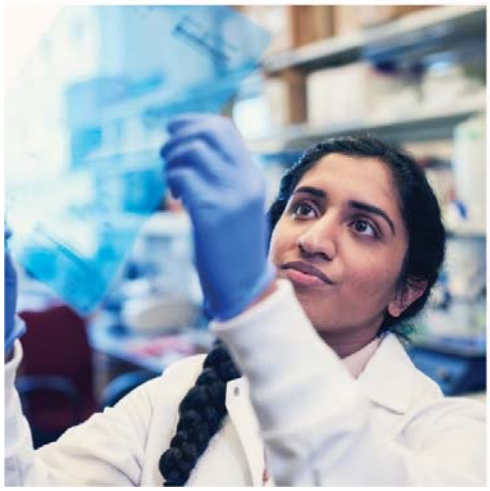
Institutional Master Plan Notification Form for Amendment

Project Notification Form



BETH ISRAEL DEACONESS MEDICAL CENTER
NEW INPATIENT BUILDING

Submitted to:
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Submitted by:
Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215

Prepared by:
Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754

In Association with:
Payette
Leggat McCall Properties
Goulston & Storrs
VHB

January 11, 2018

Epsilon
ASSOCIATES INC.

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Chapter 1

Introduction and Hospital Background

1.0 INTRODUCTION AND HOSPITAL BACKGROUND

1.1 Introduction

Beth Israel Deaconess Medical Center (BIDMC) is a premier non-profit academic medical center and a major teaching affiliate of Harvard Medical School that is renowned for excellence in patient care, biomedical research, teaching, and community service. Located in the heart of Boston's Longwood Medical and Academic Area (LMA), it serves more than half a million patients annually. BIDMC is also the hub of a network of affiliated healthcare providers, including the Bowdoin Street Health Center, five other affiliated community health centers in Boston and one on Cape Cod; three BIDMC owned non-profit community hospitals in Milton, Needham and Plymouth and six other affiliated hospitals; health care providers such as Atrius Health, Joslin Diabetes Center and Hebrew Senior Life; and numerous physician groups, including its exclusive affiliate, Harvard Medical Faculty Physicians (HMFP) whose physicians provide patient care, research and medical education services at BIDMC.

BIDMC was established in 1996 through the merger of Beth Israel Hospital (founded in 1916) and New England Deaconess Hospital (founded in 1896)—two highly respected institutions with long-standing presence in the community. Since that time, BIDMC has worked continuously to fully integrate the services and operations of its two hospital campuses—the East Campus and the West Campus—located within a block of each other across the intersection of Brookline Avenue and Longwood Avenue. As described in BIDMC's last Institutional Master Plan (IMP) in 2004 and in subsequent IMP updates and renewals, BIDMC has gradually relocated services and renovated existing facilities to consolidate and reduce duplication of services on the two campuses, to create desirable adjacencies among related clinical programs, and to upgrade its aging facilities. These ongoing facilities improvements have eased access, enhanced the patient and staff experience and contributed to cost-saving operational efficiencies in support of BIDMC's commitment to provide the highest quality patient care, medical education and research at lower cost.

As contemplated in the 2004 IMP, BIDMC has also met pressing needs for research space in close proximity to BIDMC's clinical care facilities by facilitating the development of, and leasing several floors of research space at, the Blackfan Research Center (now known as the Center for Life Sciences Boston) through coordinated planning with an affiliate of Lyme Properties. In 2015 BIDMC constructed an addition to the Bowdoin Street Health Center to house a Wellness Center and additional exam rooms, as described and approved in the 2013 Institutional Master Plan Notification Form (IMPNF) for Amendment to the BIDMC IMP.

Over the past several years as BIDMC has expanded its network of affiliated providers, BIDMC has engaged in strategic planning and associated facilities planning to identify and determine how best to provide updated facilities to meet the increasing and changing needs of its patients. Through the campus integration efforts described above, coupled with moving administrative space off-campus into leased facilities, BIDMC has maximized the use of its existing, aging campus facilities for inpatient care.

BIDMC's Boston campus is the referral center for the sickest patients being cared for by BIDMC's network of health care providers. Due to the increasingly acute, complex needs of its patients, BIDMC needs more single-bedded patient rooms, more intensive care beds and expanded surgery and clinical support spaces that can support patient and family oriented, team-based care and improved technology. Currently only 34% of BIDMC's medical/surgical beds are in single-bedded rooms, which is well below other Academic Medical Centers (AMCs) in Boston, and BIDMC's inpatient beds operate at or above 85% occupancy over 88% of the time. Patients and families continue to request single rooms, and the seriously ill and often vulnerable patients and families BIDMC cares for have greater need for the quiet and respite of a single-bedded room than patients with fewer significant medical needs and other challenges. Single-bedded patient rooms help reduce the incidence of hospital-acquired infection, improve patient sleep and reduce stress for patients and their families. In addition BIDMC's existing operating rooms, diagnostic, procedural spaces, and healing and waiting areas are aged and undersized relative to current industry norms and regulatory requirements for new facilities. BIDMC's average age of facility is 60 years (since original building construction) which is well above BIDMC's AMC peers in the Boston area.

To address these needs and improve BIDMC's ability to fulfill its mission to provide highest quality affordable patient care, BIDMC is proposing a new inpatient building on its West Campus, herein referred to as the Project or New Inpatient Building, which will include inpatient beds (both intensive and acute care), operating and procedure rooms, clinical service and support spaces, conference space, and a rooftop helipad (which will be relocated from its existing location at the adjacent Rosenberg Building).

BIDMC is pleased to submit this Institutional Master Plan Notification Form for Amendment/Project Notification Form (IMPNF/PNF) to the BRA, doing business as Boston Planning and Development Agency (herein, the "BPDA" except when referring to activities prior to 2016). With this submission BIDMC is beginning the process to amend and extend for five years the BIDMC IMP pursuant to Article 80D of the Boston Zoning Code (Zoning Code), and initiate Large Project Review under Article 80B of the Zoning Code to enable the development of the proposed New Inpatient Building.

1.2 Mission

BIDMC's mission statement is:

> "To provide extraordinary care, where the patient comes first, supported by world-class education and research.
>
> Our mission is supported by a workforce committed to individual accountability, mutual respect and collaboration. We recognize that the diversity, talent, innovation, and commitment of all of our employees contribute to our strength and are a major component of our success. We greatly value the leadership and participation of our trustees, overseers and donors who make an invaluable contribution to our ability to carry out our mission to serve patients, students, science and our community."

Patient Care

Patient care is at the heart of BIDMC's mission. For more than 100 years, BIDMC has provided top-quality healthcare. Its patients benefit from the most current treatments, therapies and procedures health care has to offer, including the newest technologies. BIDMC is committed to serving its patients compassionately and effectively and to create a healthy future for them and their families through research and the teaching of the next generation of physicians and allied healthcare professionals. Services to the community are a vital part of BIDMC's patient care mission. BIDMC has a covenant to care for the underserved and works to address disparities in access to care.

BIDMC has a rich tradition of clinical excellence, innovation and medical milestones. For example, the first implantable cardiac pacemaker was developed at Beth Israel Hospital in 1960, and New England's first minimally invasive coronary bypass surgery was performed at New England Deaconess Hospital in 1995. More recent advancements at BIDMC include the first adult-to-adult living donor liver transplant in New England (1998); the discovery of a protein responsible for preeclampsia, a dangerous complication of pregnancy and a leading cause of maternal death (2003); and the opening of the first multidisciplinary center in New England to treat adults with celiac disease and other gluten-related disorders (2005). BIDMC was also one of three health care institutions in the country to first adopt OpenNotes, which invites patients to read their doctors' notes (2010), and the first hospital in the nation to measure emotional harm as a preventable harm to improve the patient and family experience, and better the quality and outcomes of care (2014).

Biomedical Research

In addition to its excellence in clinical care, BIDMC consistently ranks as a national leader among independent hospitals in National Institutes of Health funding. Research funding totals over $250 million annually. BIDMC researchers run more than 1,300 active

sponsored projects and more than 2,500 clinical research studies, and BIDMC shares important clinical and research programs with institutions such as the Dana-Farber/Harvard Cancer Center, Joslin Diabetes Center and Boston Children's Hospital.

BIDMC's commitment to bold and innovative ideas and its nurturing of promising young scientists, are leading to novel discoveries in therapies and diagnostics. For example, BIDMC scientists are international leaders in the development of a vaccine for the Zika virus, having already demonstrated that three different vaccine candidates provide robust protection against the virus in both mice and rhesus monkeys. Several human clinical vaccine trials are underway. BIDMC researchers, through the Institute for RNA Medicine, are leading innovative work to explore new targets for treatment of a wide swath of diseases, including cancer. BIDMC scientists are also making groundbreaking discoveries in antibiotic resistance, Alzheimer's, pancreatic cancer and more.

Teaching

To promote its teaching mission, BIDMC has almost 1,250 physicians on the medical staff, most of whom hold faculty appointments at Harvard Medical School. In addition to training medical students and doctors, BIDMC provides clinical education to students in nursing; social work; radiologic technology, ultrasound and nuclear medicine; and physical, occupational, speech and respiratory therapies. The Carl J. Shapiro Institute for Education and Research provides medical students and physicians in training with an on-site centralized educational facility, a state-of-the-art computer lab, and a variety of educational resources that let students diagnose, manage, and learn technical skills on simulated patients.

Community Service

BIDMC has a steadfast and longstanding commitment to the health and well-being of the community, as shown by its significant investments in fiscal year (FY) 2016, including:

- A total investment of $77.5 million by BIDMC for its community benefits mission, including direct expenses, charity care and certain unpaid charges for medical care;
- $26.4 million to reducing barriers to care and improving health and well-being of Boston residents;
- $3.6 million for health disparities research;
- Five licensed or affiliated community health centers in Boston, serving more than 100,000 patients each year; and
- 50,000+ Boston residents receive their primary care at BIDMC, Bowdoin Street Health Center and BIDMC's affiliated physician practices in Boston.

BIDMC also provides numerous other economic benefits to the City of Boston, including employment of approximately 2,800 Boston residents as part of a diverse workforce of over 9,000 full-time and part-time employees, and the purchase of approximately $100 million of local goods and services each year.

1.3 BIDMC Facilities

1.3.1 Overview

BIDMC is currently licensed for a total of 673 beds, including 493 medical/surgical beds, 77 intensive care beds, and 62 OB/GYN beds, and has a delivery rate of approximately 5,000 births per year. BIDMC provides a full range of emergency services including a level 1 trauma center and rooftop helipad. In fiscal year (FY) 2017, BIDMC had 40,656 inpatient discharges, 643,975 outpatient visits (at campus and off-site licensed facilities), and 57,224 Emergency Department visits.

BIDMC is located on two main campuses in the Longwood Medical and Academic Area (LMA) of Boston—the East Campus and the West Campus—which correspond respectively to the prior Beth Israel and New England Deaconess campuses. BIDMC also has several off-site locations. The East Campus, located at 330 Brookline Avenue, is approximately 8.5 acres and is bounded generally by the Emmanuel College Campus, Brookline Avenue, Longwood Avenue, and Binney Street. The West Campus, located at One Deaconess Road, is approximately 8.5 acres and is bounded generally by Brookline Avenue, the Riverway, Autumn Street and Longwood Avenue. The BIDMC facilities in Boston also include a non-contiguous, approximately 1.3-acre parcel at 99 Brookline Avenue (near Fenway Park) on which BIDMC's Research North building is located, and the site of the Bowdoin Street Health Center building at 230 Bowdoin Street together with two ancillary parking lots located at 3-5 Bowdoin Park and 133-137 Hamilton Street in Dorchester totaling approximately 0.36 acre (see Figure 1-1).

1.3.2 BIDMC Campus and Facilities in Boston

The East Campus is located on the east side of Brookline Avenue, north of Longwood Avenue. The East Campus houses most of BIDMC's outpatient ambulatory services (including day surgery), and research labs and some inpatient clinical services. Services provided on the East Campus include women's health, infant care, cancer care and orthopedics. The West Campus facilities contain the majority of BIDMC's inpatient clinical services. The Rosenberg Building, BIDMC's newest inpatient clinical building, is located on the West Campus and houses BIDMC's largest and most technologically advanced operating and procedure rooms, several floors of medical/surgical and intensive care beds, BIDMC's emergency department, level 1 trauma center and helipad. Services provided on the West Campus include cardiology, neuroscience, transplants and emergency medicine.

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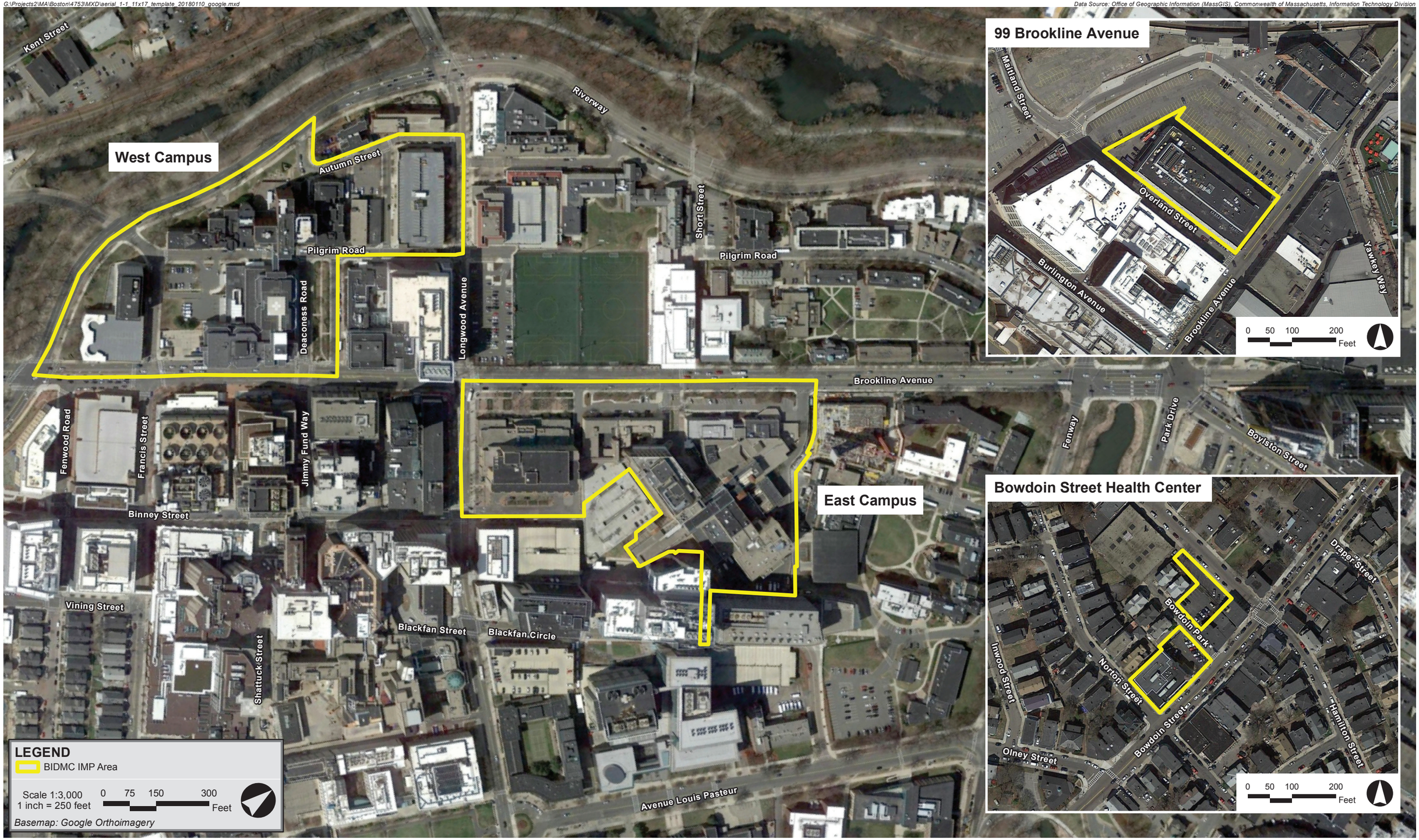
Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

Figure 1-1

BIDMC Facilities and IMP Area

BIDMC buildings and their location (see Figure 1-2), approximate gross floor area (GFA) in square feet (sf) as defined by the Zoning Code, current primary uses and date of construction are listed in Table 1-1. As provided in the BIDMC IMP, hospital sub-uses are frequently relocated and reconfigured within hospital buildings to respond to changes in case mix and services and to accommodate ongoing renovations; building use information in Table 1-1 provides a snapshot of use locations at the current time.

Table 1-1 BIDMC-Owned Buildings and Uses in Boston

Campus Map Key[1]	Building Name	Address	Approximate GFA (sf)[2]	Current Building Uses[3]	Date of Construction
West Campus					
1	Palmer	195 Pilgrim Road	58,400	Administrative/Support Service, Ancillary clinical services	1927
2	Span	193 Pilgrim Road	18,800	Ambulatory, Administrative/ Support Service, Research	1981, 1991
3	Baker	193 Pilgrim Road	29,600	Ambulatory, Administrative/ Support Service	1932
4	Farr	185 Pilgrim Road	198,700	Ambulatory, In-patient clinical, Administrative/ Support Service, Cafeteria, Retail	1953 & 1971
5	Dooley Chapel	185 Pilgrim Road	1,600	Worship/assembly	1956
6	Deaconess	175 Pilgrim Road	74,100	Ambulatory, In-patient clinical, Administrative/ Support Service	1903-1907 Addition in 1923
7	Libby (f/k/a "Maintenance")	169-171 Pilgrim Road	23,700	Administrative/Support Service	1932 & 1957
9	Lowry	110 Francis Street	90,000	Ambulatory, Administrative/ Support Service	1964
11	Rosenberg (f/k/a "West Clinical Center")	One Deaconess Road	330,300	In-patient clinical, Administrative/ Support Service, Café, Retail, Restaurant, Emergency Department, Helipad	1996 & 2001
East Campus					
12	Shapiro	364 Brookline Avenue	354,500	Ambulatory, Administrative/ Support Service, Board Rooms/Conference Center, Retail/Pharmacy, Restaurant, Fitness Center	1996
13	Kirstein	330 Brookline Avenue	75,000	Ambulatory, Administrative/ Support Service, Research	1931 & 1950
14	Rose	330 Brookline Avenue	27,600	Ambulatory, Administrative/ Support Service	1928

Table 1-1 BIDMC-Owned Buildings and Uses in Boston (Continued)

Campus Map Key[1]	Building Name	Address	Approximate GFA (sf)[2]	Current Building Uses[3]	Date of Construction
East Campus (continued)					
15	Yamins	330 Brookline Avenue	25,600	Ambulatory, Administrative/ Support Service	1949
16	Rabb	330 Brookline Avenue	53,900	Ambulatory, Administrative/ Support Service	1966-1986 & 1991
17	Finard	330 Brookline Avenue	41,600	In-patient clinical, Ambulatory, Administrative/ Support Service, Research	1985
18	Feldberg-Reisman	330 Brookline Avenue	241,200	In-patient clinical, Ambulatory, Administrative/ Support Service, Research, Worship	1976 1984
19	Gryzmish	330 Brookline Avenue	84,500	In-patient clinical, Ambulatory, Research, Administrative/Support Service	1928
20	Ansin	330 Brookline Avenue	14,500	Administrative/Support Service, Research, EMS Station	1987
21	Stoneman	330 Brookline Avenue	125,800	In-patient clinical, Ambulatory, Administrative/ Support Service, Research, Retail	1950 & 1986
22	Research West	330 Brookline Avenue	29,500	Research, Administrative/ Support Service	1989
23	Sherman	330 Brookline Avenue	33,000	Ambulatory, In-patient clinical, Administrative/ Support Service, Ancillary Clinical Services, Research, Auditorium	1970
24	East	330 Brookline Avenue	31,200	Research, Ancillary Clinical Services, Administrative/ Support Service	1928
25	Service	330 Brookline Avenue	43,800	Ambulatory, Administrative/ Support Service, Cafeteria	1949
26	Slosberg-Landay/Dana	330 Brookline Avenue	136,600	Research, Administrative/Support Service	1969 1982 1987
Total On-Campus Building GFA[4]			**2,143,500**		
Total On-Campus Parking GFA[4] (see Table 1-2 below)			344,920		
Total On-Campus GFA			**2,488,420**		

Table 1-1 BIDMC-Owned Buildings and Uses in Boston (Continued)

Campus Map Key[1]	Building Name	Address	Approximate GFA (sf)[2]	Current Building Uses[3]	Date of Construction
Off Campus (see Figure 2-17)					
	Research North	99 Brookline Avenue	114,681	Research	1940
	Bowdoin Street Health Center[5]	230 Bowdoin Street	23,850[6]	Ambulatory Clinic, Administrative/ Support Service, Wellness Center (including exercise facilities, demonstration kitchen, and classroom/ conference space)	1995 & 2015

[1] See Figure 1-2.

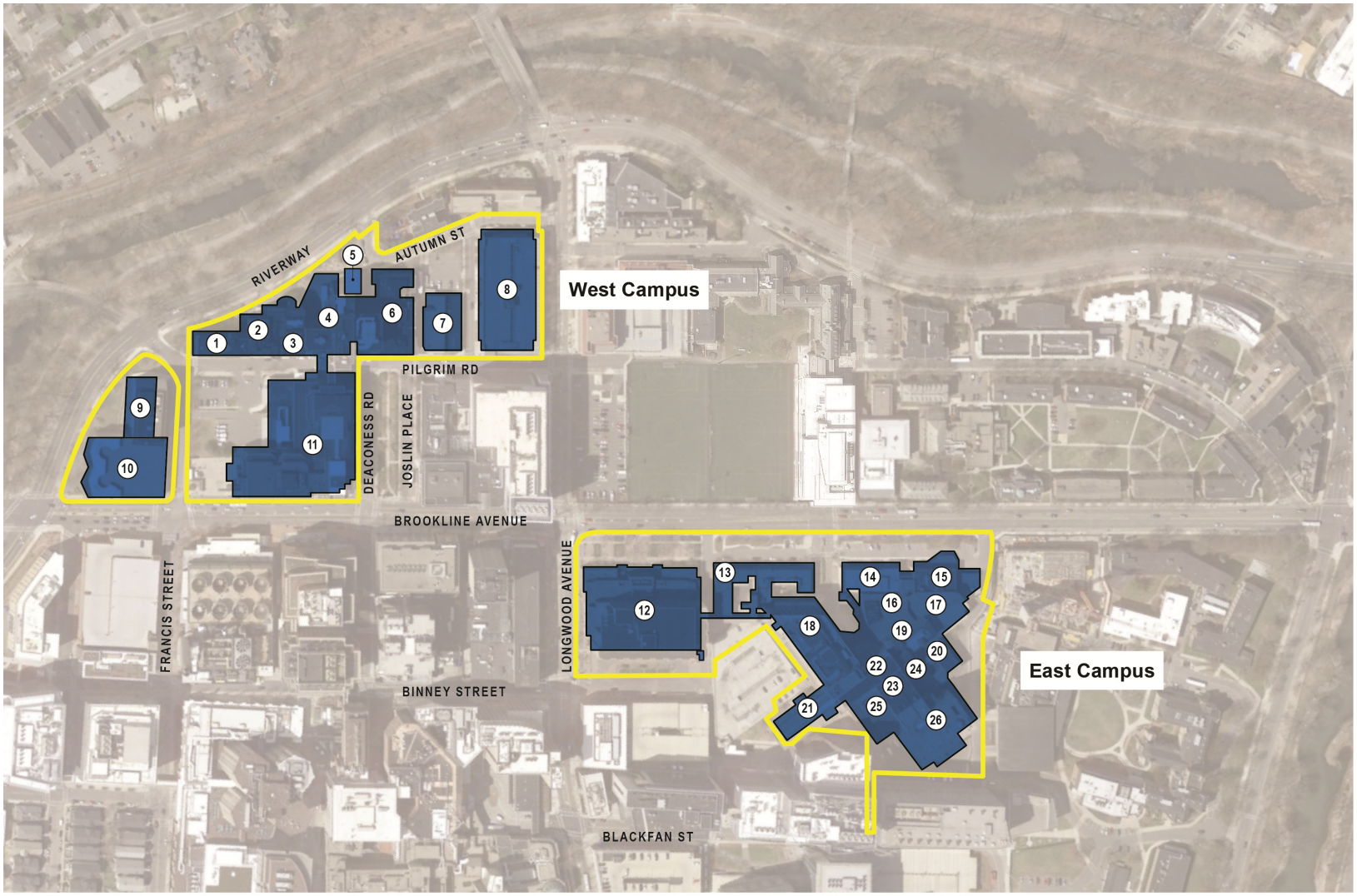
[2] As defined in the Zoning Code.

[3] This table lists the primary functions located within each campus building at the present time. Hospital sub-uses are frequently relocated and reconfigured within buildings to respond to changes in case mix and services and to accommodate ongoing renovations programs. Buildings which house inpatient clinical services (such as the Rosenberg, Deaconess, Farr, Finard, Feldberg-Reisman, and Stoneman Buildings, etc.) and adjacent buildings (such as Yamins, Rabb, and Rose Buildings, etc.) also contain numerous ancillary clinical services used by both inpatients and outpatients, including various diagnostic testing, radiology, gastroenterology, cardiology, and rehabilitation procedures and services. Interactions with clinical research subjects may take place in facilities which are used for research (including wet lab and dry/office research); ambulatory or in-patient clinical activities. Locations of auditoriums and conference centers are listed above; however, many other buildings also contain conference rooms and training facilities used for hospital administration and medical education purposes.

[4] Total On-Campus Building, Parking and Campus GFA totals have been adjusted in this Table to reflect the following changes since the 2004 BIDMC IMP: (1) the sale of the Kennedy building (78,000 GFA sf) and East Campus Parking Garage (117,850 GFA sf); and (2) the addition of 2,000 GFA sf due to minor building renovation projects in existing buildings that converted space previously excluded from GFA as defined in the Zoning Code into GFA sf; (3) adjusted measurements of the Pilgrim Road Garage and Lowry Garage to more accurately reflect the amount of GFA sf above-grade, resulting in the addition of 37,570 GFA sf (Pilgrim 16,730 GFA sf; Lowry 20,840 sf).

[5] BIDMC-owned building that is ground leased.

[6] In 2015, BIDMC completed the Bowdoin Street Addition Project which included an approximately 4,100 GFA sf addition to the existing Bowdoin Street Health Center as described in the BIDMC 2013 IMP Amendment (see Section 1.4.2 for more information), increasing the Bowdoin Street Health Center to approximately 22,850 GFA sf.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC IMPNF/PNF

Figure 1-2

BIDMC West and East Campus Map

Table 1-2 provides information on parking facilities BIDMC owns in Boston. Structured parking locations are shown on Figure 1-2.

Table 1-2 BIDMC-Owned Parking Facilities

Campus Map Key[1]	Name	Approximate GFA (sf)[2]	# Parking Spaces	Type	Date of Construction	# stories above grade	# stories below grade
West Campus							
8	Pilgrim Road Garage	238,400	745	Parking Garage	1971-1978	7	1
10	Lowry Garage	106,520	292	Parking Garage	1972	5	1
n/a	Clicker Lot (behind Libby)	n/a	29	Surface parking lot, accessory/ancillary parking	n/a	n/a	n/a
n/a	Emergency Department Lot (adjacent to Rosenberg)	n/a	14[3]	Surface parking lot, accessory/ancillary parking	n/a	n/a	n/a
East Campus							
12	Shapiro Garage	n/a	727	Parking Garage	1993	0	5
n/a	Kirstein Lot	n/a	11	Surface parking lot, accessory/ancillary parking	n/a	n/a	n/a
n/a	Finard/Yamins Lot	n/a	17	Surface parking lot, accessory/ancillary parking	n/a	n/a	n/a
	Total On-Campus	**344,920[5]**	**1,835**				
Off Campus							
n/a	Center for Life Science Boston (Garage Condo Unit)[4]	n/a	450	Parking Garage	2008	n/a	5
n/a	Research North 99 Brookline Avenue	n/a	33	Surface parking lot, accessory/ancillary parking	n/a	n/a	n/a
n/a	Bowdoin Street Health Center 230 Bowdoin Street, 3-5 Bowdoin Park and 133-137 Hamilton Street	n/a	33	Surface parking lots, accessory/ ancillary parking	n/a	n/a	n/a

[1] See Figure 1-2.
[2] GFA as defined in the Zoning Code.
[3] Not including ambulance parking bays.
[4] GFA as defined by the Zoning Code does not include below-grade parking. The Shapiro Garage and Center for Life Science Boston Garages are below grade and, therefore, have no GFA.
[5] See Table 1-1, Endnote 3 for explanation of adjustments to Total On-Campus Parking GFA since the 2004 IMP.

Table 1-3 includes the floor area ratio (FAR) of the BIDMC IMP Area lots (see Figure 1-3 for the location of the lot areas within the LMA, and Figure 1-1 for the BIDMC IMP Area).

Table 1-3 BIDMC IMP Area Floor Area Ratio

Parcel	Land Area (approx. sf)	Approximate GFA (sf)[1]	FAR
LMA Campus (see Figure 1-3)			
Lot A (West Campus)	56,401	196,520	3.48
Lot B (West Campus)	314,636	973,600	3.09
Subtotal West Campus	*371,037*	*1,170,120*	*3.15*
Lot C (East Campus)	376,484	1,318,300	3.50
LMA Campus Total	**747,521**	**2,488,420**	**3.33**
Outside of LMA (see Figure 1-1)			
Bowdoin Street Health Center, 230 Bowdoin Street	15,874[2]	22,850	1.44
99 Brookline Avenue	55,016	114,681	2.08

[1] GFA as defined in the Zoning Code.
[2] Land area of ancillary parking lots at 3-5 Bowdoin Park and 133-137 Hamilton Street is excluded.

1.3.3 Properties Owned Outside of Boston

Outside of Boston, BIDMC has member community hospitals in Milton, Needham and Plymouth, as well as owned licensed ambulatory care facilities in Chelsea and Lexington, and leased licensed ambulatory care facilities in Brookline, Newton (Chestnut Hill) and on the Beth Israel Deaconess-Needham Hospital campus.

1.3.4 BIDMC Leased Facilities in Boston

In Boston, BIDMC leases spaces in several buildings primarily for administrative space and wet and dry research. Table 1-4 provides a list of BIDMC's leased facilities.

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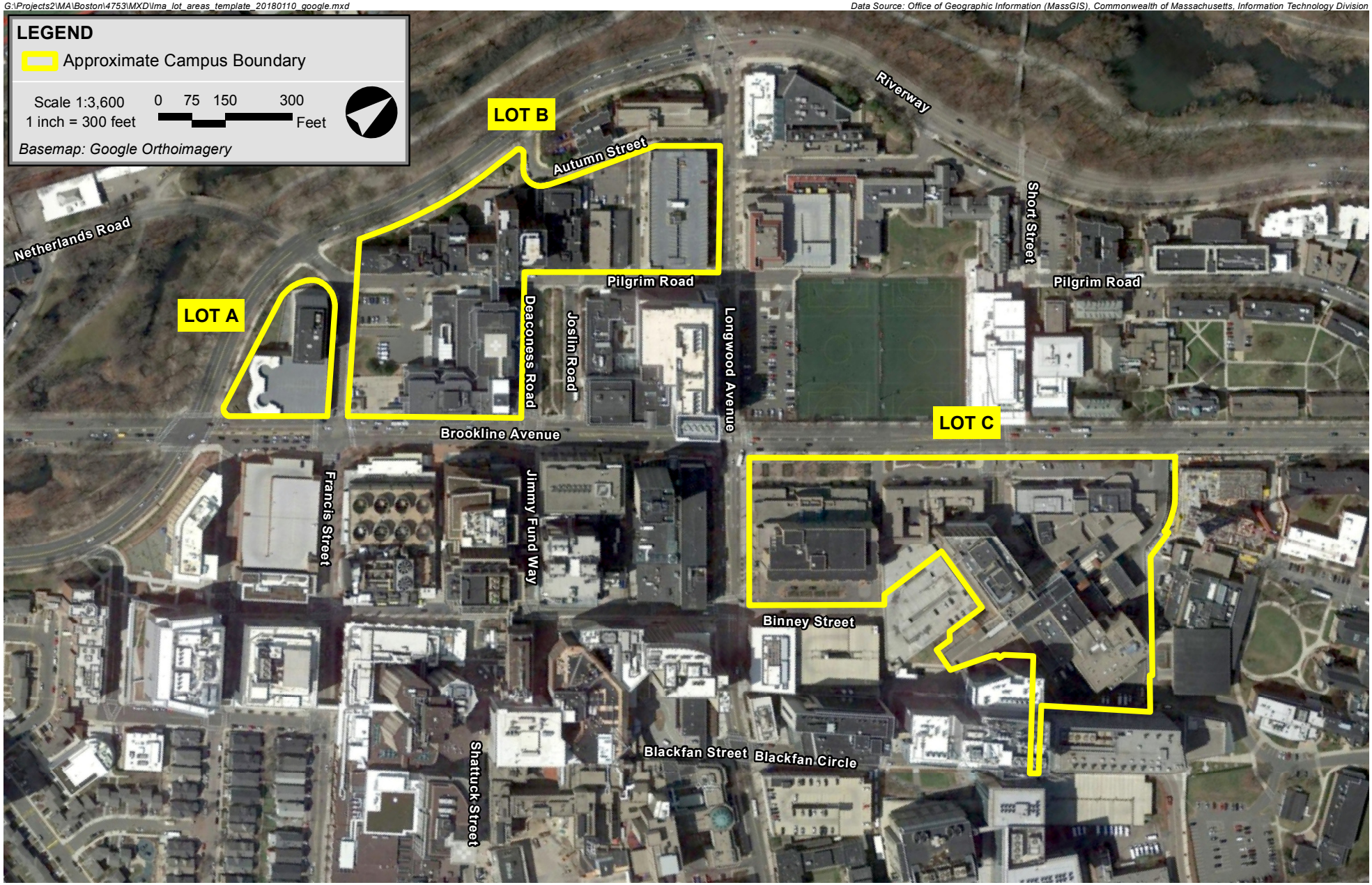
Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

BIDMC IMPNF/PNF

Figure 1-3
LMA Lot Areas

Table 1-4 Leased Space in Boston

Property Name and Address	Use	SF	Parking Spaces[1]	Expiration[2]
109 Brookline Avenue	Admin Space	63,772	25	2024
109 Brookline Avenue	Storage	2,826	0	2024
21-27 Burlington Avenue	Admin Space	10,388	2	2023
21-27 Burlington Avenue	Admin Space	16,522	0	2023
21-27 Burlington Avenue	Admin Space	15,818	2	2022
375 Longwood Avenue	Dry Research/ Admin Space	18,602	44	2022
MASCO 1 375 Longwood Avenue	Facilities	1,370	0	2020
Joslin Diabetes Center, 419 Brookline Avenue	Admin Space	1,895	0	2020
Renaissance Center, 1135 Tremont Street	Admin Space	77,667	250	2018 2023
Center for Life Science Boston 3 Blackfan Circle, 11th Floor	Wet Research	6,654	0	2023
Center for Life Science Boston, 3 Blackfan Circle	Wet Research	362,364	154	2023
131 Brookline Avenue	Admin Space	23,010	0	2023
Longwood Galleria, 400 Brookline Avenue	Residential	4 apartments	0	2019

[1] The Parking Spaces listed are the maximum number BIDMC is permitted pursuant to its leases; in some locations BIDMC currently uses fewer than the maximum count.

[2] Expiration years listed are for current lease terms; many leases have extension options that BIDMC may exercise.

[3] BIDMC leases four residential apartments at the Longwood Galleria for short-term use by families of out-of-town patients who are receiving long-term treatment at BIDMC.

1.4 Institutional Master Plan

1.4.1 Summary of IMP Process

The BIDMC IMP was originally approved by the BRA on April 1, 2004 and by the Boston Zoning Commission on June 23, 2004, with an effective date of June 28, 2004 (the "2004 IMP"). Consistent with the requirements of Article 80D of the Zoning Code, the IMP described the existing uses, structures, and activities on the BIDMC campus, along with future needs, leasing activity, master planning objectives, and proposed construction projects over the five-year term of the IMP. The IMP was renewed pursuant to the Institutional Master Plan Notification Form for Renewal (with no changed plans) filed on June 22, 2009, approved by the BRA on August 13, 2009, for an additional term of five years (the "2009 IMP Renewal"). The BIDMC IMP, as renewed, was subsequently amended pursuant to the BIDMC Institutional Master Plan Notification Form for Amendment of the IMP and Small Project Review Application for the Bowdoin Street Health Center Addition Project which was filed on October 9, 2013 and approved by the BRA on November 14,

2013 (the "2013 IMPNF for Amendment"). The 2013 IMPNF for Amendment, together with the associated Map Amendment No. 579, was approved by the Boston Zoning Commission on December 11, 2013, with an effective date of December 20, 2013. The IMP was renewed pursuant to the Institutional Master Plan Notification Form for Renewal (with no changed plans) filed on August 12, 2014, approved by the BRA on September 18, 2014, for an additional term of five years (the "2014 IMP Renewal"). The 2004 IMP, the 2009 IMP Renewal, the 2013 IMPNF for Amendment, and the 2014 IMP Renewal, as approved, collectively constitute the current BIDMC IMP.

Biannual updates of the IMP, as required under Section 80D-7 of the Zoning Code, have been filed with the BRA, most recently on September 16, 2016. These updates summarized the status of the BIDMC IMP projects that were proposed as part of the approved IMP, and described for informational purposes exempt interior renovation projects, leasing, and other campus activities.

1.4.2 Status of Projects Described in the IMP

The BIDMC IMP described three proposed IMP projects, only one of which, the 25,000 sf West Clinical Center Addition, was an approved IMP project to be developed by BIDMC itself. Two other projects, referred to as the Blackfan Research Center addition (the BRC Addition, which is a portion of the project originally known as the Blackfan Research Center or BRC) and Longwood North Research Center (LNRC), were described in the IMP for informational purposes, but not for approval as IMP projects. These two projects were ultimately approved through a Planned Development Area (PDA) process by an affiliate of Lyme Properties, which acquired the parcels of land from BIDMC in 2005. The IMP also included a discussion of BIDMC's long-term vision, which included sites for potential future development, including the South Pilgrim Road site, which is the site of the proposed New Inpatient Building as described in Chapter 2 of this IMPNF/PNF. The IMP, as approved in 2004 and renewed in 2014, also described certain various campus improvement projects.

The 2013 IMPNF for Amendment (which forms a part of the current BIDMC IMP) approved the Bowdoin Street Health Center Addition project consisting of interior renovations and an addition of approximately 4,100 sf GFA to BIDMC's Bowdoin Street Health Center and the corresponding modification of BIDMC's IMP Overlay Area to include the site of the Bowdoin Street Health Center building at 230 Bowdoin Street and its two existing ancillary parking lots located at 3-5 Bowdoin Park and 133-137 Hamilton Street in Dorchester.

An update on the status of these projects is provided immediately below.

West Clinical Center Addition

The current BIDMC IMP describes an approved IMP project consisting of a 25,000 sf addition to the Rosenberg Building to be located at the eastern side of the Project site (referred to as the West Clinical Center Addition project). As noted in the 2016 IMP Update

and described in Chapter 2, BIDMC has a pressing need for expanded inpatient clinical facilities to meet the needs of its patients, and the New Inpatient Building is being proposed as a replacement for the small West Clinical Center Addition project.

Additional Projects Described in IMP

The BRC Addition

The 2004 IMP described, for informational purposes, BIDMC's proposed sale of land to an affiliate of Lyme Properties to facilitate construction of the BRC Addition, a state-of-the-art research facility included within the expanded BRC. The sale of land took place in 2005 following approval of the project in a PDA, and Lyme commenced construction. The BRC was completed by an affiliate of BioMed Realty Trust, Inc., which acquired the site in 2006, and was renamed the Center for Life Science Boston ("CLSB"; hereinafter, this project will be referred to as the "BRC/CLSB" for the sake of clarity).

As described in the 2009 IMP Renewal and the 2014 IMP Renewal, BIDMC is a major tenant in the BRC/CLSB, and, as contemplated by the 2004 IMP, in October of 2008 BIDMC acquired 450 parking spaces in the BRC/CLSB garage in the form of a garage condominium unit.

The LNRC

The 2004 IMP included the LNRC, an approximately 440,000 sf biomedical research facility to be located on land that at the time was owned by BIDMC as part of its East Campus. Subsequent to filing the IMP, BIDMC sought removal of the LNRC from the 2004 IMP, and by letter dated November 18, 2003, the BRA approved the removal. Accordingly, BIDMC revised the 2004 IMP in January 2004 to reflect the updated status. This revised IMP is the version that was approved by the BRA Board and Zoning Commission in 2004 as summarized above.

The site of the LNRC, now called the Longwood Research Institute (the "LRI"; hereinafter, this project will be referred to as the "LNRC/LRI" for the sake of clarity), was acquired by an affiliate of Boston Children's Hospital ("Children's") in August 2006, and the LNRC/LRI was incorporated into Children's Institutional Master Plan, which was initially approved in 2008, and amended in 2012, 2013 and 2015 (as amended, the "Children's IMP").

As discussed in the Children's IMP, Children's has delayed the start of construction of the LNRC/LRI due to market conditions. The Children's IMP permits 454 parking spaces in the 340 Brookline Avenue Garage (formerly known as the BIDMC East Campus Parking Garage) to be used on an interim basis until commencement of construction of the LNRC/LRI. As described and approved in the Children's IMP and described in the 2009 IMP Renewal and IMP Updates BIDMC submitted in 2011, 2013, and 2016, Children's currently leases a portion of such garage spaces to BIDMC, and concurrently, BIDMC leases

to Children's parking spaces BIDMC owns in the BRC/CLSB Garage. Beginning in March 2015, the number of spaces BIDMC leases in the 340 Brookline Garage increased to 430 and the number of parking spaces Children's leases from BIDMC in the BRC/CLSB Garage increased to 272.

Bowdoin Street Health Center Addition Project

The 2013 IMPNF for Amendment approved the Bowdoin Street Health Center Addition Project located at 230 Bowdoin Street in Dorchester. The Project included interior renovations and an addition of approximately 4,100 sf to BIDMC's Bowdoin Street Health Center to house a Wellness Center focused on dietary education and exercise, as well as additional exam room space. Construction was completed and occupancy began in July 2015. These expanded facilities are allowing the Bowdoin Street Health Center to incorporate wellness activities into primary care delivery, enabling patients to get healthy and stay healthy.

Campus Improvement Projects

The 2004 IMP included several campus improvement projects to be implemented in phases with some interim improvements to be completed in connection with the construction of BRC/CLSB, and the remainder upon the completion of LNRC/LRI. The status of these campus improvements was set forth in detail in the 2009 IMP Renewal, in subsequent IMP Updates and in the 2014 IMP Renewal. There are no such campus improvement projects to be undertaken in connection with the LNRC/LRI as described in the BIDMC IMP that have been completed since the 2014 IMP Renewal, are currently ongoing or that BIDMC is scheduled to begin in the upcoming 24 months.

1.4.3 Other IMP-Exempt Projects

BIDMC, like other health care institutions, is continually renovating and improving its existing facilities to enhance its ability to provide superior health care. Such projects include renovations to enhance work flow and patient care services and infrastructure upgrades. Generally these projects do not fall under the requirements of Article 80D because they are interior renovations or fall below the 20,000 sf threshold for the erection or extension of an institutional use. A brief description of such projects is included here for informational purposes. The BIDMC IMP Renewals and IMP Updates describe such minor projects and improvements that have been undertaken since the initial approval of the IMP in 2004. The most recent 2016 IMP Update described the renovation and campus improvement projects that were completed since 2014, ongoing or planned for the 24 months from September 2016 to 2018. A brief update of projects that have been recently completed, are ongoing or are planned for the next 24 months is included here for informational purposes.

As noted in the 2014 IMP Renewal and most recently in the 2016 IMP Update, BIDMC is engaged in a long term project to design and construct improvements to the normal power distribution system and emergency power systems on both campuses to make these systems more climate resilient and to improve energy efficiency. Since the 2016 IMP Update, BIDMC has continued to make improvements to the power systems on the East Campus, including modifications to the Feldberg Building rooftop penthouse to make way for the relocation of normal power electrical switchgear to the roof from the Feldberg basement, where it is vulnerable to flooding. The new electrical gear is currently being installed in the Feldberg penthouse.

BIDMC's inpatient census has been increasing in recent years. As noted in the 2016 IMP Update, to help meet this growing demand for inpatient services, over time BIDMC has renovated some space in its existing facilities which in recent years had been used for administrative functions to restore its use for inpatient clinical purposes. Since the 2016 IMP Update, one floor in the Stoneman Building on the East Campus was renovated in FY 2017 to restore its previous use as an inpatient floor.

As noted in previous IMP Updates, BIDMC continues to work on modernizing its pathology laboratories. A new pathology lab and conference room were recently completed on the East Campus. Other renovations completed since the fall of 2016 on the West Campus include improvements to operating rooms in the Rosenberg Building (formerly known as the West Clinical Center), renovations to cardiac procedure space in the Deaconess Building, and remodeling of the Lowry Building to relocate endocrinology from the Shapiro Clinical Center to make room for the expanded bone marrow transplant program. All of these renovation projects were included in the 2016 IMP Update.

Projects underway currently, as noted in the 2016 IMP Update, include upgrades to the neonatal intensive care unit (NICU) in the Reisman Building to expand the number of NICU beds/basinets during 2018. As also noted in the 2016 IMP Update, other projects that BIDMC expects to undertake in the next year or so include the renovation of Feldberg 8, which is the only remaining inpatient floor at BIDMC currently being used for administrative functions, to restore its inpatient use for 24 medical/surgical beds. Renovations are also being planned to the cafeteria in the Stoneman Building on the East Campus known as the Ulian Café and to provide for new food service operations in the lobby of the Shapiro Clinical Center, as the SouperSalad lease terminated in August 2016. BIDMC is also considering the creation of an outpatient pharmacy in the Shapiro Clinical Center lobby which would enhance the patient experience by allowing patients to fill their prescriptions onsite.

In addition to these renovations and improvements, in 2018, an existing exterior porch on the fourth floor of the Deaconess Building will be partially enclosed to provide psychiatric patients with safe outdoor space and to respond to the Department of Mental Health's recent "Fresh Air" regulations. In 2019 several projects are planned, including the East Campus Autopsy and Morgue renovation, East Campus Anatomical Pathology Histology

Lab reorganization, Feldberg Plaza waterproofing and hardscape restoration, and ongoing garage repairs. Also planned for 2018 and early 2019 is certain enabling work involving renovations and generally temporary relocations of existing facilities that must be done prior to construction of the proposed New Inpatient Building, as further described in Section 2.2.1. In addition, BIDMC generally upgrades several research labs each year, continually upgrades and replaces equipment as needed in the radiology/imaging departments, cardiac catheterization labs and surgical suites, and makes minor space improvements and cosmetic and general upgrades to areas throughout the hospital that do not involve relocating functions. BIDMC will also continue making upgrades to improve access for persons with disabilities and to comply with Americans with Disabilities Act (ADA) requirements. In order to improve energy reliability and efficiency BIDMC will also continue to make a variety of power system, equipment and infrastructure upgrades.

1.5 Benefits

BIDMC provides numerous benefits to the surrounding community and region through collaborations with community health centers and other community-based organizations, financial contributions to community partners whose work aligns with BIDMC's non-profit mission, and employment and workforce development programs as described below. Additional information can be found in BIDMC's Community Connections report, which can be found online at: http://www.bidmc.org/~/media/Files/Centers%20and%20Departments/Community%20Initiatives/Community%20Connections%202016.pdf. The report filed with the Attorney General which describes community benefits can be found online at: http://www.bidmc.org/~/media/Files/Centers%20and%20Departments/Community%20Initiatives/AttorneyGeneralReportFY2016.pdf.

1.5.1 Community Benefits

Chapter 7 of the 2004 IMP included a detailed description of the community service programs, employment opportunities, and work force development initiatives and other benefits that result from BIDMC's presence in Boston.

Recognizing that many factors influence community health, in addition to focusing on access to care, BIDMC's Community Benefits program prioritizes services to address behavioral health, disease management and prevention and healthy living. BIDMC works on numerous initiatives with its affiliated community health centers and community based practices. Most of these initiatives focus on vulnerable cohorts who face health and access disparities, including older adults, low-income individuals/families, racially and ethnically diverse populations, and lesbian gay bisexual and transgender populations.

Increasing Access to Care

BIDMC has a covenant to care for the underserved and works to address disparities in access to primary and specialty care services experienced by low income

uninsured/underinsured children and adults who struggle to overcome barriers to such care. Despite the broad health insurance coverage gains achieved through state and federal health care reform, approximately one in six (17%) patients seen at a Massachusetts federally qualified health center is uninsured according to the CY 2015 Uniform Data System (UDS) data. Many who continue to be without coverage may qualify for assistance from the Health Safety Net Program, a fund to which BIDMC makes significant annual contributions. In FY 2016, BIDMC served 4,068 Health Safety Net patients. BIDMC staff screened 9,462 patients for eligibility and enrolled 7,814 patients into entitlement programs. BIDMC continues to provide medication assistance and no-cost pharmaceutical prescriptions to patients in need.

BIDMC collaborates with and provides support for community health centers and community based medical and behavioral health practices. BIDMC works in partnership with Bowdoin Street Health Center (which is operated and licensed by BIDMC), The Dimock Center, Fenway Health and its affiliated Sidney Borum Jr. Health Services, Charles River Community Health (formerly Joseph M. Smith Community Health Center), and South Cove Community Health Center, to ensure that Boston residents have access to culturally and linguistically appropriate health services. These community providers are uniquely positioned to offer accessible primary care as well as access to lab, radiology, mammography, and on-site specialty care to Boston's diverse urban communities. True to the legacies of its founding hospitals, BIDMC today continues to provide exceptional, personalized, culturally and linguistically appropriate care to its diverse communities. BIDMC recognizes its responsibility to take an active role in collaborating with community based leaders and organizations to understand the needs of its communities, and to partner together to develop programs and policies to ensure access to healthcare services and to improve health status, particularly for underserved communities. The BIDMC Community Benefits program focuses on individuals in Boston who have complex needs, face barriers to care, service gaps and other adverse social determinants of health due to income status, race, ethnicity, sexual orientation or gender identity.

Through the BIDMC Community Benefits program, BIDMC helps to increase capacity of primary care and OB/GYN practices at its six licensed and/or affiliated health centers, five of which are in Boston, and increases community-based specialty care services, mammography, and other on-site specialty care (e.g., Infectious Disease, etc.). BIDMC also continues its efforts to provide care for diverse patients through the use of a Cancer Navigator, Interpreter Services, and multilingual patient education and cultural competence initiatives.

BIDMC's partnership and support of these health centers also takes many other forms. These include staff training, financial support, credentialing of physicians, admitting privileges, membership in BIDMC's accountable care organization (BIDCO), Harvard Medical School appointments and teaching opportunities. Such teaching and professional development and growth opportunities include The Partnership and the Linde Family

Fellowship Program, the latter of which provides physicians with an opportunity to develop expertise and skills in primary care leadership, including practice management and innovation. In FY 2016, Ethan Brackett, MD of Fenway Health was a Linde Fellow and successfully implemented a plan to introduce family medicine at Fenway Health.

Social Determinants of Health and Health Risk Factors

BIDMC works to implement and strengthen the patient-centered medical home service delivery model[1] to ensure coordinated, cost-effective, high quality care for the community. Emphasizing prevention and physical activity, BIDMC partners with its licensed and affiliated health centers to identify and address the underlying root causes and contributing factors that hinder health and well-being in the community.

Active Living/Healthy Eating

In May 2015, BIDMC completed construction of a Wellness Center at the Bowdoin Street Health Center. The Wellness Center offers educational programming for the Bowdoin/ Geneva neighborhood to increase active living and healthy eating. In its fifth year, Train4Change is a workforce and leadership opportunity that prepares Bowdoin/Geneva residents to be certified group fitness instructors, making them eligible to seek employment teaching fitness classes.

BIDMC continues to support Charles River Community Health to offer Zumba classes to older adults. The Zumba program has increased physical activity, healthy eating and has the added social/emotional benefit of reducing social isolation among its participants. BIDMC also supports Charles River Community Health's mobile market, which makes fresh produce available, free of charge, to those in need, through a Greater Boston Food Bank program. BIDMC also partners with the Greater Boston Food Bank, and annually organizes a volunteer day when BIDMC employees work at the Food Bank.

BIDMC offers its Walking for Wellness program in several Boston communities and public schools, and Bowdoin Street Health Center has expanded its Healthy Champions program, where underprivileged youth engage in healthy cooking classes and nutrition education workshops using the demonstration kitchen in the new Wellness Center.

BIDMC is also collaborating with the Boston Public Health Commission, Artists for Humanity and the Boston Public Schools to foster safer routes to school. The Safe Routes to School initiative will provide visible bicycle parking on bike racks that are custom designed by local youth via Artists for Humanity. Along with creating bicycle parking and promoting

[1] This model is designed around patient needs, and aims to improve access to care (e.g., through extended office hours and increased communication between providers and patients via email and telephone), increase care coordination and enhance overall quality, while simultaneously reducing costs.

active living, the racks will serve as eye-catching public art that promotes the Boston Safe Routes to School brand. The initiative is employing teens to design and build the bike racks and will enable these teens to develop and publicly showcase their portfolio.

Violence Prevention and Recovery

Crime and violence affect all of Boston's residents, but have a disproportionate impact on two of Boston's inner city neighborhoods, Roxbury and Dorchester. These impacts include death and injury, emotional trauma, anxiety, and other mental health issues, isolation, and lack of trust and/or community cohesion.

BIDMC's Center for Violence Prevention and Recovery (CVPR) facilitates a comprehensive, integrated approach to addressing multiple forms of violence experienced in people's lives. Established in 1997, the Center for Violence Prevention and Recovery's mission is to improve the health and well-being of people impacted by multiple forms of violence, including domestic violence, sexual assault, community violence and homicide by providing trauma-informed services and programs; to improve the health care response to violence and train health care providers to identify and respond to patients who are experiencing or have previously experienced violence in their lives; and to engage in innovative collaboration between health care providers and community organizations to provide violence intervention, prevention and recovery services.

BIDMC's CVPR provides trauma informed services and offers a range of counseling and advocacy services for those who have been a victim of or a witness to community violence, including those who have experienced the loss of a loved one due to homicide. All CVPR services are offered free-of-charge and are provided regardless of the recipients' race, ethnicity, language, sexual orientation or gender identity. BIDMC is a long-standing partner and supporter of the Louis D. Brown Peace Institute. BIDMC's CEO, Kevin Tabb, MD, co-chaired the Institute's Walk for Peace in 2015 with Maura Healey and in 2016 with Mayor Walsh. In 2017 BIDMC Emergency Department physician, Alan Landry, MD, co-chaired the event with Mayor Walsh, Massachusetts Senator Linda Dorcena Forry and honorary co-chair Governor Baker.

Additionally, Bowdoin Street Health Center actively partners with the Boston Public Health Commission on the Violence Intervention and Prevention Program, the Trauma Recovery Center, and the Defending Childhood Program, the latter of which provides home-based and community-based counseling services to inner-city patients from Dorchester, Roxbury and Mattapan to prevent and address childhood exposure to violence.

Disease Management and Prevention

Chronic diseases, such as heart disease, hypertension, diabetes, cancer, and stroke, are among the most common, costly, and preventable of all health problems in the U.S. BIDMC works closely with its licensed and/or affiliated community health centers to

address chronic conditions in the primary care setting. BIDMC has long supported programs in community care settings that educate and screen patients for diabetes, hypertension, and persistent asthma, and that provide evidenced-based counseling/coaching and treatment. These health centers served 4,635 diabetic patients; 15,338 with hypertension; and 2,102 with persistent asthma in FY 2016. Through partnership among the health centers and BIDMC and its clinicians, individuals needing specialty care can access care either on-site at the health centers from BIDMC specialists or at BIDMC's LMA campus.

BIDMC also supports access to cancer screening and treatment for low income, uninsured adults (breast, prostate, and colon cancers). Two of its affiliated health centers in Boston offer on-site mammography, and BIDMC offers free-colon screening for eligible health center patients. BIDMC's LungHealth™ Lung Cancer Screening Program has screened over 1,000 patients who are at risk for developing lung cancer and has coordinated follow-up care as appropriate. BIDMC also supports and promotes the city-wide Cancer Navigators program by hosting quarterly meetings, and links patients screened positive for cancer to BIDMC's Cancer Patient Navigators.

Behavioral Health

There is a growing appreciation of the impact that mental health and substance use disorders have on the general public and on the health care system. BIDMC, its clinicians and BIDMC's accountable care organization (BIDCO) are leading efforts to respond to the challenge of integrating medical and behavioral health care on several fronts. To address substance use in the community, BIDMC provides support to the inpatient detoxification program at The Dimock Center, has established a BIDMC Opiate Care Committee, and has implemented suboxone clinics at Bowdoin Street Health Center and at HealthCare Associates, BIDMC's primary care group practice.

1.5.2 Workforce Development

BIDMC is one of Boston's largest employers and is proud of the employment opportunities it provides. BIDMC's jobs that start at $15 an hour (with the exception of students), offer benefits, and are open to a broad spectrum of education levels. BIDMC has a robust internal career mobility program and has strong partnerships to connect Boston residents to BIDMC job opportunities.

BIDMC's Workforce Development Department was created in 2004 and has three objectives:

- Help departments hire into hard-to-fill jobs by developing "pipeline" programs to train BIDMC employees into those roles;
- Provide services and support to help all employees build careers at BIDMC; and

- As Boston's third largest private employer, make sure that people who live in communities near BIDMC connect to the job and career opportunities available at BIDMC.

BIDMC is considered a national leader in workforce development, and has been recognized locally and nationally for its work, including being featured in stories on CBS news and the Boston Globe, profiled as a best practice by the Hitachi Foundation and the National Fund for Workforce Solutions, and recognized for its work in this area by the City of Boston, the White House, Associated Industries of Massachusetts, the English Works Campaign, Jewish Vocational Service, and the MA Workforce Solutions Group.

Faced with shortages in key positions, BIDMC regularly runs programs to train incumbent workers into those roles, both filling the position with proven talent, and offering career growth for BIDMC employees. To date, 150 employees have moved to new roles as a result of a pipeline program. Those roles include nurse, research administrator, medical coder, central processing technician and registration specialist, among others.

In the process of offering some college-level training opportunities for employees, it became clear that many BIDMC employees were not quite ready to pursue college-level work. In 2007, BIDMC launched its Employee Career Initiative. Through this initiative, all BIDMC employees can access:

- free-on site pre-college courses in reading, English and math, and college-level science courses such as Biology and Chemistry;
- academic assessment on-site;
- a career and academic counselor;
- workshops on resources at BIDMC and elsewhere for financing one's education; and
- tutoring from volunteer BIDMC employees.

Now in its tenth year, 1252 employees to date have participated in this initiative. BIDMC also offers all employees the following opportunities: on-site ESOL classes, Computer Skills Classes, Scholarships, Tuition Reimbursement, a Financial Wellness program that includes three 1:1 sessions with a financial counselor, and a citizenship program.

BIDMC hires over 40 young people from the community each year into paid summer jobs. Organizations that refer these young people include: The Boston Private Industry Council/John D. O'Bryant School; ABCD Parker Hill; Brookline Connections for Youth; Bowdoin Street Health Center; MA Commission for the Blind; and The Mary Lyon Pilot High School in Boston, an inclusive school. BIDMC also hosts interns during the school

year from Sociedad Latina and participates in the Boston Public Schools' Annual Job Shadow Day.

BIDMC actively partners with Boston area community based organizations that are interested in connecting their job seekers to opportunities at BIDMC. BIDMC hosts about 20 internships a year from YMCA Training Inc., St. Mary's Center for Women and Children, Jewish Vocational Service (Transitions to Work program for young adults with disabilities) and Bunker Hill Community College's Learn and Earn program. BIDMC also partners with about 15 Boston organizations who refer about 100 job candidates to BIDMC annually.

BIDMC is also actively engaged in discussions on how to strengthen the local education and training system to better serve job seekers and employers. BIDMC's Director of Workforce Development is involved in a number of initiatives, including:

- founded, and from 2010 to 2017 chaired, the Boston Health Care Careers Consortium which convenes Greater Boston's healthcare employers, the education system and the workforce system to better connect job seekers to opportunities in health care;
- co-chairs the Greater Boston Chamber of Commerce's Talent Development and Retention Leadership Council;
- is an appointed member of the Boston Private Industry Council and the Massachusetts Workforce Development Board; and
- is the Chair of the Executive Committee of CareerSTAT, a national initiative encouraging health care employers to invest in their frontline workforce.

1.5.3 Contributions to Boston Economy and Permanent Employment

In addition to partnering with the community and the City in its community benefit programs, BIDMC directly contributes to the Boston economy. BIDMC is a large purchaser of goods and services, with approximately $100 million spent annually with Boston businesses. BIDMC and its licensed community health center annually provides more than $20,000,000 in charity care. BIDMC employs approximately 2,800 Boston residents as part of a diverse workforce of over 9,000 full-time and part-time employees.

1.5.4 Voluntary Cash Payments to the City of Boston

In addition to the monetary value of the community benefits and services and charity care discussed above, BIDMC makes annual voluntary cash payment in lieu of tax (PILOT) payments to the City of Boston Assessing Department for the City's general fund to help fund critical City services. BIDMC and its predecessor hospitals have made such payments beginning in the 1970s. During the first half of Boston's fiscal year 2018, BIDMC made a cash PILOT payment of $1,626,758.

1.6 Project Team

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Chapter 2

Project Description

2.0 PROJECT DESCRIPTION

2.1 Needs and Objectives

To respond to the challenges of capacity constraints, aging facilities and the increasingly acute, complex needs of its patients, in 2014, BIDMC undertook a campus-wide assessment to determine the condition of existing facilities and options for increasing inpatient capacity as well as increasing the number of single-bedded patient rooms. BIDMC engaged a nationally recognized healthcare architect to study the campus and produce recommendations for achieving BIDMC's specific future program needs and objectives, listed below:

- Increase the number of high-performing, family-friendly private rooms for patients;
- Provide state-of-the-art operating rooms, procedural suites, and imaging areas sized to meet the highest standards, house the most advanced equipment, and promote collaboration among staff;
- Leverage adjacencies and efficiencies by preserving and enhancing existing services and workflows;
- Locate similar types of cases together and create more efficient floor layouts to reduce operating costs;
- Retain flexibility to respond to changes in patient volume, patient/staffing needs, and the evolving health care environment; and
- Improve capacity to renovate existing clinical floors and procedural suites more efficiently in the future with modular, adaptable design.

Currently only 34% of BIDMC's medical/surgical beds are in single-bedded rooms. This is well below other Academic Medical Centers (AMC) in Boston. Patients and families continue to request private rooms and the seriously ill and often vulnerable patients and families BIDMC cares for have greater need for the quiet and respite of a single-bedded room than patients with less significant medical needs and other challenges. Singled-bedded patient rooms help reduce the incidence of hospital-acquired infection, improve patient sleep and reduce stress for patients and their families according to extensive medical research. Studies also show that greater privacy contributes to improved communication between patients and families and their health care providers, and increased patient satisfaction.

BIDMC's inpatient beds currently operate at or above 85% occupancy over 88% of the time. Operating rooms, diagnostic, procedural spaces, and healing and waiting areas are aged and undersized relative to market norms and DPH regulations for new facilities.

BIDMC's average age of facility since original building construction is 60 years, which is well above its AMC peers in the Boston area.

BIDMC's Boston campus is the referral center for the sickest patients being cared for by BIDMC's network of health care providers. In addition to patient and family-friendly medical/surgical and intensive care beds, the Project will include the development of state-of-the art operating rooms and procedure rooms using the latest technology and standards. Multidisciplinary teaching spaces will also be incorporated into the patient floor design to support BIDMC's academic mission of training the clinicians and physicians of the Harvard Medical School and allied health care providers.

2.1.1 Alternatives Analysis

An analysis was conducted to determine the best approach to meeting BIDMC's Needs and Objectives. Three options emerged from this analysis:

1. Renovations to existing space;

2. Building off-campus; and

3. Building on-campus.

Renovation of the existing space was determined to be infeasible given the limited options on-campus. The footprints of existing buildings do not provide adequate space for renovations in order to comply with current Department of Public Health (DPH) guidelines without significant loss of medical/surgical beds and reduced clinical capacity as well as multiple, expensive and disruptive relocations of existing patient services to allow for such renovation. Existing floor-to-floor heights do not allow for continuing improvement to above ceiling utilities and infrastructure for future technological advances.

Off-campus locations were economically inefficient because building off-site would require the acquisition of new land and duplication of numerous existing campus support services in the off-campus location.

Other on-campus building sites were evaluated to determine the feasibility of building on-campus. The location of the selected Project site will allow BIDMC to meet its defined objectives for new and expanded inpatient facilities in the most cost effective and efficient manner, with as little disruption as possible to ongoing operations during construction.

The Project and its location adjacent to the Rosenberg Building, BIDMC's most recent and best inpatient clinical facility, will allow the Project's new inpatient facilities and services to be interconnected and integrated with the existing inpatient services in Rosenberg (including the Emergency Department with its level 1 trauma center) and the interconnected Farr Building complex. This integration will enhance and improve the

existing West Campus inpatient services and will allow for shared and efficient use of clinical support services.

The adjacencies of the New Inpatient Building to the Emergency Department and Rosenberg operating rooms will also provide connectivity to allow rapid movement of patients under cover from Rosenberg to patient rooms in the Project. Patients will be able to move from the Emergency Department or operating rooms in Rosenberg to inpatient beds in the New Inpatient Building more quickly, safely and efficiently, allowing more throughput in the Emergency Department which will help to alleviate overcrowded conditions in the Emergency Department. The proximity of the New Inpatient Building to the Rosenberg and Farr Buildings and the interconnections to these West Campus buildings will also provide operational efficiencies by allowing the Project to share clinical support services, such as pharmacology, radiology, dietary, and pathology, with the existing inpatient program in Rosenberg and Farr.

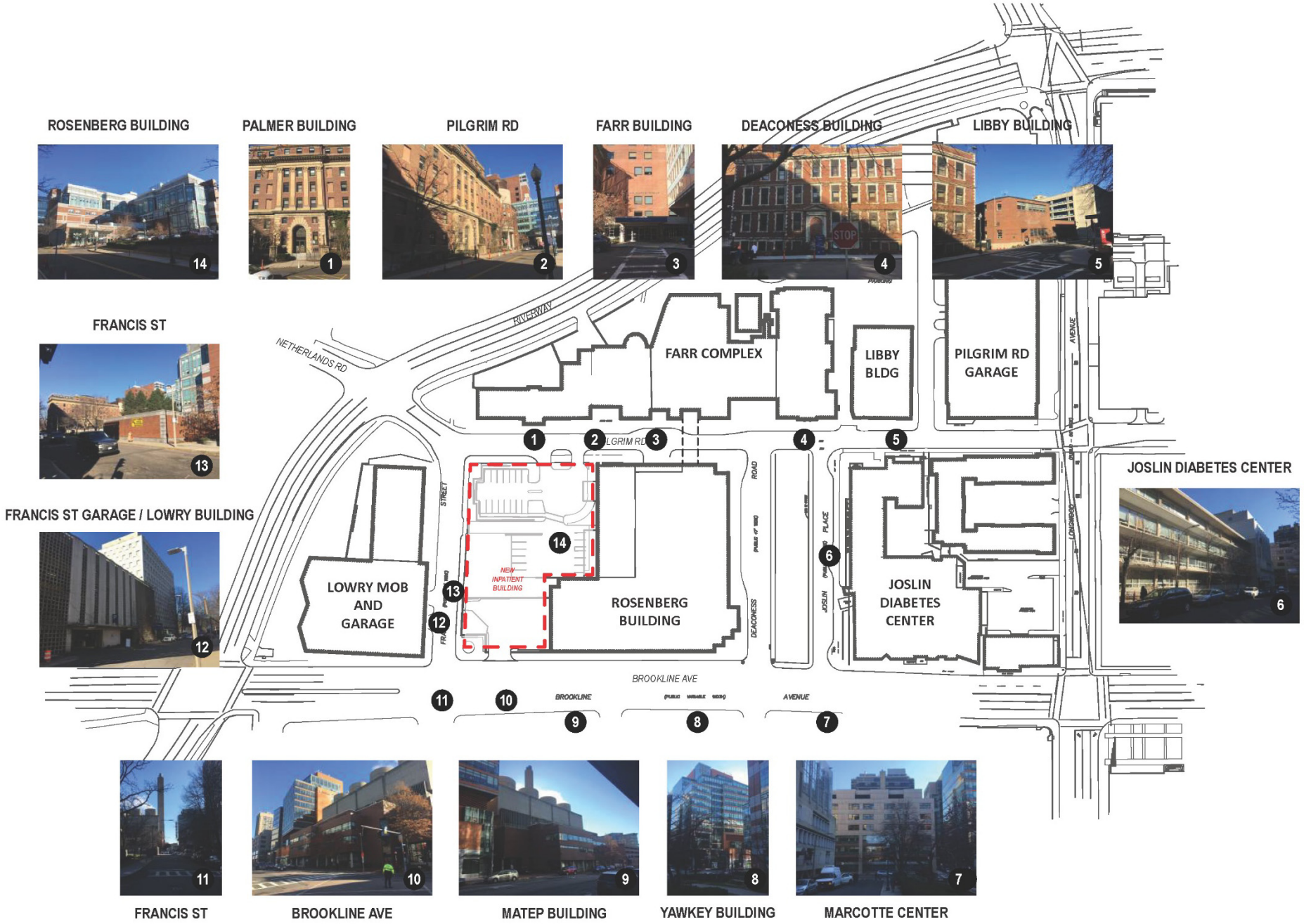
In addition, the New Inpatient Building will add to BIDMC's climate resilience. BIDMC recognizes its importance as a critical facility that needs to provide uninterrupted healthcare services to the City and the region. The Project design will incorporate systems that will allow the building to be resilient to future climate change impacts, as discussed in Section 3.16.3, as well as incorporating measures to decrease the Project's impact on climate change.

2.2 Proposed IMP Project

2.2.1 Project Site

The Project site is located on BIDMC's West Campus, and is bound by Brookline Avenue, Francis Street, a discontinued portion of Pilgrim Road owned by BIDMC, and the Rosenberg Building (see Figure 2-1 and Appendix A). The approximately 42,700 sf site currently includes the Emergency Department patient drop-off, ambulance entrance, main West Campus loading facility (Main Loading Facility) and West Campus oxygen tanks. As described above, the Project site was chosen for development of the New Inpatient Building because it is adjacent to the existing West Campus inpatient services that need to be expanded, and the efficiencies and enhancement of existing services that will be created through the interconnection and integration of the New Inpatient Building Project to the Rosenberg and Farr buildings. The Project site is largely unbuilt, which will avoid the disruptive and expensive relocation of existing hospital programs during construction.

In order to ready the site for redevelopment, BIDMC is in the process of completing four enabling projects in order to move the critical functions currently on the site to other locations during construction. The Emergency Department pedestrian entrance will be temporarily relocated to Deaconess Road and the ambulance entrance will be temporarily relocated to Pilgrim Road. These Emergency Department entrances are expected to be



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC IMPNF/PNF

Figure 2-1

Site Context and Photographs

returned to their current locations and incorporated into the ground floor design of the Project. The Main Loading Facility will be temporarily relocated to the rear of the Libby Building, while the oxygen tanks will be permanently relocated to the small surface parking lot (the Clicker Lot) behind the Libby Building. As part of the ground floor design of the New Inpatient Building, the Main Loading Facility will be returned to its existing location off Brookline Avenue where it ties into existing materials management infrastructure in the Rosenberg Building that will continue to serve the West Campus as well as the New Inpatient Building.

2.2.2 New Inpatient Building

The Project includes the construction of a 10 story inpatient clinical building on BIDMC's West Campus that will include up to 345,000 sf of gross floor area (as defined in the Zoning Code). The Project will be up to 200 feet tall with a ground level footprint of approximately 32,000 sf of enclosed space. The building will extend over an additional area of approximately 20,000 sf of area that will be open at the ground level along Pilgrim Road. The majority of this covered exterior space will be used for vehicular patient drop-off and/or ambulance arrival space. The Project will house a range of clinical inpatient programs and inpatient beds (both intensive and acute care), operating and procedure rooms, as well as a range of support services and other functions ancillary to those clinical inpatient programs, conference space and a helipad on the roof (which will be relocated from the immediately adjacent Rosenberg Building). The Project contemplates inclusion of up to 158 inpatient beds (up to 128 medical/surgical and 30 intensive care beds) within that facility. However, only 69 of those beds will be additive to the overall BIDMC bed count that will exist at the time the New Inpatient Building opens (i.e., "net new"), as BIDMC anticipates closing some West Campus beds at the opening of the New Inpatient Building. Additionally, BIDMC anticipates reopening 20 beds by the end of 2024 within existing West Campus facilities. Overall, BIDMC anticipates that up to 89 net new patient beds will be brought on-line in connection with the Project on the West Campus during the term of the amended IMP. No ambulatory (outpatient) services are proposed as part of the Project. Figures 2-2 to 2-16 at the end of this chapter include elevations, floor plans and sections.

The Project will be designed for the evolving needs of the patients BIDMC serves, with the flexibility to adapt in the future. The Project will include family-friendly, single-bedded patient rooms able to accommodate the sophisticated technology needed to best treat critically ill patients. New, state-of-the-art operating rooms will be large enough to support the latest imaging and other surgical equipment. BIDMC's design goal for the overall Project is to incorporate sustainable and evidence-based concepts to improve clinical outcomes, cost-efficiencies and decrease environmental impacts.

The Project site at the corner of Brookline Avenue and Francis Street makes it an important gateway into the LMA for arrivals from the southeast. The building massing and material palette will be developed to create a strong sense of arrival into the LMA, and to signify the important role that BIDMC plays in serving the Boston community.

It is expected that the Project will maintain the existing configuration of the sidewalk along Brookline Avenue and Francis Street in terms of width and materials. Opportunities are also being explored to relocate the small existing open space at the corner of Brookline Avenue and Francis Street to a new, mid-block location at the interface between the Rosenberg Building and the proposed Project. The relocation of this open space would shift this pedestrian amenity to a location closer to current pedestrian activity with the goal of better integrating the open space into the pedestrian environment. Additional opportunities to physically juxtapose landscaped elements with the pedestrian realm will be explored as the Project design progresses. In addition, a new roof garden is being considered for the space between the Rosenberg Building and the New Inpatient Building on the sixth floor. Lighting of the pedestrian realm (including sidewalks, landscaped areas and adjacent building walls) will also be carefully studied and designed to provide an enhanced experience as visitors navigate the site.

The Project will connect to the Farr Bridge and the Rosenberg Building in multiple locations in order to provide convenient access and circulation for patients, families and staff (see Figure 2-15 at the end of this chapter). No demolition of existing buildings will be required for the Project. Construction of the Project will result in the elimination of 26 existing parking spaces currently accessed from Pilgrim Road, and 12 parking spaces in the Clicker Lot; no new parking is proposed as part of the Project.

The Project will be similar in height to other major buildings in the immediate vicinity, including the Farr Building at 185 Pilgrim Road (+/-190 feet) and Dana-Farber Cancer Institute's Yawkey Center for Cancer Care (+/-186 feet) located at 450 Brookline Avenue across the street from the Project site. The height of the proposed building coupled with its close proximity to the Rosenberg Building will require the relocation of BIDMC's existing helipad from the roof of the Rosenberg Building to the roof of the New Inpatient Building.

2.2.3 Schedule

Construction will begin at the receipt of all necessary approvals (anticipated to be in 2019), with operations starting in the fourth quarter of 2022.

2.3 New Inpatient Building Public Benefits

As discussed in Section 1.5, BIDMC provides significant public benefits to the surrounding community and City of Boston, including, but not limited to, increasing access to care, promoting healthy living, addressing multiple forms of violence experienced in people's lives, creating employment opportunities and workforce development, and contributing

economic benefits. The Project will enhance these programs, services and contributions, and will also provide additional Project-related benefits, including:

- Creating a new architecturally distinguished building at the gateway from the south to BIDMC's campuses on Brookline Avenue and the LMA generally;
- Providing new and enhanced in-patient clinical facilities needed to serve seriously ill Boston area residents now and in the future;
- Enhancing the pedestrian experience on Brookline Avenue and Francis Street;
- Creating approximately 80 to 100 new full-time equivalent permanent jobs during operation of the Project, and approximately 400 construction jobs per day during construction; and
- Providing housing linkage and job linkage contributions as provided in Article 80B as applicable.

2.4 Zoning

2.4.1 Existing Zoning Controls

As described in Section 1.3, BIDMC has two main campuses located in the LMA on opposite sides of Longwood Avenue. The East Campus, located to the east of Longwood Avenue, is located in the Beth Israel Deaconess Medical Center Institutional District East governed by Article 70 of the Zoning Code. The West Campus, located to the west of Brookline Avenue, is located in the Beth Israel Deaconess Medical Center Institutional District West governed by Article 72 of the Zoning Code. Both the East and West campuses are also located within the Restricted Parking Overlay District adopted pursuant to Section 3-1A.c of the Zoning Code. In addition, the East Campus only is located in the Groundwater Conservation Overlay District adopted pursuant to Section 3-1A of the Zoning Code.

The BIDMC IMP Area, as initially created by Map Amendment No. 435 which became effective June 28, 2004, covers both the East and West campuses and a non-contiguous parcel to the northeast at 99 Brookline Avenue on which BIDMC's Research North Building is located. As discussed in more detail in Section 1.4.1, the BIDMC IMP was originally approved in 2004, and describes the existing uses, structures, and activities within the IMP Area, along with future needs, leasing activities, master planning objectives, and proposed construction projects over the term of the BIDMC IMP. The BIDMC IMP was renewed for an additional term of five years in 2009, and subsequently amended to include a new project known as the Bowdoin Street Health Center Addition Project in 2013. At this time, Zoning Map Amendment No. 579 expanded the boundaries of the BIDMC IMP Area to include the site of BIDMC's Bowdoin Street Health Center at 230 Bowdoin Street and its two ancillary parking lots located at 3-5 Bowdoin Park and 133-137 Hamilton Street. A plan

showing the components of the BIDMC IMP Area is shown on Figure 2-17. The IMP was renewed for an additional term of five years in 2014, and IMP updates have been provided every two years (most recently in 2016) as required by the Zoning Code.

As described in Section 2.2, the Project is located on BIDMC's West Campus on a site bounded by Brookline Avenue, Francis Street, Pilgrim Road, and the Rosenberg Building. The site is approximately one acre in area, and currently includes the ambulance and Emergency Department entrances, surface parking for the Emergency Department, oxygen tanks and the Main Loading Facility serving the West Campus. The current BIDMC IMP describes an approved IMP project consisting of a 25,000 sf addition to the Rosenberg Building to be located at the eastern side of the Project site (referred to as the West Clinical Center Addition project). As noted in the 2016 IMP Update and described above, BIDMC has a pressing need for new and expanded inpatient clinical facilities to meet the needs of its patients, and the Project is being proposed as a replacement for the small West Clinical Center Addition project.

2.4.2 Proposed Zoning Controls and Review Procedure

BIDMC is submitting this IMPNF/PNF, and will subsequently file an IMP Amendment and Draft Project Impact Report (DPIR), to describe the Project and include the Project in the BIDMC IMP under Article 80D, as well as to proceed through Large Project Review for the Project pursuant to Article 80B. The IMP Amendment will also seek an extension of the term of the IMP for five years beyond the effective date of the IMP Amendment following its approval by the Boston Zoning Commission. Since the Project site is within the BIDMC IMP Area, no Map Amendment or other change to the IMP Area is required in connection with the Project.

As described above, the Project includes construction of a new inpatient building to house a range of clinical inpatient programs, including inpatient beds (both intensive and acute care), operating and procedure rooms, ancillary clinical services, clinical support services, conference space, a medical helicopter landing pad on the roof (which will be relocated from the Rosenberg Building), and related hospital subuses. No new parking spaces will be created. The building will include up to 345,000 sf of gross floor area (as defined in the Zoning Code), which will increase the BIDMC LMA Campus-wide FAR to approximately 3.79 upon completion of the Project. The building will contain 10 stories and will measure up to 200 feet in height to the top of the highest occupied floor (the mechanical penthouse and equipment may be located on the roof, as will the helipad, and together roof structures will not cover more than one-third of the roof). The concept plans included in this IMPNF/PNF, which will be further refined upon filing of the IMP Amendment and DPIR, show additional features and dimensions of the building.

The IMP Amendment will include additional and updated information about BIDMC's uses and facilities, zoning, leasing activities, IMP-exempt renovations and small projects, and

related campus matters addressed in the BIDMC IMP, but will not include any new IMP projects other than the Project described herein.

2.4.3 Effect of Approval of the IMP Amendment

Pursuant to Article 80D of the Zoning Code, upon approval of the BIDMC IMP Amendment by the BPDA and its adoption by the Boston Zoning Commission, existing uses and structures and IMP projects described in the BIDMC IMP, as amended, shall be permitted and deemed to be in compliance with the use, dimensional, parking, and loading requirements of underlying zoning (including special purpose overlay districts), notwithstanding any provision of underlying zoning to the contrary and without the requirement for further zoning relief. Such approvals shall apply whether such uses or structures are conducted or occupied by BIDMC or any other entity, whether for-profit or non-profit. Specifically, approval and adoption of the BIDMC IMP Amendment will constitute approval of the uses and structures included in the Project as described therein.

2.5 Anticipated Permits and Approvals

Table 2-1 includes a preliminary list of local, state and federal permits and approvals that may be required for the Project. This list is based upon current information about the Project, and is subject to change as the design and program of the Project evolves. Some of the permits and approvals listed may not be required, while there may be others not listed that will be needed.

Table 2-1 Anticipated Permits and Approvals

Agency Name	Permit / Approval
Local	
Boston Planning and Development Agency	Article 80 Large Project Review and ancillary documents (including a Cooperation Agreement, Development Impact Project Agreement and Boston Residents Construction Employment Plan) Institutional Master Plan Review
Boston Civic Design Commission	Design Review
Boston Transportation Department	Transportation Access Plan Agreement Construction Management Plan
Boston Water and Sewer Commission	Water and sewer connection permits Construction Dewatering Permit, if required
Boston Zoning Commission	Institutional Master Plan Amendment Approval
Boston Fire Department	Site Access Plan and other required permits

Table 2-1 Anticipated Permits and Approvals (continued)

Agency Name	Permit / Approval
Local (continued)	
Boston Committee on Licenses / Public Safety Commission	Fuel Storage Permit
Boston Parks and Recreation Department	Review of construction within 100 feet of a park
Public Improvement Commission	Specific Repair Plan approval and License for changes to the public right of way, if required
Public Works Department	Curb cut and street/sidewalk opening permits
Inspectional Services Department	Building and occupancy permits
State	
Department of Public Health	Determination of Need and plan approval
MEPA Unit, Executive Office of Energy and Environmental Affairs	MEPA review
Department of Environmental Protection	Air quality and groundwater discharge permits, if required
Massachusetts Historical Commission	Determination of No Adverse Effect
Massachusetts Water Resources Authority	Construction dewatering permit, if required
Federal	
U.S. Environmental Protection Agency	NPDES General Permit for dewatering and Stormwater Discharge Permit, if applicable
Federal Aviation Administration	Determination of no hazard to air navigation, if required for construction cranes

2.6 Legal Information

2.6.1 Legal Judgments Adverse to the Proposed Project

To the Proponent's knowledge, there are no legal judgments or actions pending concerning the Project or the Project site.

2.6.2 History of Tax Arrears on Property

No property owned in the City of Boston by the Proponent is in tax arrears to the City of Boston.

2.6.3 Site Control/Public Easements

BIDMC owns the Project site. There are two public easements on or adjacent to the Project site, one adjacent to Brookline Avenue on the easterly side of the Project site, and the other

in the discontinued area of Pilgrim Road owned by BIDMC adjacent to the westerly boundary of the site, summarized as follows:

- There is an easement for public pedestrian passage within an easement area 10 feet wide and approximately 391 feet long that extends along the westerly sideline of Brookline Avenue from Deaconess Road to Francis Street, on land owned by BIDMC. This easement was granted in connection with the development approvals for the Rosenberg Building and the West Campus Main Loading Facility by BIDMC's predecessor to the City of Boston to allow for the widening of Brookline Avenue. A portion of the easement area extends along the eastern boundary of the Project site. Design plans for this area have not yet been finalized, but the pedestrian sidewalk will be maintained in this location.

- BIDMC owns a discontinued area of Pilgrim Road from Deaconess Road to Francis Street, a portion of which extends along the western boundary of the Project site. Pursuant to the easement agreement referenced immediately above, BIDMC is obligated to maintain and repair a paved right of way at least 12 feet wide within the discontinued area for public safety and Boston Police and Fire Department access. Design plans for this area have not yet been finalized, but BIDMC will maintain at least 12 feet of paved, clear passage in this area for such purposes.

2.7 Consistency with LMA Guidelines

The BRA adopted the LMA Interim Guidelines in 2003 to inform the BRA's consideration of development within the LMA prior to completion of a master plan for the area. The Guidelines provide direction on such matters as urban design, dimensions of buildings, uses, transportation, and benefits. The Project will be consistent with the Guidelines in the following ways:

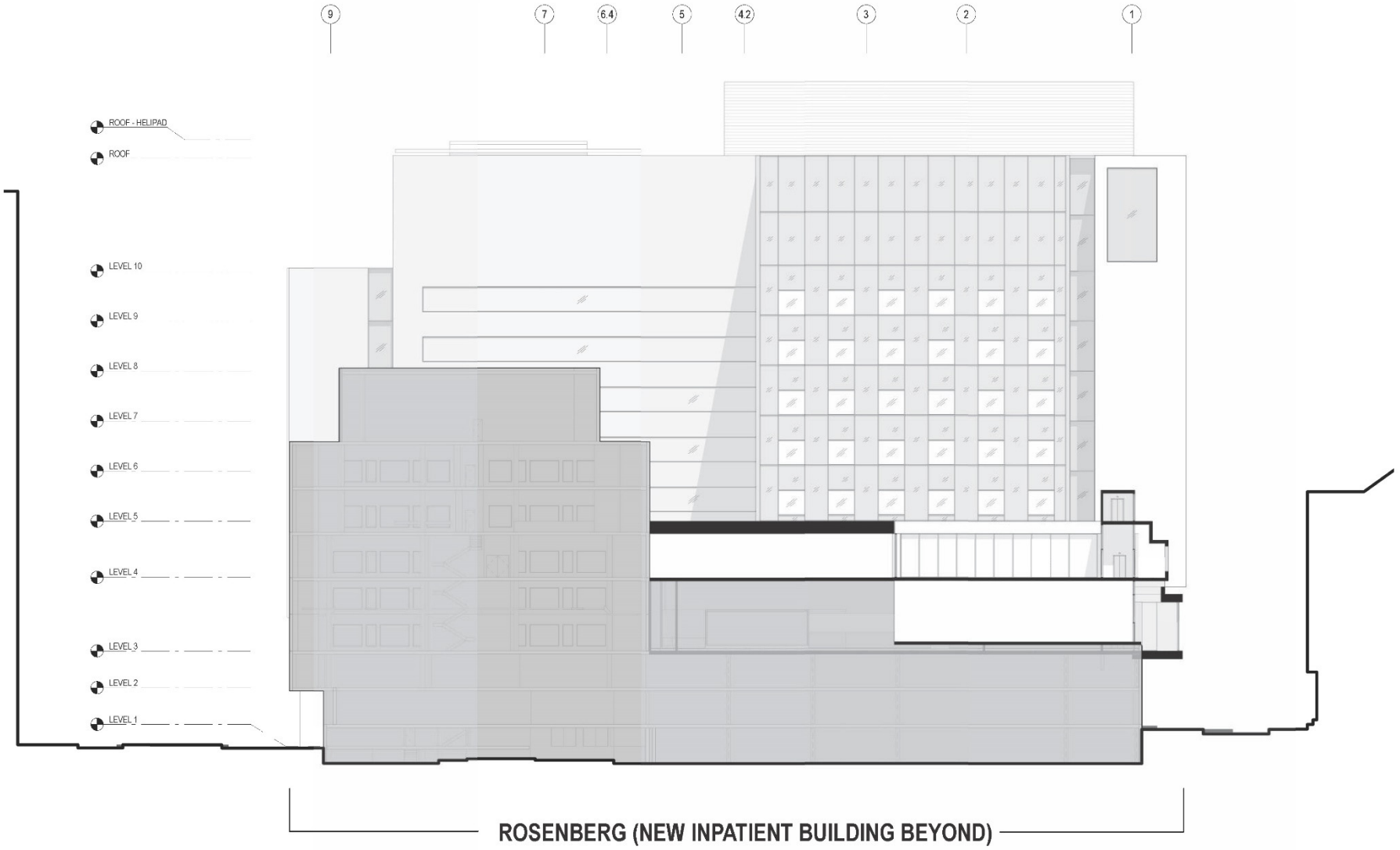
- The Project site is in a height zone which allows a potential maximum height of 205 feet with the provision of exceptional public benefits such as workforce development programs and exceptional quality in design and architecture. Through the thoughtful development of the building massing and articulation, the careful selection of materials and the detailed consideration of how people experience the building at multiple scales and from multiple perspectives, the Project will provide an exceptional level of design and quality for the entire LMA community.

- As further described in Section 1.5.2 above, BIDMC is a leader in workforce development including an exceptional internal career mobility program, training internships, job and career introductory opportunities for students, ESOL classes, career and academic counseling and other programs to help connect people who live in communities near BIDMC connect to the job and career opportunities at BIDMC.

- The Project includes no new parking spaces, and will enhance the pedestrian experience. The Project will also include a robust Transportation Demand Management (TDM) program.

- The Project will reinforce the distinctive characteristics of BIDMC's West Campus and its environs, in particular the adjacent Rosenberg Building, with ground-level off-street loading and service facilities and Emergency Department arrival space to facilitate vehicle movements in this area, multiple connections to the Rosenberg Building, massing that relates to and enhances the existing conditions on the West Campus and its vicinity, and other design features.

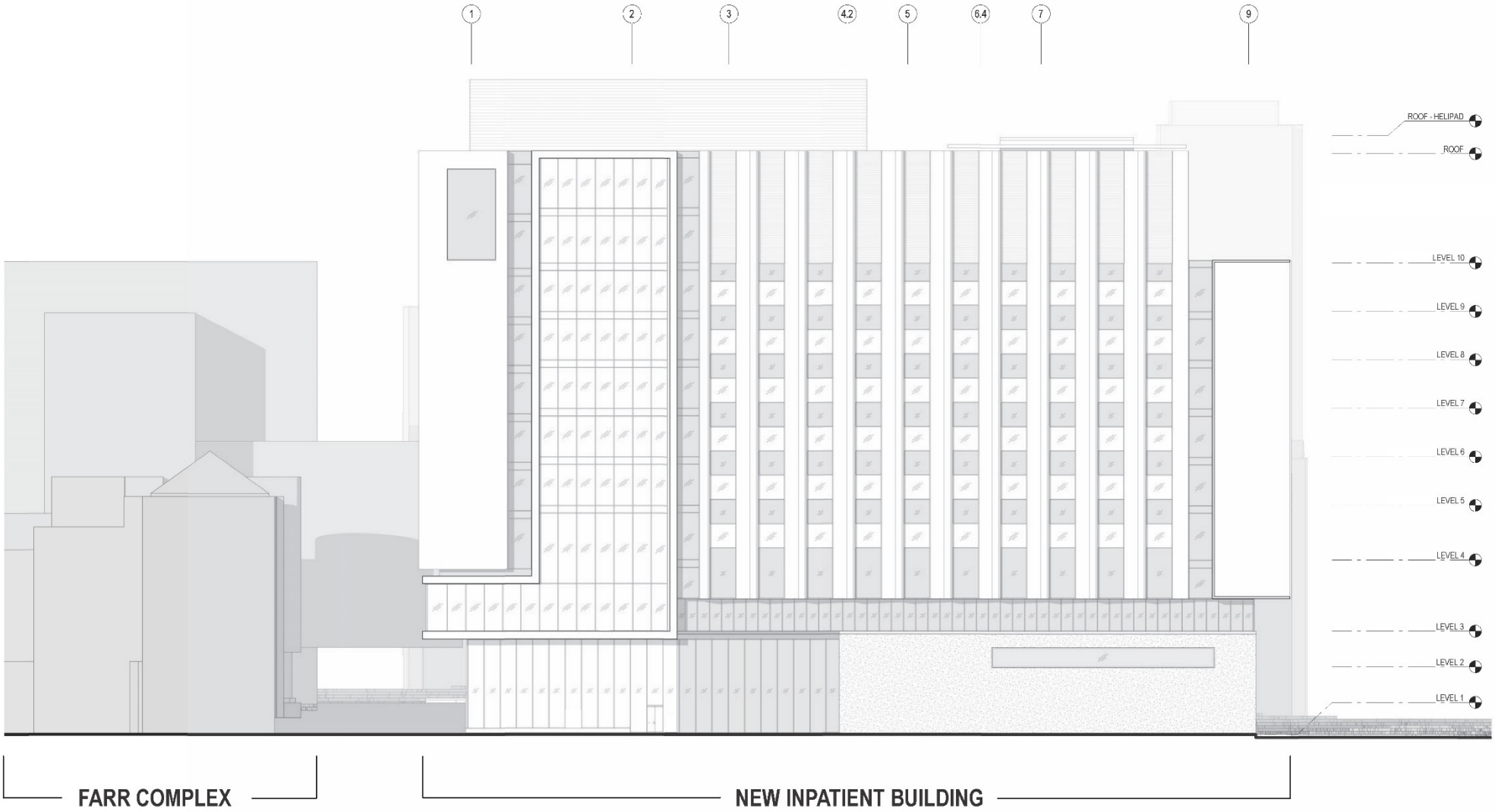
The DPIR will include additional information on consistency with the Guidelines.



Beth Israel Deaconess Medical Center

PAYETTE

Figure 2-2
North Elevation



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BIDMC IMPNF/PNF

Figure 2-3
South Elevation

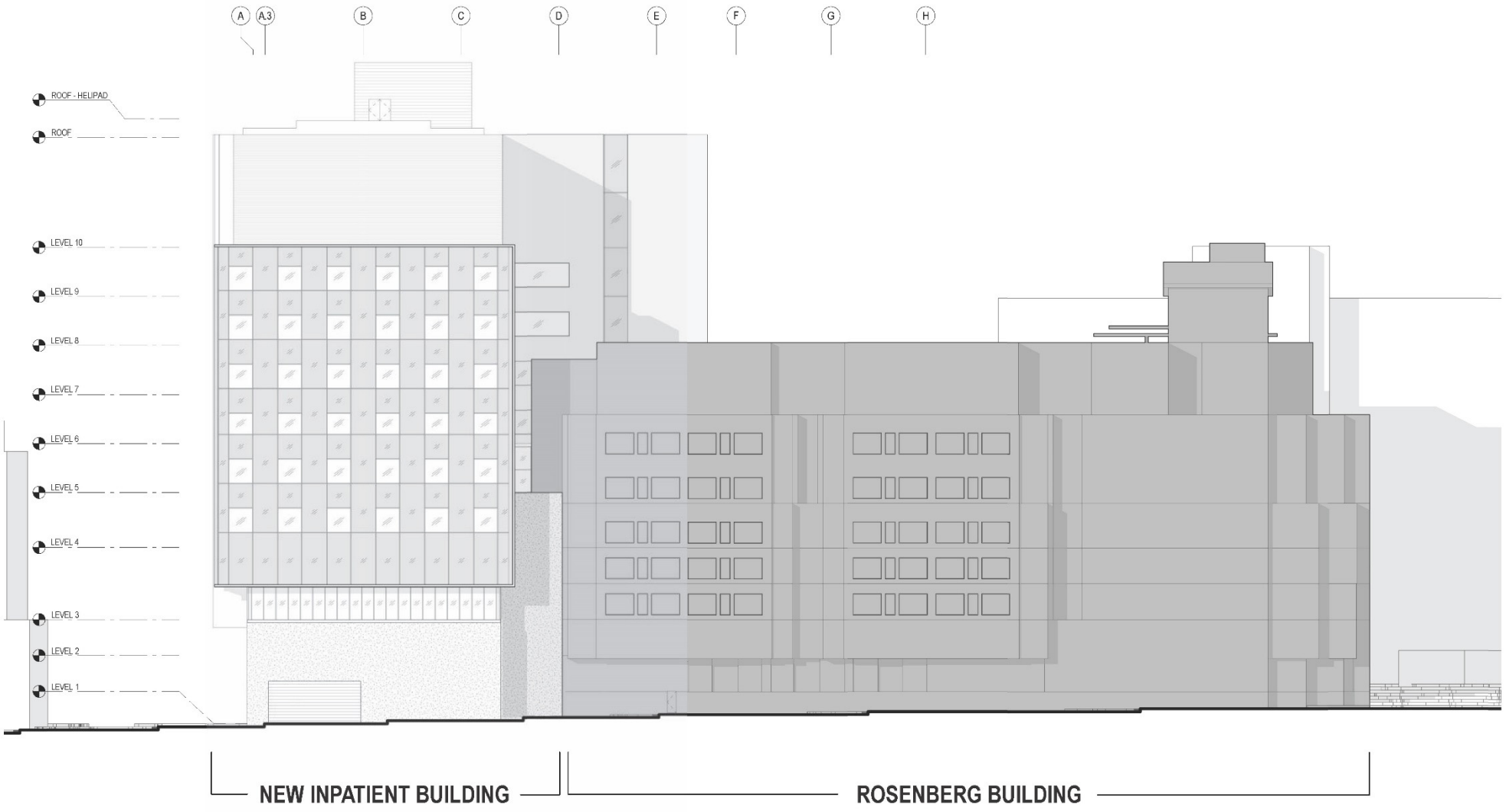

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Figure 2-4
East Elevation

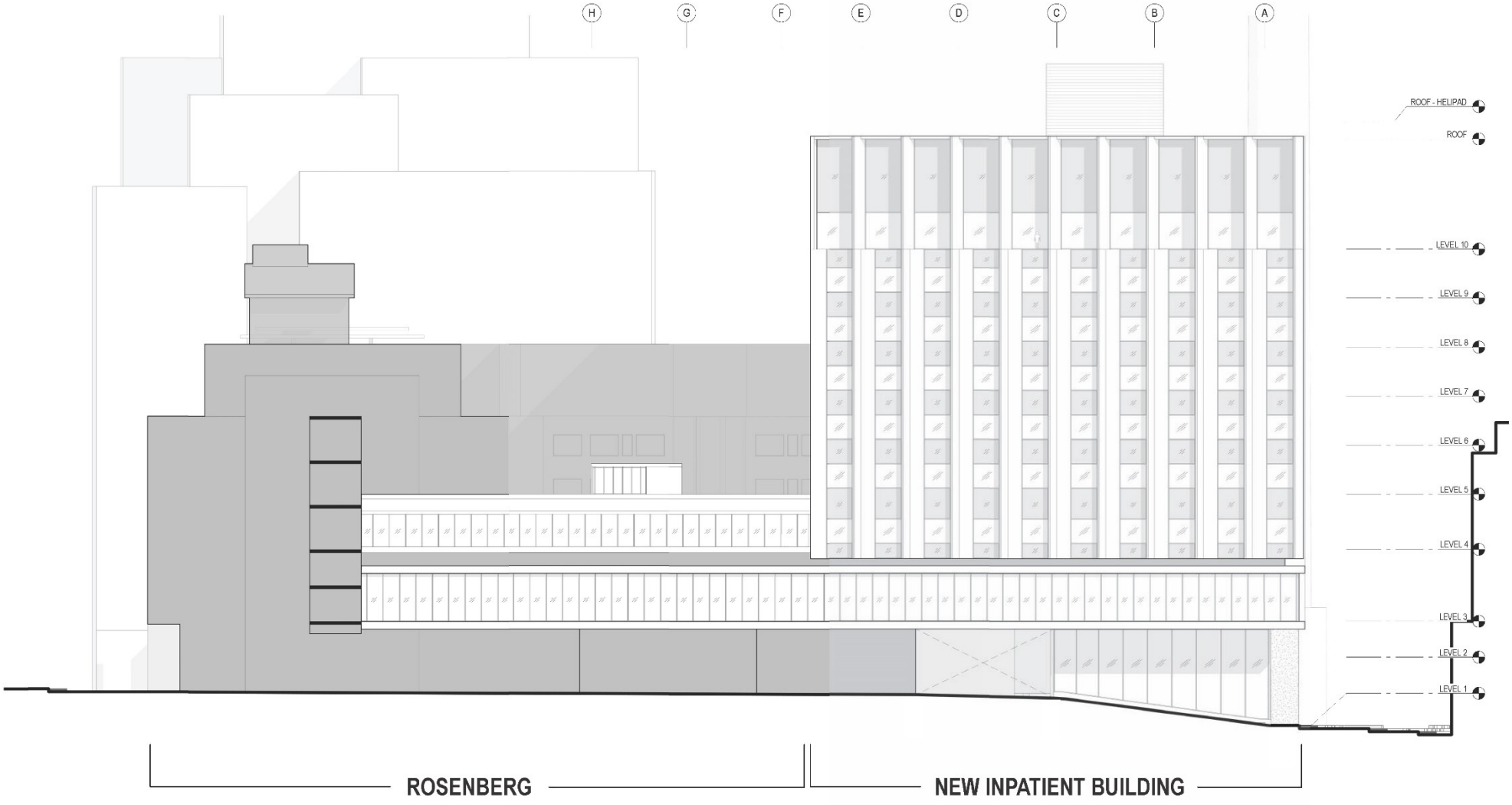

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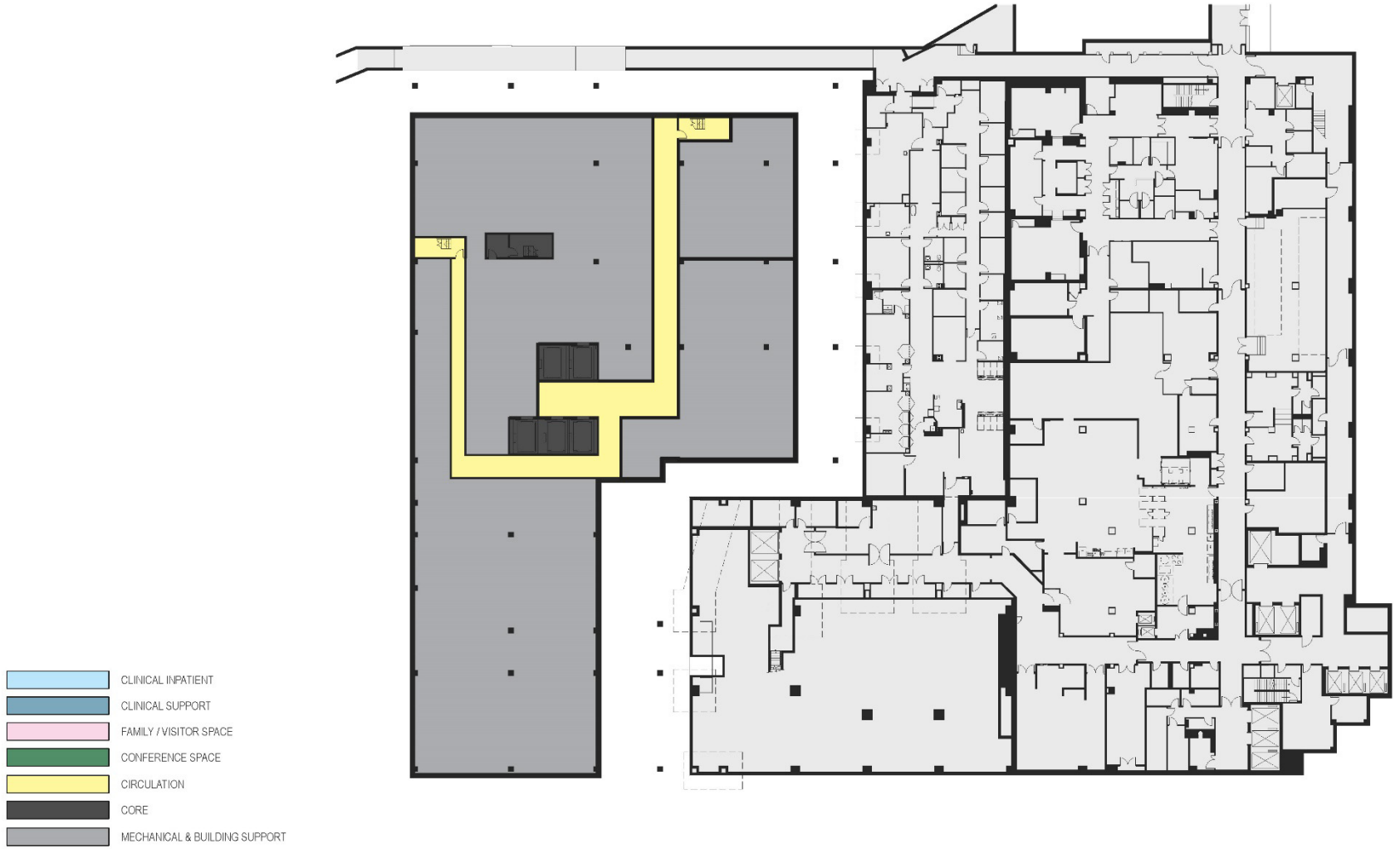
Figure 2-5
West Elevation



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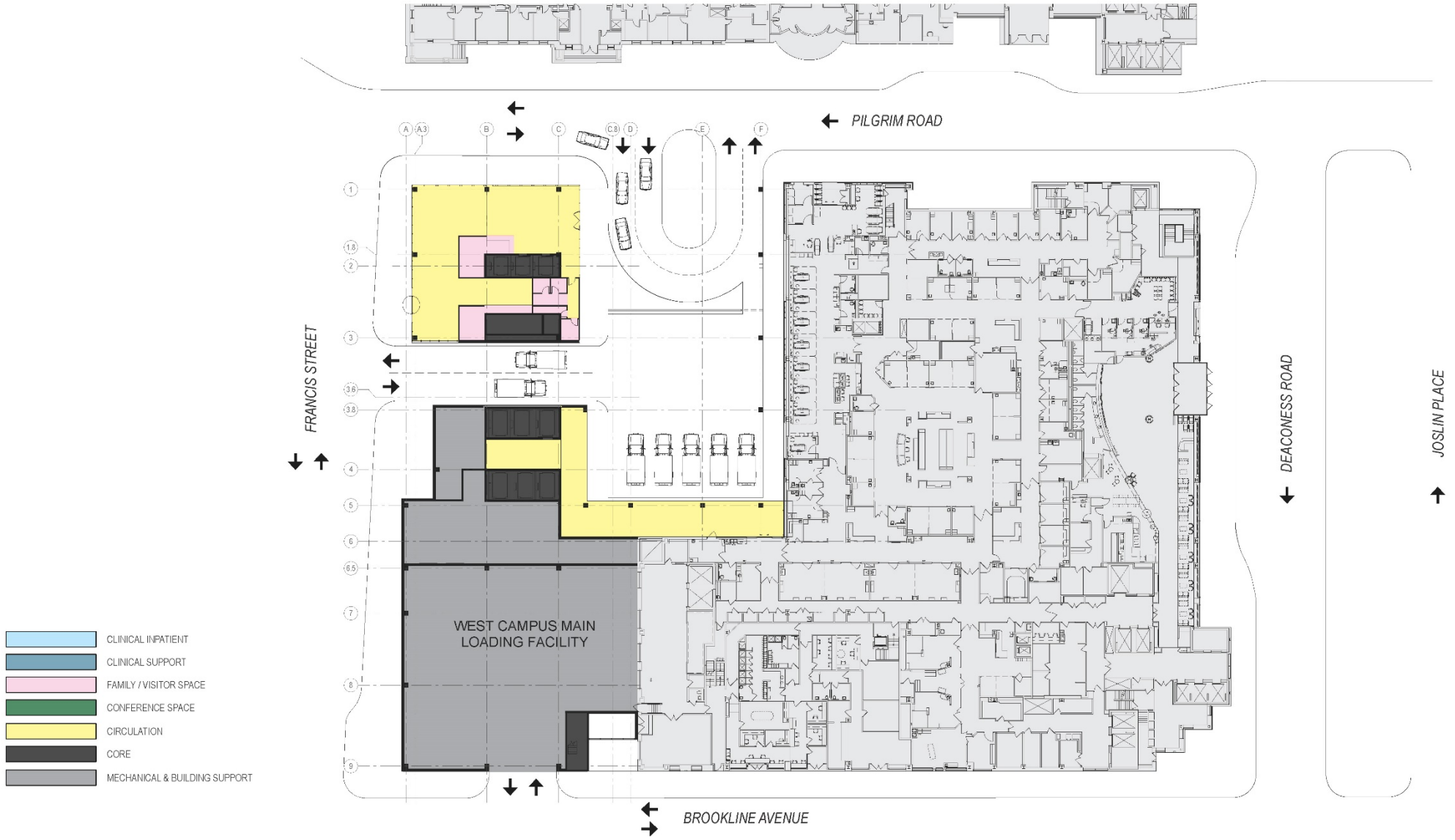
BIDMC IMPNF/PNF

Figure 2-6
Basement Plan



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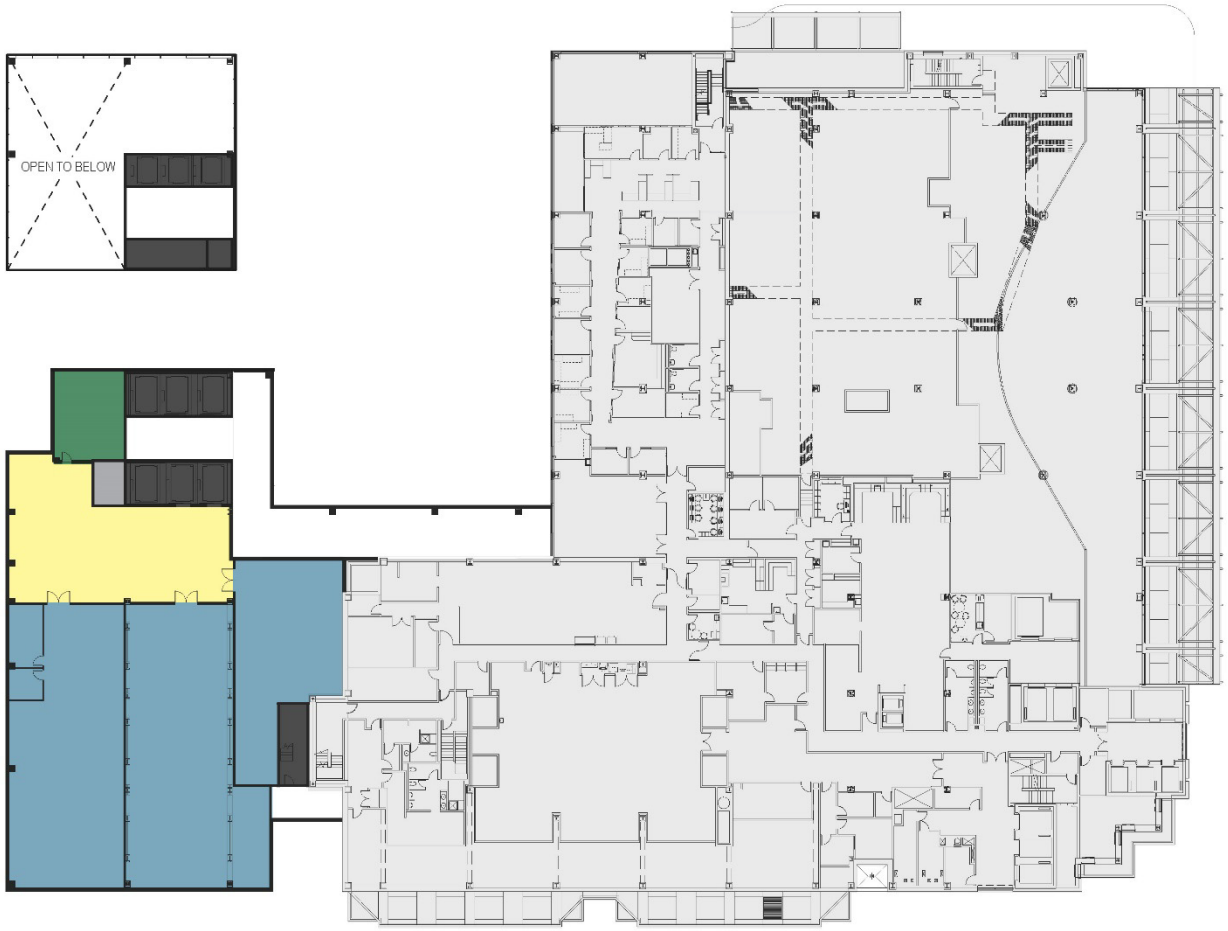
BIDMC IMPNF/PNF

Figure 2-7

Level 1 Plan and Site Access



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BIDMC IMPNF/PNF

Figure 2-8
Level 2 Plan

CLINICAL INPATIENT
CLINICAL SUPPORT
FAMILY / VISITOR SPACE
CONFERENCE SPACE
CIRCULATION
CORE
MECHANICAL & BUILDING SUPPORT

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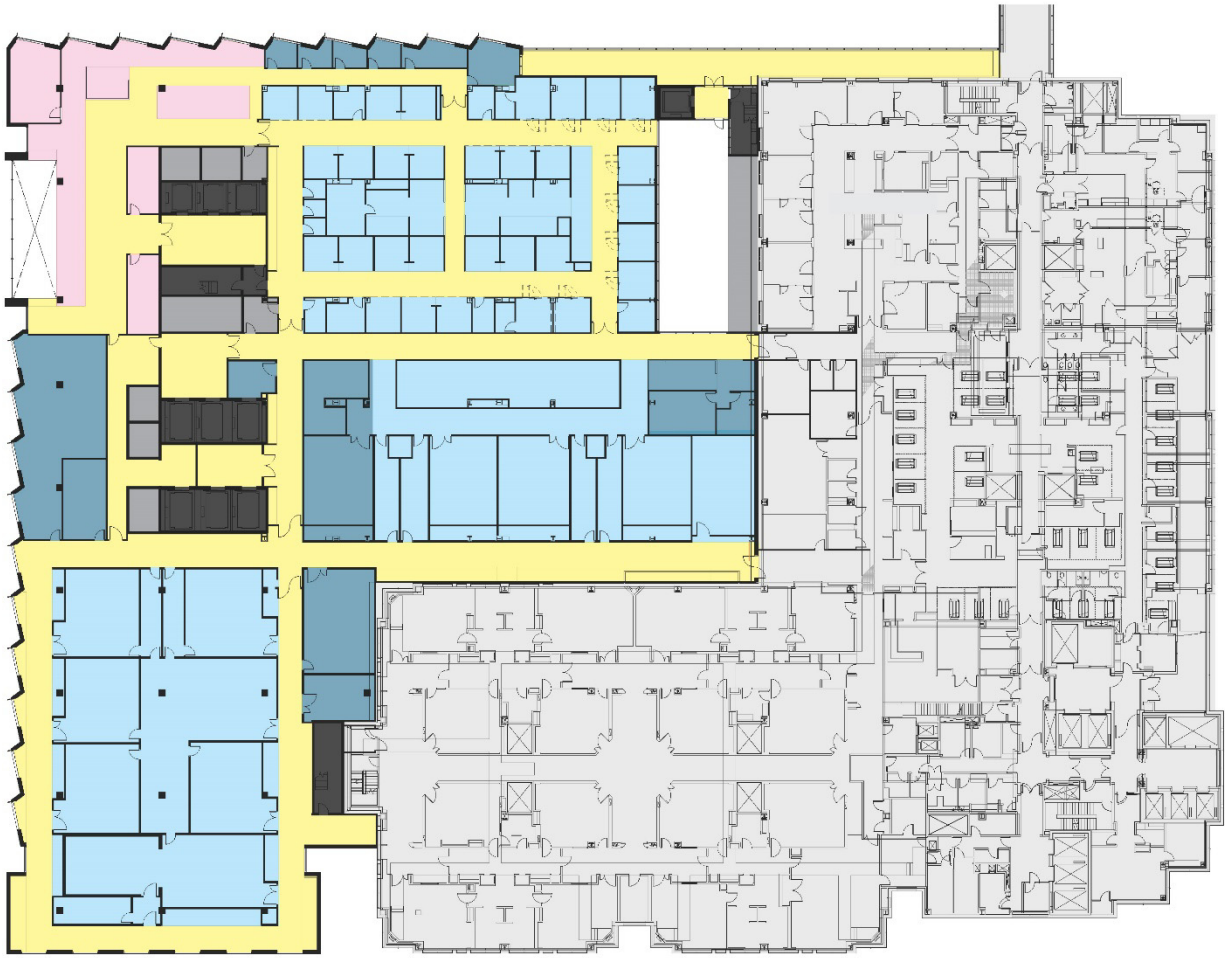
BIDMC IMPNF/PNF

Figure 2-9
Level 3 Plan



CLINICAL INPATIENT
CLINICAL SUPPORT
FAMILY / VISITOR SPACE
CONFERENCE SPACE
CIRCULATION
CORE
MECHANICAL & BUILDING SUPPORT

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Figure 2-10
Level 4 Plan

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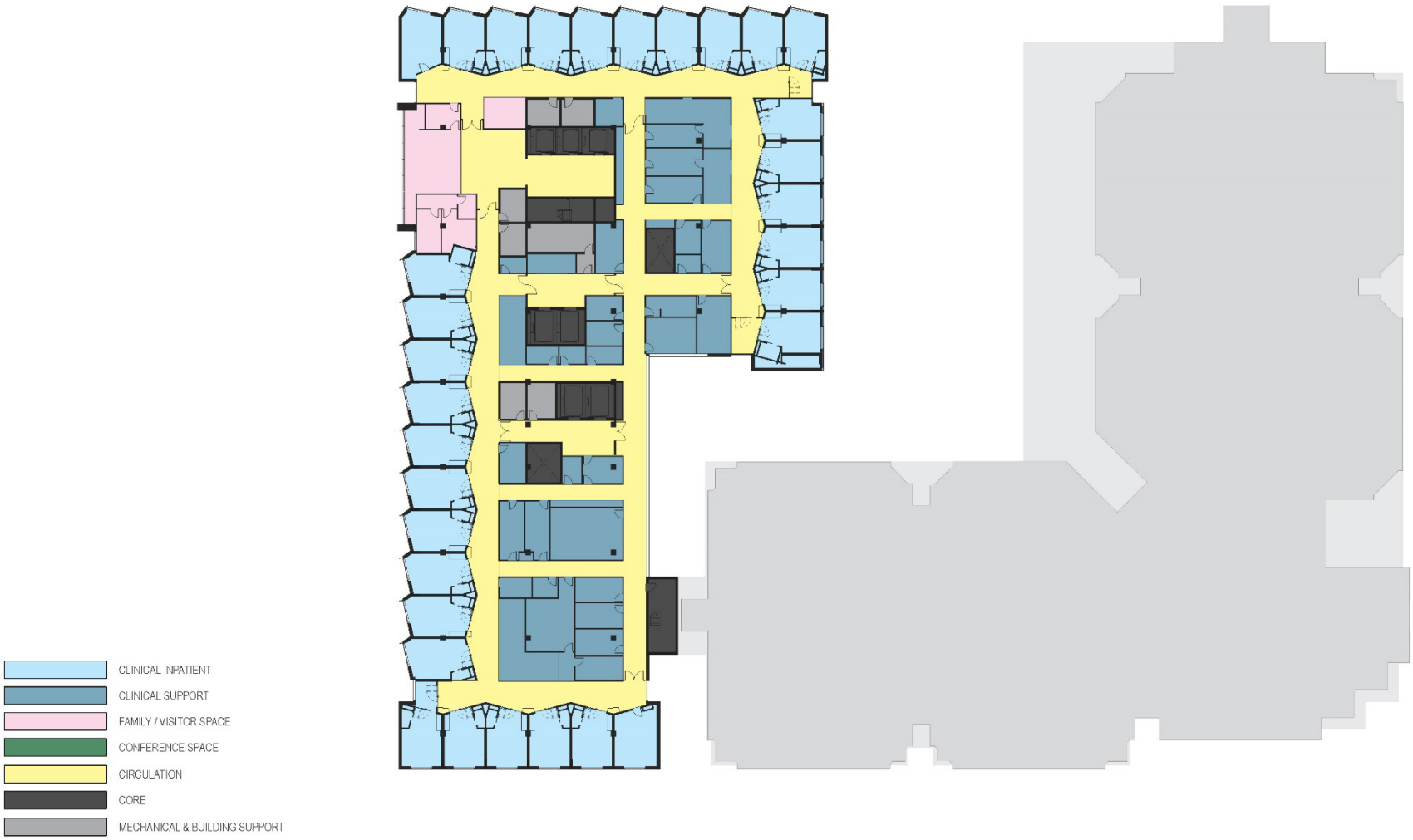
BIDMC IMPNF/PNF

Figure 2-11
Level 5



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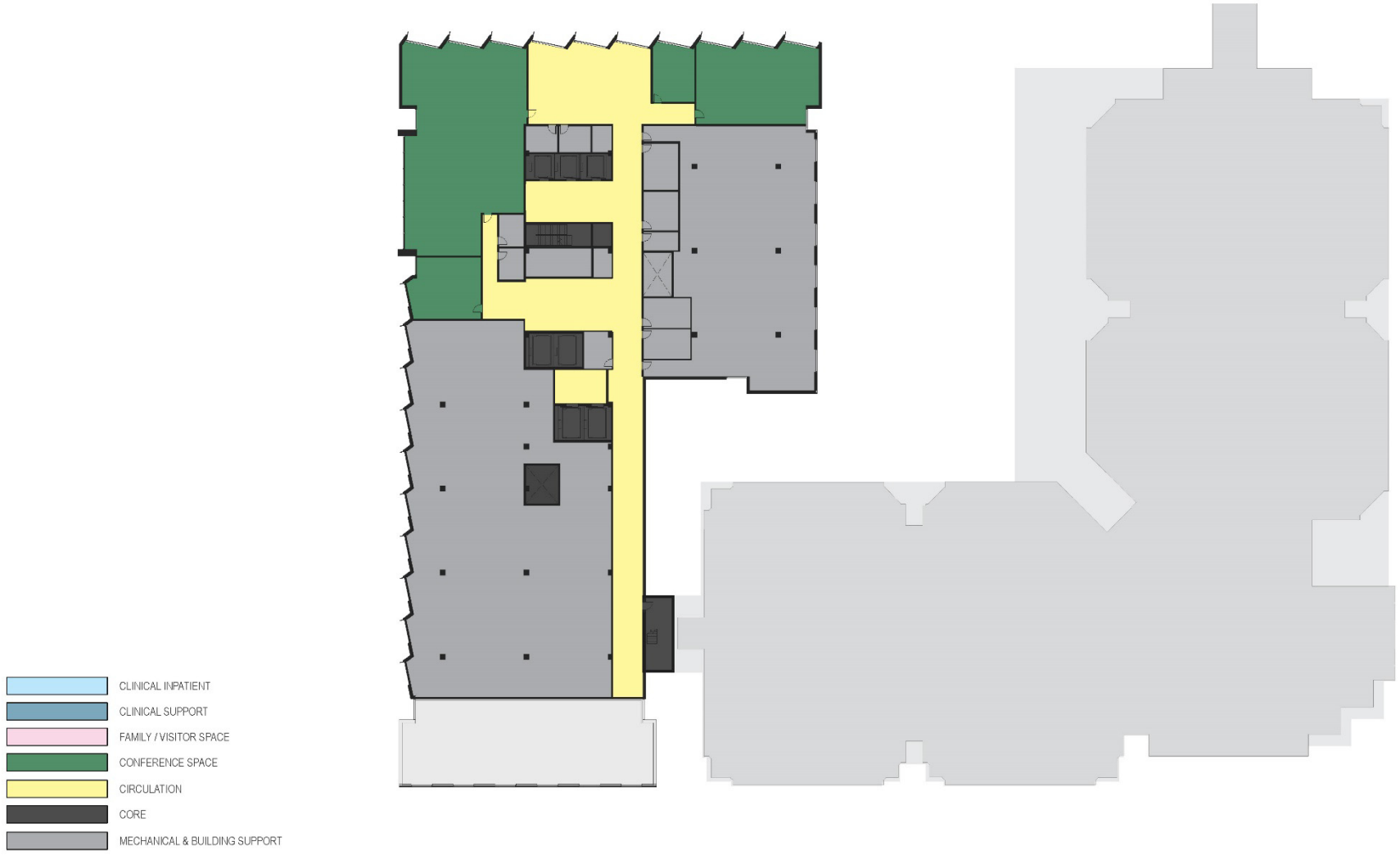
BIDMC IMPNF/PNF

Figure 2-12

Levels 6 to 9 Plan



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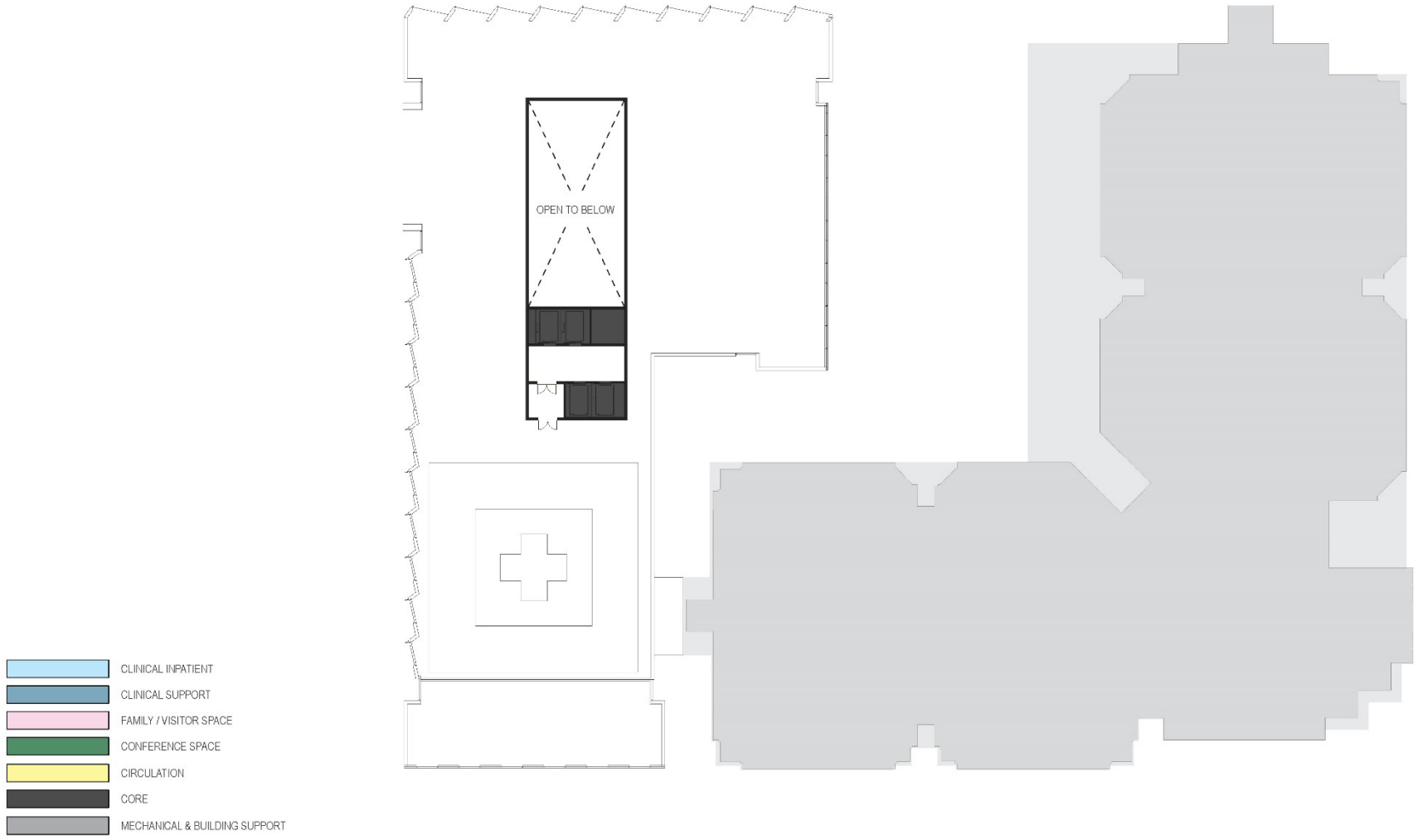
BIDMC IMPNF/PNF

Figure 2-13
Level 10 Plan



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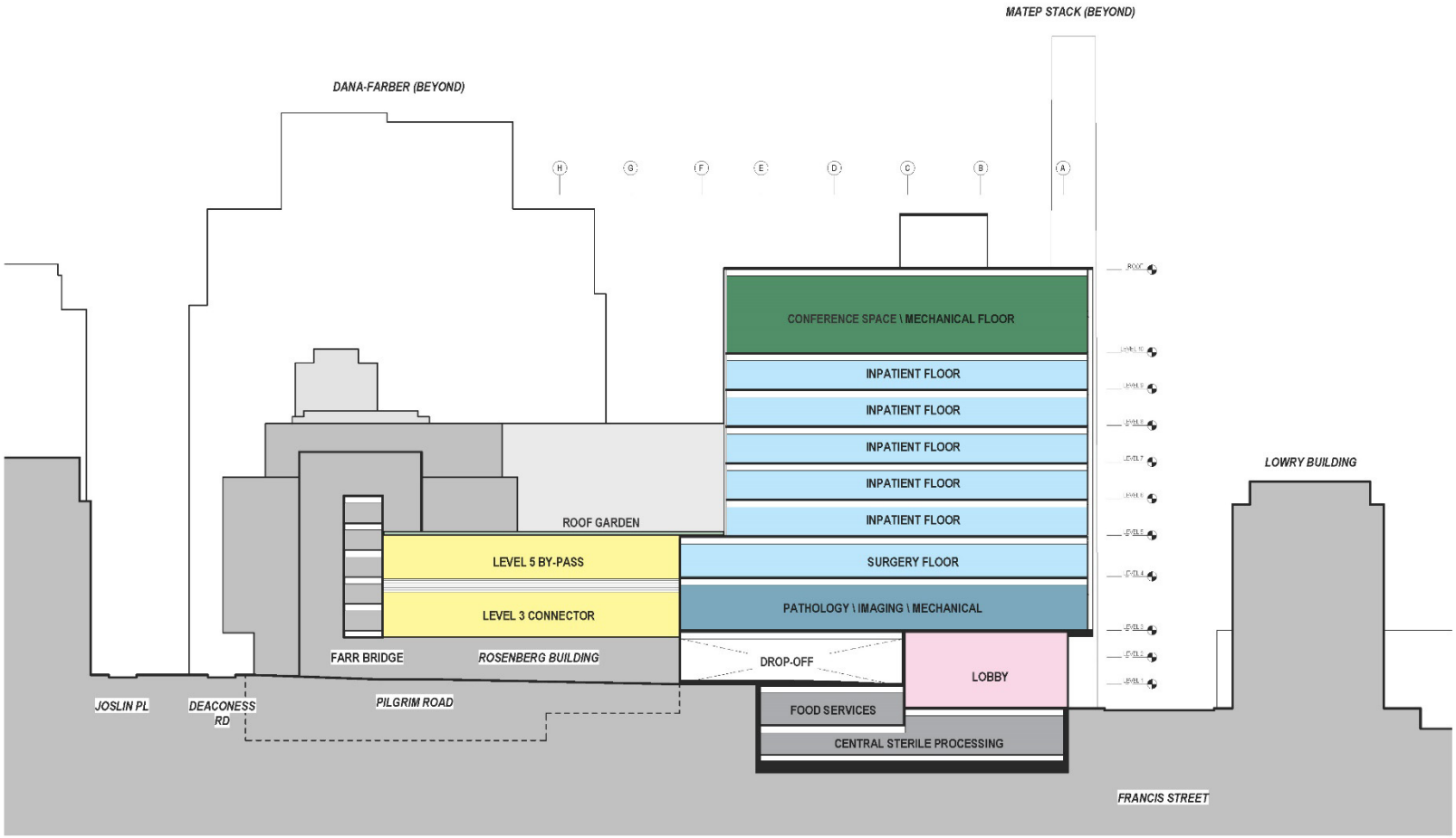
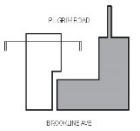
BIDMC IMPNF/PNF

Figure 2-14
Roof Plan



CLINICAL INPATIENT
CLINICAL SUPPORT
FAMILY / VISITOR SPACE
CIRCULATION
CONFERENCE SPACE
MECHANICAL & BUILDING SUPPORT
CORE



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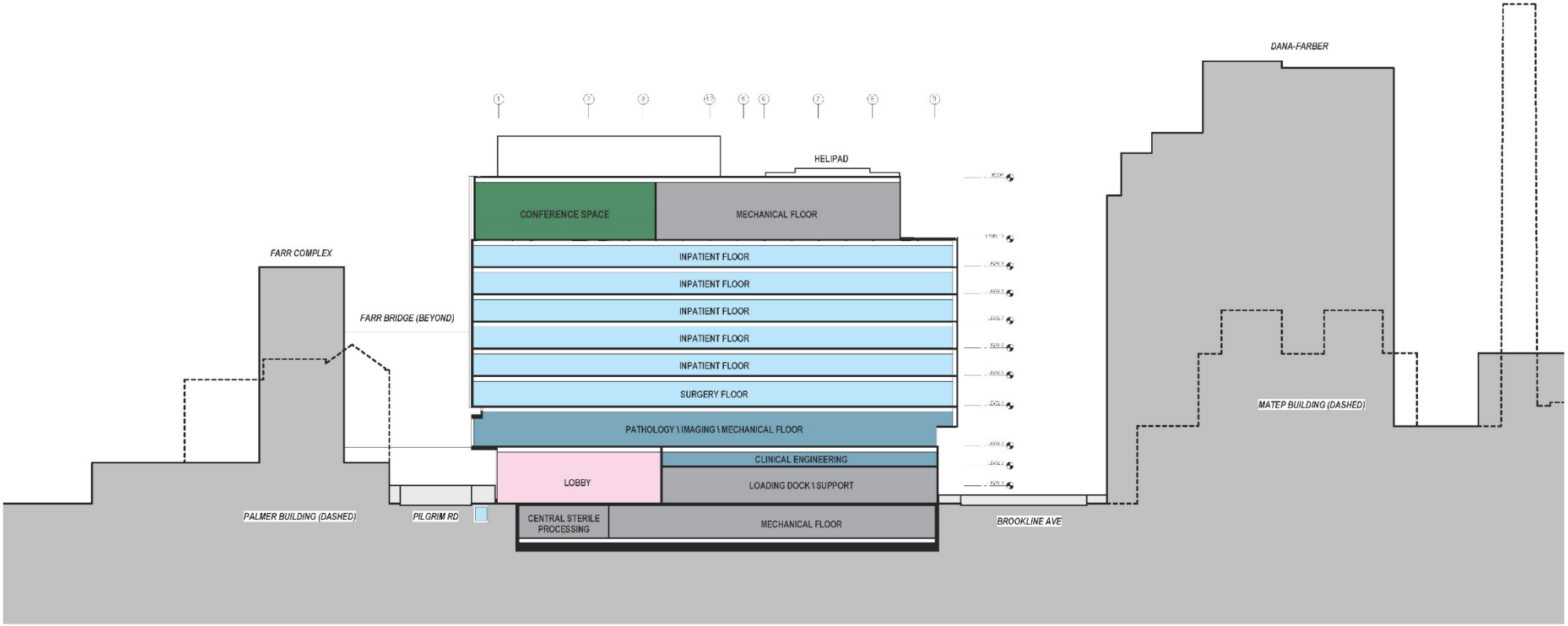
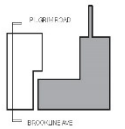
BIDMC IMPNF/PNF

Figure 2-15
North-South Section



CLINICAL INPATIENT
FAMILY / VISITOR SPACE
CONFERENCE SPACE
CORE
CLINICAL SUPPORT
CIRCULATION
MECHANICAL & BUILDING SUPPORT



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BIDMC IMPNF/PNF

Figure 2-16
East-West Section

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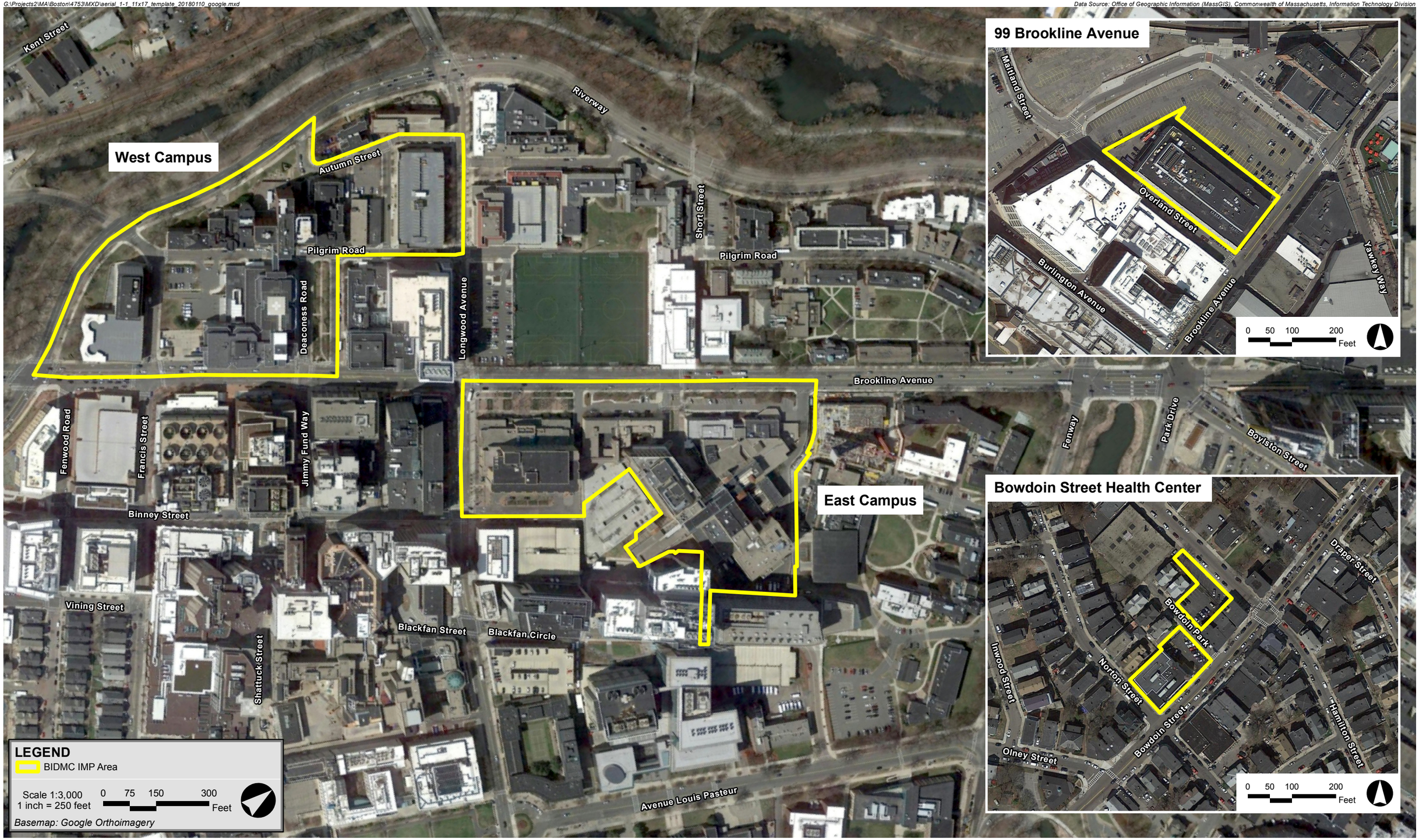
Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division



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Epsilon Associates Inc.

BIDMC IMPNF/PNF

Figure 2-17
BIDMC IMP Area

Chapter 3

Assessment of Development Review Components

3.0 ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

3.1 Transportation

This section presents an overview of the existing BIDMC transportation system and a summary of the proposed Project from a transportation perspective. As described in Chapter 2, BIDMC is proposing to build the Project to provide single-bedded medical/surgical and intensive care beds and state-of-the art operating rooms and procedure rooms using the latest technology and standards. This document also serves as the PNF for that Project. This section describes how the BIDMC West Campus will function under future conditions with the proposed Project completed.

The first section provides a brief discussion of the transportation characteristics of the Project as described in detail previously in Chapter 2. The second section briefly describes the existing transportation infrastructure at BIDMC. It includes discussions of public transportation, area roadways, parking, passenger pick-up/drop-off, loading activities, and transportation demand management (TDM) actions that are actively employed by the hospital. The third section provides a preliminary estimate of the Project-generated trips resulting from the implementation of the Project, which is ultimately driven by the total number of net new patient beds that would be incrementally added to the entire BIDMC campus once completed and fully occupied. The final section provides a preliminary discussion of transportation-related construction management actions that will be put in place at BIDMC in connection with the implementation of the Project. This document does not contain a detailed assessment of the transportation effects of the Project. That assessment will be developed and included within a forthcoming IMPA/DPIR, which will be prepared and submitted by BIDMC subsequent to this initial IMPNF/PNF filing.

3.1.1 Proposed IMP Development Project

BIDMC currently contemplates constructing a new inpatient building including up to 345,000 sf of gross floor area (as defined in the Zoning Code). As noted in Section 2.2.2, the Project contemplates inclusion of up to 158 inpatient beds (up to 128 medical/surgical and 30 intensive care beds) within that facility. However, only 69 of those beds will be additive to the overall BIDMC bed count that will exist at the time the New Inpatient Building opens (i.e., "net new"), as BIDMC anticipates closing some West Campus beds at the opening of the New Inpatient Building. Additionally, BIDMC anticipates reopening 20 beds by the end of 2024 within existing West Campus facilities. Overall, BIDMC anticipates that up to 89 net new patient beds will be put on-line in connection with the Project on the West Campus during the term of the amended IMP. No ambulatory (outpatient) services are proposed as part of the Project. The transportation impacts associated with this Project will be quantified and assessed in detail within the forthcoming IMPA/DPIR. The Project is proposed to be located on the BIDMC West Campus, adjacent to the Rosenberg Building on the site currently occupied by the Emergency Department patient drop-off, ambulance entrance, Main Loading Facility and the oxygen tank farm. A

more detailed discussion of the need for this Project and the anticipated timing of the construction were presented previously in Chapters 1 and 2.

The Project does not include construction of any new parking; all parking for this facility will be accommodated by the existing parking supply within the BIDMC Campus, and primarily at the nearby Pilgrim Road and Lowry Garages on the West Campus. Construction of the New Inpatient Building is expected to result in a modest loss of 26 off-street parking spaces controlled by BIDMC. Any incremental staff and physician parking needs would be satisfied via continued utilization of leased, off-site parking facilities. The following characterizes future transportation on the BIDMC West Campus with the proposed Project completed:

- The existing services on-site, including the Emergency Department Patient Drop-off, Ambulance Entrance, Main Loading Facility, oxygen tank farm, and the East/West Transfer Ambulance and HP Van Entrance will be temporarily relocated to other areas within the West Campus to accommodate construction of the Project.

- Construction of the Project is expected to result in 26 parking spaces being taken out of service. All 14 on-site parking spaces currently supporting the Emergency Department will be lost, and 12 spaces in the nearby Clicker Lot are expected to be lost due to the construction and use of the temporary loading dock and relocated oxygen tanks. These spaces will not be immediately replaced with the completion of the Project.

- The Emergency Department Ambulance Entrance and the Main Loading Facility will be replaced on-site within the Project's ground floor design and it is anticipated that the Emergency Department Patient Drop-off will be as well; the East/West Transfer ambulance and HP Van Entrance will be temporarily moved and accommodated via an existing entrance to the Farr Building Complex along Autumn Street.

- Patient and visitor parking for the Project will be provided within the existing Pilgrim Road and Francis Street garages.

- Drop-off/pick-up activities for the Project will be accommodated at the primary Rosenberg Building drop-off as well as the new, replacement Emergency Department Drop-off on the Project site. The potential for supplemental drop-off/pick-up activities for the Project along Francis Street and Pilgrim Road are also being evaluated.

    - Loading and service activities for the Project will be handled within the replacement Main Loading Facility which will be returned to its current location off Brookline Avenue on the south side of the building.

3.1.2 Existing Transportation Conditions

This section provides a summary of existing transportation conditions at the BIDMC campus.

Included is:

- A discussion of available public transportation options to BIDMC.
- A description of the existing roadways that provide access to BIDMC.
- Summaries of on-site and off-site parking for BIDMC patients, staff, and visitors.
- Existing locations for BIDMC loading activities and deliveries.

3.1.2.1 Public Transportation

BIDMC is well served by public transportation. The hospital is located between the Heath Street Branch (E Line) and the Riverside Branch (D Line) of the MBTA Green Line. The Heath Street Branch runs from Lechmere Square in Cambridge to Heath Street in Jamaica Plain, and includes nearby stops on Huntington Avenue at Longwood Avenue (LMA Station) and Francis Street (Brigham Circle Station). The Riverside Branch runs from Downtown Boston to Riverside Station in Newton, and includes a stop near Longwood Avenue just west of the Muddy River (Longwood Station). Also nearby are Ruggles Street Station on the Orange Line and three commuter rail lines, and Yawkey Station on a fourth commuter rail line.

The MBTA also operates eight bus routes that provide service within one-half mile of the BIDMC East and West campuses:

- **Crosstown 2 (CT2)** bus route operates on 20-25 minute, peak period, headways between Sullivan Square Station on the Orange Line and Ruggles Station on the Orange Line, with stops connecting to the Red Line at Kendall Square/MIT Station and the Green Line D Branch at Fenway Station. CT2 makes a stop on Brookline Avenue at the BIDMC East Campus.
- **Crosstown 3 (CT3)** bus route operates on 20 minute, peak period, headways between Brookline Avenue at BIDMC East Campus and Andrew Square Station on the Red Line Station in Dorchester. The route connects to the Orange Line and multiple commuter rail lines at Ruggles Station.
- **Route 8** operates on 15-20 minute, peak period, headways between Kenmore Square and Harbor Point/UMass Boston in Dorchester, with connections to the Green Line B, C and D Branches at Kenmore Square, the Orange Line and

Commuter Rail at Ruggles Station and the Red Line at JFK/UMass Station. This route stops on Brookline Avenue at the BIDMC East Campus.

- **Route 19** operates on 15-20 minute headways during the weekday peak period between Kenmore Square and Fields Corner in Dorchester. This route connects to the Green Line B, C and D Branches at Kenmore Square, the Orange Line and Commuter Rail at Ruggles Station and the Red Line at Fields Corner Station. The route stops on Brookline Avenue at the BIDMC East Campus.

- **Route 39** provides service between the Forest Hills Station on the Orange Line and Back Bay Station on the Orange Line. It operates on 6-8 minute headways during peak periods, and 11-14 minute headways during off-peak periods. This route makes stops on Huntington Avenue at Brigham Circle and at Longwood Avenue.

- **Route 47** provides service between Central Square Station on the Red Line and Broadway Station on the Red Line via Ruggles Station on the Orange Line. It runs on 10-minute headways during peak hours, and 45-minute headways off-peak. This route stops on Brookline Avenue at the BIDMC East Campus.

- **Route 60** provides service between Chestnut Hill in Newton and Kenmore Square via Brookline Village Station on the Green Line D Branch, and operates on 25-minute headways during peak periods, and on 60-minute headways during off-peak periods. This route makes stops on Brookline Avenue at both the BIDMC West Campus and East Campus.

- **Route 65** provides service between Brighton Center and Kenmore Square via Washington Street Station on the Green Line B Branch, Washington Square Station on the Green Line C Branch, and Brookline Village Station on the Green Line D Branch. It operates on 10-minute headways during peak periods, and 60-minute headways during off-peak periods. This route makes stops on Brookline Avenue at both the BIDMC West Campus and East Campus.

- **Route 66** provides service between Harvard Square in Cambridge and Dudley Square, and operates on 9-minute headways during peak periods and 16-minute headways during off-peak periods. This route stops at Brigham Circle.

In addition to MBTA bus routes, MASCO operates nine bus routes that provide service within one-half mile of the BIDMC East and West campuses:

- **M2 Shuttle** connects the LMA to Harvard Square, with interim stops along Massachusetts Avenue at Putnam Avenue, Bay Street, MIT, Beacon Street, and Kenmore Square as well as the Fenway MBTA station. It is operated by MASCO for Harvard University. The shuttle operates on approximately 10-minute headways

during peak hours. The service runs Monday to Saturday, from 7:00 a.m. to 11:30 p.m.

- **Ruggles Express** provides continuous service between the MBTA's Ruggles Station and the LMA throughout the day, with 5-10-minute headways during peak periods. At Ruggles Station, passengers can connect to the Orange Line subway and the Needham, Franklin, Attleboro/Providence and Stoughton Commuter Rail Lines in addition to other buses. The shuttle runs Monday to Friday from 5:30 a.m. to 10:00 a.m., and from 2:30 p.m. to 8:52 p.m.

- **JFK/UMass (Crosstown Garage) Shuttle** connects the LMA and the JFK/UMass Station on the MBTA's Red Line and the Crosstown Garage, with 5-10-minute headways during peak periods. The JFK/UMass Shuttle runs Monday to Friday from 5:35 a.m. to 10:32 a.m., and from 3:00 p.m. to 9:14 p.m.

- **Midday Evening Combo Shuttle** connects the LMA to satellite parking facilities. It operates on 80-minute headways between 10:00 a.m. and 2:45 p.m., and 15-minute headways between 7:30 p.m. and 9:05 p.m. when most other MASCO shuttle services are not running.

- **The Fenway Shuttle** connects the LMA to satellite Fenway parking facilities and the Yawkey MBTA station. It operates on 6-minute headways during morning peak periods, 12-20-minute headways during midday peak periods, and 8-minute headways during evening peak periods. The Fenway shuttle runs Monday to Friday from 5:05 a.m. to 9:54 p.m.

- **Chestnut Hill Lot Shuttle** connects the LMA to satellite Chestnut Hill Upper Lot. It operates on 15-minute headways during the peak periods. The Chestnut Hill Lot shuttle runs Monday to Friday from 5:30 a.m. to 10:22 a.m., and 2:30 p.m. to 8:56 p.m.

3.1.2.2 Roadway Network

Both BIDMC campuses are located along Brookline Avenue in the LMA. The East Campus is located north of Longwood Avenue, and the West Campus is located south of Longwood Avenue. In addition to Brookline Avenue and Longwood Avenue, arterials serving the area include the Riverway, the Fenway, Park Drive, Boylston Street, and Huntington Avenue. North of Longwood Avenue (adjacent to the East Campus), Brookline Avenue carries approximately 27,600 vehicles on an average weekday. West of Pilgrim Road (adjacent to the West Campus), Longwood Avenue carries approximately 8,400 vehicles on an average weekday.

The BIDMC East Campus is located in the block bounded by Brookline Avenue, Longwood Avenue, Blackfan Street/Avenue Louis Pasteur, and the Fenway. Access to the East Campus

Main Entrance and the 340 Brookline Avenue Parking Garage (which, as described in Section 1.4.2, is owned by an affiliate of Boston Children's Hospital and is currently leased to BIDMC pending construction of the LNRC/LRI project) is provided via Brookline Avenue. Access to the East Campus is also provided via Binney Street, which connects to the privately owned East Campus service roadway. The Shapiro Center garage access driveway and patient drop-off/pick-up area are both located on Binney Street. The East Campus main driveway forms a signalized intersection with Brookline Avenue. The one-way East Campus service roadway circles the Feldberg/Reisman complex, providing access to parking and loading areas in the rear of the site.

The BIDMC West Campus is located in the group of blocks bounded by Brookline Avenue, the Riverway, and Longwood Avenue. Local roads including Francis Street and Deaconess Road/Joslin Place, as well as privately owned BIDMC roadways Autumn Street and Pilgrim Road provide internal site circulation and access to the BIDMC West Campus. The Emergency Department ambulance entrance driveway is located on Francis Street to the east of the intersection of Francis Street and Pilgrim Road. The Emergency Department patient entrance driveway is located on Pilgrim Road just north of Francis Street. Access to the Lowry Garage is located on Francis Street between Pilgrim Road and Brookline Avenue.

3.1.2.3 Parking

BIDMC currently controls approximately 4,032 off-street parking spaces, with 1,426 parking spaces available for use by its patients and visitors, and 2,606 parking spaces available to staff and physicians. About 3,012 (75 percent) of these parking spaces are located on one of the BIDMC campuses or nearby on sites within the LMA. Approximately 1,020 parking spaces are located off-site in remote parking facilities. The majority of employees that park off-site either walk or use shuttle buses to travel between the BIDMC campuses and these remote parking facilities. Table 3-1 provides a summary of BIDMC's parking space inventory including locations for the current BIDMC parking supply.

Table 3-1 BIDMC Existing Parking Space Inventory

Parking Facility[1]	Current Number of Parking Spaces			Connecting Mode	Owned/ Leased
On-Campus/LMA Parking	Total[2]	Patient/Visitor	Employee/Physician		
Shapiro Garage	727	432	295	Walk	Owned
Kirstein Lot	11	0	11	Walk	Owned
Finard/Yamins Lot	17	17	0	Walk	Owned
Lowry Garage	292	205	87	Walk	Owned
Pilgrim Garage	745	368	377	Walk	Owned
Clicker Lot	29	0	29	Walk	Owned

Table 3-1 BIDMC Existing Parking Space Inventory (Continued)

Parking Facility[1]	Current Number of Parking Spaces			Connecting Mode	Owned/ Leased
On-Campus/LMA Parking	Total[2]	Patient/Visitor	Employee/Physician		
Emergency Department Lot	14	14	0	Walk	Owned
Center for Life Science Boston Garage 3 Blackfan Circle	253[3]	0	253	Walk	Owned (Condo)
Center for Life Science Boston Garage 3 Blackfan Circle	79[3]	0	79	Walk	Leased
340 Brookline Avenue Garage	430[3]	390	40	Walk	Leased
NRB Garage 77 Avenue Louis Pasteur	200	0	200	Walk	Leased
MASCO Garage 375 Longwood Avenue	215	0	215	Walk	Leased
Subtotal On-Campus Parking Spaces	**3,012**	**1,426**	**1,586**		
Off-Campus Parking	Total	Patient/Visitor	Employee/Physician		
Research North 99 Brookline Avenue	33	0	33	Shuttle	Leased
Van Ness Garage Richard B. Ross Way	37	0	37	Shuttle	Leased
160 Ipswich Street	104	0	104	Shuttle	Leased
132 Ipswich Street	30	0	30	Shuttle	Leased
189-203 Ipswich Street	9	0	9	Shuttle	Leased
1271 Boylston Street (The Verb)	56	0	56	Shuttle	Leased
1282 Boylston Street (The Viridian)	150	0	150	Shuttle	Leased
Crosstown Garage 7 Melnea Cass Boulevard	90	0	90	Shuttle	Leased
Longwood Towers 20 Chapel Street, Brookline	35	0	35	Walk	Leased

Table 3-1 BIDMC Existing Parking Space Inventory (Continued)

Parking Facility[1]	Current Number of Parking Spaces			Connecting Mode	Owned/ Leased
Off-Campus Parking	Total[2]	Patient/Visitor	Employee/Physician		
55 Yawkey Lot 1249-1255 Boylston Street	59	0	59	Shuttle	Leased
Renaissance Open Lot & Garage 835 Columbus Avenue	250	0	250	Shuttle	Leased
Kenmore Lot 73 Brookline Avenue	94	0	94	Shuttle	Leased
Wentworth Lot Halleck Street	40	0	40	Shuttle	Leased
Chestnut Hill Lot 300 Hammond Pond Parkway, Newton	33	0	33	Shuttle	Leased
Subtotal Off-Campus Parking Spaces	**1,020**	**0**	**1,020**		
Grand Total BIDMC Parking Spaces	**4,032**	**1,426**	**2,606**		

Source: Beth Israel Deaconess Medical Center, Parking and Security.

[1] Parking spaces provided at leased facilities (see Table 1-4) at 109 Brookline Avenue and 21-27 Burlington Avenue and at owned facilities (see Table 1-2) at the Bowdoin Street Health Center are used only by employees assigned to work primarily in such facilities and are not included in this Table 3-1. The parking spaces provided at the leased facilities at Renaissance Center, MASCO (375 Longwood Avenue) and at the Center for Life Science Boston (CLSB) are included in this Table 3-1; however, only a portion of these spaces are used to provide parking for employees who work at the BIDMC LMA campus, with the remainder being used by employees assigned to work at such leased facilities.

[2] The totals indicated in this Table 3-1 are the maximum parking spaces that BIDMC controls by ownership or lease at each location (except as described in Note 3 below in connection with the lease arrangements with Boston Children's Hospital for spaces in the CLSB Garage). The number of spaces in actual use by BIDMC can at times be fewer than the maximum actual amount. BIDMC's off-campus parking lease arrangements are subject to change over time.

[3] As further described in Section 1.4.2 (regarding the status of the LNRC/LRI project and its relationship to the BIDMC IMP), Children's owns the 340 Brookline Avenue Garage (formerly known as the BIDMC East Campus Parking Garage) and the Children's IMP permits 454 parking spaces in this garage to be used on an interim basis until commencement of construction of the LNRC/LRI on the garage site. As approved in the Children's IMP and described in the BIDMC 2009 IMP Renewal and subsequent IMP Updates, Children's leases a portion of such garage spaces to BIDMC, and concurrently, BIDMC leases to Children's parking spaces BIDMC controls in the CLSB Garage. Currently Children's leases to BIDMC 430 parking spaces in the 340 Brookline Garage and BIDMC leases to Children's 272 parking spaces in the CLSB Garage. As a result of these lease arrangements, BIDMC currently has use of 253 of its 450 owned spaces in the CLSB Garage condo, and has use of 79 spaces of the 154 spaces it leases in the CLSB Garage pursuant to its research space lease. These lease arrangements may change during the five year extension term of the BIDMC IMP. This Table 3-1 indicates BIDMC's current operational supply of parking spaces in the CLSB Garage taking into account the leasing arrangements with Children's.

3.1.2.4 Passenger Pick-Up/Drop-Off

On the East Campus, passenger drop-off/pick-up is conducted primarily at the Main Entrance (Feldberg/Reisman Building), and is accessed from Brookline Avenue. The Shapiro Center, also on the East Campus, has its own dedicated pick-up/drop-off loop accessed from Binney Street.

The primary drop-off/pick-up area on the West Campus is located on Deaconess Road in front of the Rosenberg Building. There is also a dedicated drop-off/pick-up area at the Emergency Department, located on Pilgrim Road near its intersection with Francis Street.

3.1.2.5 Loading Activity

Loading activities for BIDMC are handled at several locations on the East and West Campuses. These locations are discussed in this section and presented in Table 3-2.

BIDMC East Campus

- Feldberg/Reisman Building. The main East Campus loading facility is located on the east side of the Feldberg/Reisman Building. It features a large service area with five truck bays. On the north side of the complex is a waste management area which includes two dumpster bays, trash receptacles, recycling receptacles, and a staging area. Also on the north side of the complex is a loading dock with two ambulance bays and a hearse bay. A one-way service road that circles the campus and connects to Brookline Avenue provides access to the loading bays and parking located in the rear of the Feldberg-Reisman Complex.

- Shapiro Center. The Shapiro Center has its own dedicated loading dock, accessed from the East Campus service road, with a dumpster bay, an ambulance bay, and one truck bay.

BIDMC West Campus

- Rosenberg Building. The main West Campus loading facility is located at the Rosenberg Building. It is a four-bay facility accessed from Brookline Avenue. It has three truck loading docks, one dumpster bay, and an ample staging area where truck maneuvers can be accommodated off-street. A smaller service and delivery area, with four parking spaces, is located off the east side of Pilgrim Road.

- Libby Building. The Libby Building dumpster bay is located on the south side of the building and is accessed from Pilgrim Road. A loading dock at the Libby Building is located within the Clicker Parking Lot. This dock is not actively used by the hospital.

Table 3-2 BIDMC Loading and Service Facilities

Active Facility	Service Bays (by type)			Primary Access Road
	Total	Loading	Dumpster	
East Campus				
Main Loading Facility	5	5	0	East Campus Service Road
Waste Management Area	2	0	2	East Campus Service Road
Shapiro Center	2	1	1	East Campus Service Road
West Campus				
Rosenberg Building Main Loading Facility	4	3	1	Brookline Avenue
Libby Building	1	0	1	Pilgrim Road

Source: Data provided by BIDMC 2017

3.1.2.6 Transportation Demand Management

BIDMC actively supports efforts to reduce auto use for people traveling to the hospital campus, particularly by employees. Many actions to support this goal are actively employed by BIDMC, including:

- **Employee Transportation Advisor.** BIDMC employs an Employee Transportation Advisor (ETA) who provides information and implements TDM measures at BIDMC, assisted by CommuteWorks.

- **CommuteWorks TMA.** BIDMC has been an active member of the CommuteWorks Transportation Management Association (TMA) since its 1989 founding. CommuteWorks, operated by MASCO, offers an array of ongoing programs (discussed further below) and periodically offers special limited-time incentive programs for employees and students of member institutions to try new modes of transportation. BIDMC's role includes implementing and monitoring CommuteWorks programs; posting and distributing announcements; holding promotional events for employees to encourage alternative modes of transportation; and providing transit schedules and other information to facilitate alternative transportation.

- **Subsidies for transit passes for employees.** In 2016, approximately 4,400 BIDMC employees regularly purchase monthly T-passes and choose public transportation as their primary mode to work. BIDMC offers a transit pass subsidy of 50 percent, up to $125 per employee per month. The cost of passes is deducted on a pre-tax basis, resulting in an additional cost savings to employees. For employees using MASCO's M2 shuttle, the only MASCO shuttle for which a fare is charged, BIDMC

purchases tickets for employees. Transit schedules are posted at BIDMC and provided on its website.

- **Carpool assistance.** Ridematching services are provided to employees through MASCO's CommuteWorks TMA, MassRIDES and Nurides. Preferential parking is provided for carpools registered with CommuteWorks. Carpools of three or more are guaranteed parking at nearby garages, while two-person carpools are guaranteed spaces at remote MASCO lots. BIDMC will hold a parking space for up to four months while an employee tries carpooling risk-free. In addition, CommuteWorks provides a Guaranteed Ride Home (GRH) program to allow employees with occasional or unplanned schedule changes to primarily carpool. Approximately 160 BIDMC employees participated in the Nurides carpooling service in 2016.

- **Park and Ride Service.** BIDMC provides private shuttle bus service from the Wellington, North Quincy, and Riverside MBTA stations. A portion of the parking costs may be covered by BIDMC if the employee's T-pass subsidy is less than the $125 maximum subsidy provided by BIDMC. The subsidy difference is applied to the emplyee's parking costs at the Park and Ride lots.

- **Bicycling/walking incentives and amenities.** BIDMC participates in Wellcoin, which provides rewards to employees who bicycle or walk to work, based on the miles they log. BIDMC provides sheltered bike racks on both campuses, and employee lockers and showers are available on-site. BIDMC subsidizes employee memberships to Hubway Bikeshare, and is a corporate sponsor for three stations on or next to the campus. Approximately 100 employees participate in the Hubway program using the service to commute to and from BIDMC. In addition, 111 employees participated in the 2016 Bike Week Commuter Challenge.

- **Location-priced parking.** BIDMC employs a parking rate structure to discourage on-campus parking. Off-campus parkers pay $19.50 per week, while on-campus parkers pay $48.50 per week.

- **Telecommuting and compressed workweeks.** BIDMC has compressed work weeks for clinical staff and allows telecommuting options for IT and other staff.

- **Promotional efforts.** BIDMC promotes all forms of alternative transportation through a variety of employee newsletters, information kiosks, websites, e-mail, and special events.

BIDMC will continue to promote and improve its TDM program to benefit its employees and reduce traffic impacts to roadways and parking facilities within the LMA and nearby neighborhoods.

3.1.3 Future Transportation Conditions

This section provides a preliminary evaluation of the potential transportation impacts related to the proposed Project. Included is a preliminary trip generation estimate for the Project, a discussion of site access and circulation, and a discussion of anticipated parking and loading activities at the proposed Project. In addition, a brief discussion of the general Project construction management practices is provided at the end of the section.

3.1.3.1 Project Trip Generation

Projected trip generation estimates for the Project have been developed based on the net-new bed count (89 beds) that will be incrementally added to BIDMC with the completion of the Project and two years following occupancy of the Project (see Table 3-3). Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition for Land Use Code (LUC) 610 – Hospital has been used to estimate the number of trips that are anticipated to be generated during both morning and evening peak hours, as well as for weekday daily conditions. Boston Transportation Department (BTD) mode shares for Zone 5 were used to estimate the preliminary vehicle, transit and walk/bike/other trips to/from the Project.

Table 3-3 Project Trip Generation

	Vehicle	Transit	Walk/Bike/Other
Daily			
In	674	527	870
Out	674	527	870
Total	1,348	1,054	1,740
AM Peak Hour			
In	36	48	40
Out	12	11	27
Total	48	59	67
PM Peak Hour			
In	16	14	35
Out	36	48	41
Total	52	62	76

Approximately 48 vehicle trips in the morning peak hour (36 in, 12 out) and 52 vehicle trips in the evening peak hour (16 in, 36 out) are estimated to access BIDMC with the Project in place. Overall, the proposed Project would generate approximately 1,348 new vehicle trips to the BIDMC campus on an average weekday. Note that trip generation related to the Project will be driven primarily by patients and visitors. The relatively low

number of net-new peak hour trips is directly related to the fact that 43% of the beds in the Project are intended to replace existing beds on the West Campus. The resultant number of new beds at BIDMC is expected to increase from 594 medical/surgical and intensive care beds in existence prior to the opening of the Project to 683 such beds (89 net new beds total) approximately two years after occupancy of the Project. The Project does not anticipate programmatic increases in outpatient services. Additionally, no new parking is proposed in connection with the Project. Through BIDMC's robust TDM program, a majority of the staff trips to the Project are expected to use alternative modes of transportation, including the various public transit options as well as walking and biking to the site.

3.1.3.2 Site Access and Circulation

Access into the Project is expected to be accommodated via the existing Rosenberg Building main entrance drop-off on Deaconess Road, with another entrance at the corner of Pilgrim Road and Francis Street that is anticipated to be accessible from the new, replacement Emergency Department Drop-off. The potential to support supplemental drop-off/pick-up activities in connection with the Project is also being evaluated along Francis Street just to the east of Pilgrim Road. A replacement Emergency Department drop-off and ambulance area are also anticipated to be provided within the footprint of the Project, and will be accessed from Pilgrim Road and Francis Street, respectively. The potential for Emergency Department patient drop-off along Pilgrim Road is also being evaluated. The existing Main Loading Facility, which will be temporarily taken out of service during construction of the Project, will be put back in place with the completion of the Project. This Main Loading Facility is anticipated to function once the Project is complete similar to how it operates under current conditions. The Level 1 and site access plan, previously presented in Chapter 2 as Figure 2-7, illustrates the anticipated site access points that will serve the Project as well as the BIDMC Emergency Department and West Campus loading operations.

3.1.3.3 Project Parking

The proposed Project will provide no new parking on-site. Twenty-six surface lot spaces that currently support the West Campus will be taken out of service in connection with the Project. Parking for the new inpatient beds will be provided in the existing Francis and Pilgrim Street garages. Any incremental staff and physician parking needs would be satisfied via continued utilization of leased, off-site parking facilities.

3.1.3.4 BIDMC Project Construction Management

BIDMC will develop a detailed evaluation of potential short-term construction-related transportation impacts during the course of the Project, including construction vehicle traffic, parking supply and demand, and pedestrian access to the campus. A detailed Construction Management Plan will be developed and submitted to BTD for its approval.

Construction Vehicle Traffic

Construction vehicles will be necessary to move construction materials to and from the Project site. BIDMC recognizes that construction traffic is a concern to area residents, other institutions, and to the medical center itself. Every effort will be made to reduce the noise, control fugitive dust, and minimize other disturbances associated with construction traffic. It is anticipated that Brookline Avenue, Francis Street, and Pilgrim Road will serve as the principal construction traffic routes to the Project site, and that trucks will be routed to avoid nearby residential areas and the intersections along Longwood Avenue west of Brookline Avenue. Truck staging and lay-down areas for the Project will be carefully planned. The need for street occupancy along roadways adjacent to the Project site is not known at this time.

Construction Parking Issues

Contractors will be encouraged to devise access plans for their personnel that de-emphasize auto use (such as seeking off-site parking, provide transit subsidies, etc.). Construction workers will also be encouraged to use public transportation to access the Project site because no new parking will be provided for them. BIDMC will work with BTD and Boston Police Department to ensure that parking regulations in the area and in designated residential parking areas is enforced. It is expected, as has been the case in past construction projects, that this will be a considerable disincentive.

Pedestrian Access During Construction

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

Construction Monitoring

As the Project progresses, BIDMC will work with representatives of the City of Boston to develop and ensure the effectiveness of the program of measures to minimize short-term, construction-related transportation impacts.

3.2 Accessibility

Recognizing the importance of creating welcoming, accessible facilities for all individuals, during the last six years, BIDMC has invested more than $11.6 million improving accessibility throughout its Boston and suburban campuses. This includes creating appropriate parking spaces and sidewalk entrance access ways, the renovation of a significant number of bathroom facilities, modifying reception desks, and providing appropriate height exam tables and wheelchair scales for the proper treatment of patients in the healthcare office setting. BIDMC offers a significant number of accessible patient rooms to ensure that patients are cared for in the proper environment. BIDMC also replaced two fire alarm systems so that additional audio-visual alarm capacity could be added for exam rooms.

Through the formation and on-going efforts of BIDMC's Universal Access Advisory Council and staff education, BIDMC is proactive in the implementation of Americans with Disabilities Act (ADA) improvements. As a result, despite its aging facilities, BIDMC is a far more accessible facility today than in 2010.

Also, because of BIDMC's widely diverse Interpretive Services department, BIDMC was recognized for Outstanding Accessibility for the Deaf and Hard of Hearing at the Massachusetts State House on March 24, 2014. With two nationally certified American Sign Language (ASL) interpreters on staff, Sorenson Videophone booths, Deaf Communication Centers in common areas, and personalized headsets with adjustable volume controls for in-patients' use in place of the normal pillow speaker, BIDMC is recognized for its extraordinary accessibility for the Deaf and Hard of Hearing community.

Appendix B includes the Accessibility Checklist for the Project.

3.3 Wind

The proposed Project will be approximately 200 feet tall. The building will complement the mix of heights in the surrounding area. The main entrance will be located on the corner of Francis Street and Pilgrim Road. Most pedestrian activity is anticipated to be on Francis Street, while some pedestrian activity would be expected on Brookline Avenue as it is a main thoroughfare through the west side of the LMA. Potential pedestrian level impacts will be studied in the DPIR.

3.4 Shadow

The site is located in a densely built urban area with buildings of varying heights. The Riverway is west of the Project site. New shadows from the Project are anticipated to be cast onto the Riverway during the morning hours only. As part of the shadow study to be conducted for the DPIR, shadow impacts on the Riverway and surrounding area will be

analyzed, as well as consistency with the shadow restrictions within the LMA Interim Guidelines.

3.5 Daylight

The purpose of a daylight analysis is to estimate the extent to which a proposed project affects the amount of daylight reaching public streets in the immediate vicinity of a project site. The Project abuts Francis Street, Pilgrim Road and Brookline Avenue, a major thoroughfare through the LMA. Francis Street and Pilgrim Road are narrow roadways with dense development along both sides. Brookline Avenue is a wider roadway also with dense development along its length in the immediate vicinity. It is anticipated that the daylight impact of the Project will be similar to the daylight impact along the roadways within the LMA. A daylight analysis will be included in the DPIR.

3.6 Solar Glare

The Project is anticipated to be designed so as not to present an adverse safety impact on Project area traffic as a result of reflected solar glare.

3.7 Air Quality

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

3.8 Noise

During operations, the Project's mechanical equipment is not expected to result in a perceptible change in noise levels. These impacts, and the Project's compliance with the City of Boston Noise Ordinance, will be studied in the DPIR.

3.9 Stormwater/Water Quality

The Project site is currently a surface lot and driveway. The Project will include measures to infiltrate stormwater to the extent feasible, and treat stormwater that is released into the storm drain system.

3.10 Solid and Hazardous Waste

3.10.1 Hazardous Waste

To the extent that hazardous materials are found at the Project Site in reportable levels under the Massachusetts Contingency Plan (MCP), the Proponent will cause such materials

to be excavated, transported and disposed of in accordance with the MCP and any other applicable laws or regulations.

3.10.2 Operational Solid and Hazardous Wastes

BIDMC has a campus-wide waste collection and removal system. It is anticipated that the system will be expanded to include the Project, and solid waste will be similar to the wastes produced by BIDMC's other clinical buildings. Recyclable materials will be collected and removed by the same systems currently in place.

3.11 Geotechnical and Groundwater Impacts

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

3.12 Flood Zones and Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the site located in the City of Boston - Community Panel Number 25025C0078G, effective September 25, 2009, indicates the FEMA Flood Zone Designations for the site area. The map shows that the Project is located in a Zone X, "Areas determined to be outside the 0.2% annual chance floodplain."

The site does not contain wetlands.

3.13 Construction Impacts

The proximity of city streets and the critical importance of the buildings and services in the surrounding area necessitate careful attention to construction activities, including deliveries, hours of construction, and construction-related impacts. Planning with the City and neighborhood will be essential to the successful development of the Project.

A Construction Management Plan (CMP) will be submitted to the BTD for review and approval prior to issuance of a building permit. The CMP will define truck routes which will help in minimizing the impact of trucks on local streets.

Construction methodologies that ensure public safety and protect nearby businesses will be employed. Techniques such as barricades, walkways, painted lines, and signage will be used as necessary. Construction management and scheduling—including plans for construction worker commuting and parking, routing plans and scheduling for trucking and deliveries, protection of existing utilities, maintenance of fire access, and control of noise and dust—will minimize impacts on the surrounding environment.

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

3.14 Rodent Control

A rodent extermination certificate will be filed as applicable with the building permit application to the City. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the proposed Project, in compliance with the City's requirements. Rodent extermination prior to work start-up will consist of treatment of areas throughout the site. During the construction process, regular service visits will be made.

3.15 Wildlife Habitat

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

3.16 Sustainability and Climate Change Resilience

3.16.1 Sustainability at BIDMC

BIDMC is actively engaged in creating a vibrant, sustainable community that fosters healthy lifestyles, enhanced quality of life, and improved environmental conditions, including, but not limited to air quality, green spaces, and parks and recreational facilities. As part of BIDMC's commitment to enhancing the physical environment, BIDMC maintains bus stops and Joslin Park.

Within the hospital itself, BIDMC is implementing its Environmental Strategic Plan, spearheaded by BIDMC's multi-departmental Sustainability Committee. BIDMC is committed to conserving natural resources, reducing its carbon footprint, fostering a culture of sustainability, and advancing cost-saving opportunities. BIDMC achieves proposed environmental commitments through employee engagement, community partnerships, and innovative solutions. In FY 2016, greenhouse gas emissions decreased 7%, and the hospital's recycling rate increased to 29% up from 27% in FY 2015.

BIDMC's sustainability initiatives are described below.

Energy and water conservation: BIDMC is focused on finding ways to gain efficiencies in its use of energy throughout its facilities through continuous commissioning, energy efficient equipment, and innovative projects. BIDMC is committed to monitoring its energy use and greenhouse gas emissions as an organization, and is working to strike a balance between organizational growth and environmental impact. In FY 2016, BIDMC achieved an annual three percent reduction in energy use. By reducing its overall energy consumption and purchasing energy efficient products, BIDMC is working to minimize its

impact on the climate. In addition, BIDMC is signed on to Boston's Green Ribbon Commission with a goal of reducing GHG emissions 25% by 2020 (from a 2008 baseline).

BIDMC has worked extensively on water conservation efforts, including installing faucet flow restrictors and upgrading to low-flow showerheads and toilets throughout the hospital. Since 2008, BIDMC has reduced its water consumption by 11%, saving an average of eight million gallons of water per year. This is equivalent to saving the water in 12 Olympic-sized swimming pools each year.

Waste reduction: BIDMC is working hard to reduce as much waste as possible in all areas of its facilities, including clinical spaces, administrative spaces, research labs, and kitchens. For example, switching to electronic budgeting, annual review, and medical record systems has helped reduce significant amounts of paper waste. BIDMC has reduced 85.3 tons of Regulated Medical Waste from 2009 to 2016.

BIDMC reuses materials when possible including office supplies, furniture, and medical devices. If BIDMC is unable to find a use for an item internally, these items are donated to its external partners if possible, such as local schools and international organizations, to ensure excess supplies end up where they are needed most. In FY 2016, BIDMC donated 18 tons of medical equipment, furniture, and supplies to developing countries.

In addition to using fewer products that can lead to waste and donating excess materials, BIDMC diverts waste to the extent feasible. As of the end of FY 2016, BIDMC diverted 31% of its total waste from landfills—this includes cardboard, paper, bottles and cans, compost, and more. In FY 2016:

- 757 tons of paper was shredded and recycled;
- 369 tons of single stream materials (rigid plastics, glass, cardboard, etc.) were recycled;
- 143 tons of food waste was composted;
- 8.6 tons of batteries was recycled;
- 8.2 tons of computers and electronic waste was recycled; and
- 7.5 tons of single-use medical devices was reprocessed.

Safer chemicals and Environmentally preferable purchasing: BIDMC continually researches and sources safer alternatives to products such as cleaners, solvents, disinfectants, plastics used in medical devices and building materials, flame retardants, and formaldehyde. BIDMC sources EPEAT registered electronics, non-toxic paints, green cleaning solutions, mercury-free devices, and is working to reduce polyvinyl chloride (PVC) and Di(2-

ethylhexyl) phthalate (DEHP) from several product lines. 64% of five target cleaning product lines purchased in FY 2016 were certified green.

Local and sustainable food: BIDMC cafeterias feature a number of local and sustainable food options. These items, such as local seafood, are also featured on patient menus. As part of the Farm to Family program, BIDMC also holds a weekly farm stand on its East Campus, a weekly farm box CSA program for staff, and donated farm boxes to families in the community.

- Local food purchases represented 8.2% of total food and beverage expenditures in FY 2016.
- Sustainably certified food purchases made up 9.4% of total food and beverage expenditures in FY 2016.
- Sustainable and local food spending doubled from 8.2% in FY 2015 to 17.6% in FY 2016.
- 384 farm boxes filled with locally grown produce were donated to families in the community.

Green commuting: Utilizing green commuting options, such as public transportation, carpooling, walking, and biking, can help to decrease greenhouse gas emissions, fuel use, local air pollution, and roadway congestion. In addition, green commuting can provide public health benefits to local communities and remain a convenient and affordable mode of transportation for staff and patients.

- 4,400 MBTA passes were purchased by employees on average each month in FY 2016.
- 159 employees carpooled to work using the NuRide program in FY 2016.
- 111 employees participated in the 2016 Bike Week Commuter Challenge.

Energy

BIDMC regularly invests in energy reduction projects. In 2018 BIDMC is investing $2.1M into projects in its existing facilities that will reduce energy consumption and greenhouse gases. These projects include a large scale lighting upgrade, upgrades to heating and ventilation systems, steam system efficiency gains and continuous commissioning projects to improve overall equipment performance.

BIDMC is one of six members of the Longwood Medical Energy Collaborative (LMEC), a consortium of Longwood-area institutions that purchase steam, chilled water, and electricity from the Medical Area Total Energy Plant. The Plant has recently installed a third 12.5 MW

cogenerating turbine that will increase the amount of locally generated electrical power and produce steam through its heat recovery steam generator. The addition of this equipment will increase the operating efficiency of the Plant and reduce electrical line losses.

3.16.2 New Inpatient Building

3.16.2.1 Green Building Introduction

BIDMC has put a high priority on developing a building that is efficient and environmentally friendly, as sustainable design contributes to BIDMC's efforts to create a healthy future for its patients and the community. Enduring and efficient buildings conserve energy and preserve natural resources. The Project will use the LEED for New Construction version 4 for Healthcare Facilities rating system to show compliance with Article 37; BIDMC has not yet determined if it will seek certification. The LEED rating system tracks the sustainable features of the project by achieving points in the following categories: Integrative Process; Location and Transport; Sustainable Sites; Water Efficiency; Energy & Atmosphere; Materials and Resources; Indoor Environmental Quality; and Innovation.

The Project has a preliminary goal of 54 credits (Silver Level). The Project team will continue to evaluate possible credits as the design progresses. Below is a summary of each LEED category; the preliminary LEED checklist is included at the end of this section.

3.16.2.2 Integrative Process

An integrative design process supports the development of high-performance and cost-effective project outcomes. BIDMC believes in a robust process during the early design phases that brings the Project team together to thinking critically about the building and its systems to ensure the most sustainable building possible. One credit is anticipated by utilizing an integrative process throughout the various design phases.

3.16.2.3 Location and Transportation

The site's urban location dictates many of the credits that are achievable for the Project. The Project takes advantage of Boston's existing infrastructure and density. One credit can be achieved for Sensitive Land Protection for being located on a previously developed site. Another point can be achieved for Surrounding Density and Diverse Uses due to the numerous businesses and services located within a half-mile walking distance from the main entrance. Multiple bus lines and stops are located within a one-quarter mile walking distance for two credits for Access to Quality Transit. Bicycle storage and showers are being integrated into the design, and a bike lane runs adjacent to the building on Brookline Avenue. An additional credit can be achieved for Reduced Parking Footprint, as the Project does not include new parking.

3.16.2.4 Sustainable Sites

The Project addresses issues related to site ecology in several ways. The LEED prerequisite, Construction Activity Pollution Prevention, will be followed to reduce pollution from construction activities. A Phase I Environmental Site Assessment will also be conducted. A rainwater management system will be developed for the site to meet BWSC standards, at a minimum, and with the goal of complying with the requirements for the Rainwater Management credits. The Heat Island Reduction credit will be targeted by selecting light colored and vegetated roof surfaces. Strategies to reduce light pollution will also be investigated as the development of the site design progresses.

3.16.2.5 Water Efficiency

Strategies will be investigated for water use reduction, including landscape design options such as planting strategies on the proposed roof garden that do not require extensive irrigation, and the inclusion of an approximately 35,000 gallon tank on-site to be used for rainwater capture with the possibility of reusing the captured water to meet the irrigation demand as well as providing make-up water for the cooling tower. Additionally, low flow water fixtures and fittings will be specified.

3.16.2.6 Energy and Atmosphere

Energy efficiency is especially important to BIDMC, as hospital buildings have significant energy needs and operate 24 hours a day, 7 days a week. A range of energy reduction options are currently being evaluated for energy saving measures such as triple glazed windows, heat recovery, dedicated outside air systems, and chilled beams. The Project scope includes Enhanced Commissioning services (including envelope commissioning) to ensure the building systems will actually operate as designed.

3.16.2.7 Materials and Resources

Dedicated recycling areas will be included in the design to meet the prerequisite Storage and Collection of Recyclables, and during construction a Construction Waste Management plan will be developed and implemented to divert materials away from landfills. Specification of products for the building will consider multiple health, safety and wellness factors, including mercury, lead, cadmium and copper content, material ingredients and the availability of Environmental Product Disclosures.

3.16.2.8 Indoor Environmental Quality

Given the nature of the Project and the importance of maintaining appropriate infection control measures, indoor air quality is an important concern for the Project. The detailed development of the design will explore both engineered solutions (e.g., pressurized entry vestibules) and physical solutions (e.g., low VOC emitting materials) that can help to maintain a healthy indoor environment. Thermal comfort and access to daylight are

important considerations in inpatient facilities. During construction, the contractor will be required to maintain a robust Construction Indoor Air Quality Management Plan.

3.16.2.9 Innovation

An additional point can be earned for the number of LEED Accredited Professionals on the Project team. The Project team is considering innovation credits that could be pursued, and will continue to evaluate them as the design progresses.

3.16.3 Climate Change Resilience

BIDMC recognizes the importance of ensuring the safety of its patients and staff, as well as its importance as a critical facility that needs to provide uninterrupted healthcare services to the City. Ensuring that the hospital is able to keep operating through extreme events, and recovers to full operation as quickly as possible, is essential to fulfilling its mission.

BIDMC has studied the potential impacts from severe storms, and has made significant improvements over the past several years in preparing the hospital for emergency situations brought on by extreme weather events. In 2014, BIDMC initiated a review of campus facilities and their vulnerability to flooding. Portions of the East Campus were impacted by flooding from the Muddy River, and the experiences of other hospitals from Superstorm Sandy, Hurricane Irene and several major hurricanes over the past decade, reinforce the importance of securing the hospital's systems to ensure patient safety and the hospital's ability to recover quickly from an extreme event.

The assessment evaluated the structural vulnerability of the hospital's buildings, type and location of mechanical systems, and the ability to be relocated or flood proofed. Based on the assessment, BIDMC initiated a flood hardening program which included the addition of removable barricades to doors, structural reinforcement, relocation and flood proofing of mechanical equipment, and creating an extensive pump system. An emergency plan is in place to be implemented prior to a storm event to ensure backup fuel for emergency power. If it were ever necessary, the hospital also has a plan for relocating patients within the BIDMC campus or to other network hospitals. The hospital has created the infrastructure necessary to connect a mobile, two megawatt generator to the West Campus for emergency power.

The Project will be designed to successfully address the concerns that were found during the assessment. Critical systems will be located on upper floors and a dewatering system will be installed.

The Climate Change Checklist is included as Appendix C.

LEED v4 for BD+C: Healthcare

Project Checklist

Project Name: BIDMC New Inpatient Building
Date:

Y	HM	N			
1			Credit	Integrative Process	1

5	0	4	Location and Transportation	9
			Credit	LEED for Neighborhood Development Location	9
1			Credit	Sensitive Land Protection	1
		2	Credit	High Priority Site	2
1			Credit	Surrounding Density and Diverse Uses	1
2			Credit	Access to Quality Transit	2
1			Credit	Bicycle Facilities	1
		1	Credit	Reduced Parking Footprint	1
		1	Credit	Green Vehicles	1

4	0	5	Sustainable Sites	9
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	Environmental Site Assessment	Required
		1	Credit	Site Assessment	1
		1	Credit	Site Development - Protect or Restore Habitat	1
2			Credit	Open Space	1
1			Credit	Rainwater Management	2
1			Credit	Heat Island Reduction	1
		1	Credit	Light Pollution Reduction	1
		1	Credit	Place of Respite	1
		1	Credit	Direct Exterior Acess	1

6	0	5	Water Efficiency	11	
Y			Prereq	Outdoor Water Use Reduction	Required	
Y			Prereq	Indoor Water Use Reduction	Required	
Y			Prereq	Building-Level Water Metering	Required	
1			Credit	Outdoor Water Use Reduction	1	
3		4	Credit	Indoor Water Use Reduction	7	rainwater harvesti
2			Credit	Cooling Tower Water Use	2	
		1	Credit	Water Metering	1	

16	0	19	Energy and Atmosphere	35	
Y			Prereq	Fundamental Commissioning and Verification	Required	
Y			Prereq	Minimum Energy Performance	Required	
Y			Prereq	Building-Level Energy Metering	Required	
Y			Prereq	Fundamental Refrigerant Management	Required	
5		1	Credit	Enhanced Commissioning	6	Include envelope comissioni
10		10	Credit	Optimize Energy Performance	20	
		1	Credit	Advanced Energy Metering	1	
		2	Credit	Demand Response	2	
		3	Credit	Renewable Energy Production	3	
1			Credit	Enhanced Refrigerant Management	1	
		2	Credit	Green Power and Carbon Offsets	2	

7	0	12	Materials and Resources	19
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
Y			Prereq	PBT Source Reduction - Mercury	Required
		5	Credit	Building Life-Cycle Impact Reduction	5
1		1	Credit	Building Product Disclosure and Optimization - EPDs	2
		2	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1			Credit	PBT Source Reduction - Mercury	1
2			Credit	PBT Source Reduction - Lead, Cadmium & Copper	2
1		1	Credit	Furniture and Medical Furnishings	2
		1	Credit	Design for Flexibility	1
1		1	Credit	Construction and Demolition Waste Management	2

12	0	5	Indoor Environmental Quality	16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
2		1	Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
1		1	Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
		1	Credit	Interior Lighting	1
2			Credit	Daylight	2
2			Credit	Quality Views	2
		2	Credit	Acoustic Performance	2

1	0	5	Innovation	6
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
1			Credit	LEED Accredited Professional	1

2	0	2	Regional Priority	4
		0	Credit	LTc2 - High Priority Site, 2 pt threshold	1
1			Credit	SSc4 - Rainwater Management	1
		1	Credit	WEc1 - Indoor Water Use Reduction, 4 pt threshold	1
1			Credit	EAc2 - Optimized Energy Performance, 10 pt threshold	1
		0	Credit	EAc5 - Renewable Energy Production, 2 pt threshold	0
		1	Credit	MRc1 - Building Life Cycle Impact Reduction, 2 pt threshold	0

54	0	57	TOTALS	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

3.17 Urban Design

The Project will create a new architecturally distinguished building at the gateway from the south to the BIDMC campuses and to the LMA generally. The New Inpatient Building will transform the intersection of Francis Street and Brookline Avenue, which is now marked by a power plant and two garages opposite the Project site. The Project site is bound on the southeast by Brookline Avenue, Francis Street on the southwest, Pilgrim Road on the northwest, and the existing Rosenberg Building to the northeast. The site itself currently is largely utilitarian in that it accommodates the existing Main Loading Facility for the Rosenberg Building and the West Campus, a bulk oxygen tank farm and both the pedestrian and ambulance entrances to the emergency department, as well as a limited amount of Emergency Department related parking. Areas immediately adjacent to the site are generally either BIDMC clinical buildings (including the Lowry Medical Office Building on the opposite side of Francis Street, the Farr Complex on the opposite side of Pilgrim Road and the Rosenberg Building to which the Project will physically connect) or utilitarian structures including the Lowry Garage at 110 Francis Street, the Medical Area Total Energy Plant (MATEP) building and the Servicenter Garage at the opposite corners of Brookline Avenue and Francis Street. One block to the south of the site is the intersection of Brookline Avenue and The Riverway, where the Lowry Garage is situated on the west side of Brookline Avenue, as is the Project site, and the Mosaic residential building is located across the street on the east side of Brookline Avenue. One block north along Brookline Avenue, Joslin Park is on the west side of Brookline Avenue and the Dana-Farber Yawkey building is across the street on the east side. Figure 2-1 previously presented in Chapter 2 illustrates the site context.

At the ground level, the Project will have approximately 20,000 sf of exterior space that is below the upper levels that will extend over the edges of the site. The majority of this covered exterior space will be used to accommodate Emergency Department ambulance arrival and/or patient vehicular drop-off space. The efficient operation of the BIDMC West Campus requires that the Main Loading Facility be returned to its current location after completion of the new building; therefore, the relationship of the Project to the Brookline Avenue/Francis Street sidewalks will be similar to the current conditions. An entrance lobby for the Project will be adjacent to the intersection of Francis Street and Pilgrim Road, converting what is currently a steep embankment leading to a parking lot into a revitalized corner.

The building massing will be developed in a manner that both relates to and enhances the existing conditions of the site. Given that the existing Rosenberg Building has a somewhat "busy" character in both massing and materials, the Project will be developed with a somewhat "quieter" presence that relates to, but does not replicate its neighbor. As currently envisioned, this Project will cantilever over the Brookline Avenue sidewalk to the same extent as the Rosenberg Building and at a similar elevation above grade. Similarly, the building wall along Brookline Avenue will likely exist in the same plane as the

Rosenberg Building, though opportunities are being explored to relocate the existing small open space from the intersection of Brookline Avenue and Francis Street to a mid-block location at the juncture of the Rosenberg Building and the proposed Project. Relocating this open space will both provide a break in the streetwall and place it closer to existing pedestrian activity.

The massing of the building will be developed to provide clear distinctions between disparate programmatic elements, serving to both express the various functions of the building through the architecture, as well as to visually reduce the perceived size of the building. Material choices and the detailed development of the architecture will provide additional layers of scale, particularly in the pedestrian realm, that will further enhance the manner in which people experience the building as they move to, through and around it.

3.18 Historic and Archaeological Resources

3.18.1 Archaeological Resources

A review of Massachusetts Historical Commission's online archaeological base maps was conducted on October 13, 2017. It found no known archeological sites within the Project site or the immediate vicinity. The Project site is a previously developed urban parcel. Due to previous development and related site disturbances, it is anticipated that the site will not contain significant archaeological resources.

3.18.2 Impacts to Historic Resources

There are no historic resources on the site, and the site is not within an existing historic district.

Historic resources in the vicinity of the Project site include portions of the Emerald Necklace and the Olmstead Park System to the west, and the Massachusetts Mental Health Center and the Francis Street-Fenwood Road Historic District to the south, which are all listed on the State and National Registers of Historic Places. The Palmer Memorial Hospital at 195 Pilgrim Road and the New England Deaconess Hospital at 175 Pilgrim Road (components of the BIDMC West Campus), are included in the MHC's *Inventory of Historic and Archaeological Assets of the Commonwealth*.

BIDMC will submit a copy of the Environmental Notification Form filed with the Executive Office of Energy and Environmental Affairs (EEA) to the MHC to initiate the State Register Review process. If impacts associated with the Project are unavoidable, BIDMC will work with MHC and interested parties, such as Boston Landmarks Commission and the Boston Preservation Alliance, in developing appropriate measures to mitigate Project impacts to historic resources.

3.19 Infrastructure

3.19.1 Introduction

This section describes the existing infrastructure systems used by the BIDMC at its East and West campuses, as well as future demands and proposed system modifications over the next five years. The infrastructure systems addressed include: sanitary sewer, water supply, stormwater drainage, electrical service, chilled water, natural gas, steam, and telecommunications.

Future demands are based on projects proposed during the term of the IMP. As described in previous sections, there is one IMP project, the New Inpatient Building. In the following sections, this project is evaluated for potential impacts to each infrastructure system.

3.19.2 Sanitary Sewer

3.19.2.1 Existing System Conditions

The Boston Water and Sewer Commission (BWSC) owns and maintains the sewer lines in the public ways that service the East and West campuses. Existing sewer lines within the campuses are owned and maintain by BIDMC.

Sanitary sewer systems in the nearby public streets and campus service roads are separate from stormwater collection systems. Within the campuses, sanitary sewage flows by gravity through the collection system. Separation of sanitary and stormwater flows both maintains the hydraulic capacity of sanitary sewers during intense rainfall periods, and reduces the amount of clean water conveyed through the sewer system and treated at the Deer Island Treatment Plant.

The BIDMC East Campus is serviced by existing BWSC sanitary sewers in Brookline Avenue (15-inch), Longwood Avenue (12-inch and 15-inch), and Blackfan Street (39-inch by 41-inch). Wastewater flows to the Charles River Valley sewer, then to the Ward Street Headworks. Sewage then flows, via the Boston Main Drain, to the Columbus Park Headworks and finally to the Massachusetts Water Resources Authority (MWRA) Deer Island Wastewater Treatment Plant for treatment and disposal. In addition, BIDMC owns and maintains sewers within its property.

The West Campus is serviced by BWSC sanitary sewers located in Brookline Avenue (15-inch), Deaconess Road (15-inch), Pilgrim Road (12-inch), Autumn Street (8-inch and 12-inch), the Riverway (12-inch), and Francis Street (20-inch by 24-inch). Wastewater from the West Campus generally flows in a westerly direction, where it is collected in Francis Street. From Francis Street, wastewater is discharged to the Brookline collector sewer, and ultimately discharges to the Deer Island Wastewater Treatment Plant for treatment and disposal.

3.19.2.2 Future Wastewater Generation & System Modifications

The proposed IMPNF project will contain approximately 158 beds. Based on wastewater generation rates established by the Massachusetts Department of Environmental Protection (310 CMR 15.203) of 200 gallons per day per bed, the Project is expected to generate approximately 31,600 gallons per day of sewage. The Project is expected to discharge to adjacent sanitary sewers in Francis Street, Brookline Avenue and/or Pilgrim Road. All proposed connections will be submitted to BWSC for review and approval.

3.19.3 Water Supply

3.19.3.1 Existing System Conditions

Existing water service for domestic use and fire protection is supplied from water systems owned and operated by the BWSC. BIDMC owns and maintains water mains within its properties. Water is delivered to the LMA through an interconnected network of water distribution systems, designated by BWSC as the Southern Low Service (SLS) Systems and Southern High Service (SHS) Systems.

SLS systems are generally used to meet domestic water needs and street hydrant demand. SHS systems are generally used as the main supply to the low-pressure service system and supplies water for building fire protection systems.

The SLS and SHS systems are integrally connected to form loops that allow major water demands to be fed from more than one direction. Looping allows each distribution system to function at optimum efficiency, and provides a measure of safety and redundancy in the event of a water main break.

The East Campus is serviced by existing BWSC water mains in Brookline Avenue (12-inch SLS, 48-inch SLS), Binney Street (8-inch SLS), Longwood Avenue (12-inch SLS, 48-inch SLS), and Blackfan Street (12-inch SLS). As described previously, BIDMC owns and maintains water mains within its property.

The West Campus is serviced by existing BWSC water mains in Brookline Avenue (12-inch SLS, 48-inch SLS), Francis Street (12-inch SLS), Deaconess Road (8-inch SLS), Pilgrim Road (8-inch SLS, 8-inch Fire Protection), Longwood Avenue (12-inch SLS, 48-inch SLS), Autumn Street (8-inch, 10-inch SLS), and the Riverway (12-inch SLS).

3.19.3.2 Future Water Demand & System Modifications

Water demand is based upon an expected sewage generation rate of 31,600 gallons per day plus an additional 10% for consumption, system losses and other usage. The Project's estimated water demand is 34,760 gallons per day. The Project will connect to adjacent water mains in Francis Street, Brookline Avenue and/or Pilgrim Road. All proposed connections will be submitted to BWSC for review and approval.

3.19.4 Stormwater Drainage

3.19.4.1 Existing System Conditions

BWSC owns and maintains the majority of the stormwater drainage systems servicing both the East and West campuses. The system servicing the East Campus consists of a 15-inch to 42-inch storm drain in Brookline Avenue, and a 42-inch by 42-inch storm drain in Blackfan Street. Additionally, BIDMC owns and maintains a stormwater drainage system in its properties (discharging to Blackfan Street). The stormwater drainage system servicing the East Campus ultimately discharges into the Charles River Basin via the Muddy River Diversion Conduit.

The West Campus is serviced by 10-inch to 36-inch storm drain pipes located in the streets adjacent to the West Campus. The storm drainage system servicing the West Campus discharges in two directions. A portion of the system ultimately discharges into the Charles River Basin via the Muddy River Diversion Conduit. The remainder of the BWSC system servicing the West Campus discharges to the Muddy River near the intersection of Brookline Avenue and the Riverway.

3.19.4.2 Future Stormwater Flows

The Project is seeking to reduce flows discharging from the building site in accordance with BWSC requirements. Conceptually, the Project is contemplating a combination of stormwater harvesting, re-use, and groundwater re-charge in a manner to reduce stormwater runoff and improve runoff water quality as required by BWSC. The conceptual system will remove nutrients such as phosphorus via both stormwater harvesting, which takes stormwater then re-uses it then discharges to sanitary sewers and groundwater recharge. The Project is conducting the geotechnical testing required to support the design of a recharge system and further system details can be presented in the DPIR.

3.19.5 Electrical Service

3.19.5.1 Existing System Conditions

Two companies, Eversource and the Medical Area Total Energy Plant (MATEP) provide existing electrical service in the LMA. MATEP currently services many of the non-profit institutions located in the LMA. Currently, both the East and West campuses are serviced by both providers.

3.19.5.2 Future Electrical Requirements

It is anticipated that the Project will be obtaining power from either MATEP or Eversource. The Project is expected to require 4.5 megawatts of power.

3.19.6 Chilled Water

3.19.6.1 Existing System Conditions

MATEP currently provides chilled water to the LMA through an underground distribution network. Both BIDMC campuses use chilled water to provide environmental cooling to campus buildings, and have MATEP chilled water mains within their boundaries.

3.19.6.2 Future Chilled Water Requirements

The Project is expected to produce chilled water at the Project site.

3.19.7 Natural Gas

3.19.7.1 Existing System Conditions

National Grid has a network of low and intermediate pressure natural gas mains servicing the East and West campuses. The East Campus is serviced via natural gas mains in Longwood Avenue (8-inch), Brookline Avenue (12-inch Low Pressure, 16-inch Intermediate Pressure), and Blackfan Street (6-inch). The West Campus is serviced via natural gas mains in Brookline Avenue (4-inch, 16-inch, 8-inch), Francis Street (6-inch), Longwood Avenue (8-inch) and Pilgrim Road (6-inch). Natural gas is used by BIDMC for limited lab burner use as well as kitchen uses.

3.19.7.2 Future Natural Gas Requirements

The Project may potentially require a small amount of natural gas for support kitchens. If required, service will likely be obtained from Brookline Avenue.

3.19.8 Steam

3.19.8.1 Existing System Conditions

MATEP supplies steam to both the East and West campuses through an underground distribution network. Steam is the primary source of heat for both campuses.

3.19.8.2 Future Steam Requirements

The Project is expected to require 15,000 lbs/hr. Service may be obtained from MATEP steam infrastructure or self-generated.

3.19.9 Telecommunications

3.19.8.1 Existing Systems

Verizon, Comcast, MCI/Worldcom and the LMA network telecommunication infrastructure provide service to both East and West campuses. Information regarding these systems is

generally subject to non-disclosure agreements. The East Campus is serviced from telecommunication lines in Longwood Avenue, Binney Street, Brookline Avenue, and Blackfan Street. Lines in Longwood Avenue, Brookline Avenue, Francis Street, Deaconess Road, Joslin Place, Pilgrim Road and Autumn Street service the West Campus.

3.19.8.2 Future System Connections

Depending on Project demands, the Project will either connect to internal telecommunications infrastructure or obtain service in adjacent streets from one or more of the providers listed above.

Chapter 4

Coordination With Other Governmental Agencies

4.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

4.1 Architectural Access Board Requirements

The Project will comply with the requirements of the Architectural Access Board and the standards of the Americans with Disabilities Act. The Accessibility Checklist is included in Appendix B.

4.2 Massachusetts Environmental Policy Act (MEPA)

The Project will be subject to review under the Massachusetts Environmental Policy Act since the Project requires a Determination of Need from the Department of Public Health, and the Project will exceed a review threshold for Transportation. The Proponent will submit an Environmental Notification Form to the MEPA office.

4.3 Massachusetts Historical Commission

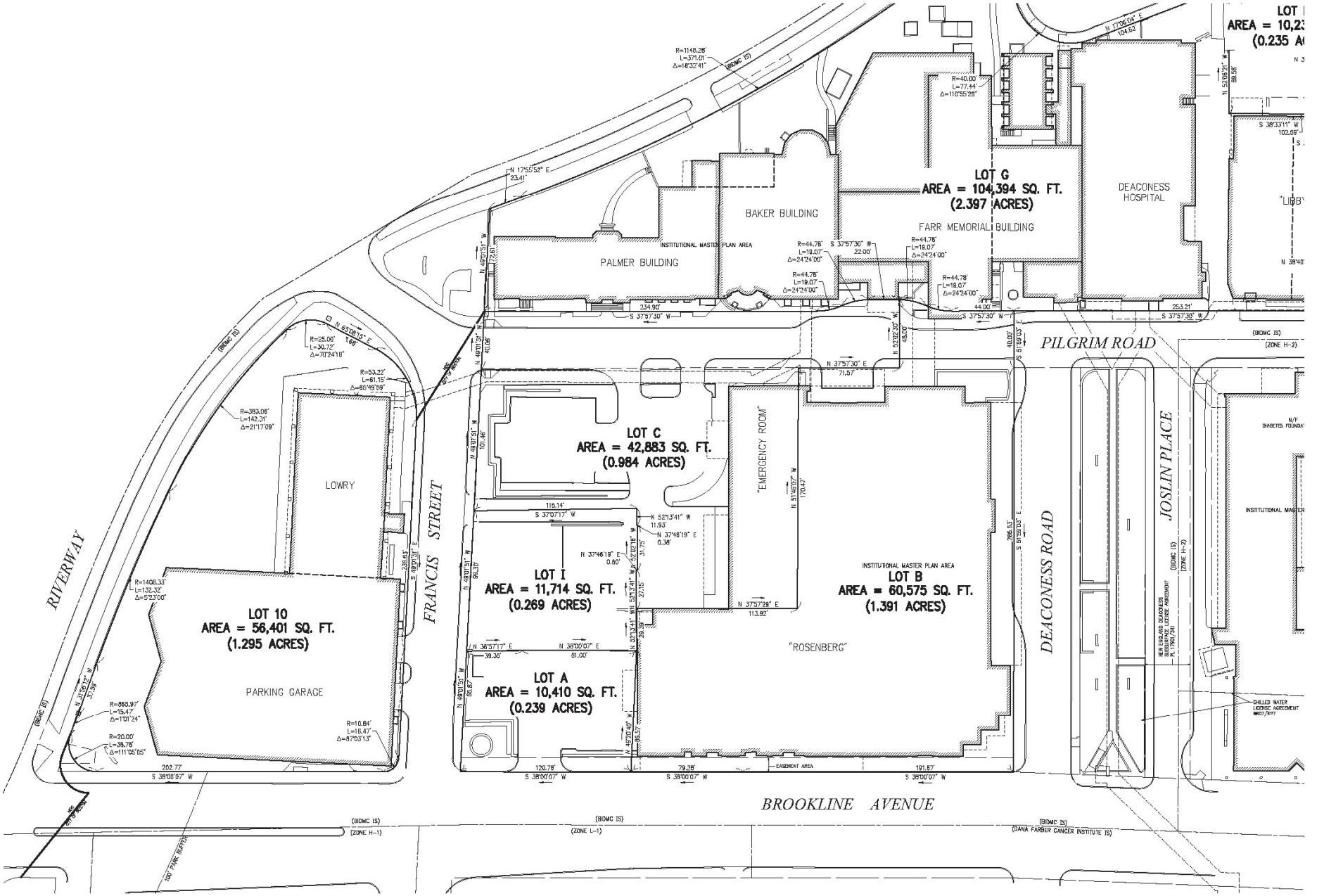
The MHC has review authority over projects requiring state or federal funding, licensing, permitting and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places. It is anticipated that MHC review will be required, and will be initiated through the submission of an Environmental Notification Form in compliance with the Massachusetts Environmental Policy Act.

4.4 Boston Civic Design Commission

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

Appendix A

Site Survey



Beth Israel Deaconess Medical Center

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Appendix B

Accessibility Checklist

Article 80 – Accessibility Checklist

A requirement of the Boston Planning & Development Agency (BPDA)
Article 80 Development Review Process

The Mayor's Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city's built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BDPA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston's built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Massachusetts State Building Code 780 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html
4. Massachusetts Office of Disability – Disabled Parking Regulations
   http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf
5. MBTA Fixed Route Accessible Transit Stations
   http://www.mbta.com/riding_the_t/accessible_services/
6. City of Boston – Complete Street Guidelines
   http://bostoncompletestreets.org/
7. City of Boston – Mayor's Commission for Persons with Disabilities Advisory Board
   www.boston.gov/disability
8. City of Boston – Public Works Sidewalk Reconstruction Policy
   http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
9. City of Boston – Public Improvement Commission Sidewalk Café Policy
   http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf

Glossary of Terms:

1. ***Accessible Route*** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. ***Accessible Group 2 Units*** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. ***Accessible Guestrooms*** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. ***Inclusionary Development Policy (IDP)*** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: http://www.bostonplans.org/housing/overview
5. ***Public Improvement Commission (PIC)*** – The regulatory body in charge of managing the public right of way. For more information visit: https://www.boston.gov/pic
6. ***Visitability*** – A place's ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

1. Project Information:

If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.

Project Name:	Beth Israel Deaconess Medical Center – New Inpatient Building
Primary Project Address:	111 Francis Street, Boston, MA 02215
Total Number of Phases/Buildings:	1 Phase, 1 Building
Primary Contact (Name / Title / Company / Email / Phone):	Walter Armstrong SVP Capital Facilities and Engineering Beth Israel Deaconess Medical Center warmstro@bidmc.harvard.edu 617 667 0377
Owner / Developer:	Owner
Architect:	Payette Associates, Inc 290 Congress St, Fifth Floor Boston MA 02210
Civil Engineer:	VHB 99 High St, Tenth Floor Boston, MA 02110
Landscape Architect:	Payette Associates, Inc 290 Congress St, Fifth Floor Boston MA 02210
Permitting:	Epsilon Associates 3 Mill & Main Place, Suite 250 Maynard, MA 01754
Construction Management:	Turner Construction Company 2 Seaport Lane Boston, MA 02210

At what stage is the project at time of this questionnaire? Select below:

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BPDA Board Approved
BPDA Design Approved	Under Construction	Construction Completed:

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? *If yes,* identify and explain.	No

2. Building Classification and Description:

This section identifies preliminary construction information about the project including size and uses.

What are the dimensions of the project?				
Site Area:	*42,700 SF*	Building Area:		*345,000 GSF*
Building Height:	*200 FT.*	Number of Stories:		*10 Flrs.*
First Floor Elevation:	33'-0"	Is there below grade space:		*Yes*
What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	Steel Frame	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	Residential - Multi-unit, Four +	***Institutional***	Educational
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	*Loading Dock, Building Lobby*			

3. Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly & disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	The development is located in a dense urban environment within the Longwood Medical and Academic Area. Topographically, the site ranges in elevation from elevation 43 to 33 (BCB).
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	The Longwood Medical and Academic Area is between the MBTA Green D and E lines and within a half mile of the station. Several MBTA bus routes pass through and stop near the site on Brookline Avenue.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	The site is located with the Longwood Medical and Academic Area and is part of BIDMC's West Campus. The project is located near several hospitals and local universities, including Dana-Farber Cancer Institute, Joslin Diabetes Center, Boston Children's Hospital, Brigham and Women's Hospital, Wheelock College, Simmons College, Harvard Medical School and near the Mosaic residential building and other Roxbury Tenants of Harvard housing.
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	There are no nearby government buildings and libraries. The Roxbury Tenants of Harvard has a recreational center located on Fenwood Road.

4. Surrounding Site Conditions – Existing: *This section identifies current condition of the sidewalks and pedestrian ramps at the development site.*	
Is the development site within a historic district? *If yes,* identify which district:	No.
Are there sidewalks and pedestrian ramps existing at the development site? *If yes*, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	Yes, there are existing pedestrian ramps adjacent to the development site. The sidewalks and ramps are cement concrete and have varying widths and slopes.
Are the sidewalks and pedestrian ramps existing-to-remain? *If yes,* have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? *If yes,* provide description and photos:	Existing ramps immediately adjacent to the proposed building will be re-designed to ADA standards (concrete with detectable warnings).
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? *If yes*, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	The proposed sidewalks will be consistent with the Boston Complete Street Guidelines based on the preliminary determination of either a Downtown Commercial or Downtown Mixed-Use street-type.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	While the project is in very preliminary stages of design, it is currently expected that the sidewalk along Brookline Avenue will at a minimum maintain the approximately 11' width that currently exists along the face of the adjacent Rosenberg Building. A proposed sidewalk width has not yet been determined along Francis Street, though the project aims to improve upon the approximately 6'-6" width currently in existence to comply with the width requirements of a Downtown Commercial or Downtown Mixed-Use street-type.

	A proposed sidewalk width has not yet been determined along Pilgrim Road, though it is expected that the project will comply with the width requirements of a Downtown Commercial or Downtown Mixed-Use street-type.
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	Proposed materials have not yet been determined, though it is expected that the proposed materials will comply with normal City standards. Materials along Brookline Avenue will exist on private property, but generally within the extents of an existing sidewalk easement. Sidewalks along Francis Street will exist at least in part within the City of Boston pedestrian right-of-way, though efforts to widen that sidewalk would result in some portion of it being on private property. The sidewalk along Pilgrim Road will be entirely on private property.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? *If yes,* what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	N/A
Will any portion of the Project be going through the PIC? *If yes,* identify PIC actions and provide details.	Yes. The project is expected to require PIC approval of Specific Repair Plans for improvements to the public right-of-way along Francis Street and Brookline Avenue, and depending on the final project design might require licenses or other rights for projections over or under the public right-of-way (e.g., awnings and temporary support of excavations).
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	No new parking is proposed.
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	N/A

Will any on-street accessible parking spaces be required? *If yes,* has the proponent contacted the Commission for Persons with Disabilities regarding this need?	N/A
Where is the accessible visitor parking located?	Existing LMA garages.
Has a drop-off area been identified? *If yes,* will it be accessible?	Yes. The drop-off area will be accessible.
7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors.*	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	Public building entrances will be designed as a flush condition. Entrances into the building in the loading dock will be accessible by stairs and a ramp.
Are the accessible entrances and standard entrance integrated? *If yes, describe. If no,* what is the reason?	Yes.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	BIDMC, in conjunction with the IMP process, is evaluating wayfinding influenced by the new Project.
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	N/A

If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	N/A
If a residential development, how many accessible Group 2 units are being proposed?	N/A
If a residential development, how many accessible Group 2 units will also be IDP units? *If none*, describe reason.	N/A
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? *If yes,* provide amount and location of equipment.	N/A
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. *If yes*, provide reason.	N/A
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? *If yes*, describe:	N/A
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community*.	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	No off-site improvements have been identified at this time. The Proponent will provide an update to this status with the DPIR.

What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	The New Inpatient Building will be fully ADA compliant. Public areas such as the Lobby, waiting rooms and rooftop garden will accommodate persons with disabilities.
Are any restrooms planned in common public spaces? *If yes,* will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? *If no*, explain why not.	There will be public restrooms in the lobby, waiting rooms on patient floors and the OR floor, and public spaces such as the sky bridge. Restrooms will be compliant with ADA as required. There will be at least one single stall, Family/Companion restroom accessible from the public space.
Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? *If yes,* did they approve? *If no,* what were their comments?	Not at this time, but a meeting to review will be scheduled to review the design shortly after filing the IMPNF.
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? *If no,* what recommendations did the Advisory Board give to make this project more accessible?	Not at this time, but a meeting to review will be scheduled to review the design shortly after filing the IMPNF.

10. Attachments

Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances. **See Figure 2-7 in the IMPNF/PNF for access points to the building.**

Provide a diagram of the accessible route connections through the site, including distances.

Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable) TBD
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry. N/A
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • •

This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit www.boston.gov/disability, or our office:

The Mayor's Commission for Persons with Disabilities
1 City Hall Square, Room 967,
Boston MA 02201.

Architectural Access staff can be reached at:

accessibility@boston.gov | patricia.mendez@boston.gov | sarah.leung@boston.gov | 617-635-3682

Appendix C

Climate Change Checklist

Boston Planning & Development Agency
Climate Resiliency Report Summary

Submitted: 01/10/2018 12:51:09

A.1 - Project Information

Project Name:	Beth Israel Deaconess Medical Center - New Inpatient Building			
Project Address:	111 Francis Street			
Filing Type:	Initial (PNF, EPNF, NPC or other substantial filing)			
Filing Contact:	Geoff Starsiak	Epsilon Associates, Inc.	gstarsiak@epsilonassociates.com	9788977100
Is MEPA approval required?	Yes	MEPA date:		

A.2 - Project Team

Owner / Developer:	Beth Israel Deaconess Medical Center
Architect:	Payette Associates, Inc.
Engineer:	BR+A
Sustainability / LEED:	Payette Associates, Inc.
Permitting:	Epsilon Associates, Inc.
Construction Management:	Turner Construction Company

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Hospital
List the First Floor Uses:	Hospital, loading
List any Critical Site Infrastructure and or Building Uses:	Hospital uses

Site and Building:

Site Area (SF):	42,700	Building Area (SF):	345,000
Building Height (Ft):	200	Building Height (Stories):	10
Existing Site Elevation – Low (Ft BCB):	32	Existing Site Elevation – High (Ft BCB):	43
Proposed Site Elevation – Low (Ft BCB):	32	Proposed Site Elevation – High (Ft BCB):	43
Proposed First Floor Elevation (Ft BCB):		Below grade spaces/levels (#):	1

Article 37 Green Building:

LEED Version - Rating System:	LEED v4 BD+C Healthcare	LEED Certification:	

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Proposed LEED rating:	Silver	Proposed LEED point score (Pts.):	54

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	Using other projects and extrapolating information		
Annual Electric (kWh):	13900000	Peak Electric (kW):	4,500
Annual Heating (MMbtu/hr):	19,000	Peak Heating (MMbtu):	35.8
Annual Cooling (Tons/hr):	334,000	Peak Cooling (Tons):	1,600
Energy Use - Below ASHRAE 90.1 - 2013 (%):		Have the local utilities reviewed the building energy performance?:	No
Energy Use - Below Mass. Code (%):		Energy Use Intensity (kBtu/SF):	

Back-up / Emergency Power System

Electrical Generation Output (kW):	2,000	Number of Power Units:	2
System Type (kW):	Combustion	Fuel Source:	Diesel

Emergency and Critical System Loads (in the event of a service interruption)

Electric (kW):	4,000	Heating (MMbtu/hr):	35.8
		Cooling (Tons/hr):	1,600

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing greenhouse gas emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon-neutrality by 2050 the performance of new buildings will need to progressively improve to carbon net zero and net positive.

B.1 – GHG Emissions - Design Conditions

For this filing - Annual Building GHG Emissions (Tons):

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

The design team has modeled a patient room to help align the design of the building envelope with the capacity of the cooling system, in order to determine the preferred mechanical system (linking mechanical selection with façade design).

Describe building specific passive energy efficiency measures including orientation, massing, building envelop, and systems:

Building orientation is determined by the lot dimensions. The design team is studying ways to break up the massing to tweak portions of the massing in favorable ways to increase energy efficiency.

Describe building specific active energy efficiency measures including high performance equipment, controls, fixtures, and systems:

A range of energy reduction options are currently being evaluated for energy saving measures such as triple glazed windows, heat recovery, dedicated outside air systems, and chilled beams.

Describe building specific load reduction strategies including on-site renewable energy, clean energy, and storage systems:

The design team is studying load reduction strategies to determine what may be feasible. The team is studying the potential for water storage on-site as a potential way to store energy.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

MATEP provides electricity, steam and chilled water to parts of BIDMC's campuses.

Describe any energy efficiency assistance or support provided or to be provided to the project:

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

As BIDMC will own and run the building as long as it meets its needs, the building is being designed to be adaptable to changing health care industry, allowing for equipment to be moved in and out. Similarly, it is anticipated that other, non-medical equipment, could be handled in a similar fashion.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low (Deg.):	8	Temperature Range - High (Deg.):	91
Annual Heating Degree Days:		Annual Cooling Degree Days	

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90° (#):	60	Days - Above 100° (#):	30
Number of Heatwaves / Year (#):	6	Average Duration of Heatwave (Days):	5

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

The Project will include green roofs and light roof areas. Street trees are also being considered, where feasible.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

The design team seeks to design a building that is as energy efficient as possible and is responsive to the unique climatic and environmental factors of the proposed site. The design is expected to include a high performance mechanical system, façade designs that are tuned to the specific solar exposure of each side of the building, and green roofs where feasible.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

As a hospital, continued operation in all conditions is necessary. BIDMC has an emergency plan that allows for the continued operation of the hospital in extreme cases for extended periods of time (weeks), with plans in place to extend operations as long as necessary, or the selective closing of certain facilities that are less critical.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

What is the project design precipitation level? (In. / 24 Hours)	6

Describe all building and site measures for reducing storm water run-off:

The Project will infiltrate one-inch of run-off per 24/hour storm. The design team is looking at opportunities to reuse rainwater.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

The design team is looking at opportunities to reuse rainwater and will include a green roof. The Project will also be designed to be consistent with BIDMC's efforts to reduce the potential impact of flooding on its campus.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, the sea level in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA Special Flood Hazard Area?	No	What Zone:	
What is the current FEMA SFHA Zone Base Flood Elevation for the site (Ft BCB)?			
Is any portion of the site in the BPDA Sea Level Rise Flood Hazard Area (see SLR-FHA online map)?	No		

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented by the Sea Level Rise Flood Hazard Area (SLR-FHA), which includes 3.2' of sea level rise above 2013 tide levels, an additional 2.5" to account for subsidence, and the 1% Annual Chance Flood. After using the SLR-FHA to identify a project's Sea Level Rise Base Flood Elevation, proponents should calculate the Sea Level Rise Design Flood Elevation by adding 12" of freeboard for buildings, and 24" of freeboard for critical facilities and infrastructure and any ground floor residential units.

What is the Sea Level Rise - Base Flood Elevation for the site (Ft BCB)?			
What is the Sea Level Rise - Design Flood Elevation for the site (Ft BCB)?		First Floor Elevation (Ft BCB):	
What are the Site Elevations at Building (Ft BCB)?		What is the Accessible Route Elevation (Ft BCB)?	

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Describe any strategies that would support rapid recovery after a weather event:

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

Thank you for completing the Boston Climate Change Checklist!

For questions or comments about this checklist or Climate Change best practices, please contact:
John.Dalzell@boston.gov