Commuters, Inc. (TranSComm) program.

TranSComm was founded in 1991 and was one of the first organizations of its kind in Boston. TranSComm's members include BioSquare, BU Medical Campus, Boston Medical Center, Boston Public Health Commission, and Boston Health Care for the

Homeless Program. TranSComm also serves the lower South End and Albany Street corridor companies and institutions. Boston University Medical Center provides funding for the Transportation Coordinator position employed by TranSComm whose primary responsibilities include identifying and responding to transportation-related issues and concerns of members and developing long-term transportation strategies.

4.2.2 Transportation Management Strategies

Boston University Medical Center has been working with City and State agencies over many years to improve transportation conditions on the campus. Boston University Medical Center also coordinates its transportation planning with its neighbors by investing in transportation studies covering the broader community in order to mitigate potential impacts and improve area transportation efficiencies and operations.

In conjunction with its development planning, Boston University Medical Center has created new roadways and pedestrian links, added signals, traffic monitoring cameras and crosswalks, adjusted curb use and on-street parking, implemented a comprehensive signage and wayfinding program and relocated the busiest outpatient activities from the Doctors Office Building on Harrison Avenue to the new Shapiro Ambulatory Care Center on Albany Street.

Boston University Medical Center continues to implement strategies on its campus to effectively mitigate potential impacts on roadway operations. Valet service is available for a modest charge to patients and visitors arriving at the Yawkey Ambulatory Care Center, Menino Pavilion, Moakley Building, Preston Building and Doctors Office Building for short-term parking in order to eliminate vehicle back-up on local roadways. This service will also be available at the new Shapiro Ambulatory Care Center.

The recently reconfigured vehicle access at the West Campus in front of the Yawkey Ambulatory Care Center and Menino Pavilion created a one-way pull-in from Harrison Avenue and a one-way exit onto East Concord Street to lead vehicles directly back to regional highway access and eliminate traffic impacts to the abutting residential neighborhood. The previously approved Southbound Frontage Road connection via BioSquare Drive is expected to relocate traffic from Albany Street to BioSquare Drive and improve the roadway capacity and traffic operations within the Medical Center. Additionally, previous campus planning and design has accommodated connections for the City's South Bay Harbor Trail project to improve pedestrian and bicycle movement through the campus and encourage healthy and environmentally sensitive modes of transportation.

4.2.3 Parking Management Strategies

Boston University Medical Center at present controls approximately 3,255 spaces in 6 garages and 7 surface lots. Approximately 2,817 of the spaces are owned by Boston

University Medical Center and approximately 438 are leased from others. The two largest garages are on the BioSquare site at 710 Albany Street (1,000 spaces) and the more recently opened 610 Albany Street (1,461 spaces). Each of these garages replaced surface lot parking due to BioSquare construction. The 710 Albany Street facility is the primary patient/visitor garage for the BUMC campus, while the 610 Albany Street facility serves as the main employee garage for the campus. The existing parking serves over 3 million s.f. bringing the campus parking ratio to 0.85 spaces per 1,000 s.f., in line with BTD ratios of 0.75 to 1.0 spaces per 1,000 s.f.

Since TranSComm was founded in 1991, the campus has changed significantly as discussed above. Over this period of time, parking availability and parking fees have been impacted as surface parking lots were replaced with new buildings or new structured parking. Remote facilities have been maintained for Boston University Medical Center employees and staff as needed. As structured parking and remote lots with shuttle services are typically more expensive to construct and operate, parking fees have risen accordingly. As parking has become less convenient and more expensive, Boston University Medical Center employees have changed their commuting habits by incorporating other alternative modes of transportation involving mass transit, walking, ridesharing, and cycling.

Historically, parking ratios for Boston University Medical Center and BioSquare based upon prevailing BTD guidelines have steadily decreased as development has increased as a result of the strong transportation demand management program in effect at the campus. At the same time, Boston University Medical Center has carefully managed its parking to preserve the most convenient spaces for patients and visitors by increasing fees to single occupant, employee parkers. These measures, combined with the offering of mass transit pass subsidies to employees, have incentivized employees to make greater use of mass transit and allow the campus to expand with minimal traffic impacts. TranSComm has continually promoted the use of alternative modes and has worked with the MBTA to improve services to the area. Additionally, Boston University Medical Center continues to coordinate with City and State agencies on the implementation of pedestrian improvements and bicycle connections in order to encourage these alternative modes. As a result, single occupancy vehicle use has steadily decreased over the past several years. Boston University Medical Center targeted to reduce the employee auto mode use rate from 54% to 48% in the BioSquare Phase II study. Current employee auto mode use rate at Boston University Medical Center is now only 35%.

4.2.4 Transportation Demand Management Services and Programs

Boston University Medical Center has consistently worked to reduce the number of drive-alone trips to the medical area both through efforts of the individual institutions and through TranSComm. TranSComm's objectives are to promote alternatives to driving

alone, reduce traffic congestion and air pollution, and enhance accessibility to the BUMC Campus, the Albany Street corridor and the lower South End.

TranSComm fosters transportation demand management in several ways:

- Providing or coordinating the management of inter-institutional transportation services such as shuttle services and transit pass sales;
- Collaborating with local transportation agencies and other stakeholders to enhance public transportation service to the campus and solving day-to-day problems;
- Marketing and communicating both internally to the campus population and externally to agencies and the public about transportation issues and strategies, encouraging feedback and input from its constituencies and responding to complaints; and
- Assisting institutional leaders in refining transportation plans and policies to the benefit of the campus and its neighbors.

As indicated in Section 4.2.3, existing employees and students at Boston University Medical Center have a significantly lower auto use than the BTD mode share rates, at only 35%, with 40% transit use and 25% bike/walk/other use. The low auto use rate reflects the strong transportation demand management program in effect. Through TranSComm, Boston University Medical Center will continue to encourage and assist its employees, students, as well as patients and visitors to use many of the demand management and trip reduction programs offered including:

- Boston Medical Center offers a 32% transit subsidy to all employees;
- On-site transit pass sales and schedules;
- On-line transit and rideshare information provided on the TranSComm Web site;
- TranSComm working with the MBTA and BTD to improve bus service, wayfinding, and pedestrian safety around the campus;
- Boston University Medical Center providing 7 free shuttle services covering:
    - Inner Campus Shuttle for patients and employees run on a continuous loop between the institutions.
    - All-Day Medical Campus Shuttle for employees (which can also be used by neighbors in the South End), runs every 30 minutes within the campus boundaries.
    - Boston VA/Medical Center Shuttle (patients, medical staff), running hourly.

- Evening Shuttle (to T stations, the South End neighborhood and campus parking lots and garages for staff and students).
- BMC HealthNet Shuttle for BMC patients only (traveling from Boston neighborhoods and neighborhood health centers to BMC).
- Boston University Shuttle (The BUS), with 11 stops between Boston University Charles River campus and the BU Medical Campus for students, staff and faculty running every 15-20 minutes during peak-time service.
- 610 Albany Shuttle to the employee parking garage.

- Since June 2007, preferential parking is provided for Carpool/Hybrid program participants on the first level of the 610 Albany Garage. Currently, spaces fill up very early. There are 76 carpooling groups (158 people) and 62 hybrids registered. Due to the popularity of this program, additional capacity was added in October 2008;
- Scooter parking for six scooters is provided in the 610 Albany Garage;
- In cooperation with MassRIDES, BUMC is participating in a statewide demonstration project testing the effectiveness of the "GOOSE Network," a service offering occasional carpooling via cell phone, text messaging and e-mail. The service includes both plan-ahead ride-matching of commuters with similar routes as well as "real time" matching of riders and drivers;
- 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. See Section 4.6.5 for the bicycle facilities located on the BUMC Campus;
- Boston University Medical Center provides an on-site car-sharing service and two dedicated parking spaces for shared-use vehicles (Zip-Car), one of which is a hybrid vehicle;
- 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. This map also shows the mileage from the BUMC Campus to the neighboring MBTA stations; and
- Boston University Medical Center, through 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.

4.3 Summary of IMP Transportation Impacts

The impetus for the IMP projects is to "right-size" the existing campus facilities to serve current patient and clinical care standards. The proposed New Inpatient Building and the

Administration/Clinical Building will replace current uses in outdated facilities on campus. Although there is new program space created, a portion of it will replace current uses on the campus and is not expected to generate additional trips. Furthermore, there are no transportation related impacts associated with the Energy Facility project.

4.3.1 Summary of Findings

The IMP analyzes impacts over the 10-year term of the IMP. For a more accurate understanding of how the IMP projects will impact traffic, it is important to note that the largest traffic generator – the New Inpatient Building – will not be constructed until near the expiration of the IMP. IMP traffic and parking analyses currently show that there exist approximately 400 spaces within the current supply of owned and leased parking spaces to accommodate the parking demand for additional development over the second half of the IMP. Additionally, the traffic analysis shows there is no significant degradation in intersection operations.

Within the 10-year time frame of the IMP, growth not associated with the medical area combined with IMP developments on the BUMC Campus and the BioSquare campus will impact operations at a few intersections. Of the intersections studied in the Build condition, only 4 out of 18 intersections that accommodate large proportions of projected traffic will be impacted. Although the IMP developments will place further demands on existing parking resources, the campus parking ratio will still be in line with BTD ratios at 0.76 per 1,000 s.f. Boston University Medical Center will continue to implement parking management strategies that have proven to be effective as evidenced by steadily decreasing auto use. Boston University Medical Center's goal is to ensure that BUMC Campus parking needs do not encroach on the available supply of on-street parking in the neighborhood.

Recognizing the potential of these impacts, Boston University Medical Center proposes to review each project in detail as the programs are more clearly defined and as they move into design review through the Article 80 Large Project Review process. This process will also allow new traffic data to be collected and recalibrated to existing conditions and new projects so that traffic impacts can be accurately assessed and planned.

4.3.2 Proposed Mitigation and Long Term Sustainability

Boston University Medical Center realizes the effect of the IMP development to its campus roadways and knows it is necessary to manage transportation demand while improving the transportation network in order to maintain good access for its employees and patients, and maintain access to its high level of care.

When addressing the transportation impacts in the study area for projects associated with the IMP, our recommended approach is to evaluate the project impacts and the

transportation networks in two phases: the five-year plus (2014) and 10-year periods (2019) of the IMP. Within these two periods, should the proposed IMP projects advance, Boston University Medical Center will identify and mitigate individual project impacts while considering the overall transportation operations in the study area.

Because the IMP horizon year is distant and development needs and goals of the Medical Center change depending on public need, this project based mitigation approach will ensure that the measures used to offset impacts are administered efficiently and at the most effective locations.

To accomplish this, Boston University Medical Center, through the Article 80 Large Project Review process, will present detailed building programs, design options, and measures to mitigate impacts as the programs for each project are advanced through planning and design. It is believed that this approach will be an effective collaboration of design development and City and Community review that will allow for the most efficient project mitigation measures.

Boston University Medical Center has identified transportation improvement goals for the 10-year master plan and will continue to advance important mitigation commitments made previously in the form of policies and management actions. **Table 4-1** lists transportation mitigation elements that Boston University Medical Center is proposing to pursue in order to ensure that future development can be sustained at the BUMC Campus with minimal impact to the neighborhood.

Table 4-1 Proposed Transportation Improvement and Mitigation Plan

	IMPROVEMENT ELEMENT	DESCRIPTION	PURPOSE/BENEFIT
Traffic Management Plan / Local Street Network Improvements			
1	Relocation of West Campus Central Loading Dock	Relocate loading at the Menino Pavilion on Albany Street and move activities to the south side of Albany Street upon development of the Administration/Clinical Building.	Access will occur from BioSquare Drive removing trucks from Albany Street. This will improve roadway operations and pedestrian movement along Albany Street.
2	Reduction in Curb cuts	Goal to reduce number of curb cuts in front of the Emergency Department and Trauma Center entrance along Albany Street upon development of the New Inpatient Building.	Improve pedestrian experience along edge of Albany Street. Improve vehicular access, reduce confusion and traffic back-ups to roadway.
3	Sidewalk and Streetscape Improvements	Additional improvements along Albany Street including installing new sidewalk paving, street trees, lighting, signage, etc. as each new development project is advanced.	Establish a unified streetscape to assist patients and visitors in wayfinding. This will improve pedestrian safety and movement and create better connectivity to future developments across Massachusetts Avenue.
4	Regional Highway Access	Implement the Southbound Frontage Road connection, continue to support additional access and connectivity from the BUMC Campus to the regional highway system.	Allows access for vehicles from the regional roadway network to access at BioSquare Drive removing traffic from Albany Street and the local street network.
5	Improved Access to Bus Stops	Continue to work with the MBTA to provide improved bus shelters and pedestrian connections to the MBTA bus stops within the Medical Center	Will encourage shift in employee and student mode share from auto to transit use.

Parking Management Plan

1	Employee Parking Pricing	Continue to evaluate and charge market rates for employee parking.	Encourages transit use and will reduce parking demand.
2	Off-site Employee Parking Options	Continue to evaluate off-site locations for employee parking as needed. Areas of interest previously discussed are Crosstown and under the elevated I-93 expressway between W. Fourth St. and Randolph St.	Encourages transit use and removes employee vehicles from medical area roadways.

Transportation Demand Management Plan

1	Maintain active role in TransComm	Continue to encourage and assist BUMC Campus employees, students, patients and visitors as well as other area institutions and businesses to use many of the demand management programs offered.	Will encourage shift in employee and student mode share from auto to alternative modes such as transit, bicycle, and walk.
2	Employee Transit Subsidy	32% transit pass subsidy to employees .	Will encourage shift in employee mode share from auto to transit.
3	Bicycle Parking	Continue to install bicycle racks and cages throughout the campus where feasible. Will install short-term bicycle racks for new projects where feasible.	Will encourage shift in employee and student mode share from auto to bicycle.
4	Zip-Car	Coordinate with Zip-Car representatives to continue discounted membership for BU Medical Campus, BMC and its affiliates. Maintain 1 vehicle as a hybrid vehicle.	Will encourage shift in employee and student mode share from auto to transit and improve air quality.

City Planning Initiatives / Community Benefits

1	Community Parking Benefit	Provide reduced rate evening public parking, and free evening public parking during snow emergencies.	Will continue to offer this benefit to resident neighbors and the local community.
2	Support Transit Service Improvements	Through TanSComm continue to work with the MBTA to promote transit service improvements such as the Urban Ring project, and the Indigo Commuter Rail Line.	Will improve access for employees and student to transit service at the Medical Center and encourage shift in auto use to transit.
3	South Bay Harbor Trail	Continue campus planning to accommodate connections to the City's South Bay Harbor Trail project.	Will encourage walking and bicycling as an alternative mode of transportation for the surrounding community with connections to other city neighborhoods along the Boston Harbor.

Sustainability

1	Bicycle User Group	Through TranSComm, a network of cyclists work together to improve biking on the campus.	Will encourage employee, student as well as patient and visitor shift in auto use to bicycle. Helps promote bicycling as an important health benefit.
2	Carpool and Hybrid Program	Offer designated and priority parking for carpool and hybrid cars.	Encourages employees to not drive alone and relieves traffic congestion and improves air quality.
3	Walking Initiative	Continue to promote walking programs in coordination with WalkBoston	Will encourage employee and student as well as patient and visitor shift in auto use to transit and walking. Encourage walking as an important health benefit.

4.5 Transportation Impact Study

4.5.1 Existing Campus Description

Boston University Medical Center is located in the South End neighborhood of Boston. See **Figure 4-1**. Regional vehicular access to the BUMC Campus via the north and south is provided directly via the Massachusetts Avenue Connector. At Massachusetts Avenue, the Connector joins Melnea Cass Boulevard, which provides a direct connection to the Longwood Medical and Academic Area. Local vehicular access is primarily from Harrison Avenue, Massachusetts Avenue and Albany Street. East Concord Street and East Newton Street provide connections from the primary campus parking facilities, the 710 Albany Street and 610 Albany Street garages, to other facilities within the campus.

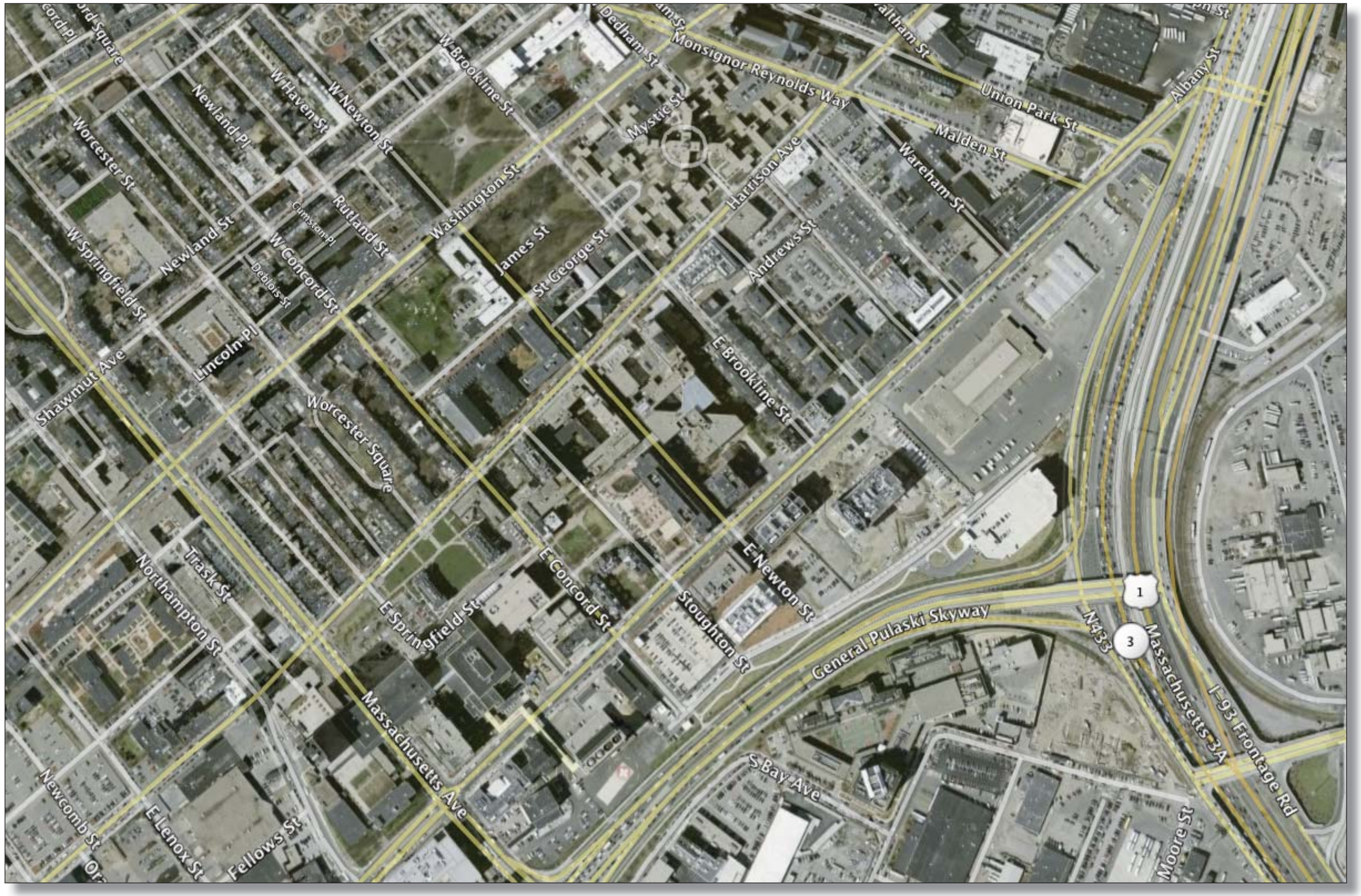
4.5.2 Study Description

The Institutional Master Plan transportation impact study is presented in three sections. The first is an analysis of existing transportation conditions including roadway capacities, parking, loading and service, public transit, pedestrian connections and bicycle facilities. The second evaluates future transportation conditions, 10-years from the present, and assesses the cumulative impacts associated with other approved projects and with the proposed IMP projects. The second section includes the following two scenarios:

- "No-Build Condition" (2019) – a baseline scenario that presents traffic changes exclusive of the IMP projects, including background growth of .05% per year and traffic contributions from specific approved projects. The following projects were included in the analysis: BioSquare Building E and Building G, the NEIDL Building, the Shapiro Ambulatory Care Center, 275 Albany Street and the Albany Fellows Graduate Student Housing Project.

- "Build Condition" (2019) - a scenario in which the specific travel demand forecasts associated with the IMP projects are added to the No-Build scenario.

The third section of the transportation impact study discusses appropriate measures to mitigate potential Project related impacts.



Not to scale.

Figure 4-1. Locus Map

4.5.3 Study Area Roadways

The following roadway descriptions reflect classification by the Massachusetts Department of Transportation Planning.

Melnea Cass Boulevard is a 4-lane urban principal arterial with 2 travel lanes in each direction running in an east-west direction between Massachusetts Avenue to the east and Tremont Street to the west. Built as a local roadway in the corridor of the abandoned "Inner Belt," Melnea Cass Boulevard provides direct access between the BUMC Campus and the Longwood Medical and Academic Area. Approximately 40,000 vehicles use Melnea Cass Boulevard daily, according to April 2008 Automatic Traffic Recorder (ATR) data. For this reason it is an important link for autos, bicycles and transit riders.

Massachusetts Avenue (Route 2A) is an urban principal arterial running in a north to south direction, providing access between Boston, Cambridge, and Arlington. Approximately 32,000 vehicles use Massachusetts Avenue north of Melnea Cass Boulevard and approximately 37,000 vehicles use Massachusetts Avenue south of Melnea Cass Boulevard daily, according to April 2008 Automatic Traffic Recorder (ATR) data. Massachusetts Avenue features two travel lanes in each direction, divided by a narrow concrete median. Additional turning lanes are provided at the intersections with Harrison Avenue and Albany Street. Metered on-street parking is provided in the northbound direction between Albany Street and Harrison Avenue, while resident parking is found in both directions of Massachusetts Avenue west of Harrison Avenue. Near the site, the mix of land uses includes medical, retail, office, and residential.

Albany Street is an urban minor arterial roadway that runs parallel to Harrison Avenue within the study area from Herald Street in the east to Eustis Street in the west. It provides one travel lane in each direction near the site. Approximately 16,000 vehicles use Albany Street east of Massachusetts Avenue daily, according to April 2008 Automatic Traffic Recorder (ATR) data. Parking is allowed on both sides of the street, with various uses from meters to special use vehicles only (e.g., EMS vehicles) to no restrictions. The BUMC Campus is located on the north side of the street and the BioSquare site on the south side. Land uses along Albany Street include a mix of research, educational, city services, medical uses, and in and out patient medical uses.

East Concord Street is a local street running 1-way south. Normally, parking is allowed on both sides of the street, but parking will be removed near Albany Street upon completion of the Shapiro Ambulatory Care Center to increase operational efficiency. Two bus shelters—one near Harrison Avenue and one near Albany Street—serve several MBTA routes and the Boston University Medical Center shuttle routes within the BUMC campus. BU Medical Campus and BMC buildings are located along both sides of the street.

East Newton Street is an urban minor arterial running one-way north, with parking on both sides of the street. Approximately 5,000 vehicles use East Newton Street daily, according to 1999 Automatic Traffic Recorder (ATR) data. A bus shelter is located on Atrium Plaza on the north side of the street between Harrison Avenue and Albany Street. BU Medical Campus and BUMC buildings are located along both sides of the street.

Frontage Road Southbound is a state-owned one-way collector/distributor roadway allowing movements between I-93 southbound and City owned streets that provide access to local land uses. It is classified as an urban principal arterial. Frontage Road Southbound has two lanes, extending from Albany Street at its northern terminus to the South Bay Mall Driveway at its southern terminus. South of the South Bay Mall Driveway, an on-ramp to I-93 southbound is provided from Frontage Road Southbound. Near the site, Frontage Road Southbound features two travel lanes.

Harrison Avenue is an urban minor arterial running in a northeast to southwest direction, providing access between Essex Street in the east to Warren Street in Roxbury. Harrison Avenue provides one travel lane in each direction near the Boston University Medical Campus. Parking is permitted on both sides of the street, and additional travel lanes are provided at the intersection with Massachusetts Avenue. Approximately 16,000 vehicles use Harrison Avenue east of Massachusetts Avenue daily, according to April 2008 Automatic Traffic Recorder (ATR) data. Harrison Avenue is a boundary between the BUMC campus on its south side and the primarily residential areas along the north side.

East Brookline Street is a one-way urban minor arterial running from Washington Street in the north to Albany Street in the south. On-street parking, is permitted on both sides of the street, consists of metered, residential only, and unrestricted spaces. The street is approximately 30 feet wide. Approximately 2,500 vehicles use East Brookline Street daily, according to 2002 Automatic Traffic Recorder (ATR) data.

Malden Street is a 2-way urban minor arterial that runs north-south connecting Harrison Avenue in the north to Albany Street in the south. Parking is unregulated on the north side of the street and metered on the south side.

Wareham Street is a 1-way local road that runs southbound between Harrison Avenue in the north and Albany Street in the south. Metered and commercial vehicle parking is provided on the east side of the street and unregulated parking on the west side.

Massachusetts Avenue Connector is a state-owned urban principal arterial roadway that links Massachusetts Avenue, Melnea Cass Boulevard, and Southampton Street to I-93, a distance of approximately one-half mile. It is a median divided roadway with 3 lanes in each direction. Of the 6 total lanes, 4 continue across I-93 to connect to Frontage Road Northbound, with the outside lanes designated as right-turn lanes to/from Frontage Road Southbound.

Frontage Road Northbound is a state-owned one-way collector/distributor roadway allowing movements between I-93 northbound and City-owned streets that provide access to local land uses. It is classified as an urban principal arterial. Frontage Road Northbound has 3 lanes and extends from Southampton Street at its southern terminus to Kneeland Street at its northern terminus.

4.5.4 Study Area Intersections

The study area for the Boston University Medical Center IMP includes the following 18 intersections, as shown in **Figure 4-2.**

1. Melnea Cass Boulevard at Massachusetts Avenue;
2. Melnea Cass Boulevard at Albany Street;
3. Massachusetts Avenue at Albany Street;
4. East Concord Street at Albany Street;
5. East Newton Street at Albany Street;
6. Albany Street at Frontage Road Southbound;
7. Melnea Cass Boulevard at Harrison Avenue;
8. Massachusetts Avenue at Harrison Avenue;
9. East Concord Street at Harrison Avenue;
10. East Newton Street at Harrison Avenue;
11. East Brookline Street at Harrison Avenue;
12. Malden Street/Wareham Street at Harrison Avenue;
13. Frontage Road Southbound at Massachusetts Avenue Connector;
14. Frontage Road Northbound at Massachusetts Avenue Connector;
15. Frontage Road Northbound at South Boston Bypass Road;
16. East Brookline Street at Albany Street (unsignalized);
17. Wareham Street at Albany Street(unsignalized); and
18. Malden Street at Albany Street (unsignalized).

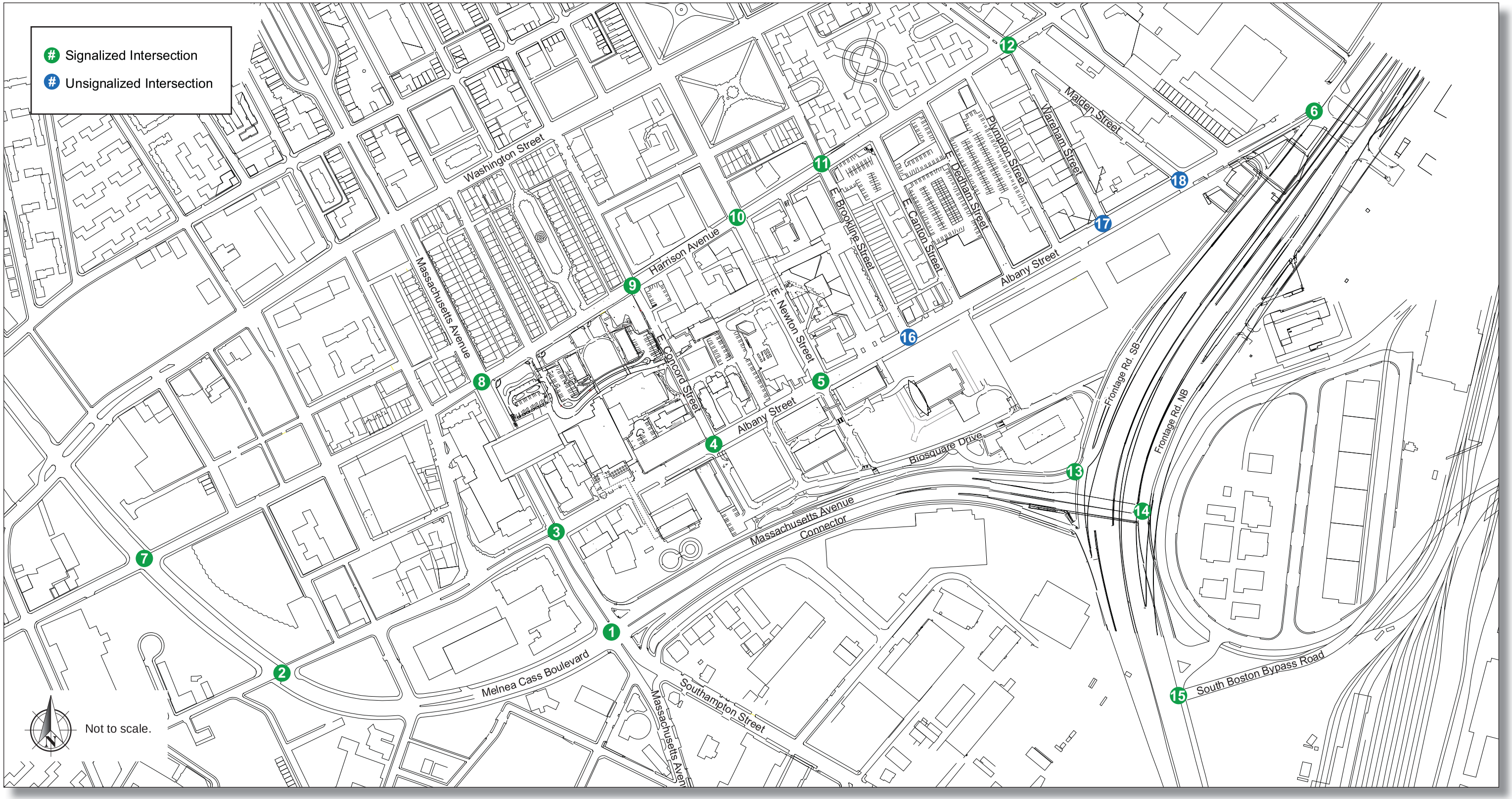


Figure 4-2. Study Area Intersections

4.5.4.1 Description of Study Area Intersections

The following descriptions of the study area intersections include geometry, pedestrian facilities, and intersection traffic control. (Note that in these descriptions, an exclusive pedestrian phase refers to a phase where all vehicular traffic is stopped and pedestrians in all crosswalks can proceed. A concurrent pedestrian phase permits some pedestrian crossings to occur concurrent with vehicular movements.)

Signalized Intersections

Melnea Cass Boulevard/Massachusetts Avenue/Massachusetts Avenue Connector is a signalized, 5-approach intersection, connecting Melnea Cass Blvd., Massachusetts Avenue, Southampton Street and the Massachusetts Avenue Connector (to and from I-93 north and southbound). The eastbound Melnea Cass Boulevard approach consists of two through lanes and an exclusive right-turn lane. The Melnea Cass Boulevard westbound approach contains five travel lanes: two exclusive left-turn lanes, two through lanes, and a channelized right turn lane. Massachusetts Avenue south of the intersection runs one way departing; the northbound traffic enters from the adjacent Southampton Street leg. The northbound Southampton Street approach consists of two left-turn lanes, two exclusive through lanes, and a channelized right-turn lane. The southbound Massachusetts Avenue approach is comprised of two left-turn lanes, one exclusive through lane, and a shared through/right-turn lane. Crosswalks and wheelchair ramps are located across the all approaches.

Melnea Cass Boulevard at Albany Street is a four-approach signalized intersection. The eastbound Albany Street approach provides a shared left-turn/through/right-turn lane. The westbound approach consists of a shared left-turn/through/right-turn lane. The northbound Melnea Cass Boulevard approach includes shared left-turn/through lane and a shared through/right-turn lane. The southbound Melnea Cass Boulevard approach consists of a shared left-turn/through lane and a shared through/right-turn lane. A bus stop is located just east of the intersection along the westbound approach. Crosswalks and wheelchair ramps are provided across all approaches.

Massachusetts Avenue at Albany Street is a four-approach signalized intersection. The eastbound approach on Albany Street provides a shared left-turn/through lane, an exclusive through lane, and an exclusive right-turn lane. The westbound approach on Albany Street provides a shared left-turn/through lane and a shared through/right-turn lane. The northbound Massachusetts Avenue approach provides two through lanes and one right-turn-only lane. The southbound Massachusetts Avenue approach provides one left-turn-only lane, one through lane, and one shared through/right-turn lane. Crosswalks and wheelchair ramps are provided on all approaches. Pedestrian pushbuttons and indications are provided on all approaches.

East Concord Street at Albany Street is a four-approach signalized intersection. The eastbound Albany Street approach provides one through lane and one exclusive right-turn lane. The westbound Albany Street approach provides one shared left-turn/through lane and one through lane. East Concord Street is one-way southbound and currently operates with one exclusive left-turn lane and one through/right-turn lane. Wheelchair ramps and crosswalks are provided across all approaches. Pedestrian pushbuttons and indicators are provided across the eastbound, westbound, and southbound approaches. An exclusive pedestrian phase is provided. Due to construction adjacent to this intersection temporary lane use may differ from this description.

East Newton Street at Albany Street is a four-approach signalized intersection. At this intersection, the eastbound approach on Albany Street provides one left-turn-only lane and one through lane. The westbound Albany Street approach provides one through and one exclusive right-turn lane. East Newton Street is one-way northbound and provides one exclusive left-turn lane and one through/right-turn lane. Wheelchair ramps and crosswalks with pedestrian pushbuttons and indicators are provided across all approaches. Pedestrian phases are both concurrent with vehicular movements and exclusive.

Albany Street at Frontage Road Southbound is a signalized five-approach intersection. The eastbound Albany Street approach features two travel lanes; a right-turn lane and a right-turn/hard right-turn lane. The westbound Albany Street approach provides three travel lanes; a hard left-turn lane, a hard left-turn/left-turn lane, and an exclusive through lane. The southbound driveway provides one through/right-turn lane. The southern and southeastern legs of the intersection, Albany Connector and Frontage Road Southbound, respectively, are both one-way departing the intersection. Albany Connector provides three travel lanes and Frontage Road Southbound provides two travel lanes. Wheelchair ramps and a crosswalk are provided across the eastbound approach.

Melnea Cass Boulevard/Harrison Avenue is a four-approach signalized intersection. The eastbound Harrison Avenue approach provides a shared left-turn/through/right-turn lane. During the morning and evening peak hours, parking is not permitted along the eastbound approach, allowing for the approach to operate as an exclusive left-turn lane and a shared through/right-turn lane. The westbound approach consists of an exclusive left-turn lane and a shared through/right-turn lane. The northbound approach includes an exclusive left-turn lane, an exclusive through lane, and a shared through/right-turn lane. The southbound Melnea Cass Boulevard approach consists of a left-turn lane, an exclusive through lane, and a shared through/right-turn lane. Bus stops are located to the south of the intersection along the northbound approach and to the north of the intersection along the southbound approach. Crosswalks and wheelchair ramps are provided across all approaches.

Massachusetts Avenue at Harrison Avenue is a four-approach signalized intersection. The eastbound and westbound approaches off Harrison Avenue both provide one left-turn/through/right-turn lane. Both the northbound and southbound Massachusetts Avenue approaches provide three travel lanes; an exclusive left-turn lane, an exclusive through lane, and a shared through/right-turn lane. Crosswalks and wheelchair ramps are provided on all approaches. Pedestrian pushbuttons and indications are provided on all approaches.

East Concord Street at Harrison Avenue is a four-approach signalized intersection. The eastbound approach on Harrison Avenue provides one through/right-turn lane. The westbound approach provides one left-turn/through lane. East Concord Street is one-way in the southbound direction; one left-turn/through/right-turn lane is provided. Crosswalks and wheelchair ramps are provided on all approaches.

East Newton Street at Harrison Avenue is a four-approach signalized intersection***.*** The eastbound approach on Harrison Avenue provides one shared left-turn/through lane. The westbound Harrison Avenue approach provides one through/right-turn lane. East Newton Street is one-way in the northbound direction, with one shared left-turn/through/right-turn lane. Wheelchair ramps and crosswalks are provided across every approach.

East Brookline Street at Harrison Avenue is a 4-approach signalized intersection. The eastbound Harrison Avenue approach is a shared through/right-turn lane. The westbound Harrison Avenue approach is a shared left-turn/through lane. The East Brookline Street approach operates with 1 travel lane: a left-turn/through/right-turn lane. An MBTA bus stop is located on the west side of East Brookline Street, directly north of the intersection. Residential parking is permitted on the east side of the East Brookline Street approach, and on the departing side of East Brookline Street on both the east and west sides. Metered parking is located adjacent to each approach on Harrison Avenue; wheelchair ramps and crosswalks are provided across each approach.

Malden Street/Wareham Street/Monsignor Reynolds Way at Harrison Avenue is a five-approach signalized intersection. The eastbound Harrison Avenue approach provides two travel lanes; an exclusive left-turn only lane and a shared through/right-turn lane. The westbound Harrison Avenue approach features a shared hard left-turn/left-turn lane and a shared through/right-turn lane. The northbound Malden Street approach provides one left-turn/through/right-turn lane. The southbound Monsignor Reynolds Way approach features a shared left-turn/through lane and an exclusive right-turn lane. Wareham Street is one-way departing the intersection and provides one travel lane in the southbound direction. Wheelchair ramps and crosswalks are provided across all approaches.

Frontage Road Southbound/I-93 Off-Ramp at Massachusetts Avenue Connector is a 3-approach signalized intersection. The Frontage Road Southbound approach

features an exclusive through lane and a shared through/right-turn lane. The southbound I-93 Off-Ramp approach provides a shared left-turn/through lane and an exclusive through lane. The western leg of the intersection is one-way away from the intersection. Wheelchair ramps and a crosswalk are provided across the western leg of the intersection.

Frontage Road Northbound at Massachusetts Avenue Connector is a 3-approach signalized T intersection. The eastbound Massachusetts Avenue Connector approach features two exclusive left-turn lanes. The Frontage Road Northbound approach features an exclusive left-turn lane, a shared left-turn/through lane, and an exclusive through lane. Neither wheelchair ramps nor crosswalks are provided at this intersection.

Frontage Road Northbound at South Boston Bypass Road is a 3-approach signalized intersection. The eastbound South Boston Bypass Road approach features a left-turn/through lane and an exclusive through lane. The westbound South Boston Bypass Road provides an exclusive through lane and a shared through/right-turn lane. The Frontage Road Northbound approach features a shared left-turn/through lane, an exclusive through lane, and a shared through/right-turn lane. Wheelchair ramps and a crosswalk are provided across the westbound approach.

Unsignalized Intersections

East Brookline Street at Albany Street/Parking Lot Driveway is a 3-approach unsignalized T intersection. The Albany Street eastbound and westbound approaches each feature one travel lane. The southbound approach of East Brookline Street is stop controlled and consists of two lanes; an exclusive left-turn lane and an exclusive right–turn lane. Wheelchair ramps and crosswalks are provided across the southbound and eastbound approaches.

Wareham Street at Albany Street is a 3-approach unsignalized T intersection. The Albany Street eastbound and westbound approaches each feature one travel lane. The one-way southbound Wareham Street approach is stop-controlled. Wareham Street is wide enough that vehicles occasionally form two exiting lanes. On-street parking is provided on all approaches. Wheelchair ramps and a crosswalk are provided across Wareham Street only.

Malden Street at Albany Street is an unsignalized T intersection that is used by vehicles traveling between the Frontage Road and Back Bay/South End neighborhoods. The eastbound approach features one left-turn/through lane. The westbound Albany Street approach consists of one through/right-turn lane. The southbound Malden Street approach is stop controlled and operates as one exiting lane. On-street parking on Albany Street is permitted. Wheelchair ramps and a crosswalk are provided across the Malden Street approach.

4.5.5 Data Collection

Howard/Stein-Hudson Associates (HSH) collected morning (7:30–9:30 a.m.) and afternoon (3:30–5:30 p.m.) manual turning movement count data at the majority of the study area intersections in May, 2008 and November, 2009. In addition, HSH compiled count data from other sources from April, June, and December 2008, as well as February, 2009. Based on these data, HSH determined the morning and evening peak one-hour traffic volumes for analysis are 7:30–8:30 a.m. and 4:30–5:30 p.m. See **Figure 4-3** and **Figure 4-4.**

In addition to the peak-hour traffic data, HSH collected 48 hours of continuous traffic data on May 7 and 8, 2008, using Automatic Traffic Recorders (ATR). These data provide information on how traffic volumes fluctuate during the day and identify the peak periods for further study. The ATR data were collected at the following seven locations:

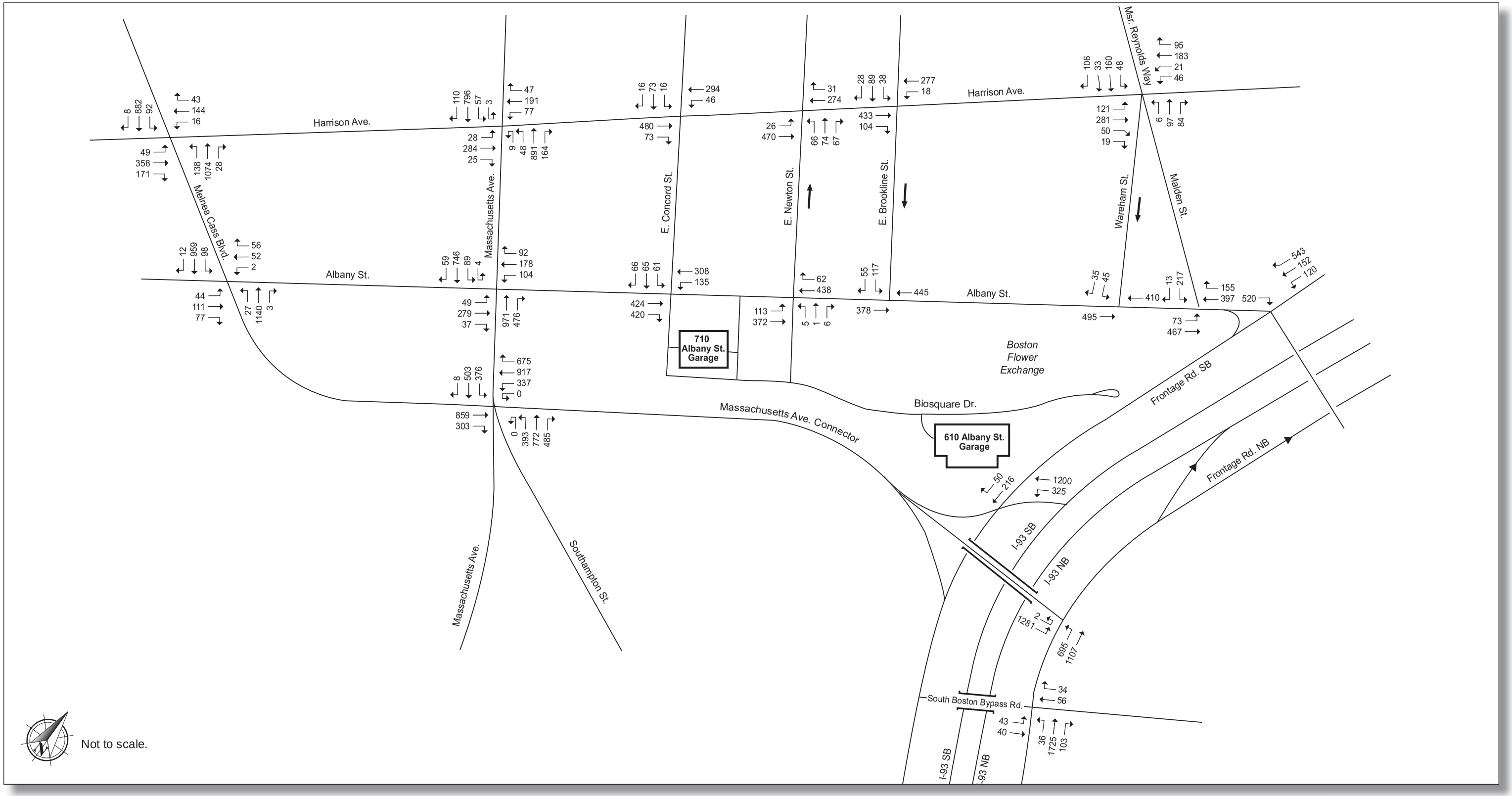
- Massachusetts Avenue south of Melnea Cass Boulevard;
- Melnea Cass Boulevard west of Massachusetts Avenue;
- Massachusetts Avenue north of Melnea Cass Boulevard;
- Albany Street east of Massachusetts Avenue;
- Harrison Avenue east of Massachusetts Avenue;
- Albany Street east of Malden Street; and
- Harrison Avenue east of Malden Street.

Based on the ATR data, the average daily traffic for each location is as follows.

- Massachusetts Avenue south of Melnea Cass Boulevard 36,642 veh.
- Melnea Cass Boulevard west of Massachusetts Avenue 39,609 veh.
- Massachusetts Avenue north of Melnea Cass Boulevard 31,788 veh.
- Albany Street east of Massachusetts Avenue 16,113 veh.
- Harrison Avenue east of Massachusetts Avenue 15,662 veh.
- Albany Street east of Malden Street 7,470 veh.
- Harrison Avenue east of Malden Street 10,401 veh.

Additional Data on existing conditions can be found in the following sections:

- On-site and Off-site Parking (Section 4.6.2)
- Public Transportation (Section 4.6.3)
- TranSComm Private shuttle service (Section 4.6.3)
- Pedestrian Conditions (Section 4.6.4)
- Bicycle Storage (Section 4.6.5)



Not to scale.

Figure 4-3. Existing Conditions (2009) a.m. Peak-hour Traffic Volumes

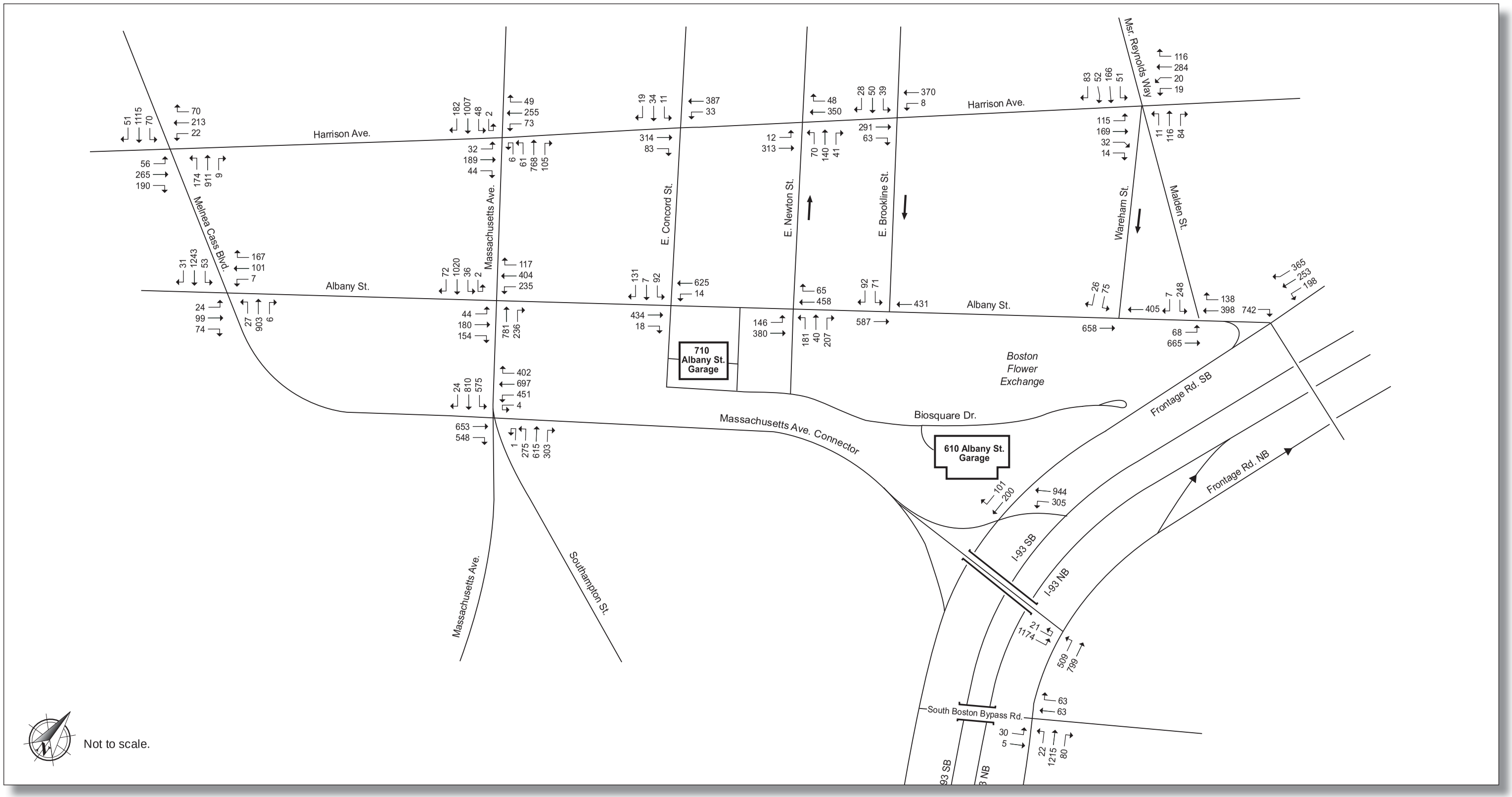


Figure 4-4. Existing Conditions (2009) p.m. Peak-hour Traffic Volumes

4.6 Existing Transportation Conditions

4.6.1 Traffic Operations

Of the 18 intersections in the study area 15 are currently signalized and 3 are unsignalized. Traffic operations are determined through an analysis of intersection Level of Service (LOS). Version 6 of the traffic analysis program Synchro was used to calculate the traffic operations. Synchro analysis is based on criteria established by the Transportation Research Board in its *2000 Highway Capacity Manual* (HCM 2000). HCM 2000 determines the LOS and delay (in seconds), based on intersection geometry and available traffic data for each intersection. **Table 4-2** an excerpt from HCM 2000, provides LOS criteria for signalized and unsignalized intersections. LOS A defines the most favorable condition, with minimum traffic delay. LOS F represents the worst condition (unacceptable), with significant traffic delay and driver frustration. LOS D is generally considered acceptable for urban conditions.

Operational analysis performed for the IMP are based on an existing Synchro model developed and provided by the Boston Transportation Department and updated to reflect existing field conditions and traffic volumes.

Table 4-2 Intersection Level of Service (LOS) Criteria

Level of Service	Average Control Delay (sec./veh.)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	>10 and ≤ 20	>10 and ≤ 5
C	>20 and ≤ 35	>15 and ≤ 25
D	>35 and ≤ 55	>25 and ≤ 35
E	>55 and ≤ 80	>35 and ≤ 50
F	>80	>50

A level of service analysis was conducted to evaluate the existing intersection operations, for the 18 intersections within the study area for morning and evening peak hours. **Table 4-3** summarizes the existing Morning intersection LOS, queue analysis, and volume to capacity results for the study area intersections.

As presented in **Table 4-3** below, the overall intersection operations of the IMP study area are acceptable during the Morning Peak Period with the following exceptions:

- The intersection of Albany Street and Massachusetts Avenue operates at an overall LOS F. At this intersection, the Albany eastbound left/through/right approach also operates at LOS F, due primarily to the high northbound and southbound volumes on Massachusetts Avenue. The large volume on Massachusetts Avenue dictates that for the intersection to operate most

effectively, most of the green time is allotted to those approaches. This leads to longer delay for the Albany Street approaches.

- The intersection of Malden Street/Wareham Street and Harrison Avenue operates at an overall LOS F. At this intersection, the eastbound left-turn approach operates at LOS F, as well as the southbound left-turn/through approach. The westbound left-turn approach operates at LOS E.

In addition, individual approaches at several other intersections operate below an acceptable level of service as shown in the Table.

Table 4-3 Existing Conditions (2009) Peak-hour Intersection Operations, a.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
Signalized Intersections				
1. Melnea Cass Blvd. at Massachusetts Avenue	**D**	**48.9**	—	—
Melnea Cass EB thru	E	77.3	>1.0	#534
Melnea Cass EB right	A	8.7	0.58	67
Massachusetts Ave. Connector WB left	F	>80.0	>1.0	#241
Massachusetts Ave. Connector WB thru	C	27.0	0.65	366
Massachusetts Ave. Connector WB right	A	6.4	0.68	132
Southampton NB left	E	55.4	0.75	210
Southampton NB thru	F	>80.0	>1.0	#524
Southampton NB right	A	1.5	0.53	0
Massachusetts Ave. SB left	D	49.1	0.81	173
Massachusetts Ave. SB thru/right	D	41.0	0.72	284
2. Melnea Cass Blvd. at Albany Street	**C**	**33.3**	—	—
Albany EB left/thru/right	E	58.2	0.86	#254
Albany WB left/thru/right	C	33.0	0.52	66
Melnea Cass NB left/thru/right	C	24.6	0.81	m257
Melnea Cass SB left/thru/right	D	36.6	0.97	m#512
3. Massachusetts Avenue at Albany Street	**F**	**>80.0**	—	—
Albany EB left/thru	F	>80.0	0.95	m#249
Albany EB right	E	62.0	0.41	63
Albany WB left/thru/right	D	42.1	0.77	173
Massachusetts NB thru	B	16.8	0.79	m173
Massachusetts NB right	C	24.4	0.88	m93
Massachusetts SB left	A	9.9	0.30	44
Massachusetts SB thru/right	B	11.3	0.48	209
4. East Concord Street at Albany Street	**B**	**19.6**	—	—
Albany EB thru	B	11.0	0.57	244
Albany EB right	B	19.0	0.73	434
Albany WB left/thru	A	7.8	0.44	78
East Concord SB left	D	53.3	0.40	91
East Concord SB thru/right	E	66.2	0.78	131

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
5. East Newton Street at Albany Street	**B**	**19.3**	—	—
Albany EB left	A	8.2	0.33	41
Albany EB thru	A	9.1	0.48	132
Albany WB thru	C	30.8	0.72	435
Albany WB right	B	17.1	0.13	54
East Newton NB left	D	46.0	0.04	15
East Newton NB thru/right	C	25.4	0.08	5
6. Albany Street at Frontage Road Southbound	**C**	**20.5**	—	—
Albany EB right	D	48.1	0.79	285
Albany WB left	A	3.4	0.16	36
Albany WB thru/right	A	2.2	0.39	133
MBTA Driveway SB thru/right	D	47.0	0.04	16
7. Melnea Cass Blvd. at Harrison Avenue	**D**	**46.1**	—	—
Harrison EB left	C	20.1	0.23	42
Harrison EB thru/right	D	50.8	0.94	#531
Harrison WB left	B	17.8	0.18	m12
Harrison WB thru/right	B	16.9	0.40	m108
Melnea Cass. NB left	E	63.2	0.94	m#128
Melnea Cass. NB thru/right	E	64.0	>1.0	#631
Melnea Cass. SB left	D	43.4	0.72	m48
Melnea Cass. SB thru/right	C	26.8	0.87	#426
Signalized Intersections, cont.				
8. Massachusetts Avenue at Harrison Avenue	**D**	**47.0**	—	—
Harrison EB left/thru/right	E	74.1	>1.0	m#374
Harrison WB left/thru/right	F	>80.0	>1.0	#424
Massachusetts NB left	F	>80.0	>1.0	#125
Massachusetts NB thru/right	D	37.8	0.92	#492
Massachusetts SB left	E	60.7	0.41	m75
Massachusetts SB thru/right	B	15.8	0.75	m174
9. East Concord Street at Harrison Avenue	**B**	**13.5**	—	—
Harrison EB thru/right	A	9.6	0.58	394
Harrison WB left/thru	A	4.4	0.47	m68
East Concord SB left/thru/right	E	56.8	0.69	91
10. East Newton Street at Harrison Avenue	**C**	**21.2**	—	—
Albany EB left/thru	B	15.3	0.61	#464
Albany WB thru/right	A	8.6	0.38	84
East Newton NB left/thru/right	D	52.5	0.80	188
11. East Brookline Street at Harrison Avenue	**B**	**10.9**	—	—
Harrison EB thru/right	A	2.8	0.50	m54
Harrison WB left/thru	A	6.0	0.27	151
East Brookline SB left/thru/right	D	48.3	0.68	149
12. Malden Street/Wareham Street at Harrison Avenue	**F**	**>80.0**	—	—
Harrison EB left	F	>80.0	>1.0	#197
Harrison EB thru/right	C	22.5	0.48	#323
Harrison WB left	E	65.4	0.59	m#102
Harrison WB thru/right	B	16.8	0.40	122
Malden NB left/thru/right	D	39.3	0.59	176
Monsignor Reynolds SB left/thru	F	>80.0	>1.0	#360
Monsignor Reynolds SB right	A	7.9	0.28	42

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**26.4**	—	—
I-93 Off-ramp WB left/thru	C	27.0	0.90	432
Frontage SB thru/right	C	23.4	0.23	110
14. Frontage Road Northbound at Massachusetts Avenue Connector	**C**	**32.3**	—	—
Massachusetts Ave. Connector EB left	D	37.5	0.94	#525
Frontage NB left	C	33.1	0.88	#595
Frontage NB left/thru	C	26.3	0.88	#525
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**5.6**	—	—
South Boston Bypass EB left/thru	C	31.0	0.29	m31
South Boston Bypass WB thru/right	D	38.2	0.27	50
Frontage NB left/thru/right	A	2.8	0.50	19
Unsignalized Intersections				
16. East Brookline Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.23	0
Albany WB thru	A	0.0	0.31	0
East Brookline SB left	E	43.5	0.60	87
East Brookline SB right	B	13.3	0.13	11
17. Wareham Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.32	0
Albany WB thru	A	0.0	0.26	0
Wareham SB left/right	C	18.0	0.24	23
18. Malden Street at Albany Street	—	—	—	—
Albany EB left/thru	A	2.2	0.08	7
Albany WB thru/right	A	0.0	0.35	0
Malden SB left/right	F	>50.0	>1.0	345

Table 4-4 summarizes the existing Evening intersection LOS, queue analysis, and volume to capacity results for the study area intersections.

As presented in **Table 4-4** below, the overall operations of the IMP study area operate at an acceptable level of service, LOS D or better, during the Evening Peak Period with the following exceptions:

- The intersection of Melnea Cass Boulevard and Massachusetts Avenue operates at an overall LOS F. The high volumes at all approaches account for the intersection's poor operations. The eastbound through, westbound left-turn, northbound left-turn, and southbound through/right all operate at LOS F. In addition, the eastbound right-turn and southbound left-turn approaches operate at LOS E.
- The intersection of Massachusetts Avenue and Harrison Avenue operates at an overall LOS E. The high volumes on Massachusetts Avenue dictate that for the intersection to operate most efficiently, most of the green time must be allotted to Massachusetts Avenue movements. As result, delay is incurred by Harrison Avenue approaches. The eastbound left/through/right and

southbound left-turn approaches both operate at LOS E. The westbound left/through/right and northbound left-turn approaches operate at LOS F.

- The intersection of Malden Street/Wareham Street and Harrison Avenue operates at an overall LOS E. The eastbound left-turn and southbound left/through approaches operate at LOS F. The westbound left-turn approach operates at LOS E.

In addition, several individual approaches at other locations operate below LOS D as highlighted in the Table.

Table 4-4 Existing Conditions (2009) Peak-hour Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
Signalized Intersections				
1. Melnea Cass Blvd. at Massachusetts Avenue	**F**	**>80.0**	**—**	**—**
Melnea Cass EB thru	F	>80.0	>1.0	#424
Melnea Cass EB right	E	61.3	>1.0	#459
Massachusetts Ave. Connector WB left	F	>80.0	>1.0	#460
Massachusetts Ave. Connector WB thru	C	32.6	0.62	307
Massachusetts Ave. Connector WB right	A	5.0	0.54	68
Southampton NB left	F	>80.0	>1.0	#224
Southampton NB thru	D	50.8	0.83	334
Southampton NB right	A	0.5	0.26	0
Massachusetts Ave. SB left	E	56.4	0.92	m#324
Massachusetts Ave. SB thru/right	F	>80.0	>1.0	m#572
2. Melnea Cass Blvd. at Albany Street	**B**	**19.9**	**—**	**—**
Albany EB left/thru/right	D	41.1	0.70	145
Albany WB left/thru/right	D	45.5	0.85	219
Melnea Cass NB left/thru/right	B	14.0	0.84	m#515
Melnea Cass SB left/thru/right	B	14.4	0.94	m#410
3. Massachusetts Avenue at Albany Street	**D**	**36.7**	**—**	**—**
Albany EB left/thru	D	38.0	0.56	m133
Albany EB right	D	35.8	0.44	m172
Albany WB left/thru/right	D	46.9	0.95	#285
Massachusetts NB thru	D	51.2	0.83	357
Massachusetts NB right	B	13.3	0.55	93
Massachusetts SB left	B	14.3	0.16	31
Massachusetts SB thru/right	C	24.8	0.75	447
4. East Concord Street at Albany Street	**B**	**17.5**	**—**	**—**
Albany EB thru	B	10.8	0.59	251
Albany EB right	A	5.9	0.04	16
Albany WB left/thru	B	13.8	0.44	m158
East Concord SB left	E	70.3	0.70	121
East Concord SB thru/right	B	15.7	0.55	52

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
5. East Newton Street at Albany Street	**D**	**40.7**	**—**	**—**
Albany EB left	B	15.6	0.57	51
Albany EB thru	B	11.3	0.51	138
Albany WB thru	D	45.9	0.87	#524
Albany WB right	B	19.8	0.14	60
East Newton NB left	E	71.9	0.80	#261
East Newton NB thru/right	E	71.3	0.96	111
6. Albany Street at Frontage Road Southbound	**C**	**23.8**	—	—
Albany EB right	D	41.6	0.85	362
Albany WB left	B	12.2	0.30	129
Albany WB thru/right	A	1.3	0.26	83
MBTA Driveway SB thru/right	D	42.4	0.04	15
7. Melnea Cass Blvd. at Harrison Avenue	**D**	**48.2**	—	—
Harrison EB left	C	24.1	0.25	59
Harrison EB thru/right	E	58.8	0.96	#471
Harrison WB left	C	23.1	0.29	m16
Harrison WB thru/right	C	22.4	0.56	m150
Melnea Cass. NB left	F	>80.0	>1.0	m#163
Melnea Cass. NB thru/right	C	32.4	0.78	m411
Melnea Cass. SB left	B	19.9	0.63	m14
Melnea Cass. SB thru/right	E	55.4	>1.0	m#464
Signalized Intersections, cont.				
8. Massachusetts Avenue at Harrison Avenue	**E**	**57.2**	**—**	**—**
Harrison EB left/thru/right	E	59.3	0.95	m#303
Harrison WB left/thru/right	F	>80.0	>1.0	#520
Massachusetts NB left	F	>80.0	>1.0	#140
Massachusetts NB thru/right	C	26.8	0.79	332
Massachusetts SB left	E	56.1	0.52	m62
Massachusetts SB thru/right	C	32.2	0.95	#556
9. East Concord Street at Harrison Avenue	**A**	**8.2**	**—**	**—**
Harrison EB thru/right	A	5.6	0.38	197
Harrison WB left/thru	A	2.9	0.38	m71
East Concord SB left/thru/right	D	47.4	0.50	66
10. East Newton Street at Harrison Avenue	**C**	**22.9**	**—**	**—**
Albany EB left/thru	B	10.2	0.40	153
Albany WB thru/right	B	13.9	0.48	236
East Newton NB left/thru/right	D	52.6	0.83	210
11. East Brookline Street at Harrison Avenue	**B**	**10.6**	**—**	**—**
Harrison EB thru/right	A	5.5	0.31	m179
Harrison WB left/thru	A	5.3	0.31	181
East Brookline SB left/thru/right	D	43.6	0.59	105
12. Malden Street/Wareham Street at Harrison Avenue	**E**	**67.0**	**—**	**—**
Harrison EB left	F	>80.0	>1.0	#185
Harrison EB thru/right	C	22.1	0.31	189
Harrison WB left	E	55.9	0.35	m54
Harrison WB thru/right	C	29.5	0.65	m#423
Malden NB left/thru/right	C	32.9	0.53	183
Monsignor Reynolds SB left/thru	F	>80.0	>1.0	#367
Monsignor Reynolds SB right	A	6.9	0.20	35

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**29.0**	—	—
I-93 Off-ramp WB left/thru	C	31.5	0.90	374
Frontage SB thru/right	B	18.4	0.23	115
14. Frontage Road Northbound at Massachusetts Avenue Connector	**C**	**25.1**	—	—
Massachusetts Ave. Connector EB left	C	32.5	0.90	416
Frontage NB left	C	20.0	0.63	271
Frontage NB left/thru	B	17.6	0.63	208
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**6.1**	—	—
South Boston Bypass EB left/thru	C	25.9	0.13	m7
South Boston Bypass WB thru/right	D	39.7	0.37	65
Frontage NB left/thru/right	A	2.4	0.37	69
Unsignalized Intersections				
16. East Brookline Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.38	0
Albany WB thru	A	0.0	0.29	0
East Brookline SB left	F	58.4	0.58	75
East Brookline SB right	B	13.5	0.21	19
17. Wareham Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.42	0
Albany WB thru	A	0.0	0.26	0
Wareham SB left/right	D	28.4	0.42	49
18. Malden Street at Albany Street	—	—	—	—
Albany EB left/thru	A	1.9	0.08	6
Albany WB thru/right	A	0.0	0.34	0
Malden SB left/right	F	>50.0	>1.0	531

4.6.2 Parking

This section documents the existing on-street and off-street parking facilities in the study area. The parking inventory comprises off-street parking on the BUMC campus, distinguished between spaces for Boston University Medical Center employees and Boston University Medical Center visitors and patients.

Existing Off-Street Parking

Figure 4-5 illustrates the locations of the existing off-street Boston University Medical Center owned and leased parking garages and surface lots. Currently, Boston University Medical Center owns three (3) parking garages and four (4) surface parking lots and leases parking in two (2) parking garages and one (1) surface parking lot.

In October 2009, HSH studied supply and occupancy of all parking facilities on the campus. In December 2009 the capacity and occupancy were subsequently updated by Boston University Medical Center's Office of Parking Transportation Services. The study determined an overall occupancy rate of 88%. Approximately 400 spaces were available mid-day, according to the data. Capacity and occupancy of each facility is shown in **Table 4-5.**

A total of 2,817 parking spaces are owned by Boston University Medical Center within or near the medical area, with an additional 438 employee spaces leased nearby for a total of 3,255 parking spaces serving the medical area; 87% of the total are in facilities owned by Boston University Medical Center. Further information about the facilities is provided **Table 4-6.** The parking facilities serve a total of 3,643,516 square feet of space, including 520,000 square feet of occupied BioSquare space. In total the ratio of 0.85 spaces per 1,000 square feet is in line with suggested BTD ratios of 0.75 to 1.0 spaces per 1,000 square feet.

Of the owned, on-campus spaces, approximately 1,120 are currently public spaces, available for patients and visitors of the campus. The Doctors Office Building and the 710 Albany Street Garage are open to the public on a market rate, hourly basis. The 610 Albany Street garage is for Medical Center employees who pay market rate for spaces on a monthly basis.

Table 4-5 Campus Parking Supply and Occupancy

Facility	Lot/ Garage	Own/ Lease	Existing Spaces	Occupied Spaces	Occupancy	User
Owned Parking						
610 Albany	G	O	1,461	1,250	86%	Staff
710 Albany	G	O	1,000	890	89%	Primarily patients.
DOB	G	O	230	210	91%	Patients. Staff after 5:30 p.m.
BioSquare	L	O	80	72	90%	Staff
D Lot	L	O	22	13	59%	Staff
Naval Blood Lab	L	O	7	5	71%	Staff
Gambro	L	O	17	15	88%	
Leased Parking						
700 Harrison	G	L	80	80	100%	
Crosstown	G	L	202	202	100%	
Perkin Elmer	L	L	156	119	76%	
Summary			**Existing Spaces**	**Occupied Spaces**	**Occupancy**	
Total Owned			2,817	2,455	**87%**	
Total Off-site Leased			438	401	**92%**	
Total Parking			**3,255**	**2,856**	**88%**	

Source: BUMC 12-17-09.

Existing On-street Parking

Figure 4-6 illustrates the City of Boston on-street parking supply in the study area along with regulations within the campus.

As shown, parking in the quarter-mile surrounding the project site can be thought of in three large segments. The segment between Harrison Avenue and Washington Street

is composed primarily of South End resident parking. The segment between Harrison Avenue and Albany Street consists primarily of metered and unrestricted parking. East Brookline Street and East Canton Street are signed for South End Resident Parking. There are several areas within this zone that cannot be used for parking for a variety of reasons including MBTA bus stops, loading zones and construction. The third segment, south of Albany Street is dominated by Melnea Cass Boulevard and the Massachusetts Avenue Connector. Parking is not permitted on either of these major roads.

	Parking Faciliy	Capacity
Owned	A. 601 Albany Street	1461
	B. 710 Albany Street	1000
	C. DOB	230
	D. BioSquare	80
	E. D Lot	22
	F. Naval Blood Lab	7
	G. Gambro	17
	TOTAL OWNED	2817
Leased	H. 700 Harrison	80
	I. Crosstown	202
	J. Perkin Elmer	156
	TOTAL LEASED	438
	TOTAL SPACES	**3255**

X Garage X Lot

Not to scale.

Figure 4-5. Off-street Parking in the Study Area

Figure 4-6. On-street Parking in the Study Area

4.6.3 Public Transportation

This section highlights the transportation routes, schedules, and capacity of public transportation within the Medical Center.

MBTA Bus Service

As shown in **Table 4-6** and **Figure 4-7,** seven Massachusetts Bay Transportation Authority (MBTA) bus route and the Silver Line Bus Rapid Transit currently provide public transit service to the site and the medical area as a whole. The bus and bus rapid transit routes connect the Boston University Medical Center area with Cambridge, Longwood Medical and Academic 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 BUMC Campus are located on East Newton Street and East Concord Street between Harrison Avenue and Albany Street. Buses also stop along Albany Street, Harrison Avenue, and Massachusetts Avenue.

Table 4-6 Existing MBTA Bus Service in the Study Area

Bus Route	Origin–Destination	Rush-hour Frequency (min)
CT #1	Central Square (Cambridge)–BUMC	20
CT #3	Beth Israel Hospital–Andrew Station	15
1	Harvard–Dudley Square	6–11
8	UMass–Kenmore	13–20
10	City Point–Copley Square	10–20
47	Central Square–Broadway	20–25
Silver Line (#49)	Dudley Square–Downtown	5

Sources: www.mbta.com and MBTA Ridership & Service Statistics, March 1997, based on 1996 Ridecheck Program.

MBTA Silver Line

In July 2002, Boston's first Bus Rapid Transit service, the "Silver Line," opened along Washington Street between Dudley Square and Downtown Crossing. In the fall of 2009, the route was extended and now runs between Dudley Square, Downtown Crossing, and South Station. A transit priority lane is provided in each direction between Melnea Cass Boulevard and the Massachusetts Turnpike along Washington Street (the lane is shared with general traffic turning right). The Silver Line replaces the existing Route #49 bus, which previously operated on Washington Street, and operates at five-minute headways during peak periods. The Silver Line stop closest to the campus is on Washington Street at East Newton Street, approximately a five-minute (one-quarter mile) walk, or two blocks from the intersection of Albany Street and East Newton Street.

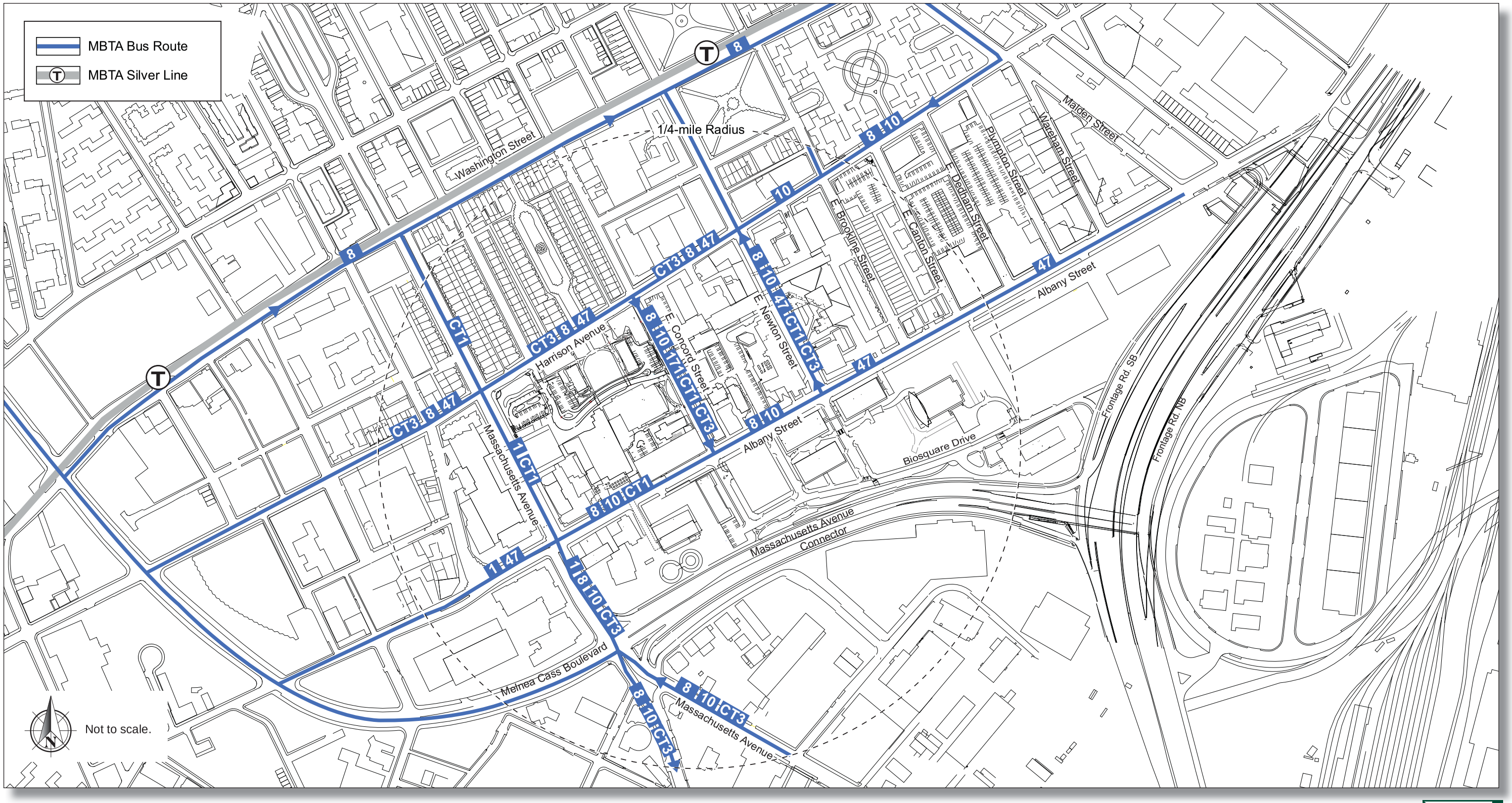


Figure 4-7. Existing Public Transportation

TranSComm Shuttle Services

TranSComm works to bring more frequent and accessible public transportation to the Medical Center community and provides information on transportation services in the area (see www.transcomm.org). Additional information on TranSComm programs is found in Section 4.2.4.

With its dedicated bus and shuttle program Boston University Medical Center through TranSComm can significantly reduce the number of inter campus vehicle trips. The radial routes can reduce the number of vehicle trips made by patients.

TranSComm allows South End residents to use its shuttle services at no cost such as the All-Day Campus shuttle. TranSComm operates the following 15- to 30-passenger shuttles:

- VA Shuttle travels from Boston Veterans Administration Medical Center (VA) in Jamaica Plain to the BUMC Campus several times per day on the hour, from 10:00 a.m. to 5:00 p.m., leaving the BUMC Campus.
- All-Day Campus Shuttle runs every 30 minutes within the campus boundaries (from 1010 Massachusetts Avenue to 560 Harrison Avenue) from 6:30 a.m. to 6:30 p.m.
- Evening Shuttle travels from the BUMC Campus to MBTA subway stations, the South End neighborhood, and Boston University Medical Center parking lots and garages from 5:15 p.m. to 12:15 a.m.
- Inner Campus Shuttle travels on a continuous loop between institutions, primarily for patients and employees, from 8:30 a.m. to 5:30 p.m.
- Healthnet Shuttles travels from Boston neighborhoods to Boston Medical Center (for patients only).
- The Boston University Shuttle (The BUS), travels between the BU Charles River Campus and the BU Medical Campus, and operates every 15 minutes at peak-time from 7:00 a.m. to 10:00 a.m. Monday through Thursday and 20 minutes on Fridays. It runs every 30 minutes at off peak-time from 7:00 a.m. to 11:00 p.m.

4.6.4 Pedestrian Conditions

The medical campus, with its treatment and academic functions, generates a significant number of pedestrian trips throughout the study area, including trips along and across many of the study area roadways. Generally speaking, the sidewalks on Albany Street are in good condition and are of adequate width. Most sidewalks are 8–10 feet wide.

Pedestrian conditions within the Medical Center are acceptable along the most heavily traveled roadways; Massachusetts Avenue, Harrison Avenue, Albany Street, and the

mid block East Concord Street crossing that connects the Moakley Building to the educational programs of the medical center. Four study area intersections have exclusive pedestrian phases: East Concord Street/Albany Street, East Newton Street/Albany Street, East Concord Street/Harrison Avenue, and East Newton Street/Harrison Avenue. During the exclusive pedestrian phase, all vehicular traffic is stopped to allow pedestrians to cross. Pedestrian pathways are shown in **Figure 4-8.**

4.6.5 Bicycle and Scooter Facilities

Albany Street, Massachusetts Avenue, Harrison Avenue, and East Newton Street are generally considered on-street bicycle routes in this area. The Southwest Corridor bike path can be reached via Massachusetts Avenue or Melnea Cass Boulevard. According to a 2002 survey of Boston University Medical Center employees conducted by TranSComm, only about 1% of employees rode bicycles to work at Boston University Medical Center (most of the cyclists are likely students). TranSComm continues to encourage cycling as a healthy, inexpensive, and environmentally positive alternative to driving alone and provides many amenities and programs, including:

- Installing two secure, weather protected bike cages. The first one installed in March, 2006 is located on East Newton Street between the Newton Pavilion and the School of Dental Medicine and houses approximately 132 bicycles with the second one installed in October 2006 housing approximately 90 bicycles with room for expansion. Both cages are well utilized. Bicycle and scooter facilities on campus are shown in **Figure 4-9.**

- Providing showers for cyclists in the basement of the School of Medicine building.

- Organizing free bike safety and mechanical check-ups, twice per year: TranSComm works with local bike shops to bring this popular event to the Medical Center to encourage cyclists to bike to work/school.

- Registering bikes on-line: For students and Boston University Medical Center employees, bike registration continues to be offered on-line.

- Installing new racks and repairing existing bike racks located throughout the campus.

- Boston University Medical Center will work with Boston's Director of Bike Programs to identify ways to improve bicycle use.

- Six scooter parking spaces are provided for employees in the 610 Albany Garage. Bicycle and scooter facilities on campus are shown in **Figure 4-9.**

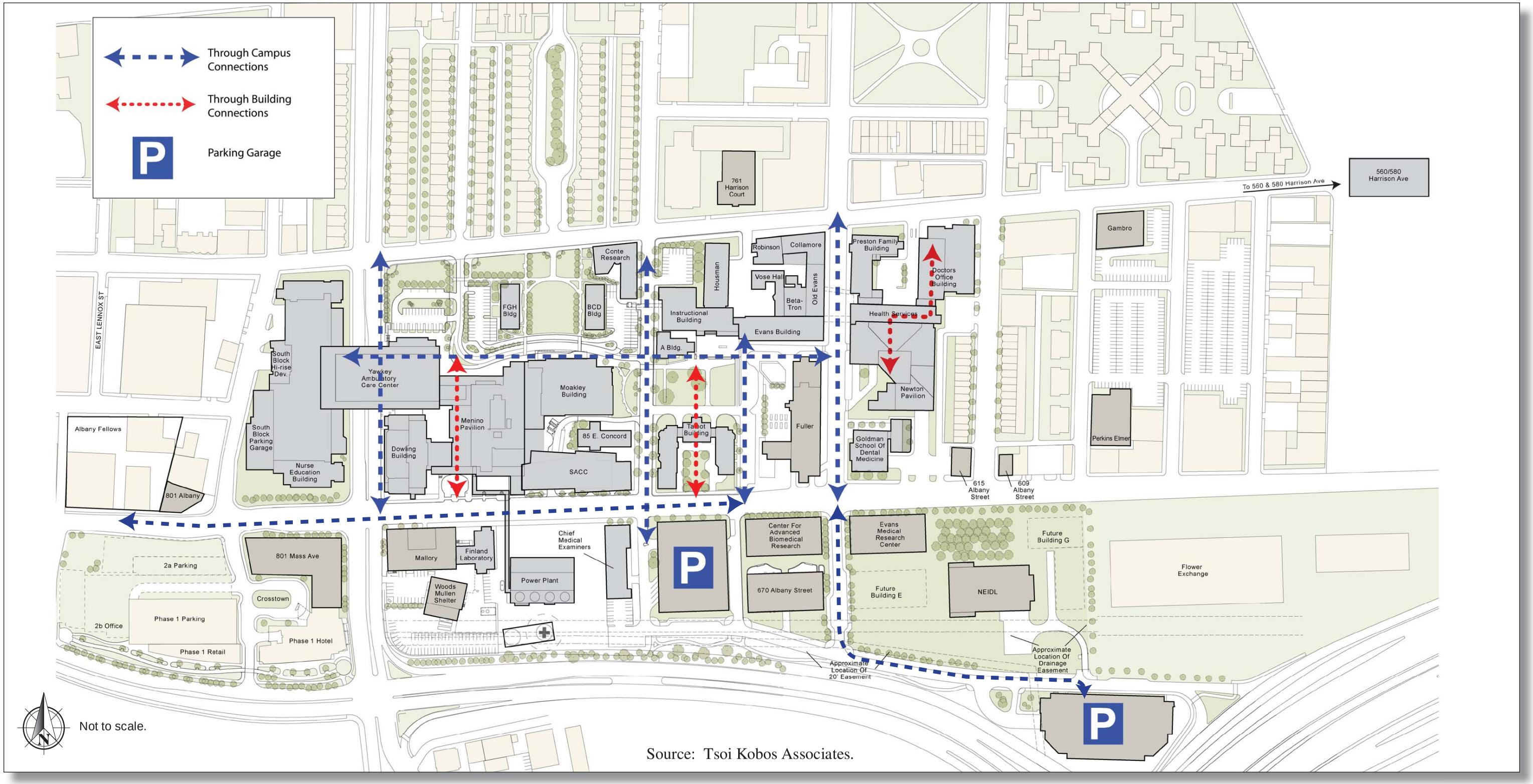


Figure 4-8. Pedestrian Pathways

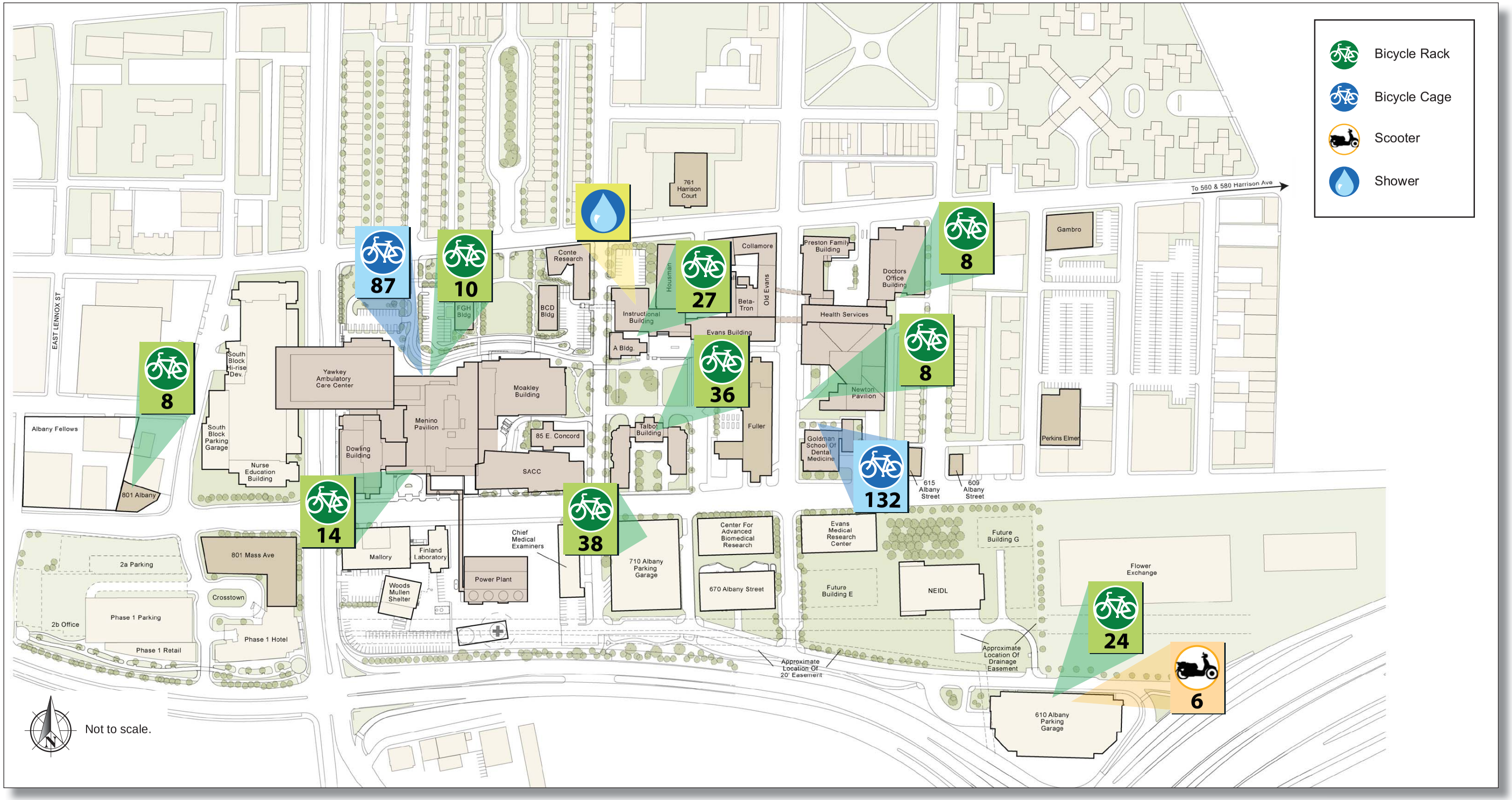


Figure 4-9. Bicycle and Scooter Facilities on Campus

4.6.6 Loading and Service

The main campus loading dock at 751 Albany Street has three dedicated bays, with occasional loading for small vehicles occurring in front of the trash compactors. Trucks access the loading dock from Albany Street, and it serves the BMC West Campus – the Menino Pavilion, the Yawkey Ambulatory Care Center, the Dowling Building, South Block, and the Moakley Building. It will also serve the new Shapiro Ambulatory Care Center. Its operating hours are 7:00 a.m. to 3:00 p.m., Monday through Friday. The loading docks accommodate vehicles ranging from a small van to a WB-50 truck. The docks carry approximately 39 vehicles on an average day; the typical duration at the dock is 10–30 minutes, according to a nine-hour survey conducted on July 31, 2007. (Delivery activity has not changed substantially since the survey was conducted.) As the table indicates, most loading is performed by single unit trucks or smaller vehicles, which have less impact on the roadway. On several occasions, trucks were observed waiting on-street for an empty bay. Based on the survey, **Table 4-7** indicates the number of deliveries and vehicle types.

Table 4-7 Existing (2007) Daily Truck Activity

Vehicle Type	Vehicles Observed
Car/Van/Pick-up	8
Panel Truck	3
Single-Unit Truck	19
Dumpster Pick-up/Drop Off	4
WB (Tractor Trailer)	5
Total	**39**

Figure 4-10 shows the existing BUMC Campus plan, including driveways, surface parking spaces, circulation, and loading facilities

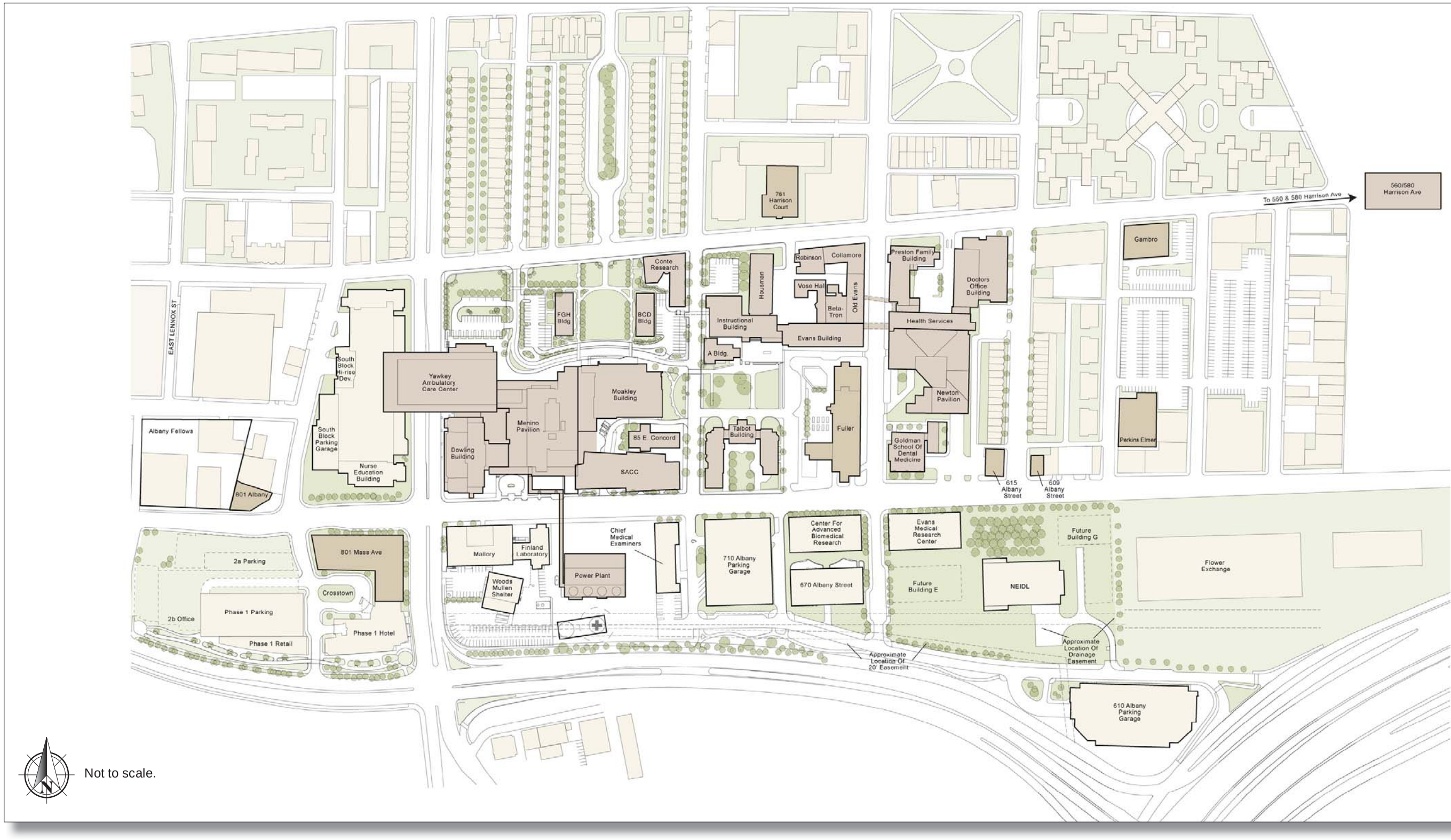


Figure 4-10. Existing Campus Plan

4.7 Evaluation of Long-term Transportation Impacts

Long-term transportation impacts were estimated for 2019, to reflect the 10-year term of the Institutional Master Plan.

4.7.1 No-Build Scenario 2019

The no-build scenario models traffic operations for a horizon year without considering any IMP project traffic estimates. No-Build traffic volumes were developed by applying a general traffic growth factor, along with specific study area traffic added to the street network by individual projects.

Background Growth Factor

A background growth factor of 0.5% per year is assumed for the project, consistent with the *Massachusetts Avenue Connector/Frontage Road Southbound Justification for Proposed State Highway Access Report* (HSH, September 2003). All existing traffic volumes are increased by 0.5% per year for a period of 10 years.

Projects included in the No-Build Scenario

To provide a conservative analysis, the no-build scenario also adds traffic contributions from specific projects approved and/or under construction. These projects are shown in **Figure 4-11.**

Traffic volumes from the following projects were specifically traced through the study area traffic network:

- BioSquare Building E – 160,000 s.f. of research and development space (approved, not constructed). Although its traffic has been added to the No-Build network, it is not anticipated that this project will be built within the 10-year term of the IMP;
- BioSquare Building G – 215,000 s.f. of research and development space (approved, not constructed). Although its traffic has been added to the No-Build network, it is not anticipated that this project will be built within the 10-year term of the IMP;
- NEIDL Building – 250 employees (not yet occupied);
- Shapiro Ambulatory Care Center – 245,000 s.f. of outpatient care space (under construction);
- 275 Albany Street – hotel consisting of 210 hotel rooms plus 198 extended stay hotel suites (in Article 80 permitting). Because most of its vehicle trips will be accessing the regional roadways north of E. Berkeley Street, traffic from this project was included in the overall growth factor.

- Albany Fellows Graduate Student Housing – approximately 104 units of graduate student housing, primarily for Boston University School of Medicine students. The project also includes approximately 5,000 s.f. of ground-floor retail. Again, because it generates virtually no vehicle trips in peak hours, impacts from this project were reflected in the area-wide growth factor.

Roadway Improvements and Transit Access

Southbound Frontage Road Connection

The BioSquare Phase II project permitting included a connection from BioSquare Drive to the Frontage Road Southbound, which was approved. The BioSquare Phase II project also included a proposed second connection to and from the BUMC Campus and BioSquare to the regional highway system, which Boston University Medical Center will continue to consider as a long-term planning goal.

Currently, BioSquare Drive has been constructed just short of its intersection of Frontage Road Southbound and the right-turn in/right-turn out intersection is anticipated to be completed prior to the completion of IMP projects. Although traffic generally operates at an acceptable level without either connection, the Frontage Road connection is expected to relocate traffic from Albany Street to BioSquare Drive and improve the roadway capacity and traffic operations within the Medical Center. Earlier studies have shown that 27% of all vehicle trips are expected to access the site from the Frontage Road Southbound Connection, as well as 40% of all exiting vehicle trips.

MBTA Urban Ring

As noted in prior filings, Boston University Medical Center is located within the corridor of the MBTA's planned "Urban Ring" or circumferential transit project. At the present time, bus routes CT1 and CT3 serve as circumferential routes through the campus. Boston University Medical Center has worked with the MBTA over the years on long-term plans for the Urban Ring. At present, the locally preferred alternative for the Urban Ring Phase 2 is outlined in the November 2008 *Revised Draft Environmental Impact Report/Draft Environmental Impact Statement* (DEIR/DEIS) and expanded upon in a June, 2009 *Notice of Project Change* (NPC). This option calls for Bus Rapid Transit in both mixed traffic and exclusive lanes travelling through the BUMC Campus on Albany Street between Broadway Station and a new Crosstown Station. A new BU Medical Center Station would also be provided between E. Newton Street and E. Concord Street. In January 2010, the Massachusetts Department of Transportation notified the Executive Office of Environmental Affairs that it was suspending further environmental review of the Urban Ring Phase 2 project. Thus, no changes to MBTA transit services were assumed to be implemented by 2019.

MBTA Indigo Line

The MBTA is improving the Fairmount Branch of the commuter rail that runs from South Station to Readville in Hyde Park, calling it the "Indigo Line." Boston University Medical Center and TranSComm have been advocating with the MBTA to build a new station at Newmarket Square which will increase transit options to the BUMC Campus for a densely populated area in Boston. Construction of Phase 1 of the "Indigo Line" is under construction now. This will rebuild Uphams Corner and Morton St. stations so they are ADA compliant, with high level platforms, and better shelter from the elements. Phase 2 will construct new stations along the route at Newmarket, Five Corners, Talbot Ave, and Blue Hill Ave. The MBTA estimates that service to the new Newmarket Station will begin in 2012. No increased transit mode share was estimated as a result of this new service in the interest of a conservative analysis.

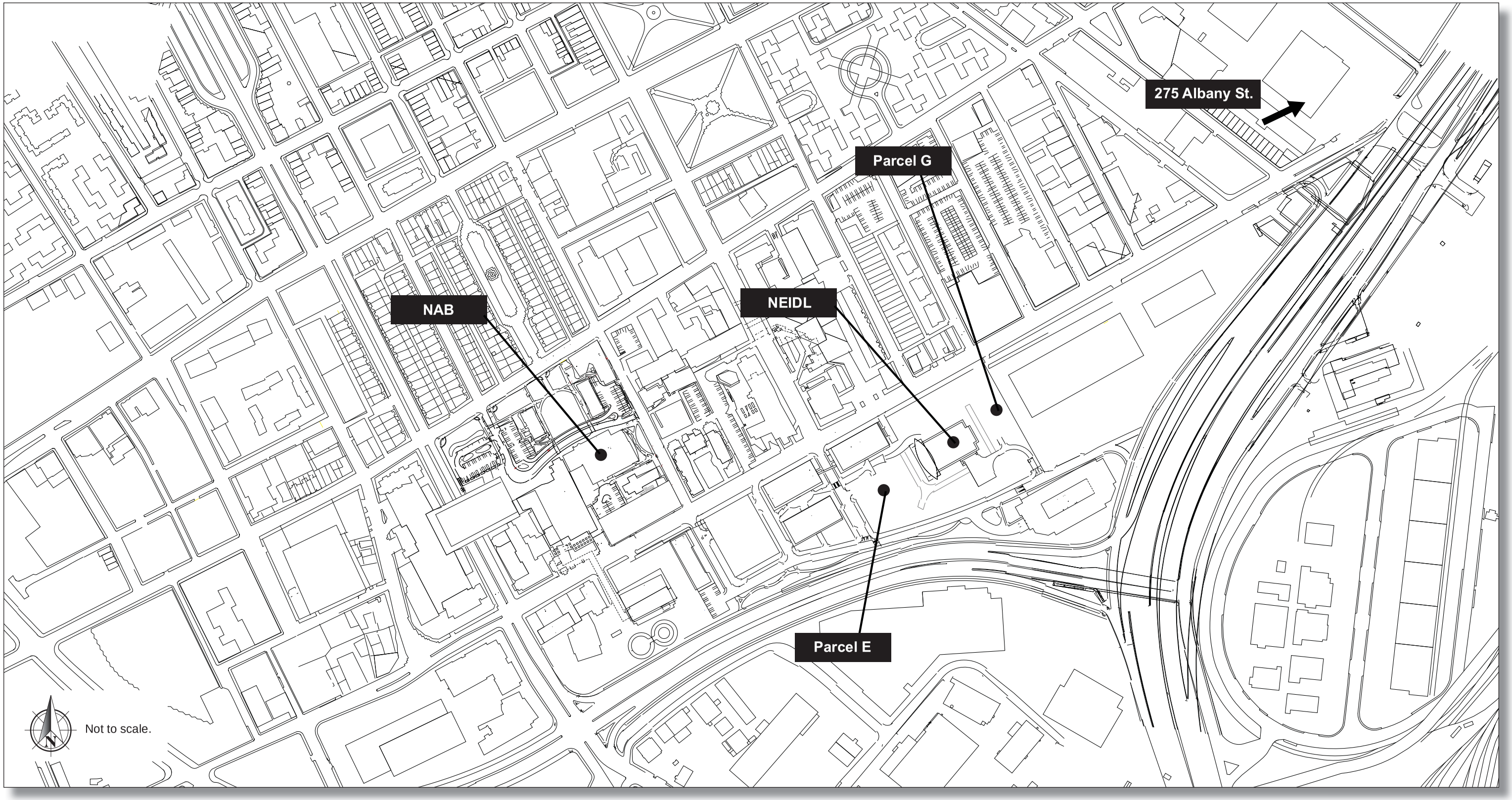


Figure 4-11. No-Build Projects

No-Build Traffic Impacts 2019

No-Build traffic volumes were calculated by factoring the existing volumes up by a .05 percent annual growth rate over 10-years and totaling the project-added trips for each development described above. The No-Build street networks, shown in **Figure 4-12** and **Figure 4-13**, include the Frontage Road Southbound connection to BioSquare Drive east of Albany Street, which has been approved by the City. Morning peak hour overall intersection traffic operations under No-Build conditions are shown in **Table 4-8** on the next page.

The results of the Morning peak hour No-Build analysis indicates that of the 18 intersections studied, the following intersection operations are brought to a lower LOS during the morning peak period:

- The intersection of Melnea Cass Boulevard and Massachusetts Avenue operates at LOS E. The northbound left-turn operates at LOS E. The eastbound through, westbound left-turn, northbound through, and southbound left-turn approaches all operate at LOS F.

- The intersection of Melnea Cass Boulevard and Albany Street operates at an overall LOS E. The eastbound left/through/right approach operates at LOS E and the southbound left/through/right approach operates at LOS F.

- At Massachusetts Avenue/Albany Street, the Massachusetts Avenue northbound through and northbound right-turn approaches operate at LOS E. The southbound left-turn Massachusetts Avenue approach operates at LOS F.

- The intersection of East Concord Street and Albany Street operates at an overall LOS E. The eastbound right-turn and southbound through/right approaches operate at LOS F.

- The intersection of Melnea Cass Boulevard and Harrison Avenue operates at an overall LOS E. The northbound left-turn and northbound through/right turn approaches operate at LOS F. The eastbound through/right and southbound left-turn approaches operate at LOS E.

In addition, several approaches are brought below LOS D under No-Build Conditions as shown in **Table 4-8** on the next page**.**

Table 4-8 No-Build Conditions (2019) Peak-hour Intersection Operations, a.m. Peak Hour

	Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
	Signalized Intersections				
1.	**Melnea Cass Blvd. at Massachusetts Avenue**	**E**	**67.1**	—	—
	Melnea Cass EB thru	F	>80.0	>1.0	#588
	Melnea Cass EB right	B	10.8	0.62	89
	Massachusetts Ave. Connector WB left	F	>80.0	>1.0	#259
	Massachusetts Ave. Connector WB thru	C	28.9	0.69	399
	Massachusetts Ave. Connector WB right	C	34.3	0.93	#683
	Southampton NB left	E	63.9	0.84	#247
	Southampton NB thru	F	>80.0	>1.0	#536
	Southampton NB right	A	1.7	0.55	0
	Massachusetts Ave. SB left	F	>80.0	>1.0	#267
	Massachusetts Ave. SB thru/right	C	28.0	0.71	228
2.	**Melnea Cass Blvd. at Albany Street**	**E**	**75.9**	—	—
	Albany EB left/thru/right	E	62.6	0.89	#284
	Albany WB left/thru/right	C	33.5	0.56	72
	Melnea Cass NB left/thru/right	C	30.7	0.91	m298
	Melnea Cass SB left/thru/right	F	>80.0	>1.0	m#532
3.	**Massachusetts Avenue at Albany Street**	**F**	**>80.0**	—	—
	Albany EB left/thru	F	>80.0	>1.0	#309
	Albany EB right	E	58.1	0.39	60
	Albany WB left/thru/right	C	27.4	0.47	203
	Massachusetts NB thru	E	77.3	>1.0	m#510
	Massachusetts NB right	E	76.0	>1.0	m#626
	Massachusetts SB left	F	>80.0	>1.0	#214
*	Massachusetts SB thru/right	C	28.2	0.70	366
4.	**East Concord Street at Albany Street**	**E**	**79.0**	—	—
	Albany EB thru	B	17.3	0.63	188
	Albany EB right	F	>80.0	>1.0	#953
	Albany WB left/thru	A	9.0	0.62	m85
	East Concord SB left	D	49.0	0.33	95
	East Concord SB thru/right	F	>80.0	>1.0	#325
5.	**East Newton Street at Albany Street**	**C**	**24.4**	—	—
	Albany EB left	A	9.6	0.43	37
	Albany EB thru	A	9.2	0.53	147
	Albany WB thru	D	35.2	0.83	#528
	Albany WB right	B	14.7	0.13	51
	East Newton NB left	D	52.9	0.36	62
	East Newton NB thru/right	D	42.2	0.41	32
6.	**Albany Street at Frontage Road Southbound**	**B**	**19.3**	—	—
	Albany EB right	D	45.6	0.78	298
	Albany WB left	A	5.4	0.20	53
	Albany WB thru/right	A	2.4	0.43	156
	MBTA Driveway SB thru/right	D	47.0	0.04	16

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
7. Melnea Cass Blvd. at Harrison Avenue	**E**	**79.2**	—	—
Harrison EB left	B	19.9	0.24	45
Harrison EB thru/right	E	59.5	0.99	#631
Harrison WB left	C	22.1	0.25	m14
Harrison WB thru/right	B	17.3	0.41	m115
Melnea Cass. NB left	F	>80.0	>1.0	m#124
Melnea Cass. NB thru/right	F	>80.0	>1.0	m#670
Melnea Cass. SB left	E	71.6	0.91	m#94
Melnea Cass. SB thru/right	D	52.8	>1.0	#487
Signalized Intersections, cont.				
8. Massachusetts Avenue at Harrison Avenue	**D**	**53.9**	—	—
Harrison EB left/thru/right	E	63.5	0.99	m#371
Harrison WB left/thru/right	F	>80.0	>1.0	#436
Massachusetts NB left	F	>80.0	>1.0	#130
Massachusetts NB thru/right	D	53.8	1.00	#554
Massachusetts SB left	F	>80.0	0.77	m#124
Massachusetts SB thru/right	C	28.3	0.91	m#355
9. East Concord Street at Harrison Avenue	**B**	**16.9**	—	—
Harrison EB thru/right	B	12.4	0.67	#574
Harrison WB left/thru	B	10.8	0.64	m#367
East Concord SB left/thru/right	E	56.6	0.70	94
10. East Newton Street at Harrison Avenue	**C**	**23.8**	—	—
Albany EB left/thru	B	17.4	0.66	#501
Albany WB thru/right	A	9.5	0.41	88
East Newton NB left/thru/right	E	55.3	0.85	219
11. East Brookline Street at Harrison Avenue	**B**	**11.1**	—	—
Harrison EB thru/right	A	3.0	0.54	m59
Harrison WB left/thru	A	6.4	0.29	163
East Brookline SB left/thru/right	D	48.7	0.69	157
12. Malden Street/Wareham Street at Harrison Avenue	**F**	**>80.0**	—	—
Harrison EB left	F	>80.0	>1.0	#216
Harrison EB thru/right	C	24.3	0.54	#357
Harrison WB left	F	>80.0	0.87	#160
Harrison WB thru/right	B	17.2	0.42	129
Malden NB left/thru/right	D	45.1	0.69	#213
Monsignor Reynolds SB left/thru	F	>80.0	>1.0	#462
Monsignor Reynolds SB right	A	7.8	0.29	43
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**25.1**	—	—
I-93 Off-ramp WB left/thru	C	24.8	0.90	449
Frontage SB thru/right	C	26.6	0.29	132
14. Frontage Road Northbound at Massachusetts Avenue Connector	**D**	**42.8**	—	—
Massachusetts Ave. Connector EB left	D	49.4	1.00	#581
Frontage NB left	D	44.2	0.96	#678
Frontage NB left/thru	D	35.5	0.97	#606
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**5.9**	—	—
South Boston Bypass EB left/thru	C	33.0	0.35	m39
South Boston Bypass WB thru/right	D	38.0	0.27	52
Frontage NB left/thru/right	A	3.1	0.58	28

Unsignalized Intersections				
16. East Brookline Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.25	0
Albany WB thru	A	0.0	0.36	0
East Brookline SB left	F	>50.0	0.81	137
East Brookline SB right	B	14.6	0.15	13
17. Wareham Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.34	0
Albany WB thru	A	0.0	0.29	0
Wareham SB left/right	C	19.8	0.33	36
18. Malden Street at Albany Street	—	—	—	—
Albany EB left/thru	A	2.6	0.10	9
Albany WB thru/right	A	0.0	0.39	0
Malden SB left/right	F	>50.0	>1.0	670

*Signifies *de facto* lane.
*Shading indicates increased delay from the previous condition.

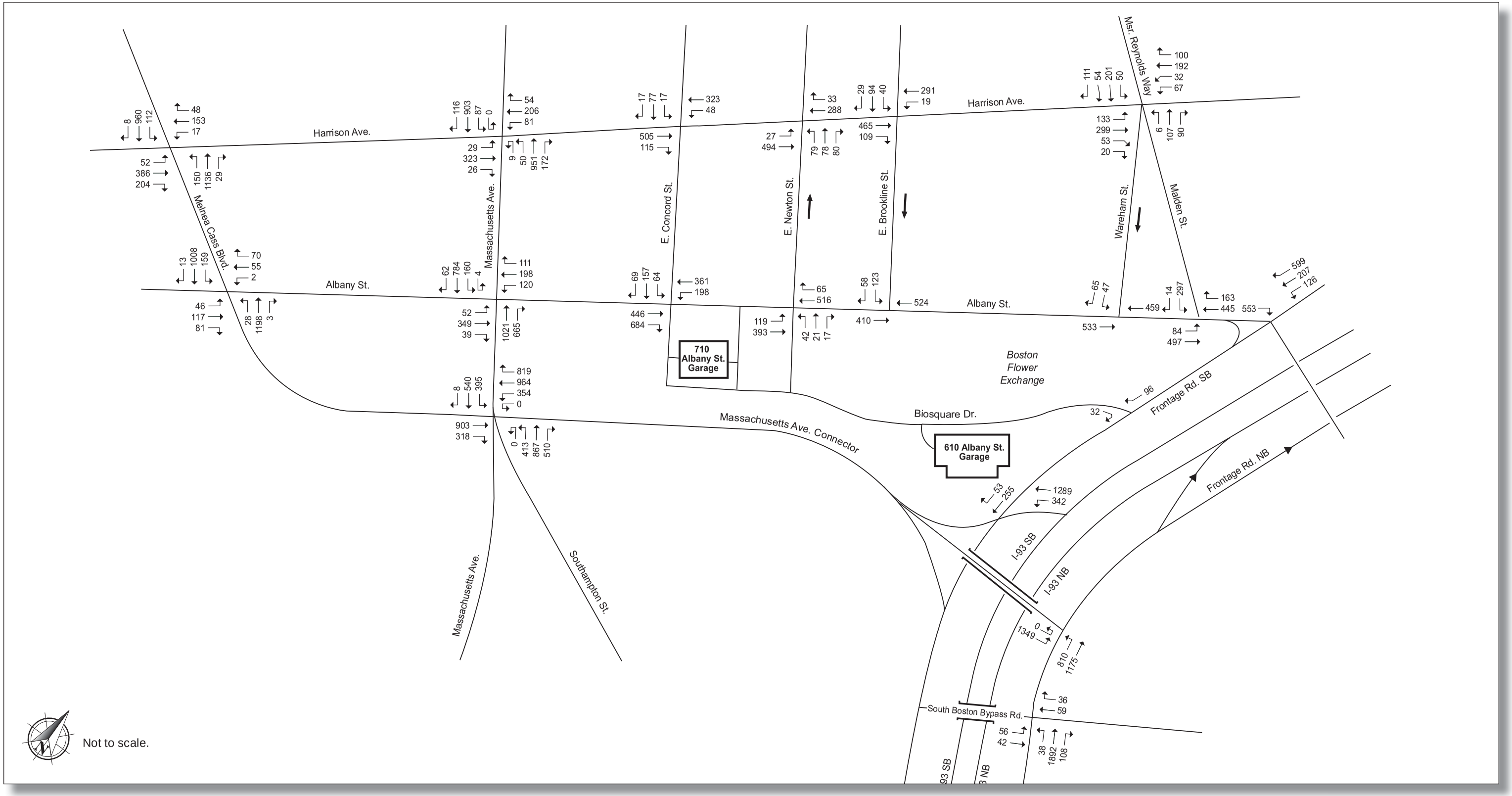


Figure 4-12. No-Build Conditions (2019) a.m. Peak-hour Traffic Volumes

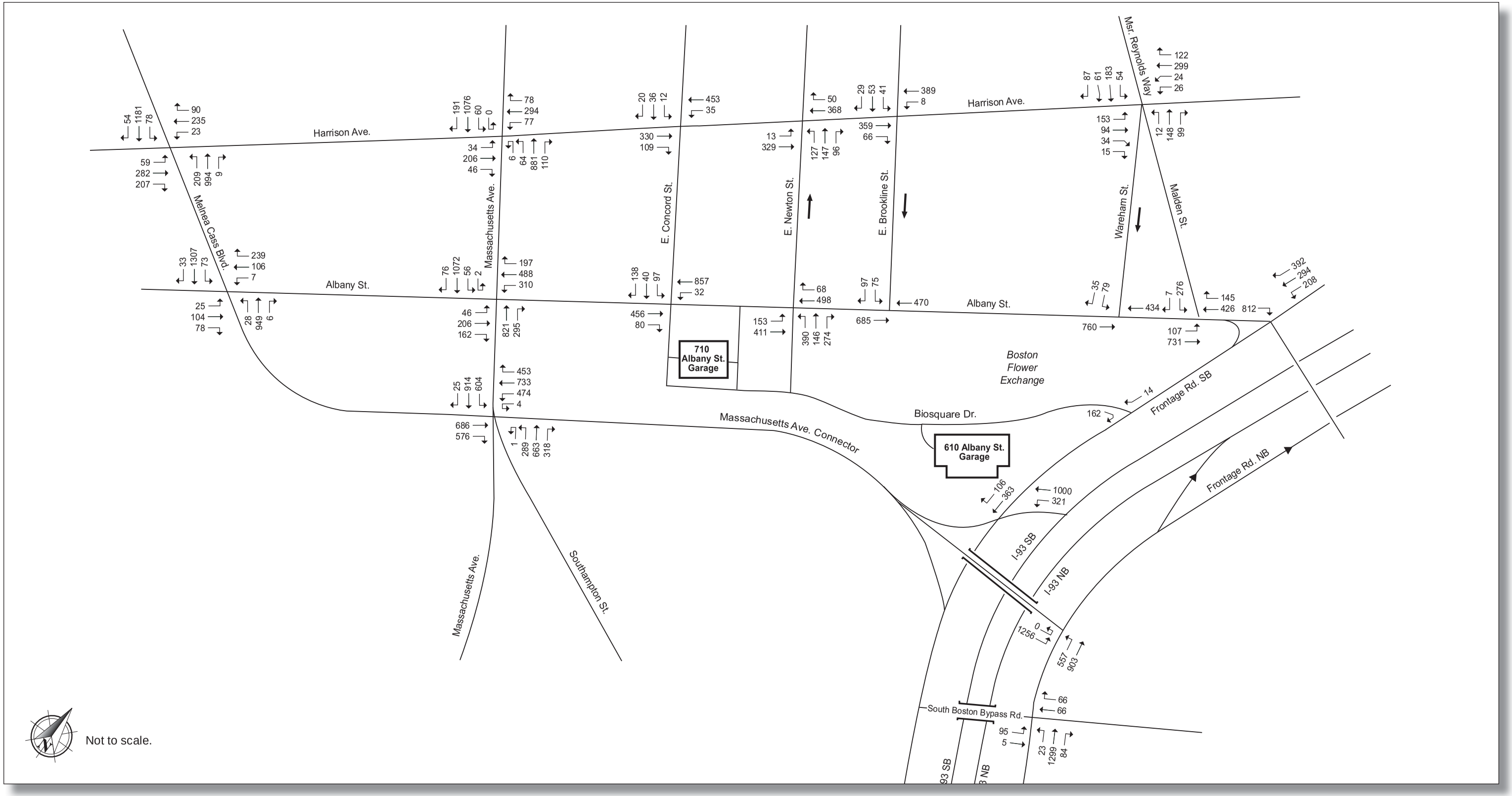


Figure 4-13. No-Build Conditions (2019) p.m. Peak-hour Traffic Volumes

The Evening peak analysis indicates that of the 18 intersections studied the following intersection operations are brought to a lower LOS during the evening peak period under No Build conditions:

- The intersection of Melnea Cass Boulevard and Albany Street operates at an overall LOS E. The southbound left/through/right approach operates at LOS F.
- The intersection of East Newton Street and Albany Street operates at an overall LOS F. The eastbound left-turn, westbound through, and northbound through/right approaches operate at LOS F. The northbound left-turn approach operates at LOS E.
- The intersection of Melnea Cass Boulevard and Harrison Avenue operates at an overall LOS E. The northbound left-turn and southbound through/right approaches operate at LOS F. The eastbound through/right approach operates at LOS E.
- The intersection of Massachusetts Avenue and Harrison Avenue operates at an overall LOS F. The high volumes on Massachusetts Avenue dictate that for the intersection to operate most efficiently, most of the green time must be allotted to Massachusetts Avenue movements. As result, delay is incurred by the Harrison Avenue approaches. The eastbound left/through/right and southbound left-turn approaches both operate at LOS E. The westbound left/through/right, northbound left-turn, and southbound through/right approaches operate at LOS F.
- The intersection of Malden Street/Wareham Street and Harrison Avenue operates at an overall LOS F. The eastbound left-turn and southbound left/through approaches operate at LOS F. The westbound left-turn approach operates at LOS E.

In addition, several approaches experience a reduction in LOS under No-Build conditions as shown in the table.

The results of the P.M. peak No-Build analysis are summarized in **Table 4-9** below.

Table 4-9 No-Build Conditions (2019) Peak-hour Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
Signalized Intersections				
1. Melnea Cass Blvd. at Massachusetts Avenue	**F**	**>80.0**	**—**	**—**
Melnea Cass EB thru	F	>80.0	>1.0	#443
Melnea Cass EB right	F	>80.0	>1.0	#628
Massachusetts Ave. Connector WB left	F	>80.0	>1.0	#460
Massachusetts Ave. Connector WB thru	C	26.0	0.55	289
Massachusetts Ave. Connector WB right	A	4.7	0.55	73

	Southampton NB left	F	>80.0	>1.0	#268
	Southampton NB thru	D	54.2	0.87	#382
	Southampton NB right	A	0.5	0.27	0
	Massachusetts Ave. SB left	F	>80.0	>1.0	m#413
	Massachusetts Ave. SB thru/right	F	>80.0	>1.0	m#687
2.	**Melnea Cass Blvd. at Albany Street**	**E**	**72.5**	**—**	**—**
	Albany EB left/thru/right	C	33.7	0.62	146
	Albany WB left/thru/right	D	46.2	0.90	280
	Melnea Cass NB left/thru/right	D	40.9	>1.0	m#597
	Melnea Cass SB left/thru/right	F	>80.0	>1.0	m#543
3.	**Massachusetts Avenue at Albany Street**	**D**	**46.3**	**—**	**—**
	Albany EB left*	F	>80.0	0.95	m#90
	Albany EB thru	D	53.6	0.72	m249
	Albany EB right	D	47.1	0.57	m197
	Albany WB left/thru/right	D	44.1	0.97	#393
	Massachusetts NB thru	E	57.5	0.91	368
	Massachusetts NB right	A	5.5	0.53	m41
	Massachusetts SB left	C	26.5	0.43	52
	Massachusetts SB thru/right	D	46.3	0.94	#624
4.	**East Concord Street at Albany Street**	**B**	**18.9**	**—**	**—**
	Albany EB thru	B	16.9	0.62	386
	Albany EB right	A	9.0	0.17	28
	Albany WB left/thru	B	11.2	0.68	m201
	East Concord SB left	E	69.3	0.71	125
	East Concord SB thru/right	D	36.0	0.74	119
5.	**East Newton Street at Albany Street**	**F**	**>80.0**	**—**	**—**
	Albany EB left	F	>80.0	>1.0	#241
	Albany EB thru	C	27.2	0.70	264
	Albany WB thru	F	>80.0	>1.0	#701
	Albany WB right	C	27.4	0.19	74
	East Newton NB left	E	69.7	0.93	#514
	East Newton NB thru/right	F	>80.0	>1.0	311
6.	**Albany Street at Frontage Road Southbound**	**C**	**25.7**	**—**	**—**
	Albany EB right	D	44.1	0.90	#418
	Albany WB left	B	14.3	0.35	157
	Albany WB thru/right	A	1.4	0.28	93
	MBTA Driveway SB thru/right	D	42.4	0.04	15
7.	**Melnea Cass Blvd. at Harrison Avenue**	**E**	**71.4**	**—**	**—**
	Harrison EB left	C	25.5	0.29	64
	Harrison EB thru/right	E	68.0	1.00	#527
	Harrison WB left	C	27.9	0.36	m17
	Harrison WB thru/right	C	24.6	0.63	m168
	Melnea Cass. NB left	F	>80.0	>1.0	m#170
	Melnea Cass. NB thru/right	C	32.0	0.88	m375
	Melnea Cass. SB left	C	24.6	0.71	m22
	Melnea Cass. SB thru/right	F	>80.0	>1.0	m#519
	Signalized Intersections, cont.				
8.	**Massachusetts Avenue at Harrison Avenue**	**F**	**>80.0**	**—**	**—**
	Harrison EB left/thru/right	E	66.4	0.99	m#322
	Harrison WB left/thru/right	F	>80.0	>1.0	#631
	Massachusetts NB left	F	>80.0	>1.0	#145
	Massachusetts NB thru/right	D	43.8	0.95	#475
	Massachusetts SB left	E	56.7	0.57	m74
	Massachusetts SB thru/right	F	>80.0	>1.0	#730

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
9. East Concord Street at Harrison Avenue	**A**	**9.1**	—	—
Harrison EB thru/right	A	6.2	0.42	233
Harrison WB left/thru	A	4.5	0.45	m133
East Concord SB left/thru/right	D	48.3	0.53	71
10. East Newton Street at Harrison Avenue	**C**	**30.0**	—	—
Albany EB left/thru	B	14.4	0.47	177
Albany WB thru/right	B	18.5	0.57	#268
East Newton NB left/thru/right	E	56.5	0.92	#346
11. East Brookline Street at Harrison Avenue	**B**	**11.3**	—	—
Harrison EB thru/right	A	6.8	0.39	m73
Harrison WB left/thru	A	5.9	0.34	198
East Brookline SB left/thru/right	D	44.2	0.61	110
12. Malden Street/Wareham Street at Harrison Avenue	**F**	**>80.0**	—	—
Harrison EB left	F	>80.0	>1.0	#249
Harrison EB thru/right	C	21.5	0.22	127
Harrison WB left	E	59.2	0.44	m64
Harrison WB thru/right	C	31.4	0.69	m#454
Malden NB left/thru/right	D	37.0	0.65	229
Monsignor Reynolds SB left/thru	F	>80.0	>1.0	#430
Monsignor Reynolds SB right	A	6.8	0.20	35
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**27.2**	—	—
I-93 Off-ramp WB left/thru	C	29.0	0.90	375
Frontage SB thru/right	C	22.1	0.37	190
14. Frontage Road Northbound at Massachusetts Avenue Connector	**C**	**27.0**	—	—
Massachusetts Ave. Connector EB left	C	31.2	0.90	430
Frontage NB left	C	26.0	0.73	#454
Frontage NB left/thru	C	22.0	0.73	378
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**7.6**	—	—
South Boston Bypass EB left/thru	C	33.7	0.39	m37
South Boston Bypass WB thru/right	D	39.3	0.38	67
Frontage NB left/thru/right	A	2.7	0.40	86
Unsignalized Intersections				
16. East Brookline Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.44	0
Albany WB thru	A	0.0	0.32	0
East Brookline SB left	F	>50.0	0.96	140
East Brookline SB right	B	14.2	0.23	22
17. Wareham Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.49	0
Albany WB thru	A	0.0	0.28	0
Wareham SB left/right	E	38.4	0.55	73
18. Malden Street at Albany Street	—	—	—	—
Albany EB left/thru	A	4.5	0.17	15
Albany WB thru/right	A	0.0	0.56	0
Malden SB left/right	F	>50.0	>1.0	—

*Signifies *de facto* lane.
*Shading indicates increased delay from the previous condition.

4.7.2 Build Scenario - 2019

As previously described, the Build Scenario transportation analysis estimates the cumulative impacts of the proposed Institutional Master Plan projects. The three new building projects proposed in the IMP include:

An approximately 48,000-square foot ***Energy Facility*** that will be located adjacent to and connect to the existing Power Plant to reduce Boston University Medical Center's demand on the existing taxed infrastructure, create energy efficiencies, and ensure reliability. The Energy Facility will have no transportation-related impacts. This project is the first to move forward in the IMP.

An approximately 160,000-squre foot ***Administration/Clinical Building.*** This building will consolidate administrative functions, improve campus efficiency through this consolidation, and provide space for clinical programs transferred from the Dowling Building. No new parking is proposed for this facility as part of the new IMP. This building is expected to move forward within the 5- to 10-year IMP term.

An approximately 405,000-square foot ***New Inpatient Building*** on the site of the existing Dowling Building. The new building will support increased inpatient volumes and Emergency Department and Trauma Center visits, and consolidate clinical functions on the west side of the campus. No new parking is proposed for this facility as part of the new IMP. This building is not expected to move forward until the end of the 10-year IMP term, if not later.

Mode Use

Daily and peak-hour mode use for person trips to and from the BUMC Campus was derived from BTD mode split data for the Medical Area (BTD Area 15) and from Boston University Medical Center employee data. The "All Purposes" category was used to capture the travel patterns of graduate students, and patients. By employing BTD data and Boston University Medical Center data, separate mode shares were developed for patients and employees. This approach provides a more accurate representation because of the extremely low auto use by Boston University Medical Center employees.

Daily mode shares, shown in **Table 4-10,** vary during peak hours.

Table 4-10 BTD Area 15 Daily Mode Shares

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

Boston University Medical Center employee and student mode shares, derived from 2008 Rideshare Survey data of its employees and students are shown below in **Table 4-11**. The survey is conducted to determine travel patterns at the BUMC Campus, as required by the Massachusetts Department of Environmental Protection. As the table indicates, existing employees and students have a significantly lower auto use than reflected in the BTD mode share rates—only approximately 35%.

Table 4-11. Boston University Medical Center Employee Daily Mode Shares

Mode	Percentage
Auto	35%
Public Transportation	40%
Walk/Bike/Other	25%
Total	**100%**

The survey results reflect the strong transportation demand management program and low auto use in effect at Boston University Medical Center.

Trip Generation

It is important to note that although standard methodology for trip generation estimates will be employed for the IMP, a significant amount of the construction will be to right-size and update outdated building space for existing programs. Therefore, some of the building area to be constructed will not generate additional traffic and the actual transportation impact may be less.

Using the ITE *Trip Generation* 7th edition and applying the mode share, **Table 4-12** summarizes the total projected trip generation estimates of the Administration/Clinical Building, one of the two projects expected to be implemented in the five to ten year timeframe of the IMP. Because the number of new employees required for the Energy Facility, the first project moving forward, is minimal, person trips generated by it will be negligible.

The table also summarizes expected trip generation for the New Inpatient Building, which will not proceed until the end of the 10-year IMP planning period, if then.

Table 4-12 on the next page summarizes the combined work and non-work project trips for the two projects based on the two different mode shares employed for each group.

Table 4-12 Net New Trip Generation Summary

Short Term Building Program—Administration/Clinical Building			
	Vehicle Trips	**Transit Trips**	**Bike/Walk Trips**
Daily			
Total	**1,120**	**816**	**760**
In	560	408	380
Out	560	408	380
a.m. Peak Hour			
Total	**108**	**107**	**81**
In	88	97	69
Out	20	10	12
p.m. Peak Hour			
Total	**122**	**110**	**89**
In	30	16	19
Out	92	94	70
Long Term Building Program—New Inpatient Building			
	Vehicle Trips	**Transit Trips**	**Bike/Walk Trips**
Daily			
Total	**3,146**	**2,148**	**2,096**
In	1,573	1,074	1,048
Out	1,573	1,074	1,048
a.m. Peak Hour			
Total	**187**	**180**	**139**
In	109	108	82
Out	78	72	57
p.m. Peak Hour			
Total	**210**	**157**	**144**
In	95	57	61
Out	115	100	83

As shown in the table, the Administration/Clinical Building to be implemented in the short-term will contribute only a modest share (approximately 26%) of 4,266 estimated daily IMP vehicle trips. In each peak hour, the Administration/Clinical Building accounts for less than 37% of IMP vehicle trips. When its design advances, a specific Project Impact Report will be prepared to outline the traffic impacts of this project.

The New Inpatient Building (planned for a later phase of the IMP) accounts for the remaining 74% of projected daily IMP vehicle trips and 63% of peak hour IMP vehicle trips. As far as the New Inpatient Building is concerned, approximately 75% of its daily trips will be patients and these trips will be distributed across a much broader time period than typical commuter trips. These two populations will have separate parking areas,

differing trip origins and increased access from the regional roadway network. The result will be a peak hour traffic impact that will be diffused throughout different roadways and several intersections as to lessen the impact. Again, a specific Project Impact Report will be issued at such time as the Inpatient Building moves into permitting.

Trip Distribution

Trip distribution describes the different roadways used for trips originating or destined to the BUMC Campus. The roadways that vehicles are assigned to are based on BTD trip origin/destination information for this district and from Boston University Medical Center employee data.

All employee trips were assigned to the 610 Albany Street garage, and all patient/visitor trips were assigned to the 710 Albany Street garage. Trip distribution for vehicle trips entering and leaving the campus is shown in **Figure 4-14** and **Figure 4-15**.

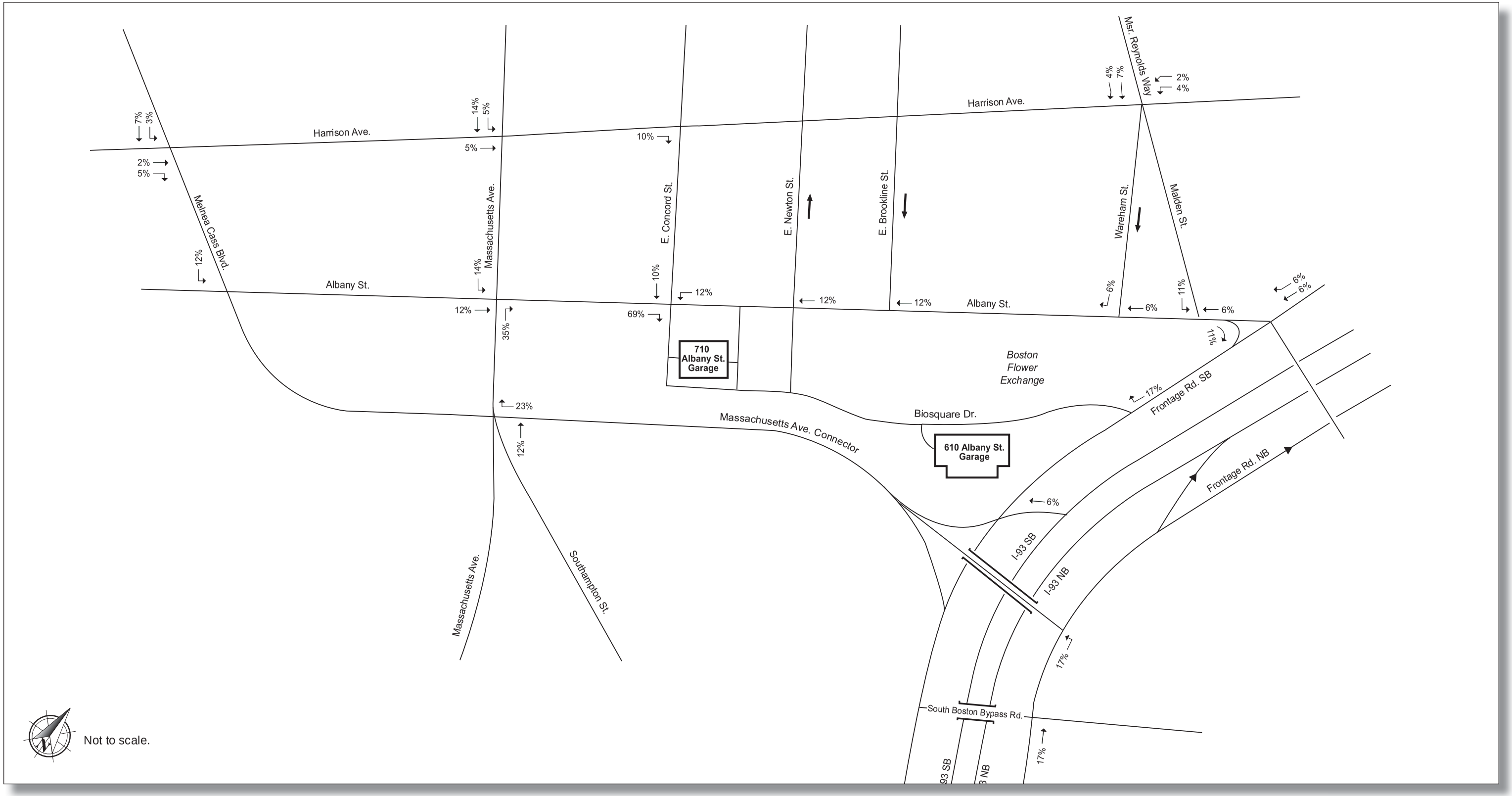


Figure 4-14. Project Trip Distribution: Trips Entering the Campus

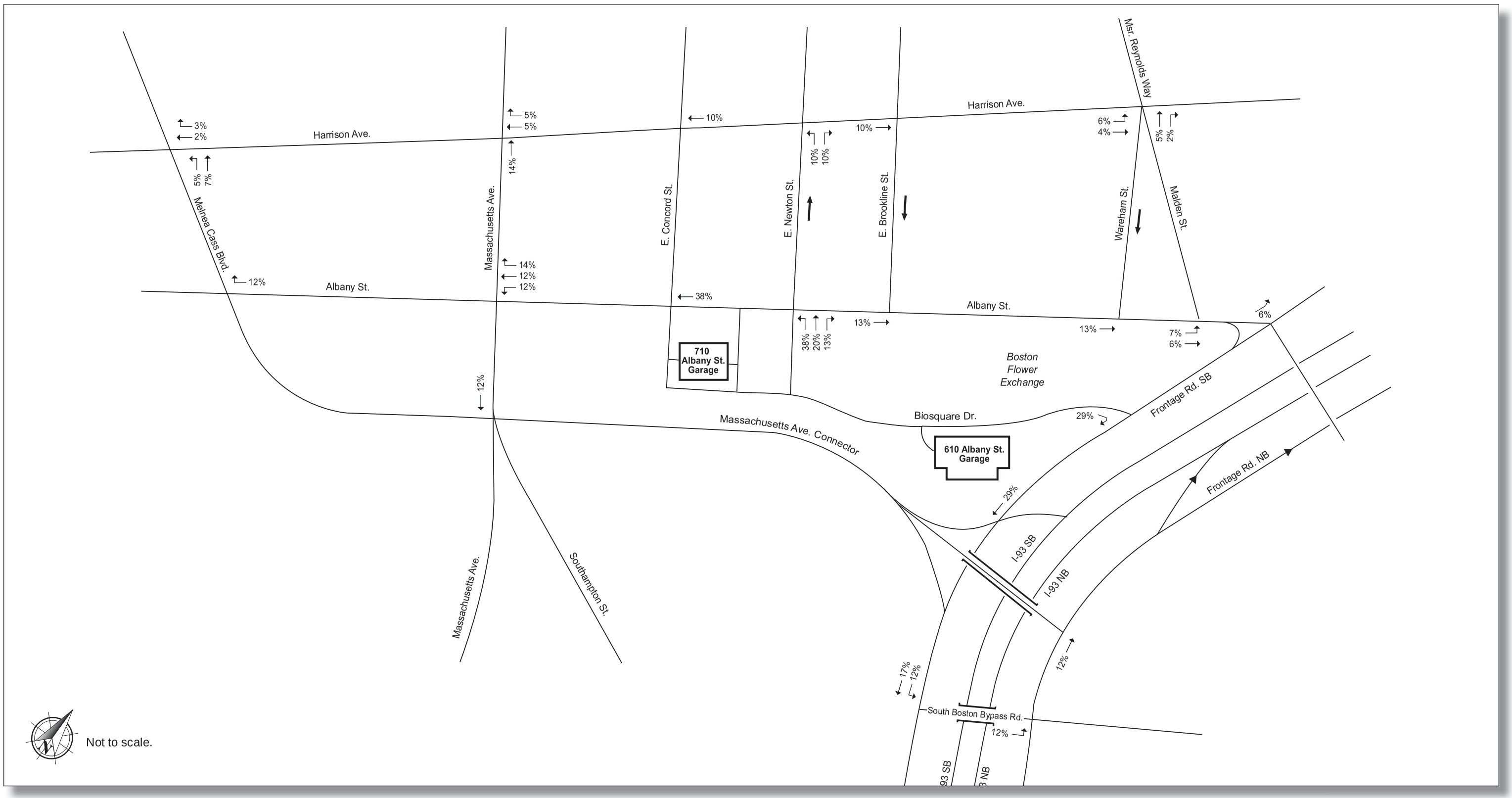


Figure 4-15. Project Trip Distribution: Trips Exiting the Campus

Build Traffic Impacts 2019

The 2019 Build traffic operations analysis was performed under a scenario that considered the traffic and transportation impacts for the projects identified in the 2010 IMP, the two un-built BioSquare Phase II projects and unoccupied project, the 3 projects approved in the study area, and application of a 10-year background traffic growth rate.

The Build analysis can be considered a "worst-case" evaluation of the study area with all project impacts plus background growth for a 10-year period being evaluated at one point in time with no improvements to the transportation network.

Project-generated trips are shown in **Figure 4-16** and **Figure 4-17.** Build vehicle trips are shown in **Figure 4-18** and **4-19**.

Traffic Operations: 2019 Build Conditions

The analysis indicates that at 4 of the 18 intersections studied overall Morning peak hour intersection operations worsened as a result of the IMP Build Traffic volumes:

- The intersection of Melnea Cass Boulevard and Albany Street operates at an overall LOS F.
- The intersection of East Concord Street and Albany Street operates at an overall LOS F.
- The intersection of Melnea Cass Boulevard and Harrison Avenue operates at an overall LOS F. The northbound left-turn, northbound through/right, and southbound left-turn approaches operate at LOS F. The eastbound through/right approach operates at LOS E.
- The intersection of Massachusetts Avenue and Harrison Avenue operates at an overall LOS E. The westbound left/through/right, northbound left-turn, and southbound left-turn approaches operate at LOS F. The eastbound left/through/right and northbound through/right approaches operate at LOS E.

In addition, several approaches are worsened in the a.m. peak hour as shown in the table.

The results of the morning peak hour Build Scenario are shown in **Table 4-13** on the next page.

Table 4-13 Build Conditions (2019) Peak-hour Intersection Operations, a.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
Signalized Intersections				
1. Melnea Cass Blvd. at Massachusetts Avenue	**E**	**72.2**	**—**	**—**
Melnea Cass EB thru	F	>80.0	>1.0	#588
Melnea Cass EB right	C	27.1	0.74	212
Massachusetts Ave. Connector WB left	F	>80.0	>1.0	#259
Massachusetts Ave. Connector WB thru	C	28.9	0.69	399
Massachusetts Ave. Connector WB right	D	51.9	0.98	#763
Southampton NB left	E	63.9	0.84	#247
Southampton NB thru	F	>80.0	>1.0	#558
Southampton NB right	A	1.7	0.55	0
Massachusetts Ave. SB left	F	>80.0	>1.0	#265
Massachusetts Ave. SB thru/right	C	28.9	0.72	239
2. Melnea Cass Blvd. at Albany Street	**F**	**>80.0**	**—**	**—**
Albany EB left/thru/right	E	63.6	0.90	#288
Albany WB left/thru/right	C	33.8	0.59	74
Melnea Cass NB left/thru/right	C	31.9	0.92	m#308
Melnea Cass SB left/thru/right	F	>80.0	>1.0	m#543
3. Massachusetts Avenue at Albany Street	**F**	**>80.0**	**—**	**—**
Albany EB left/thru	F	>80.0	>1.0	#336
Albany EB right	E	57.8	0.39	60
Albany WB left/thru/right	C	29.5	0.52	222
Massachusetts NB thru	E	78.2	>1.0	m#476
Massachusetts NB right	F	>80.0	>1.0	m#460
Massachusetts SB left	F	>80.0	>1.0	#273
Massachusetts SB thru/right	C	28.2	0.70	366
4. East Concord Street at Albany Street	**F**	**>80.0**	**—**	**—**
Albany EB thru	B	18.2	0.63	213
Albany EB right	F	>80.0	>1.0	#1180
Albany WB left/thru	B	11.6	0.68	m114
East Concord SB left	D	49.0	0.33	95
East Concord SB thru/right	F	>80.0	>1.0	#366
5. East Newton Street at Albany Street	**C**	**31.0**	**—**	**—**
Albany EB left	B	10.2	0.46	36
Albany EB thru	A	9.3	0.54	148
Albany WB thru	D	39.0	0.87	#615
Albany WB right	B	14.7	0.13	51
East Newton NB left	E	67.5	0.68	106
East Newton NB thru/right	E	62.4	0.70	61
6. Albany Street at Frontage Road Southbound	**B**	**18.9**	**—**	**—**
Albany EB right	D	44.1	0.77	299
Albany WB left	A	6.5	0.21	67
Albany WB thru/right	A	2.4	0.44	161
MBTA Driveway SB thru/right	D	47.0	0.04	16

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
7. Melnea Cass Blvd. at Harrison Avenue	**F**	**>80.0**	**—**	**—**
Harrison EB left	C	20.0	0.24	45
Harrison EB thru/right	E	65.2	>1.0	#652
Harrison WB left	C	23.4	0.27	m15
Harrison WB thru/right	B	17.4	0.42	m117
Melnea Cass. NB left	F	>80.0	>1.0	m#132
Melnea Cass. NB thru/right	F	>80.0	>1.0	m#663
Melnea Cass. SB left	F	>80.0	0.96	m#109
Melnea Cass. SB thru/right	E	57.4	>1.0	#499
Signalized Intersections, cont.				
8. Massachusetts Avenue at Harrison Avenue	**E**	**58.4**	**—**	**—**
Harrison EB left/thru/right	E	69.2	>1.0	m#375
Harrison WB left/thru/right	F	>80.0	>1.0	#452
Massachusetts NB left	F	>80.0	>1.0	#130
Massachusetts NB thru/right	E	56.9	>1.0	#565
Massachusetts SB left	F	>80.0	0.86	m#145
Massachusetts SB thru/right	C	31.4	0.93	m#475
9. East Concord Street at Harrison Avenue	**B**	**18.4**	**—**	**—**
Harrison EB thru/right	B	13.3	0.69	#609
Harrison WB left/thru	B	14.4	0.71	m#403
East Concord SB left/thru/right	E	56.6	0.70	94
10. East Newton Street at Harrison Avenue	**C**	**25.1**	**—**	**—**
Albany EB left/thru	B	18.5	0.68	#501
Albany WB thru/right	B	10.1	0.42	88
East Newton NB left/thru/right	E	55.5	0.86	239
11. East Brookline Street at Harrison Avenue	**B**	**11.2**	**—**	**—**
Harrison EB thru/right	A	3.2	0.55	m65
Harrison WB left/thru	A	6.5	0.29	165
East Brookline SB left/thru/right	D	48.7	0.69	157
12. Malden Street/Wareham Street at Harrison Avenue	**F**	**>80.0**	**—**	**—**
Harrison EB left	F	>80.0	>1.0	#226
Harrison EB thru/right	C	24.4	0.54	#362
Harrison WB left	F	>80.0	0.98	#182
Harrison WB thru/right	B	17.2	0.42	129
Malden NB left/thru/right	D	52.3	0.77	#238
Monsignor Reynolds SB left/thru	F	>80.0	>1.0	#498
Monsignor Reynolds SB right	A	7.8	0.29	43
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**25.2**	**—**	**—**
I-93 Off-ramp WB left/thru	C	24.8	0.90	456
Frontage SB thru/right	C	27.2	0.32	144
14. Frontage Road Northbound at Massachusetts Avenue Connector	**D**	**45.4**	**—**	**—**
Massachusetts Ave. Connector EB left	D	49.4	1.00	#581
Frontage NB left	D	48.4	0.98	#696
Frontage NB left/thru	D	40.0	0.99	#630
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**6.3**	**—**	**—**
South Boston Bypass EB left/thru	C	34.1	0.38	m44
South Boston Bypass WB thru/right	D	37.5	0.27	52
Frontage NB left/thru/right	A	3.4	0.59	30

Unsignalized Intersections				
16. East Brookline Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.26	0
Albany WB thru	A	0.0	0.38	0
East Brookline SB left	F	>50.0	0.88	153
East Brookline SB right	C	15.0	0.16	14
17. Wareham Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.35	0
Albany WB thru	A	0.0	0.30	0
Wareham SB left/right	C	20.4	0.37	41
18. Malden Street at Albany Street	—	—	—	—
Albany EB left/thru	A	2.8	0.11	9
Albany WB thru/right	A	0.0	0.40	0
Malden SB left/right	F	>50.0	>1.0	707

* Signifies de facto lane.
Cell shading indicates increased delay from the previous condition.

Overall 2019 Build Conditions intersection operations for the Evening peak hour are shown in **Table 4-14.**

The results of the P.M. Peak hour Build analysis indicates that at 3 of the 18 intersections studied, the overall traffic operations worsened as a result of the IMP Build traffic volumes.

- At the intersection of Melnea Cass Boulevard and Albany Street, the northbound approach on Melnea Cass from a D to an E.
- At the intersection of Massachusetts Avenue and Albany Street, the eastbound left-turn approach operates at LOS F. The eastbound through, westbound left/through/right, and northbound through approaches operate at LOS E.
- At the intersection of East Newton Street and Albany Street, the E. Newton northbound left turn LOS leaving BioSquare is worsened from a LOS E to a LOS F under Build conditions.

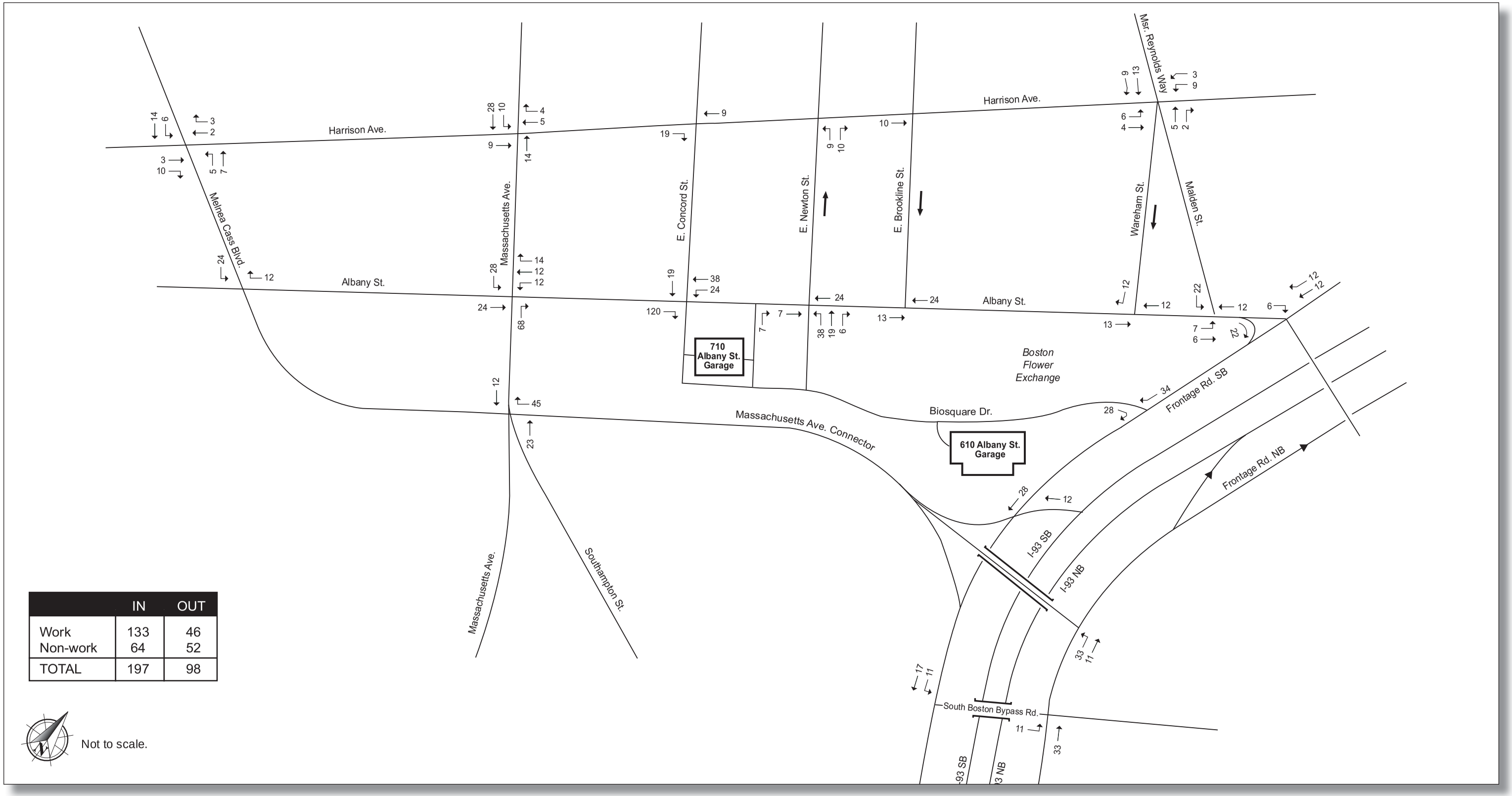
Table 4-14 Build Conditions (2019) Peak-hour Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
Signalized Intersections				
1. Melnea Cass Blvd. at Massachusetts Avenue	**F**	**>80.0**	—	—
Melnea Cass EB thru	F	>80.0	>1.0	#443
Melnea Cass EB right	F	>80.0	>1.0	#791
Massachusetts Ave. Connector WB left	F	>80.0	>1.0	#470
Massachusetts Ave. Connector WB thru	C	25.2	0.54	284
Massachusetts Ave. Connector WB right	A	5.4	0.57	93
Southampton NB left	F	>80.0	>1.0	#315
Southampton NB thru	E	62.0	0.92	#405
Southampton NB right	A	0.5	0.27	0
Massachusetts Ave. SB left	F	>80.0	>1.0	m#407
Massachusetts Ave. SB thru/right	F	>80.0	>1.0	m#670
2. Melnea Cass Blvd. at Albany Street	**F**	**>80.0**	—	—
Albany EB left/thru/right	C	31.5	0.59	147
Albany WB left/thru/right	D	45.4	0.91	303
Melnea Cass NB left/thru/right	E	56.3	>1.0	m#601
Melnea Cass SB left/thru/right	F	>80.0	>1.0	m#574
3. Massachusetts Avenue at Albany Street	**D**	**54.6**	—	—
Albany EB left*	F	>80.0	>1.0	m#96
Albany EB thru	E	57.4	0.78	m267
Albany EB right	D	47.2	0.57	m197
Albany WB left/thru/right	E	74.7	>1.0	#485
Massachusetts NB thru	E	57.6	0.91	371
Massachusetts NB right	A	7.7	0.61	m58
Massachusetts SB left	C	32.7	0.56	65
Massachusetts SB thru/right	D	46.3	0.94	#624

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
4. East Concord Street at Albany Street	**C**	**24.7**	—	—
Albany EB thru	B	19.6	0.63	408
Albany EB right	B	12.8	0.33	96
Albany WB left/thru	B	19.2	0.84	m234
East Concord SB left	E	62.7	0.65	122
East Concord SB thru/right	D	53.8	0.84	160
5. East Newton Street at Albany Street	**F**	**>80.0**	—	—
Albany EB left	F	>80.0	>1.0	#255
Albany EB thru	C	27.4	0.72	280
Albany WB thru	F	>80.0	>1.0	#732
Albany WB right	C	27.4	0.19	74
East Newton NB left	F	>80.0	>1.0	#668
East Newton NB thru/right	F	>80.0	>1.0	#416
6. Albany Street at Frontage Road Southbound	**C**	**25.9**	—	—
Albany EB right	D	44.5	0.90	#431
Albany WB left	B	14.5	0.36	161
Albany WB thru/right	A	1.4	0.29	96
MBTA Driveway SB thru/right	D	42.4	0.04	15
7. Melnea Cass Blvd. at Harrison Avenue	**E**	**74.7**	—	—
Harrison EB left	C	26.0	0.30	65
Harrison EB thru/right	E	72.8	>1.0	#541
Harrison WB left	C	29.4	0.39	m17
Harrison WB thru/right	C	25.2	0.65	m175
Melnea Cass. NB left	F	>80.0	>1.0	m#178
Melnea Cass. NB thru/right	C	30.0	0.89	m365
Melnea Cass. SB left	C	27.1	0.74	m24
Melnea Cass. SB thru/right	F	>80.0	>1.0	m#528
8. Massachusetts Avenue at Harrison Avenue	**F**	**>80.0**	—	—
Harrison EB left/thru/right	E	74.3	>1.0	m#333
Harrison WB left/thru/right	F	>80.0	>1.0	#672
Massachusetts NB left	F	>80.0	>1.0	#145
Massachusetts NB thru/right	D	49.0	0.98	#498
Massachusetts SB left	E	60.4	0.63	80
Massachusetts SB thru/right	F	>80.0	>1.0	#744
9. East Concord Street at Harrison Avenue	**A**	**9.4**	—	—
Harrison EB thru/right	A	6.3	0.44	243
Harrison WB left/thru	A	5.2	0.47	m153
East Concord SB left/thru/right	D	48.3	0.53	71
10. East Newton Street at Harrison Avenue	**C**	**33.5**	—	—
Albany EB left/thru	B	15.4	0.49	182
Albany WB thru/right	B	19.5	0.59	#268
East Newton NB left/thru/right	E	61.7	0.95	#408
11. East Brookline Street at Harrison Avenue	**B**	**11.5**	—	—
Harrison EB thru/right	A	7.3	0.40	m88
Harrison WB left/thru	A	5.9	0.34	198
East Brookline SB left/thru/right	D	44.2	0.61	110

Intersection Approach	LOS	Delay (sec./veh.)	V/C Ratio	95% Queue Length (ft.)
12. Malden Street/Wareham Street at Harrison Avenue	**F**	**>80.0**	—	—
Harrison EB left	F	>80.0	>1.0	#268
Harrison EB thru/right	C	21.7	0.24	134
Harrison WB left	E	62.1	0.50	m73
Harrison WB thru/right	C	31.4	0.69	m#454
Malden NB left/thru/right	D	38.5	0.69	242
Monsignor Reynolds SB left/thru	F	>80.0	>1.0	#458
Monsignor Reynolds SB right	A	6.8	0.20	35
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**27.2**	—	—
I-93 Off-ramp WB left/thru	C	28.8	0.90	375
Frontage SB thru/right	C	22.9	0.42	218
14. Frontage Road Northbound at Massachusetts Avenue Connector	**C**	**26.8**	—	—
Massachusetts Ave. Connector EB left	C	31.2	0.90	430
Frontage NB left	C	26.0	0.75	#480
Frontage NB left/thru	C	21.7	0.76	402
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**9.1**	—	—
South Boston Bypass EB left*	D	43.3	0.63	m93
South Boston Bypass EB thru	C	25.2	0.02	m7
South Boston Bypass WB thru/right	C	32.0	0.26	58
Frontage NB left/thru/right	A	4.0	0.43	110
Unsignalized Intersections				
16. East Brookline Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.46	0
Albany WB thru	A	0.0	0.33	0
East Brookline SB left	F	>50.0	>1.0	157
East Brookline SB right	B	14.5	0.24	23
17. Wareham Street at Albany Street	—	—	—	—
Albany EB thru	A	0.0	0.50	0
Albany WB thru	A	0.0	0.28	0
Wareham SB left/right	E	41.4	0.59	83
18. Malden Street at Albany Street	—	—	—	—
Albany EB left/thru	A	3.6	0.14	12
Albany WB thru/right	A	0.0	0.37	0
Malden SB left/right	F	>50.0	>1.0	—

* Signifies de facto lane.
Cell shading indicates increased delay from the previous condition.



	IN	OUT
Work	133	46
Non-work	64	52
TOTAL	197	98

Figure 4-16. Project-generated Trips, a.m. Peak-hour Traffic Volumes

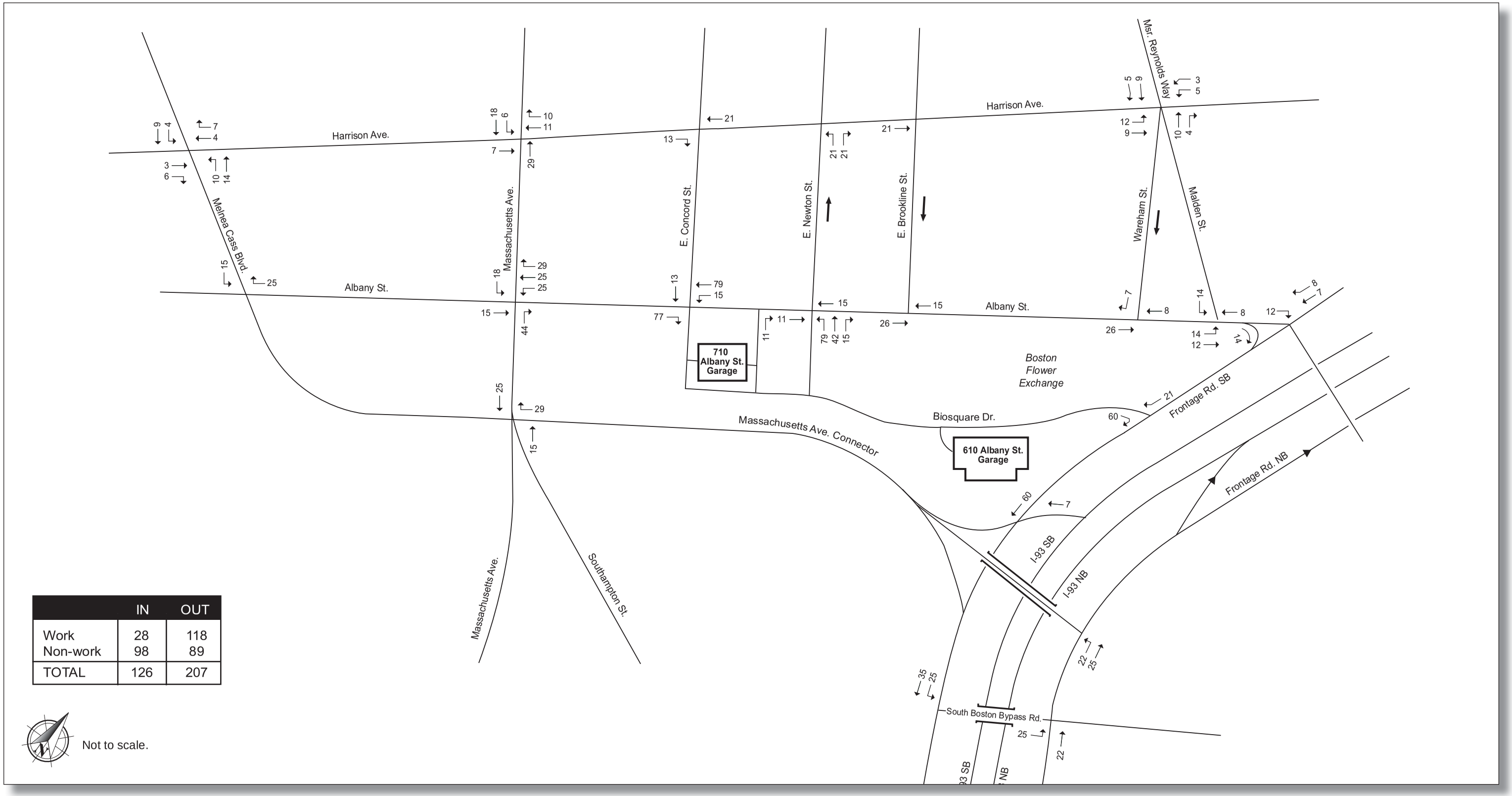


Figure 4-17. Project-generated Trips, p.m. Peak-hour Traffic Volumes

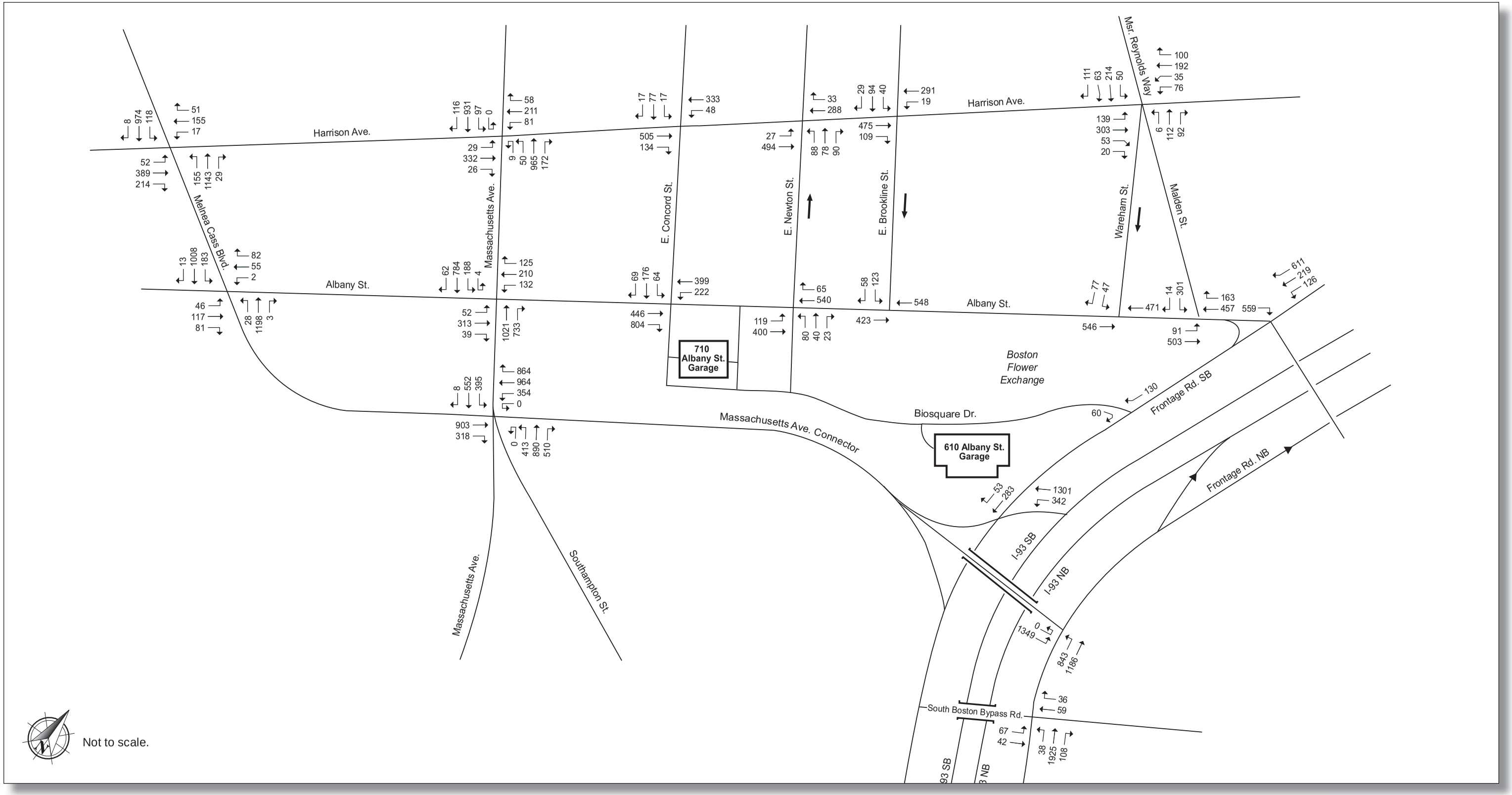


Figure 4-18. Build Conditions (2019) a.m. Peak-hour Traffic Volumes

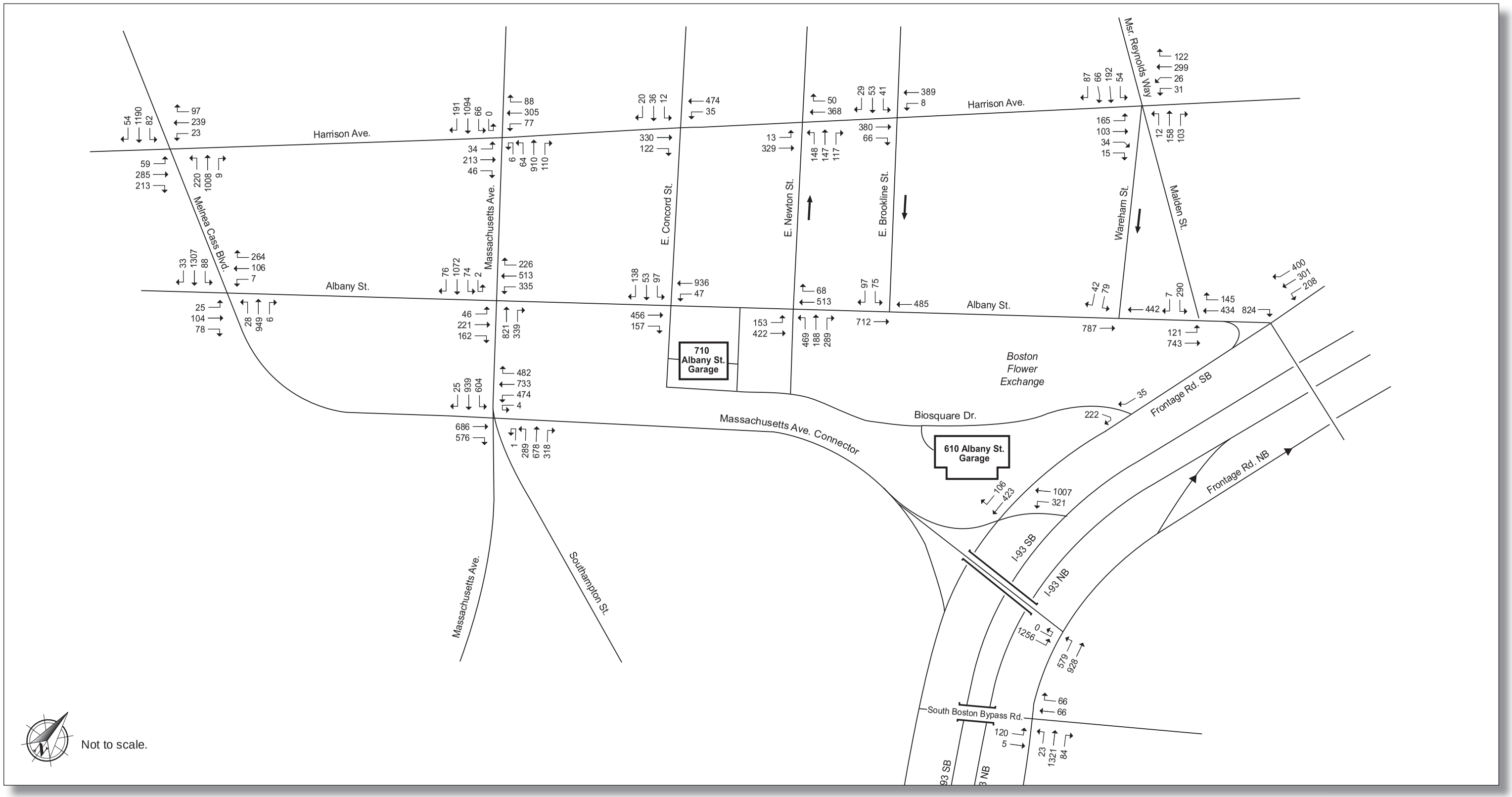


Figure 4-19. Build Conditions (2019) p.m. Peak-hour Traffic Volumes

4.7.3 Loading and Service

A critical component of the master planning effort was to identify measures to improve the loading and service operations. The current loading facility for the West Campus is located close to the Emergency Department and Trauma Center entrance at the Menino Pavilion, and is not large enough to allow trucks to maneuver off street (trucks currently have to back in off of Albany Street). This disrupts Albany Street vehicular and pedestrian traffic.

Through the IMP planning effort, Boston University Medical Center is proposing relocating the loading across Albany Street behind the existing Power Plant when the Administration/Clinical Building is developed. This will remove trucks from Albany Street by allowing them to use BioSquare Drive from the regional roadway network. It will also remove the disruption to vehicles and pedestrians on Albany Street. Either existing tunnels beneath Albany Street will be upgraded or new tunnels will be constructed to allow distribution from the loading facility to the campus. The relocated loading facility will also accommodate the new IMP projects. This remarkable improvement will significantly improve the existing loading operations and will provide the capacity to support future growth. **Figure 4-20** shows the proposed IMP campus plan with the IMP projects, BioSquare Drive connection and loading facilities.

4.7.4 Future Parking Supply and Demand

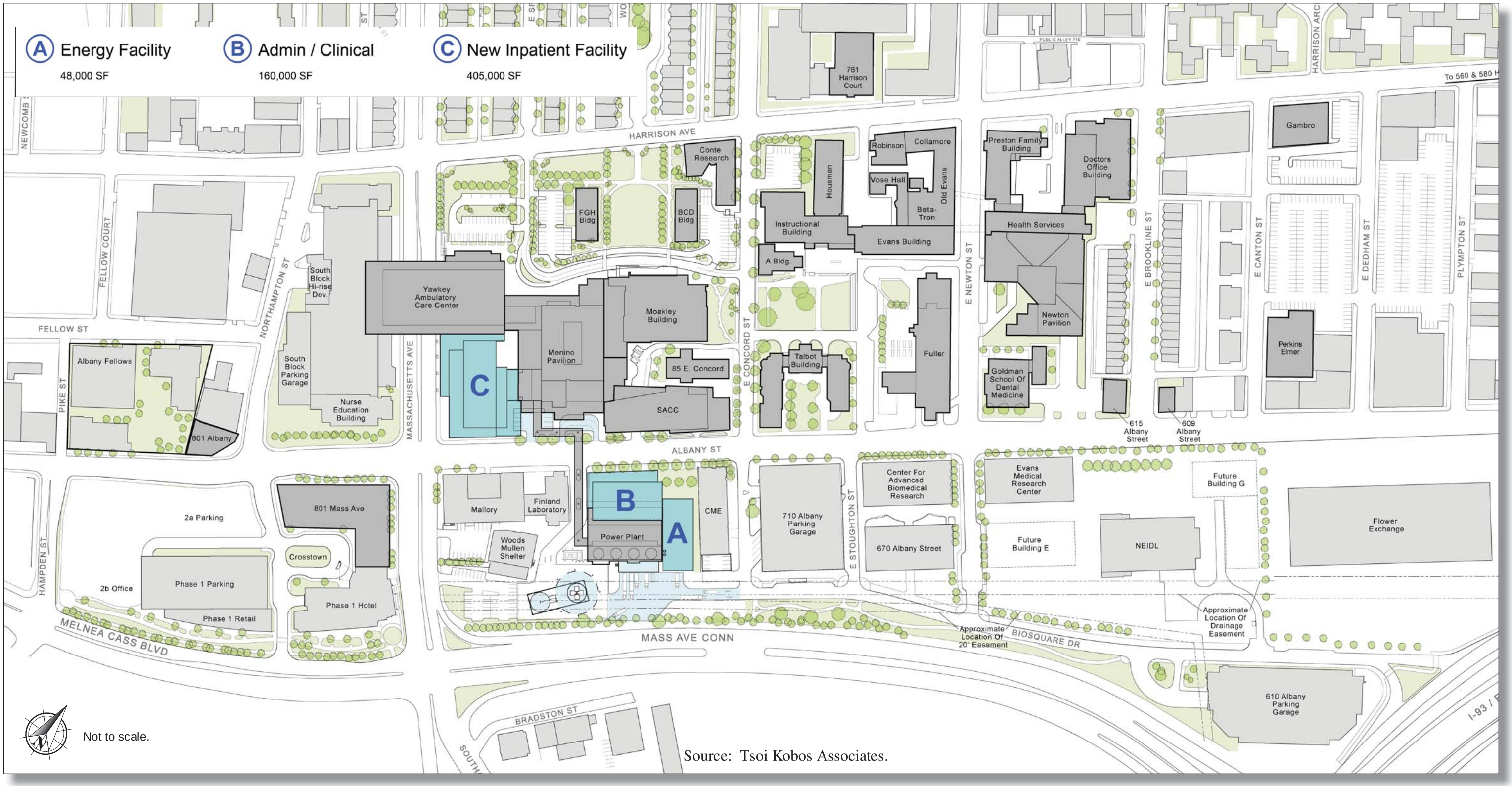
The projected IMP development will add 565,000 net new square feet of building space on-campus, excluding the 48,000 s.f. for the Energy Facility, which will not generate new parking demand. Based on the BTD guidelines for this area of 0.75 to 1.0 spaces per 1,000 square feet, this floor space equates to a need for an additional 425 to 565 spaces. Peak demand is actually estimated at the higher end of this range (565 spaces) based on current on-campus parking ratio of 0.85 spaces per 1,000 s.f. At the present time, no new parking is anticipated to be added within the term of this 10 year IMP. As a result, the campus off-street parking ratio will decrease from 0.85 to 0.76 spaces per 1,000 square feet, still within BTD's recommended range for this area. Over the years, the parking ratio for Boston University Medical Center and BioSquare has steadily decreased as development has increased. At the same time, Boston University Medical Center has employed active parking management to monitor space use, as well as a hierarchy of fees that makes the most convenient spaces the most expensive. The combination of the constrained supply and increased fees, along with transit service improvements and active demand management, has allowed the medical area to accommodate growth while limiting project-generated traffic increases.

The existing 710 and 610 Albany Street garages will continue to operate as the major parking facilities for the campus, supplemented by off-site leased parking spaces as needed.

As the 10-year IMP unfolds, Boston University Medical Center will continue to actively manage both its on-campus owned spaces and its off-campus leased supply in order to meet new demand, while continually working to encourage the use of alternate modes such as transit, walking, and bicycling. In the short term, 400 existing spaces are vacant at peak today. In the longer term, the total parking demand for up to 565 spaces will be met through a combination of on-campus spaces and leased off-site facilities. As each IMP project is advanced, Boston University Medical Center will continue its parking management strategies and, if needed, evaluate off-site employee parking options to preserve the most convenient spaces for patients and visitors on the campus.

4.7.5 Transit, Pedestrian, and Bicycle Impacts

The IMP projects will generate about 3,000 transit trips over the course of a day. Added transit riders, cyclists and pedestrians will use existing pathways along Melnea Cass Boulevard and the Southwest Corridor Park, as well as improved sidewalks and pathways through the campus. In the long-term, the South Bay Harbor Trail will provide a new shared use path along the outer perimeter of the BioSquare site. New transit service by the MBTA in the area will improve continue to improve transit access at the Medical Center.



Source: Tsoi Kobos Associates.

Figure 4-20. Proposed IMP Campus Plan

Comparisons of traffic operations at study area intersections for existing and future conditions are presented below in **Table 4-15** and **Table 4-16**.

As the comparative level of service tables indicate, many of the changes in level of service occur in the No-Build condition, reflecting both the growth rate over 10 years and the contribution of specific projects. Looking at the Build condition, most of the project related impacts occur to the roads and intersections adjacent to the parking facilities for the medical area: East Concord Street, East Newton Street, Albany Street and Massachusetts Avenue. Monitoring of intersection operations over time will allow future analyses to be recalibrated to reflect changing traffic patterns and intersection improvements.

Table 4-15 Level of Service Comparison Table, a.m. Peak Hour

Intersection Approach	Existing Condition	No-Build Condition	Build Condition
Signalized Intersections			
1. Melnea Cass Blvd. at Massachusetts Avenue	**D**	**E**	**E**
Melnea Cass EB thru	E	F	F
Melnea Cass EB right	A	B	C
Massachusetts Ave. Connector WB left	F	F	F
Massachusetts Ave. Connector WB thru	C	C	C
Massachusetts Ave. Connector WB right	A	C	D
Southampton NB left	E	E	E
Southampton NB thru	F	F	F
Southampton NB right	A	A	A
Massachusetts Ave. SB left	D	F	F
Massachusetts Ave. SB thru/right	D	C	C
2. Melnea Cass Blvd. at Albany Street	**C**	**E**	**F**
Albany EB left/thru/right	E	E	E
Albany WB left/thru/right	C	C	C
Melnea Cass NB left/thru/right	C	C	C
Melnea Cass SB left/thru/right	D	F	F
3. Massachusetts Avenue at Albany Street	**F**	**F**	**F**
Albany EB left/thru	F	F	F
Albany EB right	E	E	E
Albany WB left/thru/right	D	C	C
Massachusetts NB thru	B	E	E
Massachusetts NB right	C	E	F
Massachusetts SB left	A	F	F
Massachusetts SB thru/right	B	C	C
4. East Concord Street at Albany Street	**B**	**E**	**F**
Albany EB thru	B	B	B
Albany EB right	B	F	F
Albany WB left/thru	A	A	B
East Concord SB left	D	D	D
East Concord SB thru/right	E	F	F

Intersection Approach	Existing Condition	No-Build Condition	Build Condition
5. East Newton Street at Albany Street	**B**	**C**	**C**
Albany EB left	A	A	B
Albany EB thru	A	A	A
Albany WB thru	C	D	D
Albany WB right	B	B	B
East Newton NB left	D	D	E
East Newton NB thru/right	C	D	E
Signalized Intersections, cont.			
6. Albany Street at Frontage Road Southbound	**C**	**B**	**B**
Albany EB right	D	D	D
Albany WB left	A	A	A
Albany WB thru/right	A	A	A
MBTA Driveway SB thru/right	D	D	D
7. Melnea Cass Blvd. at Harrison Avenue	**D**	**E**	**F**
Harrison EB left	C	B	C
Harrison EB thru/right	D	E	E
Harrison WB left	B	C	C
Harrison WB thru/right	B	B	B
Melnea Cass. NB left	E	F	F
Melnea Cass. NB thru/right	E	F	F
Melnea Cass. SB left	D	E	F
Melnea Cass. SB thru/right	C	D	E
8. Massachusetts Avenue at Harrison Avenue	**D**	**D**	**E**
Harrison EB left/thru/right	E	E	E
Harrison WB left/thru/right	F	F	F
Massachusetts NB left	F	F	F
Massachusetts NB thru/right	D	D	E
Massachusetts SB left	E	F	F
Massachusetts SB thru/right	B	C	C
9. East Concord Street at Harrison Avenue	**B**	**B**	**B**
Harrison EB thru/right	A	B	B
Harrison WB left/thru	A	B	B
East Concord SB left/thru/right	E	E	E
10. East Newton Street at Harrison Avenue	**C**	**C**	**C**
Albany EB left/thru	B	B	B
Albany WB thru/right	A	A	B
East Newton NB left/thru/right	D	E	E
11. East Brookline Street at Harrison Avenue	**B**	**B**	**B**
Harrison EB thru/right	A	A	A
Harrison WB left/thru	A	A	A
East Brookline SB left/thru/right	D	D	D
12. Malden Street/Wareham Street at Harrison Avenue	**F**	**F**	**F**
Harrison EB left	F	F	F
Harrison EB thru/right	C	C	C
Harrison WB left	E	F	F
Harrison WB thru/right	B	B	B
Malden NB left/thru/right	D	D	D
Monsignor Reynolds SB left/thru	F	F	F

Signalized Intersections, cont.			
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**C**	**C**
I-93 Off-ramp WB left/thru	C	C	C
Frontage SB thru/right	B	C	C
14. Frontage Road Northbound at Massachusetts Avenue Connector	**C**	**C**	**C**
Massachusetts Ave. Connector EB left	C	C	C
Frontage NB left	C	C	C
Frontage NB left/thru	B	C	C
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**A**	**A**
South Boston Bypass EB left	C	C	D
South Boston Bypass EB thru	C	C	C
South Boston Bypass WB thru/right	D	D	D
Frontage NB left/thru/right	A	A	A
16. East Brookline Street at Albany Street	—	—	—
Albany EB thru	A	A	A
Albany WB thru	A	A	A
East Brookline SB left	F	F	F
East Brookline SB right	B	B	B
17. Wareham Street at Albany Street	—	—	—
Albany EB thru	A	A	A
Albany WB thru	A	A	A
Wareham SB left/right	D	E	E
18. Malden Street at Albany Street	—	—	—
Albany EB left/thru	A	A	A
Albany WB thru/right	A	A	A
Malden SB left/right	F	F	F

Table 4-16 Level of Service Comparison Table, p.m. Peak Hour

Intersection Approach	Existing Condition	No-Build Condition	Build Condition
Signalized Intersections			
1. Melnea Cass Blvd. at Massachusetts Avenue	**F**	**F**	**F**
Melnea Cass EB thru	F	F	F
Melnea Cass EB right	E	F	F
Massachusetts Ave. Connector WB left	F	F	F
Massachusetts Ave. Connector WB thru	C	C	C
Massachusetts Ave. Connector WB right	A	A	A
Southampton NB left	F	F	F
Southampton NB thru	D	E	E
Southampton NB right	A	A	A
Massachusetts Ave. SB left	E	F	F
Massachusetts Ave. SB thru/right	F	F	F
2. Melnea Cass Blvd. at Albany Street	**B**	**E**	**F**
Albany EB left/thru/right	D	C	C
Albany WB left/thru/right	D	D	D
Melnea Cass NB left/thru/right	B	D	E
Melnea Cass SB left/thru/right	B	F	F

Intersection Approach	Existing Condition	No-Build Condition	Build Condition
3. Massachusetts Avenue at Albany Street	**D**	**D**	**D**
Albany EB left*	D	F	F
Albany EB thru	D	D	E
Albany EB right	D	D	D
Albany WB left/thru/right	D	D	E
Massachusetts NB thru	D	E	E
Massachusetts NB right	B	A	A
Massachusetts SB left	B	C	C
Massachusetts SB thru/right	C	D	D
4. East Concord Street at Albany Street	**B**	**B**	**C**
Albany EB thru	B	B	B
Albany EB right	A	A	B
Albany WB left/thru	B	B	B
East Concord SB left	E	E	E
East Concord SB thru/right	B	D	D
5. East Newton Street at Albany Street	**D**	**F**	**F**
Albany EB left	B	F	F
Albany EB thru	B	C	C
Albany WB thru	D	F	F
Albany WB right	B	C	C
East Newton NB left	E	E	F
East Newton NB thru/right	E	F	F
6. Albany Street at Frontage Road Southbound	**C**	**C**	**C**
Albany EB right	D	D	D
Albany WB left	B	B	B
Albany WB thru/right	A	A	A
MBTA Driveway SB thru/right	D	D	D
7. Melnea Cass Blvd. at Harrison Avenue	**D**	**E**	**E**
Harrison EB left	C	C	C
Harrison EB thru/right	E	E	E
Harrison WB left	C	C	C
Harrison WB thru/right	C	C	C
Melnea Cass. NB left	F	F	F
Melnea Cass. NB thru/right	C	C	C
Melnea Cass. SB left	B	C	C
Melnea Cass. SB thru/right	E	F	F
8. Massachusetts Avenue at Harrison Avenue	**E**	**F**	**F**
Harrison EB left/thru/right	E	E	E
Harrison WB left/thru/right	F	F	F
Massachusetts NB left	F	F	F
Massachusetts NB thru/right	C	D	D
Massachusetts SB left	E	E	E
Massachusetts SB thru/right	C	F	F
9. East Concord Street at Harrison Avenue	**A**	**A**	**A**
Harrison EB thru/right	A	A	A
Harrison WB left/thru	A	A	A
East Concord SB left/thru/right	D	D	D
10. East Newton Street at Harrison Avenue	**C**	**C**	**C**
Albany EB left/thru	B	B	B
Albany WB thru/right	B	B	B
East Newton NB left/thru/right	D	E	E

Intersection Approach	Existing Condition	No-Build Condition	Build Condition
11. East Brookline Street at Harrison Avenue	**B**	**B**	**B**
Harrison EB thru/right	A	A	A
Harrison WB left/thru	A	A	A
East Brookline SB left/thru/right	D	D	D
12. Malden Street/Wareham Street at Harrison Avenue	**E**	**F**	**F**
Harrison EB left	F	F	F
Harrison EB thru/right	C	C	C
Harrison WB left	E	E	E
Harrison WB thru/right	C	C	C
Malden NB left/thru/right	C	D	D
Monsignor Reynolds SB left/thru	F	F	F
Monsignor Reynolds SB right	A	A	A
Signalized Intersections, cont.			
13. Frontage Road Southbound at Massachusetts Avenue Connector	**C**	**C**	**C**
I-93 Off-ramp WB left/thru	C	C	C
Frontage SB thru/right	B	C	C
14. Frontage Road Northbound at Massachusetts Avenue Connector	**C**	**C**	**C**
Massachusetts Ave. Connector EB left	C	C	C
Frontage NB left	C	C	C
Frontage NB left/thru	B	C	C
15. Frontage Road Northbound at South Boston Bypass Road	**A**	**A**	**A**
South Boston Bypass EB left	C	C	D
South Boston Bypass EB thru	C	C	C
South Boston Bypass WB thru/right	D	D	D
Frontage NB left/thru/right	A	A	A
16. East Brookline Street at Albany Street	**—**	**—**	**—**
Albany EB thru	A	A	A
Albany WB thru	A	A	A
East Brookline SB left	F	F	F
East Brookline SB right	B	B	B
17. Wareham Street at Albany Street	**—**	**—**	**—**
Albany EB thru	A	A	A
Albany WB thru	A	A	A
Wareham SB left/right	D	E	E
18. Malden Street at Albany Street	**—**	**—**	**—**
Albany EB left/thru	A	A	A
Albany WB thru/right	A	A	A
Malden SB left/right	F	F	F

Section 5

5.0 ENVIRONMENTAL AND INFRASTRUCTURE SYSTEMS

5.1 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 of the BRA's Large Project Review process under Article 80B of the Boston Zoning Code. The Proponents intend to file Project Notification Forms for each Institutional Master Plan project when the design of individual projects has progressed. A separate Project Notification Form was filed for the Energy Facility in September 2009 which addressed the environmental analysis in more detail for this project. A Draft Project Impact Report ("DPIR") for the Energy Facility is being submitted concurrently with this IMP submission in accordance with the BRA Article 80B Large Project Review process and in response to the BRA Scoping Determination for the Project.

5.1.1 Wind

The proposed Energy Facility will reach 4-stories and will be located on the surface parking lot to the east of the Power Plant. The Administration/Clinical Building will reach 9-stories on the site of the existing surface parking lot north of the Power Plant. The Dowling Building will be replaced by the proposed 14-story New Inpatient Building. Individual or separate wind studies will be presented in the Project Notification Forms for the Administration/Clinical and New Inpatient buildings as required as part of the BRA's Article 80 Large Project Review process.

5.1.2 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 BUMC Campus. It is anticipated that for the most part, new buildings will only cast shadows onto other BUMC Campus buildings and are not expected to result in significant net new shadow impacts to open spaces. Because the Administration/Clinical and New Inpatient buildings have not been fully designed, detailed shadow studies will be presented in the Project Notification Forms as required as part of the BRA's Article 80 Large Project Review process.

5.1.3 Daylight

Daylight impacts from the proposed projects are expected to be minimal. When the Administration/Clinical and New Inpatient buildings have been designed, a detailed daylight impact analysis will be presented as required as part of the BRA's Article 80 Large Project Review Process.

5.1.4 Solar Glare

The Proponents do not anticipate the use of reflective glass or other highly reflective materials on the building façades that would result in solar glare from the proposed buildings.

5.1.5 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. More detailed air quality studies will be presented during the Article 80 Large Project Review process. A more detailed air quality analysis is presented in the DPIR for the Energy Facility project.

5.1.6 Water Quality / Wetlands

No water quality or wetlands impacts are anticipated as a result of the proposed projects. The projects will occur on previously-developed urban sites.

5.1.7 Geotechnical / Groundwater

Subsurface conditions at the project sites will be investigated as the design process proceeds. 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 proposed IMP projects are located within the Groundwater Conservation Overlay District (GCOD). The IMP projects designs will comply with GCOD and City standards by establishing design and construction methodology which protects groundwater. The IMP projects will demonstrate that the permanent construction results in no negative impacts to groundwater levels through engineering evaluations. An engineers' certification report will be submitted to demonstrate 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 IMP projects will include provision that no long term groundwater pumping will be allowed.

5.1.8 Solid and Hazardous Waste

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.

The proposed New Inpatient Building and Administration/Clinical Building 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. Boston University Medical Center 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.

5.1.9 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 Energy Facility have been analyzed further and the analysis in presented in the DPIR.

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.

5.1.10 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 previous paragraph, 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.

5.1.11 Rodent Control

A rodent extermination certificate will be filed with the building permit application to the City. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the proposed projects, in compliance with the City's requirements.

5.1.12 Wildlife Habitat

The project sites are within a fully-developed urban area, therefore it is anticipated that projects will not impact wildlife habitats.

5.1.13 Boston University Medical Center Sustainable Initiatives and Design

5.1.13.1 The BMC Green Committee

Over the past ten years, BMC has taken steps to decrease its energy demand and improve energy efficiency throughout its campus. BMC established the Green Committee to oversee the direction, development, and implementation of sustainable programs and policies. The Green Committee is comprised of representatives from various Boston Medical Center departments who develop organization-specific environmental initiatives. Representatives from Boston University Medical Campus departments are also on the Green Committee and collaborate with BMC on campus-wide or shared programs.

In order to strengthen its initiatives, the Green Committee tracks the environmental and financial results of improvement programs, continuously reviews and improves existing programs, and identifies new improvement projects. It oversees the environmental strategies to ensure continuous improvement through various trending methods and control activities. Through effective communication, the committee relates Green program status throughout the organization and works with management, staff, and the public to increase awareness and participation in campus environmental programs and initiatives.

Through the leadership of the Green Committee and the Design and Construction Department, the implementation of sustainable design and construction elements has increased significantly in all of Boston University Medical Center capital projects. The SACC, currently under construction, is registered with Green Guide for Health Care (GGHC) and is targeting a LEED Silver equivalent. The GGHC is based on the Leadership in Energy and Environmental Design (LEED) point system, the original national model for sustainable building design.

Ultimately the Green Committee is dedicated to the continual development of its sustainable campus. As per the committee's charter, the goal is to promote the health of patients, visitors, employees, local communities, and the global community while operating economically and efficiently.

5.1.13.2 The BU Medical Campus Sustainability Committee

Started as a working group in the fall of 2007, the BU Medical Campus Sustainability Committee initially focused solely on energy conservation, but as it became clear that energy conservation was connected to a number of other sustainability issues on

campus, the group's mission expanded to consider other areas aimed at lowering its carbon footprint such as waste management and re-use of supplies to reduce purchasing of new supplies. In fall 2008, the Sustainability Committee launched its first major initiative in the form of its departmental-focused recycling pilot program which was rolled out building by building, floor by floor and department by department to determine the best locations for recycling bins based on accessibility, visibility, and traffic.

Currently, the Sustainability Committee is actively facilitating the campus' recycling program, as well as coordinating several energy reduction investigations and waste management strategies. The Sustainability Committee comprises BU Medical Campus student, faculty and staff representatives and is tasked with identifying, communicating, and promoting best practices with regard to sustainability at the campus.

5.1.13.3 IMP Sustainable Design Goals

The proposed IMP projects will include a number of environmentally protective technologies and practices that will be incorporated into the planning, design, and operation of each project.

Continued redevelopment of the Boston University Medical Center Campus reflects a number of "Smart Growth" principles intended to restore vitality to center cities, including locating development in an urban location, directing development towards existing communities already served by infrastructure, and seeking to utilize the resources that existing neighborhoods offer.

One of the shared objectives of the 2010 IMP is to address aging buildings and infrastructure. Upgrades to facilities and equipment will be designed to increase the overall energy-efficiency of building and systems, and improve the indoor environment for patients, employees, students, and visitors. Moreover, one of the primary objectives of the new Energy Facility is to reduce Boston University Medical Center's environmental impact. This will be achieved by using a process known as combined heat and power which is considered a green technology and is discussed in greater detail in the Draft Project Impact Report.

The proposed IMP projects will comply with Article 37 of the Boston Zoning Code. Additional information on sustainable design will be provided for each IMP project in subsequent Large Project Review documentation.

5.2 Historic and Archaeological Resources

5.2.1 Historic Resources

The present Boston Medical Center consists of the former Boston City Hospital, Boston Specialty and Rehabilitation Hospital and Boston University Medical Center Hospital.

These facilities were consolidated and merged into the Boston Medical Center Corporation in July 1996. The BUMC Campus is located within the South End Harrison/Albany Protection Area, formed to maintain an architecturally compatible boundary adjacent to the south border of the South End National Register and Landmark Districts.

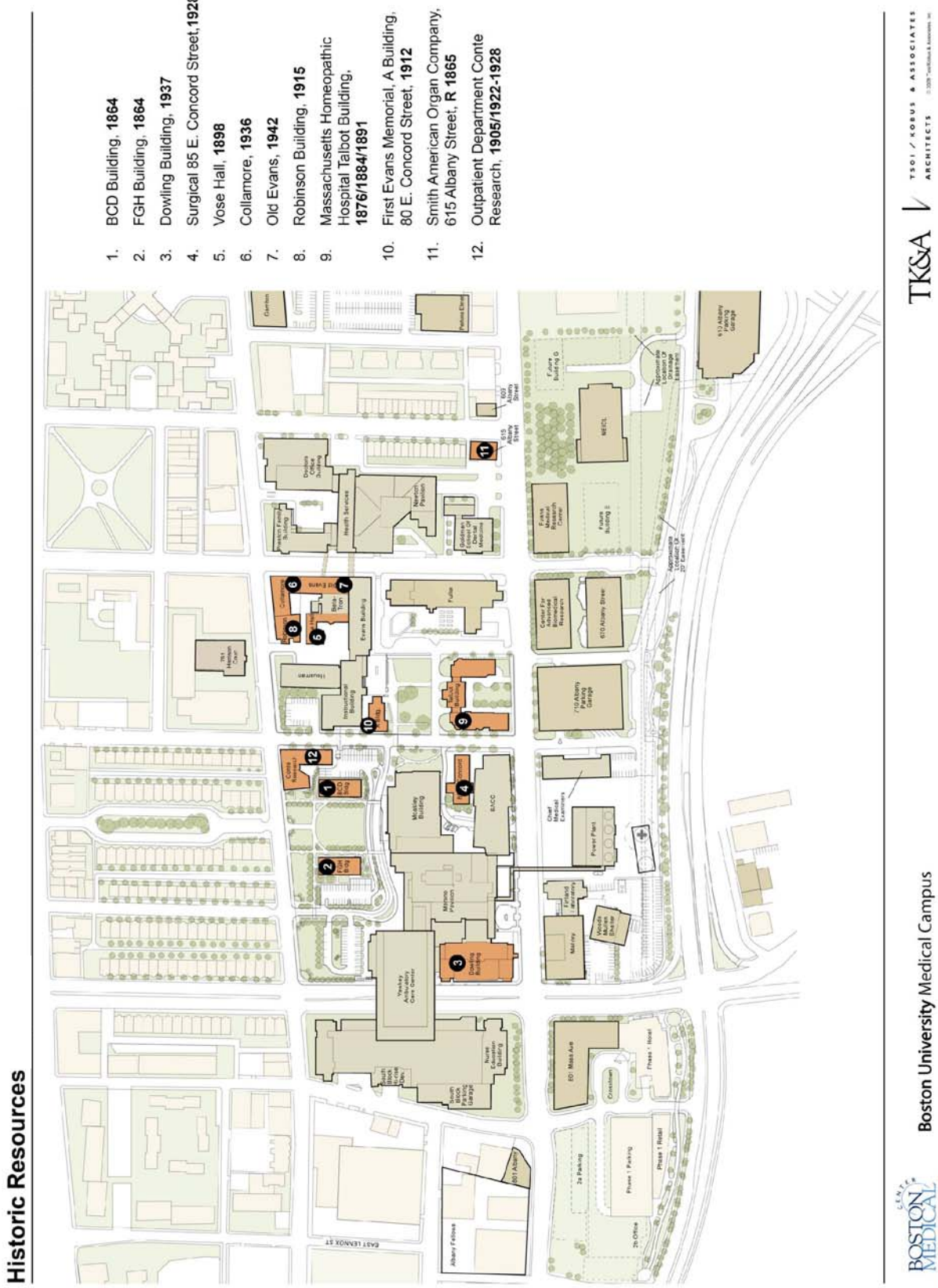
Buildings within the BUMC Campus that were built before 1958 are listed in Table 5-1 and shown on Figure 5-1. Appendix D provides information on the history of the BUMC Campus and each of the buildings listed in Table 5-1.

The BUMC Campus is subject to review by the South End Landmarks District Commission (SELDC) in accordance 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 BUMC Campus are subject to review by the Massachusetts Historical Commission in the event of funding or permitting by a state agency (M.G.L. Chapter 9, Sec. 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 5-1 Buildings Constructed Before 1958

No.	Name	Date
1	BCD Building – Surgical Pavilion, 800 Harrison Avenue	1864
2	FGH Building – Medical Pavilion, 820 Harrison Avenue	1864
3	Dowling Building	1937
4	Surgical Building 85 East Concord Street	1928
5	Anna White Vose Hall	1898
6	Helen Collamore Memorial	1936
7	Old Robert D. Evans Memorial	1942
8	Jennie M. Robinson Memorial, 750 Harrison Avenue	1915
9	Massachusetts Homeopathic Hospital - Talbot Building	1876/1884/1891
10	First Evans Memorial, A Building, 80 East Concord Street	1912
11	Smith American Organ Company, 615 Albany Street	R 1865
12	Outpatient Dept. Silvio O. Conte Medical Research Center (East Concord at Harrison Streets)	1905/ between 1922-1928

Figure 5-1 Historic Resources



5.2.2 Archaeological Resources

A review of the Inventory of Historic and Archaeological 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 on previously disturbed urban land parcels.

5.3 Infrastructure Systems

Boston University Medical Center infrastructure systems are largely dependent on purchased utilities with significant utilization of electrical power and steam. Boston University Medical Center relies to a lesser degree on natural gas and oil, and utilizes those fuel sources primarily for back-up systems within patient care and research buildings and spaces.

Boston University Medical Center has been assessing its infrastructure and addressing upgrades, replacements and maintenance of systems in a manner that both addresses obsolescence and allows for efficiencies during future initiatives. Examples of this methodology include demand-side energy savings, which have been achieved by standardizing the use of energy-efficient lighting fixtures, water-saving plumbing fixtures, and by installing building automation systems controls to reduce the consumption of energy during off peak periods. Further, Boston University Medical Center has been implementing measures to manage its infrastructure systems more efficiently overall.

In addition to these house-wide initiatives, Boston University Medical Center has moved to centralizing mechanical systems, such as chiller plants, and has taken the opportunity to install equipment that could be fueled by different sources in order to manage cost and demand and to create redundancy. Boston University Medical Center installed pipe and electrical infrastructure to allow for the connection of utilities from separately served ends of the campus in order to improve the ability to maintain systems, to provide redundant delivery systems and to manage efficiency.

Boston University Medical Center installed equipment that is significantly more efficient than the equipment it has replaced. However, given increased reliance on technology and ever increasing minimum standards, Boston University Medical Center's requirements for powering and cooling patient care and research space create new demands that continue to outpace the ability to reduce the amount of utilities used in total.

Boston University Medical Center currently utilizes electrical power through two power distribution centers on the campus. The stations are both over 30 years old and are using out of date technology that is not supported by replacement parts without customization or reliance on refurbished equipment. One of these stations is operating within five percent of its rated capacity. The other is presently operating at 65 percent of

its capacity, but services an area of significant anticipated growth. Given the age of these stations and anticipated energy demand, upgrades and modernization of electrical infrastructure will be required in the very near future.

Boston University Medical Center relies on a single district steam distribution line that is at capacity to meet both heating and instrument sterile processing load requirements on the BUMC Campus. Therefore, self-generation and enhanced distribution of steam responds to both current and expected growth in demand for steam power.

The combination of increased demand, potentially limited supply and the need for redundancy, even when constructing efficient buildings, will most likely result in demand beyond what may be available. Furthermore, Boston University Medical Center recognizes that the potential positive environmental impacts of reducing water consumption by recapturing steam condensate and reducing the carbon footprint with the utilization of efficient equipment would benefit its employees, students, patients and visitors.

Due to the scenarios described above, the construction of the new Energy Facility is a necessary alternative and first step to ensure an efficient, reliable and affordable solution for the establishment or development of utilities on the BUMC Campus without taxing the surrounding utility infrastructure beyond its capability. Boston University Medical Center will continue to look for opportunities into the future to implement house-wide initiatives to support a sustainable campus environment.

A detailed infrastructure impact analysis organized system-by-system for each proposed IMP project will be presented as required as part of the BRA's Article 80B Large Project Review Process as each project moves forward. A detailed analysis has been provided in the Draft Project Impact Report for the Energy Facility Project.

Section 6

6.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

6.1 Introduction

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

6.1.1 Architectural Access Board Requirements

IMP projects and future programming that involves 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.

6.1.2 Massachusetts Environmental Policy Act

The renewal or the approval of a new Institutional Master Plan by the BRA is not a trigger under the Massachusetts Environmental Policy Act 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 BRA as a project within an Institutional Master Plan Application and is subject to MEPA, Boston University Medical Center will meet with the MEPA office to coordinate the filing of documentation required by MEPA, including, if necessary, an Environmental Notification Form ("ENF") for a proposed project. The ENF will be consistent with the project documentation filed with the BRA for such proposed institutional project.

6.1.3 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, Boston University Medical Center 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 BUMC 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"). Boston University Medical Center will submit an application for a certificate of design approval to the SELDC for each proposed project when Article 80B Large Project Review is initiated for each project.

6.1.4 Boston Civic Design Commission

The Proponent has met with the Boston Civic Design Commission (BCDC) to review the proposed 10 year Institutional Master Plan. The IMP will be submitted to the BCDC by the BRA in accordance with the provisions of Article 28 of the Boston Zoning Code.

6.1.5 Boston Groundwater Trust

The sites are located within the Groundwater Conservation Overlay District. Measures will be implemented in order to minimize the potential for impact to groundwater conditions, and the Proponents will coordinate with the Boston Groundwater Trust on IMP projects.

6.1.6 Other Permits and Approvals

Permits and approvals for each proposed project will be identified in individual Project Notification Forms.

Appendix A

APPENDIX A BOSTON UNIVERSITY MEDICAL CENTER INSTITUTIONAL MASTER PLAN BACKGROUND / HISTORY

A.1 2000 Boston University Medical Center IMP Overview

The original Boston University Medical Center Institutional Master Plan was approved by the Boston Redevelopment Authority on May 18, 2000 and the Boston Zoning Commission on June 28, 2000, effective July 13, 2000. Boston University Medical Center is 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.

Only one new construction project, the Medical Services Center, was contemplated as part of the 2000 BUMC IMP. The Medical Services Center included a five-story, 92,010 square foot outpatient care center to be located northeast of the 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 building BCD and FGH. The project also included the demolition of the Thorndike, Administration and Sears Buildings, and the renovation of Buildings BCD and FGH. While the building demolition activities occurred and buildings BCD and FGH have been preserved, the Medical Services Center building was never constructed. However, the 2003 Second Amendment, as described below, substituted the Medical Services Center with the Moakley Medical Services 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, Boston University Medical Center proposed its first amendment to the 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, Boston University Medical Center submitted a Notice of Project Change ("NPC") to the BRA. The NPC considered: the replacement of the approved Medical Services Center in the 2000 IMP with the proposed Moakley Building as an

Institutional project; modifications and additions to the existing Ambulatory Care Center; and, inclusion of circulation and parking changes associated with the Moakley Building. The 133,217 square foot 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 Boston University Medical Center 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, Boston University Medical Center submitted its second IMP amendment for several minor modifications, which considered the reuse of basement, office and administrative space in BCD, FGH and 761 Harrison Avenue, and to remove from the Boston University Medical Center 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, approximately 245,000 s.f. Shapiro Ambulatory Care Center ("SACC") at 725 Albany Street. When completed, the new facility will allow for the relocation of the DOB clinical services to appropriately-sized new space consistent with Department of Public Health requirements and BMC clinical standards. This solution also allows BMC to further its goal to consolidate clinical departments by shifting some outpatient services from Dowling, Yawkey and other locations on campus to the proposed SACC. The SACC's design does not result in significant new outpatient space on campus, rather it will create 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, Boston University Medical Center submitted an Institutional Master Plan Notification Form for the Renewal and Amendment of the Boston University Medical Center IMP ("IMPNF for Renewal and Amendment"), which IMPNF for Renewal and Amendment described the minor expansion of the Menino Pavilion by the construction of a single-story slab-on-grade addition of approximately 845 square feet on the southwest end of the Menino Pavilion (the "ED Project"). Notice of receipt by the Authority 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 Authority approved the IMPNF for Renewal and Amendment for a two year renewal of the Boston University Medical Center IMP and the ED Project.

On August 14, 2009, Boston University 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 Authority 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 Authority approved the IMP Amendment for inclusion of the Albany Fellows Site and Graduate Student Housing Project, and on February 10, 2010, the Zoning Commission approved the same.

Boston University intends to proceed with the Graduate Student Housing Project as a nine story building of approximately 84,033 square feet and the planned 12,000 square foot landscaped open space on a portion of Parcel 2A. The building will provide 104 two bedroom units to house up to 208 graduate students of the Boston University Medical Campus and will also contain approximately 5,000 square feet of ground floor retail space. It is anticipated that future development on Parcels 1 and 2B of the Albany Fellows Site will be consistent with the development density previously approved by the BRA for a prior development. Under this assumption, total development on Parcel 1 and Parcel 2B (including the remainder of Parcel 2A, not used for the open space and the Graduate Student Housing Project) will be limited to approximately 358,500 square feet of above-grade building space and up to 322 parking spaces. Potential uses for these future facilities may include: housing (either student housing or housing for faculty and staff of the Boston University or Boston Medical Center), ground level retail, office, backstreets, research & development, and academic space. As currently envisioned, the density of development of these two remaining building sites, Parcels 1 and 2B, is expected to be evenly distributed, with the Parcel 2B site having a range of between 110,000 and 190,000 square feet of program (exclusive of parking), and the Parcel 1 site (with the remainder of Parcel 2A area) having a range of between 80,000 and 170,000 square feet of program (exclusive of parking). This would result in two buildings of moderate height (i.e. in a range from 9 to 14 stories).

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

A.1.2 Notices of Exemption

On October 2, 2006, Boston University Medical Center 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 Boston University Medical Center IMP and Amendments

Date	Action	Subject
May 18 2000	IMP BRA Board Approval	Original Boston University Medical Center IMP and including proposed five-story, 92,010 s.f. Medical Services Center (outpatient care) and related circulation, parking and landscaping.
July 14 2001	IMP Amendment BRA Board Approval	Rehabilitation of the 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 Medical Services Center with the 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	Minor modifications including reuse of basement, office and administrative space in BCD, FGH and 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	Expansion of the Newton Pavilion to create 10,000 s.f. with 12 new inpatient beds
April 5 2007	Notice of Exemption Granted	Addition of 17,500 s.f. to the Menino Pavilion for MRI and ER beds.
December 2007	IMP Amendment BRA Board Approval	Demolition of existing building and construction of the new 245,000 s.f. Shapiro Ambulatory Care Center at 725 Albany Street. The SACC will create more efficient use of existing outpatient space shifted from other campus locations.
July 16 2009	IMP Renewal and Amendment BRA Board Approval	Renewal of the 2000 Boston University Medical Center IMP for a 2 year term and minor expansion of the 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	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 Boston University Medical Campus and will also contain approximately 5,000 square feet of ground floor retail space.

Appendix B

EXCEPTIONAL CARE. WITHOUT EXCEPTION.

Community Benefits Report
Fiscal Year 2008

Filed with the
Office of the
Massachusetts Attorney General
June 22, 2009

June 22, 2009

Martha Coakley, JD
Massachusetts Attorney General
Office of the Attorney General
One Ashburton Place
Boston, MA 02108

Dear Ms. Coakley:

It is my pleasure to submit Boston Medical Center's Community Benefits Report for Fiscal Year 2008. As the largest safety net hospital in New England, Boston Medical Center embraces its mission to *provide consistently excellent and accessible health services to all in need of care regardless of status or ability to pay*. We are a national model for innovation in serving vulnerable populations and securing the health care safety net for low-income communities.

BMC has enthusiastically welcomed embraced health care reform, which brings new possibilities for so many of the patients we serve. Health care reform in Massachusetts has brought many challenges to BMC, but we are extremely proud of the fact that our outreach to patients and coordination with our health center partners and the Commonwealth resulted in significant reductions in the numbers of uninsured, enhancing health care access for many people.

To address the needs of our patient population and ensure the best care possible for our patients, we have built programs that go beyond traditional medicine to address a range of medical, social, economic, and emotional factors that affect the health of families in our community. Our report highlights these programs, which are helping Boston's residents to live longer, fuller lives by addressing both medical needs and social inequities.

Sincerely,

Elaine Ullian

Elaine Ullian

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EXECUTIVE SUMMARY

Boston Medical Center's mission is to "provide consistently excellent and accessible health services to all in need of care regardless of status or ability to pay." Over half of our patients have incomes at or below 200% of the federal poverty level, and many face linguistic and sociocultural barriers to care. To address the health needs of its diverse patient population, Boston Medical Center (BMC) provides a wide range of services beyond the traditional medical model. These programs are not carved out as a Community Benefits Program—they are core to fulfilling our mission. We highlight some of these programs in this report, focusing in particular on BMC's efforts in FY08 to minimize the impacts of violence, to reach out to and improve the quality of life for people living with HIV/AIDS, to provide services to children with autism spectrum disorder and their families, to offer diet and exercise interventions to obese children, and to help families meet their basic needs for food, clothing and shelter.

BMC, a private, not-for-profit, academic medical center located in Boston's historic South End, serves as a national model for caring for vulnerable populations. Approximately 200,000 of our patients have MassHealth, Commonwealth Care or no insurance at all. Affiliated with the Boston University School of Medicine (BUSM), BMC is a partner in the Boston HealthNet, an integrated health care delivery system that includes 15 community health centers in the Boston area and BUSM.

Health care reform has brought profound changes to BMC and its patients in FY08. As the predominant provider of care to uninsured patients in the Commonwealth, BMC is at the forefront of helping these residents enroll into Commonwealth Care and other insurance coverage. BMC and its Boston HealthNet partners have a special role to play as Massachusetts implements health care reform legislation (Chapter 58). In addition, the BMC HealthNet Plan, a subsidiary of BMC, is the largest MassHealth and Commonwealth Care managed care organization in Massachusetts, providing health insurance for more than 240,000 residents across the Commonwealth.

Serving a highly diverse population (nearly 70% are underrepresented minorities), BMC is committed to addressing health disparities, an issue for the Boston health care community that has been brought to the fore by several reports and government commissions in recent years. This commitment extends from investment in new facilities, technology, and equipment to ensure that our 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.

The following report will highlight BMC's work in five areas: addressing domestic and community violence, outreach to individuals living with HIV/AIDS, services for children with autism spectrum disorder, expansion of the Medical-Legal Partnership (formerly the Medical-Legal Partnership for Children), and diet and exercise interventions for obese children.

Our work to address **violence** is multi-faceted. We provide interventions in the Emergency Department (ED), which sees the majority of gun and stabbing related trauma in Boston. We also support families and victims of intimate partner violence. At urban EDs like BMC's, domestic violence accounts for about one-fourth of injuries to women. In FY08, we made great strides in addressing violence:

- BMC hired Joanne Timmons, MPH, in the newly created position of ***Domestic Violence Program Coordinator*** with the charge to help coordinate and deepen BMC's responses to this issue. Ms. Timmons has focused primarily on building relationships both within and outside of BMC, educating providers, and strengthening connections to community-based resources such as shelters, legal services, and other forms of support and advocacy for victims.

- ***Project ASSERT*** is a BMC ED service which facilitates access of patients to primary care, clinical preventive services, and when needed, to the drug and alcohol treatment network.

- The ***Violence Intervention Advocate Program*** (VIAP) provides individual counseling, triage and referral services (for primary care, mental health, and social supports) for victims of violence brought to the BMC ED. VIAP hired Rebecca Bishop, MSW, to serve as the VIAP Program Administrator. She developed a system to improve the tracking of VIAP patients who are treated at BMC.

- BMC's ***Child Protection Team*** ensures that child victims of abuse and neglect and their families have access to protection, appropriate medical care, psychosocial support, and advocacy services; identifies and works toward resolving barriers to effective identification of and response to maltreatment at BMC; and provides training and education to pediatric health and other professionals to enhance their abilities to recognize and manage child maltreatment.

- The ***Child Witness to Violence Project*** responds to the needs of pediatric patients at BMC who were exposed to or affected by violence in their homes and communities and provides a counseling, outreach and consultation program that focuses on young children (under the age of 8). In FY08, the team provided trauma-focused counseling services for 112 children, of whom 75% were under age seven.

- Heather Walter, MD, MPH, was appointed Chair of BMC's ***Child & Adolescent Psychiatry Division*** in FY08. Dr. Walter is committed to enhancing services to help stabilize the health and wellbeing of children who are experiencing a combination of stressful life circumstances which exacerbate, and in some cases cause, arrested psychiatric development.

Medical-Legal Partnership (MLP) trains clinicians to identify advocacy issues and provides legal support to families to secure basic services. MLP was honored by the American Hospital Association in July 2008 as one of five national programs receiving its NOVA award, which recognizes effective collaborative programs focused on

community health. MLP supported nearly 1,300 patient-families and individual patients in FY08.

The Center for HIV/AIDS Care and Research (CHACR) at BMC is the largest provider of "one-stop shopping" HIV medical care and support services in Massachusetts, caring for nearly 1,500 unique patients and 16% of all black people living with HIV/AIDS in the state. An integral part of CHACR's services is reaching out to people living with HIV/AIDS in order to improve their quality of life. CHACR does this with a variety of programs including: 1) the Social Networks Program, which targets HIV-positive individuals and those at high risk of HIV transmission in order to prevent transmission; 2) the Retention in Care Program, which aims to retain in care our low-income, high risk HIV-positive patients who face barriers to staying in medical care; and 3) the Prevention Program for Haitian Women, which recruited and enrolled 163 low-income Haitian women, a population that has an increased risk of contracting HIV through heterosexual contact, in a program that promotes prevention and facilitates remaining in care.

In addition to providing ongoing early, accurate diagnosis of autism and supports for families, and in order to facilitate children's access to appropriate educational services, the **Pediatric Assessment of Communication Clinic (the Autism Clinic)** addresses parents' requests for guidance on behavioral management by developing and offering the six-session series entitled *Everyday Behavior Problems and Solutions*. The series is tailored to the underserved caregivers of children with autism seen in the Autism Clinic, whose households are complicated by the child's intensive behavior needs and inability to communicate as well as the variety of socioeconomic factors.

The Department of Pediatrics works to prevent the onset of adult diabetes in young, underserved, and obese patients through its **Nutrition and Fitness for Life Program** (NFL) that provides clinical and community-based resources to children and their families. The NFL model features three primary components: 1) clinical services targeting children with >95 percentile of body mass index; 2) the FANtastic Kids after school program which provides teen-mentored nutrition education and fitness activities for overweight and obese youth who are referred to the program by their physicians and may not be physically ready for other programs; and 3) continuing medical education for clinicians to increase their capacity to treat pediatric overweight patients in the primary care setting. These programs fill a large gap in services to populations most strongly impacted by the pediatric obesity epidemic: nearly 80% of the program's participants are Medicaid or other public assistance recipients; 90% are black or Hispanic.

SPECIAL ISSUES: ADDRESSING DISPARITIES

The Hospital Working Group of the City of Boston's Disparities Project grouped its recommendations into five broad categories. BMC's activities in each area are described below.

Collecting Information on Race and Ethnicity

BMC has been ahead of the curve among Boston hospitals in modifying its data collection systems to collect these data in the format prescribed by the City of Boston for collecting data on race, ethnicity, primary language, and level of education, and in beginning to develop information systems capacity to mine these data for quality improvement feedback on possible disparities in patient clinical care and outcomes.

Measuring Health Disparities

In addition to putting the data collection framework in place, BMC has invested in the creation of a Clinical Data Warehouse, a data repository of all clinical, demographic, and financial data. The warehouse is used as a resource for various health care disparities inquiries. Preliminary research into disparities in clinical care and outcomes is underway.

The installation of an electronic medical record system and the establishment of the data warehouse broaden and deepen BMC's capacity to examine and respond to issues institution-wide and to set institution-level priorities and policies for change.

Diversifying the Health Care Workforce

Efforts to address diversity cover three main areas: career ladders for allied health professionals, diversification of managerial ranks, and minority physician recruitment and retention.

<u>Career Ladders for Allied Health Professionals</u>

BMC made substantial investments to launch and sustain a fully integrated continuum of Workforce Development initiatives, the goal of which is to build a pipeline of employees advancing toward careers in high vacancy areas in the hospital that pay family-supporting wages. In designing its programs, BMC embraced strategies recommended in the Institute of Medicine's report entitled, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare, 2003*, so as to dually impact labor shortages and health disparities by promoting educational access for employees from Core Workforce Neighborhoods[1] in Boston (the same neighborhoods where many of our patients reside). We estimate that 60% of participants are racial and ethnic minorities.

BMC was selected in FY07 as one of three Boston hospitals to participate in The Boston Foundation's three-year Allied Health Workforce Initiative, which includes specific targets for career development of racial and ethnic minority employees in the areas of Central Sterile Processing and Radiation Technology.

Related to our efforts to promote career development of employees in the allied health professions, BMC participates in the YMCA Training, Inc. Program. This program is designed to provide adults with job skills training to help them obtain living-wage

[1] Core Workforce Neighborhoods (CWNs): Six Boston neighborhoods where over 30% of BMC employees reside. CWN median income is below the MA average, and substandard housing and health disparities are above average.

employment. BMC provides placements for these interns who provide their time and services while gaining training for job readiness. After these unpaid internships, more than 50% of these interns have been hired at BMC.

Diversification of Managerial Ranks

BMC has a goal of having minorities represent at least 33% of the total hires in the top three EEO job categories. Last year, we exceeded this goal by 44.51%. As well, BMC exceeded by 38.35% our goal of retaining at least as many minorities as we hired. BMC's Emerging Leaders in Healthcare Administration Fellowship and Internship Program is a recruitment vehicle linked to enhancing minority representation within the managerial, professional, and technical job categories. The program recruits and places two interns and two fellows from minority communities annually in managerial tracks at BMC.

BMC maintains an active relationship with the National Association of Health Services Executives (NAHSE) to recruit its fellows and professional and senior-level black executives. Several of our African American managers and professionals are NAHSE members. The organization's mission and its purpose since inception are dedicated to the advancement and development of African American health care leaders in concert with elevating the quality of health care rendered to minorities and underserved communities. BMC is also a member of the Association of Latino Professionals in Finance and Accounting, which is the first national Latino professional association in the United States. The membership affords BMC the opportunity to reach out to the Latino population as a source for managers, professionals, and technical employees.

Minority Physician Recruitment and Retention

BMC's Minority Physician Recruitment Program works to increase the proportion of minority residents and fellows in order to better serve our minority patient population. Minority medical students (about 11 per year) are also supported in securing electives here during their medical school training. The office, which is one of the oldest in the country (having been established at Boston City Hospital), works closely with the Dean of Minority Student Affairs at Boston University School of Medicine.

Improving Cultural Competence

Institution-wide, BMC invests in cultural competency training for all staff, managers, and physicians. In 2006, training expanded from managerial-level only to include all staff and physicians. A roster of seven diversity training programs has been developed for managers and staff. These seven two- and three-hour modules are offered through the Organizational Development and Training Department.

Cultural competency training for all physicians, residents, and other clinical providers is facilitated through an e-learning model entitled, "Quality Interactions: A Patient-Based Approach to Cross-Cultural Care," developed by the Manhattan Cross Cultural Group.

Including the Community in Institutional Decision-Making Processes
In order to expand the diversity of its members, the BMC Board of Trustees impaneled a Governance and Nominating Committee in 2005. The Governance and Nominating Committee has been responsible for making diversity a major Board focus for the last several years. The following table highlights the increased diversity of the Board in 2008 as compared to 1996:

	1996	2008
Women	4	12
Men	26	17
African Americans	3	6
Latinos	1	1

While BMC does not have a Community Advisory Board (CAB) for the hospital, a number of departments have CABs for various programs and grant-funded projects. These CABs feature membership from the community. In addition, BMC's Patient Advocacy Office is an accessible, visible service to patients and families who wish to express concerns or compliments about our services.

COMMUNITY BENEFITS PLANNING AND STRUCTURE

BMC formed in July 1996 with the merger of Boston City Hospital, Boston Specialty & Rehabilitation Hospital, and Boston University Medical Center Hospital. As the private, not-for-profit successor to Boston City Hospital, the 626-licensed-bed BMC is the major hospital provider to the working poor, underinsured, and uninsured in Suffolk County and greater Boston, Massachusetts, and is at the hub of community health care delivery in the Boston area. In FY08, there were 803,725 outpatient visits and 29,411 inpatient admissions.

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 200,000 of our patients have MassHealth, Commonwealth Care, or no insurance at all and more than 75% live in Suffolk County. Over half have incomes at or below 200% of the federal poverty level. Diversity is significant: over 30% do not speak English or need an interpreter to access health care; many are newcomers to our community or first generation Americans; some are refugees and asylum seekers. To deliver exceptional care, BMC has one of the largest interpreter services programs in the United States. In FY08, there were 197,406 patient-interpreter interactions.

BMC provides a wide range of social services to meet the basic needs of the many vulnerable people we serve. Leveling the health care playing field for our patients goes beyond our commitment to providing exceptional health care without exception: we realize that we must work in a multidisciplinary fashion and address multiple levels of patients' needs to improve our patients' health. Our services have evolved over many years, including at our predecessor institutions, to provide benefits and services in line with our public health mission. Many programs that started at BMC – like Reach Out

and Read™ and the Medical-Legal Partnership – have become nationally replicated models to improve the health and wellbeing of vulnerable populations.

In addition to these programs, BMC is integrally involved in numerous community and neighborhood activities through its partnership in the Boston HealthNet. The Boston HealthNet was established in 1995 to create an integrated health care delivery system among its members. The Boston HealthNet is an influential community health care network serving the city's underserved and working class neighborhoods. Its primary partner health centers are: Codman Square Health Center in Dorchester, Dorchester House Multi-Service Center, East Boston Neighborhood Health Center, Greater Roslindale Medical and Dental Center, Harvard Street Community Health Center in Dorchester, Health Care for the Homeless/McInnis Health Group, Mattapan Community Health Center, South Boston Community Health Center, Upham's Corner Health Center in Dorchester, and Whittier Street Health Center in Roxbury. Harbor Health Services, Inc. (which includes Geiger-Gibson Community Health Center and Neponset Health Center, both in Dorchester), Manet Community Health Center in Quincy, Roxbury Comprehensive Community Health Center, and the South End Community Health Center are secondary partners, which means they have a primary relationship with another hospital, but strong programmatic linkages with BMC. Manet's five sites extend Boston HealthNet's reach as far south as Hull, Massachusetts.[2]

BMC's community benefits programs are not managed under a specific program office as at other hospitals, because our overarching mission – the provision of health services to all in need of care, regardless of status or ability to pay – is in itself a community benefit. BMC annually prioritizes and invests in significant programming to improve the health status of the communities we serve, with particular regard to improving health status and access for the lower-socioeconomic communities in Suffolk County (Boston, Chelsea, Winthrop and Revere). A significant portion of services that we believe are essential to treating our patient population may not be reimbursed by payers (e.g., case management and patient navigation).

BMC senior management, the BMC Board of Trustees (in particular its Community Health Center committee), individual department leaders, and the Boston HealthNet Board of Directors prioritize programs and services for the vulnerable populations we serve, *ensuring access to health care for underserved populations* and *securing the fundamentals of health in key areas of public health*. These programs receive significant dedicated budgetary support in addition to philanthropic and grant funds. ***In this report, we highlight support for victims of community and domestic trauma, outreach to people living with HIV/AIDS, services to children with autism spectrum disorder, the Medical-Legal Partnership, and community partnerships to deliver diet and exercise interventions to children and adults.***

[2] Five of the Boston HealthNet health centers operate under BMC's license. They are East Boston Neighborhood Health Center, South Boston Health Center, Dorchester House Multi-Service Center, Codman Square Health Center, and Greater Roslindale Medical and Dental Center. More information on programs and services of the Boston HealthNet are presented on page 19 of this report.

BMC receives substantial input from community groups and health center clinicians and leadership in the development and administration of its programs. Participation from BMC Trustees and Boston HealthNet health center members is another important source of input in our planning processes. The BMC Friends of Women's Health group brings community attention to specific needs of our female patients.

BMC does not prepare an annual Community Benefits Plan. Its short-term strategy is to bring key resources to its patients and the communities they live in to facilitate access to care and living healthy lives. Effective programs receive ongoing hospital financial commitments and/or are sustained through philanthropic support and reimbursement for clinical services where possible. BMC's long-term goal is for the people and communities we assist in (for example) accessing preventive care and treatment, addressing unmet behavioral health issues, learning about child health and development, and obtaining food and nutritional guidance to lead healthier, safer, and more productive lives. Programs evolve according to changes in community demographics, needs and issues, and the availability of financial resources.

Community benefits initiatives and resource allocation occur under the leadership of Elaine Ullian, President and Chief Executive Officer, who, with the Board and senior management, sets institution-wide priorities. Additional priorities are set in conjunction with the Boston HealthNet Board of Directors. Leadership and planning also occur at the department level with many programs and services conceived, designed, funded, and operated through specific department initiatives. Senior management, department and clinical leaders work closely with the BMC Office of Development to secure additional resources to ensure effective programs are prioritized so they can be comprehensive and sustained. Although the hospital does not have a Community Benefits Advisory Committee, senior management receives input concerning community needs from multiple areas and assesses these needs and costs in determining overall budgetary priorities and program allocations. The Board of Trustees is regularly informed about community benefits programs and priorities.

Major activities are communicated within the institution and the Boston HealthNet through a variety of mechanisms. Senior management articulates its community benefits priorities to clinical leadership at regular meetings. In addition to communication from managers, staff at all levels of BMC receive information concerning community benefits priorities and programs through the BMC intranet and announcements that are disseminated via all-staff electronic mail. *Community Connections*, a newsletter that is distributed twice a year through community newspapers in Boston neighborhoods, provides the community served by BMC with relevant community and public health information, including screenings and research activities at the medical center. Approximately 90,000 newsletters are distributed twice a year. We successfully use the *Metro* daily paper to advertise our cancer screenings, along with other community newspapers and fliers to local community centers and places of gathering. We print fliers in English, Spanish, and Portuguese.

ASSESSING THE HEALTH NEEDS OF THE COMMUNITY

BMC's process for community needs assessment is grounded in our role as the largest safety net provider to vulnerable communities locally and throughout the Commonwealth. BMC's President and Chief Executive Officer is a member of the Boston Public Health Commission, and the BPHC's Executive Director is a member of BMC's Board of Trustees. This overlap ensures that the city's public health agenda is always foremost on the hospital's agenda.

A standing Community Health Center Committee of the BMC Board and BMC's membership in the Boston HealthNet provides a direct link to neighborhood-based care that keeps BMC in tune with the pulse of the communities it serves and strengthens community-based care. The boards of each health center are comprised of community residents and leaders, whose interests are then relayed to the BMC board level by the four BMC trustees who are executive directors at Boston HealthNet health centers. An annual retreat of the Boston HealthNet provides an opportunity to examine issues of common concern, as do standing committees, including the Boston HealthNet Board of Directors, CFO Forum, Clinical Committee, Clinical Computing Collaborative, Retreat Planning/Strategic Planning Committee, Rounder Committee, Community Health Automated Record Technology (CHART) working group, and Human Resources Committee.

Community input is sought and received from numerous community sources, including Community Advisory Boards for several of our programs and through our Patient Advocacy Office. A Patient Guide program, staffed by hospital non-clinical employees, has provided an important vehicle for obtaining candid feedback from patients and their families about additional services needed to support them in accessing and receiving care at BMC. Through BMC's relationship with other community organizations, community concerns are solicited at multiple levels of our organization to direct our programs and priorities.

Published information sources for community benefits planning include health status reports, collaboration with community organizations, and patient survey data conducted at the hospital level and within individual clinical departments. Regarding disparities, state and city commission reports have provided guidance, as has the report entitled, *The Boston Paradox: Lots of Health Care, Not Enough Health*, published by the New England Healthcare Institute and The Boston Foundation in June 2007. The BPHC's annual *Health of Boston* report provides a snapshot of the health status of the people of Boston and its neighborhoods. The information in the report provides the hospital with benchmark data to identify priority areas for the allocation of clinical and financial resources. Furthermore, BMC's close clinical relationship with the BPHC and the City of Boston, including the location of the city's tuberculosis clinic on or near our campus, Emergency Medical Services ambulance dispatch, the Boston Police Department Sexual Assault Unit, and various substance abuse treatment programs, assists BMC's response to critical public health needs.

Our clinicians are active on numerous neighborhood, city and state committees and coalitions, including those sponsored by the City of Boston, the Massachusetts Legislature, and the Massachusetts Department of Public Health. These clinical leaders in turn are a major source of information and advocacy for the creation and evolution of BMC's community programs.

Some data associated with programs we are highlighting in this report:

Violence: Violence data from the Centers for Disease Control and Prevention (CDC) in 2003 show that homicide is the leading cause of death for young people ages 15-24; 82% were killed with a firearm. The 2007 *Health of Boston* report cited increasing homicide rates in Boston with significant disparities reported amongst racial and ethnic groups. The rate of nonfatal assault-related gunshot and stabbing injuries in Roxbury was more than twice as high as the overall rate in Boston, and rates for North and South Dorchester and East Boston were 60%-90% higher than the Boston rate. (*Health of Boston 2008*, 2006 data). In FY08, BMC's Emergency Department (ED) had more than 132,000 patient visits and handled the majority of stabbing and gunshot victims in Boston.

Family and intimate partner violence is another area of concern. In the first 11 months of 2006, there were 26 domestic homicides in Massachusetts. Nearly one-third of American women (31%) report being physically or sexually abused by a husband or boyfriend at some point in their lives. At urban EDs like BMC's, domestic violence accounts for about one-fourth of injuries to women. A 2005 study of patients in a local health center conducted by BU researcher Anita Raj, Ph.D., found that more than a quarter of men admitted to physically abusing their partners in the past year, and about the same percentage said they had forced sex on a partner or insisted on sex when a partner didn't want it. Eighteen percent admitted to forcing their partner to have sex without a condom. Annually, there are more than 40,000 restraining orders issued in Massachusetts. Victims of violence are more likely to have substance abuse problems and recurring mental health issues and are 45% more likely to be re-injured due to a violent act. Interrupting this cycle is an important health priority for BMC. Studies show a strong link between victimization and further acts of violence.

HIV/AIDS: The Center for HIV/AIDS Care and Research at BMC is the largest provider of "one-stop shopping" HIV medical care and support services in Massachusetts, caring for nearly 1,500 unique patients. CHACR cares for 16% of all black persons with HIV/AIDS in Massachusetts.

According to preliminary HIV/AIDS data for Boston residents in 2006, the Boston Public Health Commission's *Health of Boston, 2008* reports the incidence rate for Boston's black residents was 38.6% higher than the overall Boston rate. Further, Boston incidence rates for HIV/AIDS vary dramatically by sex; rates for males are almost seven times higher than rates for females. The preliminary data for 2006 also suggests that six Boston neighborhoods, all served by BMC, have HIV/AIDS incidence rates that

exceed the overall Boston rate: Back Bay, Jamaica Plain, Mattapan, North Dorchester, Roxbury, and the South End.

The report also indicates that heterosexual sex as a mode of transmission for HIV/AIDS cases is seven times more common in females compared to males and heterosexual sex transmission is most prevalent among blacks and least prevalent among whites, with HIV/AIDS seven times more likely to be transmitted by heterosexual sex in blacks compared to whites. Incidence rates for HIV/AIDS continue to be highest for blacks.

Reaching out to people living with HIV/AIDS and to those at high risk for HIV/AIDS is a priority for BMC. Of CHACR's patients, 29% are black males and 24% are black females; 53% of CHACR's patients are black. For more than 47% of CHACR's patients, their risk profile is heterosexual sex.

Autism Spectrum Disorders: Autism Spectrum Disorders (ASD) are neurodevelopmental disorders that are fast becoming a public health concern nationally. The most recent data from the Centers for Disease Control and Prevention indicate that approximately one of every 150 children in the United States has an ASD. ASDs affect children from all ethnic and racial groups, though disadvantaged children are often diagnosed later than children in higher socioeconomic groups. It has been demonstrated that children with ASD who receive early and intensive specialized instruction make the most progress in their development. These educational services are expensive, and skilled teachers and therapists are in short supply. Poor children with ASD who attend underperforming public schools are less likely to be diagnosed early and to receive high quality, specialized instruction to address their symptoms of ASD. Many of the children seen at BMC attend Boston Public Schools, and are at high risk of being identified late and failing to receive timely and appropriately intensive educational services.

Obesity: Obesity and its associated health problems present lifelong risks for children in Boston and beyond. According to the Centers for Disease Control and Prevention's Boston Steps Program, 45% of Boston Public School students are overweight or obese. Obese children are at higher risk for diabetes, high blood pressure, and joint problems, and may have low self-esteem and poor peer relationships. Obese children are likely to become obese adults who exhibit a greater risk of mortality in adulthood: the life expectancy of obese children is decreased by nearly 20 years. Boston's low-income minority children are at the highest risk for obesity and are disproportionately affected by it.

In 2008, the Boston Public Health Commission reported that 52% of adults are considered overweight or obese. According to *Health, United States, 2008*, obesity is a major risk factor for many chronic diseases, including heart disease, diabetes, and stroke, and varies by race and ethnicity—53% of non-Hispanic black women age 20 years and over were obese in 2003–2006, compared with 42% of women of Mexican origin and 32% of non-Hispanic white women. Further, *Health, 2008* states that regular

physical activity reduces the risk of disease and enhances mental and physical functioning.

According to the CDC's 2007 Massachusetts Youth Risk Behavior Survey, 59% of high school students did not meet the recommended levels of physical activity. *Health, 2008* reported that about one-third of adults 18 years of age and older engaged in regular leisure-time physical activity.

Child and adult overweight and obesity are priorities for BMC given that our patient population is comprised of nearly 70% underrepresented minorities.

PROGRESS REPORT: FEATURED PROGRAMS

In this section, we highlight programs that address the issues of community-to-hospital care systems, violence, outreach to people living with HIV/AIDS, children with Autism Spectrum Disorder, medical and legal needs of children and adults, and childhood obesity. We provide brief updates on these programs which help to ensure the health of the community we serve. This report is not exhaustive, but rather represents the array of exceptional programs we provide in partnership with community organizations and community members.

Boston HealthNet

Established in 1995, Boston HealthNet (BHN) is an integrated health care delivery system comprised of Boston Medical Center, the Boston University School of Medicine, and 15 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 14th year, BHN and its health center 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 health center admissions to BMC; the establishment of an inpatient Rounder System for health center patients; 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 the network's information technology programs and services.
In 1997, Boston HealthNet established a Community Physician Group Inpatient Rounder System at BMC. The Rounder System brings together physicians from the health centers and the BMC Department of Family Medicine to care for patients from these centers while they are in the hospital, thereby coordinating and enhancing the quality and continuity of care. Today, 12 health centers and BMC's Department of Family Medicine participate in the Rounder System. The System was reconfigured in 2008 into three teams, comprised of BMC and CHC attending physicians assisted by

three nurse partners and four physician assistants. In 2008 the Rounder System was extended to evenings and seven day coverage. In FY08, the ALOS for the Rounder System was 4.54 days, which compares favorably with other national and local indices.

Boston HealthNet health center partners are active collaborators in a number of projects and programs described in this report, including the Prostate Cancer Screening Initiative, patient navigation research, the FANtastic Kids program to address pediatric overweight, and Medical-Legal Partnership. Additional examples of projects on which BMC and Boston HealthNet have collaborated include:

Information Technology

Significant strides have been made in the area of information technology across the network. All of Boston HealthNet's primary partner health centers are connected to BMC over high-speed T-1 lines that put BMC's clinical systems at the fingertips of health center providers and other staff. In 2001, the partnership between BMC and the health centers, coupled with a substantial grant from an anonymous foundation, supported the implementation of the Centricity electronic medical record (EMR) at eight of the primary partner health centers. In 2008 implementation was completed at one secondary partner health center. Additionally, electronic prescribing was implemented at the nine Centricity sites. A Working Group meets monthly to address developmental issues and to evaluate and prioritize future projects.

A three year, $746,246 HRSA award to Boston HealthNet in FY07 is supporting the vertical integration of electronic medical records at eight community health centers with that of BMC. This integration will take place via implementation of a Clinical Information Exchange (CIE) that will allow community health center providers to view information in both BMC and other CHC systems through the local patient record. The CIE will allow physicians in the health centers to better track patients receiving care at BMC.

In 2008 the network was a recipient of a one-year, $543,000 high impact health information technology grant from HRSA that will allow its staff to implement an electronic referral management system between the 10 BHN primary partner CHCs and specialists in the BMC Department of Medicine. By leveraging the technology of the CIE, the eReferral system will also make it possible for the CHCs to schedule appointments, electronically submit required clinical information to specialists, receive electronic information about referrals, track patients' no-show rates, and receive return specialist reports through the local EMR or by opening a web-based practice portal.

Increasing Patient Access

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 Boston Medical Center. In 2008 these shuttle buses transported 167,055 patients and their families between BMC and the Boston HealthNet health centers.

Capital Investments

While the need for community-based services continues to grow, it has become increasingly difficult for health centers to meet the demand. Reimbursement often does not cover the full cost of caring for the complex needs of health centers' diverse patient population. Compounding this problem, in the mid-late 1990s many health centers found themselves operating in facilities that were in desperate need of restoration or expansion. Costly information technology upgrades were also required to enhance management efficiencies and patient care. In response to the health centers' needs, BMC provides more than $4 million in operating support to the Boston HealthNet health centers each year.

BMC also established a capital investment program through which it dedicates part of its annual capital budget to HealthNet health center projects. More than $13 million dollars in BMC capital investment over the past ten years has greatly enhanced Mayor Menino's initial $20 million investment during the merger, allowing many health center building projects to move forward. This commitment has leveraged an additional $32 million in capital investment in the health centers. Boston HealthNet's joint purchasing efforts, information technology initiatives, and technical assistance have also saved our participating health centers hundreds of thousands of dollars.

Advancing Medical Education

A number of HealthNet health centers also serve as the primary community-based training sites for Boston University School of Medicine pediatric, family medicine, and general medicine residents.

Programs that Address Violence

Domestic Violence: Domestic violence has been widely recognized within the health care field as a prevalent, significant and costly factor contributing to adverse health outcomes across the lifespan, and as such is an issue of concern among our patient and employee populations. Domestic violence was further highlighted as a community concern in June of 2008 with the Governor's Public Health Advisory, which called on community members and health care organizations (among others) to join the efforts to stem the tide of rising domestic violence homicides in the state. Since joining BMC in November of 2007, the new Domestic Violence Program Coordinator, Joanne Timmons, has been working closely with an Advisory Committee and across all departments and disciplines to coordinate existing domestic violence-related activities, improve the hospital's response to domestic violence, and lay the groundwork for a comprehensive program for patients and employees affected by abuse.

In FY08 the Coordinator's activities focused primarily on building relationships, educating providers, and strengthening connections to community-based resources such as shelters, legal services, and other forms of support and advocacy for victims. Ms. Timmons provided domestic violence training for staff and interns in the departments of Behavioral Health and Care Management, Child Witness to Violence Project, the Medical Legal Partnership l Boston, Project Health Help Desk volunteers, and the Infectious Diseases Clinic. She organized training for the entire Public Safety Department on the best practices for responding to and assessing risk in domestic

violence cases and collaborated with the Child Witness to Violence Project and the Northeastern University School of Law Domestic Violence Institute on developing a brochure for both patients and employees with general information about domestic violence and a list of local hotline and shelter resources. She has been serving in a consultation capacity to the Child Protection Team, providers of all disciplines, and employees who are seeking a variety of resources such as information and services related to domestic violence. The next steps for the Program, which are currently underway, include grantseeking for direct advocacy services, reviewing and updating the hospital's domestic violence-related policies, and continuing to enhance providers' skills, develop resources, and build the hospital's capacity to respond to domestic violence as a patient, employee, and community issue.

Child Victim Services: Three programs provide critical services to child victims at BMC: the Child Protection Team, the Child Witness to Violence Project, and the Division of Child & Adolescent Psychiatry. The BMC Pediatric and Adult Emergency Departments have been involved in collaboration with the Massachusetts Sexual Assault Nurse Examiner (SANE) Program since 1998 when BMC was designated a SANE site. The Massachusetts Department of Public Health held its first training for nurses and nurse practitioners for the Pediatric Sexual Assault Nurse Examiner Program (Pedi SANE) in 2004. Members of the Child Protection Team (CPT) at BMC participated in components of that initial Pedi SANE training curriculum. Since that initial training, BMC has become a primary training site for the nurses and nurse practitioners that are in the process of certification as Pedi SANEs. BMC's CPT has been serving as preceptors for the Pedi SANE program actively since December of 2005. Members of the CPT also participate on the Pedi SANE Advisory Board as well as several subcommittees of Pedi SANE including the Adolescent Care Committee, the Pedi SANE Emergency Response Group, and the Suffolk County Network Integration team. The CPT seeks to: 1) ensure that child victims of abuse and neglect and their families have access to protection, appropriate medical care, psychosocial support, and advocacy services; 2) identify and work toward resolving barriers to effective identification and response to maltreatment at BMC; and 3) provide training and education to pediatric health and other professionals to enhance their abilities to recognize and manage child maltreatment.

Since 2007, the CPT has been led by Robert Sege, M.D., Ph.D., Division Director of Ambulatory Pediatrics and Professor of Pediatrics at Boston University School of Medicine. Dr. Sege is a leading authority on child abuse and neglect. He partners with Betsy McAlister Groves, LICSW, Director of BMC's Child Witness to Violence Project and a leading expert in the area of child welfare, to ensure that child victims of abuse and neglect and their families have access to protection, appropriate medical care, psychosocial support, and advocacy services. In addition to building up the services at BMC, Dr. Sege is committed to expanding the availability of the CPT experts to train and advise similar groups at other institutions. In 2008 Dr. Sege was instrumental in helping to develop the Pediatrics Department Resource Center that includes a breast-feeding area, a library, and a dedicated resource area for families to seek assistance in obtaining resources in the community for their children and the whole family, including

food stamp assistance, heating and electricity subsidies, and legal assistance through the Medical-Legal Partnership | Boston organization.

The CWVP was founded in 1992 in response to the needs of pediatric patients at BMC who were affected by violence in their homes and communities. The Child Witness to Violence Project is a nationally-recognized and award-winning counseling, outreach, and consultation program that focuses on young children (under the age of 8) who are exposed to domestic or community violence. The current staff of seven clinicians (some part-time) provides ongoing services to an active caseload of approximately 60 children and families. The CWVP offers a flexible combination of services to children and their families, including: intensive trauma-focused counseling that is developmentally tailored to very young children and their parents; access to legal advocacy; and assistance with linking to other necessary services including health care, child care, housing, and after-school programs.

In FY08, the CWVP provided trauma-focused counseling services to 112 children. These children (and their non-abusing parents) were seen in weekly therapy sessions for an average of four months. Approximately 75% of the children were under age seven, and nearly three-quarters of the referrals were for domestic violence. The remaining referrals were for exposure to community violence, war/political violence, or other traumas to which young children might be exposed (such as fires, automobile accidents, and/or the sudden death of a family member).

In addition, the CWVP provided 240 telephone consultations and referrals. Because it is a unique program, these consultations/referral requests come from agencies and individuals from throughout the state of Massachusetts, including the Department of Children and Families, the courts, other hospitals, neighborhood health centers, the Head Start program, schools, teachers and parents.

Heather Walter, MD, MPH is the chair of BMC's Child & Adolescent Psychiatry Division, founded in the 1960s. Dr. Walter is committed to helping stabilize the health and wellbeing of children experiencing difficult circumstances. The Department of Child and Adolescent Psychiatry serves patients who are experiencing a combination of stressful life circumstances which exacerbate, and in some cases cause, arrested psychiatric development. Even among the youngest patients, the most prevalent diagnoses include depression, anxiety, and sexual trauma. Through a holistic approach to treatment involving the child and his/her family and school, the team ensures greater continuity of care and better long-term health outcomes. The Division maintains active linkages with pediatric mental health programs at all other Boston area hospitals, the Department of Social Services, Boston Public Schools, the Department of Mental Health, Medical-Legal Partnership | Boston, the Home for Little Wanderers, and other community-based social services that help provide wrap-around care for young psychiatric patients and their families. A key partnership for the team in the past several years has been the South Boston Suicide Prevention Project, where BMC clinicians trained students at South Boston High School to act as peer counselors to help identify youth at risk and engage them in counseling services of the school, hospital or

community. Over the past year, Dr. Walter has rebuilt the staff and developed a long-term strategy for the department that involves increased collaboration with the Pediatrics Department, including cross-training for clinicians and new methods to improve the flow of patients to the Child and Adolescent Psychiatry Department that will provide a fuller continuum and improved quality of care for patients.

Project ASSERT and the Violence Intervention Advocate Program: Project ASSERT is a BMC Emergency Department service that facilitates patients' access to primary care, clinical preventive services, and when needed, the drug and alcohol treatment network. Under its aegis, culturally competent Health Promotion Advocates (HPAs) function in the BMC ED as community outreach workers. Their role is to detect substance abuse and other preventable conditions, intervene, and refer patients to treatment. Since 1994, Project ASSERT has served over 50,000 patients.

In April 2006, in partnership with the City of Boston and in response to rising violence rates, BMC piloted the Violence Intervention Advocate Program (VIAP) to provide specialized services to victims of violence. VIAP uses two community health workers to provide individual counseling, triage, and referral services (for primary care, mental health, and social supports) for victims of violence brought to the BMC ED. In 2007, Governor Patrick requested that BMC disseminate VIAP to serve victims of violence across Massachusetts at the following hospitals: Brockton Hospital in Brockton; UMASS Memorial in Worcester; Massachusetts General Hospital in Boston; Lawrence General Hospital in Lawrence; and Baystate Medical Center in Springfield. Each site has hired a peer Violence Intervention Advocate (VIA) with strong community knowledge. Advocates attended a two-week training at Boston University School of Public Health and the BMC ED, which covered substance abuse screening, brief negotiated intervention and referral to treatment, and exposure to strategies for violence prevention and intervention, including case management skills and review of available community resources and services. Last year, VIAP at BMC expanded its hospital-based violence prevention program by collaborating with the Boston Public Health Commission. Advocates at BMC work in tandem with a new community-based VIA (hired by the BPHC) to link to partnering community organizations for more intense follow-up to fully address needs.

From September 2007 through November 2008, VIAs from the six sites contacted a total of 2,100 victims of violence after an incident. Of those, 554 were approached but refused to talk to the VIAs about what happened; 608 had a conversation about their injuries and/or their safety plan after being discharged and/or VIAP, but did not accept services from VIAs. However, 938 victims of violence did accept services. We feel that a 45% rate of participation from this challenging population is a positive result because of the time required to engage these patients, develop a rapport with them, gain their trust, and provide case management services. These services include working with victims of violence outside the hospital, making home visits where appropriate, and accompanying victims of violence to referral appointments.

With funding from the Boston Foundation in FY08, VIAP hired Rebecca Bishop, MSW in September 2008 to serve as the VIAP Program Administrator. Ms. Bishop formerly worked in the violence intervention program at Beth Israel Deaconess Medical Center. To date, she has developed a system to improve tracking VIAP patients who are treated at BMC, and attends the daily Trauma Service discharge meetings so that she can track VIAP clients from admission to discharge. To ensure that older victims of violence are getting the help they need, she has also implemented a referral list for patients who exceed the age range (of 18-26) for case management in our program. Additionally, Ms. Bishop is investigating how VIAP can institute a billing system when screening, brief intervention and referrals are performed for substance-abusing victims of violence, as 40% of VIAP clients use substances before, during, or after being injured.

Medical-Legal Partnership

The Medical-Partnership at BMC is a national leader in medical-legal collaboration to address the root causes of pediatric poor health and development. MLP seeks to improve the health and wellbeing of people in poverty by addressing the non-medical barriers to health so often faced by low-income individuals. MLP allies lawyers and health professionals and creates access to legal services in the clinical setting to ensure that low-income patients' basic needs—for food, housing, education, health care, and safety/stability—are met. In a poor economy these needs are even more acute. Founded in 1993 in the Department of Pediatrics, MLP is now reaching out to vulnerable adult populations by establishing partnerships with BMC's Departments of Geriatrics, Cancer Care, and Infectious Diseases. Including MLP | Boston there are seven medical-legal partnership sites in Massachusetts. In FY08, MLP-Boston served 1,300 patient-families.

MLP initiated the "Energy Clinic" in 2006 to provide targeted advocacy around issues of nutrition and home energy. During FY08, MLP partnered with the Department of Transitional Assistance (DTA) to co-locate a Food Stamp worker on-site at BMC, and in doing, have added a new level of service to existing food and fuel resources. By using ongoing screening and evaluation to determine best practices around co-location, MLP has enhanced the efficacy of the DTA outstation, allowing MLP and DTA to serve approximately 175 patient-families with food and fuel needs. In FY08 MLP hosted 25 Energy Clinics, reaching 25 families, and hosted 44 Legal Clinics (devoted to a broad spectrum of legal issues, including nutrition and home energy access), reaching 64 families with nutrition and home energy needs—cumulatively reaching 89 patient-families.

Originally underwritten by the Department of Pediatrics, the 14-year old program is now almost entirely grant/philanthropically funded and national in scope. The national MLP network now extends to more than 80 sites across the country, spanning both urban and rural communities.

Outreach to People Living with HIV/AIDS

The Center for HIV/AIDS Care and Research at BMC: 1) provides exceptional medical care, comprehensive support services, and novel prevention and treatment options to

improve the quality of life of individuals diagnosed with HIV/AIDS; 2) conducts cutting-edge research to promote optimal patient care; and 3) educates patients, their families, and providers to expand knowledge, affect behaviors, and prevent the spread of HIV.

Social Networks Program: An integral part of CHACR's services includes outreach to people living with HIV/AIDS in an effort to improve the quality of life for people living with the disease and to prevent transmission. One way that CHACR does this through the Social Networks program which is based on the theory that individuals are linked together to form large social networks and that HIV is often spread through these networks. Social Networks enrolls HIV-positive and high-risk negative individuals as recruiters who in turn enlist people within their social network to undergo HIV counseling and testing. In addition, Social Networks ensures that HIV positive individuals are referred to care, educated about prevention, and referred to detoxification if appropriate. Many of these individuals abuse alcohol and/or substances; some are homeless. Social Networks is an effective strategy to access some of the most disenfranchised people at highest risk for HIV.

Patient-Centered Retention in Care Program: While enrolling HIV-positive individuals into care is critical, retaining our low-income, high risk population in care is challenging. Despite a highly coordinated "one-stop shopping" model of HIV primary care, CHACR experiences a concerning rate of no-shows, patients who drop out of care, and patients who are inconsistent with engagement in care. To meet these needs, CHACR has implemented a culturally competent patient-centered retention in care program. Much of this is accounted for by the transient nature of our patient population, many of whom also struggle with mental health, substance abuse, and legal issues, and have multiple support service needs. The patient-centered intervention reflects different levels of service intensity based on individual needs. A few of the many facets of the program include culturally competent written materials with appropriate literacy levels, formats, and languages as well as peer outreach and navigation.

Prevention Program for Haitian Women: Among the populations most impacted by HIV/AIDS are Haitian women. One of CHACR's prevention and education programs recruits and enrolls Haitian women, who have increased risk of contracting HIV primarily through heterosexual contact, from BMC's primary care, urgent care, and other clinical practices. Women are provided a range of services, depending on their need and risk, from basic prevention education to enrollment in a ten-hour evidence-based prevention program. HIV-positive women are provided with a number of supports to promote their remaining in care such as referrals to the Sexually Transmitted Diseases Clinic, medical management services, home health care, efficient case finding, and immediate linkage to medical care and support services – all located on BMC's campus.

For the most intensive level of intervention, women participate in an evidence-based HIV prevention intervention, Sisters Informing Sisters about Topics on AIDS (SISTA), which is a peer-led, skill-building intervention that has proven effective with African American and Hispanic women as evidenced by increasing condom use, improving behavioral skills, and increasing the self-efficacy and self-confidence of women in

negotiating with men to engage in safer sex. Consistent with the recommendations of the CDC, the SISTA curriculum has been adapted to incorporate the beliefs, values, knowledge, and skills of Haitian women with respect to HIV and heterosexual relationships and to integrate Haitian stories, art, poems, and role models.

The program reaches nearly 163 low-income Haitian women in the Boston area, enabling them to participate in HIV education and risk reduction activities, access on-site HIV counseling and testing, and link with needed medical, mental health, psychosocial, and support services.

Pediatric Assessment of Communication Clinic

The Pediatric Assessment of Communication Clinic (the Autism Clinic) at BMC provides early and accurate diagnosis of autism and supports families in order to facilitate their children's access to appropriate educational services. Since its inception in 2003, the Autism Clinic has served more than 650 low-income minority families from some of the poorest urban communities. The Clinic's two part-time Educational Specialists provide direct support services to primarily low-income and/or immigrant families who have limited English proficiency and are most challenged by the regulations of the special education system. As needed, the Specialists travel to classrooms to observe young patients with ASD and help families access the proper special education placement for their children, much faster than these families could manage on their own. The Specialists work with BMC's Medical-Legal Partnership and *pro bono* attorneys when cases require intensive advocacy resulting in mediation or a hearing under Department of Education regulations.

While educational advocacy is important, parent feedback has demonstrated a critical need for a seminar series to address behavioral management. Since the summer of 2008, the Autism Clinic has offered a six-session series called "Everyday Behavior Problems and Solutions" targeted at underserved caregivers of children with autism seen in the Clinic, whose households are complicated by the child's intensive behavior needs and inability to communicate as well as the variety of pre-existing socioeconomic factors. These children often receive minimal school services that exclude home training, leaving parents without any guidance for their extreme challenges and with reported feelings of "frustration, exhaustion and disempowerment." The goal of the series is to educate patient families about how to best address behavioral management for their children with ASD. To date, the program has been run in English and Spanish, and a Vietnamese program will be run this summer. BMC will be partnering with the Autism Consortium to provide the same program to families followed clinically in other Autism Consortium sites.

Interventions for Obese Children

The Department of Pediatrics works to stave off the onset of adult diabetes in young, underserved, and overweight patients through its Nutrition and Fitness for Life Program that provides clinical and community-based resources. The NFL model features three primary components: 1) clinical services targeting children with >95 percentile of Body Mass Index, 2) the FANtastic Kids after school program, developed in collaboration with Dorchester House Multi-Service Center, providing teen-mentored nutrition education and fitness activities for overweight youth who are referred by their physicians and may

not be physically ready for other programs and expanding in FY09 to additional YMCA branches, and 3) continuing medical education for clinicians to increase their capacity to treat pediatric overweight patients in their settings. The NFL team also created the *Healthy Me* curriculum for after-school programs through funding from the United Way of Massachusetts Bay. These programs fill a large gap in services to one of the populations most impacted by the pediatric obesity epidemic: nearly 80% of the program's participants are Medicaid or other public assistance recipients; 90% are black or Hispanic.

The table below and on the following pages provides contact information and brief summaries of all programs described above, plus other Community Benefits programs at BMC.

PROGRAM OR INITIATIVE	TARGET POPULATION/OBJECTIVE	PARTNER(S)	HOSPITAL/HMO CONTACT
Boston HealthNet Shuttle Service and other transportation support	Transportation for ambulatory patients who need to travel between BMC and the Boston HealthNet health centers; direct taxi and van hospital-to-home service in specific cases	Boston HealthNet	Mary Boyan Transportation Coordinator 617-638-6849 mary.boyan@bmc.org
Interpreter Services	Interpreter services that communicate health issues/concerns, diagnoses, and treatment plans for BMC patients with limited English proficiency.	Massachusetts Medical Interpreters Association, Massachusetts Commission for the Deaf and Hard of Hearing	Oscar Arocha Director 617-414-7204 oscar.arocha@bmc.org
Metro Boston Behavioral Health Resource Center	Consumer-oriented behavioral health resources and referrals for low-income, indigent, limited English-proficient patients and community members who have unmet mental health needs.	Massachusetts Department of Mental Health, National Alliance for Mental Illness	Joan Taglieri Director of Clinical Service Department of Behavioral Health 617-414-1972 joan.taglieri@bmc.org
Center for HIV/AIDS Care and Research	Comprehensive medical care and services, research, and education to improve the quality of life for people living with HIV/AIDS and to prevent HIV transmission.		Paul R. Skolnik, MD Director 617-414-3520 paul.skolnik@bmc.org

Preventive Food Pantry and Demonstration Kitchen	Individually "prescribed" free food for malnourished, low-income patients, and cooking demonstrations/nutrition education adapted for specific health needs.	Food for Free, Greater Boston Food Bank, Ocean State Job Lot, Project Bread	Latchman Hirallal Food Pantry Manager 617-414-3834 latchman.hirallal@bmc.org
Child Protection Team	Social, legal, and medical consultations for BMC clinicians who suspect pediatric patients have been exposed to maltreatment.	Suffolk County District Attorney, Boston Police Department	Betsy Groves, LICSW Co-Director 617-414-4244 betsy.groves@bmc.org
Cancer screenings and educational outreach	BMC patients and community members, including a disproportionate number of uninsured and under- insured men and women of color.	American Cancer Society New England Division, Friends of Women's Health at BMC, multiple community-based organizations, including churches, shelters, and elder care centers.	Kathleen Finn, RN, NP, AOCN Nurse Manager Cancer Research Center 617-638-8256 ktf@bu.edu
Birth Sisters™	Culturally and linguistically competent prenatal, labor, and postnatal support by community women for childbearing women at risk of poor maternal and infant outcomes.	Urban Midwife Associates	Julie Mottl-Santiago, CNM, MPH Clinical Director 617-414-5162 julie.mottl-santiago@bmc.org
Smoking Cessation Program	An outpatient program open to any individual who wishes to stop smoking.	Department of Behavioral Medicine	Robert Sokolove, PhD Health Psychologist 617-414-5098 robert.sokolove@bmc.org
Cancer Patient Support Groups	BMC patients and community members		Kathleen Finn, RN, NP, AOCN Nurse Manager Cancer Research Center 617-638-8256 ktf@bu.edu Linda L. Frattura, CIP, CIM, CTR, CCRP Outreach Coordinator 617-638-4178
Women's Health Network	Screening, diagnostic, therapeutic, and referral services predominantly for women of color with breast and cervical cancer.	CDC and Mass. DPH; community settings that host screenings: health centers, Pine Street Inn, Rosie's Place, churches, breast cancer walks, etc., Boston affiliate of the Susan G. Komen Foundation	Chava Chapman, MbBch, MPH Director 617-638-7920 chava.chapman@bmc.org Mariuca Tuxbury Program Coordinator 617-414-1818 maura.tuxbury@bmc.org

Nutrition and Fitness for Life Program	Multi-pronged program aimed to increase nutrition and fitness for underserved children and families experiencing co-morbidities related to overweight and obesity. Provides clinical services, community-based fitness and nutrition education for youth, and clinical education to providers to increase capacity at health centers to treat overweight pediatric patients.	Dorchester House Multi-Service Center, Mattapan Community Health Center, YMCA of Greater Boston, New Balance Foundation	Carine Lenders, MD, MS Director 617-414-5357 carine.lenders@bmc.org Vivien Morris, MPH, MS, RD Fantastic Kids Admin. Dir. 617-414-6878 vivien.morris@bmc.org
Community Connections Newsletter	Distributed twice a year through community newspapers in Boston neighborhoods. The newsletter includes relevant community and public health information, including screenings and research activities at BMC.		Ellen Berlin Director, Corporate Communications 617-638-8491 ellen.berlin@bmc.org
SPARK (Supporting Parents and Resilient Kids) House	Medical, educational, nutritional, and mental health supports for young people ages 6 to 24 with HIV/AIDS and other complex medical, behavioral and/or social concerns.	Children Affected by AIDS Foundation, Mass. Community AIDS Partnership, City of Boston	Martha Vibbert, PhD SPARK House Director 617-534-2050 martha.vibbert@bmc.org
Pediatric AIDS Clinic	Clinical services and additional supports for HIV-infected babies and children		Steve Pelton, MD Chief Pediatric Infectious Disease 617-414-7408 spelton@bu.edu
Child Life Program	Counseling and advocacy for BMC pediatric patients facing the many stressors and consequences of chronic illness, serious injury, and long-term hospitalization.	Starlight Starbright Children's Foundation, Hospital Clown Troupe	Tricia Sherman Child Life Coordinator 617-414-5762 tricia.sherman@bmc.org
Tumor Registry	Cancer data registry managed by BMC to collect and report data		Ruth Flaherty Manager, Cancer Registrar 617-638-7205 ruth.flaherty@bmc.org

Dental Clinic	Provides adult and pediatric dental exams and treatment for eligible uninsured patients		Maureen Hilchey-Masters, RN Nursing Manager 617-414-4667 maureen.hilcheymasters@bmc.org
Health Care for the Homeless Clinic in BMC Ambulatory Care Center	Clinic for homeless individuals		Jim O'Connell, MD President 617-414-7779
Elders Living at Home Program (ELAHP)	Temporary and emergency housing and case management for men and women ages 55 and above (BMC patients and elders referred from other agencies) who lack stable housing and need temporary shelter and health care while looking for a permanent residence.	Committee to End Elder Homelessness, Action for Boston Community Development, City of Boston Elderly Commission, Shelter Commission and Inspectional Services Department, Pine Street Inn	Eileen M. O'Brien Director 617-638-6139 Eileenm.obrien@bmc.org
Patient Navigators	Support in managing complex treatment plans for BMC cancer patients, most of whom face poverty-related challenges that make full treatment difficult if not impossible	American Cancer Society, Avon Foundation, Boston Foundation, and private family foundation	Multiple sites in hospital, contact for information: Kirsten Hinsdale Director, Foundation Relations 617-414-5571 kirsten.hinsdale@bmc.org
Medical-Legal Partnership Boston (formerly Medical-Legal Partnership for Children)	Legal assistance in accessing benefits that secure basic needs for pediatric patient families.	Volunteer Lawyers Project, Health Law Advocates, Boston Bar Association, Brown Rudnick, Day Berry & Howard, and other local law firms, East Boston Neighborhood Health Center, Codman Square Health Center, Dorchester House Multi-Service Center, Mattapan CHC, Upham's Corner Health Center; South Boston CHC; South End CHC	Samantha Morton, JD Executive Director 617-414-6769 samantha.morton@bmc.org
Grow Clinic	Medical treatment, advocacy, and services for children diagnosed with Failure to Thrive (FTT).	Community health centers, HeadStart, Boston Visiting Nurses Association, Department of Social Services, WIC sites, Expanded Food and Nutrition Education Programs	Deborah Frank, MD Director 617-414-5252 dafrank@bu.edu

Winter Coat Distribution	Free winter coats, hats, and gloves for low-income BMC patients, including refugees and children, distributed through Pediatrics, the Emergency Department, the Boston Center for Refugee Health and Human Rights, social work and community health centers.	Ocean State Job Lots, TJX Companies, Nine West, Rothschild Coats, Cradles 2 Crayons, private donors	Katy Cushing Supervisor of Inpatient Social Work 617-414-5444 katy.cushing@bmc.org
Project ASSERT (Alcohol and Substance abuse Services through Education, Referral and Treatment)	Referral and admissions assistance for at-risk patients and community members who need access to a comprehensive drug and alcohol treatment network.	Local drug and alcohol rehabilitation programs	Edward Bernstein, MD Director 617-414-3453 edward.bernstein@bmc.org
Violence Intervention Advocate Program	Provides specialized services to victims of violence		Thea James, MD Director 617-414-3564 thea.james@bmc.org
Domestic Violence Programming	Legal advocacy services and community referrals for victims of domestic violence, based in Menino campus Emergency Department; predominantly staffed by law students and funded by Northeastern University law school.	Northeastern University School of Law COBTH Domestic Violence Committee	Joanne Timmons Domestic Violence Program Coordinator 617-414-7734 joanne.timmons@bmc.org
Child Witness to Violence Project	Counseling and referral services for pediatric patients ages 8 and under who have witnessed domestic and community violence.		Betsy Groves, LICSW Director 617-414-4244 betsy.groves@bmc.org
The Birth Place	State-of-the-art care for newborns and their mothers in a family-centered environment; services include Breastfeeding Classes and Infant Massage Classes		Bobbi Philipp, MD Director 617-414-3814 bobbi.philipp@bmc.org
Refugee Health Assessment Clinic	Provides state-required exams for refugees and links them to primary care physicians		Elizabeth Barnett, MD Pediatric Infectious Disease 617-414-3623 elizabeth.barnett@bmc.org

Perinatal Network	Coordination of care between the BMC maternity service, BMC's Family Medicine and Women's Health clinics, the health centers, and other community organizations to improve the care of women at high risk of problems during their pregnancy or infants at high risk	Codman Square Health Center Mattapan Community Health Center	Julie Mottl-Santiago, CNM, MPH Co-Director 617-414-5162 julie.mottl-santiago@bmc.org Christine Pecci, MD, Family Medicine Co-Director christine.pecci@bmc.org
Flu Vaccine	Free influenza vaccines for the public and all employees of Boston Medical Center and Boston University Medical Campus		Maureen McMahon Office of Emergency Preparedness 617-638-6317 maureen.mcmahon@bmc.org
Boston Center for Refugee Health and Human Rights	Provides comprehensive health care for refugees and survivors of torture and related trauma, coordinated with legal aid and social services; also educates and trains agencies who serve this population and conducts clinical, epidemiological, and legal research for the better understanding and promotion of health and quality of life for survivors of torture and related trauma.		Erica Hastings, MS Coordinator 617-414-4794 erica.hastings@bmc.org
Pediatric Assessment of Communication Clinic	Provides early diagnosis and helps low-income and immigrant families with children with autism and other developmental issues to access medical and educational services		Elizabeth B. Caronna, MD Division of Developmental and Behavioral Pediatrics 617-414-4715 elizabeth.caronna@bmc.org
Dental Clinic	Provides adult and pediatric dental exams and treatment for eligible uninsured patients		Maureen Hilchey-Masters, RN Nursing Manager 617-414-4667 maureen.hilcheymasters@bmc.org
Reach Out and Read	ROR helps parents understand the importance of reading aloud to their children and giving their children the tools to begin school ready to learn		Reach Out and Reach National Center 617-455-0600 info@reachoutandread.org

Substance Abuse Treatment Clinics – Internal Medicine	Buprenorphine program to treat opioid addiction for individuals who are unable to find treatment in their geographic area; specialization in treatment and care for pregnant women in acute drug withdrawal.		Colleen Labelle, RN General Internal Medicine 617-414-7453 colleen.labelle@bmc.org
Project HEALTH	Volunteer program partnering with BMC Pediatrics to break the link between poverty and poor health by mobilizing college students to provide sustained public health interventions; programs include Asthma Swim, fitness and nutrition, and peer mentoring for teens with sickle cell disease		Sarah McGinty Executive Assistant mcginty@projecthealth.org
Administrative Fellows Program	Designed to enhance minority representation in professional, technical and managerial roles at BMC		Doreen Lindsay Workforce Diversity Program Specialist 617-638-8550 doreen.lindsay@bmc.org
Dudley Inn	A community-based, safe, low-demand shelter accessible to single adults 18 years old and older who have experienced chronic homelessness and who struggle with the dual-diagnoses of substance abuse and mental illness	MA Department of Mental Health	Joan Taglieri Director of Clinical Service Department of Behavioral Health 617-414-1972 joan.taglieri@bmc.org
Diabetes Initiatives	BMC offers a variety of programs related to diabetes prevention and management that include screenings, interventions to fight obesity in children, and aid to adults in adherence to treatment regimens		James Rosenzweig, MD Director of Diabetes Services 617-638-8516 james.rosenzweig@bmc.org
Mattapan Adult Day Health Program	Provides day care services to Boston adults and seniors		Margaret Shea Program Director 617-298-7970 maggie.shea@bmc.org

Boston HealthNet	A coordinated integrated delivery system of health care services consisting of Boston Medical Center and 15 community health centers	East Boston Neighborhood Health Center, Codman Square Health Center, Dorchester House Multi-Service Center, Mattapan Community Health Center, Upham's Corner Health Center, Geiger-Gibson Community Health Center, Greater Roslindale Medical and Dental Center, Harvard Street Neighborhood Health Center, Health Care for the Homeless, Mattapan Community Health Center, Neponset Health Center, Roxbury Comprehensive Community Health Center, South End Community Health Center and Whittier Street Neighborhood Health Center	Frank Doyle Executive Director Boston HealthNet 617-638-6902 francis.doyle@bmc.org

EVALUATION

Program data are maintained for all of BMC programs. Rates of use for the programs and community impact help the Finance Department, the Board, and other departments see trends in needs, whether programs are having the intended effect, and make decisions about where to place emphasis from year to year. Feedback is solicited from program directors and senior managers to assess success and make modifications. For programs that are funded from the hospital budget (as opposed to grants or philanthropy), budgets are reviewed as part of the hospital's annual budget planning process. Considerations include numbers of people served, needs addressed by the program, and ability to secure funding through other sources.

NOTABLE ACCOMPLISHMENTS AND OUTCOMES

In FY08, the various community benefits programs of BMC included the following achievements:

- Provided more than 3,000 visits at the Pediatric Dental Clinic.
- Supported 197,406 on site patient interactions with Interpreter Services with over 30 languages.
- Provided Shuttle Service rides to 167,055 patients and families.
- Provided food from the Preventive Food Pantry to 61,500 patients and their household members (an average of 5,125 individuals monthly).
- Screened 1,819 men for prostate cancer at 48 events throughout the Boston community and assisted 1,134 women in accessing breast cancer screening and treatment through our Women's Health Network site.
- Continued to expand our patient navigation programming, adding three additional navigators to programs.
- Distributed free winter coats, hats, and gloves to 1,500 low-income adults and children.
- Supported over 1,100 women through Birth Sisters™ during pregnancy, childbirth, and early motherhood. We also expanded services to support breastfeeding women on the postpartum hospital floor through peer counseling, where we reached an additional 450 women in FY08.

FY08 EXPENDITURES

The following tables provide a summary of the estimated costs of BMC's community commitments. Information is provided in two formats: first, according to the Attorney General guidelines; then, using a broader definition that considers additional investments and losses relating to our mission to serve all in need of care, regardless of status or ability to pay. Due to the size and variety of programs at BMC, our summaries do not capture the full scope of all efforts of BMC and its staff to meet the needs of the community.

Components of FY08 Community Commitment ***Compiled According to AG Guidelines***	
Community Benefit Programs	
Direct Expenses	$18,434,426
Associated Expenses	Not Calculated
DoN Expenses	$68,150
Other Leveraged Resources	$7,642,360
Employee Volunteerism	$39,368
Net Charity Care (shortfall plus assessment)	$3,947,085
Corporate Sponsorships	$112,000
Community Benefits Subtotal per AG Guidelines	**$30,204,021**
Total Patient Care-Related Expenses for FY08	**$1,091,264,207**[3]

Components of FY08 Community Commitment ***Compiled According to Broader Definition***	
Total Patient Care-Related Expenses for FY08	**$1,091,264,207**
Community Benefits Subtotal per AG Guidelines	**$30,204,021**
Hospital Bad Debt (at cost)	**$28,304,534**
Unreimbursed Expenses for GME	**$31,389,480**
Patient Financial Counseling Services re: Ch. 58 Reform	**$820,448**
Linkage/In Lieu/Tax Payments	**$78,160**
Community Commitment per Broader Definition Total	**$90,796,652**

FY08 BUDGETING AND GOALS

Budgeted expenses for community benefit programs in FY09 are estimated to be $27,659,814.

[3] As reported in BMC's DHCFP 403 Cost report.

BMC's goals in community programming in FY09 are to continue to provide effective and accessible services to vulnerable populations in the Boston community and to expand efforts that deepen our relationships with the communities we serve. In FY09, special emphasis will be placed in the following areas:

- Enhancing services for individuals with mental illness;
- Expanding the work of the Medical-Legal Partnership l Boston to support geriatric patients;
- Empowering individuals with diabetes to improve self-management; and
- Providing alterative medicine to manage the pain of pediatric and adult patients.

CONTACT INFORMATION

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Appendix C

APPENDIX C BU MEDICAL CAMPUS COMMUNITY OUTREACH INITIATIVES

C.1 Boston University School of Medicine Community Involvement

C.1.1 Educational Programs and Services

- African Presidential Archives and Research Center (APARC)
- African Studies Center
- Afterschool
- Boston High School Scholarship Program
- Boston Higher Education Partnership
- Boston Scholars Academic Orientation and Retention Support
- Boston University Academy
- Boston University / Boston Schools Collaborative
- Boston University Center for the Advancement of Ethics and Character (CAEC)
- Boston University / Chelsea Partnership
- Boston University High School Honors Program/General Honors
- Boston University High School Honors Program/Research Internship
- Boston University Initiative for Literacy Development (BUILD)
- Boston University Science and Mathematics Education Center
- Boston University Summer Challenge Program
- Cardinal Medeiros Scholars
- CityLab
- COACH (College Opportunity and Career Help)
- Early Learning Center
- Field Placements of Education Students
- Intergenerational Literacy Project
- Prison Education Program (PEP)
- Professional Education for Current Public Child Welfare Agency Staff
- Program in Mathematics for Young Scientists (PROMYS)
- Reach Out and Read Program
- Reading and Writing Clinic
- Sargent Center for Outdoor Education
- Scholarship Assistance
- School of Education Consortium Council
- Space Science Information Requests
- Space Science School Visits
- Upward Bound

C.1.2 Business and Professional Programs and Services

- AdLab
- BioSquare
- Boston University Institute for Leading in the Dynamic Economy (BUILDE)

- Center for Energy and Environmental Studies
- Civil Litigation Program
- Criminal Law Clinics at Boston University School of Law
- Entrepreneurial Management Institute
- Executive Development Roundtable
- Fraunhofer Center for Manufacturing Innovation
- Hothouse Productions
- Human Resources Policy Institute
- Institute for Technology Entrepreneurship and Commercialization (ITEC)
- Office of Technology Development (OTD)
- Photonics Center
- PRLab
- Student Interns from the School of Social Work
- Systems Research Center (SRC)

C.1.3 Community and Government Programs

- Community Affairs
- Community Task Force
- Furniture Donations
- Master Plan
- Office of Government and Community Affairs
- Ride-Along Program
- Transportation Solutions for Commuters, Inc. (TranSComm)

C.1.4 Programs and Services for People with Disabilities

- Center for the Study of Communication and the Deaf
- Joining Hands
- Pike Prize for Service to People with Disabilities
- Special Education

C.1.5 Programs and Services for Elders

- Boston Geriatric Education Model Consortium (GEM)
- Boston University Geriatric Services
- Elders Living At Home Program (ELAHP)
- Evergreen Program
- Geriatric Assessment Center
- Institute for Geriatric Social Work
- Vaccines and Screenings

C.1.6 Health Care and Related Programs and Services

- Action for Boston Community Development (ABCD) Head Start
- Applied Professional EXperience (APEX) Program
- Arthritis Center
- Associated Early Care and Education
- Bike Helmet Program
- Blackstone Elementary School Field Trip
- Boston Area Health Education Center
- Boston Asthma Games
- Boston Center for Refugee Health and Human Rights
- Boston Coalition for Adult Immunization
- Boston Diabetes Expo
- Boston Health Care for the Homeless Project (BHCHP)
- Boston Living Center Dental Presentation and Screenings
- Boston Medical Center
- Boston Medical Center Adolescent Center
- Boston Medical Center Emergency Department
- Boston University Area Health Education Center
- Boston University Residence Life Wellness Fair, Charles River Campus
- Boston University School of Public Health Practice Office
- Cancer Research Center
- Car Seat Program
- Center for Addictions Research and Services
- Center to Prevent Alcohol-Related Problems Among Young People
- Chelsea Comprehensive School-Based Oral Health Program
- Chelsea Early Childhood Project
- Chelsea Head Start
- Chelsea Intergenerational Literacy Program
- Chelsea Latino Education Group, Back to School Fair
- Chelsea School Dental Center (CCDC)
- Child Witness to Violence Project
- Childhood Injury Prevention Program
- Colgate Bright Smiles/Bright Futures Van
- Community Child Health and Safety Program
- Comprehensive Care Program
- Countdown to Kindergarten
- Crispus Attucks Children's Center
- Jessie and Albert Danielsen Institute
- Dental Health Centers
- Do It for Dad
- Partners for Rural Health in the Dominican Republic
- E. Greenwood Schools Health and Safety Fair
- Entre Familia
- Even Start
- Give Kids A Smile
- Good Grief Program
- Grow Clinic

- Healing the Children
- Health Care Affiliates
- Health Connection
- Health Connection Van
- Health Reform Program
- Healthy Baby/Healthy Child Oral Health Promotion Program
- Healthy Baby/Healthy Child Summer Camp Picnic
- Healthy Public Housing
- Healthy Teeth for Tots
- HIV Dental Care/Ryan White
- Join Together
- Martha Elliot Health Center Fair
- Massachusetts Center for SIDS
- Massachusetts State House Health Fair
- MetroWest School-Based Sealant Programs
- Framingham Fluoride Varnish Program
- MGH Chelsea Summer Safety Fair and Bike Rodeo
- Occupational Therapy Volunteer Programs
- Open Doors to Health
- Oral Health Equity Project
- Orchard Garden Middle School Health Fair
- Outreach Core of the Superfund Basic Research Program
- Outreach Van Project
- Parkinson's Disease Center
- Public Health Education Week
- Research Science Institute
- Rosie's Place Wellness Fair and Lunch and Learn
- Sargent College Clinical Centers
- Sargent College Healthy Lifestyle Challenge
- Sealant Coordination Center and Smart Smiles in Boston Public Schools
- (School-Based Sealant Programs)
- Student Dental Health Plan
- Summer Adventures in Learning Health Initiative (SAIL HI)
- University of Massachusetts, Harbor Point, Student Wellness Fair
- Urban Environmental Health
- Vietnamese-American Civic Association

C.1.7 Social Action Outreach Programs and Services

- Alternative Spring Breaks
- Children's Theatre
- First-Year Student Outreach Program (FYSOP)
- Making Music
- Marsh Chapel Interfaith Initiative
- Multicultural Advancement Partnership Program
- OXFAM Fast for a World Harvest
- Playground Project

- Project Hope
- Siblings Program
- Student Food Rescue
- 12-Step Groups
- United Way
- Voices from the Middle (VFM)
- Wizards

C.2 Boston University Goldman School of Dental Medicine

Details on programs are provided below. Programs include:

- Action for Boston Community Development (ABCD) Early Head Start & Head Start Oral Health Promotion Activities
- American Student Dental Association (ASDA) Oral Health Outreach at Yawkey Club
- Applied Professional EXperience (APEX) Program
- Associated Early Care and Education Oral Health Program
- BAHEC Youth to Health Careers Summer Enrichment Program Health Career Expo
- Boston Asthma Games
- Boston Diabetes Expo
- Boston University Residence Life Wellness Fair, Charles River Campus
- Cathedral Cares at the Cathedral of the Holy Cross
- Charitable Mission Trip to Ukraine
- Chelsea Back to School Celebration
- Chelsea Comprehensive School-Based Oral Health Program
- Chelsea Early Learning Center Open House
- Chelsea MGH Summer Safety Fair
- Countdown to Kindergarten
- Crispus Attucks Children's Center
- Dental Care for Haitians
- Dental Health Centers
- Dental Outreach in Mexico
- Framingham Dental Sealant Program (SEAL Framingham)
- Framingham Early Childhood Fair
- Framingham Fluoride Program
- Framingham SMOC Head Start Parent Workshops
- Framingham YMCA Healthy Kids Day
- Give Kids a Smile, Rosie's Place, Child Works Program
- Healing the Children
- Health Careers Expo at the Reggie Lewis Center
- Healthy Baby/Healthy Child (HB/HC) Oral Health Promotion Program
- Healthy Baby/Healthy Child (HB/HC) Summer Camp Celebration and Picnic
- Healthy Kids at Cathedral Tenants United, Inc.
- Healthy Teeth for Tots

- HIV Dental Care/Ryan White
- IBA Cacique Youth Program - Oral Health Education
- Lawrence Dental Sealant Program (SEAL Lawrence)
- Massachusetts Operation Stand Down for Homeless Veterans
- Massachusetts State House Health Fair
- Natick Dental Sealant Program (SEAL Natick)
- Natick Fluoride Program
- Orchard Gardens/Smart Smiles Second Grade Field Trip
- Outreach Van Project
- Program White Coat
- Promoting Elder Wellness Through Prevention and Awareness
- Relay for Life
- Research Science Institute
- Rosie's Place, Childworks Program, Dental Health Fair
- Rosie's Place Wellness Fair
- Shawndell F. Mitchell Health and Wellness Fair
- Smart Smiles in Boston Public Schools
- Smile Bingo
- Student Dental Health Plan
- Survivors of Torture Oral Health Program
- TET in Boston Festival
- University of Massachusetts, Harbor Point, Student Wellness Fair
- Walk the Rock

C.2.1 Descriptions of Programs

Action for Boston Community Development (ABCD) Early Head Start & Head Start Oral Health Promotion Activities

GSDM conducts Early Head Start oral health screenings for children enrolled in ABCD Early Head Start Centers located in Dorchester, East Boston, and the South End. It also gives an ABCD parent workshop and oral health training for teachers. Information: 617-638-5222

American Student Dental Association (ASDA) Oral Health Outreach at Yawkey Club

This on-site dental health education program is held at the Yawkey Club, a Boys and Girl's Club in Roxbury. Program activities include an ASDA planned dental health fair with dental "stations" focusing on various aspects of dental health, including brushing and flossing, the negative effects of tobacco on oral health, tooth protectors, the importance of regular dental visits, and the importance of eating healthy for good oral health. Information: 617-638-5222

Applied Professional EXperience (APEX) Program

This innovative educational program, established in 1989, provides first- and second-year GSDM dental students with the opportunity to work in a variety of community-based dental health centers in the Boston area. Dental students provide needed auxiliary services to the community health centers while gaining valuable experience in caring for the underserved population. The dental staff benefits from a cadre of experienced, well-educated interns while having an opportunity to mentor future colleagues. Community health centers participating in the APEX Program include: Boston Health Care for the Homeless, Boston Medical Center, Brookside Park Health Center, Codman Square Health Center, Dimock Community Health Center, Dorchester House, Geiger-Gibson Health Center, Lynn Community Health Center, South End Community Health Center, VAMC Bedford, and Whittier Community Health Center. Information: 617-638-8523

Associated Early Care and Education Oral Health Program

Associated Early Care & Education provides affordable childcare for infants, toddlers, and preschool children of working families in the Greater Boston area. The School of Dental Medicine provides an oral health program offering dental health education, oral screenings, and fluoride varnish applications to children, as well as staff and parent training at the Jamaica Plain, Sunnyside, Ruggles/Gilday, and Castle Square sites. Information: 617-638-5222

BAHEC Youth to Health Careers Summer Enrichment Program Health Career Expo

The purpose of this successful Boston Area Health Education Center (BAHEC) event is to connect Boston adolescents who are interested in exploring health careers with a variety of health professionals, representing a broad range of health careers (primary care, allied, health, complimentary medicine, public health, and others). By entering into dialogues with these providers, participating youth expand their understanding about the range of careers, their education and fiscal requirements, and their roles/function in providing/supporting health care. A passport is provided to each student to fill-up with colored stickers given by each Expo provider, as a means of ensuring that each one engages with at least 5 to 6 professionals. Oral health supplies are given to all participating students. Information: 617-638-5222

Boston Asthma Games

GSDM staffs a booth at the annual Boston Asthma Games held at the Roxbury YMCA. Participants are invited to create a dental arts and crafts project, have their teeth screened, and receive complimentary toothpaste, toothbrushes, and oral health information. The group performs numerous oral screenings and interacts with hundreds of participants. This annual event enables children with asthma to be physically active while learning to better treat and manage their asthma. Information: 617-638-5222

Boston Diabetes Expo

GSDM faculty and students provide free dental screenings and distribute educational materials at the American Diabetes Association's Boston Diabetes Expo, an educational and entertaining event for people living with and affected by diabetes. GSDM is a regular participant in Screening World, a section of the exhibition floor that provides free health screenings of the feet, cholesterol, blood pressure, and teeth. With partners from the Harvard School of Dental Medicine, Tufts School of Dental Medicine, and the Forsythe Dental Hygiene Program at MCPHS, GSDM provides oral screenings to over 100 people. In addition, hundreds of attendees are informed of the risks, prevention, and treatment of oral disease for those with diabetes. Information: 617-638-5222

Boston University Residence Life Wellness Fair, Charles River Campus

GSDM participates in this annual Boston University Center for Wellness and Residential Education "Be Well" Fair. The fair exposes undergraduates to a wide range of health and wellness activities and concepts. Oral health promotion activities are geared to oral health issues faced by college students. Information: 617-638-5222

Cathedral Cares at the Cathedral of the Holy Cross

GSDM dental students volunteer at a community health fair as part of Cathedral Cares, a nursing outreach program for parishioners and neighbors living in the urban communities surrounding the Cathedral of the Holy Cross in Boston's South End. The day's events include dental health education, screenings, and handing out oral hygiene supplies. Information: 617-638-5222

Charitable Mission Trip to Ukraine

In partnership with the Smiles International Foundation, a GSDM faculty member led a team of select doctors, nurses, and anesthesiologists from across the United States on a charitable mission trip to Ukraine in May. Twenty one children, ranging in age from six months to 19 years, who were suffering from various craniofacial deformities were treated on this trip. In addition to the reconstructive surgeries performed, the team completed over 40 consultations with other patients with significant maxillofacial disorders. The team also brought donated medical equipment to aid in the surgeries, which was ultimately gifted to the local hospital. Information: 617-638-4350

Chelsea Back to School Celebration

This outdoor summer event is sponsored by the Chelsea Public Schools and focuses on information needed to help students return to school healthy and ready to learn. Held at the Williams Middle School, this highly successful Back-to-School Fair is typically attended by nearly one thousand people and provides an excellent opportunity for GSDM faculty and staff to distribute informative educational materials, oral hygiene

supplies, and information about the free oral health services provided to Chelsea students at the Chelsea School Dental Center. Information: 617-638-5222

Chelsea Comprehensive School-Based Oral Health Program

GSDM provides comprehensive dental services to children in the Chelsea Public Schools, including classroom education, dental screenings and referrals, placement of dental sealants, fluoride varnish applications, and restorative dental care. This program has been recognized as a best practice by the American Dental Education Association and includes classroom oral health education to thousands of students in pre-kindergarten through grade 4, as well as dental screenings and referrals and a city-wide sealant program for all Chelsea second graders. The following programs are included in GSDM's comprehensive school-based oral health services to the families of Chelsea: (Information: 617-638-5222)

- Boston University/Chelsea Partnership Dental Program: This program provides classroom oral health education to thousands of students in pre-kindergarten through grade 4 in the Chelsea Public Schools. Dental screenings and referrals are provided to Chelsea students and through the *Chelsea Sealant Program*, hundreds of dental sealants are placed for second graders in Chelsea. Additionally, pre-kindergarten through second graders who join the program receive one or more applications of fluoride varnish during the school year.
- Chelsea School Dental Center: Since opening in April of 2003, the Chelsea School Dental Center (CSDC), which is managed by GSDM and located in the Williams Middle School, has provided preventive and restorative services for thousands of children. The CSDC gives care to Chelsea public school students regardless of their grade level or ability to pay for services. Many of the patients, who range in age from preschoolers to high school seniors, have never been to the dentist and would have no other source of dental care if it were not for the CSDC. Four bilingual dentists devote time to treating patients in the clinic.
- Chelsea Head Start (CAPIC) - Oral Health Program: Dental education, screening, and fluoride varnish applications are provided twice each year for Head Start children aged three to five years enrolled in the CAPIC Head Start (Chelsea, Revere, Winthrop) Program. A CHP representative is an active member of the CAPIC Head Start Health Advisory Committee.
- Chelsea Early Childhood Project (CECP) – Oral Health Program: CHP provides oral health education and dental screenings to preschool children in day care centers and home day cares through our partnership with the Chelsea Early Childhood Project. This annual event helps to remind parents and caregivers to initiate good oral health habits and routine dental care early. Two or more sites in Chelsea regularly participate in the Oral Health Program and dental screenings are conducted for children between the ages of 3 and 5 years. A GSDM faculty member serves each year as the health representative on the CECP Advisory Council.

Chelsea Early Learning Center Open House

Faculty and staff from the BU/Chelsea Partnership Dental Programs are invited to set up an information table at the Early Learning Center's Open House for parents of children in grades pre-kindergarten and kindergarten. Information is distributed to parents about the importance of early dental care and the availability of the Chelsea School Dental Center. Information: 617-638-5222

Chelsea MGH Summer Safety Fair

The Chelsea MGH Health Center's Summer Safety Fair is an annual summer kick off celebration that focuses on keeping children safe during the summer months. Children bring their bicycles for safety checks and receive free bike helmets. GSDM offers information about the use of mouth guards and the importance of dental visits, and children are invited to come to the Chelsea School Dental Center. Information: 617-638-5222

Countdown to Kindergarten

An annual event, Countdown to Kindergarten prepares preschool children for entry into kindergarten in the Boston Public Schools. GSDM participates each year in this celebration held at the Boston Children's Museum. With the assistance of student volunteers, a wide range of age-appropriate dental health activities and oral screenings are offered to the hundreds of children and parents in attendance. Information: 617-638-5222

Crispus Attucks Children's Center

Oral health screenings are provided for children aged birth to six years enrolled in the Crispus Attucks Center. Students from the MCPHS Forsyth Dental Hygiene Program assist GSDM faculty in providing these yearly dental screenings. Additionally, oral health training is provided for Crispus Attucks staff. Information: 617-638-5222

Dental Care for Haitians

Five GSDM faculty and students traveled to Haiti to provide dental care to hundreds of Haitian citizens. Two hundred oral screenings were completed and comprehensive dental services were offered to many. In addition, oral hygiene materials were distributed. Due to the great need as well as limited time and material resources, not all who needed services were able to receive them. Attempts will be made to plan and carry out future trips to provide further oral health services to those in need. Information: 617-638-4350

Dental Health Centers

Through GSDM, Boston University provides quality dental care at reasonable rates to all residents of the Greater Boston community. Patients are served in two state-of-the-art clinics: at the Boston University Medical Center for the general public, and at a satellite facility on Commonwealth Avenue for the University community and their families. Information: 617-638-4670 or 617-358-1000

Dental Outreach in Mexico

In partnership with Project Stretch, an organization that provides dental care to underprivileged children in Central and South America, the Vice President of Project Stretch and a GSDM faculty member led a team of GSDM student volunteers and a Forsyth School of Dental Hygiene student on a recent dental outreach trip to Teacapan, Mexico. The volunteers screened and treated many children each day and were welcomed and appreciated by the community they served. Information: 617-638-4449

Framingham Dental Sealant Program (SEAL Framingham)

With generous support from the MetroWest Community Health Care Foundation, GSDM provides a town wide oral health education, screening, and sealant placement program for second graders in all eight public elementary schools in Framingham. Each year hundreds of Framingham students benefit from this school-based oral health program. Information: 617-638-5222

Framingham Early Childhood Fair

This annual health fair, sponsored by a Framingham partnership, is designed to introduce children and their families to the variety of educational, health, and recreational resources available in Framingham. GSDM provides oral health education and promotes oral health awareness for the SEAL Framingham Dental Sealant Program and the Framingham Fluoride Program. Information: 617-638-5222

Framingham Fluoride Program

Funded by the MetroWest Community Health Care Foundation, oral screenings and fluoride varnish applications are given to preschoolers at the South Middlesex Opportunity Council (SMOC) Framingham Head Start and to kindergarten and first grade children at three public elementary schools in Framingham. In addition, dental health education workshops are held each year for the Framingham Head Start staff and parents. Information: 617-638-5222

Framingham SMOC Head Start Parent Workshops

An oral health and nutrition information session is presented to parents/guardians whose children attend the SMOC Framingham Head Start Program. This venue provides the

opportunity 1) to interact with parents/guardians and answer their oral health questions and concerns, and 2) to increase parents' awareness of the many community services available to them in the Framingham area, addressing the needs of many Portuguese-speaking and Spanish-speaking parents in Framingham. Information: 617-638-5222

Framingham YMCA Healthy Kids Day

Hundreds of adults and their children attend this annual Healthy Kids Day event hosted by the MetroWest YMCA in Framingham. Dental health and nutrition information is offered to families by GSDM faculty and students using display boards, animal puppets, educational handouts, and activity sheets. Information: 617-638-5222

Give Kids a Smile, Rosie's Place, Child Works Program

The GSDM chapter of the American Association of Women Dentists (AAWD) holds interactive, age appropriate dental health fairs for the children who accompany their mothers to Rosie's Place, a shelter for homeless, displaced, and battered women. Dental supplies are donated by the ADA/Colgate for this Give Kids A Smile events. Information: 617-638-5222

Healing the Children

Faculty and residents from the Department of Oral and Maxillofacial Surgery have traveled to South American countries since 1993 to provide direct care to 50 to 75 children annually. This work is done in affiliation with Healing the Children NE, Inc.-Missions Abroad, a charitable organization. The School's faculty donates their time and expertise to this program. Information: 617-638-4350

Health Careers Expo at the Reggie Lewis Center

GSDM's Office of Admissions participates in this annual Health Careers Expo. This career exploration event hosts hundreds of students from local health careers and science themed high schools. Over sixty health professionals and post-secondary representatives work with students for the day on patient case studies with a goal to foster students' and professionals' interactions/dialogues on a deeper level. Each student has a mock "patient case study" and the students are required to visit with professionals who could be providing treatment and education to their "patient." Information: 617-638-4350

Healthy Baby/Healthy Child (HB/HC) Oral Health Promotion Program

GSDM has developed an oral health promotion model aimed at preventing early childhood caries which targets high-risk pregnant women and their children. Of particular importance are those living in communities that are disproportionately impacted by infant mortality and other health disparities. As part of the intervention,

GSDM faculty train public health nurses from the Boston Public Health Commission's HB/HC home visitation program to carry out basic oral health assessments and provide oral health education to their clients' children. In addition, staff facilitates referrals for dental care as needed. Information: 617-638-5222

Healthy Baby/Healthy Child (HB/HC) Summer Camp Celebration and Picnic

Each year GSDM participates in the Boston Public Health Commission's Healthy Baby/Healthy Child summer camp picnic activities typically held at Franklin Park in Jamaica Plain. Oral health education, enjoyable dental activities, and oral health screenings are offered to those attending this summer camp event. Information: 617-638-5222

Healthy Kids at Cathedral Tenants United, Inc.

GSDM participated in a community education *Knowledge is Power* series, sponsored by the Boston University School of Public Health Prevention Research Center, for children living at Cathedral Housing in Boston. A GSDM health educator taught an interactive oral health lesson and gave goodie bags to the children attending this educational and fun event. Information: 617-638-5222

Healthy Teeth for Tots

GSDM partners with the Dorchester House Multi-Service Center to develop and implement a model program that creates a seamless collaboration between pediatricians and dental providers within the community health center. The result is decreased prevalence of early childhood caries and an increased number of children receiving preventive and restorative dental services. To date, the program has implemented pediatrician-administered caries risk assessment, oral health education, and fluoride varnish applications. Information: 617-638-5222

HIV Dental Care/Ryan White

Through support from the Ryan White Care Act, GSDM provides considerable treatment, which is mostly uncompensated, to patients with HIV and AIDS throughout New England. A network for education referral has been established and includes Cambridge Cares About AIDS, Boston University Medical Center, and Provincetown AIDS Support Group. Information: 617-638-5499

IBA Cacique Youth Program - Oral Health Education

Inquilinos Boricuas En Acion (IBA) is an organization established to support the development and empowerment of the Villa Victoria community; Cacique is a youth program that offers an after school program and summer program. GSDM faculty provides lessons on oral health topics: the importance of teeth, healthy eating, tooth

protectors, and dental careers for children enrolled in this summer program. Information: 617-638-5222

Lawrence Dental Sealant Program (SEAL Lawrence)

GSDM provides second and third grade children in four elementary schools in the City of Lawrence with oral health education, dental screenings, fluoride varnish, and sealant placement. Each year hundreds of children benefit from this school-based service program. Information: 617-638-5222

Massachusetts Operation Stand Down for Homeless Veterans

This two-day multi-service veteran-sponsored intervention in Boston is designed to address the problems of homelessness among military veterans. Homeless veterans have access to free food, clothing, and health care, as well as psychiatric and social work services at this annual event. GSDM offers dental screenings and oral health education to the many veterans in attendance. Information: 617-638-5222

Massachusetts State House Health Fair

Sponsored by the Massachusetts Association of Health Plans and in partnership with Delta Dental of Massachusetts, GSDM provides oral health information, demonstrations, and oral cancer screenings for all interested attendees. Oral health screenings are integrated with other health screenings and testing including cholesterol, blood pressure, body mass index, bone density, and skin wellness. Information: 617-638-5222

Natick Dental Sealant Program (SEAL Natick)

Funded by the MetroWest Community Health Care Foundation, GSDM provides to the Town of Natick a school-based dental sealant program for second graders within all five public elementary schools, helping to meet the oral health needs of hundreds of Natick grade school students. Additionally, GSDM participates in a summer program at the Bennett-Hemenway School for preschoolers with a variety of special health care needs, bringing age appropriate interactive dental activities to these high risk children each year. Information: 617-638-5222

Natick Fluoride Program

This program, in conjunction with SEAL Natick, provides dental screenings and fluoride applications to kindergarten and grade 1 children in the Town of Natick. Information: 617-638-5222

Orchard Gardens/Smart Smiles Second Grade Field Trip

Orchard Gardens K-8 School second graders participate annually in a spring field trip to the GSDM. Students enjoy a variety of hands-on activities in a health fair type

atmosphere at six dental stations. Additionally, some field trips include an opportunity for the children to receive sealants, dental cleanings, and fluoride applications, provided by GSDM dental students in the sixth floor dental treatment center. The field trip typically finishes with a nutrition lesson and a healthy snack. Information: 617-638-5222

Outreach Van Project

The Outreach Van is a student-run project operated from within the Boston University School of Medicine in which faculty and students go out one evening per week to East Boston to conduct free screenings and distribute clothing and other basic necessities to approximately 20 to 30 people weekly during the colder months and 65 to 75 people weekly when the weather is warmer. The School of Dental Medicine provides dental supplies for distribution to the many people served through this very beneficial outreach program. Information: 617-872-7782

Program White Coat

GSDM holds annually a week-long summer program designed to introduce Boston-area children, ages 9 to 11, to dentistry and other related health professions. This program is one of GSDM's pipeline programs, which aim to increase the chances of underrepresented minorities and economically disadvantaged students being accepted into and succeeding in dental school. The week is packed with an interactive and fun schedule that focuses on oral health. GSDM faculty, staff, and students lead children through a role playing activity in the School's Simulation Learning Center, help them conduct experiments in BU's CityLab, demonstrate what goes on in a dental operatory, and take them on a field trip to the Museum of Science. Information: 617-638-4456

Promoting Elder Wellness Through Prevention and Awareness

Sponsored by the Watertown Department of Health, Watertown Council on Aging, and the Watertown Housing Authority, this event consists of a series of learning sessions designed to promote elder wellness with the focus on prevention. Topics covered include oral health, nutrition, falls, diabetes and emergencies. Students from GSDM and the Forsyth Dental Hygiene School provide oral screenings, fluoride varnish treatments, and denture cleaning and labeling to residents of two public housing facilities and the Watertown Senior center. Information: 617-638-5222

Relay for Life

GSDM students, faculty, and friends participate in the annual Relay for Life, a 12-hour walk/run event held at the Boston University Track and Tennis Center. In addition to walking, participants keep busy with a variety of sports and other fun activities, and many participants stayed the entire night. In 2009 the GSDM team raised more than $3500 and Relay for Life raised more than $80,000 from the overall event. The team also hosts an oral cancer booth, where they distribute information about oral cancer as

well as toothpaste and toothbrushes to those visiting the booth. Information: 617-638-4690

Research Science Institute

Since 1994, the School of Dental Medicine has been a participant in the Research Science Institute, a six-week summer program for high school students. Sponsored by the Center for Excellence in Education in collaboration with Massachusetts Institute of Technology, the students experience college-level classes and complete hands-on research guided by selected mentors at corporations, universities, and organizations. Information: 617-638-5222

Rosie's Place, Childworks Program, Dental Health Fair

GSDM's chapter of the American Association of Women Dentists (AAWD) set up an interactive dental health fair for children at Rosie's Place, a Boston women's shelter, as part of National Children's Dental Health Month. Children are taught about the importance of good dental hygiene and how to properly care for their teeth by use of a *dental passport* to guide them through each of the fair's six dental-themed stations. These include: brushing and flossing, the negative effects of tobacco on oral health, tooth protectors, the importance of regular dental visits, what teeth are used for, and the importance of eating healthy for good oral health. At the end of the tour each child receives a goody bag full of prizes along with a toothbrush and toothpaste. Information: 617-638-5222

Rosie's Place Wellness Fair

Rosie's Place is a sanctuary for poor and homeless women, offering both emergency and long-term assistance to women who have nowhere else to turn. GSDM has a long-standing program that enables the women affiliated with Rosie's Place to get free basic dental care. The School annually participates in *Rosie's Place Wellness Fair*, promoting oral health to these women by providing oral health information and free oral hygiene materials. In addition, plans are formulated at this event for an annual clothing drive sponsored by the GSDM Vietnamese Student Dental Association to serve the women who utilize the services of Rosie's Place. Information: 617-638-5222

Shawndell F. Mitchell Health and Wellness Fair

This well-organized event raises awareness of various health and safety issues as well as money for a scholarship in memory of Shawndell Mitchell, son of a BPHC health program administrator, who died by a gunshot wound over one year ago. Hundreds of families attend and GSDM provides free dental screenings, arts & crafts activities, and a health education table. Information: 617-638-5222

Smart Smiles in Boston Public Schools

GSDM, through *Smart Smiles in Boston Public Schools*, provides dental health education, oral screenings, fluoride varnish applications, and sealant placement to thousands of second grade children in 37 Boston public elementary schools. In addition, as part of Boston University's commitment to Mayor Menino's StepUp initiative, GSDM in partnership with the Commonwealth Mobile Oral Health Services offers enhanced oral health services to three schools including the John Winthrop School, the William Monroe Trotter School, and the English High School. Students in these schools are offered oral health education, dental screening, fluoride varnish treatments, and/or dental sealants through this program. Information: 617-638-5222

Smile Bingo

This activity grew out of the City of Watertown's *Promoting Elder Wellness Through Prevention and Awareness* event in order to raise awareness of the importance of oral health and the link between oral health and overall health among senior citizens living in Watertown. Dental hygiene students from the Forsyth School of Dental Hygiene, supervised by GSDM faculty, planned and coordinated this event as part of their senior capstone project. The students created Smile Bingo as a way to provide oral health education through a fun game that is popular among senior citizens. Smile Bingo was brought to two public housing sites and the senior center in Watertown. Information: 617-638-5222

Student Dental Health Plan

GSDM was the first dental school in the country to offer a dental plan for students at local colleges and universities, typically an underserved population. For a nominal annual fee, students and spouses receive preventive care and basic restorative and emergency services. Twenty-three local higher education institutions are members of the plan, including Boston University, Emerson College, Northeastern University, Suffolk University, and the University of Massachusetts. Information: 617-638-4741

Survivors of Torture Oral Health Program

In collaboration with the Boston Center for Refugee Health and Human Rights (BCRHHR), since 1999 GSDM has assessed and addressed the oral health needs of torture survivors through the *Survivors of Torture Oral Health Program*. Refugees participating in this program benefit greatly from the oral health education, dental screenings and referrals, and free dental home-care products they receive. Information: 617-638-5222

TET in Boston Festival

The TET festival is dedicated to promoting and preserving Vietnamese culture through the celebration of TET, the Vietnamese Lunar New Year. TET in Boston festivities are held each year in January or February at various locations in the greater Boston area. GSDM faculty and student volunteers from GSDM's chapter of the Vietnamese Student Dental Association contribute to the achievement of TET In Boston's education, social, and economic goals by offering oral health information, dental screenings, and dental arts and crafts for children. Additionally, oral screenings are offered and free oral hygiene supplies and materials are given out. Information: 617-638-5222

University of Massachusetts, Harbor Point, Student Wellness Fair

This annual health fair is carried out in collaboration with Health Services at the University of Massachusetts at Boston. This event offers a variety of health screenings to students, including free oral screenings by GSDM faculty and students. A dental health information table is set up and attendees are engaged in discussions about oral health through use of flipcharts, educational boards, dental hygiene samples, and printed information of interest to students. Information: 617-638-5222

Walk the Rock

The annual *Walk the Rock* event is held to raise awareness about oral cancer and to raise money for the Oral Cancer Foundation. Hundreds of participants gather at Nelson Park and walk over two miles through historic downtown Plymouth and along the Plymouth shoreline. Free oral cancer screenings are offered by faculty from GSDM and Tufts University School of Dental Medicine. A reception follows with light refreshments, live music, testimonials, and words of inspiration on the fight against oral cancer. Information: 617-638-5222

C.3 Boston University School of Public Health

Faculty, staff, and students at Boston University School of Public Health ("SPH") share a strong commitment to public service and participate in numerous activities that benefit the people of Boston. Following is a brief description of several major activities conducted by the School of Public Health, followed by a listing of some of the many and varied individual community service efforts.

The Partners in Health and Housing Prevention Research Center (PHH-PRC) is an equitable partnership among Boston University School of Public Health, the Boston Housing Authority, the Boston Public Health Commission, and the Community Committee, which is comprised of public housing residents and community advocates. Through these partnerships, PHH-PRC works to improve the health and well-being of the residents of public housing by engaging them in community-centered research programs and activities, as well as addressing the U.S. Department of Health and

Human Services Healthy People 2010 national goals of improving health status and reducing health disparities. Specific activities of the PHH-PRC include resident health screenings followed by clinical referrals, training of resident community health advocates, and conduct of smoking cessation projects.

In conjunction with the Massachusetts Department of Public Health's Bureau of Substance Abuse services, the BNI-ART Institute (Brief Negotiated Interview and Referral to Treatment) at Boston University School of Public Health established seven community-health care institution partnerships to address the need to identify substance abuse problems, provide brief intervention, and refer, when appropriate, to specialty treatment facilities and to community support services. In each of these communities, a hospital has come forward to offer its emergency department as a site for services. Peer educators (community health workers) integrate inpatient activities (providing screening and brief intervention at the time of a patient visit) with community action (partnering with community organizations for education and advocacy efforts). Five of these programs are self-sustaining as a result of University-community collaborations. This model was developed by BU/BMC researchers, who are responsible for program management and evaluation.

In a similar effort, doctors and public health practitioners from BU/BMC have joined to create a model program of advocacy for victims of violence at BMC and take it statewide to include six hospitals and their communities where the highest levels of gunshot and stab wounds have been documented. This program, called the Violence Intervention Advocacy Program (VIAP), is a joint effort with the Massachusetts Department of Public Health and the Boston Public Health Commission. The intensive case management model for this program, adapted from a Robert Wood Johnson Foundation successful project on the West Coast, links victims with community resources, identifies risks, builds resilience, and helps young people and their families and neighborhoods turn their lives around after a catastrophic event. The program works closely with grass roots organizations, and aims at a seamless integration of prevention efforts on the streets with care provided in the institution and aftercare arranged by VIAP. VIAP is funded by state and city monies and a grant from the Boston Foundation. Leadership for this program comes from a collaboration of the BMC Department of Emergency Medicine with the BNI-ART Institute at the School of Public Health.

During the past year, the Boston Center for Refugee Health and Human Rights (BCRHHR), a project of Global Lawyers and Physicians and Boston University School of Public Health, actively cared for the medical, psychological, legal and social needs of over 600 clients from 67 countries who live in and around Boston. It is a multidisciplinary center that provides services for refugees and survivors of torture and related trauma. It provides primary health care, mental health services, referrals for medical specialties and neuro-psychiatric evaluation, dental evaluations, evaluations of persons in detention, physical therapy, legal services, social services, English classes, creative

therapies, and vocational rehabilitation. The Center also offers a clothing bank, access to the BMC Food Pantry, and ethnic community support groups.

C.3.1 Individual Volunteer and Service Efforts

- Chairman of the Board, Spaulding Rehabilitation Hospital and Network
- Member, Asian Task Force Against Domestic Violence
- Volunteer, Massachusetts Occupational Health Surveillance Program Advisory Board
- Volunteers, Rosie's Place
- Volunteer, The Food Project
- Volunteer, The Boston Natural Areas Network
- Volunteers, Alternatives for Community and Environment
- Organizers, CORI Community Forums
- Volunteer, Environmental Justice Network of Academics and Activists
- Participant, ACE (Alternatives for Community and Environment), Roxbury
- Volunteer, Boston Society of Architects Civic Initiative
- Volunteer, Hispanic Office of Planning and Evaluation
- Member, Boston Public Health Commission
- Volunteer, Hyde Park Citizens Group concerned about Environmental Effect of MBTA
- Board Member, Alliance for a Healthy Tomorrow
- Director, Partnerships and Collaboration, Prevention Research Center
- Volunteer, Children and Families Protection Act Advisory Council
- Participant, User-Generated Content for Environmental Health Mapping, South Boston
- Volunteer, Environmental Health: A Global Access Sciences Source
- Member, DentaQuest Oral Health Foundation
- Member, Toxics Action Committee
- Parent Representative, Boston Youth Symphony Orchestra Intensive Community Program
- Volunteers, Roxbury Presbyterian Church "Dream Again" Campaign
- Volunteer Instructor, Community Boating, Inc.
- Member, Boston Medical Reserve Corps
- Organizers, Sportsman's Tennis Club Health Forums
- Advisor, Massachusetts Department of Public Health Bureau of Environmental Health
- Member, Massachusetts Department of Public Health Cancer Advisory Committee
- Board Vice-Chairman, The Urban Medical Group
- Board Chairman, Public Responsibility in Medicine and Research
- Member, ACT!! (Access to Care Today Two) Steering Committee
- Monthly Participant, Boston Medical Center's Geriatric Services Ethics Conference
- Organizers, "New Faces in Public Health," for nine Boston Public Schools and one Boston charter school
- Volunteer, Community Tax Preparation Service, Jackson-Mann School

- Member, Massachusetts Catastrophic Illness in Children Relief Fund Commission
- Participant, Midwives Alliance of North America Research Advisory Panel
- Member, Health Services Initiative Steering Committee for Health Care for the Homeless
- Member, Scientific Review Committee, the Medical Foundation's Deborah Munroe Noonan Memorial Fund
- Member, Advisory Committee, Massachusetts Consortium of Children with Special Health Care Needs
- Family TIES Parent Advisor, Massachusetts Department of Public Health
- Member, Set Sail Annual Fundraiser for Spaulding Rehabilitation Hospital
- Member, Board of Visitors, Franciscan Children's Hospital
- Member, Massachusetts Senior Action Committee
- Board Member, MassCARE
- Member, AIDS Response Fund
- Member, American Medical Resources Foundation
- Member, Massachusetts Department of Public Health Smallpox Work Group
- Volunteer ESL teacher, Hyde Park Square Task Force/Connolly Library
- Volunteer, Massachusetts Foundation for the Humanities and Faulkner Hospital
- Volunteers, "Making Strides Against Breast Cancer" Walk
- Volunteers, Boston's Salvation Army Thanksgiving Project
- Organizers, Toiletry Drive for the Women's Lunch Place
- Volunteers, Healthcare for the Homeless
- Volunteer, Write Boston, Boston Public Schools
- Vice President, Hebrew Rehabilitation Center for the Aged Men's Associates
- Board member, American Jewish Committee
- Council Chair, Arlington Street Church Prudential Committee
- Member, Boston Public Health Commission's Fetal and Infant Mortality Review Committee
- Member, March of Dimes "Centering Pregnancy" Collaborative
- Massachusetts Department of Public Health, Bureau of Substance Abuse Treatment
- Member, Massachusetts Department of Public Health Birth Data Workshop
- Member, Boston Public Health Commission, Health of Women and Infants Working Group
- Member, Massachusetts Department of Public Health Healthy Start Evaluation Committee
- Member, Association of Maternal and Child Health Programs Infant Mortality Collaborative
- Member, Boston Public Health Commission, Health of Women and Infants Working Group
- Advisor, Boston Public Health Commission, Health of Women and Infants Working Group
- Member, Center on Social Disparities in Health

- Member, Pregnancy Risk Assessment Monitoring System, Boston Medical Center
- Volunteer, Boston Public Health Commission, Healthy Start
- Member, Simmons College Board of Trustees
- Advisor, Boston Public Health Commission, Fetal Infant Mortality Review Committee
- Member, Boston Public Health Commission, Women and Infants, Working Group and Steering Committee
- Volunteer, Women's Health Options, Roxbury
- Volunteer, Boston Public Health Commission, Reach 2010
- Member, Fenway Health Institute's Lesbian Research Advisory Group
- Volunteer, Pathways to Wellness
- Member, Mothers Against Drunk Driving, Massachusetts Operations Council
- Member, Partners Health Care Finance Committee
- Member, Massachusetts Trauma Outcomes Research Committee
- Volunteer, Massachusetts Department of Public Health, Training Workshops in Media Advocacy
- Member, American Academy of Arts and Sciences, Active Girls Initiative Advisory Committee
- Member, Codman Square Health Center, Committee for Women's Services
- Member, Massachusetts Department of Public Health, Prevention of College Age Alcohol-Related Problems Coalition
- Volunteer, Boston Medical Center, Family Advocacy Program
- Volunteer, Massachusetts Injury Prevention Planning Group
- Member, St. Vincent de Paul Society, Jamaica Plain
- Volunteer research intern, Boston Medical Center, Boston Healing Landscape
- Youth Choir Director, First Haitian Baptist Church
- Volunteer, Children's Hospital, Bone Marrow Transplant Wing
- Member, South End Business Alliance
- Member, Old Dover Neighborhood Association
- Member, Perkins Occupational Advisory Group, Roxbury Community College
- Member, Board of Directors, New Market Business Association
- Member, Board of Directors, Washington Gateway main Street, Inc.
- Chair, Organization Committee, Washington Gateway main Street, Inc.

C.3.2 Student Community Placements 2008

All Boston University School of Public Health students are required to participate in a field practice placement in order to complete their graduation requirements. Participants learn how the organization works, while lending an extra pair of hands. This is particularly valuable in difficult economic times. Below is a list of Boston community-based placements.

- Massachusetts Department of Public Health, Injury Surveillance Program, Bureau of Health Statistics, Research and Evaluation
- Boston Medical Center, Birth Sisters
- Brigham and Women's Hospital, Department of Rheumatology
- Fenway Community Health Center, Research and Evaluation Department
- Massachusetts Department of Public Health, Occupational Health Surveillance Program
- Massachusetts Department of Mental Health, Child/ Adolescent Services
- Massachusetts Department of Public Health, Summer Internships State-wide Listing
- Boston Medical Center, Department of Pediatrics and Behavioral Sciences
- Boston Public Health Commission, Research Office
- Boston Medical Center, Children's Sentinel Nutrition Assessment Program (C-SNAP)
- Boston Medical Center, The Breastfeeding Center
- U.S. Department of Health and Human Services, Office of Inspector General, Office of Evaluation and Inspections
- Massachusetts Department of Public Health, Division of Perinatal, Early Childhood and Special Health Needs
- Boston Medical Center, Department of Pediatric Infectious Disease
- Boston Medical Center, Department of Pediatrics, Division of Child Development
- Health Care for All
- Brigham and Women's Hospital, Connors Center for Women's Health and Gender Biology
- Boston Public Health Commission, Communicable Disease Control Division
- Boston Medical Center, Department of Emergency Medicine
- Center for Medicare & Medicaid Services
- Boston Medical Center, Department of Geriatrics
- Boston Medical Center, New England Regional Spinal Cord Injury Center
- Massachusetts Department of Public Health, Bureau of Substance Abuse Services

C.3.3 Student Community Placements 2007

- Massachusetts Department of Public Health
- Fenway Community Health Center
- Boston Public Health Commission
- Our Bodies, Ourselves
- Health Care for All
- Brigham and Women's Hospital
- Center for Medicare & Medicaid Services
- Dana Farber Cancer Institute
- Massachusetts Medicaid Policy Institute
- Hope Found - Men's Stabilization Program
- Project HEALTH

- Multicultural AIDS Coalition
- Physicians for Human Rights
- Parent Professional Advocacy League (PAL)
- Boston Center for Refugee Health and Human Rights
- South Africa Partners
- Pathways to Wellness/AIDS Care Project
- New England Serve
- Beth Israel Deaconess Medical Center
- Harvard Medical School
- Sterling Planning Alliance
- Cambridge Health Department
- Dana Farber Cancer Institute
- MA Department of Public Health
- Blue Cross Blue Shield of Massachusetts
- Massachusetts State House
- Screening & Quality of Care for Epilepsy Project
- Boston EMS
- Shriners Hospital for Children
- Fenway Community Health Center - Executive Office
- Office of Representative Denise Provost
- Faulkner Hospital
- Refugee and Immigrant Assistance Center
- Agency for Toxic Substances and Disease Registry
- Brigham and Women's Hospital
- Jane Doe Inc.
- Equinox Fitness
- AIDS Action Committee
- Boston University
- Harvard/MGH Center on Geonomics
- Children's Hospital
- MA Comprehensive Cancer Control Coalition (MCCCC)
- North American Indian Center of Boston
- Harvard School of Public Health
- Dorchester House Multi-Service Center
- East Boston Neighborhood Health Center
- Massachusetts Asian & Pacific-Islanders for Health
- Massachusetts State House
- Joslin Diabetes Center
- AIDS Action Committee
- MA Coalition for Occupational Health and Safety
- Citizen Schools
- Mass Banding Together Against Alcohol-Advertising
- Saheli-Boston
- Health Dialog
- Boston Healing Landscape Project
- Suffolk County District Attorney
- Codman Square Health Center
- Tufts-New England Medical Center

- Massachusetts League of Community Health Centers Massachusetts League of Community Health Centers
- Elizabeth Medical Center
- Health Care for All
- Fenway Community Health Center
- Massachusetts State House
- Brewster Day Camp
- Allston-Brighton Community Development Corporation

C.3.4 Student Community Placements 2005-2006

- Waging Peace Pilot Project
- Office of Child Advocacy
- Massachusetts State Laboratory
- CDC -Harvard Medical School AIDS Partnership Project
- Bureau of Family and Community Health
- Department of Pediatrics, The Breastfeeding Center
- Senator Moore's Legislative Office
- Massachusetts Bureau of Health Statistics Research and Evaluation
- Massachusetts Division of Perinatal, Early Childhood and Special Health Needs
- Boston Healthy Start Initiative
- Connors Center for Women's Health and Gender Biology
- Barnard Services
- New England Regional Spinal Cord Injury Center
- Win-Win Program
- New England Medical Center
- COLMR
- Newcastle HERD Research Project
- MA Tobacco Control Board
- CIREEH Center
- Emergency Medicine Network (EMNet)
- The Pulmonary Center
- Office of Educational Training
- Department of Society, Human Development & Health
- Partners in Healthy Housing - Prevention Research Center
- Mother and Sons (MAS) Program
- Massachusetts Veterans Epidemiology Research and Information Center, Boston Campus
- Health E-Technologies Initiative
- MA Center for Sudden Infant Death Syndrome (SIDS)
- Infectious Disease, MGH HIV Clinic
- Harriet Tubman House
- Brigham & Women's Hospital-Channing Laboratory
- Office of Senator Cynthia Creem
- Playspace Program (Greater Boston)
- Center for Medicare & Medicaid Services

- Framingham Heart Study
- Joint Committee on Healthcare Financing
- Rogerson Adult Day Health
- The Foley Senior Residence
- The Fenway Institute
- Office of Inspector General, Office of Audit Services
- Office of Representative Kay Khan
- Boston Environmental Hazards Center
- MGH Center for Women's Mental Health
- Teratology/Surveillance Office
- Empowering Neighbors for Health
- BU Department of Biostatistics
- Environment Exposures and Health
- Committee on Health Care Financing
- Office of Child Advocacy-Boston Urban Asthma Initiative
- Joint Committee on Public Health - Office of Chairman Peter Koutoujian
- Friedman School of Nutrition Science and Policy

Appendix D

APPENDIX D HISTORIC AND ARCHAEOLOGICAL RESOURCES

The present Boston Medical Center (BMC) consists of the former Boston City Hospital, Boston Specialty and Rehabilitation Hospital and Boston University Medical Center Hospital, which were consolidated and merged into the Boston Medical Center Corporation in July 1996. The BUMC Campus is located within the South End Harrison/Albany Protection Area, formed to maintain an architecturally compatible boundary adjacent to the south border of the South End National Register and Landmark Districts. This section contains an inventory and information on buildings within the BUMC Campus that were built before 1958 (see Table D-1), and have not been surveyed previously. A 1980s Boston Landmarks Commission survey of several of the Boston City Hospital Buildings can be found in the landmarks study report for Boston City Hospital. Potential impacts of the proposed Boston University Medical Center IMP on these resources are discussed in the second part of this section.

This Appendix separates the campus into two groups: those buildings built as part of Boston City Hospital, and those buildings built as part of the Massachusetts Homeopathic Hospital and Massachusetts Memorial Hospitals, which were later part of the Boston University Medical Center Hospital. The line between the two campuses has blurred over time, so the buildings are grouped in the historical discussion based on their original use or owner.

Table D-1 Buildings Constructed Before 1958

Name	Date
BCD Building – Surgical Pavilion, 800 Harrison Avenue	1864
FGH Building – Medical Pavilion, 820 Harrison Avenue	1864
Dowling Building	1937
Surgical Building 85 East Concord Street	1928
Anna White Vose Hall	1898
Helen Collamore Memorial	1936
Old Robert D. Evans Memorial	1942
Jennie M. Robinson Memorial, 750 Harrison Avenue	1915
Massachusetts Homeopathic Hospital - Talbot Building	1876/1884/1891
Robert D. Evans Memorial for Clinical Research and Preventative Medicine – A Building, 80 East Concord Street	1912
Smith American Organ Company, 615 Albany Street	R 1865
Outpatient Dept. Silvio O. Conte Medical Research Center (East Concord at Harrison Streets)	1905/ between 1922 – 1928

D.1 Boston City Hospital/Boston Medical Center

D.1.1 Boston City Hospital - History

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 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.

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 plan was considered the latest reform for 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).

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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.

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.

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.

Outpatient Building (1905 & ca. 1922)

The first four stories of the Outpatient Building were constructed in 1905 and replaced a one-story office building with a mansard roof. The separation from the main hospital buildings may have been a means of limiting the spread of contagious diseases or infections. An additional two stories were added between 1922 and 1928. It was subsequently renamed the Boston University Silvio O. Conte Memorial Research Center in honor of the Congressman who worked to appropriate funds for biomedical research at Boston University. This building was originally part of the Boston City Hospital facilities, but by the 1980s, it had been transferred to the BU Medical School.

Surgical Building 85 East Concord Street (1928)

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.

Dowling Building (1937)

The Dowling Building has housed several departments within Boston City Hospital, including clinical, surgical and educational activities. Among these was the Fifth Surgical Service, established in 1865 and located on the east side of the original Boston City Hospital Campus (with the Medial Service on the west side). After having use of beds in the old Surgical and later the Surgical Buildings (85 East Concord), the Fifth Surgical Service was assigned to the fourth floor of the Dowling Building and has been located there and on part of the fifth floor since the opening of that building in 1937. The Fifth Surgical Service bed assignment reached a high of 105 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. Trauma surgery, the Emergency Entrance and the present Boston EMS have all been located in this building.

The Urology Service at BCH was also housed in the Dowling Building. The quarters of the male Urology Service were transferred to Dowling in July 1961. At the same time that the male urological beds were relocated to the south wing of the 5th Floor of the Dowling Building, female patients were assigned to Dowling 2 North. Surgery was also performed on the 7th Floor of Dowling.

The Cheever Amphitheater, named after David W. Cheever, the first Harvard Professor of Surgery at the Boston City Hospital, was previously located in one of the earlier Surgical Buildings. In 1937 the name of the Cheever Amphitheater was transported to a new amphitheatre in the Dowling Building at the time of its opening.

The building was named after Dr. John J. Dowling, who fought in WWI. Soon after the US entered the war in 1917, Dowling, Superintendent of BCH, was appointed commanding officer of a Base Hospital. In 1918, Major Dowling was appointed as the Director of his Unit, which was sent to France. Upon his return, Dowling continued working at BCH until at least 1930.

D.1.2 Building Descriptions

Buildings BCD and FGH (1864)

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 third, the Administration Building, was demolished in 1934. 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. 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 the original section is only eight bays long. 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 northwest corner, the second is near the north 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,

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.

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. All renovations in 2006 were completed in conformance with the Secretary of the Interior's Standards for Rehabilitation and the BCD Building is 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.

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 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. All renovations in 2006 were completed in conformance with the Secretary of the Interior's Standards for Rehabilitation and the FGH Building is listed in the National Register of Historic Places.

Outpatient Department

The Outpatient Building is located at the northwest corner of the intersection of East Concord Street and Harrison Avenue. The red brick polychromatic building is 6 stories and L-shaped in plan, extending 13 bays along East Concord Street and Harrison Avenue. Originally a four story building in 1905, the top stories were added between 1922 and 1928. The contrasting sandstone trim includes a watertable, shouldered window lintels, window enframements at the fourth story, and beltcourses below and above the fifth and sixth stories.

A copper cornice band runs above the third story and a heavier, deep modillion cornice projects out from the top of the wall. Quoins and panels mark the corner piers. The main entrance on Harrison Avenue is 1 ½ stories, framed in sandstone and has a wide frieze with a narrow cornice supported on consoles. A bold cartouche flanked by elaborate scrolls is perched on the cornice. The door opening is infilled with polished red marble incised with the dedication of the building to Silvio O. Conte and with the Boston University Medical School seal.

The bays along East Concord Street are irregularly spaced single narrow and wide openings. The Harrison Avenue elevation is symmetrical with openings grouped in pairs

or threes. The fourth story (originally the top of the building) is short. The top two stories are quite different, using a lighter and more vertical expression. The two-story window openings are separated by narrow brick piers. Metal spandrel panels fill the space between the floors. Along East Concord Street, there is a regular rhythm of solid and void creating more glazed area than in the wall below. Along Harrison Avenue wider piers separate the alternating groups of two and three windows, but the two-story openings with recessed metal spandrels still created a lighter wall. The projecting copper cornice is enriched by a dentil course at the base and bold modillions under the eaves.

The architectural detail is similar on all of the elevations. A two-story stone pavilion centered in the east end elevation is topped by a balustrade and marks another entrance to the building. The window leading out to the balcony has a stone surround and cornice. At the intersection of the two wings there is a quarter-round bay on the inside corner. However, a 1 ½-story flat-roofed addition and mechanical equipment detract from these elevations.

Surgical Building 85 East Concord Street (1928)

The Surgical Building is an 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 cross piece.

Dowling Building (1937)

The Dowling Building 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 limestone 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 enframements, 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.

D.2 Massachusetts Homeopathic Hospital - Boston University Medical Center Hospital

D.2.1 History

The Massachusetts Homeopathic Hospital (MHH) was founded in 1855 but had no hospital building or space until 1870, when it shared space with the Homeopathic Medical Dispensary on Burroughs Street. In 1875-76 the MHH built its first hospital, designed by William Ralph Emerson, on an undeveloped site owned by the City of Boston. The main building of the MHH expanded from 1884 through 1914; the hospital's west wing was the surgical wing, the east wing was the medical wing and the center wing contained a kitchen (after 1891) just south of the main block and the boiler house (before 1891) to the south of that, with the laundry on the second floor. The Massachusetts Homeopathic Hospital was further expanded by the construction of buildings on East Concord, Stoughton and East Newton Streets and on Harrison Avenue.

The first building constructed by MHH is now called the Talbot Building after Dr. Israel Tilsdale Talbot (1829 – 1899). A graduate of Harvard Medical School, Dr. Talbot served as Director of MHH from 1897 until 1899. That was the culmination of a deep involvement with the institution as surgeon, Secretary of the Corporation and Trustees,

Chairman of the Supply Committee and member of the building committee for the new building in 1877. The connection between MHH and the nearby Boston University School of Medicine was exemplified by the fact that Dr. Talbot also served as the first dean of the Boston University School of Medicine from its opening in 1873 until 1896.

The precursor to Boston University School of Medicine (BUSM) was the New England Female Medical College on Stoughton Street. Dr. Israel Tilsdale Talbot and Dr. Samuel Gregory founded the Boston Female Medical College in 1848, the first medical school for women in the world. Started as a school for midwives, it soon expanded to a full medical curriculum in 1850 when the name changed to the New England Female Medical College. Although subject to criticism from male doctors, it continued until 1873, when the Boston University School of Medicine (BUSM) was formed by the merger with the New England Female Medical College. At that time, BUSM took over the New England Female Medical College building on Stoughton Street. It appears on the 1887 Sanborn map as University Medical College. Teaching facilities were shared by the Medical Schools of Harvard, Boston University and Tufts Schools of Medicine.

D.2.2 Massachusetts Memorial Hospital

The Massachusetts Homeopathic Hospital eventually consisted of a group of buildings that included the Talbot Building, Vose Hall, Robinson Memorial, Evans Memorial and Collamore Memorial. 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. Boston University eventually took over the Memorial Hospital, which would become part of the Boston University Medical Center Hospital. In 1965 the name was changed to University Hospital to reflect 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.

In May 1962, the University 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." The Boston University Medical Center Hospital was a private non-profit hospital independent of Boston University. Its predecessor was chartered by the Commonwealth of Massachusetts in 1855 in the name of the Massachusetts Homeopathic Hospital.

In 1994, Boston Mayor Thomas Menino recommended the merger of Boston University Medical Center Hospital, Boston City Hospital, and Boston Specialty and Rehabilitation Hospital. In the same year, Boston University Medical Center Hospital, in collaboration with Boston City Hospital, received Level One Trauma verification from the American College of Surgeons. The merger occurred on July 1, 1996.

The Memorial Buildings include:

Anna White Vose Hall (1898)

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.

Jennie M. Robinson Memorial (1915)

Part of the Homeopathic Hospital, the Robinson Memorial Building, also referred to as the Maternity Building, housed the Outpatient Department on the basement, first and second floors and the Maternity Department, which occupied floors three through five. In total, the building was designed to hold 70 beds. Some beds were available at no expense and some were partially subsidized for patients of lesser means. Maternity wards were located on the third floor, semi-private rooms were on the fourth floor and the top floor held twelve private maternity rooms, eight having private bathrooms. Each department had their own entrance; the Harrison Avenue entrance led to the Outpatient Department and the Maternity department was entered from Stoughton Street, through the Memorial Hall.

Built to the designs of Kendall, Taylor & Co., the Robinson Memorial was said to contain " . . . the very latest ideas in construction and furnishings," and the Homeopathic Hospital proudly claimed it to be the "most perfect and the largest" hospital facility of its type in the Eastern United States. The building interior was originally a "soft gray-green." The builder was the H. P. Cummings Construction Company.

The building was donated by Wallace Fullam Robinson in memory of his late wife Jennie M. Robinson, who had taken an interest in women's health issues. Robinson was a successful Boston businessman who built a fortune in a variety of businesses, was a State Representative, President of the Boston Chamber of Commerce and the first Vice President of the United Shoe Machinery Corporation. Robinson subsequently provided an endowment to provide care for those patients who couldn't afford the fees.

Collamore Memorial (1936)

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 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.

Robert D. Evans Memorial – Building A (1912); Old Evans (1942)

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," which opened in 1972.

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.

D.2.2 Building Descriptions

Massachusetts Homeopathic Hospital, Talbot Building (1876, 1884, 1891)

Located at the northeast corner of the intersection of East Concord and Albany Streets, the former Massachusetts Homeopathic Hospital is oriented to the north, toward Harrison Avenue. Now referred to as the Talbot Building, this was the first of the hospital's buildings, and includes four sections built at different times to accommodate expansion. By 1908, the MHH was approximately E-shaped in plan with a two-part west wing along East Concord Street, an east wing along Stoughton Street and a central wing that connected the two and also ran north south. What remains today are the east and west wings and the north block of the central wing.

Built of red brick exhibiting patterned brick and sandstone detail, the building is 3 and 4 stories with a complex slate roof comprised of a multitude of gables, turrets and intersecting roof forms. At the north façade facing toward Harrison Ave., the three distinct wings can be distinguished with two-story bridges making the connection from the east to center and center to west wings. The façade of the central wing is symmetrical with a hipped roofed, two-story block and a central, three story projecting pavilion with a tall hipped roof. At the base of the gable is the main entrance, sheltered by an open, wood framed gable roof supported on brick piers. Two small gables flank the central pavilion and a jerkin-head dormer projects from the pavilion roof. Detail includes sandstone lintel and sill courses, brick corbelling near the cornice and colored bands in the slate roof. Interior and sidewall brick chimneys rise above the roof.

The former boiler house has been removed at the rear exposing the south elevation of the central block facing Albany Street. Also symmetrical, this elevation has a four story pavilion surmounted by a low hip roof flanked by two tall pedimented gables. A wooden round arch shelters the door.

The central main block was the first of the structures, dating ca. 1876. The second structure was the north section of the west wing (the surgical wing) along East Concord Street (1884). The south section of the surgical wing and the east wing (medical wing) were built in 1891. The sunrooms at the south end of the east wing were added between 1908 and 1912.

The north elevation of the east and west wings are similar although their other elevations are not. They are four stories; they each have a one-story projecting porch with a Richardsonian arch and paired Queen Anne doors, which are also found at the center

entrance. The picturesque massing, verticality and brick detail is most elegantly expressed at the west wing. It has two sections built at different times that were at one time connected by a narrow neck, which was infilled by 1914. Brick detail includes a rusticated first story, a narrow band of corbelling below the third story windows and a wide corbelled band below the fourth story. Sandstone beltcourses and lintels provide a horizontal expression. The complex roof forms include hipped, shed, gabled and conical roofs. Window openings are irregular, exhibiting varied single, paired and triple windows. The east elevation has octagonal corner turrets and an octagonal bay toward the center of the elevation. A well-proportioned hexagonal stair tower with a conical roof is attached to the north elevation. The narrow windows spiral up the exterior. One- and two-story metal clad oriels are found on the north and west elevations. The east elevation is less detailed.

The east wing was built last; it is simpler and more regular than the other wings. It does repeat the sandstone banding and first story rustication. Windows tend to be paired and there is a full-height, metal-clad enclosed porch sitting on a brick first story at the south elevation, which was added between 1908 and 1912.

The property also contained a free-standing one-story brick contagion ward that later served as the doctors' dormitory, an ambulance garage, a morgue and a small brick shed (perhaps a gatehouse) near the south border of the site, which were all demolished after 1938.The 1914 Sanborn map indicates that an 8 foot tall concrete wall enclosed the Albany Street border.

The entire building was fully rehabilitated in the 1990s when the roof, windows and metal cladding were replaced and the exterior doors were either restored or rebuilt.

Vose Hall

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 Building and west of the Old Evans Building. The one-story Betatron 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.

Robinson Memorial

The Robinson Memorial was a four story red brick building with a fifth story that stepped back from the main façade. Above that there was an open deck with a fabric cover on the roof. Today, two stories step back from the main façade. It appears the roof deck was enclosed and the face of this two-story section is altered. The building's most elegant feature is a four-story copper-clad enclosed porch which sits on the open one-story brick entrance portico on the west end of the main building. Memorial Hall is connected to the south of the main block and was the original entrance to the maternity department. The entrance is set in a round stone arch and sheltered by a one-story bold cast stone Doric portico. The one-story pavilion has a tall frieze with Robinson Memorial incised in the frieze over the Doric portico. Now altered by a plain brick second story, the pavilion once had a balustrade at the roof edge. Both sections of the building are built of brick in Flemish bond with alternating courses of burnt headers.

The east elevation of the Robinson Memorial is connected to the Old Evans Memorial. The Harrison Avenue elevation rises to a sandstone cornice surmounted by a parapet with geometric detail. The bays are delineated by brick pilasters with brick and cast stone capitals. Additional ornament includes sandstone sill courses at the first and second stories. An original entrance now filled with brick and centered on the Harrison Avenue elevation is identified by a round arch framed by a 1 ½-story surround set on sandstone pedestals and ornamented by sandstone bands of graduated widths. A slightly projecting sign band incised with the building name "Jennie M. Robinson Memorial" sits atop the surround. Window openings have flat brick arches and sandstone keystones. The first story windows are either single or paired with transoms. The windows at the upper stories were 1/1 double-hung sashes, but the third and fourth stories have replacements with various fixed and operable sashes.

Collamore

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 third 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 fourth and fifth stories. The second and third 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.

First Evans Memorial - Building A

Built as a free-standing building toward the middle of the block on East Concord Street between Albany Street and Harrison Avenue, the first Evans Memorial was originally four stories on a low basement with a partial fifth story at the south end. The red brick building is T-shaped in plan and has stone and cast stone trim. Trim includes a tall watertable, beltcourses, sills, lintels and window surrounds at the first story. Carved stone spandrels are located between the second and third stories. The fifth story had an open porch spanning between two enclosed sections on either end. An open iron railing ran between heavy columns supporting the pergola and shades were hung in the porch. The central entrance on East Concord Street has a stone surround topped by a small cornice supported on consoles.

Old Evans

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.

Smith American Organ Company (R 1865)

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 first floor, bench work at floors 2 – 5, and filling at the sixth (it is not clear what filling meant). In 1897, although the Organ Company next door had survived, #615 is now 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 Linament* 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.

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.

D.3 Sources

D.3.1 Primary Sources

Bromley, Geo. W. *Atlas of Boston Proper & Back Bay*. Vol. 2. 1908, 1912, 1917, 1922, 1928, 1938.

Boston University Alumni Medical Library Archives, 80 E. Concord Street, Boston, MA.

Howard Gottlieb Archival Research Center (BU), 771 Commonwealth Avenue, Boston, MA.

Boston University Yearbooks, Presidents' and Deans' Reports (various dates).

Hopkins, G. M. Hopkins. *Atlas of Suffolk County,* Vol. 1. 1874.

Sanborn Insurance Maps, *Insurance Maps of Boston, Massachusetts*. Vol. 2 1887, 1897, 1914. Sanborn Insurance Company. New York, New York.

D.3.2 Secondary Sources

Bakst, Henry J. "The Story of the Massachusetts Memorial Hospitals." Centennial Publications: November 1955.

Byrne, John J. Ed. *History of Boston City Hospital: 1905-1964*. Boston: 1964.

Finland, Maxwell. *The Harvard Medical Unit at Boston City Hospital*. Harvard Medical School. Boston: 1982

Robinson, Harry Ezra. *Wallace Fullam Robinson: his ancestry – personal history – business enterprises.* University Press. Cambridge, MA: 1917.

Appendix E

Boston University Graduate Student Housing
815 Albany Street, Boston, MA

BEACON ARCHITECTURAL ASSOCIATES
145 South Street • Boston, Massachusetts 02111-2802

SOUTH ELEVATION

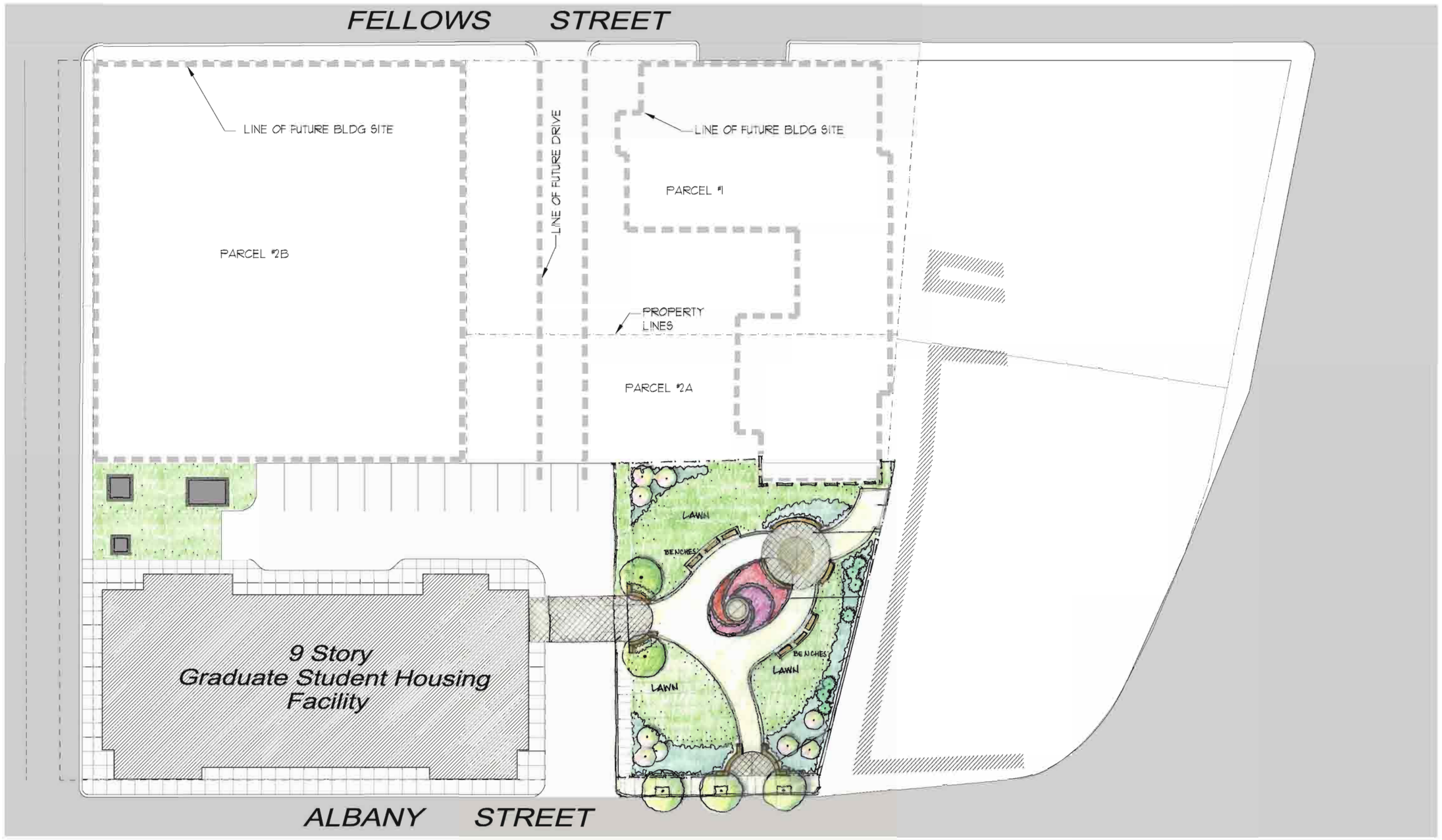
EAST ELEVATION

Albany Fellows

Boston, MA

BEACON ARCHITECTURAL ASSOCIATES
www.beaconarch.com · (617) 357-7171

BU



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BU

Appendix F

Response to Comments

APPENDIX F – SCOPING DETERMINATION & RESPONSE TO COMMENTS

One comment letter was submitted by Boston Water & Sewer Commission (BWSC) on the Institutional Master Plan (IMP). Each comment within the BWSC letter is numbered and responses are provided below. This section addresses only the BWSC comment letter on the IMP. BWSC as well as other City of Boston public agencies submitted separate comment letters on the Energy Facility PNF during the comment period. Responses to those comment letters are addressed in the Draft Project Impact Report (DPIR) submitted separately and concurrently to the BRA. The Scoping Determination and copy of the BWSC comment letter on the IMP (including comment letters received on the PNF) is attached and included in this Appendix F.

Boston Water & Sewer Commission

BWSC.1 Capacity of Water, Sewer, and Storm Drainage Systems

As each proposed IMP project is advanced, an evaluation of water, sewer and storm drainage systems will be provided in the Large Project Review documentation submitted to the BRA. The Proponent will update the analysis of the each proposed IMP projects' impacts on these systems as part of the individual Site Plan Review process for each project.

BWSC.2 New or expanded water mains, sewers and storm drains

The Proponent will submit to the Commission the required plans, details and supplemental documents as required through the Boston Water and Sewer Commission's Site Plan Review process and General Services Application when each IMP project is advanced.

BWSC.3 Site Plan and General Service Application Review

As each proposed IMP project is advanced, the Proponent will submit to the Commission the required plans, details and supplemental documents as required through the Boston Water and Sewer Commission's Site Plan Review process. The Proponent will provide the requested estimates and quantities as part of the Site Plan Review process.

BWSC.4 Project Design 50 Percent Complete

At this time, only the Energy Facility project is moving forward. This project is being addressed in the DPIR submitted concurrently with this IMP. The Administration/Clinical Building and the New Inpatient Building are at a conceptual stage of design and are anticipated to move forward within the 5 to 10 year timeframe of the IMP. The Proponent will meet with BWSC as the design for each proposed IMP project is advanced to ensure compliance with the Commission's requirements.

BWSC.5 Drawings in AutoCAD R14 Format

The Proponents will submit to the Commission the required drawings in AutoCAD R14 format for each proposed IMP project.

BWSC.6 Cut and Cap Prior to Demolition

One of the proposed IMP projects, the New Inpatient Building, does entail demolition of an existing building. In connection with such demolition, the Proponent will cut and cap all water, sewer, and storm drain connections to the building and complete a Termination Verification approval Form for a Demolition Permit for submission to ISD.

BWSC.7 Separate sanitary sewer and storm drains

Separate sanitary sewer and storm drain services will be provided for the new buildings proposed in the IMP.

BWSC.8 Drainage from building roofs and impervious areas

The Site Plans for the proposed IMP projects will show the roof drains and site drains and their destinations.

BWSC.9 DEP Infiltration/Inflow Reduction

As each proposed IMP project is advanced, the Proponent will work with the Commission to identify improvements and an inflow reduction plan.

BWSC.10 Groundwater Conservation Overlay District

The Proponent recognizes that the proposed IMP projects are located within the Groundwater Conservation Overlay District. The IMP projects will be designed so not to result in negative impacts to groundwater. The Proponent will install a recharge system that will meet the groundwater standards.

BWSC.11 Stormwater Discharge

The proposed IMP projects sites are existing paved surfaces or built upon with existing buildings. It is expected that the proposed IMP projects will not change the overall area of impervious surfaces and will not result in an increase in stormwater generation from the sites. Stormwater management controls will be established in compliance with the Commission's standards and the Groundwater Conservation Overlay District. The proposed IMP projects will be designed so as to not introduce increased peak flows, pollutants, or sediments to existing drainage infrastructure. In conjunction with the Site Plan and the General Service Application, the Proponent will submit a stormwater management plan to the BWSC. Compliance with the

standards for the final site design will be reviewed as part of the Commission's Site Plan Review Process.

BWSC.12 Construction Dewatering Discharge

The Proponent will obtain all required discharge permits.

BWSC.13 Permanent Dewatering Discharge

The Proponent will obtain all required discharge permits.

BWSC.14 Stormwater Pollution Prevention Plan

As each proposed IMP project is advanced, the Proponent will develop and submit a Stormwater Pollution Prevention Plan which will comply with the Commission's requirements.

BWSC.15 Particle Separators

At this time the proposed IMP projects do not include the construction of new parking or paved areas. Should this change, all drains serving surface parking or paved areas will include the required particle separators in compliance with the Commission's Requirements for Site Plans.

BWSC.16 Plaques for Catch Basins & Drains

The Proponent will obtain and install "Don't Dump" plaques, per the Commission's detail, next to all new catch basins within each proposed IMP project.

BWSC.17 Stormwater Quality

The Proponent will take care to minimize external sanding of the proposed IMP projects and will employ best practices for the protection of the quality of stormwater in the methods used for deicing, pest extermination, and fertilizers.

BWSC.18 Oil Traps

The proposed IMP projects do not include parking garages.

BWSC.19 Grease Traps

If grease traps are required as part of the proposed IMP projects, the Proponent will coordinate with the Commission prior to the submission of Site Plans.

BWSC.20 NPDES Construction Permit

If the proposed IMP projects cover more than one acre, the Proponent will obtain coverage by the EPA's NPDES General Permit for Construction and submit copies of the required documentation to the Commission prior to the commencement of construction.

BWSC.21 Installations of Meter Transmitting Unit (MTU)

The Proponent will coordinate with the Commission's Meter Installation Department regarding the installation and connection of the MTU as each proposed IMP project is advanced.

BWSC.22 Water Conservation

For new landscaping that is proposed as part of the new IMP projects, the Proponent will investigate opportunities to minimize the use of water. The Project is located in the Groundwater Conservation Overlay District. Stormwater captured in the recharge system will be used to recharge the groundwater. The Proponents will explore opportunities for use of sensor-operated faucets and toilets in commons areas of the proposed new buildings.

BWSC IMP Comment Letter

Boston Water and Sewer Commission

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

October 26, 2009

Ms. Sonal Gandhi
Economic Development
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Re: IMPNF for Boston University Medical Center

Dear Ms. Gandhi:

The Boston Water and Sewer Commission (BWSC) has reviewed the Institutional Master Plan Notification Form (IMPNF) for the renewal of the current Institutional Master Plan (IMP) for the Boston University Medical Center (BUMC).

An IMPNF for Amendment of the current IMP (the Amendment) was filed by the proponent in August, 2009. That Amendment involved the addition of the Albany Fellows Site and Graduate Student Housing Project (Housing Project) to the current IMP. The Amendment is presently undergoing institutional master plan review by the BRA. Subject to BRA's approval, it is anticipated that the Albany Fellows Site and the Housing Project will be included in the renewed IMP. The Commission submitted comments to the BRA regarding the Housing Project in a letter dated September 14, 2009.

The IMPNF renewal includes three new construction projects over the next 10 years.

- Energy Facility - Construct an approximately 48,000 s.f. 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 function and improve campus adjacencies. This building will also accommodate space for outpatient offices and operational support.
- New Inpatient Building - Construct an approximately 405,000 s.f. 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

The Commission submits the following comments regarding the IMPNF renewal.

General

1. It is the proponent's responsibility to evaluate the capacity of the water, sewer and storm drainage systems serving the BUMC campus and individual project sites, to determine if the systems are adequate to meet future project demands. An evaluation of the capacity of existing systems on the campus to meet future project needs, and a discussion of any currently anticipated plans for changes to these systems, must be provided in the Master Plan.

2. The proponent is advised that any new, relocated, reconstructed or expanded water, sanitary sewer, storm drainage facilities required to accommodate future development must be designed and constructed at the proponent's expense and in conformance with the Commission's Sewer Use and Water Distribution System regulations. The proponent should continue to keep the Commission apprised of any proposed plans to install, relocate, reconstruct or expand sanitary sewer, storm drainage or drinking water mains.

3. The proponent must submit site plans and General Service Applications to the Commission for individual construction projects as they are proposed. Site plans must show the location of existing public and private water mains, sanitary sewers and storm drains serving project sites, as well as the locations of proposed service connections. With each site plan, the proponent must provide detailed estimates for water demand, sanitary sewer flows and stormwater runoff generation for the proposed project. The amount of potable water required for landscape irrigation must be quantified and provided separately.

4. To assure compliance with the Commission's requirements, the proponent should submit site plans and General Service Applications for individual projects to the Commission for review when project designs are 50 percent complete.

5. As plans progress and are finalized BWSC will require drawings of public and private water, sewer and storm drainage facilities in AutoCAD R14 format. Drawings must include locations of any abandoned facilities, such as pipes and manholes, locations of new installations, profiles of sewer and drain lines, invert elevations of sewer and drain lines at the manholes, depth of water pipe at all gates, bends and connections, size and type of all pipes, valves and hydrants installed and rim elevations of all manholes.

6. Prior to demolition of any buildings, all water, sewer and storm drain connections to the buildings must be cut and capped at the main pipe in accordance with the Commission's requirements. The proponent must then complete a Termination Verification Approval Form for a Demolition Permit, available from the Commission, and submit the completed form to Boston's Inspectional Services Department before a demolition permit will be issued.

BWSC.6 BWSC.5 BWSC.4 BWSC.3 BWSC.2

Sewage/Drainage

7. The BUMC campus is served primarily by separate sanitary sewers and storm drains, with some combined sewers interspersed. Separate sanitary sewer and storm drain services must be provided from new buildings constructed to the pipes in the street.

8. Site plans must show in detail how drainage from building roofs and from other impervious areas will be managed. Roof runoff and other stormwater runoff must be conveyed separately from sanitary waste at all times.

BWSC.12 BWSC.11 BWSC.10 BWSC.9 BWSC.8

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

10. The BUMC is located within Boston's Goundwater Conservation Overlay District. The district is intended to promote the restoration of groundwater levels and reduce the impact of surface runoff. Projects constructed within the GCOD are required to include provisions for retaining stormwater and directing the stormwater towards the groundwater table for recharge. Proponent should contact Boston's Inspectional Services Department for further information.

11. The proponent must fully investigate methods for retaining stormwater on project sites before the Commission will consider requests to discharge additional stormwater to the Commission's system. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer. A feasibility assessment for retaining stormwater on site must be submitted with each site plan.

12. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. The proponent is advised that the discharge of any construction site dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products for example, the proponent will be required to obtain a Remediation General Permit from Environmental Protection Agency (EPA) for the discharge.

13. The proponent is advised that a Drainage Discharge Permit is also required for the long-term (permanent) discharge to the drainage system of infiltrated groundwater collected via an underdrain system, such as those that are commonly installed in below-grade parking garages.

14. In conjunction with each site plan and General Service Application submitted, the proponent will be required to submit a Stormwater Pollution Prevention Plan. Each plan must:

    - Identify specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater or construction debris to the Commission's drainage system when construction is underway.

    - Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control or treatment structures to be utilized during construction.

    - Specifically identify how the project will comply with the Department of Environmental Protection's Performance Standards for Stormwater Management both during construction and after construction is complete.

15. Any uncovered parking or paved areas that are built require particle separators on all drains that will collect the runoff from these areas. Specifications for particle separators are provided in the Commission's Requirements for Site Plans.

16. The Commission requests that the proponent install a permanent casting stating: "Don't Dump: Drains to Boston Harbor" next to any new catch basin installed. The proponent may contact the Commission's Operations Division for information regarding the purchase of the castings.

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

18. Oil traps are required on all drains discharging from all new and existing enclosed parking garages. Discharges from garage drains must be directed to a building sewer and not to a building storm drain. The requirements for oil traps are provided in the Commission's Requirements for Site Plans.

BWSC.18 BWSC.17 BWSC.16 BWSC.15 BWSC.14

19. Grease traps are required in all new and existing cafeteria or kitchen facilities in accordance with the Commission's Sewer Use Regulations. The proponent is advised to consult with the Commission prior to preparing plans for grease traps.

20. For each phase of construction covering one acre or more, the proponent will be required to obtain coverage under the EPA's NPDES General Permit for Construction. A copy of the Notice of Intent and the pollution prevention plan prepared pursuant to the Permit should be provided to the Commission, prior to the commencement of construction. BWSC.22

BWSC.21

Water

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

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

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/as
cc:

M. Zlody, Boston Env. Dept.
P. Laroque, BWSC
R. Bartlett, Chief Financial Officer, BMCC
G. Nicksa, Vice President, Operations, Trustees of Boston University

BRA Scoping Determination

BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION
FOR
INSTITUTIONAL MASTER PLAN NOTIFICATION FORM/PROJECT NOTIFICATION FORM
BOSTON UNIVERSITY MEDICAL CENTER/BOSTON MEDICAL CENTER ENERGY FACILITY

PREAMBLE

Boston University Medical Center ("BUMC") is 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 BUMC campus is located in Boston's South End neighborhood and is comprised of approximately 20 acres including 28 BUMC campus-owned or controlled buildings, a helipad and development parcels. BMC and BU Medical Campus also leases spaces in 8 buildings located on and/or proximate to the campus. Total BUMC owned or controlled and leased space is approximately 3 million square feet of usable space.

As stated in Section 80D-1 of the Boston Zoning Code ("Code"), "the purpose of Institutional Master Plan Review is to provide for the well-planned development of Institutional Uses in order to enhance their public service and economic development role in the surrounding neighborhoods." Under the Code, an Institutional Master Plan ('IMP") has a dual purpose of meeting the needs of the institution and relating the campus to its context in a positive way. In preparing its IMP and Supplemental Materials, BUMC will need not only to demonstrate an understanding of its future facilities needs but also the context of its campus; identification of all owned, leased and planned space, land uses, physical characteristics, planned changes, resident desires, and applicable public policy.

The BRA also seeks to enhance BUMC's presence in the City of Boston as an important economic development entity and employer. Care should be taken to respond to the concerns outlined below:

1. The BRA seeks to understand the long-term plans of its institutions in the so that necessary growth by institutions can be allowed on a fair and equitable basis. Therefore, the BRA requires 10 year IMPs of all institutions. Institutions will be required to provide updates to the BRA on the status of their IMP and any projects and commitments therein every 2 years on the anniversary of their approval by the Boston Zoning Commission.

2. Attractive residential neighborhoods are viewed by the BRA as being vital to the long-term success of Boston. BUMC sits within the context of the South End neighborhood. Impacts from institutional project construction, operations and expansion must have minimal negative impacts on the neighborhoods and BUMC should take appropriate steps to ensure this.

3. A Task Force has been appointed to assist and advise the BRA on the BUMC IMP and Proposed Projects. BUMC is requested to provide 2 year regular updates to Task Force members in addition to the BRA.

SUBMISSION REQUIREMENTS

The Boston Redevelopment Authority ("BRA") is issuing this Scoping Determination pursuant to Section 80D-1 and Section 80B-5 of the Boston Zoning Code (the "Code"). Pursuant to Article 80D of the Boston Zoning Code ("Code") the Boston University Medical Center Corporation and the Trustees of Boston University (collectively known as the "Proponents") submitted an Institutional Master Plan Notification Form ("IMPNF") to the Boston Redevelopment Authority ("BRA") on September 25, 2009. The IMPNF includes three new construction projects over the next 10 years: (1) Energy Facility – an approximately 48,000 square foot building on an existing parking lot located to the east of the Power Plant to improve energy efficiencies, ensure reliability, and support greener campus growth ("Proposed Project"); (2) Administration/Clinical Building – an approximately 160,000 square foot building on the surface parking lot located on the north side of the Power Plant along Albany Street; (3) New Inpatient Building – an approximately 405,000 square foot building on the Dowling Building site to support increased inpatient volume and the growth in Emergency Service and Trauma volume, which will necessitate the demolition of the Dowling Building. Notice of the receipt by the BRA of the IMPNF was published in the Boston Herald on September 25, 2009 initiating a public comment period ending on October 27, 2009.

In conjunction with the submission of the IMPNF, BMC submitted a Project Notification Form ("PNF") which seeks Large Project Review, under Section 80B of the Code, for the Energy Facility Project ("Proposed Project") as described above on September 25, 2009. Notice of the receipt by the BRA of the PNF was published in the Boston Herald on September 25, 2009 initiating a public comment period ending on October 27, 2009.

Pursuant to Section 80D-4.3c and Section 80B-5.3c of the Code a scoping session was held on October 13, 2009 with the City's public agencies and to which members of the Task Force were invited and attended. Task Force

meetings, where the proposed IMP and Proposed Project were reviewed and discussed, were held on September 28, 2009 and October 13, 2009. The Task Force also toured the campus and met with key administrators on November 9, 2009. A public meeting was held on October 20, 2009. Based on the BRA's review of public comments and comments from the City's public agencies, the BRA hereby issues its Scoping Determination pursuant to Section 80D-4.3 and Section 80B-5.3 of the Code. Comments from the City's public agencies are attached and incorporated as a part of this Scoping Determination.

This Scoping Determination requests information required by the BRA for its review of the proposed IMP in connection with the following:

1. Approval of the Children's IMP pursuant to Article 80 and other applicable sections of the Code;
2. Recommendation to the Zoning Commission for approval of the BUMC Institutional Master Plan.

The BUMC IMP should be documented in a report of appropriate dimensions and in presentation materials which support the full review of the IMP. Twenty-five copies of the full IMP should be submitted to the BRA. An additional fifty copies should be available for distribution to the Task Force members, participants, community groups and other interested parties in support of the public review process. The IMP should be uploaded on the BUMC or other appropriate website so that it may be viewed electronically. The IMP should be submitted 1) as a stand-alone document, and 2) electronically in the form of CD's. The IMP should reference and/or include information from the Supplemental Materials that is also submitted to the BRA to meet the requirements of Large Project Review for the Proposed Project. The IMP document should include this Scoping Determination and text, maps, plans, and other graphic materials sufficient to clearly communicate the various elements of the IMP.

BUMC will be responsible for preparing and publishing in one or more newspapers of general circulation in the City of Boston a Public Notice of the submission of the IMP and Supplemental Materials to the BRA as required by Section 80A-2. This Notice shall be published within five (5) days after the receipt of the IMP and Supplemental Materials by the BRA. Public comments shall be transmitted to the BRA within sixty (60) days of the publication of this Notice, unless a time extension has been granted by the BRA in accordance with the provisions of Article 80 or to coordinate the IMP review with any required Large Project Review. Following publication of the Notice, BUMC shall submit to the BRA a copy of the published Notice together with the date of publication.

Boston

Groundwater Trust

234 Clarendon St., Third Floor, Boston, MA 02116
617.859.8439 voice • 617.266.8750 fax
bostongroundwater.org

October 16, 2009

Ms. Sonal Gandhi, Senior Project Manager
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201-1007

Subject: Boston Medical Center

Dear Ms. Gandhi:

Thank you for the opportunity to comment on the Institutional Master Plan Notification Form for the Boston Medical Center, as well as the Project Notification Form for the BMC Energy Facility. The Boston Groundwater Trust was established by the Boston City Council to monitor groundwater levels in sections of the city where the integrity of building foundations is threatened by low groundwater levels and to make recommendations for solving the problem. Therefore, my comments are limited to groundwater related issues.

I appreciate the acknowledgement by the proponent in both the IMPNF and the PNF that all of the planned projects are located in the Groundwater Conservation Overlay District and the commitment to meet the standards required in the GCOD. For the Energy Facility, which is the project that is more completely designed, I particularly appreciate the commitment in the PNF that the basement including walls and lowest level floor slab will be fully waterproofed, as well as the promise that no long term groundwater pumping will be allowed. The proponent committed in the scoping session to working with the Trust to determine the best location for the recharge system; I look forward to that effort. I also look forward to working with the proponent to determine the best location for the groundwater monitoring well that they have committed to install prior to the start of construction and appreciate that it will be installed in accordance with City and BGwT standards for permanent monitoring wells.

Because the project is to be constructed under an Institutional Master Plan and will not need the approval of the Board of Appeals, the process for assuring that groundwater standards are met and commitments are formalized should be spelled out in more detail. I look forward to participating in that effort.

The commitments spelled out in these documents make me optimistic that the project will be designed and constructed in a way that can only lead to improvements in groundwater levels. I look forward to working with the proponent and the Authority to assure that this promise is kept.

Very truly yours,

Elliott Laffer
Executive Director

Cc: Kathleen Pedersen, BRA
Maura Zlody, BED

Boston Water and Sewer Commission

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

October 26, 2009

Ms. Sonal Gandhi
Economic Development
Boston Redevelopment Authority
One City Hall Square
Boston, MA 0220i

Re: Project Notification Form- Boston University Medical Center Energy Facility

Dear Ms. Gandhi:

The Boston Water and Sewer Commission (BWSC) has reviewed the Project Notification Form (PNF) for the proposed Boston Medical Center Energy Facility (Energy Facility).

The proposed Energy Facility will be located adjacent to the existing Boston Medical Power Plant at 750 Albany Street. The site is currently paved and is entirely impervious. The adjacency to the existing Power Plant is necessary in order to tie into the existing system and enhance operational efficiency. The proposed Energy Facility is comprised of spaces designated for primary mechanical equipment such as combustion turbine generators and heat recovery steam generators, auxiliary systems and ancillary equipment, and the associated distribution infrastructure. Other programmed spaces include a control room, a break room, and a locker room.

The project site is served by a 12-inch high and a 12-inch low pressure line located on Albany Street. Water demand for the Energy Facility is estimated at 435,000 gpd, with a peak demand of 640 gpd for water service. It is anticipated that to maintain uninterrupted water services, separate potable water supply, and fire protection services, supply will be provided from the 12-inch mains on Albany Street. Water supply for steam generation will be provided from the 12-inch low main. Fire protection service will be from the 12-inch high main.

It is estimated that the Energy Facility will generate an estimated 31,800 gallons per day (gpd) of wastewater with a peak discharge of 85 gpm. Most of the wastewater generated will be from process water during the steam generation and condensate. It is anticipated that the for sewer service the project will tie directly into the existing sewer services from the Power Plan and Medical Examiner's office which are connected to the 60-inch service at the rear of the site. No new direct connection to the sewer interceptors in the area is proposed and the construction of new sewer mains is not anticipated.

The proponent anticipates that any runoff from non-roof areas and storms in excess of 1-inch of rainfall will be conveyed through existing infrastructure to the Roxbury Canal Conduit.

The proposed structure includes one level below grade and will subsequently involve some subsurface excavation. The foundation elements that are required to extend down to competent soils, below groundwater level, will be solid, discontinuous, discrete elements that will not cause the groundwater to raise, pond or be lowered.

The Energy Facility is located within the Groundwater Conservation Overlay District (GCOD). As such, the project will be required to infiltrate 1-inch of runoff per square foot of new building footprint. The proponent anticipates accomplishing this with a subsurface infiltration system. The system may be designed to accept clean roof runoff and infiltrate it to the ground. As the existing project area is entirely impervious and a new subsurface infiltration system will be installed, any infiltration of stormwater from the proposed project is expected to have a positive effect on groundwater levels in the area. Methods to assure that the project will not result in any negative impacts to the groundwater levels will include fully waterproofed basement (walls and lowest level floor slabs) for the portion of the structure that extends below groundwater levels. Design criteria for the project will include a provision that no long term groundwater pumping will be allowed.

The Commission met with the project proponent's representatives on October 13, 2009, and preliminary plans for the Energy Facility were discussed.

The Commission submits the following comments regarding the proposed Energy Facility:

General

1. The proponent must submit a site plan and a General Service Application to the Commission for the project. The site plan must show the location of existing public and private water mains, sanitary sewers and storm drains serving the project site, as well as the locations of proposed service connections.

2. It is the proponent's responsibility to evaluate the capacity of the water, sewer and storm drainage systems serving the project site to determine if the systems are adequate to meet future project demands. With the site plan the proponent must provide an analysis of the impacts of the proposed project on the Commission's water, sewer and storm drainage systems.

3. With the site plan, the proponent must provide detailed and updated estimates for water demand, wastewater generation, and stormwater runoff for the proposed project. Estimates of water demand and wastewater generation relating to domestic uses must be quantified and provided separately from estimates for the co-generation process.

4. The proponent is advised that should it be determined later that new, relocated, reconstructed or expanded water, sanitary sewer, or storm drainage pipes are required to accommodate the project, the facilities must be designed and constructed at the proponent's expense and in conformance with the Commission's Sewer Use and Water Distribution System regulations. The proponent should continue to keep the Commission apprised of any proposed plans regarding the sanitary sewer, storm drainage or drinking water systems.

5. To assure compliance with the Commission's requirements, the proponent should submit the site plan and General Service Application to the Commission for review when project design is 50 percent complete.

Sewage/Drainage

6. Separate sanitary sewer and storm drain services must be provided from the new facility to the respective pipe in the street.

7. The site plan must show in detail how drainage from building roofs and from other impervious areas will be managed. Roof runoff and other stormwater runoff must be conveyed separately from sanitary waste at all times.

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

9. The proponent must fully investigate methods for retaining stormwater on the project site before the Commission will consider requests to discharge additional stormwater to the Commission's system. Under no circumstances will stormwater be allowed to discharge to a

sanitary sewer. A feasibility assessment for retaining stormwater on site must be submitted with the site plan.

10. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. The proponent is advised that the discharge of any construction site dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products for example, the proponent will be required to obtain a Remediation General Permit from Environmental Protection Agency (EPA) for the discharge.

11. In conjunction with the site plan and General Service Application the proponent will be required to submit a Stormwater Pollution Prevention Plan. The plan must:

    - Identify specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater or construction debris to the Commission's drainage system when construction is underway.

    - Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control or treatment structures to be utilized during construction.

    - Specifically identify how the project will comply with the Department of Environmental Protection's Performance Standards for Stormwater Management both during construction and after construction is complete.

Water

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

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

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/as
cc:

M. Zlody, Boston Env. Dept.
P. Laroque, BWSC
R. Bartlett, Vice President for Finance, BMCC
J. Hobbs, President, RFWalsh collaborative partners

November 9, 2009

John Palmieri, Director
Boston Redevelopment Authority
Boston City Hall, Room 925
Boston, MA 02201
Attention: Sonal Gandhi, Senior Project Manager

Re: Boston Medical Center Energy Facility - Project Notification Form

Dear Director Palmieri:

The City of Boston Environment Department has reviewed the Project Notification Form (PNF) and offers the following comments.

The proponent, Boston Medical Center (BMC), part of Boston University Medical Center (BUMC), proposes to construct a new 48,000 square foot (sf), 100-foot tall combined heat and power (CHP) energy facility. Emission stacks will be 160 feet above ground level. The structure will have one below-grade level and four above. The project site is adjacent to the BMC "Power Plant," located at 750 Albany Street, north of the Massachusetts Avenue Connector and west of East Concord Street, and is bounded by a service area, existing buildings on two sides and a site for a future administration/clinical building for BMC. The project site is in the Groundwater Conservation Overlay District (GCOD) and the South End Protection District. Construction is expected to begin during the fourth quarter of 2010 and take about 18 months.

The Power Plant provides chilled water and is the steam and electric distribution center for the campus so is not a power plant in the true sense. Minor renovations will be made to the Power Plant to allow for circulation between the two buildings.

The goal of the project is to provide reliability, efficiency and reduced environmental impact using state-of-the-art technologies for the production of electricity and steam. It is expected that, through cogeneration, the plant will meet 95 percent of its high-pressure steam needs and 75 percent of the electrical needs for the BMC/BUMC campus. Cogeneration will result in energy costs lower than those associated with traditional systems.

BMC has already engaged in demand-side energy savings through the use of building automation systems, upgrades and replacement of systems, the centralization of mechanical systems and the installation of pipe and electrical infrastructure designed to accommodate the connection of separate utility systems at various locations on the campus.

The Energy Facility will use two combustion turbine generators (CTG) and two duct burners to provide supplemental steam to the existing distribution system. The turbines and duct burners will be equipped with NO_x, CO and VOC controls. They will be fueled by natural gas; fuel oil from an existing tank will be used to ensure operation in the event of an emergency. Heat recovery generators (HRC), auxiliary systems and ancillary equipment will also be part of the system. Auxiliary systems include condensate and feed water systems, control system, natural gas, chemical treatment, ammonia, fuel gas piping, gas compressors, plant air systems, HVAC systems and chilled water.

BMC expects that the facility will reduce its CO_2 emissions by 18,000 metric tons during the first year of operation. An Environmental Results Program Installation Compliance Certification for New Engines and Turbines (Non-Emergency) and a Non-Major Comprehensive Air Plans Approval application must be filed with the Massachusetts Department of Environmental Protection (DEP). The project will meet DEP requirements for Best Available Control Technology (BACT) and comply with National Ambient Air Quality Standards (NAAQS).

A service and loading dock will be located on the south side of the site. Combustion air inlet filters and a plenum will be located on Level Three. The Draft Project Impact Report (DPIR) should indicate if the dock will be fully enclosed and, if not, identify sound expected to result from its use and from building systems and the potential impacts on surrounding users such as laboratories, the office of the Chief Medical Examiner and the proposed clinical/administration building. The closest existing and proposed residential structures should be identified and any potential noise impacts described.

Air intakes and vents should be located as far as possible from pollutant sources (including the positioning of project vents away from project intakes) and from air intakes on adjacent buildings.

The PNF notes that there is no LEED rating system for a CHP facility. Despite that, important sustainability issues, many consistent with LEED credits, can be addressed through attention to the following:

- energy conservation through Energy Star windows;
- the conservation of non-process water;
- stormwater quantity and quality;
- solid waste recycling (An on-site area, appropriate for the small number of employees, should be established for solid waste recycling);
- light pollution reduction (Exterior lighting should meet safety needs while not contributing to light pollution. Fixtures should be shielded and downward directed. We recommend as a resource, the Campaign for Dark Skies which can be accessed at 'http://www.britastro.org/dark-skies/' – click 'Lighting' and then 'Good & bad lighting/.);
- parking capacity (absence of new parking);
- construction waste management;
- construction Indoor Air Quality Management Plan;
- the use of low-emitting materials, as appropriate for space usage;
- controllability of lighting and thermal comfort in areas such as the command and control center, conference room and facilities administration; and
- construction-period best practices.

We request specifically that the proponent seriously consider a green roof. Flat roofs are particularly well suited for them; they can easily co-exist with mechanical systems. Benefits include stormwater retention, allowing for re-use or infiltration, the minimization of the heat island effect and a longer life-span than that expected for a non-planted roof.

If there will be passenger-only elevators, this department suggests that the Proponent evaluate two elevator systems for the project – the Otis Elevator Company's Gen2 model and Kone's EcoSpace model.

The Gen2, manufactured for two to 30-story buildings, requires a smaller sheave size than most standard, passenger elevators so the machine is mounted within the hoistway. Flat polyurethane-coated steel belts are used in place of cable. Otis describes the belts as more durable, flexible and space-saving. This elevator does not require additional lubrication and is advertised as providing a 50 percent reduction in energy use over conventional systems with a 75 percent reduction if combined with a regenerative drive.

Kone manufactures the EcoSpace Low-Rise Elevator, designed for two -10 landings. Kone states that 95 percent of EcoSpace materials are recyclable, that the elevator uses no oil, consumes about 33 percent less energy than that used by hydraulic machines and 50 percent less energy than a conventional traction machine.

We request the Proponent install permanent castings stating, "Don't Dump: Drains to Boston Harbor," on the sidewalk next to any catch basin existing, created or modified as part of the project. Plaques should also be installed at drains at other areas on the site.

It appears that the emission stacks are not included in shadow diagrams. We look forward to diagrams with stacks in the DPIR that include the identification of doorways, bus stops, open space and areas where pedestrians are likely to congregate (in front of historic resources or other tourist destinations, for example) and clear delineation of shadow on both rooftops and facades.

The DPIR should detail construction plans to ensure compliance with noise regulations and address air quality issues such as dust and particulates.

The DPIR should indicate where any on site bicycle racks/storage will be located and, if no storage will be provided at the site, the two closest areas for bicycle parking for project staff.

If the staff locker room will not have a shower, the DPIR should indicate the two closest shower areas on campus available to project staff.

According to the Massachusetts Department of Environmental Protection (DEP), about 33 percent of mobile source particulate matter (PM) and ten percent of all nitrogen oxide (NO_x) pollution in the northeast is caused by construction vehicles. More than 90 percent of diesel engine particulate emissions are highly respirable and carry toxins deep into the lung, exacerbating human respiratory ailments. The U. S. Environmental Protection Agency (EPA) has proposed classification of diesel exhaust as "highly likely to be carcinogenic in humans." It estimates that diesel engines currently on the road can run for 1,000,000 miles and remain in operation for as long as 20 to 30 years. This amounts to 160 to 240 tons of pollution over the life of each engine.

The use of flow-through filters and diesel particulate filters on pre-2007 diesel vehicles can reduce air quality degradation caused by emissions of carbon monoxide (CO), volatile organic compounds (VOC), NO_x and air toxins generated by heavy-duty equipment. Oxidation catalysts and catalyzed particulate filters reduce toxic emissions of formaldehyde, benzene, acrolein and 1-3 butadiene by as much as 70 percent, decrease localized adverse impacts and reduce dust and odor complaints from project abutters and regulatory agencies. We ask that all pre-2007 diesel construction vehicles working on the project be retrofitted using retrofit technologies approved by the United States Environmental Protection Agency (EPA) and that contractors be required to use ultra low-sulfur diesel (ULSD) fuel (15 ppm), in all off-road construction equipment.

The South End Landmark District Commission (SELDC) looks forward to reviewing the proposed project. We note that the proposed stacks would be height is ten feet above the 150-foot limit in the Protection District. If the proposed height is required by regulation, please provide such information with the submission.

This department supports the proposed project and applauds BMC for choosing CHP and for its establishment and work of the Green Committee.

Thank you for the opportunity to offer comment. We look forward to the DPIR.

Sincerely,

Bryan Glascock
Director

BMC CHP.doc.DBG:MTZ.mtz

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