MASS GENERAL BRIGHAM INCORPORATED

DON APPLICATION # MGB-20121716-HE
SUBSTANTIAL CAPITAL EXPENDITURE
SUBSTANTIAL CHANGE IN SERVICE
BRIGHAM AND WOMEN'S FAULKNER HOSPITAL

January 21, 2021

BY

MASS GENERAL BRIGHAM INCORPORATED
800 BOYLSTON STREET, SUITE 1150
BOSTON, MA 02199

MASS GENERAL BRIGHAM INCORPORATED
APPLICATION # MGB-20121716-HE

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Appendix 1

DoN Application Form

Massachusetts Department of Public Health
Determination of Need
Application Form

Version: 11-8-17

Application Type: Hospital/Clinic Substantial Capital Expenditure

Application Date: 01/21/2021

Applicant Name: Mass General Brigham Incorporated

Mailing Address: 800 Boylston Street, Suite 1150

City: Boston State: Massachusetts Zip Code: 02199

Contact Person: Andrew Levine, Esq. Title: Attorney

Mailing Address: One Beacon Street, Suite 1320

City: Boston State: Massachusetts Zip Code: 02108

Phone: 6175986700 Ext: E-mail: alevine@barrettsingal.com

Facility Information

List each facility affected and or included in Proposed Project

1 Facility Name: Brigham and Women's Faulkner Hospital

Facility Address: 1153 Centre Street

City: Boston State: Massachusetts Zip Code: 02130

Facility type: Hospital CMS Number: 220119

Add additional Facility Delete this Facility

1. About the Applicant

1.1 Type of organization (of the Applicant): nonprofit

1.2 Applicant's Business Type: (•) Corporation ( ) Limited Partnership ( ) Partnership ( ) Trust ( ) LLC ( ) Other

1.3 What is the acronym used by the Applicant's Organization? MGB

1.4 Is Applicant a registered provider organization as the term is used in the HPC/CHIA RPO program? (•) Yes ( ) No

1.5 Is Applicant or any affiliated entity an HPC-certified ACO? (•) Yes ( ) No

1.5.a If yes, what is the legal name of that entity? Mass General Brigham Incorporated (f/k/a Partners HealthCare System, Inc.), inclusive of Partners HealthCare Accountable Care Organization, LLC *

1.6 Is Applicant or any affiliate thereof subject to M.G.L. c. 6D, § 13 and 958 CMR 7.00 (filing of Notice of Material Change to the Health Policy Commission)? ( ) Yes (•) No

* As of March 2021, the legal name of the Applicant's ACO will become Mass General Brigham Incorporated, inclusive of Mass General Brigham ACO, LLC.

1.7 Does the Proposed Project also require the filing of a MCN with the HPC? ○ Yes ◉ No

1.8 Has the Applicant or any subsidiary thereof been notified pursuant to M.G.L. c. 12C, § 16 that it is exceeding the health care cost growth benchmark established under M.G.L. c. 6D, § 9 and is thus, pursuant to M.G.L. c. 6D, §10 required to file a performance improvement plan with CHIA? ○ Yes ◉ No

1.9 Complete the Affiliated Parties Form

2. Project Description

2.1 Provide a brief description of the scope of the project.

See Attached Narrative.

2.2 and 2.3 Complete the Change in Service Form

3. Delegated Review

3.1 Do you assert that this Application is eligible for Delegated Review? ○ Yes ◉ No

4. Conservation Project

4.1 Are you submitting this Application as a Conservation Project? ○ Yes ◉ No

5. DoN-Required Services and DoN-Required Equipment

5.1 Is this an application filed pursuant to 105 CMR 100.725: DoN-Required Equipment and DoN-Required Service? ◉ Yes ○ No

5.2 If yes, is Applicant or any affiliated entity thereof a HPC-certified ACO? ◉ Yes ○ No

5.2.a If yes, Please provide the date of approval and attach the approval letter: 12/29/2017

5.3 **See section on DoN-Required Services and DoN-Required Equipment in the Application Instructions**

6. Transfer of Ownership

6.1 Is this an application filed pursuant to 105 CMR 100.735? ○ Yes ◉ No

7. Ambulatory Surgery

7.1 Is this an application filed pursuant to 105 CMR 100.740(A) for Ambulatory Surgery? ○ Yes ◉ No

8. Transfer of Site

8.1 Is this an application filed pursuant to 105 CMR 100.745? ○ Yes ◉ No

9. Research Exemption

9.1 Is this an application for a Research Exemption? ○ Yes ◉ No

10. Amendment

10.1 Is this an application for a Amendment? ○ Yes ◉ No

11. Emergency Application

11.1 Is this an application filed pursuant to 105 CMR 100.740(B)? ○ Yes ◉ No

12. Total Value and Filing Fee

Enter all currency in numbers only. No dollar signs or commas. Grayed fields will auto calculate depending upon answers above.

Your project application is for: Hospital/Clinic Substantial Capital Expenditure

12.1 Total Value of this project:	$150,098,582.00
12.2 Total CHI commitment expressed in dollars: (calculated)	$7,504,929.10
12.3 Filing Fee: (calculated)	$300,197.16
12.4 Maximum Incremental Operating Expense resulting from the Proposed Project:	$11,685,000.00
12.5 Total proposed Construction costs, specifically related to the Proposed Project, If any, which will be contracted out to local or minority, women, or veteran-owned businesses expressed in estimated total dollars.	

13. Factors

Required Information and supporting documentation consistent with 105 CMR 100.210
Some Factors will not appear depending upon the type of license you are applying for.
Text fields will expand to fit your response.

Factor 1: Applicant Patient Panel Need, Public Health Values and Operational Objectives

F1.a.i **Patient Panel:**
Describe your existing Patient Panel, including incidence or prevalence of disease or behavioral risk factors, acuity mix, noted health disparities, geographic breakdown expressed in zip codes or other appropriate measure, demographics including age, gender and sexual identity, race, ethnicity, socioeconomic status and other priority populations relevant to the Applicant's existing patient panel and payer mix.

See Attached Narrative.

F1.a.ii **Need by Patient Panel:**
Provide supporting data to demonstrate the need for the Proposed Project. Such data should demonstrate the disease burden, behavioral risk factors, acuity mix, health disparities, or other objective Patient Panel measures as noted in your response to Question F1.a.i that demonstrates the need that the Proposed Project is attempting to address. If an inequity or disparity is not identified as relating to the Proposed Project, provide information justifying the need. In your description of Need, consider the principles underlying Public Health Value (see instructions) and ensure that Need is addressed in that context as well.

See Attached Narrative.

F1.a.iii **Competition:**
Provide evidence that the Proposed Project will compete on the basis of price, total medical expenses, provider costs, and other recognized measures of health care spending. When responding to this question, please consider Factor 4, Financial Feasibility and Reasonableness of Costs.

See Attached Narrative.

F1.b.i **Public Health Value /Evidence-Based:**
Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified.

See Attached Narrative.

F1.b.ii **Public Health Value /Outcome-Oriented:**
Describe the impact of the Proposed Project and how the Applicant will assess such impact. Provide projections demonstrating how the Proposed Project will improve health outcomes, quality of life, or health equity. Only measures that can be tracked and reported over time should be utilized.

See Attached Narrative.

F1.b.iii **Public Health Value /Health Equity-Focused:**
For Proposed Projects addressing health inequities identified within the Applicant's description of the Proposed Project's need-base, please justify how the Proposed Project will reduce the health inequity, including the operational components (e.g. culturally competent staffing). For Proposed Projects not specifically addressing a health disparity or inequity, please provide information about specific actions the Applicant is and will take to ensure equal access to the health benefits created by the Proposed Project and how these actions will promote health equity.

See Attached Narrative.

F1.b.iv Provide additional information to demonstrate that the Proposed Project will result in improved health outcomes and quality of life of the Applicant's existing Patient Panel, while providing reasonable assurances of health equity.

See Attached Narrative.

F1.c Provide evidence that the Proposed Project will operate efficiently and effectively by furthering and improving continuity and coordination of care for the Applicant's Patient Panel, including, how the Proposed Project will create or ensure appropriate linkages to patients' primary care services.

See Attached Narrative.

F1.d Provide evidence of consultation, both prior to and after the Filing Date, with all Government Agencies with relevant licensure, certification, or other regulatory oversight of the Applicant or the Proposed Project.

See Attached Narrative.

F1.e.i Process for Determining Need/Evidence of Community Engagement: For assistance in responding to this portion of the Application, Applicant is encouraged to review *Community Engagement Standards for Community Health Planning Guideline*. With respect to the existing Patient Panel, please describe the process through which Applicant determined the need for the Proposed Project.

See Attached Narrative.

F1.e.ii Please provide evidence of sound Community Engagement and consultation throughout the development of the Proposed Project. A successful Applicant will, at a minimum, describe the process whereby the "Public Health Value" of the Proposed Project was considered, and will describe the Community Engagement process as it occurred and is occurring currently in, at least, the following contexts: Identification of Patient Panel Need; Design/selection of DoN Project in response to "Patient Panel" need; and Linking the Proposed Project to "Public Health Value".

See Attached Narrative.

Factor 2: Health Priorities

Addresses the impact of the Proposed Project on health more broadly (that is, beyond the Patient Panel) requiring that the Applicant demonstrate that the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment, improved public health outcomes, and delivery system transformation.

F2.a **Cost Containment:**
Using objective data, please describe, for each new or expanded service, how the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment.

See Attached Narrative.

F2.b **Public Health Outcomes:**
Describe, as relevant, for each new or expanded service, how the Proposed Project will improve public health outcomes.

See Attached Narrative.

F2.c **Delivery System Transformation:**
Because the integration of social services and community-based expertise is central to goal of delivery system transformation, discuss how the needs of their patient panel have been assessed and linkages to social services organizations have been created and how the social determinants of health have been incorporated into care planning.

See Attached Narrative.

Factor 3: Compliance

Applicant certifies, by virtue of submitting this Application that it is in compliance and good standing with federal, state, and local laws and regulations, including, but not limited to M.G.L. c. 30, §§ 61 through 62H and the applicable regulations thereunder, and in compliance with all previously issued notices of Determination of Need and the terms and conditions attached therein .

F3.a Please list all previously issued Notices of Determination of Need

Add/Del Rows	Project Number	Date Approved	Type of Notification	Facility Name
+ -	PHS-17071716-TO	02/14/2018	Transfer of Ownership	Massachusetts Eye and Ear Infirmary
+ -	PHS-17111513-HE	03/06/2018		Brigham and Women's Hospital
+ -	PHS-18022210-HE	06/13/2018		Massachusetts General - Waltham
+ -	PHS-18090711-HS	01/03/2019	Hospital/Clinic Substantial Change in Service	Massachusetts General Physicians Organization - Waltham
+ -	PHS-19030610-HS	08/09/2019	Hospital/Clinic Substantial Change in Service	Brigham and Women's Faulkner Hospital
+ -	PHS-19040915-HE	10/25/2019		Massachusetts General Hospital
+ -	PHS-19072212-RE	12/16/2019	DoN-Required Equipment	Brigham and Women's/Mass General Health Care Center, Foxborough
+ -	PHS-19093011-HS	02/19/2020	Hospital/Clinic Substantial Change in Service	Massachusetts General Physicians Organization - Assembly Row
+ -	PHS-19092711-HE	03/18/2020		Newton-Wellesley Hospital
+ -	MGB-20101916-TS	11/09/2020	Transfer of Site/Change in Designated Location	McLean Hospital

Factor 4: Financial Feasibility and Reasonableness of Expenditures and Costs

Applicant has provided (as an attachment) a certification, by an independent certified public accountant (CPA) as to the availability of sufficient funds for capital and ongoing operating costs necessary to support the Proposed Project without negative impacts or consequences to the Applicant's existing Patient Panel.

F4.a.i **Capital Costs Chart:**
For each Functional Area document the square footage and costs for New Construction and/or Renovations.

		Present Square Footage		Square Footage Involved in Project				Resulting Square Footage		Total Cost		Cost/Square Footage	
				New Construction		Renovation							
Add/Del Rows	Functional Areas	Net	Gross	Net	Gross	Net	Gross	Net	Gross	New Construction	Renovation	New Construction	Renovation
+ -	See Attached F4.a.i Capital Costs Chart												
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F4.a.ii For each Category of Expenditure document New Construction and/or Renovation Costs.

	Category of Expenditure	New Construction	Renovation	Total (calculated)
	Land Costs			
	Land Acquisition Cost	$0.	$0.	$0.
	Site Survey and Soil Investigation	$240500.	$0.	$240500.
	Other Non-Depreciable Land Development	$0.	$0.	$0.
	Total Land Costs	$240500.	$0.	$240500.
	Construction Contract (including bonding cost)			
	Depreciable Land Development Cost	$0.	$0.	$0.
	Building Acquisition Cost	$0.	$0.	$0.
	Construction Contract (including bonding cost)	$117816104.	$8068530.	$125884634.
	Fixed Equipment Not in Contract	$4965000.	$1835425.	$6800425.
	Architectural Cost (Including fee, Printing, supervision etc.) and Engineering Cost	$8305875.	$1099874.	$9405749.
	Pre-filing Planning and Development Costs	$1347908.	$178491.	$1526399.
	Post-filing Planning and Development Costs	$185443.	$24557.	$210000.
Add/Del Rows	Other (specify)			
+ -	Abatement, Environmental Monitoring, Testing, Moving & Storage, Permits, Project Support)	$4054404.	$1136889.	$5191293.
	Net Interest Expensed During Construction	$0.	$0.	$0.
	Major Movable Equipment	$0.	$0.	$0.
	Total Construction Costs	$136674734.	$12343766.	$149018500.
	Financing Costs:			
	Cost of Securing Financing (legal, administrative, feasibility studies, mortgage insurance, printing, etc	$770148.	$69434.	$839582.
	Bond Discount	$0.	$0.	$0.
Add/Del Rows	Other (specify			
+ -				
	Total Financing Costs	$770148.	$69434.	$839582.
	Estimated Total Capital Expenditure	$137685382.	$12413200.	$150098582.

Factor 5: Relative Merit

F5.a.i Describe the process of analysis and the conclusion that the Proposed Project, on balance, is superior to alternative and substitute methods for meeting the existing Patient Panel needs as those have been identified by the Applicant pursuant to 105 CMR 100.210(A)(1). When conducting this evaluation and articulating the relative merit determination, Applicant shall take into account, at a minimum, the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives or substitutes, including alternative evidence-based strategies and public health interventions.

Proposal:

See Attached Narrative.

Quality:

See Attached Narrative.

Efficiency:

See Attached Narrative.

Capital Expense:

See Attached Narrative.

Operating Costs:

See Attached Narrative.

List alternative options for the Proposed Project:

Alternative Proposal:

See Attached Narrative.

Alternative Quality:

See Attached Narrative.

Alternative Efficiency:

See Attached Narrative.

Alternative Capital Expense:

See Attached Narrative.

Alternative Operating Costs:

See Attached Narrative.

Add additional Alternative Project | Delete this Alternative Project

F5.a.ii Describe the process of analysis and the conclusion that the Proposed Project, on balance, is superior to alternative and substitute methods for meeting the existing Patient Panel needs as those have been identified by the Applicant pursuant to 105 CMR 100.210(A)(1). When conducting this evaluation and articulating the relative merit determination, Applicant shall take into account, at a minimum, the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives or substitutes, including alternative evidence-based strategies and public health interventions.

See Attached Narrative.

Documentation Check List

The Check List below will assist you in keeping track of additional documentation needed for your application.

Once you have completed this Application Form the additional documents needed for your application will be on this list. E-mail the documents as an attachment to: DPH.DON@state.ma.us

- ☒ Copy of Notice of Intent
- ☒ Affidavit of Truthfulness Form
- ☒ Scanned copy of Application Fee Check
- ☒ Affiliated Parties Table Question 1.9
- ☒ Change in Service Tables Questions 2.2 and 2.3
- ☒ Certification from an independent Certified Public Accountant
- ☒ Articles of Organization / Trust Agreement
- ☒ Community Engagement Plan form
- ☒ Current IRS Form, 990 Schedule H CHNA/CHIP and/or Current CHNA/CHIP submitted to Massachusetts AGO's Office
- ☒ Community Engagement Stakeholder Assessment form
- ☒ Community Engagement-Self Assessment form

Document Ready for Filing

When document is complete click on "document is ready to file". This will lock in the responses and date and time stamp the form. To make changes to the document un-check the "document is ready to file" box. Edit document then lock file and submit Keep a copy for your records. Click on the "Save" button at the bottom of the page.

To submit the application electronically, click on the"E-mail submission to Determination of Need" button.

This document is ready to file: ☐ Date/time Stamp:

E-mail submission to Determination of Need

Application Number: MGB-20121716-HE

Use this number on all communications regarding this application.

☒ Community Engagement-Self Assessment form

Appendix 2

DoN Narrative

2.1 Provide a brief description of the scope of the project.

The Applicant

Mass General Brigham Incorporated, a Massachusetts not-for-profit corporation with its principal office located at 800 Boylston Street, Suite 1150, Boston, Massachusetts 02199 (the "Applicant"), is the parent organization of a charitable, integrated health care system (referred to herein as "Mass General Brigham" or "MGB") that currently comprises two tertiary and seven community acute care hospitals, hospitals specializing in inpatient and outpatient services in behavioral health, rehabilitation medicine and ophthalmology and otolaryngology, a home health agency, a nursing home and a physician network with approximately 7,500 employed and affiliated primary care and specialty care physicians. Mass General Brigham also operates a non-profit managed care organization and a for-profit insurance company that collectively provide health insurance and administrative services products to the MassHealth Program (Medicaid), ConnectorCare and commercial populations. Mass General Brigham maintains the largest non-university-based, non-profit, private medical research enterprise in the United States; its hospitals are principal teaching affiliates of the medical and dental schools of Harvard University; and it operates a graduate level program for health sciences.

In order to fulfill its four-part mission of patient care, research, education and community service, the Applicant has affirmed a system-wide strategy that is grounded in the excellence of Mass General Brigham's two academic medical centers, focused on improved patient outcomes and experience, and supported by its historical and ongoing commitment to digital health and data analytics, population health, ambulatory care and insurance risk management. Implementation of this strategy relies on a series of synergistic priorities that include:

i. improving health outcomes across the full continuum of care with an emphasis on the development by Mass General Brigham's academic medical centers of multidisciplinary centers of excellence for tertiary and quaternary care;
ii. enhancing the patient experience, particularly for primary care and behavioral health care, by developing community-based health care settings that improve access and ease of navigation for patients;
iii. reducing the total cost of health care by developing delivery models that focus on value while simultaneously improving outcomes; and
iv. investing in research and innovations that meaningfully improve the diagnosis and treatment of all forms of human illness.

The Proposed Project

The Applicant is filing a Notice of Determination of Need ("DoN") ("Application") with the Massachusetts Department of Public Health ("the Department") for a substantial capital expenditure and substantial change in service by Brigham and Women's Faulkner Hospital ("BWFH" or "the Hospital") located at 1153 Centre Street, Boston, MA 02130. This Application requests approval for the following: (A) construction of a 5-story addition to BWFH's existing hospital facility that will contain the following: (1) 78 additional medical/surgical beds; (2) an 8-bed observation unit; (3) relocated and expanded endoscopy services, including one additional procedure room; (4) a 3T magnetic resonance imaging ("MRI") unit and certain relocated radiology services; and (5) shell space for future build out; and (B) other renovation projects to improve existing services and facilities at the BWFH main campus.

The Proposed Project seeks to improve access to health care services at BWFH and across Brigham Health, which includes BWFH, Brigham and Women's Hospital ("BWH"), and Brigham and Women's Physician Organization. Specifically, each component of the Proposed Project will improve health system performance, which will lead to improved health outcomes of the patient panel, enhanced patient experience, and help to control health care costs. These changes will be facilitated by the Proposed Project, which will address capacity constraints and improve throughput across BWFH. As a result, BWFH will have increased capacity to accept clinically appropriate transfers of secondary cases from BWH, with the goal of ensuring Brigham Health patients have access to care in the most appropriate setting.

A. Expansion of Medical/Surgical Inpatient Beds

Through the Proposed Project, BWFH will increase medical/surgical inpatient capacity by 78 beds to meet patient demand. Demand at BWFH for medical/surgical beds has increased significantly from FY17-FY19 and is expected to continue to increase as the population ages and the prevalence of chronic disease increases. BWFH also has experienced increased transfers of secondary care patients from BWH, as these patients are more appropriately cared for in the lower-cost, community hospital setting. These patients tend to be of higher complexity than patients presenting to BWFH directly, resulting in higher average lengths of stay and increased occupancy rates at BWFH. High inpatient occupancy rates also cause capacity constraints across BWFH, particularly in the Emergency Department ("ED"), where patients remain until an inpatient bed becomes available, utilizing crucial ED resources, contributing to ED crowding and delays in patients receiving care in the most appropriate setting. Moreover, capacity constraints at BWFH impact its ability to assist in improving capacity issues at BWH. BWH operates at high occupancy rates, up to 108% on weekdays. Accordingly, by increasing inpatient capacity at BWFH, BWFH can improve efficiencies throughout the Hospital and can provide increased access for secondary transfer patients, reducing capacity constraints across Brigham Health and providing care to patients in the most appropriate setting.

B. Establishment of Observation Unit

Through the Proposed Project, BWFH will establish an 8-bed observation unit to reduce capacity constraints at BWFH, particularly in the Hospital's PACU and interventional radiology recovery rooms, improving patient throughput and enhancing patient experience. The Proposed Observation Unit will allow patients in need of certain observation care to receive this care in a more appropriate and patient-friendly setting. For example, the existing space in the phase one recovery area in the PACU is small, noisy, and difficult to accommodate family or support persons, making the existing space a suboptimal location to provide multidisciplinary patient education prior to discharge. The new observation unit will enhance the continuum of care and allow patients to receive care in the appropriate setting.

C. Relocation and Expansion of Endoscopy Unit

Through the Proposed Project, BWFH will relocate its endoscopy unit and expand capacity by one procedure room for a total of 6 procedure rooms to address demand for endoscopy services in a community hospital setting. Advances in technology and increased demand for endoscopy services results in the need for additional endoscopy capacity at BWFH. In the new space, one procedure room will be able to accommodate advanced endoscopy procedures, such as those requiring fluoroscopy, that are currently performed in the Hospital's operating room one half day per week. Due to current physical plant constraints, the existing endoscopy unit cannot be renovated and expanded to accommodate another procedure room and the technology needed

to perform advanced endoscopy. Increased availability of advanced endoscopy at BWFH will ensure timelier access to these services for all BWFH patients, particularly ED and inpatients, and will provide capacity for BWFH to accept appropriate patients from BWH requiring advanced endoscopic procedures.

D. Renovation and Expansion of Imaging, Including Addition of a 3T MRI

Through the Proposed Project, BWFH will renovate its Radiology Department and acquire a 3T MRI unit to accommodate patient demand and ensure patients have timely access to imaging. The Proposed Project's inpatient addition will require the relocation of certain areas of the current radiology department. As a result, the radiology department will need to be renovated to effectively re-site these displaced modalities and support spaces. In addition, BWFH will expand its MRI imaging capacity to meet patient demand for MRI services. BWFH currently operates one 1.5T MRI which is fully utilized, resulting in extended wait times. In addition, BWFH does not currently have a 3T MRI on its main campus, a modality that provides better diagnostic imaging than 1.5T for many clinical indications. Patients requiring 3T imaging are currently referred to BWH or, if inpatient or ED, the patient must be transferred via ambulance. Providing access to a 3T MRI at BWFH will enhance patient experience and clinical outcomes through access to the appropriate imaging at the same location as their other health care services.

E. Shell Space

The components of the Proposed Project require construction and renovation to BWFH. Through the Proposed Project, BWFH will construct shell space for future build out to accommodate the need for clinical services.

Factor 1: Applicant Patient Panel Need, Public Health Values and Operational Objectives

F1.a.i **Patient Panel:**
Describe your existing Patient Panel, including incidence or prevalence of disease or behavioral risk factors, acuity mix, noted health disparities, geographic breakdown expressed in zip codes or other appropriate measure, demographics including age, gender and sexual identity, race, ethnicity, socioeconomic status and other priority populations relevant to the Applicant's existing patient panel and payer mix.

A. Mass General Brigham Patient Panel

Demographic Data

Mass General Brigham[1] serves a large and diverse patient panel as demonstrated by the utilization data for the 36-month period covering Fiscal Year ("FY") 2017 ("FY17") through Fiscal

[1] Utilization of patient care services at the following Mass General Brigham provider organizations was used to determine the Applicant's patient panel: Brigham and Women's Hospital, Brigham and Women's Faulkner Hospital, The General Hospital Corporation d/b/a Massachusetts General Hospital, Newton-Wellesley Hospital, North Shore Medical Center, Cooley Dickinson Hospital, Martha's Vineyard Hospital, McLean Hospital, Nantucket Cottage Hospital (post-Epic data only), Massachusetts Eye and Ear Infirmary (post-Epic data for specific locations only), Spaulding Rehabilitation Hospital (excluding data for certain programs), Brigham and Women's Physicians Organization, Massachusetts General Physicians Organization, Newton-Wellesley Medical Group, North Shore

Year 2019 ("FY19") and the preliminary data available for Fiscal Year 2020 ("FY20").[2] Appendix 2 illustrates the demographic diversity of Mass General Brigham's patient panel in table form. The number of patients utilizing Mass General Brigham's services has increased since FY17, with 1,408,587 unique patients in FY17; 1,504,625 unique patients in FY18; and 1,528,359 unique patients in FY19.[3] Preliminary data for FY20 indicates that Mass General Brigham had 634,989 unique patients. Mass General Brigham's patient mix consists of approximately 42.2% males and 57.8% females based on FY19 data, with gender unknown for less than 0.01% of the patient population. The Massachusetts Center for Health Information and Analysis ("CHIA") reports that Mass General Brigham's patient panel represents 19% of all discharges in the Commonwealth.[4]

Age demographics for the past three Fiscal Years show that the majority of Mass General Brigham's patient panel is between the ages of 18-64 (61.0-62.1). Patients that are 65 and older also make up a significant portion of the total patient population (26.2-28.5%). Only 10.5-11.7% of Mass General Brigham patients are between 0-17 years of age.

Mass General Brigham's patient panel reflects a mix of races. Data based on patient self-reporting demonstrates that in FY19, 73.4% of the total patient population identified as White; 5.6% identified as African American or Black; 4.4% identified as Asian; 1.3% identified as Hispanic/Latino; 0.1% identified as American Indian or Alaska Native; and 0.1% identified as Native Hawaiian or Other Pacific Islander. Since patients were grouped into these categories based on how they self-identified,[5] there is a portion of the patient population (15.2% in FY19) that either chose not to report their race or identified as a race that did not align with the above categories.

Mass General Brigham provides care to patients from a broad range of geographies including all 50 states. While Mass General Brigham's patients reside mainly in eastern Massachusetts, there is a sizeable portion of its patient panel that resides outside of Massachusetts (11.0%, or 167,835 patients, in FY19). By applying the Department's Health Service Area ("HSA") categories to FY19 data, 44.6% of Mass General Brigham's patients reside in HSA 4 (682,126 patients); 16.0% reside

Physicians Group, Cooley Dickinson PHO (post-Epic data only) and Mass General Brigham Community Physicians (excluding pre-Epic non-risk patients).

[2] The Applicant's fiscal year is from October 1 – September 30. Annual comparisons are calculated using data for FY17-FY19. The FY20 data is was pulled as of January 7, 2020, and is therefore subject to change for purposes of annual comparisons.

[3] The methodology for aggregating Mass General Brigham's patient panel data has evolved into an automated process utilizing internal data resources. Initially, in 2017, when Mass General Brigham began developing its patient panel information for Determination of Need applications, such as the Change of Ownership for Massachusetts Eye and Ear Infirmary and the Substantial Capital Expansion for Brigham and Women's Hospital, staff manually aggregated the necessary data. However, since these submissions, Mass General Brigham staff have developed a new automated process that allows for the collection and amalgamation of system-wide data. This refined methodology allows staff to continuously monitor and improve the way that data are aggregated. Accordingly, between June 2018 and December 2019, staff further refined the data collection processes leading to an increase of no more than 1% in overall patient counts for the system. Staff will continue to refresh and refine the process for aggregating data across the system, leading to more exact patient panel data.

[4] Massachusetts Center for Health Information Analysis, *Fiscal Year 2017: Partners HealthCare System*, https://www.chiamass.gov/assets/Uploads/mass-hospital-financials/2017-annual-report/system-profiles/Partners-HealthCare.pdf (last visited Dec. 3, 2020).

[5] With the exception of the category "Hispanic/Latino," the race categories shown above are based on the 1997 Office of Management and Budget standards on race and ethnicity. Patients were grouped into these categories based on their responses as follows – White: "White"; African American or Black: "African American", "Black", "Black or African American"; American Indian or Alaska Native: "American Indian", "American Indian or Alaska Native"; Asian: "Asian"; Native Hawaiian or Other Pacific Islander: "Native Hawaiian or Other Pacific Islander", "Native Hawaiian/Other Pacific Islander", "Pacific Islander"; Hispanic/Latino: "Hispanic"," Hispanic or Latino"," Latino"; Other/Unknown: All other responses.

in HSA 6 (244,000 patients); 11.4% reside in HSA 5 (174,459 patients); 6.7% reside in HSA 3 (101,785 patients); 6.6% reside in HSA 1 (100,146 patients); and 3.4% reside in HSA 2 (52,353 patients). The remaining 0.4% of Mass General Brigham's patients (5,655 patients) either reside in MA but outside of HSAs 1-6 or their origin is unknown.

The COVID-19 pandemic challenged health care systems to address hospital capacity to care for critically ill COVID-19 patients while continuing to provide outpatient services at both hospital and community-based settings and to utilize enhanced precautions to address patient and provider safety. Consistent with the Department's Memorandum dated March 15, 2020, the Applicant's hospitals and ambulatory surgical centers postponed or canceled any nonessential, elective invasive procedures, and its providers deferred many outpatient encounters, including routine physicals and diagnostic tests, such as MRI and CT, when clinically appropriate to do so. These measures resulted in a significant, but temporary, decline in utilization of clinical services at all Mass General Brigham provider organizations that is inconsistent with the utilization patterns described above. While the Applicant cannot predict the time frame during which the utilization of its clinical services will return to pre-COVID-19 levels, the Applicant is confident that utilization will normalize as The Commonwealth emerges from this extraordinary period.[6] Moreover, COVID-19 has not lessened the need for clinical services - patients still require health care for acute, urgent and chronic issues. Indeed, the COVID-19 pandemic has underscored the importance of a coordinated care model that decentralizes outpatient care out of large hospital-based settings and instead utilizes multiple access points in community settings, such as the Project Sites. Therefore, the Applicant believes that it is appropriate to use the historic utilization data (FY17 through FY19 and preliminary FY20) shown above to define its patient panel and to demonstrate the need for the Proposed Project, disregarding the anomalous utilization decline attributable to the measures taken in response to the COVID-19 pandemic.

Accountable Care Organization / Alternative Payment Model and Payer Mix Data

Please refer to Table 1 and the narrative below for the accountable care organization ("ACO")/alternative payment model ("APM") contract and payer mix percentages for the Applicant.

[6] The government's response to the pandemic continues to impact the Applicant's facilities. See, e.g., Order of the Commissioner of Public Health Regarding Scheduling and Performance of Elective Invasive Procedures, issued December 7, 2020. https://www.mass.gov/info-details/covid-19-state-of-emergency#health-care-delivery.

Table 1: Mass General Brigham ACO/APM and Payer Mix Percentages					
APM Contract Percentages[7]		**Payer Mix Percentages[8]**			
			FY17	**FY18**	**FY19**
ACO and APM Contracts	Please see narrative below.	Commercial[9]	59.6%	59.2%	58.8%
		PPO/Indemnity	--	*36.7%*	*37.4%*
		HMO/POS	--	*22.5%*	*21.3%*
		MassHealth	3.8%	3.5%	1.6%
Non-ACO and Non-APM Contracts		Managed Medicaid	5.3%	5.5%	6.3%
		Commercial Medicare	3.8%	4.4%	5.1%
		Medicare fee-for-service ("FFS")	22.7%	23.2%	22.7%
		Free Care/Health Safety Net	0.1%	0.2%	0.1%
		All Other[10]	4.7%	4.0%	5.3%

The Applicant notes that the shift shown in the table in the MassHealth and Managed Medicaid percentages from FY18 to FY19 (with an increase in Managed Medicaid and a decrease in MassHealth) is due to the fact that Mass General Brigham began grouping the MassHealth ACOs (Models A, B, and C) as Managed Medicaid in FY19. Accordingly, the MassHealth percentage of the patient panel inclusive of ACO was 5.2%, representing an increase over previous fiscal years of panel patients in MassHealth.

With regard to APM contract percentages, the percentage of Mass General Brigham's primary care lives covered in risk contracts is 57.9%.[11] This percentage is derived from the number of primary care lives within the patient panels of the Mass General Brigham primary care physicians ("PCP") that are covered under risk contracts (MGB bears the risk). This data does not include referral patients as such patients are not managed by a Mass General Brigham PCP and are not included in Mass General Brigham's risk contracts.

Of note, the data used to determine the percentage of lives covered in Mass General Brigham's risk contracts differ from the Mass General Brigham patient panel data that is included at Appendix 2 as the risk contract data is based on primary care lives; whereas patient panel data is a standard report of all of Mass General Brigham's patients that received care over the last three fiscal years from one of the five Mass General Brigham acute care hospitals and/or hospital physicians, including referral patients.

[7] For any system-affiliated primary care physicians.
[8] Please note the following regarding the Mass General Brigham data: (1) Reflects aggregate Mass General Brigham revenue for the 2017, 2018 and 2019 Cost Hearing Submissions for P4P Contracts, Risk Contracts, FFS Arrangements and Other Revenue; (2) Data is aggregate hospital (Massachusetts General Hospital, Brigham and Women's Hospital, Brigham and Women's Faulkner Hospital, North Shore Medical Center, and Newton-Wellesley Hospital) and provider organization (Massachusetts General Physicians Organization, Brigham and Women's Physicians Organization, North Shore Physicians Group, and Newton-Wellesley Medical Group). Payer specific information for other Mass General Brigham providers (e.g., McLean Hospital, Spaulding Network, Martha's Vineyard Hospital, and Nantucket Cottage Hospital) is not available; and (3) Revenue based on payments minus denials, bad debt, free care surcharge, and uncompensated care assessment.
[9] "Commercial" includes but is not limited to: AllWays Health Partners, Aetna, Blue Cross Blue Shield, Cigna, Fallon Health, Harvard Pilgrim Health Care, Tufts Health Plan, UnitedHealthcare, and many other smaller plans.
[10] "All Other" includes but is not limited to: Self-Pay, International, Other Government (e.g., Tricare, Veterans), and Workers Compensation.
[11] The number of risk members is for CY19 and includes members from the following risk contracts: Medicare Shared Savings Program, Blue Cross Blue Shield AQC and Blue Cross Blue Shield PPO, Harvard Pilgrim Health Care, Tufts Associated Health Plans, AllWays Health Partners Commercial, and Medicaid ACO. The total number of patients within a PCP's panel are for FY17 adult and pediatric patients.

Moreover, regarding the methodology for collecting system-wide patient panel data, as well as data associated with primary care lives, this process is evolving at Mass General Brigham, particularly with the system-wide adoption of Mass General Brigham's electronic health record ("EHR") system, Epic. Previously, each regional service organization ("RSO") would have to manually pull the data in order to calculate a system wide total of primary care lives. The implementation of Epic has changed the manual process of data extraction, allowing for a more centralized and standardized way of obtaining aggregate data.

Currently, there are some Mass General Brigham affiliates that are not on Epic and some RSOs have just converted to Epic; typically, it takes approximately one year for the Epic data to be "clean." Given that there are some gaps in the Epic data and that some RSOs are still ramping up on the system, historical FY17 primary care covered lives data is being used for this calculation. Accordingly, as Mass General Brigham's staff develop additional data and methods for providing this information, the percentage may change.

Regarding non-ACO and/or non-managed care contracts, Mass General Brigham staff are working on how best to provide this information. From a Mass General Brigham primary care perspective, all lives are managed by a PCP, leading to no non-managed lives. However, if "non-managed lives" are defined as primary care lives that are in external risk contracts, there are numerous factors to consider when developing this calculation and Mass General Brigham staff are working through how this information may be reported to the Department. Although it would seem an inverse calculation of the ACO/managed care contracts could be conducted to provide this data point, there are other factors that require additional consideration.

B. BWFH Patient Panel

BWFH is a 171-bed community acute care hospital, providing a continuum of services. The Hospital is part of Brigham Health and a member of Mass General Brigham, affiliations that allow the Hospital to provide patients with seamless accessibility to the finest community-based medicine, as well as advanced specialty care. Specifically, the Hospital provides comprehensive medical, surgical and psychiatric care as well as complete emergency, ambulatory and diagnostic services. BWFH strives to attain excellence in patient care services provided with dignity, compassion and respect.

Overall BWFH Patient Panel

Appendix 3 provides the demographic profile for BWFH in table form. Like Mass General Brigham, the number of patients utilizing BWFH's services increased from FY17-19, with 89,018 unique patients in FY17, 89,455 unique patients in FY18, and 91,671 unique patients in FY19. Preliminary data for FY20 indicate that from October 1, 2019 – January 22, 2020, BWFH had 34,522 unique patients. Of these patients, approximately 34.2% are male and 65.8% are female.[12]

In regard to age, the majority of the patients within BWFH's patient population are between the ages of 18-64 (62.7%, or 57,434 patients, in FY19). The next largest age cohort is patients that are 65 years and older (36.0%, or 32,975 patients, in FY19).[13] Subsequently, 1.4% of BWFH's patients are between ages 0-17 (1,262 patients in FY19). Preliminary data for FY20 shows similar trends in the number of patients served across all age cohorts.

[12] For confidentiality purposes, the 34.2% includes both "Male" as well as "Other/Unknown".
[13] For confidentiality purposes, the 36.0% includes both "65+" as well as "Unknown".

Moreover, BWFH's patients reflect a diversity of races. Data based on patient self-reporting demonstrate that in FY19, 70.1% of BWFH's patients identified as White; 11.5% identified as African American or Black; 4.8% identified as Hispanic/Latino; 2.5% identified as Asian; 0.2% identified as American Indian or Alaska Native; and 11.0% identified as either Native Hawaiian or Other Pacific Islander, Other, or Unknown.[14,15]

Appendix 3 also provides aggregated zip code data by HSA for BWFH's patient population. This data indicates that based on FY19 data, 72.9% of BWFH's patients reside in HSA 4 (66,872 patients); 12.7% reside in HSA 5 (11,614 patients); 3.1% reside in HSA 2 (2,868 patients); 3.0% reside in HSA 6 (2,748 patients); 2.0% reside in HSA 3 (1,863 patients); and 0.8% reside in HSA 1 (770 patients). Approximately 4,733 patients or 5.2% of the panel is from outside of Massachusetts, and the remaining 0.2% of BWFH's patients (203 patients) either reside in MA but outside of HSAs 1-6 or their origin is unknown.[16]

Finally, Table 2 below outlines the payer mix percentages for BWFH for the last three fiscal years.

Table 2: BWFH Overall Payer Mix Percentages

	FY17	**FY18**	**FY19**
Commercial[17]	52.0%	51.2%	51.1%
PPO/Indemnity	--	*30.5%*	*30.8%*
HMO/POS	--	*20.6%*	*20.3%*
MassHealth	4.4%	3.6%	2.5%
Managed Medicaid	6.4%	7.5%	6.9%
Commercial Medicare	4.9%	5.4%	6.5%
Medicare FFS	29.3%	29.7%	30.0%
Free Care/Health Safety Net	0.2%	0.3%	0.1%
All Other[18]	2.7%	2.2%	2.9%

[14] Since patients were grouped into these categories based on how they self-identified, there is a portion of the patient population that either chose to not report their race or identified as a race that did not align with the race categories. Therefore, it is important to note that the racial composition of Brigham and Women's Faulkner Hospital's patients may be understated.
[15] For confidentiality purposes, the 11.0% incudes "Native Hawaiian or Other Pacific Islander", and "Other/Unknown".
[16] For confidentiality purposes, the 0.2% incudes both "In MA but not in HSA 1-6" and "Unknown".
[17] "Commercial" includes but is not limited to: AllWays Health Partners, Aetna, Blue Cross Blue Shield, Cigna, Fallon Health, Harvard Pilgrim Health Care, Tufts Health Plan, UnitedHealthcare, and many other smaller plans.
[18] "All Other" includes but is not limited to: Self-Pay, International, Other Government (e.g., Tricare, Veterans), and Workers Compensation.

F1.a.ii **Need by Patient Panel:**

Provide supporting data to demonstrate the need for the Proposed Project. Such data should demonstrate the disease burden, behavioral risk factors, acuity mix, health disparities, or other objective Patient Panel measures as noted in your response to Question F1.a.i that demonstrates the need that the Proposed Project is attempting to address. If an inequity or disparity is not identified as relating to the Proposed Project, provide information justifying the need. In your description of Need, consider the principles underlying Public Health Value (see instructions) and ensure that Need is addressed in that context as well.

The goal of the Proposed Project is to meet future demand not only for BWFH's patient panel, but to improve overall access within Brigham Health. Brigham Health is a health care system composed of Brigham and Women's Hospital, Brigham and Women's Faulkner Hospital, and Brigham and Women's Physicians Organization. As part of system-wide population health efforts, Brigham Health constantly works to eliminate capacity constraints at BWH by transferring clinically appropriate patients to BWFH for lower-cost secondary care in the community. Secondary cases are patients with acuity levels that typically are treated in a community hospital. By transferring patients to the appropriate setting, Brigham Health is able to optimize system integration to triage patients requiring complex, tertiary, multi-specialty care to Brigham Health's academic medical center, Brigham and Women's Hospital ("BWH") and lower acuity patients to Brigham Health's community hospital (i.e., BWFH). The Proposed Project will expand capacity for services at BWFH facilitate care of patients in the most appropriate setting and meet future demand of the BWFH patient panel more specifically.

To that end, the Proposed Project includes (1) the addition of 78 medical/surgical inpatient beds; (2) establishment of an 8-bed Observation Unit; (3) relocation of the existing endoscopy suite and addition of one endoscopy procedure room with advanced procedure capabilities; (4) acquisition of a 3T MRI unit; and (5) shell space for future build out to accommodate the need for expanded clinical services. Accordingly, as detailed throughout this narrative, the Proposed Project was planned to increase capacity for certain services and provide greater access to lower-cost care in the appropriate setting by maximizing resources, reducing the need for transportation to off-campus locations, and improving throughput, leading to improved health outcomes and patient experience.

A. Need for Expansion of Medical/Surgical Inpatient Beds

Historic Demand and Its Impact at BWFH

BWFH currently operates 133 licensed medical/surgical inpatient beds and operates at high volume, as evidenced by annual visit volume, as well as the annual number of patients seeking medical/surgical inpatient care. There were 12,045 medical/surgical inpatient visits (9,668 unique patients) in FY17 at BWFH; 11,470 visits (9,187 unique patients) in FY18; and 11,295 medical/surgical inpatient visits (8,873 unique patients) in FY19.

Despite the decrease in the number of patients and patient visits, the Hospital has experienced increases in total patient days and average length of stay ("ALOS") across its medical/surgical inpatient population. Specifically, from FY17-FY19, BWFH's total medical/surgical inpatient days increased from 36,524 days to 39,856 days (9.1% increase). During this same period, the ALOS for the Hospital's medical/surgical inpatient population increased from 3.03 days to 3.53 days (16.5% increase). One contributing factor to the increased ALOS is the number of patients

transferred from BWH to BWFH. These patients tend to be of higher complexity than non-transfer patients. In FY19, the ALOS for transfer medical/surgical patients was approximately 11% higher than the ALOS for non-transfer medical/surgical patients. As discussed in further detail below, these increases in ALOS generally are due, at least in part, to the growth in the aging population and the increased prevalence of chronic disease, both of which are detailed in the Hospital's patient panel data and are projected to increase into the future.

An increase in ALOS has resulted in high inpatient occupancy rates at BWFH. In FY19, BWFH's medical/surgical inpatient beds operated at a weekday occupancy rate of 87.2%. This represents an increase from 83.5% occupancy in FY18 and 82.5% in FY17. The Hospital's inpatient capacity is higher during weekdays as procedures requiring admission are typically not performed on weekends unless emergent. This high occupancy rate impacts access not only to inpatient care, but also adversely impacts emergency department ("ED") throughput and the ability to accept transfer patients. It is well-established that a high inpatient occupancy directly impacts patient disposition time and contributes to increased length of stay in the ED, and that ED boarding is partly a consequence of inadequate inpatient supply.[19] When inpatient units are too full to admit additional patients, these patients must wait longer than ideal in the ED for an inpatient bed to become available. According to patient panel data, over the last three years, total ED boarder hours at BWFH increased by 8.2% (from 2,380 hours in FY17 to 2,574 hours in FY19), with average boarder hours increasing from 1.17 hours in FY17 to 1.47 hours in FY19 (25.6% increase).[20] This increase in ED boarder hours is due to an increased number of patients presenting to the ED (approximately 3.2% increase between FY17-FY19), in addition to the increased inpatient utilization as evidenced by the significant increased occupancy rate described above from FY17-FY19.

Studies show that the presence of inpatients in the ED is the primary reason for ED overcrowding, as a lack of inpatient beds leads to acute patients remaining in the ED.[21] Thus, one of the most highly recommended methods to improving patient throughput and overall ED performance is to increase the availability of inpatient beds.[22] In accordance with this established solution, the Applicant proposes to expand its medical/surgical inpatient bed capacity by 78 beds and anticipates that this expanded capacity will help to improve occupancy waits and address ED

[19] Boyle et al., *Emergency Department Crowding: Time for Interventions and Policy Evaluations*, EMERG. MED. INT. 838610 (2012), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3290817/; D.M. Fatovich, *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, 22 EMERG. MED. J. 351, 352-54 (2005), *available at* http://emj.bmj.com/content/emermed/22/5/351.full.pdf; D.M. Fatovich, *Entry overload, emergency department overcrowding, and ambulance bypass*, 20 EMERGENCY MED. J. 406, 408-09 (2003), *available at* http://emj.bmj.com/content/emermed/20/5/406.full.pdf; *Psychiatric Emergencies*, AMERICAN COLLEGE OF EMERGENCY PHYSICIANS, http://newsroom.acep.org/index.php?s=20301&item=30093 (last visited May 4, 2018); Forster et al., *The Effect of Hospital Occupancy on Emergency Department Length of Stay and Patient Disposition*, 10 ACADEMIC EMERG. MED. 127 (2003), *available at* https://onlinelibrary.wiley.com/doi/pdf/10.1197/aemj.10.2.127; Morley et al., *Emergency Department Crowding: A Systematic Review of Causes, Consequences and Solutions*, 13(8) PLOS ONE e0203316 (2018), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6117060/.

[20] Please note that the Applicant defines ED boarders as patients that have a bed request and do not leave acute care or ED observation within 2 hours. Thus, in 2017, boarders averaged a total of 3.17 hours in the BWFH ED, and in 2019, they averaged a total of 3.47 hours in the ED.

[21] Boyle et al., *supra* note 19; *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note 19; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 19, at 406; *Psychiatric Emergencies*, *supra* note 19; Pearlmutter et al., *Analysis of Emergency Department Length of Stay for Mental Health Patients at Ten Massachusetts Emergency Departments*, 70(2) ANN. EMERG. MED. 193-202.E16, 200 (2017), *available at* https://doi.org/10.1016/j.annemergmed.2016.10.005.

[22] Boyle et al., *supra* note 19; *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note20; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 20; *Psychiatric Emergencies*, *supra* note 19.

boarding by allowing patients who require admission through the ED to be moved to an inpatient bed in a timelier manner.

Impact to Brigham Health

In addition to ripple effects specific to BWFH, BWFH's inadequate medical/surgical inpatient capacity impacts BWH and Brigham Health as a whole. Similar to BWFH, BWH's medical/surgical inpatient occupancy is high. In FY19, BWH's medical/surgical inpatient beds operated at an occupancy rate of 94%, with surges during the weekdays of up to 108%. Taken together with BWFH's occupancy rate of 87%, the overall medical/surgical occupancy rate for Brigham Health in FY19 was 93%, well above the industry standard of 85%.

Transfers of secondary medical/surgical patients from BWH to BWFH increased by 38% from FY18 to FY19 due to improved staffing patterns, increased beds, and improved systemwide efforts to identify BWH patients eligible for transfer to BWFH for inpatient care through the formalization of the BWFH Transfer Program. Despite efforts to increase the rate of accepted transfers, there were still more than 1,200 eligible transfers from BWH in FY19 that could not be accommodated at BWFH due to lack of capacity at BWFH. Patients that cannot be transferred from BWH to BWFH are forced to face long wait times at BWH and/or must be transferred to another facility with available capacity to accept a transfer. Due to high occupancy at both hospitals and lack of capacity at BWFH to accept transfers, the BWH ED has seen an increase of approximately 48% in both ED boarder hours and Code Help instances from FY18-FY19. Moreover, when a bed is not available, patients often receive care outside of their community and far from their home and families. Accordingly, the need for expanded secondary medical/surgical capacity at BWFH is critical to: alleviating capacity constraints at BWH to allow Brigham Health patients to receive timely access to high-acuity care at the academic medical center; leveraging available capacity within the system such that patients in need of community-based secondary care may receive timely access to such care at BWFH; and overall, ensuring that patients are being cared for and managed in the appropriate setting.

Projected Growth at BWFH and Future Needs

Finally, the Applicant highlights the need for BWFH to expand its medical/surgical inpatient beds in order to meet the projected growth in patient demand. According to the University of Massachusetts' Donahue Institute's ("UMDI") *Long-Term Population Projections for Massachusetts Regions and Municipalities*, the statewide population is projected to grow a total of 11.8% from 2010 through 2035.[23] An analysis of UMDI's projections shows that the growth of the Commonwealth's population is segmented by age sector, and that within the next 20 years, the bulk of the state's population growth will cluster around residents that are age 50 and older.[24] Moreover, between 2015 and 2035, the Commonwealth's 65+ population is expected to increase

[23] UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, LONG-TERM POPULATION PROJECTIONS FOR MASSACHUSETTS REGIONS AND MUNICIPALITIES 11 (Mar. 2015), *available at* http://pep.donahue-institute.org/downloads/2015/new/UMDI_LongTermPopulationProjectionsReport_2015%2004%20_29.pdf. The Massachusetts Secretary of the Commonwealth contracted with the University of Massachusetts Donahue Institute (UMDI) to produce population projections by age and sex for all 351 municipalities. *Id.* at 7. Within the past five years, Massachusetts has been experiencing an increase in the population growth rate per year due to high immigration and low domestic outflow, which is expected to slow down in 2030. *Id.* at 12.

[24] *Massachusetts Population Projections – EXCEL Age/Sex Details*, UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE (2015), http://pep.donahue-institute.org/downloads/2015/Age_Sex_Details_UMDI_V2015.xls. This data has been extracted for counties where current Mass General Brigham hospitals and affiliates are located. *Id.*

at a higher rate compared to all other age cohorts.[25] By 2035, the 65+ age cohort will represent approximately a quarter of the Massachusetts population.[26] Moreover, BWFH's patient panel data indicates that of the patients utilizing BWFH's medical/surgical inpatient services between FY17-FY19, roughly half were 65 years or older.

As the number of patients that fall into the 65+ age cohort continues to grow, the demand for medical/surgical inpatient services is expected to increase as well. Literature on the patterns of hospital use among older adults across the United States demonstrates that inpatient resource use intensity correlates positively with age and that older individuals make up a larger share of the patient population in the inpatient setting relative to their population size than nearly all other age groups.[27] Specifically, distribution of the nation's population and hospital discharges by age indicate that individuals 65 years or older make up a larger share of hospital discharges relative to their population size and that this pattern is more pronounced with increasing age (e.g., adults 65-74 account for double the proportion of all hospital discharges relative to their population size and adults 75-84 account for triple).[28] Assuming that hospital service trends at BWFH will mirror those of the nation into the future, it is expected that as BWFH's 65+ patient population continues to grow, BWFH will experience higher demand for inpatient services for these older adult patients.

Moreover, the Applicant notes that the provision of medical/surgical inpatient services are often related to the treatment of age-related chronic diseases/conditions. Table 3 below outlines the most prevalent diagnoses associated with medical/surgical services at BWFH based on patient visits.

Table 3: BWFH Medical/Surgical Inpatient Admissions – Top Disease Groups (ICD 10)

	FY17	**FY18**	**FY19**
Addiction/Chemical Dependency	10.15%	11.07%	11.20%
Osteoarthritis	10.06%	9.90%	8.71%
Congestive Heart Failure	3.58%	3.66%	4.14%
Septicemia	2.68%	3.02%	3.55%
Breast Cancer	4.31%	3.72%	3.14%
Pneumonia including Aspiration Pneumonia	2.55%	2.88%	3.04%
Degenerative Spine and Disc Injury	3.55%	3.78%	2.92%
Urinary Tract Infection	2.10%	2.39%	2.54%
Chronic Obstructive Pulmonary Disease	2.46%	2.07%	2.42%
Diabetes Mellitus	2.13%	2.14%	2.31%
Top 10 Total	**43.57%**	**44.63%**	**43.97%**

While these conditions can and do affect people of all ages, many are associated with aging and affect older adults at higher rates than other age cohorts.[29] For instance, studies indicate that age

[25] UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 23, at 14. The report uses the cohorts as defined by the U.S. Census Bureau 2010 Census Summary, which are 0-19, 20-39, 40-64, and 65+. *Id.* Figure 2.5 in the report illustrates the increase in the 65+ age cohort from 2015 to 2035. *Id.*

[26] *Id.*

[27] Lesley P. Latham & Stacy Ackroyd-Stolarz, *Emergency Department Utilization by Older Adults: a Descriptive Study*, 17 CAN. GERIATRICS J. 118 (2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4244125/; LAUREN WIER ET AL., HEALTHCARE COST AND UTILIZATION PROJECT STATISTICAL BRIEF #103: HOSPITAL UTILIZATION AMONG OLDEST ADULTS, 2008 (Agency for Healthcare Research & Quality 2010), *available at* https://www.hcup-us.ahrq.gov/reports/statbriefs/sb103.pdf.

[28] WIER ET AL., *supra* note 27.

[29] Efraim Jaul and Jeremy Barron, *Age-Related Diseases and Clinical and Public Health Implications for the 85 Years Old and Over Population*, 5 FRONT. PUB. HEALTH 335 (2017), *available at*

is a leading risk factor for cardiovascular disease, such as hypertensive heart disease, congestive heart failure, and cardiac arrest;[30] aging leads to disc degeneration and osteoarthritis;[31] the incidence of sepsis is disproportionately increased in elderly adults;[32] there is a high prevalence of pulmonary/respiratory disease and infection – such as chronic obstructive pulmonary disease, pneumonitis, and pneumonia – in older adults;[33] the incidence of urinary tract infection rises in older adults;[34] the risk of developing Type 2 diabetes increases with age;[35] and cancer risk increases with age, and the average age of breast cancer diagnosis is 61.[36] With regard to addiction/chemical dependence, although this is not commonly considered an age-related condition, a 2017 study published by the National Institute on Alcohol Abuse and Alcoholism found that alcohol-use, high-risk drinking, and alcohol use disorder have increased at higher rates among older adults than compared to all other age groups.[37] Researchers opine that even if the rate of alcohol problems among older adults doesn't climb further, the sheer numbers will increase because of the growing population of older adults, and that such growth in this population portends problems down the road as alcohol use plays a substantial role in many chronic comorbidities.[38] Therefore, while rates of alcohol and substance use are generally lower among older adults than the general population, aging itself presents specific risks for harm in older adults due to medical comorbidities, prescription medication use, and health history.[39] Accordingly, as the population ages, BWFH anticipates continued growth in these current top diagnoses categories and requires additional inpatient capacity to meet projected demand.

The projected increase in the older adult population coupled with the volume of older adults requiring inpatient services to treat age-related conditions necessitates the need for additional medical/surgical inpatient bed capacity at BWFH. Table 4 below provides projected inpatient volume for BWFH following implementation of the Proposed Project.

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https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5732407/; *Ageing and Health*, WORLD HEALTH ORG. (Feb. 5, 2018), https://www.who.int/news-room/fact-sheets/detail/ageing-and-health (last visited Oct. 20, 2020).

[30] Gary Tackling and Mahesh B. Borhade, HYPERTENSIVE HEART DISEASE, *available at* https://www.ncbi.nlm.nih.gov/books/NBK539800/ (last updated June 28, 2020); *Heart Health and Aging*, NAT'L INST. ON AGING, https://www.nia.nih.gov/health/heart-health-and-aging (last updated June 1, 2018).

[31] Adam P. Goode et al., *Low Back Pain and Lumbar Spine Osteoarthritis: How Are They Related?*, 15(2) CURR. RHEUMATOLOGY. REP. 305 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3606549/.

[32] Debasree Banerjee and Steven M. Opal, *Age, Exercise, and the Outcome of Sepsis*, 21 CRIT. CARE 286 (2017), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5701382/; Greg S. Martin et al., *The Effect of Age on the Development and Outcome of Sepsis*, 34(1) CRIT. CARE MED. 15 (2006), *available at* https://www.ncbi.nlm.nih.gov/pubmed/16374151; *Aging*, SEPSIS ALLIANCE, (last updated August 9, 2020), https://www.sepsis.org/sepsisand/aging/.

[33] Erin M. Lowery et al., *The Aging Lung*, 8 CLIN. INTERV. AGING 1489 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3825547/; John E. Stupka et al., *Community-acquired Pneumonia in Elderly Patients*, 5(6) AGING HEALTH 763 (2009), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2917114/; Lara J. Akinbami, M.D. and Xiang Liu, M.Sc., *Chronic Obstructive Pulmonary Disease Among Adults Aged 18 and Over in the United States, 1998-2009*, CDC (June 2011; last reviewed Nov. 6, 2015), https://www.cdc.gov/nchs/products/databriefs/db63.htm.

[34] Theresa A. Rowe and Manisha Juthani-Mehta, *Urinary Tract Infections in Older Adults*, 9(5) AGING HEALTH 10.2217 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878051/.

[35] *Diabetes in Older People*, NAT'L INST. ON AGING (last updated on May 1, 2019), https://www.nia.nih.gov/health/diabetes-older-people.

[36] Mary C. White et al., *Age and Cancer Risk*, 46 AM. J. PREVENTIVE MED. S7 (2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4544764/.

[37] Bridget F. Grant et al., *Prevalence of 12-Month Alcohol Use, High-Risk Drinking, and DSM-IV Alcohol Use Disorder in the United States, 2001-2002 to 2012-2013: Results from the National Epidemiologic Survey on Alcohol and Related Conditions*, JAMA (2017), https://jamanetwork.com/journals/jamapsychiatry/article-abstract/2647079?widget=personalizedcontent&previousarticle=2647075.

[38] *Id.*

[39] Alexis Kuerbis et al., *Substance Abuse Among Older Adults*, 30(3) CLIN. GERIATRIC MED. 629 (2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4146436/.

Table 4: BWFH Medical/Surgical Inpatient – Historical and Projected Demand[40]				
FY19	**FY24 (Projected)**	**FY25 (Projected)**	**FY26 (Projected)**	**FY27 (Projected)**
11,295	13,286	15,056	16,743	18,425

Accordingly, through the Proposed Project, the Applicant seeks to expand medical/surgical inpatient capacity in the community through the addition of 78 additional medical/surgical inpatient beds at BWFH. This expansion will ensure that patients most appropriate for care at BWFH will have timely access to high-quality medical/surgical services in a convenient and cost-effective community setting, and will allow for improved patient outcomes, higher patient and provider satisfaction and the creation of operating efficiencies.

B. Establishment of Observation Unit

The Proposed Project also involves the addition of an 8-bed observation unit at BWFH. This addition will meet the need for improved patient management efforts, including patient flow and care experience, and will provide the Hospital with a plan to meet the current and future demand for observation services by its patient panel.

Need for Observation Unit to Facilitate Patient Flow, Experience and Outcomes

The Hospital does not have a dedicated observation unit. Accordingly, post-procedural recovery patients, interventional nephrology and radiology patients, and surgical Admit to Observe ("ATO") patients currently receive observation-like services in other areas of the Hospital, such as the PACU, interventional radiology recovery rooms, and inpatient floors. This is not ideal for several reasons.

First, caring for these patients for extended periods in BWFH's PACU, interventional radiology recovery rooms and inpatient floors creates capacity constraints throughout the Hospital. Specifically, patients who no longer require the higher-acuity care primarily provided in these phase one recovery areas consume unnecessary nursing resources and slow throughput for patients who do require such care.[41] Moreover, with respect to observation patients placed on the Hospital's inpatient floors, inpatient beds are utilized for patients that do not require admission, contributing to increased wait times for ED boarders as well as patients seeking to be directly admitted (i.e., transferred) to BWFH from BWH.

Finally, patient experience and outcomes are negatively impacted when patients are not moved to a more appropriate care setting. Most notably, phase one recovery areas are not conducive to family visits and patient privacy. For instance, the small, noisy, busy space in the Hospital's acute phase PACU makes it very difficult to accommodate patient caregivers, provide emotional support, and coordinate and complete multidisciplinary education. To this point, and as discussed in further detail at Factor F1.b.i, literature supports the satisfaction and outcome benefits associated with family/caregiver presence during post-procedure recovery and education.[42] In

[40] FY24-FY27 is utilized as the range for projections, as FY24 is the year the Proposed Project will open and FY27 is the projected year the Proposed Project will be fully operational.
[41] 2019-2020 PERIANESTHESIA NURSING STANDARDS, PRACTICE RECOMMENDATIONS AND INTERPRETIVE STATEMENTS, AMERICAN SOCIETY OF PERIANESTHESIA NURSES.
[42] JoAnn Daugherty et al., *Improving Patient and Family Satisfaction in PeriAnesthesia Setting*, 34 J. PERIANESTHESIA NURSING PE51 (2019), *available at* https://www.jopan.org/article/S1089-9472(19)30250-3/fulltext; Anne Maria Eskes

particular, post-procedure mastectomy, prostatectomy and gynecological patients, who make up a substantial part of the group that will receive pre-discharge services in the Hospital's proposed new observation unit, have extensive educational needs following surgeries. Education of these patient populations is of a particularly sensitive nature (e.g., education around incontinence, sexual dysfunction and depression/anxiety that can be associated with these types of surgeries) and these patient populations also have unique psychological and emotional support needs that impact their surgical outcomes. In addition, these patients also require education on managing indwelling tubes and drains post-discharge, and benefit from inclusion of family and caregivers in such discussion. Providing this level of support for these patients in the post-operative phase prior to discharge has major limitations in the PACU.

In consideration of these concerns, the Proposed Project will establish a permanent 8-bed observation unit at BWFH. The creation of this unit at BWFH will alleviate some of the capacity constraints on the Hospital's PACU, interventional radiology recovery rooms, and inpatient units, allowing for better patient throughput, including expedited admission of ED patients to an inpatient bed. Moreover, this unit also will facilitate better patient experience, allowing the Hospital to provide patient-centered care, particularly for certain post-surgical patient populations.

Need Based on Historical and Projected Demand

In addition to the need for an observation unit to promote patient flow and care experience, the need for the unit also is driven by historical and projected demand. As indicated in Appendix 3, BWFH has a high volume of patients that would benefit from a dedicated observation unit. In FY17, 744 unique patients received observation services at the Hospital (898 visits); in FY18, this number increased to 805 unique patients (997 visits); and in FY19, this number rose again to 1,340 unique patients (1,607 visits). Moreover, a closer look at the historical data shows that demand has increased most significantly for patients that are 65+ over the last three fiscal years (from 288 unique patients or 38.7% of the patient panel in FY17, to 618 unique patients or 46.1% of the patient panel in FY19). This trend is notable as observation units are considered an ideal care delivery model for the aging population to manage their care and conditions, as discussed in further detail at Factor F1.b.i below.[43]

Based on the historical growth experienced by BWFH for observation services and projected increases in the aging population, the Hospital anticipates an increase in the number of observation unit cases into the future. Table 5 below shows the historical and projected demand for the observation unit.

et al., *Developing an evidence-based and theory informed intervention to involve families in patients care after surgery: A quality improvement project*, 6 INT'L J. NURSING SCIENCES 352 (2019), *available at* https://www.sciencedirect.com/science/article/pii/S2352013219301899; Janelle Holthaus et al., *Improving Patient and Family Satisfaction by Addressing PACU Visitation and Education*, 30 J. PERIANESTHESIA NURSING PE23 (2015), *available at* https://www.jopan.org/article/S1089-9472(15)00201-4/fulltext.

[43] Christopher Caspers, M.D., *Observation Care for Elderly Patients*, AM. COLLEGE OF EMERGENCY PHYSICIANS: ACEP OBSERVATION SECTION NEWSLETTER (Sep. 2018), *available at* https://www.acep.org/how-we-serve/sections/observation-medicine/news/september-2018/observation-care-for-elderly-patients/.

Table 5: BWFH Observation Visits – Historical and Projected Demand[44]				
FY19	**FY24 (Projected)**	**FY25 (Projected)**	**FY26 (Projected)**	**FY27 (Projected)**
1,607	1,731	1,757	1,784	1,810

To meet this demand and alleviate use of existing recovery spaces for longer periods than necessary, the Hospital will establish an 8-bed observation unit. Overall, the observation unit will allow the Hospital to satisfy the demand for observation services by its aging patient panel and will meet the objective of the Proposed Project to increase capacity for certain services and maximize resources by improving throughput, thereby leading to improved health outcomes and patient experience.

C. Relocation and Expansion of Endoscopy Services

BWFH seeks to relocate the endoscopy unit and expand endoscopy services by adding one additional procedure room to accommodate advanced endoscopic procedures including those involving fluoroscopy (e.g., endoscopic retrograde cholangiopancreatography ("ERCP") and endoscopic ultrasound ("EUS") procedures) that currently are performed in the operating room. This relocation and expansion will allow BWFH to meet the existing and future demand for high-quality, cost-effective, and efficiently operated endoscopy procedures in the community-based hospital setting.

Need for Relocation and Expansion of Endoscopy Unit

BWFH's current endoscopy unit requires relocation and expansion to address physical plant constraints that impact access to care. The demand for services, surgical intervention methodologies and care processes for patients requiring endoscopy services have changed substantially since the existing clinical space opened more than 20 years ago. However, the existing unit cannot be expanded to accommodate the latest technological devices for certain endoscopic procedures due to size limitations in its existing location. The existing endoscopy unit is located on the BWFH first floor surrounded by necessary services, such as the ED and Pre-Operating Department, leaving the Hospital unable to expand to offer select advanced procedures in its endoscopy unit. Moreover, existing support spaces, such as gowned waiting, are inadequate to support patient demand.

Through the Proposed Project, BWFH will address capacity constraints in the endoscopy unit by relocating the unit to the proposed new addition and increasing the total number of procedure rooms from five to six, with one room equipped to perform more advanced procedures currently performed in the operating room, and the remaining five rooms serving as general procedure rooms. These new procedure rooms will allow clinicians to perform both routine and interventional endoscopy procedures, including advanced procedures that require fluoroscopy. By adding a procedure room with the necessary equipment to performs advanced procedures, all endoscopy services can be provided within the endoscopy unit, leading to greater efficiencies through maximization of staff and resources in one location at the Hospital. Moreover, the relocation will also permit the expansion of pre-and post-procedural space in the endoscopy unit from 10 to 17 bays, allowing for greater privacy as current overcrowding frequently leads to a negative impact on patient experience. Taken together, the Applicant anticipates that the proposed relocation and

[44] FY24-FY27 is utilized as the range for projections, as FY24 is the year the Proposed Project will open and FY27 is the projected year the Proposed Project will be fully operational.

expansion will allow the Hospital to expand and maximize the clinical space and redesign patient throughput, leading to greater efficiencies in care processes, better patient experience, and a greater ability to meet patient panel demand.

Need for Dedicated Advanced Endoscopy Room

Importantly, the Hospital determined that it needs to add an advanced endoscopy room within the relocated endoscopy department. Currently, the Hospital does not have an endoscopy room that can accommodate advanced procedures including those requiring fluoroscopy, such as ERCP and EUS. Accordingly, for several years, these services have been provided in one of the Hospital's operating rooms one half-day per week or transferred via ambulance to another hospital with the capability to perform advanced endoscopy. As detailed below, this is not ideal for meeting the needs of its patient panel.

First, if a BWFH inpatient needs to have an advanced procedure, many times the patient is transferred via ambulance to BWH to ensure timely patient care because the operating room at BWFH is only available one half-day per week for advanced endoscopic procedures including those requiring fluoroscopy. The need for interfacility transfer results in delays in care, increased costs, and may pose safety risks to the patient. Second, given the Hospital's advanced endoscopy access limitations, any patient needing ERCP or an EUS is excluded from the transfer list from BWH to BWFH despite BWFH being the appropriate location for patients that do not require high acuity services. In this way, the limited capacity for advanced endoscopy at BWFH impacts Brigham Health, disrupting the system-wide effort to transfer appropriate lower-acuity patients to BWFH for lower-cost secondary care in the community, reduce capacity constraints at BWH so that high-acuity patients may receive timely access to complex, tertiary, multi-specialty care at the academic medical center, and overall manage patients in the most appropriate setting.

To address these concerns and ensure that patients have timely access to lower-cost advanced endoscopic procedures at BWFH, the Applicant proposes to expand its endoscopy capacity by equipping its new endoscopy room with the technology required for advanced and fluoroscopy-required cases. This expansion will provide a broader range of services to BWFH patients who require advanced endoscopy services. In turn, this will minimize the need for BWFH to transfer patients to other locations for services, allow patients the convenience of receiving timely access to co-located high-quality imaging services in cost-effective community hospital, and facilitate the Mass General Brigham system-wide effort to ensure appropriate care in the appropriate setting.

Increased Demand for Endoscopy Services

The number of older adults in the United States and the Commonwealth is expected to increase into the future, with the 65+ age cohort representing approximately a quarter of the Massachusetts population by 2035.[45] Higher rates of gastrointestinal ("GI") disease among this older population are driving demand for endoscopy services as these types of procedures are commonly performed on older adults to diagnose and treat GI conditions.[46] This is true not only nationally and statewide but at BWFH as well, as the Hospital offers evaluation, diagnosis and treatment plans for patients with GI diseases, with endoscopy being an important tool in providing care.

The following table (Table 6) outlines the most prevalent diagnoses associated with endoscopy services at BWFH based on patient visits.

[45] UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 23, at 14.
[46] Anne Travis et al., *Endoscopy in the Elderly,* 107 AM. J. GASTROENTEROLOGY 1495–1501 (Aug. 7, 2012).

Table 6: BWFH Endoscopy Visits – Top Disease Groups (ICD 10)			
	FY17	**FY18**	**FY19**
Screenings and Follow-Up Encounters	40.43%	61.23%	62.70%
Esophageal Disease including GERD	9.27%	9.12%	7.94%
Benign Neoplasm	18.56%	2.45%	0.73%
Abdominal Pain	4.31%	5.64%	6.36%
Other Gastrointestinal Diagnosis	4.23%	3.80%	3.82%
Gastrointestinal Hemorrhage	3.36%	3.15%	2.64%
Diseases of the Anus/Rectum	4.89%	1.82%	2.37%
Inflammatory Bowel Disease	3.36%	2.42%	2.36%
Anemia	1.52%	1.48%	1.91%
Intestinal Obstruction and Diverticular Disease	2.87%	0.85%	0.75%
Top 10 Total	**92.78%**	**91.96%**	**91.58%**

The prevalence of many GI conditions increases with age. For instance, GI cancers – including pancreatic, liver and colorectal cancer – are among the disorders that disproportionately impact the 65+ age cohort.[47] Colonoscopy, a specific type of endoscopic procedure, is often accepted as the "gold standard" for detecting colorectal cancer. Given that the incidence of colorectal cancer increases with age, colonoscopy plays a major role in cancer detection, especially for patients in the 65-75 age cohort who are less susceptible to complications and more likely to seek treatment.[48] In addition, dysphagia is a growing concern in the aging population;[49] heartburn is a prevalent difficulty among older adults;[50] iron deficiency is common among the elderly population, contributing substantially to the high prevalence of anemia observed in the last decades of life;[51] and the incidence of lower GI bleeding, which often presents as melena, increases with age, representing a significant cause of morbidity and mortality in the elderly.[52] Accordingly, the need for endoscopic procedures to diagnose and treat these conditions is increasing with the aging population.

To this point, patients in the 65+ age cohort currently account for approximately 36.0% of the patients that obtain endoscopy services from BWFH, based on FY19 data. This represents a 3.2% increase in BWFH's older adult endoscopy patient panel over the last three fiscal years. As the number of patients in the 65+ age cohort continues to grow, the demand for endoscopy services among the BWFH patient panel is expected to increase as age is one of the largest risk factors for GI disorders. Moreover, demand is expected to increase as the number of inpatient beds is expanded through the Proposed Project because many inpatients are anticipated to be older adults who, as discussed above, make up a larger share of the inpatient population relative to their population size. Table 7 below illustrates historical and projected demand for endoscopy services based on these drivers.

[47] *Id.;* Tala H.I. Fakhouri et al., *Prevalence of Obesity Among Older Adults in the United States, 2007-2010,* CDC (Sept. 2012; last updated Nov. 6, 2015), https://www.cdc.gov/nchs/products/databriefs/db106.htm.
[48] O. Ng et al., *Colorectal Cancer Outcomes in Patients Aged Over 85*, 98(3) ANN. R. COLL. SURG. ENGL. 216 (2016), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5226173/.
[49] Livia Sura et al., Dysphagia in the Elderly: Management and Nutritional Considerations, 7 CLIN. INTERVENTIONS AGING 287 (2012), available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3426263/.
[50] Fred Cicetti, *Does Heartburn Become More Frequent as You Age?*, LIVE SCIENCE (Feb. 8, 2010), https://www.livescience.com/6078-heartburn-frequent-age.html (last visited Oct. 20, 2020).
[51] Fabiana Busti et al., *Iron Deficiency in the Elderly Population, Revisited in the Hepcidin Era*, 5 FRONT PHARMACOL. 83 (2014), available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4006029/.
[52] Maxwell M. Chait, *Lower Gastrointestinal Bleeding in the Elderly*, 2(5) WORLD J. GASTROINTEST. ENDOSC.147 (2010), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2998909/.

Table 7: BWFH Endoscopy Visits – Current and Projected Demand[53]				
FY19	**FY24 (Projected)**	**FY25 (Projected)**	**FY26 (Projected)**	**FY27 (Projected)**
7,244	7,938	8,159	8,370	8,600

As outlined in the table, demand for endoscopy services is forecasted to increase 9.6% by FY24 (when the Proposed Project will open) and 18.7% by FY27 (when services will be fully operational). Accordingly, to accommodate this demand, address the needs of its aging patient panel, and provide improved access to endoscopy services that address various digestive diseases and conditions, the Applicant proposes to relocate and expand BWFH's endoscopy unit through the Proposed Project.

D. Need for Renovated and Expanded Imaging, Including the Addition of a 3T MRI

Additionally, the Applicant seeks approval to renovate and expand its Radiology Department by adding an angiographic interventional radiology program, additional pre- and post-procedure recovery space, and additional support space. In addition, BWFH will expand its MRI capacity with a 3T MRI unit. As detailed below, the Applicant anticipates that this will satisfy patient panel needs by providing increased access to timely, high-quality, co-located and efficiently operated imaging services for BWFH patients.

Renovated and Expanded Imaging Will Promote Integrated Care

The Proposed Project's inpatient addition will displace several imaging modalities, support spaces, and hallways. As a result, the Radiology Department will need to be renovated to effectively re-site these modalities and support spaces. In addition, radiology services will be expanded through the addition of a 3T MRI unit and angiographic interventional radiology. Overall, these renovations and expansion of the imaging suite will permit BWFH to provide appropriate services to patients in a more modern, comfortable, and efficient setting to support optimal patient care and is supported both by historical and projected demand associated with the proposed 78-bed medical/surgical inpatient bed expansion.

Historic Demand for MRI at BWFH

The use of diagnostic imaging in the United States, including imaging with MRI, has increased significantly over the last two decades.[54] Several factors have contributed to this increase, including advancements in technology, expansion of clinical applications (particularly to diagnose

[53] FY24-FY27 is utilized as the range for projections, as FY24 is the year the Proposed Project will open and FY27 is the projected year the Proposed Project will be fully operational.

[54] Rebecca Smith-Bindman et al., *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, 27 HEALTH AFFAIRS 1491 (2008), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2765780/pdf/nihms-137739.pdf; Rebecca Smith-Bindman et al., *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems, 1996–2010*, 307 JAMA 2400 (2012), *available at* https://jamanetwork.com/journals/jama/fullarticle/1182858; Robert J. McDonald et al., *The Effects of Changes in Utilization and Technological Advancements of Cross-Sectional Imaging on Radiologist Workload*, 22 ACADEMIC RADIOLOGY 1191 (2015); Michael Walter, *Feeling overworked? Rise in CT, MRI images adds to radiologist workload*, RADIOLOGY BUSINESS (Jul. 31, 2015), http://www.radiologybusiness.com/topics/quality/feeling-overworked-rise-ct-mri-images-adds-radiologist-workload; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging Informatics Market*, IMAGING TECHNOLOGY NEWS (Oct. 28, 2016), https://www.itnonline.com/content/increases-imaging-procedures-chronic-diseases-spur-growth-medical-imaging-informatics-market.

and treat age-related conditions), and patient- and physician-generated demand.[55] The development in these advanced diagnostic imaging technologies is widely credited with leading to improved patient outcomes – through earlier and more accurate diagnoses of disease using noninvasive techniques – as well as improved patient care processes.[56]

There has been significant growth in the number of patients receiving MRI services at BWFH over the last three fiscal years. From FY17-FY18, the number of unique BWFH patients receiving MRI scans increased by 18.0% (from 4,381 patients in FY17 to 5,169 patients in FY18) and by 6.6% from FY18 to FY19 with 5,509 patients in FY19. In addition to patient counts, scan volumes also increased. From FY17-FY19, MRI scan volume at BWFH increased by 27.2% (from 4,793 scans in FY17 to 6,096 scans in FY19). These increases were a result of increased clinical demand, as well as the replacement of the existing MRI in FY17, which decreased exam time and increased the overall capacity of the scanner. In terms of origination, Department of Radiology analytics for the last three fiscal years indicate that approximately 7% of all MRIs ordered originate from the ED, 24% from inpatient services, and 68% from outpatient referrals. Outpatient referrals reflect Brigham Health patients with imaging needs who chose to have their scan performed at BWFH. During this time, ED referrals increased 78%, inpatient referrals increased 7%, and outpatient referrals increased 28%. Increased ED referrals were a result of increased ED visits as described more fully above in F1.a.ii (A), and decreased average time to appointment, resulting in more MRI capacity for scanning while the patient was still in the ED, rather than after admission to an inpatient floor. This imaging utilization data describes BWFH's role as an appropriate, lower cost setting for patients for their imaging needs. Accordingly, BWFH needs additional capacity to continue to meet the MRI demand, but also to accommodate outpatients who would otherwise be referred to higher-cost providers and experience delayed time to appointment.

This increased demand for imaging services has impacted utilization of BWFH's only MRI unit, leading to high operating capacity and extended wait times. In FY19, the MRI operated at 93% capacity overall and 96% during prime-time business hours. This high utilization has resulted in long wait times for services. For instance, in FY19, patients seeking MRI services at BWFH faced average wait times of 3.5 hours for inpatients, 9.2 hours for ED patients, and 22 days for outpatients.[57] The Applicant notes that these access issues exist despite BWFH's efforts to address the increased demand for MRI services by instituting extended hours of operation (Monday-Sunday 6:30am-11:00pm).

Finally, the Applicant notes that BWFH's existing limited MRI capacity creates patient panel need issues related to technology constraints. To this point, BWFH currently has one 1.5T MRI and does not have a 3T MRI unit on its main campus. As discussed in further detail in Factor F1.b.ii.,

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[55] *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, *supra* note 54; *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems, 1996–2010*, *supra* note 54; McDonald et al., *supra* note 54; Walter, *supra* note 54; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging Informatics Market, supra* note 54.

[56] *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, *supra* note 54; *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems, 1996–2010*, *supra* note 54; McDonald et al., *supra* note 54; Walter, *supra* note 54; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging Informatics Market, supra* note 54.

[57] The Department of Radiology measures access to services through a 3rd available appointment report. Access to the 3rd available outpatient MRI slot is approximately 2-4 days based on FY19 data. However, the convenience of the appointment time is not captured in this report. For example, a patient may prefer an early morning time so as not to disrupt their work schedule, but the next (i.e., 2nd, 3rd, etc.) available appointment time might be at 8:00pm two evenings from the time the appointment is requested. Thus, the patient may opt to wait several weeks for an appointment time convenient for their schedule, leading to an average number of days from an outpatient order generated to appointment date of 22 days.

3T MRI provides better diagnostic imaging exams when compared to 1.5T MRI for certain clinical indications. As BWFH does not provide 3T MRI services, BWFH patients whose clinical indication would benefit from such technology must either rely on BWFH's 1.5T MRI unit, which may not provide sufficient images for diagnosis and treatment of the patient's condition, or face potential delayed imaging while awaiting referral to a 3T MRI scanner elsewhere in Mass General Brigham for their imaging needs. ED patients or inpatients requiring 3T MRI imaging services while at BWFH require transportation via ambulance to an off-site location. Such transportation is inefficient, costly, and patients with higher acuity or complex comorbidities face increased risks of complications during transportation. Accordingly, neither alternative is ideal from a patient care or convenience perspective, and when additional imaging is needed, costs increase.

Demand for MRI at BWFH

BWFH anticipates that demand for its MRI services will continue to grow in the future. One driver of future demand is the expansion of inpatient beds associated with the Proposed Project. As noted above, approximately 24% of all MRIs ordered at BWFH currently originate from inpatient services. As the number of inpatient beds is expanded through the Proposed Project, the number of inpatient referrals for MRI is expected to grow, which in turn will exacerbate current MRI capacity issues. Accordingly, to accommodate these patients (as well as any increase in ED and outpatient volume), additional MRI capacity is needed.

In addition, a significant portion of BWFH's MRI panel is 65+ (37.0% in FY19). Moreover, this 65+ age cohort has increased at a higher rate over the last three fiscal years compared to all other age cohorts (34.4% compared to 21.2%). To this point, and similar to the medical/surgical inpatient and endoscopy patient panel demand, the Hospital notes that the need for MRI is expected to increase as the number of patients across the state and within the Hospital's 65+ age cohort continues to grow. Literature on patterns of MRI use indicate that imaging rates tend to be higher among older adults and that MRI is extremely beneficial in connection with a variety of conditions that have higher incidence rates related to aging.[58] Table 8 below provides projected MRI scan volume at BWFH following implementation of the Proposed Project.

Table 8: BWFH MRI Scans – Historical and Projected Demand[59]

FY19	FY24 (Projected)	FY25 (Projected)	FY26 (Projected)	FY27 (Projected)
6,096	6,647	6,942	7,241	7,546

To address the current and forecasted high demand for MRI services and ensure that patients have timely access to imaging services into the future, the Applicant proposes to expand its imaging capacity by implementing an on-campus 3T MRI to complement the existing 1.5T MRI unit. As described in greater detail in Factor F1.b.i, recent advances in 3T MRI technology which facilitate faster scans will result in shorter exam slots and allow for more exams to be performed

[58] *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, *supra* note 54; Kathleen Lang et al., *National trends in advanced outpatient diagnostic imaging utilization: an analysis of the medical expenditure panel survey, 2000-2009*, 13 BMC MED. IMAGING 40 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4222739/; Lawrence N. Tanenbaum, *3T MRI in clinical practice*, 34 APPLIED RADIOLOGY 8 (2005), *available at* https://appliedradiology.com/articles/3t-mri-in-clinical-practice; *Magnetic Resonance Imaging (MRI),* RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/submenu.cfm?pg=mri (last visited Apr. 12, 2019).

[59] FY24-FY27 is utilized as the range for projections, as FY24 is the year the Proposed Project will open and FY27 is the projected year the Proposed Project will be fully operational.

during normal operating hours, thereby helping to alleviate the projected increase in patient demand for MRI services. Moreover, the addition of the 3T MRI unit will provide a broader range of MRI imaging capabilities to BWFH patients who require advanced imaging capabilities or whose clinical indication warrants 3T rather than 1.5T MRI imaging. The proposed new MRI unit will be co-located with the existing 1.5T MRI unit within the expanded imaging department, thereby providing easy access to the new inpatient floors directly above it as well as existing inpatient floor and emergency patients through newly created access points. The addition and location of the 3T MRI will promote efficient coordination of services amongst the staff (including board-certified and fellowship-trained radiologists who are available on-site for consultations in subspecialty imaging). Moreover, inpatients and ED patients will no longer require transport to BWH for 3T MRI imaging and the barrier to transfers of secondary cases from BWH to BWFH will be eliminated. In total, this will allow more patients the convenience of receiving timely access to co-located high-quality imaging services in cost-effective community hospital setting close to home without having to transfer to other facilities for care.

E. Shell Space

Finally, the Applicant seeks to construct shell space for future build out to accommodate the need for expanded clinical services. Any build out of the shell space will require Determination of Need Significant Amendment approval.

F1.a.iii **Competition:**
Provide evidence that the Proposed Project will compete on the basis of price, total medical expenses, provider costs, and other recognized measures of health care spending. When responding to this question, please consider Factor 4, Financial Feasibility and Reasonableness of Costs.

The Proposed Project will not have an adverse effect on competition in the Massachusetts healthcare market based on price, total medical expenses ("TME"), provider costs or other recognized measures of health care spending as outlined in the arguments below.

A. Monitoring Variables that Contribute to Cost and Implementing Effective Initiatives

Since 2012, when the Massachusetts Legislature ushered in a new era of health care cost reform in the Commonwealth, the Applicant has sought ways to reduce costs and ensure high quality care. Chapter 224 of the Acts of 2012 created a healthcare cost growth benchmark ("benchmark"), a statewide target for the rate of growth in total healthcare expenditures. Since the inception of the benchmark, the Applicant has monitored and controlled costs, outcomes and access to services in an effort to meet the benchmark and reduce the overall cost of care. The Applicant recently implemented specific efforts to continue to reduce of costs, positively impacting the Massachusetts healthcare market.

Use of Population Health Management Programming to Reduce Costs

An additional way that the Applicant is impacting costs is through effective population health management ("PHM") programming. These programs are used throughout the system, providing patient-centric, holistic care, creating efficiencies and achieving improved quality outcomes. Efficiencies lead to a reduced cost of care, as many of these initiatives seek to eliminate unnecessary hospitalizations, emergency department visits, and specialty visits. For many patients, e-consults avoid the need for an in-person visit entirely; and even when an in-person

visit is required, the initial e-consult provides valuable information, including additional patient history, previous diagnostic testing and treatment trials, that can make the in-person visit more productive, efficient and valuable for the physician, the referring provider, and the patient, thereby reducing costs.[60]

Through PHM, the Applicant has created a care delivery infrastructure to control costs, while assuring patients have high quality outcomes and a positive care experience. Care optimization is critical to reduce costs and maintain high quality outcomes. PHM programs optimize care and cost effectiveness in several ways, including the evaluation of various patient populations' health status and outcomes; monitoring of administrative and operational costs to create efficiencies in various care settings, including hospitals; and reviewing tools, technologies and resources that will assist clinical teams in providing the best care possible. The Proposed Project builds upon the Applicant's work in this area.

B. Meeting the Triple Aim by Creating Capacity for Integrated Secondary Care in the Community

As set forth in the Project Description, the Proposed Project includes construction of a 5-story addition to BWFH's existing hospital facility that will contain the following: (1) 78 additional medical/surgical beds; (2) an 8-bed observation unit; (3) relocated and expanded endoscopy services, including one additional advanced procedure room; (4) relocated and expanded radiology services, including the addition of a 3T MRI unit; and (5) shell space for future build out to accommodate the need for expanded clinical services. Information related to the specific need for each Proposed Project component is provided in detail below. The Proposed Project components share the common goal of optimizing health system performance by adhering to the Institute for Healthcare Improvement's "Triple Aim," which consists of the following three dimensions: (1) improving the health of populations; (2) enhancing the patient experience of care (including quality and satisfaction); and (3) reducing the per capita cost of health care.[61]

With regard to the first dimension of the Triple Aim, the Applicant anticipates that the Proposed Project components will help to improve the health of the Brigham Health patient panel by creating additional capacity. Overall, the additional capacity proposed as part of the new BWFH addition will help to provide timely access to care in the most appropriate setting and thereby lead to overall better health outcomes for patients.

Regarding the second dimension, the Proposed Project will allow the Applicant to enhance the patient experience of care by ensuring that patients have increased access to a full complement of co-located and integrated secondary care at BWFH, leading to improved patient satisfaction due to convenience and timely access to care. By expanding and co-locating medical/surgical inpatient, observation, endoscopy and radiology services within BWFH's proposed new addition, the Applicant will be able to facilitate greater access to integrated community-based care for BWFH's patient panel in need of secondary care services. Additionally, the Proposed Project will free up resources at BWH's main campus for patients requiring complex, tertiary, multi-specialty care and will thereby ensure that the Applicant's higher-acuity patients likewise benefit from improved access to an enhanced patient care experience.

[60] Sue McGreevey, *Streamlining Care Through Electronic Consultations*, HARVARD GAZETTE (June 12, 2019), https://news.harvard.edu/gazette/story/2019/06/mgh-e-consults-can-streamline-simplify-care-and-reduce-need-for-visits (last visited Oct. 20, 2020).
[61] *IHI Triple Aim Initiative*, INSTITUTE FOR HEALTHCARE IMPROVEMENT, http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx (last visited Oct. 20, 2020).

Finally, the cost reduction dimension of the Triple Aim "encourages health care organizations to find ways to reduce the cost of the care they provide, while at the same time increasing quality, as well as identifying at-risk populations and addressing the health concerns of the community."[62] The Applicant notes that the Proposed Project is purposefully designed to address the cost of care by promoting the Applicant's system-wide population health efforts around providing care in the appropriate setting based on acuity level. Specifically, by increasing access to secondary care at BWFH, the Applicant will be able to shift appropriate patients from BWH's academic medical center setting to BWFH's lower-cost community-based hospital setting and thereby create reductions in overall costs of care. Overall, this will allow the Applicant and its hospitals to continue to provide lower-cost care alternatives for appropriate patients and contribute to the Commonwealth's goals for cost containment. In consideration of these factors, the Applicant, in consultation with BWFH and Brigham Health overall, determined that the Proposed Project is the optimal choice to pursuing the Triple Aim and meeting the patient panel need.

F1.b.i **<u>Public Health Value/Evidence-Based</u>:**
Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified.

A. <u>Value and Role of a Community Hospital in Meeting the Triple Aim</u>

Factor F1.a.ii describes how the various components of the Proposed Project will meet the Applicant's patient panel need. Extensive evidence-based literature also supports the overall need for the Proposed Project as necessary to maintaining BWFH's status as a renowned community-based hospital and regional resource for patients in need of secondary care. Community-based hospitals provide valuable contributions to the United States and Massachusetts health care system through their role in providing convenient and local access to services, high-quality care, and providing services efficiently and at relatively low prices.[63] Moreover, integration of care delivery into the community has been set forth as a key principle for how health systems can achieve the Triple Aim and best meet the needs of their organizations, communities, and patients.[64]

As provided herein, each of the Proposed Project components themselves are also specifically supported by evidence-based literature related to meeting the three dimensions of the Triple Aim; namely, (1) improving the health of populations; (2) enhancing the patient care experience; (3) and reducing the cost of health care. The first and second dimensions are discussed below by project component. Specifically, ways in which each of the components will improve the health of populations and enhance the patient experience of care are outlined in the literature review below, which focuses on the importance of medical/surgical and observation unit beds and improving patient throughput, evidence-based strategies for addressing digestive health diseases and utilizing MRI to diagnose and treating a variety of conditions, and the value of providing access to

[62] Abby Norman, *An Overview of the Triple Aim*, VERYWELL HEALTH, https://www.verywellhealth.com/triple-aim-4174961 (last visited Oct. 20, 2020).
[63] COMMONWEALTH OF MASSACHUSETTS HEALTH POLICY COMMISSION, COMMUNITY HOSPITALS AT A CROSSROADS: FINDINGS FROM AN EXAMINATION OF THE MASSACHUSETTS HEALTH CARE SYSTEM (Mar. 2016), *available at* https://www.mass.gov/doc/community-hospitals-at-a-crossroads-findings-from-an-examination-of-the-massachusetts-health/download.
[64] AMERICAN HOSPITAL ASSOCIATION, CARE AND PAYMENT MODELS TO ACHIEVE THE TRIPLE AIM (2016), *available at* https://www.aha.org/system/files/2018-01/care-payment-models-achieve-triple-aim-report-2016.pdf.

on-campus community-based health care services. Finally, cost-savings are also associated with the Proposed Project; however, these points are addressed in Factors F1.a.iii and F2.a.

B. Evidence Supporting the Need for Expansion of Medical/Surgical Inpatient Beds

The major component of BWFH's Proposed Project involves expanding the Hospital's medical/surgical inpatient bed capacity by 78 beds. As discussed in Factor F1.a.ii, the Applicant seeks to pursue this project component in order to address capacity issues, meet the growing demand for inpatient services, and ensure that that portion of the Applicant's patient panel that is most appropriately suited for care at BWFH has timely access to high-quality medical/surgical services in a convenient and cost-effective community setting. Detailed herein, this proposed expansion is supported by evidence related to improving patient throughput as well as the importance of integrated, community-based care.

Adequate Inpatient Bed Capacity Impacts Throughput

As a preliminary note, the Applicant emphasizes that medical/surgical inpatient services are an effective approach to treatment of various conditions, including those identified in BWFH's patient panel. In addition to being an effective approach to treatment of various conditions, an adequate supply of inpatient medical/surgical beds is also an important way to combat patient flow issues.[65] To this point, the Applicant notes that ED boarding and crowding are multi-factorial issues, caused by input, output, and throughput limitations.[66] For purposes of the Proposed Project, input and output factors are significant.

Input factors include the volume of patients.[67] As discussed in detail in Factor F1.a.ii, BWFH has experienced an increase in the overall volume of medical/surgical inpatients over the last three years. Similar to what is described in the literature, these increased input volumes have had a knock-on effect and have contributed to increased ED boarding and crowding both at BWFH and at BWH.[68] However, input solutions alone will not solve the ED boarding and crowding issues. This is particularly true given the projected increase in medical/surgical inpatient service demand into the future. Accordingly, output solutions are needed as well.

Research indicates that output factors, such as the availability of inpatient beds, are most significant in reducing ED boarding and crowding.[69] Access block refers to the situation where patients in the ED requiring inpatient care are unable to gain access to appropriate hospital beds within a reasonable time frame, resulting in ED boarding overcrowding.[70] In fact, studies have documented that the presence of inpatients in the ED is the primary reason for ED overcrowding,

[65] Boyle et al., *supra* note 19; *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note 19; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 19.
[66] Boyle et al., *supra* note 19.
[67] *Id.*
[68] *Id.*
[69] *Id.*; *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note 19; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 65; *Psychiatric Emergencies*, *supra* note 19.
[70] *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note 19, at 351; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 19, at 406.

as a lack of critical care beds leads to patients remaining in the ED.[71] Thus, one of the most highly recommended methods to improving patient flow and overall ED performance is increasing the availability of inpatient beds.[72] In accordance with this established solution, the Applicant proposes to expand its inpatient medical/surgical capacity by 78 beds.

Value of Expanded Medical/Surgical Inpatient Beds to Patient Care Experience

Moreover, the Applicant emphasizes that the proposed addition of 78 medical/surgical inpatient beds will improve convenience and satisfaction for BWH and BWFH patients alike. Patient satisfaction is an important indicator used for measuring quality in health care, as it impacts clinical outcomes, patient retention, medical malpractice claims, etc.[73] Generally speaking, patient satisfaction will be improved through the Proposed Project through limiting delays at both locations, ensuring that patients receive care in the appropriate location based on their condition and acuity, and avoiding transfers to other facilities for necessary care.

C. Establishment of Observation Unit

Through the Proposed Project, BWFH will create an 8-bed observation unit, so that patients meeting the inclusion criteria for observation services may be moved from higher-acuity phase one recovery areas, such as the PACU, to a dedicated observation unit for further evaluation and care. BWFH's creation of a dedicated observation unit is supported by evidence-based literature related to providing care in the most appropriate setting as well as promoting throughput and addressing capacity constraints within the Hospital, particularly in the PACU and on the inpatient floors. Moreover, by allowing staff to provide care in the most appropriate setting, this new dedicated unit will support the patient care experience and patient outcomes.

Overview of Observation Unit Care

The Centers for Medicare and Medicaid Services ("CMS") define observation care as, "a well-defined set of specific, clinically appropriate services, which include ongoing short term treatment, assessment, and reassessment before a decision can be made regarding whether patients will require further treatment as hospital inpatients or if they are able to be discharged from the hospital."[74] Observation units are dedicated spaces where patients receive care, usually for a short period of time, instead of being admitted to the hospital.[75] Patients who are not well enough for discharge, but not sick enough to warrant inpatient admission are treated on an outpatient basis in observation units.[76]

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[71] Boyle et al., *supra* note 19; *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note 19; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 19, at 406; *Psychiatric Emergencies*, *supra* note 19; Pearlmutter et al., *supra* note 21, at 200.
[72] Boyle et al., *supra* note 19; *Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia*, *supra* note 19; *Entry overload, emergency department overcrowding, and ambulance bypass*, *supra* note 19; *Psychiatric Emergencies*, *supra* note 21.
[73] Bhanu Prakash, *Patient Satisfaction*, 3 J. CUTANEOUS & AESTHETIC SURGERY 151 (2010), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3047732/.
[74] CTRS. FOR MEDICARE & MEDICAID SERVS, MEDICARE BENEFIT POLICY MANUAL, CHAPTER 6 – HOSPITAL SERVICES COVERED UNDER PART B (Revised Feb. 2020), *available at* https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/bp102c06.pdf.
[75] Christopher W. Baugh et al., *Making Greater Use of Dedicated Hospital Observation Units For Many Short-Stay Patients Could Save $3.1 Billion A Year,* 31 HEALTH AFFAIRS 2314 (Oct. 2012), *available at* https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2011.0926.
[76] *Id.*

Providing Care in the Appropriate Setting and Addressing Throughput and Capacity

Well-documented in the literature, appropriateness of care is a major issue in the provision of modern healthcare services.[77] Appropriateness is multifactorial concept related to the quality of service and to the setting where care is provided.[78] Accordingly, appropriate services provide high-quality care in a setting according to the patient's clinical characteristics.[79]

In terms of quality, studies suggest that care in observation units is equal, and in some cases better, in quality to inpatient care for specific conditions.[80] Such high-quality is attributable to strict admission criteria which ensure that the appropriate population is admitted to these units.[81] Moreover, adherence to operational guidelines, condition-specific protocols, appropriate staffing and administrative oversight, ancillary services support, and quality metrics, promotes quality, greater efficiencies of care and improved workflow.[82]

With regard to meeting patient's clinical characteristics, the Applicant notes that an array of models for observation units exist in the United States.[83] While many observation units are designed to alleviate ED overcrowding, others, like that proposed by the Applicant, are designed to care for certain post-operative and post-procedure patients and are supported by the evidence-based literature.[84] For instance, in one study that specifically reviewed the use of an observation unit designed to care for patients after thyroidectomy, investigators reported that the observation unit is a great location for thyroidectomy patients and an effective model for increasing the efficiency of discharge for such patients.[85] Moreover, another study involving an academic medical center that created an observation unit to care for patients who had short-stay surgery (e.g., laparoscopic surgery, mastectomy, or prostatectomy), a day procedure (e.g., ERCP), or a low-acuity ED admission found that the observation unit was an effective and efficient approach to providing post-operative and post-procedure care.[86] In total, this research supports the addition of the 8-bed dedicated observation unit proposed by the Applicant as an appropriate care setting for specific post-operative and post-procedural patients.

Supporting the Patient Care Experience and Patient Outcomes

In addition, patient experience and outcome are enhanced for patients receiving care in a dedicated observation unit. Multiple studies demonstrate high patient satisfaction scores in observation units with reported advantages including politeness of staff, cleanliness, noise level, pain control, and communication.[87] Moreover, the literature supports the benefits of patient

[77] Gianfranco Damiani et al., *The Short Stay Unit as a new option for hospitals: A review of the scientific literature*, 17 MEDICAL SCIENCE MONITOR SR15 (2011), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3539545/.
[78] *Id.*
[79] *Id.*
[80] Baugh et al., *supra* note 75.
[81] Gina Murphy et al., *Implementation Analysis of a Nurse-Led Observation Unit*, 46 J. NURSING ADMINISTRATION 187 (2016), *available at* https://www.researchgate.net/publication/297756851_Implementation_Analysis_of_a_Nurse-Led_Observation_Unit; Sara Vrabec et al., *A Short-Stay Unit for Thyroidectomy Increases Discharge Efficiency*, 184 J. SURGICAL RESEARCH 204 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3759551/.
[82] Murphy et al., *supra* note 81; Vrabec et al., *supra* note 81; Michael A. Ross et al, *Protocol-Driven Emergency Department Observation Units Offer Savings, Shorter Stays, And Reduced Admissions*, 32 HEALTH AFFAIRS 2150 (2013), *available at* https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2013.0662.
[83] Murphy et al., *supra* note 81.
[84] *Id.*
[85] Vrabec et al., *supra* note 81.
[86] Murphy et al., *supra* note 81.
[87] *Id.*; Vrabec et al., *supra* note 81; G Arendts et al., *Discharge planning and patient satisfaction in an emergency short-stay unit*, 18 EMERGENCY MEDICINE AUSTRALASIA 7 (2006), *available at*

privacy, family presence and active family caregiver involvement during post-procedure recovery and education to improve patient outcomes, specifically by prevention of surgical complications that are sensitive to fundamental care.[88] While lack of space and privacy are frequently cited barriers to enabling family visitation and participation in acute phase one settings, the proposed dedicated observation unit will be designed with the space and privacy necessary to facilitate family visitation and involvement as well as patient privacy.

These experience and outcome considerations are particularly significant with regard to certain subsets of post-procedural/post-surgical patients that the Hospital plans to accommodate in its proposed new observation unit, including mastectomy and prostatectomy patients. With respect to mastectomy patients, the evidence-based literature supports the notion that patient satisfaction and outcomes are associated with a patient and family-centered approach to care.[89] Specifically, studies suggest that high-quality care of such patients involves adopting a holistic approach encompassing the surgical procedure, post-operative education and management (e.g., education regarding surgical drain management), emotional support, counseling and information for the patient regarding their cancer and its management.[90] This holistic approach is challenging to accomplish in a small acute phase PACU bay; however, the proposed new observation unit will provide a larger, calmer, more private space that is conducive to the patient education and family involvement components that are critical to this approach.

Similarly, research supports the importance of a dedicated observation unit for prostatectomy patients. Like breast surgery patients, prostatectomy patients face high levels of anxiety and depression which leaves them at higher risk for post-operative complications, such as urinary incontinence.[91] Moreover, insufficient education about catheter care is cited as one of the top barriers to discharge for these patients, which impacts length of stay, satisfaction, and outcomes.[92] Studies show that post-surgical multidisciplinary intervention that includes patient teaching and strong family involvement is associated with improvements in anxiety, depression, post-surgical complications, and therefore improved post-operative symptoms, satisfaction, outcomes and overall quality of life for prostatectomy patients.[93] While the Hospital's PACU is not designed to accommodate such patient teaching and family involvement, the proposed new observation unit will provide an environment that is tailored to support this multidisciplinary intervention, and therefore is anticipated to facilitate improved satisfaction and outcomes for this patient population.

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https://www.ncbi.nlm.nih.gov/pubmed/16454769; C.W. Ng et al., *Patient satisfaction in an observation unit: The Consumer Assessment of Health Providers and Systems Hospital Survey*, 26 J. EMERGENCY MEDICINE 586 (2009), *available at* https://www.ncbi.nlm.nih.gov/pubmed/19625557.

[88] Daugherty et al., *supra* note 42; Eskes et al., *supra* note 42; Holthaus et al., *supra* note 42.

[89] Ruvinder Athwal et al., *Patients' Perspective on Day Case Breast Surgery*, 10 BREAST CARE 39 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4395828/.

[90] *Id.*; Conrad Harrison et al., *Day Case Mastectomy: A teaching hospital experience of introducing a change in practice*, 43 EUROPEAN J. SURGICAL ONCOLOGY S41 (2017), *available at* https://www.ejso.com/article/S0748-7983(17)30256-1/fulltext.

[91] R.S. Pompe et al., *The impact of anxiety and depression on surgical and functional outcomes in patients who underwent radical prostatectomy*, EUROPEAN UROLOGY FOCUS (2018), *available at* https://www.ncbi.nlm.nih.gov/pubmed/30606686.

[92] R. W. Dobbs et al., *Outpatient Robot-Assisted Radical Prostatectomy: Are Patients Ready for Same-Day Discharge?*. 34 J. ENDOUROLOGY 450 (2020), *available at* https://www.ncbi.nlm.nih.gov/pubmed/31973590.

[93] K.B. Dieperink, *The effects of multidisciplinary rehabilitation: RePCa-a randomised study among primary prostate cancer patients*, 109 BRITISH J. CANCER 3005 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3859951/; Yuan Yuan et al., *Psychological nursing approach on anxiety and depression of patients with severe urinary incontinence after radical prostatectomy – a pilot study*, 47 J. INT'L MEDICAL RESEARCH 5689 (2019), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6862892/.

Finally, given that observation units are increasingly used by patients who are 65 and older, the Applicant notes certain care experience benefits outlined in the literature that are specific to an aging population. Overall, observation units are an appropriate care alternative for the aging population, allowing for timely diagnosis and short-term treatment where old/er patients may be safely managed.[94] More specifically, observation units can provide a setting for standardized evaluations by social work, physical therapy, medication reconciliation, and geriatric assessments to evaluate medical, social and functional issues prior to discharge.[95] Furthermore, the provision of care in an efficient, protocol-driven observation unit reduces the duration and inherent risks of hospitalization in elderly patients, such as development of delirium, deconditioning, falls; hospital acquired infections, pressure injuries, and medication errors, thereby potentially leading to improved quality outcomes.[96]

D. Evidence Supporting the Need for Relocation and Expansion of Endoscopy Services

BWFH's Proposed Project involves relocating and expanding the Hospital's endoscopy unit in order to address capacity constraints and meet patient panel demand, support the patient experience, and ensure timely access to advanced endoscopy services in the community. The proposed relocation and expansion of BWFH's endoscopy services is supported by extensive literature related to evidence-based clinical strategies for addressing digestive health diseases and conditions and promoting patient safety and satisfaction through optimized access to medical care.

Clinical Applications of Endoscopy Services

Endoscopy is a nonsurgical procedure using an endoscope, a flexible tube with a light and camera, to examine a patient's digestive tract.[97] Endoscopy allows doctors to view and operate on the internal organs without making large incisions and is most commonly used to help determine the cause of GI symptoms, to remove a small sample of tissue for biopsy, and/or to guide doctors during surgery.[98] Endoscopic procedures include colonoscopy, enteroscopy, sigmoidoscopy, esophagogastroduodenoscopy ("EGD"), ERCP, and EUS, among others.[99] A brief overview of the clinical application of each is as follows:

- **Colonoscopy** is a lower endoscopy that involves passing the endoscope through the rectum into the large intestine.[100] Colonoscopy is used as a screening tool to check the entire colon and large intestine for colorectal polyps or cancer, as well as a diagnostic tool for patients who have bleeding from the anus, changes in bowel activity, pain in the abdomen, and unexplained weight loss, and is recommended for all adults 45+, as well as anyone with parents, siblings, or children with a history of colorectal cancer or polyps.[101] A colonoscopy shows irritated and swollen tissue, ulcers, polyps (which doctors may

[94] Caspers, *supra* note 43.
[95] *Id.*
[96] *Id.*
[97] *Upper GI Endoscopy,* NAT'L INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES, https://www.niddk.nih.gov/health-information/diagnostic-tests/upper-gi-endoscopy (last revised July 2017).
[98] *Endoscopy,* HEALTHLINE, https://www.healthline.com/health/endoscopy (last visited Mar. 29, 2019).
[99] *Endoscopic Procedures,* AM. SOC'Y FOR GASTROINTESTINAL ENDOSCOPY, https://www.asge.org/home/about-asge/newsroom/media-backgrounders-detail/endoscopic-procedures (last visited January 28, 2020).
[100] *Id.*
[101] *Colonoscopy,* NAT'L INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES, https://www.niddk.nih.gov/health-information/diagnostic-tests/colonoscopy (last revised July 2017); *American Cancer Society Guideline for Colorectal Cancer Screening,* AM. CANCER SOC'Y, https://www.cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/acs-recommendations.html (last visited Oct. 20, 2020).

remove for biopsy during the procedure), and cancer.[102] Removal of polyps can prevent colorectal cancer, which is frequently not diagnosed until the disease is advanced.[103]

- **Enteroscopy** is the examination of the small intestine and provides a more extensive view of the small-bowel than that provided from a colonoscopy.[104] Enteroscopy is generally used for the evaluation of the source of GI bleeding not identified by colonoscopy, localization of known or suspected small-bowel lesions, and tissue sampling from the small bowel.[105]
- **Sigmoidoscopy** is used to examine the lower part of the colon (sigmoid), and as with colonoscopy, is used to determine causes of abdominal pain, rectal bleeding, changes in bowel habits, and other intestinal issues.[106] Sigmoidoscopy is also used to screen for colorectal cancer. While this procedure does not provide a complete view of the colon, it is occasionally preferred over colonoscopy as it takes less time to perform, often does not require an anesthetic, and is associated with lower risk of harm such as perforation.[107]
- **EGD** is an upper endoscopy that involves passing the endoscope through the mouth. EGD is used as a diagnostic tool to examine the lining of the esophagus, stomach and start of the small intestine in the presence of epigastric symptoms such as heartburn, regurgitation, upper abdominal pain, unexplained anemia, unexplained weight loss, or pain or difficult swallowing.[108] EGD may also be utilized to monitor and treat individuals with diseases such as esophagus, stomach, or duodenum cancers, ulcers, Crohn's disease, cirrhosis, gastroesophageal reflux disease, or swollen veins in the esophagus.[109]
- **ERCP** is an advanced endoscopy procedure that combines upper endoscopy and fluoroscopy technology to treat problems of the bile and pancreatic ducts.[110] ERCP involves injecting a dye into the bile duct through the endoscope that highlights the bile ducts and using fluoroscopy (a type of x-ray imaging) to further increase a clinician's ability to visualize the therapeutic procedure in real-time.[111] The procedure permits clinicians to obtain images of the bile and pancreatic ducts, open blocked ducts, remove stones, place stents to alleviate narrowed ducts, and obtain biopsies or remove tumors in the ducts.[112]
- **EUS** is an another advanced endoscopy procedure that combines endoscopy and ultrasound technology to obtain detailed images of the digestive tract.[113] EUS is particularly beneficial to assess the wall layers of the GI track to direct course of

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[102] *Id*.
[103] *Id*.
[104] *Endoscopic Procedures, supra* note 99.
[105] *Id*.
[106] *Flexible sigmoidoscopy,* MAYO CLINIC, https://www.mayoclinic.org/tests-procedures/flexible-sigmoidoscopy/about/pac-20394189 (Oct. 25, 2018).
[107] *Id*.
[108] *Upper Endoscopy*, MAYO CLINIC, https://www.mayoclinic.org/tests-procedures/endoscopy/about/pac-20395197 (last visited January 29, 2020).
[109] *Endoscopic Procedures, supra* note 99.
[110] *Endoscopic Retrograde Cholangiopancreatography (ERCP),* NAT'L INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES, https://www.niddk.nih.gov/health-information/diagnostic-tests/endoscopic-retrograde-cholangiopancreatography (last revised June 2016); Marcelle Meseeha and Maximos Attia, *Endoscopic Retrograde Cholangiopancreatography*, STATPEARLS, *available at* https://www.ncbi.nlm.nih.gov/books/NBK493160/ (last updated Aug. 11, 2020).
[111] *Id.*; Douglas G. Adler, M.D., *The Role of Fluoroscopy in the Endoscopic Management of Luminal Gastrointestinal Disorders*, 9 TECHNIQUES IN GASTROINTESTINAL ENDOSCOPY 135 (July 2007) https://www.sciencedirect.com/science/article/pii/S1096288307000277.
[112] *Id*.
[113] *Endoscopic Procedures, supra* note 99.

> treatment.[114] The ultrasound guidance under EUS permits clinicians to obtain tissues samples from certain tumors and lymph nodes not accessible using other technologies and can also be used to access bile and pancreatic ducts where ERCP is ineffective for a patient.[115]

Endoscopy may be used as a screening, diagnostic, or treatment tool. When used as a screening tool, as in the case of colonoscopy, clinicians are able to identify conditions in the early stages of a disease and delay or prevent further disease development.[116] In contrast to diagnostic tests, screening tests evaluate individuals that have a low pretest probability of a particular disease. These individuals are either asymptomatic or are at preclinical stages of their disease.[117] Thus, colonoscopy is considered the "gold standard" in detecting colorectal cancer. Moreover, endoscopy is frequently used as a diagnostic tool to evaluate stomach pain, ulcers, gastritis, digestive tract bleeding, changes in bowel habits, and polyps or growths in the colon.[118] Studies have shown that upper endoscopy is more accurate than x-rays in detecting abnormal growths, such as cancer, and is more accurate for examination of the upper digestive system.[119] Upper endoscopy may also be used to identify and remove polyps, or to dilate or stretch narrowed areas of strictures of the esophagus, stomach, or duodenum that result from cancer or other diseases.[120]

Finally, therapeutic endoscopy is an endoscopic procedure during which treatment is carried out. Advances in therapeutic and interventional endoscopy over the last three decades have made a substantial impact on treating various conditions.[121] Endoscopic therapy is "the most effective form of treatment in stopping hemorrhage from actively bleeding lesions and has reduced the need for emergency bowel resection."[122] Moreover, endoscopic placement of stents for "the treatment and palliation of benign and malignant strictures involving the esophagus, duodenum, and colorectal regions of the [GI] tract" have shown to be more efficacious, cost-effective, and associated with less morbidity and mortality.[123] Accordingly, these important treatment advances are used to address GI conditions and disease.

Promoting Patient Safety, Satisfaction, and Outcomes

In addition to clinical applications, the Applicant emphasizes that the proposed relocation and expansion of endoscopy services at BWFH will improve patient safety and satisfaction. As discussed in detail in Factor F1.a.ii, BWFH is currently limited in its ability to provide advanced endoscopic procedures, as at present, these procedures may only be performed in one of the Hospital's operating rooms one half-day per week due to technological inadequacies that restrict the Hospital's ability to perform such procedures within the current endoscopy space. Therefore, any ED or inpatients receiving treatment at BWFH who require ERCP, EUS or use of fluoroscopy outside the allotted one half-day per week must be transferred to another facility for care.

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[114] *Id*.
[115] *Id*.
[116] T.H. Ro et al., *Value of screening endoscopy in evaluation of esophageal, gastric and colon cancers*. 21 WORLD J. OF GASTROENTEROLOGY 33, 9693-706 (Sept. 7, 2015).
[117] *Id*.
[118] *Colorectal Cancer Screening,* AM. SOC'Y FOR GASTROINTESTINAL ENDOSCOPY, https://www.asge.org/home/about-asge/newsroom/media-backgrounders-detail/colorectal-cancer-screening (last reviewed July 2017).
[119] *Id.*
[120] *Id*.
[121] *Endoscopic Therapy,* SCIENCEDIRECT, https://www.sciencedirect.com/topics/medicine-and-dentistry/endoscopic-therapy (last visited Mar. 29, 2019).
[122] *Id*.
[123] *Id*.

While interfacility transfer – i.e., the movement of a patient, after initial assessment and stabilization, from one facility to another to provide appropriate care for the patient – ensures that a patient receives treatment at a facility with the capability and appropriate resources to treat the patient's condition, these transfers are nonetheless inefficient, costly, complex to arrange, dissatisfying to patients and family members, and entail inherent safety risks and present the potential for adverse events (e.g., deterioration, miscommunication, transport delays, etc.).[124] This is particularly significant with regard to chronically ill, critically ill, and emergent patients who have more complex care needs, are prone to changes in their condition even without being transported, and are at increased risk of death or harm from transport.[125]

Given the potential hazards inherent in interfacility transfer, the decision to transport a patient must be made only after careful assessment of the potential risks and benefits.[126] To avoid delays in care associated with making this assessment, avoid the possibility that the risks may outweigh the benefits and therefore preclude patient transport for certain patients, and generally avoid the safety risks involved in transporting patients via ambulance to another facility for necessary endoscopy services, the Applicant seeks to move forward with the Proposed Project, including establishing an endoscopy room with capabilities and resources to permit advanced endoscopic procedures such as ECRP and EUS. By providing this additional endoscopy capacity at BWFH, the Applicant will be able to reduce the need for ambulance transports and therefore will be able to eliminate the safety risks inherent in the transport process.

Moreover, by addressing care fragmentation and allowing patients to receive a full complement of comprehensive, integrated endoscopy care in one location at BWFH, the Proposed Project will improve the patient care experience. To this point, the literature details the following benefits associated with co-located, integrated care: improved access for patients; more patient/family satisfaction because services are provided in a setting familiar to patients; increased collaboration among providers and better coordination of care; increased efficiency; and overall improved health outcomes.[127] Thus, by expanding and co-locating all necessary endoscopy services at BWFH, the Applicant will be able to facilitate greater access to integrated community-based services, greater satisfaction, and improved health outcomes for patients requiring secondary endoscopic care.

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[124] NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., GUIDE FOR INTERFACILITY PATIENT TRANSFER (Apr. 2006), *available at* https://www.ems.gov/pdf/advancing-ems-systems/Provider-Resources/Interfacility_Transfers.pdf; DIANE GURNEY ET AL., POSITION STATEMENT: INTERFACILITY TRANSFER OF EMERGENCY CARE PATIENTS (Emergency Nurses Ass'n 2015), *available at* https://www.ena.org/docs/default-source/resource-library/practice-resources/position-statements/facilitatingtheinterfacilitytransfer.pdf?sfvrsn=d3d9c8f4_14; Joep M Droogh et al., *Transferring the critically ill patient: are we there yet?*, 19 CRITICAL CARE 1 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4335540/; M.J.G. Dunn et al., *Critical care in the emergency department: patient transfer*, 24 EMERGENCY MED. J. 40 (2007), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2658153/; Divya Sethi & Shalini Subramanian, *When place and time matter: How to conduct safe inter-hospital transfer of patients*, 8 SAUDI J. ANESTHESIA 104 (2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3950432/; Jeffrey M. Singh et al., *Critical Events During Land-Based Interfacility Transport*, 64 ANNALS EMERGENCY MED. 9 (2014); ISLA M. HAINS, SPOTLIGHT CASE: TRANSFER TROUBLES (Agency for Healthcare Research & Quality 2012), *available at* https://psnet.ahrq.gov/webmm/case/269/transfer-troubles; Jeffrey M. Singh & Russell D. MacDonald, *Pro/con debate: Do the benefits of regionalized critical care delivery outweigh the risks of interfacility patient transport?*, 13 CRITICAL CARE 219 (2009), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2750128/.

[125] HAINS, *supra* note 124; Gurney et al., *supra* note 124; Sethi & Subramanian, *supra* note 124; Dunn et al., *supra* note 124; Droogh et al., *supra* note 124.

[126] Dunn et al., *supra* note 124.

[127] SUSANNA GINSBURG, ISSUE BRIEF: COLOCATING HEALTH SERVICES: A WAY TO IMPROVE COORDINATION OF CHILDREN'S HEALTH CARE? (The Commonwealth Fund 2008), *available at* https://www.commonwealthfund.org/publications/issue-briefs/2008/jul/colocating-health-services-way-improve-coordination-childrens.

E. Specific Evidence Supporting the Need for Renovation and Expansion of Imaging Services

Finally, the Proposed Project involves renovating and expanding the Hospital's radiology services, including by acquiring and implementing a 3T MRI unit. Like endoscopy, the goal of this specific project component is to address capacity constraints and meet patient panel demand, support the patient experience, and ensure timely access to radiology services in the community. The proposed renovation and expansion of BWFH's radiology services is supported by evidence-based literature related to the utility of MRI as well as the promotion of patient safety, satisfaction, and outcomes through access to community-based co-located care.

MRI as an Imaging Modality

MRI is a well-established, non-invasive imaging system that uses a magnetic field combined with pulses of radio waves to produce detailed images of organs, tissues, and structures within the human body.[128] MRI has the major benefit of imaging the human body without the need for ionizing radiation.[129] Today, MRI is not only capable of performing anatomic imaging, but also allows for dynamic functional assessment of pathology that is integral to assessing treatment effects. Research into the various uses and benefits of MRI is extensive, with studies focusing on specific diseases, as well as parts of the body that may benefit from this imaging modality. Some of the most prevalent conditions for which patients seek MRI services involve the brain, spine, breast, prostate, heart and musculoskeletal system, among other parts of the body.[130] MRI, and specifically 3T MRI, is the preferred imaging modality for the prostate and breast.[131] In addition, MRI can decrease the need for more invasive procedures, including, in some prostate cancer cases, the need to biopsy.[132] In the breast, multiple studies have shown that MRI is the most sensitive means of assessing the extent of malignancy in women diagnosed with breast cancer.[133] These studies suggest that 3T MRI is more accurate for pre-operative assessment of breast

[128] Magnetic Resonance Imaging (MRI), NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING, https://www.nibib.nih.gov/science-education/science-topics/magnetic-resonance-imaging-mri (last visited Jan. 5, 2021).
[129] *Id.*
[130] Gail Dean Deyle, *The role of MRI in musculoskeletal practice:* a *clinical perspective,* 19 J. MANUAL & MANIPULATIVE THERAPY 152 (2011), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143009/ (last visited Jan. 5, 2021); Maravi et al., *Role of MRI in Orthopaedics,* 21 ORTHOPAEDIC J. M.P. CHAPTER 74 (2015); Apostolos H. Karantanas, *What's new in the use of MRI in the orthopaedic trauma patient?,* 45 INT'L J. CARE INJURED 923 (2014), *available at* https://www.ncbi.nlm.nih.gov/pubmed/24502985 (last visited Jan. 5, 2021); *Tests for Bone Cancer,* AM. CANCER SOC'Y, https://www.cancer.org/cancer/bone-cancer/detection-diagnosis-staging/how-diagnosed.html (last updated Feb. 5, 2018); *Tests for Osteosarcoma,* AM. CANCER SOC'Y, https://www.cancer.org/cancer/osteosarcoma/detection-diagnosis-staging/how-diagnosed.html (last updated Jan. 30, 2018); Duarte Nascimento et al, *The role of magnetic resonance imaging in the evaluation of bone tumours and tumour-like lesions,* 5 INSIGHTS IMAGING 419 (2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4141345/ (last visited Jan. 5, 2021); *Magnetic Resonance Imaging (MRI) – Head,* RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/info.cfm?pg=headmr (last updated Feb. 5, 2019); M. Symms et al., *A review of structural magnetic resonance neuroimaging*, 75 J. NEUROLOGY, NEUROSURGERY & PSYCHIATRY 1235 (2004), *available at* http://jnnp.bmj.com/content/jnnp/75/9/1235.full.pdf; *What is fMRI?*, UC SAN DIEGO CTR. FOR FUNCTIONAL MRI, http://fmri.ucsd.edu/Research/whatisfmri.html (last visited Jan. 5, 2021); Marc C. Mabray et al., *Modern Brain Tumor Imaging,* 3 BRAIN TUMOR RESEARCH & TREATMENT 8 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4426283/.
[131] Jurgen J. Futterer & Jelle O. Barentsz, *3T MRI of prostate cancer*, APPLIED RADIOLOGY (Feb. 12, 2009), https://www.appliedradiology.com/articles/3t-mri-of-prostate-cancer; Reni S. Butler et al., *3.0 Tesla vs 1.5 Tesla breast magnetic resonance imaging in newly diagnosed breast cancer patients*, 5 WORLD J. RADIOLOGY 285 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3758496.
[132] Mehralivand S, Shih J, Rais-Bahrami S, et al., *A Magnetic Resonance Imaging-Based Prediction Model for Prostate Biopsy Risk Stratification*, JAMA ONCOL. 2018;4(5):678-685.
[133] Butler et al., *supra* note 131; Habib Rahbar et al., *Accuracy of 3T versus 1.5T breast MRI for pre-operative assessment of extent of disease in newly diagnosed DCIS*, 84 EUROPEAN J. RADIOLOGY 611 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4348176/.

cancer extent, and therefore, that 3T MRI can be a valuable guide to surgical planning and a valuable tool in improving treatment outcomes.[134]

Finally, MRI is valuable in the diagnosis and management of a variety of conditions affecting the cardiovascular system.[135] Cardiac MRIs allow for gold standard level imaging of cardiac structure, and are designed to provide accurate assessments of morphology, volumes and flow quantification, myocardial perfusion, and tissue characterization.[136] While MRI of the cardiovascular system can be used for all age cohorts, it is particularly important for older adults with age-related cardiovascular conditions.[137]

3T MRI

Over the last four decades, technical and engineering advances have yielded MRI systems with higher field strengths, and today most clinical MRIs operate at field strengths of 1.5T or 3T.[138] Clinical application of higher magnetic field strengths, such as 3T, has several advantages. Most notably, increased magnetic field strength is associated with better diagnostic image quality (i.e. higher resolution images, better contrast between different tissues, and increased ability to image smaller structures with improved resolution), which is beneficial when diagnosing neurologic, oncological, and musculoskeletal, and cardiovascular conditions affecting these areas of the body.[139] As compared to 1.5T MRIs, 3T MRIs allow for faster scan times, which provides convenience for both physicians and patients and increases availability of the resource.[140]

Value of On-Campus 3T MRI Imaging Services

The benefits of co-located services and the fact that the provision of 3T MRI services at BWFH will reduce care fragmentation and allow patients to receive a full complement of comprehensive, integrated care in one location. Generally speaking, a variety of benefits of co-location are identified in the literature. With regard to imaging specifically, imaging at the point of care can provide immediate information to clinicians, eliminate the need for costly follow-up visits, allow for an earlier commencement of treatment, and thereby improve health outcomes.[141] Given the

[134] Rahbar et al., *supra* note 133.
[135] Constantin B. Marcu et al., *Clinical applications of cardiovascular magnetic resonance imaging*, 175 CMAJ 911 (2006), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1586078/.
[136] *Id.*; F. Alfayoumi, *Evolving clinical application of cardiac MRI*, 8 REVIEWS IN CARDIOVASCULAR MED. 135 (2007), *available at* https://www.ncbi.nlm.nih.gov/pubmed/17938613; Wen-Yih Isaac Tseng et al., *Introduction to Cardiovascular Magnetic Resonance: Technical Principles and Clinical Applications*, 32 ACTA CARDIOLOGICA SINICA 129 (2016), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4816912/; Matthias G. Friedrich, *The Future of Cardiovascular Magnetic Resonance Imaging*, 38 EUROPEAN HEART J. 1698 (2017), *available at* https://academic.oup.com/eurheartj/article/38/22/1698/3861988.
[137] Marcu et al., *supra* note 135; Tseng et al., *supra* note 136; W.P. Bandettini & A.E. Arai, *Advances in clinical applications of cardiovascular magnetic resonance imaging*, 94 HEART 1485 (2008), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2582334/; Justin D. Anderson & Christopher M. Kramer, *MRI of Atherosclerosis: Diagnosis and Monitoring Therapy*, 5 EXPERT REVIEW OF CARDIOVASCULAR THERAPY 69 (2007), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3938864/.
[138] Beth W. Orenstein, *4T, 7T, 8T, and Beyond — High-Field MR Research Seeks a Closer Look Inside the Human Body*, 10 RADIOLOGY TODAY 16 (2009), *available at* http://www.radiologytoday.net/archive/050409p16.shtml.
[139] Tanenbaum, *supra* note 58; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, RADIOLOGY AFFILIATES IMAGING (Sep. 12, 2016), *available at* https://4rai.com/blog/why-the-3-tesla-mri-is-the-best-scanner-for-diagnostic-imaging.
[140] Tanenbaum, *supra* note 58; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, *supra* note 139.
[141] Orenstein, *supra* note 138; *Point-of-Care Diagnostic Testing*, NAT'L INST. HEALTH, https://report.nih.gov/nihfactsheets/ViewFactSheet.aspx?csid=112 (last updated Jun. 30, 2018); Walter Eisner, *FDA Clears CurveBeam CT Scanner for Extremities*, ORTHOPEDICS THIS WEEK (May 12, 2017), https://ryortho.com/breaking/fda-clears-curvebeam-ct-scanner-for-extremities/.

evidence-based advantages of 3T MRI, it will play a critical role in the newly expanded imaging department at BWFH. Co-locating and integrating 1.5T and 3T MRI services will increase access and efficiency, address increased capacity demands, improve patient convenience and satisfaction. Further, 3T MRI will facilitate more rapid diagnosis, thereby facilitating a more timely and appropriate treatment regime, reducing the overall burden to the health care system.[142]

F1.b.ii **Public Health Value/Outcome-Oriented:**
Describe the impact of the Proposed Project and how the Applicant will assess such impact. Provide projections demonstrating how the Proposed Project will improve health outcomes, quality of life, or health equity. Only measures that can be tracked and reported over time should be utilized.

A. Strategies for Improving Patient Experience and Ensuring High Quality Outcomes

The Applicant is committed to developing and implementing population health management ("PHM") strategies to ensure high quality outcomes and an exceptional care experience for all patients. These strategies are aimed at improving quality, efficiency and patient experience, such as care models that are rooted in collaboration, including patient-centered medical homes, care integration, team-based care and other care initiatives specifically designed by Mass General Brigham clinicians. Specific PHM programs that impact health outcomes and patient experience and are available to patients within the Applicant's panel include:

- **Continuous Care Initiative:** The Continuous Care Initiative works to measure and improve patient experience of continuity during inpatient admissions and is a two-part program: Continuity Surveys and Continuity Visits. Using a validated survey instrument, continuity surveys involve patients being surveyed about their experience in the hospital at two time points, once in the inpatient unit and once post-discharge. Continuity visits are a brief "check-in" during an admission between a patient and his/her care team and his/her longitudinal physician(s).
- **eConsults and eVisits:** eConsults are an innovative way to deliver outpatient specialist care, helping to reduce unnecessary specialist utilization and improve access to care for the Applicant's sickest patients. Primary Care Providers ("PCPs") or other care providers initiate an eConsult order in Epic, and then receive structured guidance from a specialist within 3 business days. This provides rapid access to specialist expertise compared with waiting for a traditional office visit to implement the optimized course of treatment. eVisits are telemedicine modalities designed to avoid unnecessary in-person office visits and to save providers time in evaluating and managing patients. eVisits are condition-specific questionnaires addressing over 50 chronic conditions. eVisits are intended for routine follow-up with an established ambulatory patient.
- **Enhanced Recovery After Surgery ("ERAS"):** ERAS is a comprehensive, patient-centered, evidence-based approach to perioperative care for planned surgeries. Across a range of complex surgeries, ERAS has been shown to empower patients as partners in their own care, reduce complications, improve outcomes, decrease length of hospital stay, and reduce care costs.
- **Medicaid ACO:** BWFH is part of the Mass General Brigham MassHealth ACO. As part of the ACO, additional care management programming has been implemented, and

[142] Eisner, *supra* note 141; Orenstein, *supra* note 138; *Point-of-Care Diagnostic Testing*, *supra* note 141.

established programming has been expanded to help meet the needs of patients, while simultaneously working towards reducing preventable hospitalizations and ED visits, and improving care transitions.

- **Patient Reported Outcome Measures ("PROMs"):** PROMs use clinically validated questionnaires to collect patient-reported assessments of their own health status across various health domains. PROMs are collected through the Patient Portal or on an iPad. Responses are automatically saved in Epic and can be reviewed by providers as part of shared decision-making during the visit or before/after clinical intervention procedures to monitor longitudinal progress.
- **Mass General Brigham Mobile Observation Unit ("MOU"):** The MOU provides home-based urgent care for patients experiencing at-risk medical events believed to be treatable with enhanced home care. The MOU is a high-quality alternative to emergency services and hospitalization. It is available for Mass General Brigham patients who would benefit from additional medical treatment and support in the safety and comfort of their home.
- **Skilled Nursing Facility ("SNF") 3-Day Waiver:** The 3-Day Rule Waiver is a CMS program that provides Medicare ACO patients the opportunity to have a covered SNF stay without the 3-day inpatient stay normally required qualify for SNF benefits. This program promotes the right level of care at the right time and is instrumental in helping BWFH with ongoing inpatient capacity issues and cost savings.
- **Stay Connected Program ("SCP"):** SCP provides a bundle of interventions, pre- and post-discharge, to improve care transitions of vulnerable patients at high risk of readmission based on a high-risk indicator or clinical condition. SCP provides Social Work or Nurse-led care coordination in the 30-day post-discharge period, assistance with scheduling follow-up appointments prior to discharge, enhanced pharmacy services, and in-home nurse practitioner visits as needed. SCP's "opt-in" conditions include CHF, COPD, Cirrhosis and Pneumonia.
- **Transition Care Management Program:** A program that utilizes the naviHealth tool to manage episodes of care for Medicaid ACO patients admitted to one of the Applicant's Collaborative SNFs. When a Medicare ACO patient is admitted to a SNF, the Transition Nurse Case Manager works closely with the SNF Care Team to manage their care via weekly Medicare Team meetings, telerounds and bedside visits with patients. Patients are managed closely for appropriate length of stay and readmission avoidance. When the patient is ready for discharge, the Transition Case Manager works closely with Mass General Brigham Home Care to ensure a smooth transition home. Once the patient is discharged home, the case manager verifies the patient is receiving home care services and confirms any follow up appointments and transportation to those appointments.
- **Variation:** The Variation Team provides analytic and reporting resources to show clinicians how they are performing compared to each other, and how they are performing over time, in a variety of areas. Variation reporting is used as a medical management tool.
- **Virtual Visits:** This program provides a real time, synchronous telemedicine modality between a patient and provider, using secure, HIPAA compliant, video software.

Through the Proposed Project, the Applicant will continue to offer these programs to patients, thereby ensuring improved quality outcomes for patients and overall patient experience. For all patients, access to these services will allow them to receive appropriate and timely care in the right care setting. By providing access to these PHM strategies, the Applicant provides holistic care, which in turn ensures higher quality outcomes, satisfaction, and continuity for patients.

B. Assessing the Impact of the Proposed Project

To assess the impact of the Proposed Project, BWFH has developed the following quality metrics and reporting schematic, as well as metric projections for quality indicators that will measure patient satisfaction, access and quality of care. The measures are discussed below.

Expansion of Medical/Surgical Inpatient Beds

The Applicant proposes to collect and report on the following measures related to the medical/surgical inpatient bed component of the Proposed Project:

1. **ALOS in the ED:** This measure reviews the amount of time a patient has to wait in the ED for a medical/surgical inpatient bed prior to being admitted to BWFH. Due to increased inpatient bed capacity, ED ALOS will be reduced.

   Measure: The Applicant will collect and provide data related to the ED ALOS for medical/surgical inpatients.

   Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **Bed Request to Patient Departure:** This measure demonstrates when a patient has been identified by the provider and when the patient actually leaves the ED. This is an even more sensitive indicator than ALOS. Factors that affect this measure include the following: inpatient bed is still occupied; bed assigned to bed ready time (i.e., inpatient bed needs to be cleaned); and bed ready to ED departure time (i.e. work that occurs between ED to inpatient clinicians). With increased inpatient bed capacity, there will be additional ready, clean and available inpatient medical/surgical beds, and therefore bed request to patient departure time will be reduced.

   Measure: The Applicant will collect and provide data related to bed request to ED departure time for medical/surgical inpatients.

   Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis.

   Hospital Acquired Pressure Injuries (HAPI): BWFH will review the incidence of HAPI across its medical/surgical patients. Due to increased medical/surgical inpatient beds, resulting in timelier care in the appropriate setting, patient outcomes will improve.

   Measure: The Applicant will collect and provide data using the NDNQI measure on pressure injuries as follows: percent of surveyed patients with HAPI Stage 2 and above.

   Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections at least one year prior to implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis.

With regard to the above measures, if improvement (e.g., decrease or increase from baseline) is not achieved, the Applicant shall report on reasons why and outline plans for improvement.

Establishment of Observation Unit

The Applicant proposes to collect and report on the following measures related to the observation bed unit component of the Proposed Project:

1. **OR Holds:** The Proposed Project seeks to ensure timely patient movement across the peri-procedural areas to maximize patient flow for BWFH patients. Patients moving to the Observation Unit will allow a more rapid turnover of post anesthesia care unit ("PACU") beds for patients leaving the operating room.

   Measure: The Applicant will collect and provide data related to operating room hold times as follows: (a) Amount of time a patient waits after his/her procedure is completed in the OR until the patient arrives in the PACU; and (b) Any policy changes instituted as a result of the Applicant's evaluation.

   Projections: As BWFH does not currently have an observation unit, the Applicant will provide baseline measures and three years of projections following one full year of operation from the date of implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **ALOS in the PACU:** This measure reviews the amount of time a patient is in the PACU prior to discharge. Day surgery patients with a longer recovery period before discharge will move to the Observation Unit, decreasing the amount of time a patient recovers in higher intensity and cost PACU.

   Measure: The Applicant will collect and provide data related to PACU ALOS as follows: (a) ALOS for patients in the PACU; and (b) Any policy changes instituted as a result of the Applicant's evaluation.

   Projections: As BWFH does not currently have an observation unit, the Applicant will provide baseline measures and three years of projections following one full year of operation from the date of implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis.

With regard to the above-outlined measures related to OR hold times and ALOS, if improvement (e.g., decrease or increase from baseline) is not achieved, the Applicant shall report on reasons why and outline plans for improvement.

Relocation and Expansion of Endoscopy

The Applicant proposes to collect and report on the following measures related to the endoscopy component of the Proposed Project:

1. **Wait Times:** The Proposed Project seeks to ensure timely access to endoscopy services for BWFH patients.

   Measure: Time interval from when colonoscopy was initiated for scheduling in EPIC to the date of the colonoscopy procedure.

Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **Facility 7-Day Risk-Standardized Hospital Visit Rate after Outpatient Colonoscopy:** BWFH will review the rate of risk-standardized, all-cause, unplanned hospital visits within 7 days of an outpatient colonoscopy among Medicare FFS patients aged 65 years and older, utilizing National Quality Forum ("NQF") Measure # 2539.

   Measure: The Applicant will collect and provide data related to NQF Measure # 2539 as follows: Numerator = Unplanned hospital visits within 7 days of a qualifying colonoscopy; and Denominator = Colonoscopies performed for Medicare FFS patients aged 65 years and older.

   Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis. Rates shall not increase for any year post-baseline.

3. **Appropriate Follow-Up Interval for Normal Colonoscopy in Average Risk Patients:** BWFH will review the total number of patients receiving screening colonoscopy and the percentage with the appropriate follow-up interval as specified in NQF 0658.

   Measure: The Applicant will collect and provide data related to NQF Measure # 0658 as follows: Numerator = Patients who had a recommended follow-up interval of at least 10 years for repeat colonoscopy documented in their colonoscopy report; and Denominator = All patients aged 50 years and older receiving screening colonoscopy without biopsy or polypectomy. To be reported by age and race/ethnicity.

   Projections: As the Proposed Project will not be implemented for several years, the Applicant will provide baseline measures and three years of projections one year prior to implementation of the Proposed Project.

   Monitoring: The Applicant will report this data to DPH on an annual basis. Rates shall not decrease for any year post-baseline.

With regard to the above-outlined measures related to wait times, unplanned hospital visits, and follow-up for colonoscopy, if improvement (e.g., decrease or increase from baseline) is not achieved, the Applicant shall report on reasons why and outline plans for improvement.

Addition of 3T MRI Imaging

The Applicant proposes to collect and report on the following measures related to the MRI component of the Proposed Project:

1. **Wait Times:** The Proposed Project seeks to ensure timely access to MRI services for outpatient, inpatient and ED requests, as well as timely reporting of results.
   a. **Outpatient Wait Times:** Time interval (in days) from when the case was initiated for scheduling in EPIC to the next available outpatient appointment.

Measure: The Applicant will collect and provide the following: (a) Median number of days between ordering elective MRI and imaging test performed; (b) Median number of hours from the completion of a patient's MRI service to finalization of radiology report; and (c) Any policy changes instituted as a result of evaluation of increasing days or hours.

Projections: As BWFH does not currently have a 3T MRI unit, the Applicant will provide baseline measures and three years of projections following one full year of operation from the date of implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

b. **Inpatient/ED Wait Times:** Time interval (in minutes/hours) between the exam order generation to completion of the exam.

Measure: The Applicant will collect and provide the following: (a) Median time between ordering inpatient/ED MRI and imaging test performed; (b) Median time from the completion of a patient's MRI service to finalization of radiology report; and (c) Any policy changes instituted as a result of evaluation of increasing time.

Projections: As BWFH does not currently have a 3T MRI unit, the Applicant will provide baseline measures and three years of projections following one full year of operation from the date of implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

2. **Important Finding Alert ("IFA"):** BWFH will review the percentage of MRI scans that triggered an IFA that the radiologist conducted a critical value report.

Measure: The Applicant will collect and provide the following data: (a) % of IFAs where a critical value report was indicated; (b) % of critical value reports radiologists performed over the total number of IFAs; and (c) Any policy changes instituted as a result of increasing critical value reporting.

Projections: As BWFH does not currently have a 3T MRI unit, the Applicant will provide baseline measures and three years of projections following one full year of operation from the date of implementation of the Proposed Project.

Monitoring: The Applicant will report this data to DPH on an annual basis.

3. **Imaging Efficiency Measures:** As is required for payment determinations, the Applicant will report on one Centers for Medicare and Medicaid ("CMS") Outpatient Imaging Efficiency ("OIE") measure that is publicly reported within the Hospital Outpatient Quality Reporting Program.

Measure: MRI Lumbar Spine for Low Back Pain (OP-8). This publicly reported OIE measure is calculated using data from hospital outpatient claims paid under Medicare's Outpatient Prospective Payment System ("OPPS").

Projections: As BWFH does not currently have a 3T MRI unit, the Applicant will provide baseline measures and three years of projections following one full year of operation from the date of implementation of the Proposed Project.

Monitoring: Since this data are calculated quarterly and reported to CMS yearly, the Applicant will report on this data to DPH on an annual basis, up to the most recent quarter.

With regard to the above-outlined measures related to wait times, IFA and imaging efficiency, if improvement (e.g., decrease or increase from baseline) is not achieved, the Applicant shall report on reasons why and outline plans for improvement.

F1.b.iii **Public Health Value/Health Equity-Focused:**
For Proposed Projects addressing health inequities identified within the Applicant's description of the Proposed Project's need-base, please justify how the Proposed Project will reduce the health inequity, including the operational components (e.g. culturally competent staffing). For Proposed Projects not specifically addressing a health disparity or inequity, please provide information about specific actions the Applicant is and will take to ensure equal access to the health benefits created by the Proposed Project and how these actions will promote health equity.

A. Non-Discrimination

To ensure health equity to all patients, including those deemed underserved, the Proposed Project will not affect accessibility of BWFH's services for poor, medically indigent, and/or Medicaid eligible individuals. BWFH does not discriminate based on ability to pay or payer source and this practice will continue following implementation of the Proposed Project. As further detailed throughout this narrative, the Proposed Project will increase access to high-quality medical/surgical inpatient beds, observation beds, endoscopy services, and radiology services for all of the Applicant's and BWFH's patients in a number of ways.

B. #123Equity Pledge Campaign

All of the Applicant's hospitals, including BWFH, participate in the American Hospital Association's #123Equity Pledge Campaign. This Campaign seeks to eliminate health and health care disparities that exist for racially, ethnically and culturally diverse individuals and identifies area for leaders to focus on to ensure high-quality, equitable care for everyone. Specifically, the Campaign requires hospital leaders to accelerate progress in the following areas: (1) Increasing the collection and use of race, ethnicity, language preference and other socio-demographic data; (2) Increasing cultural competency training; (3) Increasing diversity in leadership and governance; and (4) Improving and strengthening community partnerships. Specific ways in which BWFH has accelerated progress in these areas are addressed below in conjunction with culturally appropriate care and language access. Overall, this Campaign will allow BWFH staff to ensure equal access to the benefits created by the Proposed Project.

C. Culturally Appropriate Care and Language Access

The Applicant has also adopted the United States Department of Health and Human Services Office of Minority Health's Culturally and Linguistically Appropriate Services ("CLAS") standards for all practice sites, including BWFH. Leadership is committed to cultural and linguistic equity and has supported the adoption of the CLAS standards in the following ways, as divided into the six categories provided in DPH's guide to CLAS, "*Making CLAS Happen: Six Areas for Action"*:

Foster Cultural Competence

In compliance with the #123Equity Pledge Campaign and the CLAS standards, BWFH strives to provide effective, understandable, and respectful care with an understanding of patients' cultural

health beliefs and practices and preferred languages. To this end, the Hospital has arrangements to offer the following ongoing education and training in culturally and linguistically appropriate areas for staff at all levels and across all disciplines: (1) Interpreter Services Orientation (staff receive orientation to the interpreter services policies, education on how to access and when to use an interpreter, and training on the concepts and practices of culturally and linguistically appropriate healthcare delivery); (2) Providing Safe and Effective Care to Limited-English Proficiency ("LEP") and Deaf and Hard of Hearing ("DHH") Patients; (3) Working with a Telephonic or Video Remote Interpreter; and (4) Interpreter Services Quality Indicators.

In addition, in 2014, BWFH began offering cultural competency training. Since then, over 1,500 employees have attended instructor led sessions and 87 employees have completed an online class. Consequently, 96.5% of employees have attended some form of cultural competence training. Since almost all staff have been provided with cultural competency training, medical/surgical inpatient, observation, endoscopy, and radiology staff will utilize the data from the Epic system to ensure that all patients have equal access to services and that any deterrent to equitable care, such as language barriers, challenges with disabilities, etc. are addressed.

Build Community Partnerships

BWFH collaborates with various community organizations to improve the health of underserved populations in the community (e.g., schools, food pantries, housing agencies, etc.). Additionally, BWFH has both a Patient and Family Advisory Council ("PFAC" or "the Council") and a Community Engagement and Advisory Committee ("CEAC" or "the Committee") that meet throughout the year. The PFAC includes staff, patients, and family members that are representative of the community, and assists leaders with designing, implementing, and evaluating polices, practices and services to ensure cultural and linguistic appropriateness and improve the health of underserved populations in the community. The CEAC includes representatives from a range of local organizations and community residents and provides a forum for feedback and recommendations on how the Hospital can better serve the community.

Finally, the Applicant notes that BWFH is a member of the Boston CHNA-CHIP Collaborative. The Boston CHNA-CHIP Collaborative comprises several stakeholders, including hospitals, community organizations, health centers, and the Boston Public Health Commission. This group was formed to undertake the first large-scale collaborative Community Health Needs Assessment ("CHNA") and Community Health Improvement Plan ("CHIP") for the City of Boston and understand the Social Determinant of Health ("SDoH") issues that affect the health of Boston residents. The Collaborative aims to achieve the benefits of broad partnership around a Boston-based CHNA and CHIP, including deeper engagement of key stakeholders; enhanced alignment of priorities and strategies; maximum allocation of resources; and coordination of implementation strategies for collective impact and a healthier Boston.

Collect and Share Diversity Data

BWFH, like all member hospitals of Mass General Brigham, uses Epic as its EHR. The Epic platform allows BWFH to collect better, more detailed patient demographic data, including race/ethnicity, language preference, socio-economic data, etc. All patients – including those across the four Proposed Project components – are asked about their demographic data at the time of registration and this information is added to the patient's EHR. Informed by the data collected through Epic, BWFH has implemented and/or participated in several initiatives – many in collaboration with BWH – to meet the goals of the #123Equity Pledge Campaign and ensure all patients receive equitable care. Examples include, but are not limited to, the following: (1)

Brigham Health Hospital Without Stigma Statement; (2) MassHealth Disability Access Incentive Program; and (3) Strategic Planning (whereby the Hospital reviews demographic data to identify trends in patients utilizing hospital services and needs of specific communities, understand and respond to cultural needs within groups of patients, and facilitate strategic and programmatic planning accordingly).

Additionally, as noted above, BWFH is a member of the Boston CHNA-CHIP Collaborative, whose mission is to achieve sustainable positive change in the health of Boston through collaboration, aligning resources and addressing root causes of health inequities. In addition to the work of the Collaborative, BWFH is committed to its own community health and wellness mission. Accordingly, in 2019, BWFH participated as part of the Boston CHNA-CHIP Collaborative to conduct a joint CHNA for Boston, and also examined data for BWFH's priority neighborhoods to prepare a more focused BWFH CHNA report. Informed by this work, BWFH's Community Health and Wellness Department completed a CHIP to guide the Hospital's efforts over the next 3 years in improving the key health problems and social factors identified by the CHNA. While this plan contains BWFH's neighborhood-specific work, it is also a shared effort that is driven by community partnership with the Boston CHNA-CHIP Collaborative.

Benchmark: Plan and Evaluate

The Patient Experience Department is responsible for the supervision of the Interpreter Services Department and, therefore, interpreter services and CLAS-related activities at BWFH. This department collaborates with other departments and teams to evaluate and continually improve the provision of quality language services. Specifically, BWFH utilizes data from quality improvement studies, the patient complaint database, patient satisfaction surveys, staff feedback, and RL Solutions (electronic safety application) to evaluate the delivery of such services. By collaborating with the BWFH Process Improvement Team, the Patient Experience Department has been able to improve its analysis of this data to improve the efficiency of interpreter services as well as accuracy in response to interpreter service requests. Moreover, in October 2018, BWFH created an Interpreter Focus Group with support from the Patient Experience Department to collect feedback from the Hospital's clinical departments that utilize interpreter services and address any identified issues via performance improvement projects and staff mentoring.

Reflect and Respect Diversity

To meet the goals of the #123Equity Pledge Campaign and support the CLAS standards, BWFH – in collaboration with BWH – has implemented and/or participated in a variety of initiatives to address disparities, increase employees from underrepresented groups, increase diversity in leadership and governance, and create an inclusive environment that values differences in race/ethnicity, national origin, linguistics, gender identity, sexual orientation, age, physical and mental ability, sociological background, and religion. Examples include: (1) Sperling Executive Leadership Program Discussion Groups (Brigham Health's top leaders meet regularly to discuss diversity, equity and inclusion and review cases to develop best practices in these areas); (2) Search Committee Practices to Advance Equity (Brigham Health has convened a task force to create evidence-based guidelines for minimizing bias in the search process and promoting equal opportunity in hiring processes); and (3) Brigham Health Board Composition (the Brigham Health Nominating & Governance Committee is reviewing the current composition of the Board of Directors with the goal of ensuring it reflects the population served by both BWH and BWFH).

Moreover, in 2018, Brigham Health established a Center for Diversity & Inclusion whose mission is to promote a diverse and inclusive professional community where every person thrives. This

Center expands Brigham Health's current infrastructure to support diversity and inclusion initiatives across BWH and BWFH and aims to enhance workforce diversity by providing career advancement and professional development opportunities and promoting increased recruitment and retention among diverse faculty, trainees and staff. At BWFH, current initiatives include: (1) Association of Multicultural Members of Mass General Brigham; (2) LGBT & Allies Employee Resource Group; (3) Diversity and Inclusion Steering Committee; and (4) Emerging Leaders Committee.

BWFH's efforts to build a more diverse staff are critical in providing equitable care to all patients, as the Hospital understands the importance of concordance (i.e., a similarity, or shared identity, between physician and patient based on a demographic attribute) and that the physician-patient relationship often can ensure health equity for underserved populations. For instance, patients' trust, satisfaction, utilization of services, and involvement in decision-making have been reported higher when the patient and physician share the same race or ethnicity.[143] Given these findings, it is critical that hospitals like BWFH have a diverse clinical staff that may be matched with diverse patients to ensure exceptional care and the best possible health outcomes.

Ensure Language Access

BWFH is committed to assisting LEP and DHH patients in receiving quality health care. Accordingly, BWFH has two hospital-wide policies currently in place that outline interpreter and translation processes and services. Specifically, the LEP and DHH Interpreter Services policies provide that BWFH personnel are responsible for informing LEP and DHH patients and their families of the availability of interpreter services as soon as possible following admission or at the time of first contact. An initial assessment – to determine whether interpreter services, auxiliary hearing aids, or other services are necessary for effective communication, and the timing, duration, and frequency with which such services will be provided – is performed at the time of first contact as part of the routine assessment of all patients. The individualized needs of each patient are documented in the patient's medical record and services are arranged in accordance with the assessment. An on-going assessment of each patient's needs is also performed as standard practice per the policies. Similar to what occurs today at BWFH, upon implementation of the Proposed Project, interpreter and translation services will be arranged for all patients in need – including patients receiving medical/surgical inpatient, observation, endoscopy, and radiology services – in accordance with these policies.

Process-wise, non-emergent interpreter requests are emailed to the Interpreter Services Department Shared Mailbox with required patient identifiers and appointment details (e.g., date/time of request, date/time of appointment, length of appointment, provider/service area, language requested, special requests, etc.). Emergency requests are either called into the Interpreter Services Department or sent via page and then documented by staff. The Interpreter Services Department uses an electronic schedule to capture all booked and requested appointments and whether they were completed, cancelled or no-show.

With respect to services offered, BWFH provides access to interpreter and translation services via several modalities at no cost to BWFH's LEP and DHH patients at all points of clinical contact. For LEP patients, BWFH provides access to certified in-person interpreters as follows: full-time

[143] Somnath Saha et al., *Do Patients Choose Physicians of their Own Race?*, HEALTH AFF. (2000), *available at* https://www.healthaffairs.org/doi/full/10.1377/hlthaff.19.4.76; Thomas A Laveist and Amani Nuru-Jeter, *Is doctor-patient race concordance associated with greater satisfaction with care?*, 43 J. HEALTH SOC. BEHAV. 296 (2002), available at https://pubmed.ncbi.nlm.nih.gov/12467254/.

Spanish and Russian interpreters during routine business hours, per diem interpreters for 12 languages with advance notice, and contracted interpreters for approximately 40 languages with advance notice. When an in-person interpreter is not available, BWFH provides access to qualified interpreters skilled in 50+ languages via iPad Video Remote Units (iPads on Wheels) or via phone (LanguageLine Solutions). For patients that are DHH, sign language interpreter services are offered through "in house" interpreters, the Hospital's list of per-diem sign interpreters, contracted agencies, and the MGB Bulfinch Temporary Services Department or, when in-person interpreters are not available or upon patient request, through the use of iPads on Wheels which allow for visual access to an interpreter on the iPad screen. BWFH makes every effort to publicize the availability of these services on BWFH's website and social media platforms. Moreover, patient information documents are translated and available in multiple languages, ensuring equal access to important patient information.

Finally, the Applicant notes that the Hospital's interpreter services follow closely the recommendations of the Department, including those set forth in the guide entitled "Best Practice Recommendations for Hospital-Based Interpreter Services," and all interpreters are trained and certified in interpretation and BWFH policies. Moreover, in compliance with other DoN approvals issued to the Applicant, DPH's Office of Health Equity ("OHE") is actively reviewing the interpretation and language access programs available at each Mass General Brigham institution. BWFH will implement any recommendations made by OHE as part of this process. These services, which are currently available at BWFH and will continue to be in place following implementation of the Proposed Project, further health equity by ensuring that all patients have meaningful access to robust health services, including medical/surgical inpatient, observation, endoscopy and radiology services regardless of any language limitations.

D. United Against Racism Initiative

In light of the recent nationwide movement to address racism and oppression, the Applicant's leadership has made a commitment to examine and work to eliminate the many impacts that racism has on the Applicant's patients and employees. Through this commitment, the Applicant has launched the ***United Against Racism*** initiative, which includes a roadmap for achieving equality within the Applicant's system and eliminating racism and oppression faced by the Applicant's patients, communities, and staff**.** Key elements of the ***United Against Racism*** plan focuses on addressing racism through the lens of patient care, leadership and culture across the Applicant's system, and through partnerships with the communities, and organizations within the community, that Applicant serves.

F1.b.iv Provide additional information to demonstrate that the Proposed Project will result in improved health outcomes and quality of life of the Applicant's existing Patient Panel, while providing reasonable assurances of health equity.

The Proposed Project seeks to expand timely access to a variety of services, including medical/surgical inpatient, observation, endoscopy, and specific radiology services, in a community hospital setting. By providing patients with enhanced access to these high-quality services, patient wait times and the need for transfers will be reduced. Moreover, services provided in this setting will be more convenient for patients, allowing for improved access to timely, co-located and integrated care. Timely treatment often ensures fewer complications, thereby leading to reduced ED visits and hospitalizations and overall improved health outcomes. Expedited access to care may also lead to a reduction in disease/condition-related complications,

such as pain that directly impact a patient's quality of life. Combined with the fact that BWFH does not discriminate and offers a variety of services to address SDoH and health care disparities (e.g., CLAS standards, interpreting services, and social services), the Applicant anticipates that the Proposed Project will result in improved patient care experiences and quality outcomes while assuring health equity.

F1.c Provide evidence that the Proposed Project will operate efficiently and effectively by furthering and improving continuity and coordination of care for the Applicant's Patient Panel, including, how the Proposed Project will create or ensure appropriate linkages to patients' primary care services.

A. Care Linkages

To ensure continuity of care, improved health outcomes and quality of life, BWFH staff will continue existing formal processes for linking patients with their primary care physicians and community providers for follow-up care, as well as case management/social work support to ensure patients have access to resources around Social Determinants of Health ("SDoH") issues. Providing patients with linkages to these necessary services prevents unnecessary readmissions, ensures appropriate care management and provides the patient with the resources for improving underlying issues that impact health. Moreover, patients will benefit from BWFH's PHM strategies described in Factor F1.b.ii, including care coordination and care delivery alternatives aimed at improving patient experience and outcomes.

In terms of case management/social work services, BWFH's patients are linked with these services in different ways depending on where the patient originates. For instance, patients in the inpatient setting (and patients who present to a specialty department from the inpatient setting) who require social work assistance can have a consult accessed through Epic Monday-Friday 8:30am-5:00pm and, if emergent on a weekend, the ED social worker can be paged for assistance 8:30am-5:00pm. For patients who originate in the ED, social work coverage is available 7 days/week 8:30am-5:00pm via paging the on-call social worker for that day through the on-call paging system. Finally, patients who present from the ambulatory setting and receive same-day services are generally referred to their primary care practice when necessary to connect with the social workers there, as each practice has a social worker available. However, if an ambulatory patient has an emergent need, a BWFH social work triage can be accessed through Epic. In addition to providing patients with linkages to internal and system-wide social work contacts and services, the Hospital also partners with programs in the community to ensure the health, wellbeing, and safety of patients experiencing SDoH issues. Access to these services can be coordinated through the Hospital's social workers and/or through the patient's primary care practice.

B. SDoH Screening and Linkage Programs

Currently, each of the Applicant's acute care hospitals has a screening and referral program for the SDoH. While variation exists amongst the hospitals as to the populations that are screened and the logistics for screening, at a minimum, all of the 133 Mass General Brigham primary care practices that are participating in the MassHealth ACO Program screen patients for SDoH needs.

The Applicant and BWFH have been thoughtful about the implementation of a universal SDoH screening program, recognizing that there is a limited amount of capacity within the community-based organizations that patients will be "linked" to for services and understanding a staggered

approach to implementation is best, so that available community resources are not overwhelmed by referrals.

All Mass General Brigham hospitals and practices currently conducting SDoH screens utilize a similar screening tool. This tool explores eight domains of SDoH needs (housing, food insecurity, violence, etc.), inquiring if patients have issues with any of the domains and whether they would like assistance. Logistically, screens are conducted via iPads that are linked to the electronic health record ("EHR") system, Epic. If the hospital or practice is not on the Epic system, the screening tool is available in an alternate electronic form via iPads or on a paper-based form. The SDoH screening tool is currently available in eight different languages – the most common languages spoken by the Applicant's patients.

SDoH screens are tracked in a patient's EHR in the Epic system. Tracking includes whether a SDoH screen was conducted, if there were positive responses indicating the patient needs assistance, and if the patient was provided with written support materials ("Tip Sheets") or referred to a support person. Moreover, case managers and other staff assisting patients with SDoH needs include notes in the Epic system as to where the patient is in the process of accessing resources to address his/her SDoH needs. Currently, the Applicant is working to implement a data exchange system with external community-based partners that will enable hospitals and providers to understand the final disposition of the patient if referred to an external organization for support.

When a patient has a positive SDoH screen, staff at each hospital or practice, such as a social worker or community health worker, follow-up with the patient. These staff members confirm that a request for assistance has been made by the patient. Upon confirmation, the staff member may assist the patient directly or refer the patient to a community-based organization that may be able to provide specific services or supports. The patient's SDoH need(s) and circumstances determine the intensity of follow-up that is provided.

Currently, the Applicant's staff are collecting data utilizing the information that is provided in Epic to better understand the SDoH needs of its patients, including information on the most common SDoH needs, and if those SDoH needs vary by geography, ethnicity and race, or other demographic factors. These data inform staff about the demand for community-based resources in specific geographies, allowing staff to understand if these organizations need additional capacity to help patients. The Applicant and BWFH staff want to ensure that the most vulnerable patients are able to access services more quickly than patients that may currently have stability.

F1.d Provide evidence of consultation, both prior to and after the Filing Date, with all Government Agencies with relevant licensure, certification, or other regulatory oversight of the Applicant or the Proposed Project.

Since a broad range of input is valuable in the planning of a project, the Applicant carried out a diverse consultative process with individuals at various regulatory agencies regarding the Proposed Projects. The following agencies, authorities, and individuals are some of those consulted regarding the Proposed Project:

- **Local-Level Consultation**
  - City of Boston Mayor Martin Walsh
  - Enrique Pepen and Jack Duggan, Mayor's Office of Neighborhood Services

- Kristin McCosh, Commissioner, Mayor's Commission for Persons with Disabilities
- Marty Martinez, Chief, Boston Office Health and Human Services
- Boston City Councilor Matt O'Malley
- Boston Planning and Development Agency
- Boston Civic Design Commission
- Boston Transportation Department
- Boston Public Works Department
- Boston Parks and Recreation Department

- **State-Level Consultation**
  - Attorney General's Office
  - Marylou Sudders, Secretary, Executive Office of Health and Human Services
  - Department of Public Health: Commissioner Monica Bharel's Office; Lara Szent-Gyorgyi, Director, Determination of Need Program; Margo Michaels, MPH, former Director, Determination of Need Program; Rebecca Rodman, Esq., Deputy General Counsel; Ben Wood, Director, Office of Community Health Planning and Engagement, and Jennica Allen, MPH, Office of Community Health Planning and Engagement; and Daniel Gent, Division of Health Care Facility Licensure and Certification
  - MassHealth: Steven Sauter, Director, Acute Hospital Program, MassHealth Office of Providers and Plans; and Zhao Zhang, Deputy Chief Financial Officer, MassHealth
  - Health Policy Commission
  - Executive Office of Energy and Environmental Affairs (MEPA Office), including Department of Conservation and Recreation
  - Massachusetts Bay Transportation Authority
  - Legislative Branch: State Representative Elizabeth Malia; State Representative Nika Elugardo; State Representative Ed Coppinger; State Representative Chynah Tyler; State Senator Michael Rush; State Senator Sonia Chang-Diaz; State Senator William Brownsberger

F1.e.i **<u>Process for Determining Need/Evidence of Community Engagement</u>:**
For assistance in responding to this portion of the Application, Applicant is encouraged to review *Community Engagement Standards for Community Health Planning Guideline.* With respect to the existing Patient Panel, please describe the process through which Applicant determined the need for the Proposed Project.

Based upon growing demand for secondary care in the community and the need to provide patients with care in the appropriate setting, the Applicant and BWFH staff developed a plan to expand medical/surgical inpatient beds, add observation unit beds, relocate and expand endoscopy services, and expand radiology services at BWFH. Overall, the Proposed Project aims to create capacity to meet the demand for secondary care in the community, while modernizing facilities and right-sizing support spaces for more efficient operations. In contemplation of this

Proposed Project, BWFH's leadership sought to define its community broadly and engage local residents, regulatory agencies, patients and family members that may be impacted by and/or have an interest in the Proposed Project to provide information, obtain feedback and answer questions. These engagement efforts are described below.

A. Meetings with Community Groups/Neighbors

To ensure appropriate community engagement, BWFH has presented the Proposed Project at a number of public meetings with local neighborhood and community groups. The Applicant notes that discussion at these meetings related to certain components of the project of which are outside the scope of DoN review (e.g., construction related to parking and garaging). Nonetheless, the meetings provided the opportunity to engage and solicit feedback from numerous community groups and neighbors regarding the Proposed Project components and the planned construction related thereto. Details regarding several of these meetings are discussed below.

- **Sophia Snow Place ("SSP") / Springhouse Senior Living Community ("SSLC")** – SSP and SSLC are two senior living communities located near BWFH. As residents from both facilities frequently receive care at BWFH and are interested in neighborhood development by the Hospital, BWFH representatives presented the Proposed Project to SSP and SSLC residents on July 30, 3019 and August 20, 2019, respectively. Approximately 40 individuals attended both meetings, including residents and management staff. While most questions focused on topics outside the scope of this Application, attendees expressed general support for the Proposed Project components.
- **Jamaica Plain Neighborhood Council Zoning Committee ("JPNC")** – The Proposed Project was presented to the JPNC on August 21, 2019. The JPNC brings together a cross-section of the economically, ethnically, geographically and otherwise diverse Jamaica Plain community to make decisions and recommendations regarding development, infrastructure, licensing, and other public issues, and therefore was an ideal group to engage for purposes of the Proposed Project. The meeting was well-attended by JPNC members, representatives of the Mayor's Office, BWFH representatives, and the media, among others. With regard to the Proposed Project components that are the subject of this Application, participants expressed interest and support, and noted their appreciation for BWFH's care delivery to the neighborhood, growth over the years, and continued provision of high-quality services.
- **Jamaica Hills Association ("JHA")** – The September 11, 2019 meeting with the JHA, a longstanding civic organization, was similarly well-received. BWFH representatives provided an informational presentation regarding the Proposed Project and participants – including 11 JHA officers/board members – expressed gratitude for the care they and their loved ones have received at BWFH over the years and for having such great care so close to home. Participants inquired about how to submit public comments and BWFH staff provided the participants with this information.
- **Rogerson Communities** – Rogerson Communities operates SSP and SSLC as well as other senior housing facilities in the Boston area, and has previously collaborated with BWFH to co-locate healthcare facilities with senior living residences to support residential care. Given this relationship, a meeting was held with Rogerson Communities' representatives on September 19, 2019. Five individuals attended the meeting and expressed interest in BWFH 's plans involving the Proposed Project.

B. Regulatory Agency Meetings

BWFH also presented the Proposed Project at a number of regulatory agency meetings, which were open to the public. These regulatory agency meetings were held as part of the City of Boston's required Article 80 review processes for the Hospital's Institutional Master Plan ("IMP") and Draft Project Impact Report submissions. Accordingly, while these meetings provided the opportunity for public engagement around the Proposed Project, they also covered a larger scale of work, certain components of which are outside the scope of this Application. Details regarding several of these meetings are described herein.

- **Boston Planning and Development Agency ("BPDA") IMP Task Force Meetings and Oversight Committee Meeting** – A meeting was held with the BPDA IMP Task Force on August 1, 2019. The meeting was attended by community stakeholder representatives, including Sophia Snow Place, Springhouse Senior Living Community, Rogerson Communities, JHA, and Councilor Matt O'Malley's office. Susan Dempsey, BWFH's Vice President of Clinical Services, and George Takoudes, Senior Architect, presented on Proposed Project description and need. Participants' questions focused on topics outside the scope of this Application. Additional meetings were held with the BPDA IMP Task Force on November 9, 2020 and the BPDA Oversight Committee on October 8, 2020.
- **BPDA Public Meeting** – A public meeting was held on August 14, 2019 by the BPDA at BWFH. The meeting was well attended by over 40 people, including many neighbors, abutters, and members or representatives of the community. This meeting generated specific questions about the cost of the Proposed Project, construction management, benefit and need for expansion, neighborhood liaison appointment, future plans and additional meetings, and the adequacy and timeliness of notification to neighbors/abutters. BWFH duly informed participants at this meeting of the cost of the Proposed Project, that the public comment period was extended, and that notices were mailed to neighbors and abutters alerting them to the Proposed Project. Based on participants' thoughtful feedback at this meeting, BWFH appointed David Goldberg, Executive Director of Marketing, Communications, and Community Relations, as the neighborhood liaison for the Proposed Project, extended communications with neighbors, and scheduled several subsequent meetings with neighborhood and community groups, as described above.
- **BPDA Scoping Session** – A BPDA Scoping Session meeting was held on August 20, 2019 as a meeting of the City's public agencies to solicit their input on the Proposed Project. During the meeting, Malaina Bowker, BWFH's Associate Director of Real Estate and Facilities Planning, provided an overview of the Proposed Project, and George Takoudes, Senior Architect, discussed plans and buildings. While most questions focused on topics outside the scope of this Application, there was specific interest around the Community Health Initiative ("CHI") funding associated with the Application.
- **Boston Civic Design Commission ("BCDC")** – Meetings with the BCDC were held on September 3, 2019 and October 5, 2020, at which the Proposed Project was presented. BWFH representatives fielded questions related to urban design, future planning and sustainability. Commissioners in attendance expressed support for the goals of the Proposed Project and noted that the proposed addition is intelligently sited. Members of the public noted both support for BWFH and concern about topics outside the scope of this Application.
- **Massachusetts Environmental Policy Act Office ("MEPA")** – The Applicant engaged in the required processes for proper notification and submissions to MEPA with regard to the Proposed Project. As part of these processes, a consultation session/site visit was

held on October 29, 2019, at which representatives of MEPA and 3 members of the public were present, and an overview of the Proposed Project and its design was provided by BWFH. Questions focused on topics outside the scope of this Application.

C. Engagement of the Hospital's Community Engagement Advisory Committee ("CEAC")

Representation of Patient Panel and Member Selection

BWFH's CEAC includes representatives from a range of local organizations and community residents. The CEAC was created in 1995 under the first iteration of the Attorney General guidelines. Members are representative of the community that the Hospital serves and the Hospital's community partnerships. Membership is considered by request and nomination, both via internal and external avenues. Recently, the CEAC was updated and broadened to represent a larger scope of the community for improved input and representation of all priority neighborhoods. Appendix 3 includes a full membership list of the CEAC as of 2019. As the CEAC's mission includes to soliciting input on how the Hospital can better serve the community and because CEAC members represent the Hospital's diverse community and can offer a unique perspective on what those community members' needs are and how best to meet them, leadership determined it was appropriate to engage the CEAC respect to Proposed Project. Accordingly, on May 13, 2019, Susan Dempsey, Vice President of Clinical Services, met with the CEAC to present an overview of the Proposed Project, explain the associated regulatory process, give a progress update, and answer any questions. Additionally, on September 16, 2019, Susan Dempsey provided the CEAC with an update on meetings held and feedback received to-date on the Proposed Project, along with a timeline for the future. Overall feedback from the meetings – which were attended by 20 CEAC members and 17 CEAC members plus one non-member presenter, respectively, was positive with no concerns voiced.

D. Engagement of the Hospital's PFAC

Representation of Patient Panel and Member Selection

The PFAC is sponsored by the Patient Experience Department and Patient Care Services. Membership of the PFAC is governed by by-laws and is open to BWFH's staff, patients, family members, and the community. The PFAC is co-chaired by a Hospital administrator and a patient/family member. In compliance with the Department's Hospital Licensure Regulations (105 CMR 130.000, specifically 105 CMR 130.1800 and 130.1801), at least 50% of the PFAC members are current or former patients and/or family members and are representative of the community served by the Hospital. Specifically, BWFH's PFAC consists of 5 staff members and 7 patient/family member advisors and the members embody a cross-section of those served by the Hospital (e.g., inpatient, outpatient, ED, and specialty areas).

Recruitment of members is initiated by word of mouth/referral, recruitment brochures, solicitations through targeted mailings, and/or through regular communications (e.g., PFAC is featured on BWFH's website). To become a member, an individual must complete an application and undergo screening and interview by the PFAC Co-Chairs. Members are selected based on the following criteria and abilities: listen to differing opinions and share different points of view; support the mission of the Hospital; share insights and information about experiences in ways that others can learn from; see beyond their personal experiences; show concern for more than one issue or agenda; respect diversity and the perspectives of others; adhere to the principles of respect, trust, collaboration, communication and integrity; speak comfortably in a group with candor; interact

well with different kinds of people; represent experiences from key service lines; and represent the ethnic/racial and geographic diversity reflective of the Hospital's patients.

The Applicant also notes that in recent years the PFAC has undertaken several activities to ensure appropriate representation of membership in comparison to the Hospital's patient population/catchment area. These activities include: following suggestions from colleagues via the Beryl Institute and the Institute for Patient-and Family-Centered Care; giving members an option to participate virtually; encouraging members to speak with friends and community members, religious organizations and civic groups they may attend about the PFAC; creating an electronic PFAC application form on the website to increase ease and accessibility; distributing a promotional PFAC fact sheet throughout the Hospital; hosting tables outside the cafeteria to showcase the PFAC's work; attending various departmental meetings to advertise the PFAC and seek assistance from staff in soliciting new, diverse members; and offering language services. The Hospital plans to continue these efforts to improve awareness of the PFAC, increase diverse representation, and ensure patient/family input in Hospital strategic efforts.

Presentations to the PFAC

The function of the BWFH PFAC is to provide a forum to facilitate patient, family, community member and staff participation and input in Hospital care and decision-making, information-sharing, and program development. Recommendations from the PFAC provide leadership with an enhanced understanding of how to improve quality, safety, service excellence, program development, facility design, and patient and family education and satisfaction. Accordingly, leadership determined it was appropriate to engage the PFAC regarding the Proposed Project.

On December 5, 2019, Susan Dempsey, Vice President of Clinical Services, met with the PFAC to discuss the need for the Proposed Project. In total, 9 individuals attended the meeting; 6 PFAC members (3 BWFH staff member and 3 patient/family member attendees) and 3 guest presenters. For transparency and to educate the PFAC regarding the Proposed Project, BWFH developed a presentation to provide at the meeting, which documents the various components of the Proposed Project, the patient panel need that it will address, and the impact of the Proposed Project including its public health value. Feedback was positive and PFAC members were enthusiastic and supportive of the plan. Members agreed with the proposal to expand and modernize to support the growing number of patients served and increase access to care in a community setting, were impressed with the presented "mock-up room" demonstrating BWFH's intent to develop an efficient and comfortable inpatient room, and voiced interest in offering input on the space and design development. There were no concerns expressed by this group.

In consideration of the PFAC members' request to offer input on the space and design development, a portion of the February 11, 2020 PFAC meeting – which was attended by 7 PFAC members (4 BWFH staff members and 3 patient/family member attendees) and 5 guests – was dedicated to touring the mock-up space with the architect and project manager. Overall, members approved of the layout, offering minor comments with regard to the medical/surgical inpatient rooms (e.g., table for flowers, mirror above sink, wardrobe/storage). This feedback was taken into consideration as the Hospital prepared its Application for the Proposed Project.

F1.e.ii **Please provide evidence of sound Community Engagement and consultation throughout the development of the Proposed Project. A successful Applicant will, at a minimum, describe the process whereby the "Public Health Value" of the Proposed Project was considered, and will describe the Community Engagement process as it occurred and is occurring currently in, at least, the following contexts: Identification of Patient Panel Need; Design/selection of DoN Project in response to "Patient Panel" need; and Linking the Proposed Project to "Public Health Value".**

To ensure sound community engagement throughout the development of the Proposed Project, the Applicant and BWFH took the actions detailed in Factor F1.e.i. For materials related to these activities, please refer to Appendix 3, which includes meeting agendas, minutes, presentations, etc. In addition, for transparency and to ensure appropriate awareness within the community about the Proposed Project, the Applicant published a legal notice associated with the Proposed Project in the Boston Herald and also posted a copy of such legal notice prominently on the MGB and BWFH websites. Moreover, the Boston Globe published an article on July 29, 2019 and The Bulletin, a community newspaper, published an article on August 22, 2019, both concerning the Proposed Project. Finally, the Applicant issued letters informing neighbors of the Proposed Project in October, November, and December of 2019. These actions were taken to bring awareness to patients, families, local residents, and resident groups, and to provide an opportunity for stakeholders to comment on the Proposed Project.

Factor 2: Health Priorities

Addresses the impact of the Proposed Project on health more broadly (that is, beyond the Patient Panel) requiring that the Applicant demonstrate that the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment, improved public health outcomes, and delivery system transformation.

F2.a. **<u>Cost Containment</u>:**
Using objective data, please describe, for each new or expanded service, how the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment.

The goals for cost containment in Massachusetts include providing lower-cost care alternatives without sacrificing quality and ensuring that health care costs remain below the State's healthcare cost growth benchmark. The Institute for HealthCare Improvement's Triple Aim seeks to (1) Improve patient experience; (2) Reduce the per capita costs of healthcare; and (3) Improve the health of populations overall. The cost reduction component of the Triple Aim "encourages health care organizations to find ways to reduce the cost of the care they provide, while at the same time increasing quality, as well as identifying at-risk populations and addressing the health concerns of the community."[144] To address the cost of care, the Applicant has in place system-wide strategic planning efforts. Through these efforts, highest acuity patients needing tertiary and quaternary services will receive care at the system's academic medical centers ("AMCs"), while patients in need of secondary care are treated at the more appropriate community hospital setting, such as BWFH. To that end, the Applicant developed the BWFH Transfer Program to allow ED clinicians at its AMCs, including BWH, to directly admit qualifying patients to BWFH inpatient units,

[144] Abby Norman, *An Overview of the Triple Aim*, VERY WELL HEALTH (Mar. 1, 2020), https://www.verywellhealth.com/triple-aim-4174961.

leveraging available capacity within the system for patients in need of lower acuity, community-based care. Once a patient is transferred to BWFH, a hospitalist cares for the individual, updating clinical information in the Applicant's shared electronic health record ("EHR") system, Epic. The BWFH Transfer Program is an additional way that the Applicant is managing PHM efforts. By providing care in the appropriate setting based on acuity level and ensuring necessary services are provided by the appropriate clinician, the Applicant and its hospitals continue to provide lower cost care alternatives for appropriate patients.

Additionally, as discussed more fully in Section F.1.a.iii, the Applicant and BWFH have certain strategic initiatives and PHM programming in place to provide lower cost care alternatives to patients. PHM programming also will impact costs and ensure that lower cost care alternatives are available, allowing the Applicant to meet the goals of cost containment. Cost efficiencies will be realized through the Proposed Project by ensuring sufficient capacity to provide care to patients in the appropriate setting. The increased capacity of inpatient medical/surgical beds, establishment of an observation unit, relocation and expansion of endoscopy services, and addition of a 3T MRI will result in greater efficiencies and improved throughput across BWFH's campus, including the ED.

F2.b. Public Health Outcomes:
Describe, as relevant, for each new or expanded service, how the Proposed Project will improve public health outcomes.

The Proposed Project will improve public health outcomes as patients will have improved access to timely services in the most appropriate setting.

Expansion of Medical/Surgical Inpatient Beds

The expansion of medical/surgical inpatient bed capacity at BWFH will improve public health outcomes as patients will have more timely and continued access to necessary services in the most appropriate setting, ultimately leading to better quality outcomes and an enhanced patient care experience. As further discussed in this Application, the addition of inpatient bed capacity at BWFH will improve access for patients in need for both tertiary care at BWH and secondary care at BWFH. By ensuring adequate access to inpatient care in the most appropriate setting, patients at both facilities will be able to receive services in a timely manner, this includes patients boarding in the ED and awaiting transfer to BWFH. Overall, it is anticipated that the expansion of inpatient capacity at BWFH will result in improved health outcomes and patient experience across Brigham Health.

Relocation and Expansion of Endoscopy Services

The relocation and expansion of BWFH's endoscopy services will allow for access to more efficient and advanced care in the community setting. By relocating the endoscopy unit, the new design will promote improved care delivery and flow. In addition, BWFH will be able to offer expanded access to advanced endoscopy procedures within the endoscopy department. This will improve health outcomes by providing on-site access to advanced procedures and eliminate the need to transport patients to BWH for services and eliminate the existing barrier for transfer of certain patients from BWH that could be admitted to BWFH but for the lack of timely access to advanced endoscopy procedures. Through this component, health outcomes will be improved by access to more efficient and higher acuity endoscopy services in the community setting.

Establishment of an Observation Unit

The establishment of an observation unit at BWFH will improve public health outcomes as patients will have increased access to care in the most appropriate setting. Admitted patients in the ED will spend less time boarding in the ED. Moreover, by establishing a dedicated observation unit, capacity constraints in the ED, PACU, interventional radiology recovery rooms, and inpatient floors will be reduced. Throughput in these care spaces will be improved, ensuring patients receive timely care in the most appropriate setting, which will result in improved health outcomes and patient experience.

Addition of 3T MRI Imaging

The addition of a 3T MRI at BWFH will improve patient health outcomes and experience as patients will have increased access to MRI imaging services and access to improved imaging quality. Increased imaging capacity will reduce wait times for patients, resulting in more timely access to this important diagnostic and treatment tool. Moreover, the addition of 3T MRI imaging will provide patients with access to superior imaging quality as compared to the 1.5T MRI unit, providing more accurate diagnosis, reducing the need for multiple scans, and ensuring patients can receive their care at BWFH, rather than being transferred to BWH.

F2.c. Delivery System Transformation:
Because the integration of social services and community-based expertise is central to goal of delivery system transformation, discuss how the needs of their patient panel have been assessed and linkages to social services organizations have been created and how the social determinants of health have been incorporated into care planning.

A. Linking Patients with Social Determinant of Health Needs to Necessary Services

As discussed in Factor F1.c, the Applicant and BWFH's long-term goal is to implement a universal screening program for all patients. To this end, the Hospital is a member of the Boston Area Hospital Collaboration on the SDoH ("Boston Collaboration"). Through this Boston Collaboration, Boston healthcare institutions have come together to discuss collecting SDoH information consistently across institutions and implementing best practices for referrals to community services.

This Collaboration engaged Health Resources in Action ("HRiA") in 2017 to facilitate a process to: (1) identify common SDoH screening questions that will allow hospitals to meet MassHealth ACO requirements; and (2) explore pooling data for collaborative projects, such as a joint CHNA. In terms of SDoH screening, HRiA is examining the SDoH measures that the institutions already collect; facilitating a consensus-building process for data collection on similar SDoH domains; conducting key informant interviews; and examining workflow and referral pathways for data capture and referral to social services. Next steps include assessing options and best practices for social needs screening workflows, building consensus on common social needs screening questions, and ensuring that the Boston Collaboration's plans align with MassHealth ACO requirements. Based on information from the Collaboration, the Applicant and BWFH are being thoughtful about the implementation of a universal SDoH screening program, recognizing that there is a limited amount of capacity within the community-based organizations that patients will be "linked" to for services and understanding a staggered approach to implementation is best, so

that the system and BWFH (as well as other hospitals) do not overwhelm the available community resources.

As part of the transition to the MassHealth ACO model of care, the Applicant and BWFH are already screening certain patients for SDoH needs. This includes eight domains such as housing, food insecurity, finances, childcare, transportation, violence, etc. In regard to specific SDoH screening processes, this responsibility lies with a patient's PCP and his/her staff. If a SDoH is known at the time of referral to BWFH's specialty services (e.g., medical/surgical inpatient, observation, endoscopy, and radiology), the PCP's staff will work the patient to address any needs (e.g., if a MassHealth ACO patient does not have transportation to or from a colonoscopy appointment, the PCP staff will ensure a patient has a voucher and that transport is scheduled). However, recognizing that scenarios may occur at BWFH with patients making their needs known to specialty care staff, the Applicant notes that BWFH is integrated into the same EHR as all of MGB. As a result, for MassHealth ACO patients with a MGB PCP who has conducted the screening, staff within BWFH's specialty departments will have access to this information in the patient's EHR upon referral from the PCP and will follow-up with the patient accordingly to inquire whether assistance is needed and arrange for access to necessary SDoH resources.

If, on the day of an appointment/service at BWFH, a patient makes his/her needs known to staff within a specialty department for the first time, staff within the area will confirm that a request for assistance has been made. Upon confirmation, the staff member will follow existing formal processes for linking patients with case management/social work support to ensure patients have access to resources around SDoH issues. As noted in Factor F1.c, BWFH's patients are linked with these services in different ways depending on where the patient originates. Case management/social work staff may assist the patient directly or refer the patient to a community-based organization that may be able to provide specific services or supports. The patient's SDoH need(s) and circumstances determine the intensity of follow-up that is provided. These patients also are referred back to their PCP for further assistance with SDOH needs.

Factor 5: Relative Merit

F5.a.i **Describe the process of analysis and the conclusion that the Proposed Project, on balance, is superior to alternative and substitute methods for meeting the existing Patient Panel needs as those have been identified by the Applicant pursuant to 105 CMR 100.210(A)(1). When conducting this evaluation and articulating the relative merit determination, Applicant shall take into account, at a minimum, the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives or substitutes, including alternative evidence-based strategies and public health interventions.**

Proposal: The Proposed Project involves: (a) construction of a 5-story addition to BWFH's existing hospital facility that will contain the following: 78 additional medical/surgical beds; an 8-bed observation unit; relocated and expanded endoscopy services, including one additional advanced procedure room; acquisition of a 3T MRI unit and certain relocated radiology services; and shell space for future build out; and (b) other renovation projects to improve existing services and facilities at BWFH's main campus.

Quality: The Proposed Project will improve access through expanded capacity of select services and ensure that patients receive care in the most appropriate setting, thereby resulting in high-quality care.

Efficiency: Through the Proposed Project, access and capacity will be created to allow patients to be cared for in the most appropriate setting. For example, expanded inpatient capacity will relieve capacity constraints throughout the Brigham Health system. Moreover, by relocating and expanding the endoscopy unit with advanced endoscopy capacity and adding a 3T MRI, patients will no longer require transport to BWH for those services, providing efficiencies in care and costs. In addition, through the observation unit, throughput will be improved in recovery areas throughout the hospital. Accordingly, each component of the Proposed Project is designed to promote the care of patients more efficiently.

Capital Expense: There are capital expenses associated with the implementation of the Proposed Project. The total capital expenditure cost for the Proposed Project is $150,098,582. However, the construction of the Proposed Project represents a cost-effective project to address the needs of the Applicant's patient panel and ensure BWFH has the capacity to carry out its role within the Commonwealth as a community-based hospital providing secondary care. The Proposed Project design is the result of a long-term IMP, the strategic planning associated with which was informed by clinical staff, patients and families, community stakeholders, various regulatory agencies, and a skilled team of healthcare architects.

Operating Costs: There are operating costs associated with the Proposed Project. The first-year incremental operating expense of the Proposed Project is $11,685,000. However, the Applicant notes that Proposed Project will reduce the current BWFH operating costs related to transporting patients via ambulance to BWH and other hospitals to receive services that are either not available (e.g., 3T MRI) or are at capacity at BWFH (e.g., medical/surgical inpatient services).

List alternative options for the Proposed Project:

Option 1

Alternative Proposal: One alternative for the Proposed Project would be to forego construction and implementation of the Proposed Project and continue to operate BWFH's main campus without any changes.

Alternative Quality: This alternative will not allow Brigham Health to address the need to ensure that care is provided in the most optimal setting, resulting in delays in care that may impact quality.

Alternative Efficiency: This alternative would be inefficient as it would not provide additional access to needed services at BWFH. Without additional medical/surgical inpatient beds, establishment of an observation unit, expansion of endoscopy services, and implementation of 3T MRI services, the Hospital will continue to face capacity constraints and throughput challenges, and patients will continue to face increased wait times and/or the need to be transferred to other facilities for diagnosis and treatment of various conditions. Moreover, this alternative would not provide the space and efficiencies of the Proposed Project; patient care would continue to be provided within BWFH's current facilities, which space cannot support the need for expanded services and new technologies, rightsizing of support spaces, or improved workflow and operations.

Alternative Capital Expenses: Although this alternative would not be associated with any capital expenses, it would not address the need to create capacity to meet demand for secondary care in the community, and the quality, operational and cost efficiencies gained through the Proposed Project would not be achieved.

Alternative Operating Costs: There would be no change in current operating costs. Reductions in operating costs associated with transporting patients via ambulance to alternative care sites would not be achieved. Moreover, BWFH would not be able to create operational efficiencies, such as increased bed turnover in the ED and PACU, if nothing is done to address demand.

Option 2

Alternative Proposal: BWFH considered several other alternative options to the Proposed Project, none of which matched the superior quality and efficiencies that will be achieved through the Proposed Project. First, BWFH considered renovation to existing vacant or underutilized space at BWFH; however, due to space constraints, there is no such space appropriate for such renovation. As renovation to existing space was not feasible for the scope of the Proposed Project, BWFH considered construction of a smaller North Wing Addition as an alternative location for the additional inpatient capacity.

Alternative Quality: The alternative proposal involving a smaller addition to the north of BWFH's main entry would have resulted in fewer inpatient beds than BWFH determined was necessary to meet the current and future demand of its patient panel. Moreover, the alternative proposal would not provide sufficient clinical space to include the endoscopy, observation unit, or imaging components of the Proposed Project. The absence of these components would not provide the superior quality that will be realized with the Proposed Project because it would not address the capacity constraints in clinical spaces such as the PACU, as well as capacity constraints in endoscopy rooms and imaging. Moreover, this alternative would not provide the necessary capacity to address ED boarding at BWH for appropriate transfer patients.

Alternative Efficiency: The alternative proposal would be inefficient, as the alternative location of the addition would result in a smaller footprint and the addition would be unable to accommodate each component of the Proposed Project. This would require an additional construction project in the future to build out enough space to accommodate the necessary components of the project to meet the clinical needs of BWFH's patient panel.

Alternative Capital Expenses: The alternative North Wing Addition would result in capital expenses of $116,331,000.

Alternative Operating Costs: Operating costs associated with the North Wing Addition would be approximately $6,959,255.

Appendix 3

Factor 1 Supplemental Information

Appendix 3A

Patient Panel Information

Table 1: MGB Patient Panel

	FY17		FY18		FY19		FY20 YTD	
	Count	%	Count	%	Count	%	Count	%
MGB Total	**1,408,587**		**1,504,625**		**1,528,359**		**634,989**	
Gender								
Female	820,910	58.3%	874,793	58.1%	883,913	57.8%	379,809	59.8%
Male	587,404	41.7%	629,708	41.9%	644,286	42.2%	255,110	40.2%
Other/Unknown	273	0.0%	124	0.0%	160	0.0%	70	0.0%
Age								
0-17	147,325	10.5%	166,985	11.1%	179,388	11.7%	59,815	9.4%
18-64	859,511	61.0%	919,998	61.1%	948,501	62.1%	374,338	59.0%
65+	401,551	28.5%	417,605	27.8%	400,441	26.2%	200,785	31.6%
Unknown	200	0.0%	37	0.0%	29	0.0%	51	0.0%
Race								
American Indian or Alaska Native	1,656	0.1%	1,946	0.1%	2,045	0.1%	828	0.1%
Asian	58,502	4.2%	62,723	4.2%	66,601	4.4%	26,468	4.2%
Black or African American	81,341	5.8%	83,703	5.6%	85,627	5.6%	34,562	5.4%
Hispanic/Latino	22,089	1.6%	20,631	1.4%	19,630	1.3%	9,697	1.5%
Native Hawaiian or Other Pacific Islander	1,122	0.1%	1,128	0.1%	1,117	0.1%	362	0.1%
Other/Unknown	213,833	15.2%	234,921	15.6%	232,058	15.2%	77,918	12.3%
White	1,030,044	73.1%	1,099,573	73.1%	1,121,281	73.4%	485,154	76.4%
Patient Origin								
HSA_1	14,505	1.0%	91,115	6.1%	100,146	6.6%	42,253	6.7%
HSA_2	48,209	3.4%	49,775	3.3%	52,353	3.4%	19,171	3.0%
HSA_3	94,206	6.7%	97,683	6.5%	101,785	6.7%	36,203	5.7%
HSA_4	629,721	44.7%	647,990	43.1%	682,126	44.6%	303,527	47.8%
HSA_5	213,793	15.2%	205,407	13.7%	174,459	11.4%	71,305	11.2%
HSA_6	246,147	17.5%	243,319	16.2%	244,000	16.0%	109,872	17.3%
Outside of MA	155,790	11.1%	163,517	10.9%	167,835	11.0%	51,168	8.1%
Unknown/In MA but not in HSA 1-6[1]	6,216	0.4%	5,819	0.4%	5,655	0.4%	1,490	0.2%

FY data is pulled as of January 7, 2020

Notes:

1) Includes 'Unknown' and 'In MA but not in HSA 1-6' for confidentiality due to regulations around data with counts <11.

2) MGB data systems utilize multiple source that are continuously refined and refreshed over time that prevent the patient counts from tying exactly between filings. Accordingly, between June 2018 and December 2019, staff further refined the data collection processes leading to an increase of no more than 1% in overall patient counts for the syster

3) Source: SAM Patients Served tables that use data from the Integration, Patient Financials, Payer, and Epic source marts.

4) Entities include:

The General Hospital Corporation d/b/a Massachusetts General Hospital
Brigham and Women's Hospital
Newton Wellesley Hospital
North Shore Medical Center
Brigham and Women's Faulkner Hospital
Martha's Vineyard Hospital[1]
Nantucket Cottage Hospital[1]
Cooley Dickinson Hospital[1]
Massachusetts Eye and Ear Infirmary[2]
Spaulding Rehabilitation Hospital[3]
McLean Hospital[1]
Massachusetts General Physicians Organization
Brigham and Women's Physicians Organization
North Shore Physicians Group
Newton Wellesley Medical Group
Cooley Dickinson PHO[1]
Mass General Brigham Community Physicians[4]

1. Only includes post-Epic data.
2. Outpatient post-Epic data only. Does not include inpatient data.
3. Telehealth, MGB Mobile Observation Unit, Home Hospital (HH) programs for GH and BWH, Stay Connected with GH, Lifeline, CareSage programs not included.
4. Pre-Epic non-risk patients not included.

Table 2: BWFH Patient Panel								
	FY17		FY18		FY19		FY20 YTD	
	Count	%	Count	%	Count	%	Count	%
BWFH Total	**89,018**		**89,455**		**91,671**		**34,522**	
Gender								
Female	59,077	66.4%	59,214	66.2%	60,323	65.8%	22,516	65.2%
Male/Other/Unknown[1]	29,941	33.6%	30,241	33.8%	31,348	34.2%	12,006	34.8%
Age								
0-17	1,153	1.3%	1,201	1.3%	1,262	1.4%	426	1.2%
18-64	53,945	60.6%	55,310	61.8%	57,434	62.7%	21,093	61.1%
65+/Unknown[3]	33,920	38.1%	32,944	36.8%	32,975	36.0%	13,003	37.7%
Race								
American Indian or Alaska Native	140	0.2%	152	0.2%	161	0.2%	57	0.2%
Asian	2,021	2.3%	2,085	2.3%	2,253	2.5%	749	2.2%
Black or African American	9,915	11.1%	10,283	11.5%	10,537	11.5%	4,225	12.2%
Hispanic/Latino	4,161	4.7%	4,298	4.8%	4,374	4.8%	1,754	5.1%
Other/Unknown/Native Hawaiian or Other Pacific Islander[3]	9,155	10.3%	9,398	10.5%	10,081	11.0%	3,726	10.8%
White	63,626	71.5%	63,239	70.7%	64,265	70.1%	24,011	69.6%
Patient Origin								
HSA_1	645	0.7%	672	0.8%	770	0.8%	257	0.7%
HSA_2	2,720	3.1%	2,811	3.1%	2,868	3.1%	980	2.8%
HSA_3	1,842	2.1%	1,851	2.1%	1,863	2.0%	583	1.7%
HSA_4	64,382	72.3%	64,996	72.7%	66,872	72.9%	26,181	75.8%
HSA_5	11,301	12.7%	11,220	12.5%	11,614	12.7%	4,054	11.7%
HSA_6	2,785	3.1%	2,738	3.1%	2,748	3.0%	892	2.6%
Outside of MA	5,162	5.8%	4,987	5.6%	4,733	5.2%	1,527	4.4%
Unknown/In MA but not in HSA 1-6[4]	181	0.2%	180	0.2%	203	0.2%	48	0.1%

FY data is pulled as of January 22, 2020

Notes:

1) Includes 'Male' and 'Other/Unknown' for confidentiality.

2) Includes '65+' and 'Unknown' for confidentiality.

3) Includes 'Other/Unknown' and 'Native Hawaiian or Other Pacific Islander' for confidentiality.

4) Includes 'Unknown' and 'In MA but not in HSA 1-6' for confidentiality.

5) Source: SAM Patients Served tables that use data from the Integration, Patient Financials, Payer, and Epic source marts.

6) Entities include: Brigham and Women's Faulkner Hospital.

Table 3: BWFH Medical/Surgical Inpatient Patient Panel						
	FY17		FY18		FY19	
	Count	%	Count	%	Count	%
Total Unique Patients	**9,668**		**9,187**		**8,873**	
Gender						
Female	5,600	57.9%	5,290	57.6%	5,065	57.1%
Male/Other/Unknown[1]	4,068	42.1%	3,897	42.4%	3,808	42.9%
Age						
18-64	4,524	46.8%	4,366	47.5%	4,336	48.9%
65+	4,373	45.2%	4,111	44.7%	4,024	45.4%
Unknown	771	8.0%	710	7.7%	513	5.8%
Race						
Asian	132	1.4%	151	1.6%	145	1.6%
Black or African American	1,359	14.1%	1,273	13.9%	1,251	14.1%
Hispanic/Latino	521	5.4%	432	4.7%	432	4.9%
Other/Unavailable/Declined[2]	6,656	68.8%	6,352	69.1%	5,997	67.6%
White	1,000	10.3%	979	10.7%	1,048	11.8%
Patient Origin						
West Roxbury (02132)	944	9.8%	900	9.8%	855	9.6%
Roslindale (02131)	899	9.3%	821	8.9%	759	8.6%
Hyde Park (02136)	701	7.3%	647	7.0%	693	7.8%
Jamaica Plain (02130)	539	5.6%	508	5.5%	504	5.7%
Dedham (02026)	478	4.9%	428	4.7%	399	4.5%
Dorchester (02124, 02121	366	3.8%	367	4.0%	373	4.2%
Mattapan (02126)	185	1.9%	181	2.0%	196	2.2%
Roxbury (02119	176	1.8%	155	1.7%	169	1.9%
Norwood (02062)	177	1.8%	151	1.6%	150	1.7%
Chestnut Hill (02467)	111	1.1%	100	1.1%	103	1.2%
All Other	5,092	52.7%	4,929	53.7%	4,672	52.7%
Payer Mix						
Commercial[3]	3,018	31.2%	2,822	30.7%	2,604	29.3%
Medicaid[4]	709	7.3%	889	9.7%	1,019	11.5%
Managed Medicaid	822	8.5%	619	6.7%	496	5.6%
Commercial Medicare	873	9.0%	869	9.5%	972	11.0%
Medicare FFS	3,933	40.7%	3,794	41.3%	3,551	40.0%
All Other[5]	313	3.2%	194	2.1%	231	2.6%
Total Patient Encounters	**12,045**		**11,470**		**11,295**	
ICD 10 Primary Diagnosis Code - Top 10						
Addiction/Chemical Dependency	932	7.7%	1,016	8.9%	1,024	9.1%
Osteoarthritis	924	7.7%	908	7.9%	796	7.0%
Congestive Heart Failure	329	2.7%	336	2.9%	379	3.4%
Septicemia	396	3.3%	277	2.4%	325	2.9%
Urinary Tract Infection	256	2.1%	267	2.3%	300	2.7%
Breast Cancer	396	3.3%	342	3.0%	287	2.5%
Pneumonia Including Aspiration Pneumonia	235	2.0%	264	2.3%	278	2.5%
Chronic Obstructive Pulmonary Disease	282	2.3%	225	2.0%	269	2.4%
Degenerative Spine and Disc Injury	326	2.7%	347	3.0%	267	2.4%
Diabetes Mellitus	247	2.1%	240	2.1%	262	2.3%

FY data is pulled as of January 22, 2020

Notes:

1) Includes 'Male' and 'Other/Unknown' for confidentiality.

2) Includes 'Other', 'Unavailable', 'Declined', 'American Indian or Alaska Native' and 'Native Hawaiian or Other Pacific Islander' for confidentiality.

3) 'Commercial' includes:

- Allways Health Partners Commercial
- Blue Cross Blue Shield
- Commercial National Carriers
- Commercial Other
- Connector Care Plans
- Harvard Pilgrim Health Plan
- Tufts Health Plan

4) Please note that BWFH is not able to easily isolate MassHealth at the project-specific level as it falls under various payers. However, in an effort to offer a complete payer mix for the patient panel associated with the medical/surgical inpatient bed component of the Proposed Project, 'Medicaid' has been provided as an alternative payer mix category.

5) 'All Other' includes:

- Free Care
- Government Other
- International
- Other Payer
- Qualified Health Plans
- Self-Pay
- Unknown Summary Payer
- Workers Comp

Table 4: BWFH Observation Unit Patient Panel

	FY17		FY18		FY19	
	Count	%	Count	%	Count	%
Total Unique Patients	**744**		**805**		**1,340**	
Gender						
Female	445	59.8%	474	58.9%	760	56.7%
Male/Other/Unknown[1]	299	40.2%	331	41.1%	580	43.3%
Age						
0-17	66	8.9%	91	11.3%	69	5.1%
18-64	390	52.4%	416	51.7%	653	48.7%
65+	288	38.7%	298	37.0%	618	46.1%
Race						
Asian	16	2.2%	16	2.0%	26	1.9%
Black or African American	134	18.0%	148	18.4%	185	13.8%
Hispanic/Latino	35	4.7%	36	4.5%	44	3.3%
Other/Unavailable/Declined[2]	80	10.8%	82	10.2%	142	10.6%
White	479	64.4%	523	65.0%	943	70.4%
Patient Origin						
Dorchester (02124, 02121)	35	4.7%	37	4.6%	55	4.1%
Roslindale (02131)	44	5.9%	45	5.6%	47	3.5%
Hyde Park (02136)	30	4.0%	26	3.2%	32	2.4%
West Roxbury (02132)	29	3.9%	24	3.0%	31	2.3%
Jamaica Plain (02130)	29	3.9%	28	3.5%	30	2.2%
Mattapan (02126)	19	2.6%	14	1.7%	25	1.9%
Dedham (02026)	18	2.4%	14	1.7%	24	1.8%
Roxbury (02119)	17	2.3%	17	2.1%	17	1.3%
Stoughton (02072) / Braintree (02184)[3]	14	1.9%	15	1.9%	31	2.3%
All Other	509	68.4%	585	72.7%	1,048	78.2%
Payer Mix						
Commercial[4]	288	38.7%	298	37.0%	469	35.0%
Medicaid[5]	64	8.6%	80	9.9%	114	8.5%
Managed Medicaid	37	5.0%	18	2.2%	16	1.2%
Commercial Medicare	50	6.7%	67	8.3%	107	8.0%
Medicare FFS	270	36.3%	306	38.0%	586	43.7%
All Other[6]	35	4.7%	36	4.5%	48	3.6%
Total Patient Encounters	**898**		**997**		**1,607**	
ICD 10 Primary Diagnosis Code - Top 10						
Unilateral Primary Osteoarthritis, Left Knee	--	0.0%	1	0.1%	120	7.5%
Unilateral Primary Osteoarthritis, Right Knee	--	0.0%	4	0.4%	106	6.6%
Other Specified Complication Of Vascular Prosthetic Devices, Implants And Grafts, Initial Encounter	3	0.3%	54	5.4%	104	6.5%
End Stage Renal Disease	279	31.1%	177	17.8%	98	6.1%
Encounter For General Adult Medical Examination Without Abnormal Findings	--	0.0%	16	1.6%	84	5.2%
Thrombosis Due To Vascular Prosthetic Devices, Implants And Grafts, Initial Encounter	6	0.7%	50	5.0%	65	4.0%
Other Specified Complication Of Vascular Prosthetic Devices, Implants And Grafts, Subsequent Encounter	3	0.3%	19	1.9%	60	3.7%
Benign Prostatic Hyperplasia With Lower Urinary Tract Symptoms	31	3.5%	34	3.4%	59	3.7%
Malignant Neoplasm Of Prostate	5	0.6%	15	1.5%	54	3.4%
Stenosis Of Other Vascular Prosthetic Devices, Implants And Grafts, Initial Encounter	--	0.0%	13	1.3%	39	2.4%

FY data is pulled as of January 22, 2020

Notes:

1) Includes 'Male' and 'Other/Unknown' for confidentiality.

2) Includes 'Other', 'Unavailable', 'Declined', 'American Indian or Alaska Native' and 'Native Hawaiian or Other Pacific Islander' for confidentiality.

3) Includes 'Stoughton (02072)' and 'Braintree (02184)' for confidentiality.

4) 'Commercial' includes:

- Allways Health Partners Commercial
- Blue Cross Blue Shield
- Commercial National Carriers
- Commercial Other
- Connector Care Plans
- Harvard Pilgrim Health Plan
- Tufts Health Plan

5) Please note that BWFH is not able to easily isolate MassHealth at the project-specific level as it falls under various payers. However, in an effort to offer a complete payer mix for the patient panel associated with the observation unit component of the Proposed Project, ‘Medicaid’ has been provided as an alternative payer mix category.

6) 'All Other' includes:

- Free Care
- Government Other
- International
- Other Payer
- Qualified Health Plans
- Self-Pay
- Workers Comp

Table 5: BWFH Endoscopy Patient Panel

	FY17		FY18		FY19	
	Count	%	Count	%	Count	%
Total Unique Patients	**6,794**		**6,711**		**6,792**	
Gender						
Female	3,902	57.4%	3,830	57.1%	3,904	57.5%
Male	2,892	42.6%	2,881	42.9%	2,888	42.5%
Age						
0-17	800	11.8%	801	11.9%	655	9.6%
18-64	3,623	53.3%	3,494	52.1%	3,690	54.3%
65+/Unknown[1]	2,371	34.9%	2,416	36.0%	2,447	36.0%
Race						
Asian	140	2.1%	133	2.0%	156	2.3%
Black or African American	533	7.8%	623	9.3%	601	8.8%
Hispanic/Latino	276	4.1%	312	4.6%	308	4.5%
Other/Unavailable/Declined[2]	538	7.9%	599	8.9%	564	8.3%
White	5,307	78.1%	5,044	75.2%	5,163	76.0%
Patient Origin						
West Roxbury (02132)	499	7.3%	541	8.1%	533	7.8%
Roslindale (02131)	416	6.1%	464	6.9%	443	6.5%
Hyde Park (02136)	330	4.9%	398	5.9%	363	5.3%
Dedham (02026)	528	7.8%	407	6.1%	362	5.3%
Jamaica Plain (02130)	256	3.8%	295	4.4%	327	4.8%
Norwood (02062)	338	5.0%	262	3.9%	279	4.1%
Walpole (02081)	251	3.7%	179	2.7%	203	3.0%
Foxboro (02035)	167	2.5%	162	2.4%	184	2.7%
Mansfield (02048)	153	2.3%	152	2.3%	175	2.6%
Canton (02021)	204	3.0%	181	2.7%	168	2.5%
All Other	3,652	53.8%	3,670	54.7%	3,755	55.3%
Payer Mix						
Commercial[3]	3,951	58.2%	3,799	56.6%	3,835	56.5%
Medicaid[4]	213	3.1%	383	5.7%	448	6.6%
Managed Medicaid	354	5.2%	133	2.0%	49	0.7%
Commercial Medicare	421	6.2%	432	6.4%	410	6.0%
Medicare FFS	1,757	25.9%	1,932	28.8%	2,000	29.4%
All Other[5]	98	1.4%	32	0.5%	50	0.7%
Total Patient Encounters	**7,242**		**7,181**		**7,244**	
ICD 10 Primary Diagnosis Code - Top 10						
Screenings and Follow-Up Encounters	2,928	40.4%	4,397	61.2%	4,542	62.7%
Esophageal Disease Including GERD	671	9.3%	655	9.1%	575	7.9%
Benign Neoplasm	1,344	18.6%	176	2.5%	53	0.7%
Abdominal Pain	312	4.3%	405	5.6%	461	6.4%
Other Gastrointestinal Diagnosis	306	4.2%	273	3.8%	277	3.8%
Gastrointestinal Hemorrhage	243	3.4%	226	3.1%	191	2.6%
Diseases of the Anus/Rectum	354	4.9%	131	1.8%	172	2.4%
Inflammatory Bowel Disease	243	3.4%	174	2.4%	171	2.4%
Anemia	110	1.5%	106	1.5%	138	1.9%
Intestinal Obstruction and Diverticular Disease	208	2.9%	61	0.8%	54	0.7%

FY data is pulled as of January 22, 2020

Notes:

1) Includes '65+' and 'Unknown' for confidentiality.

2) Includes 'Other', 'Unavailable', 'Declined', 'American Indian or Alaska Native' and 'Native Hawaiian or Other Pacific Islander' for confidentiality.

3) 'Commercial' includes:

- Allways Health Partners Commercial
- Blue Cross Blue Shield
- Commercial National Carriers
- Commercial Other
- Connector Care Plans
- Harvard Pilgrim Health Plan
- Tufts Health Plan

4) Please note that BWFH is not able to easily isolate MassHealth at the project-specific level as it falls under various payers. However, in an effort to offer a complete payer mix for the patient panel associated with the endoscopy component of the Proposed Project, 'Medicaid' has been provided as an alternative payer mix category.

5) 'All Other' includes:

- Free Care
- Government Other
- International
- Other Payer
- Qualified Health Plans
- Self-Pay
- Unknown Summary Payer

Table 6: BWFH MRI Patient Panel

	FY17		FY18		FY19	
	Count	%	Count	%	Count	%
Total Unique Patients	**4,381**		**5,169**		**5,509**	
Gender						
Female	2,862	65.3%	3,340	64.6%	3,522	63.9%
Male/Unknown[1]	1,519	34.7%	1,829	35.4%	1,987	36.1%
Age						
0-64[2]	2,864	65.4%	3,338	64.6%	3,470	63.0%
65+	1,517	34.6%	1,831	35.4%	2,039	37.0%
Race						
Asian	83	1.9%	90	1.7%	105	1.9%
Black or African American	579	13.2%	676	13.1%	728	13.2%
Hispanic/Latino	276	6.3%	312	6.0%	343	6.2%
Other/Unavailable/Declined[2]	464	10.6%	582	11.3%	637	11.6%
White	2,979	68.0%	3,509	67.9%	3,696	67.1%
Patient Origin						
Roslindale (02131)	405	9.2%	450	8.7%	511	9.3%
West Roxbury (02132)	351	8.0%	449	8.7%	481	8.7%
Hyde Park (02136)	317	7.2%	393	7.6%	448	8.1%
Jamaica Plain (02130)	260	5.9%	321	6.2%	379	6.9%
Dedham (02026)	191	4.4%	245	4.7%	282	5.1%
Dorchester (02124, 02121)	168	3.8%	227	4.4%	213	3.9%
Mattapan (02126)	79	1.8%	95	1.8%	109	2.0%
Norwood (02062)	100	2.3%	108	2.1%	96	1.7%
Chestnut Hill (02467)	77	1.8%	84	1.6%	94	1.7%
Roxbury (02119)	56	1.3%	75	1.5%	92	1.7%
All Other	2,377	54.3%	2,722	52.7%	2,804	50.9%
Payer Mix						
Commercial[4]	2,651	60.5%	2,974	57.5%	3,160	57.4%
Medicaid[5]	281	6.4%	523	10.1%	562	10.2%
Medicare[6]	1,315	30.0%	1,514	29.3%	1,645	29.9%
All Other[7]	134	3.1%	158	3.1%	142	2.6%
Total Patient Encounters	**4,793**		**5,690**		**6,096**	
ICD 10 Primary Diagnosis Code - Top 10						
Spinal Stenosis, Lumbar Region w/o Neurogenic Claudication (M4861)	--	0.0%	415	7.3%	401	6.6%
Headache (R51)	199	4.2%	212	3.7%	262	4.3%
Dizziness and Giddiness (R42)	150	3.1%	198	3.5%	198	3.2%
Spinal Stenosis, Cervical Region (M482)	96	2.0%	154	2.7%	151	2.5%
Unspecified Abdominal Pain (R109)	39	0.8%	37	0.7%	113	1.8%
Intervertebral Disc Disorders w/ Radiculopathy, Lumbosacral Region (M5117)	22	0.5%	42	0.7%	110	1.8%
Other Intervertebral Disc Displacement, Lumbosacral Region (M5127)	64	1.3%	60	1.1%	100	1.6%
Altered Mental Status, Unspecified (R4182)	61	1.3%	56	1.0%	91	1.5%
Other Intervertebral Disc Displacement, Lumbar Region (M5126)	134	2.8%	138	2.4%	77	1.3%
Weakness (R531)	55	1.1%	60	1.1%	76	1.2%

FY data is pulled as of January 22, 2020

Notes:
1) Includes 'Male' and 'Unknown' for confidentiality.
2) Includes '0-17' and '18-64' for confidentiality.
3) Includes 'Other', 'Unavailable', 'Declined', 'Null', 'American Indian or Alaska Native' and 'Native Hawaiian or Other Pacific Islander' for confidentiality.
4) 'Commercial' includes:
    Allways Health Partners
    Blue Cross Blue Shield
    Commercial
    Harvard Pilgrim Health Plan
    Tufts Health Plan
5) Please note that BWFH is not able to easily isolate MassHealth at the project-specific level as it falls under various payers. However, in an effort to offer a complete payer mix for the patient panel associated with the MRI component of the Proposed Project, ‘Medicaid’ has been provided as an alternative payer mix category. 'Medicaid' includes both Medicaid and Managed Medicaid.

6) Please note that 'Medicare'includes both Commercial Medicare and Medicare FFS.
7) 'All Other' includes:
    Free Care
    Government Other
    International
    Null
    Workers Comp / Motor Vehicle

Appendix 3B

Evidence of Community Engagement

Appendix 3B1

Community Group/Neighbor Meeting Materials and Letters to Neighbors

Presentation to Sophia Snow Place – 7/30/2019

Proposed Inpatient Addition

July 2019

Brigham and Women's Faulkner Hospital

- Established in 1900;
- 171 inpatient beds;
- 11,000 surgical procedures annually;
- 12,000 inpatients discharged per year;
- 30,000 Emergency Dept visits each year;
- 200,000 outpatient visits per year.

Founded in 1900, Faulkner Hospital has a long history of meeting the healthcare needs of the residents of Boston and surrounding areas.

Major Employer

- 1,600 employees at BWFH;
- 600 employees **(38%)** are Boston residents.

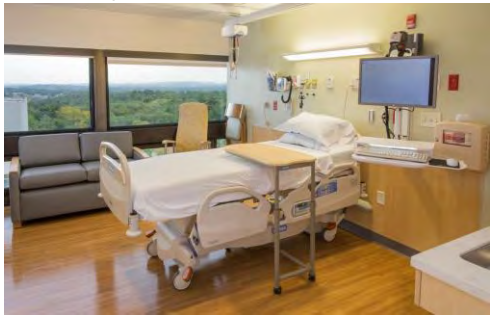
Economic Benefits

- $6.5 million of goods/services purchased in City;
- $1.14 million Payment in Lieu of Taxes contribution to City in 2018.

Brigham and Women's Faulkner Hospital

Community-friendly Environment

Private Inpatient Rooms



Comprehensive Breast Care Center

Excellence in Orthopaedics

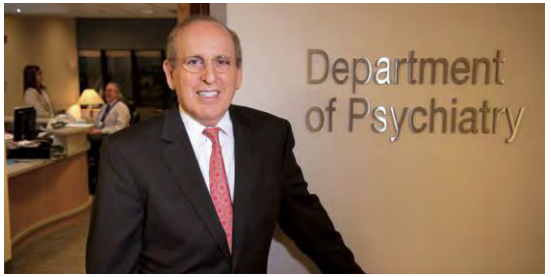
Outpatient Ortho

Experts in Sleep Medicine & Endocrinology

Renowned Experts at Managing Migraines

Ortho Rehab / PT

Comprehensive Behavioral Health Services



Community Health Accomplishments

BWFH collaborates with community groups on a variety of health issues, such as senior safety, transportation barriers, food insecurity, health & wellness education.

- Providing hundreds of seniors with opportunities to exercise, explore, connect and learn about fitness, safety and health;
- Providing stroke education, medication safety, health education programs, and free preventative health screenings;
- Serving thousands of children, teachers, parents and staff by school partnership activities, including healthy food "backpack" program for food insecure families;
- Developing a food insecurity resource program for the Hospital waiting areas and physician offices;
- Initiating trauma-informed yoga classes for violence survivors;
- Hiring local students to participate in the Summer Jobs Program, as well as offering job shadow opportunities to local students.

Project Need

- BWFH inpatient facilities have not been expanded since 1976.
- New inpatient beds needed to modernize care and address capacity issues.
- Space needed for new technologies, to right size support spaces, and to improve workflow and operations.
- Currently 171 beds; down from 259 in 1976.
- Current high census limits ability to provide right care in right location.

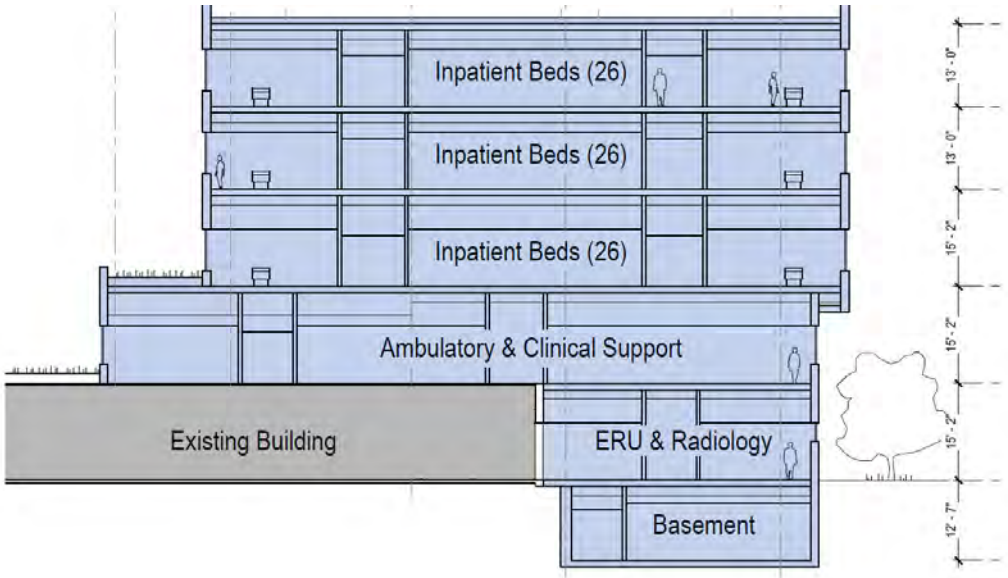
Proposed Inpatient Addition

BWFH is proposing to build an **Inpatient Addition** to address growing demand for patient beds.

Proposed Inpatient Addition

The Inpatient Addition will include **78 new inpatient beds**, as well as clinical support and ambulatory space.

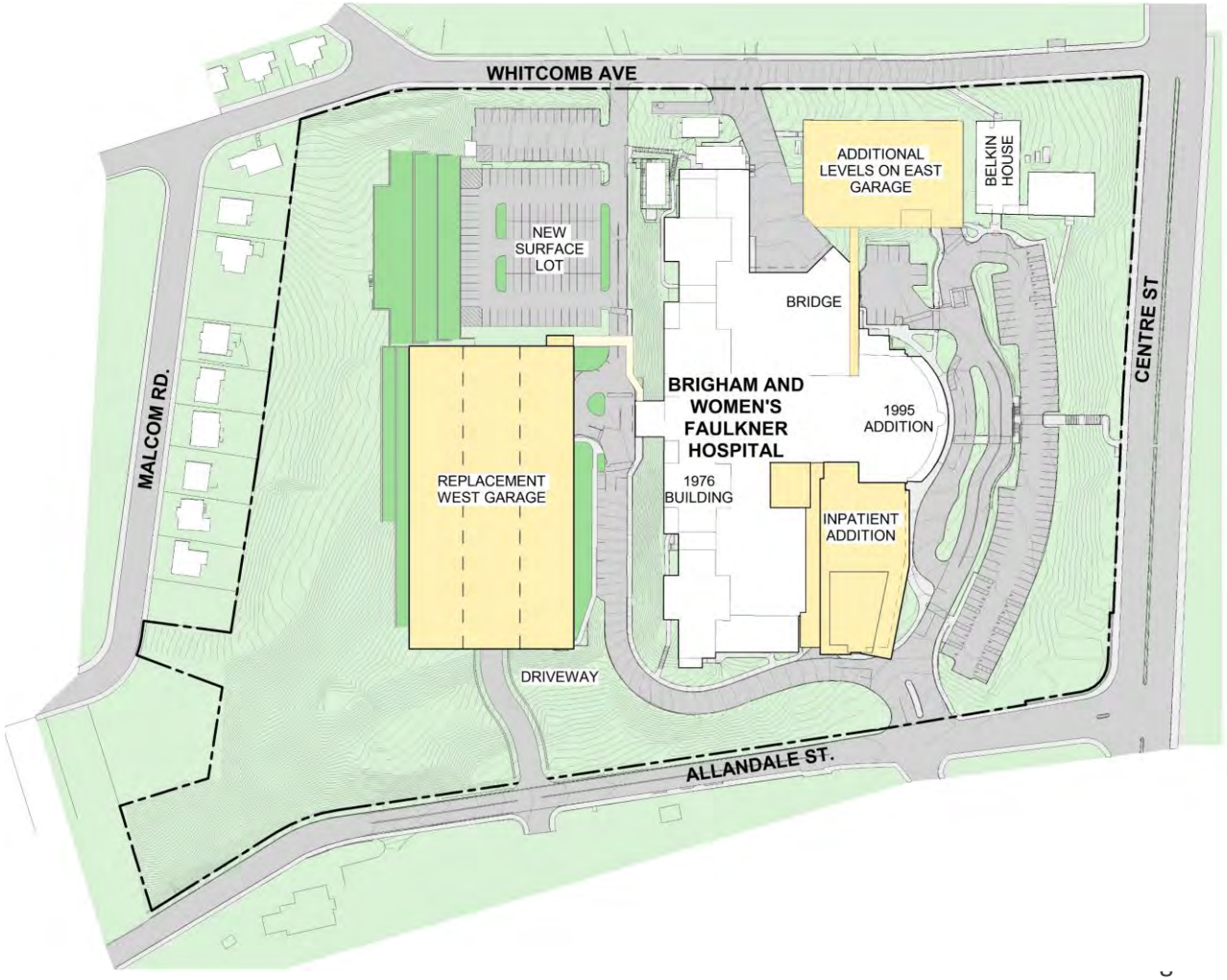
The addition's 5-story height will match the existing building facing Centre Street, constructed in 1995.



Campus Improvement Projects

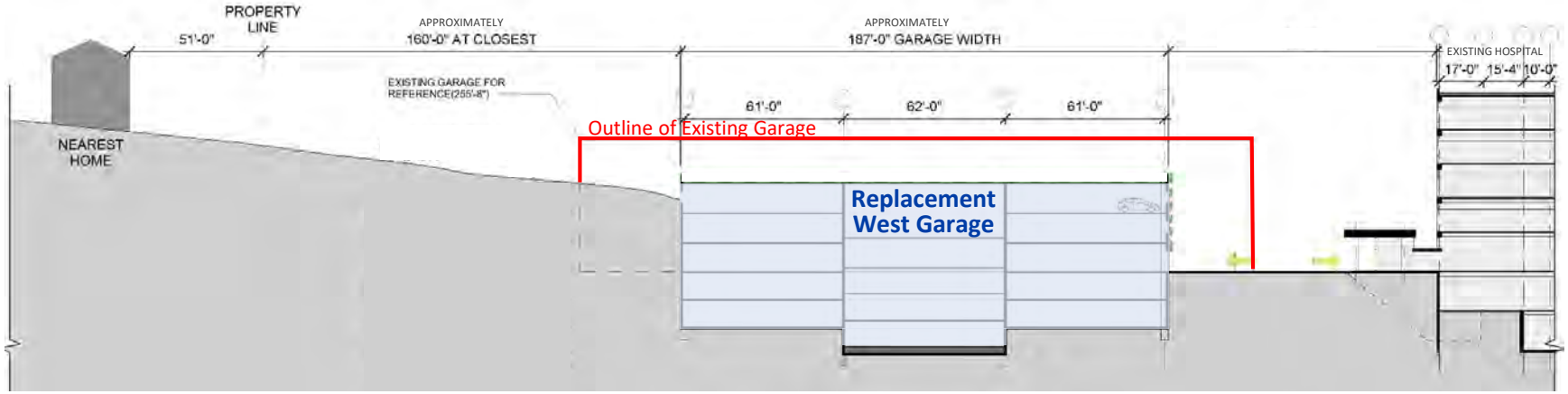
Other improvements include:

- 3 new levels on **East Parking Garage** providing 171 net new spaces;
- Replacement of the existing **West Parking Garage** - built in 1973 - on an existing surface parking lot, with 332 net new spaces;
- A **new driveway** into the replacement garage from Allandale Street to.



Replacement West Garage

Future Site Section



Sustainability Goals

- Increase On-site Energy Production (currently have on-site cogeneration)
  - Photovoltaic Panels on Replacement Parking Garage
- Reduce Energy Consumption
  - 50% Less Energy Usage than comparable hospitals
- Ensure Resiliency
  - Systems designed to withstand storm impacts and temporary shutdowns
- Preserve/Enhance Green Spaces
- Encourage Alternative Means of Transportation
  - Electric Vehicle Parking/Charging Stations
  - Blue Bikes
- Continue Commitment to Purchase 100% Carbon-Free Electricity

Project Benefits

Strengthening the Community Hospital

- Preserves BWFH's important role as a community healthcare resource for years to come.

Funding Important Programs

- Funding for community health and wellness programs.

Rendering of inpatient room in proposed BWFH Inpatient Addition

Economic Benefits

- Creates ±250 construction jobs and 300 permanent jobs;
- Contributes to the City's economic health.

Distributed Care for Improved Access

- Improves healthcare service, access and convenience for the community;
- Provides the right care in the right location.

Review Process

BWFH has initiated the **Institutional Master Plan** and **Large Project Review** processes for its project. BWFH is looking forward to working with the BPDA and the community.

Milestones

• Letter of Intent	June 16, 2019
• IMPNF/PNF	July 26, 2019
• IMP Task Force	August 1, 2019
• Public Meeting	August 14, 2019
• Comments Due	August 26, 2019
• BPDA Scoping Determination	early September 2019
• IMP & DPIR	est. January 2020

Questions?

Thank you for attending!

Presentation to
Springhouse Senior Living Community - 8/20/2019
Jamaica Plain Neighborhood Council Zoning Committee - 8/21/2019
Jamaica Hills Association - 9/11/2019
Rogerson Communities - 9/19/2019

BRIGHAM HEALTH

BRIGHAM AND WOMEN'S
Faulkner Hospital

Proposed Inpatient Addition

August 2019

Brigham and Women's Faulkner Hospital

- Established in 1900;
- 171 inpatient beds;
- 11,000 surgical procedures annually;
- 12,000 inpatients discharged per year;
- 30,000 Emergency Dept visits each year;
- 200,000 outpatient visits per year.

Founded in 1900, Faulkner Hospital has a long history of meeting the healthcare needs of the residents of Boston and surrounding areas.

Major Employer

- 1,600 employees at BWFH;
- 600 employees **(38%)** are Boston residents.

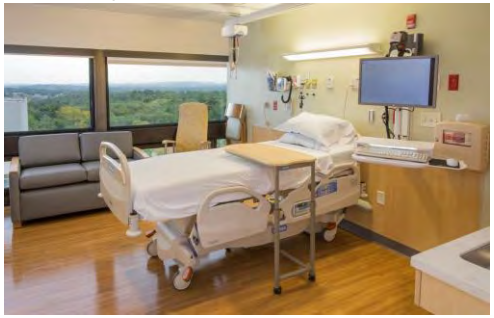
Economic Benefits

- $6.5 million of goods/services purchased in City;
- $1.1 million Payment in Lieu of Taxes (PILOT) contribution to City in 2018.

Brigham and Women's Faulkner Hospital

Community-friendly Environment

Private Inpatient Rooms



Comprehensive Breast Care Center

Excellence in Orthopaedics

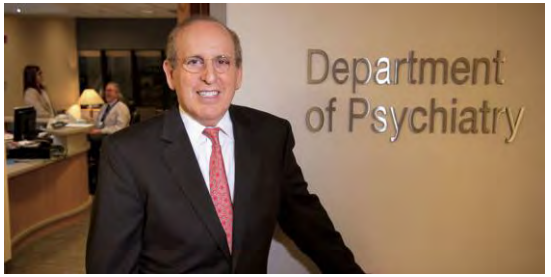
Outpatient Ortho

Experts in Sleep Medicine & Endocrinology

Renowned Experts at Managing Migraines

Ortho Rehab / PT

Comprehensive Behavioral Health Services



Community Health Programs

BWFH collaborates with numerous community groups on community health issues:

- Providing hundreds of **seniors** with opportunities to exercise and learn about fitness, safety and health;
- Providing **education** on health, wellness, medications, strokes;
- Providing **free preventative health screenings**;
- Partnering with schools serving thousands of children on **healthy food "backpack" program** for food insecure families;
- Providing **food insecurity resources** in Hospital waiting areas and doctors offices;
- Initiating **trauma-informed programs for violence survivors,** e.g.,yoga classes;
- Hiring **local students** to participate in the Summer Jobs Program, as well as offering job shadow opportunities to local students.

BWFH Property

Main Campus, 1153 Centre Street

17 acres, 2 hospital buildings and 2 garages

- Main Hospital building (434,000 sf)
  (built in 1976, with addition in 1995)
- Belkin House (32,500 sf)
- East Parking Garage (139 spaces)
- West Parking Garage (580 spaces).

Plus, 3 surface parking lots (240 spaces).

1245 Centre Street

- 3.5 acres with 51,525-sf building
- former *Spaulding Nursing & Therapy Center, West Roxbury.*

Property Owned by BWFH

BWFH Transportation & Parking

- Garages and surface parking lots are currently at capacity
- Patients and visitors circling for parking spots

Existing Transportation Demand Management Efforts

- Off-site Parking for Employees – three locations, 252 spaces
- Free Shuttle Services – connecting Highland Station, Forest Hills Station and Longwood Medical Area (and other LMA shuttles) run all day
- Subsidized transit passes (50%)
- Carpool/Van pool parking
- Bike Racks
- On-site Dining Options – Atrium Café, Hospital Cafeteria

Project Need – Parking

Additional Parking Spaces to ease existing conditions and meet future demand

Replacement of Deteriorating Garage

Corrosion in floor slabs, corroded beam/column connections, spalling slab undersides, noisy and on-going maintenance

Project Need – Inpatient Beds

- BWFH inpatient facilities have not been expanded since 1976.
- **New inpatient beds** needed to modernize care and meet demand.
- Space needed for new technologies, to right size support spaces, and to improve workflow and operations.
- Currently 171 beds;
  down from 259 in 1976.
- Current high census limits ability to provide right care in right location.

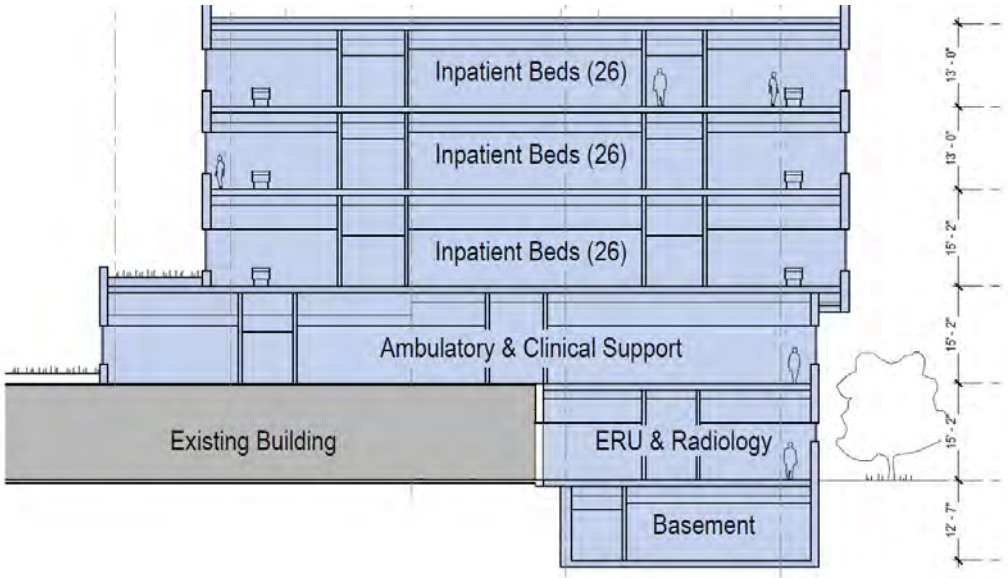
Proposed Inpatient Addition

BWFH is proposing to build an **Inpatient Addition** to address growing demand for patient beds.

Proposed Inpatient Addition

The Inpatient Addition will include **78 new inpatient beds**, as well as clinical support and ambulatory space.

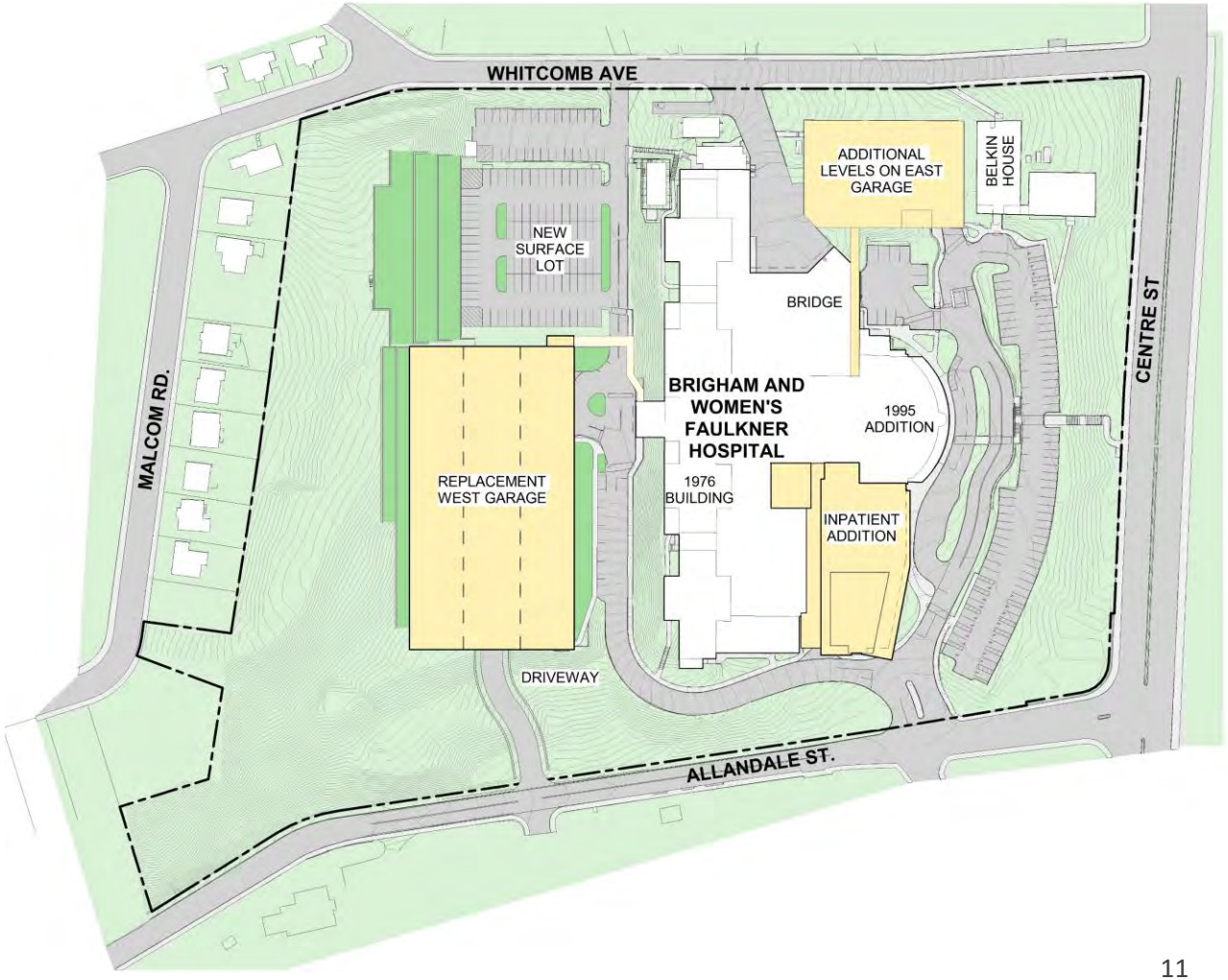
The addition's 5-story height will match the existing building facing Centre Street, constructed in 1995.



Campus Improvement Projects

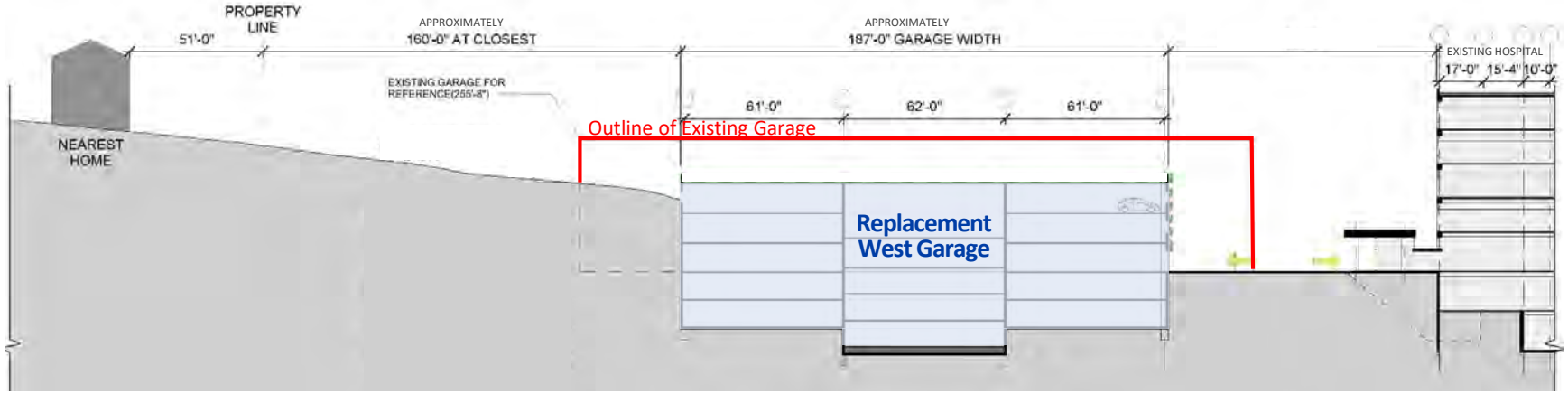
Other improvements include:

- 3 new levels on **East Parking Garage** providing 171 net new spaces;
- Replacement of the existing **West Parking Garage** - built in 1973 - on an existing surface parking lot, with 332 net new spaces;
- A **new driveway** into the replacement garage from Allandale Street.



Replacement West Garage

Future Site Section



Sustainability Goals

- **Increase On-site Energy Production** (currently have on-site cogeneration)
  - ➡ Photovoltaic Panels on Replacement Parking Garage
- **Reduce Energy Consumption**
  - ➡ Target 50% less energy usage than comparable hospitals
- **Ensure Resiliency**
  - ➡ Systems designed to withstand storm impacts and temporary shutdowns
- **Preserve/Enhance Green Spaces**
  - ➡ Maintain and enhance existing campus landscape
- **Encourage Alternative Means of Transportation**
  - ➡ Electric Vehicle Parking/Charging Stations
  - ➡ Blue Bikes
- **Continue Purchase of 100% Carbon-Free Electricity**

Project Benefits

Strengthening the Community Hospital

- Preserves BWFH's important role as a community healthcare resource for years to come.

Funding Important Programs

- Funding for community health and wellness programs.

Rendering of inpatient room in proposed BWFH Inpatient Addition

Economic Benefits

- Creates ±250 construction jobs and 300 permanent jobs;
- Contributes to the City's economic health.

Distributed Care for Improved Access

- Improves healthcare service, access and convenience for the community;
- Provides the right care in the right location.

Review Process

BWFH has initiated **Institutional Master Plan** and **Large Project Review** processes for its project. BWFH is looking forward to working with the BPDA and the community.

Milestones

• Letter of Intent Submitted	June 16, 2019
• **IMPNF/PNF Filed**	**July 26, 2019**
• IMP Task Force Meeting	August 1, 2019
• **Public Meeting**	**August 14, 2019**
• Comments Due	August 26, 2019
• **BPDA Scoping Determination**	**September 2019**
• IMP & DPIR Filed	est. January 2020
• **60-day Comment Period**	**est. March 2020**
• BPDA Review	est. April 2020

Questions?

Thank you for attending!

Letters to Neighbors

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Brigham and Women's Faulkner Hospital
1153 Centre Street
Boston, MA 02130

Dear Neighbor,

I hope you were able to attend the Public Meeting held by the Boston Planning and Development Agency (BPDA) on August 14 to hear about Brigham and Women's Faulkner Hospital's proposed campus expansion. I was glad to see so many neighbors in attendance and appreciated everyone's input.

If you were not able to attend the public meeting, I want to let you know that Brigham and Women's Faulkner Hospital (BWFH) is in the beginning stages of a public review process for our proposed campus improvements, which include:

- a five-story Inpatient Addition to the front of the hospital that will contain 78 new single occupancy inpatient rooms, as well as clinical support and ambulatory space;
- replacement of our existing parking garage behind the hospital with a new garage constructed on the existing third level surface lot;
- a new driveway into the replacement garage from Allandale Street to help improve access to the campus and address traffic circulation;
- three additional levels on the smaller parking garage serving the front of the hospital.

Information on our project and the City's review process is available on the BPDA website, where the City has extended the public comments submission until September 20, 2019 at: http://www.bostonplans.org/projects/development-projects/faulkner-hospital-inpatient-addition-and-campus-im

This is the beginning of the public review of our project. We are committed to a comprehensive and thoughtful discourse with you and other stakeholders as the project is further defined and studied.

I am available anytime to answer your questions. Please do not hesitate to contact me by phone at 617-983-7588 or via email at djgoldberg@bwh.harvard.edu. I look forward to working with you.

Sincerely,

David Goldberg, Executive Director
Marketing, Communications and Community Relations

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Brigham and Women's Faulkner Hospital
1153 Centre Street
Boston, MA 02130

Dear Neighbor,

Since my last update to you on Brigham and Women's Faulkner Hospital's proposed campus expansion, there have been several milestones in the City of Boston's public review process.

- We presented our proposed campus expansion plans to the Boston Civic Design Commission on September 3.
- The public comment period on our July 26 Institutional Master Plan Notification Form/Project Notification Form closed on September 20 following an extended review period.
- A Scoping Determination was issued by the Boston Planning and Development Agency (BPDA) on October 8 that describes the studies we are required to prepare in our forthcoming Institutional Master Plan (IMP) and Draft Project Impact Report (DPIR). The Scoping Determination and copies of previous presentations and filings can be found on the BPDA website at: http://www.bostonplans.org/projects/development-projects/faulkner-hospital-inpatient-addition-and-campus-im

We expect to file the IMP and DPIR with the City in early 2020 and will continue to communicate with you in the meantime.

As an overview, Brigham and Women's Faulkner Hospital is undergoing the public review process for our proposed campus improvements, which include:

- a five-story Inpatient Addition to the front of the hospital that will contain 78 new single occupancy inpatient rooms, as well as clinical support and ambulatory space;
- replacement of our existing parking garage behind the hospital with a new garage constructed on the existing third level surface lot;
- a new driveway into the replacement garage from Allandale Street to help improve access to the campus and address traffic circulation;
- three additional levels on the smaller parking garage serving the front of the hospital.

We also will be filing an Environmental Notification Form with the Massachusetts Environmental Policy Act (MEPA) Office on October 15. Public notice of this filing will appear in the Environmental Monitor on October 18, and ENF Comments will be due by November 7.

Please know we are committed to collaborating with the community and continue to meet with residents and organizations. I am available anytime to answer your questions. Please do not hesitate to contact me by phone at 617-983-7588 or via email at djgoldberg@bwh.harvard.edu.

Sincerely,

David Goldberg, Executive Director
Marketing, Communications and Community Relations

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Brigham and Women's Faulkner Hospital
1153 Centre Street
Boston, MA 02130

Dear Neighbor,

I wanted to provide an update on Brigham and Women's Faulkner Hospital's proposed campus expansion prior to the holidays:

- As part of the Scoping Determination that was issued by the Boston Planning and Development Agency, we have been busy conducting the studies we are required to prepare in our upcoming Institutional Master Plan (IMP) and Draft Project Impact Report (DPIR). This includes traffic studies and noise monitoring reports in the surrounding neighborhoods, among others.

- Our exploratory work of the rear open parking lot was completed last week, which will give us an idea of the types of soil we will encounter as it relates to the construction of the new parking garage.

- Early meetings were held with the City of Boston Fired Department as well as the Boston Water and Sewer Commission to ensure they're aware of our project and to allow them to provide feedback.

- Our project plans continue to evolve based on the numerous groups we've met with, community members who have reached out to us and regulatory agencies we've filed paperwork with. We look forward to filing our IMP and DPIR with the City in early 2020, which will open another public comment period.

- The Scoping Determination and copies of previous presentations and filings can be found on the BPDA website at: http://www.bostonplans.org/projects/development-projects/faulkner-hospital-inpatient-addition-and-campus-im

Should you have any questions or comments at any time, please reach out to me directly at 617-983-7588 or via email at djgoldberg@bwh.harvard.edu. I hope you all enjoy a happy and safe holiday season!

Sincerely,

David Goldberg, Executive Director
Marketing, Communications and Community Relations

Appendix 3B2

Regulatory Agency Meeting Materials

Boston Planning and Development Agency IMP Task Force Meeting – 8/1/2019

boston planning & development agency

CITY OF BOSTON
Martin J. Walsh, Mayor
Brian P. Golden, Director

BRIGHAM AND WOMEN'S FAULKNER HOSPITAL INPATIENT ADDITION & CAMPUS IMPROVEMENTS

Task Force Meeting

Faulkner Hospital Sadowsky Conference Room, 1153 Centre St | August 1, 2019 | 6:00 PM

AGENDA

1. Edward Carmody – Boston Planning & Development Agency
   - Article 80 Introduction

2. Susan Dempsey – Vice President, Brigham and Women's Faulkner Hospital
   - Hospital Overview and Need for Project

3. George Takoudes – Senior Architect, NBBJ
   - Project Description and Sustainability

4. Questions & Comments

NOTES

The Proposed Projects include a 5-story, approximately 98,000-square-foot Inpatient Addition adjacent to and south of the hospital's main entrance, which will include 78 new inpatient beds; a three-level addition to the existing East Parking Garage (171 new spaces); and a replacement of the existing West Parking Garage with a new garage on an existing surface parking lot (adding 332 net new spaces). The plans include a new driveway into the replacement garage from Allandale Street.

- Faulkner filed an Article 80 combined Institutional Master Plan Notification Form/Project Notification Form on July 26, 2019.

- **The comment period ends August 26, 2019**. Comments can be sent to the BPDA contact below and the comments link. There will be a **Public Meeting at Faulkner Hospital on August 14, 2019, at 6:00 P.M.**

CONTACT

Edward Carmody, *Project Assistant*
Edward.Carmody@Boston.gov | T 617.918.4422
Boston Planning & Development Agency |One City Hall Plaza | Boston, MA 02201

For more information on this project, and to submit comments, visit:

http://www.bostonplans.org/projects/development-projects/faulkner-hospital-inpatient-addition-and-campus-im

To sign up for neighborhood email updates, visit: http://www.bostonplans.org/about-us/get-involved

Thank you for attending!

boston planning & development agency

Project	Meeting Type	Date
Faulkner Hospital Inpatient Addition & Campus Improvements	Task Force Meeting	1-Aug-19
Meeting Organizer	**Location**	
Edward Carmody	Faulkner Hospital Sadowsky Conference Room	

Name	Email or Address	Cell Phone Number	Neighborhood	Affiliation
Malaina Bowker	[redacted]	[redacted]	Acton MA	BrighamHealth/ BWFH
Judy Jose-Roddy	[redacted]	[redacted]	West Roxbury, MA	Sophia Snow Place
Kathy Foley	[redacted]	[redacted]	Springhouse →	
Jay Mushay	[redacted]	[redacted]	Smithtown	Lawyer
Howard Muthier	[redacted]	[redacted]	—	—
James Seagle	[redacted]	[redacted]	Bossic / JP	Rogerson
Celeste Walther	[redacted]	[redacted]	JP	JHA
DAVE BOHN	[redacted]	[redacted]		Consultant - VHB
Justin McElroy	[redacted]	[redacted]	JP	Councilor Matt O'Malley
Stephen Schneider	[redacted]	[redacted]	JP	Arnold Arboretum
Steve Dempsey	[redacted]	[redacted]	1 —	Brigham and Women's
PLUS Bob Shortsleve attended but did not sign in.				

This information is public and can be made available to those who ask according to M.G.L. Chapter 66 Section 10. By providing your email address you are opting in to receive neighborhood email updates from the Boston Planning & Development Agency.

Boston Planning and Development Agency IMP Task Force Meeting – 11/09/2020

Agenda

1. Welcoming remarks

   Edward Carmody, Boston Planning & Development Agency

2. Presentation of the Clinical Building and Garage Projects

3. Task Force Discussion

4. Public Q&A

boston planning & development agency

BPDA Oversight Committee Meeting – 10/08/2020

Agenda

1 BTD/BPDA – 9-15-2020 Meeting Update

- Overview
- Asks
  - Satellite Employee Parking Lots
  - Centre Street /Allendale Intersection Improvements
  - Wayfinding Improvements
  - Bicycle Parking/BlueBikes
  - Strengthen TDM Incentives

1 BPDA 10-5-2020 Design Meeting Update

Boston Planning and Development Agency Public Meeting – 8/14/2019

boston planning & development agency

CITY OF BOSTON
Martin J. Walsh, Mayor
Brian P. Golden, Director

BRIGHAM AND WOMEN'S FAULKNER HOSPITAL INPATIENT ADDITION & CAMPUS IMPROVEMENTS

Public Meeting

Faulkner Hospital Huvos Auditorium, 1153 Centre St | August 14, 2019 | 6:00 -7:30 PM

AGENDA

1. Edward Carmody – Boston Planning & Development Agency
   - Article 80 Introduction

2. Susan Dempsey – Vice President, Brigham and Women's Faulkner Hospital
   - Hospital Overview and Project Description

3. Questions & Comments

NOTES

The Proposed Projects include a 5-story, approximately 98,000-square-foot Inpatient Addition adjacent to and south of the hospital's main entrance, which will include 78 new inpatient beds; a three-level addition to the existing East Parking Garage (171 new spaces); and a replacement of the existing West Parking Garage with a new garage on an existing surface parking lot (adding 332 net new spaces). The plans include a new driveway into the replacement garage from Allandale Street.

- Faulkner Hospital filed an Article 80 combined Institutional Master Plan Notification Form/Project Notification Form (IMPNF/PNF) on July 26, 2019.

- **The comment period ends August 26, 2019**. Comments can be sent to the BPDA contact below and the comments link. All comments will be packaged with City agency comments and sent directly to the Faulkner development team after the comment period ends as part of the City's Scoping Determination.

CONTACT

Edward Carmody, *Project Assistant*
Edward.Carmody@Boston.gov | T 617.918.4422
Boston Planning & Development Agency | One City Hall Plaza | Boston, MA 02201

For more information on this project, and to submit comments, visit:

http://www.bostonplans.org/projects/development-projects/faulkner-hospital-inpatient-addition-and-campus-im

To sign up for neighborhood email updates, visit: http://www.bostonplans.org/about-us/get-involved

Thank you for attending!

boston planning & development agency

Project	Meeting Type	Date
Faulkner Hospital Inpatient Addition & Campus Improvements	Public Meeting	14-Aug-19
Meeting Organizer	**Location**	
Edward Carmody	Faulkner Hospital Huvos Auditorium	

Name	Email or Address	Cell Phone Number	Neighborhood	Affiliation
Will Holton	[redacted]	[redacted]	J.P.	
Bernard Gallagher			"	
Ralph Berry				
Alex Forrest			Malcolm Rd JP	
Elaine Gebhardt			Malcolm Rd JP	
Jill Rosa			Arborview Rd JP	
Kevin Rainsford			Paul George	
TANYA CONTOS			ALLANDALE	
DOUG DOCKERY			JP	
Susan White			Rockwood St	JHA
Celeste Walker			JP Center St	Task Force
Anthony Guadalupe			J.P.	
Jarbid Lees			[redacted] Allandale St	
STEVE BELL			[redacted] ALLANDALE	ST
Frank O'Brien			—	
Don Haber			J.P.	
David Naimark			JP	
Andrea Hoshi			[redacted] Pond St	JHA
Andrew Hoshi				

This information is public and can be made

[redacted]

mail address you are opting in to receive neighborhood email updates from the Boston Planning & Development Agency.

boston planning & development agency

Project	Meeting Type	Date
Faulkner Hospital Inpatient Addition & Campus Improvements	Public Meeting	14-Aug-19
Meeting Organizer	**Location**	
Edward Carmody	Faulkner Hospital Huvos Auditorium	

Name	Email or Address	Cell Phone Number	Neighborhood	Affiliation
MARK HANSON	[redacted]	[redacted]	[redacted]	
MARJORIE HANSON			MASS HILL	NEIGHBOR
Steve Dempsey			BWH	
Peter Elmuto			[redacted]	
Richard Keith				
George Marsh			Roslindale/WOR	Neighbor Friends of Allandale Woods
Donna DeCelles				Neighborhood Association to PARKER
Jim Barry			JP	neighbor
Anne Quinlan			West Rox	Springhouse
Moira Raftery			JP	
Kathy Foley			Springhouse	Springhouse
Cori Boschler				
Kerry Foster			JP	Neighbor/abutter
BILL DeWITT			JP	abutter
Timothy Preston			JP/FAULKNER	
Tracy Robinson			JP	
James Cawley			JP	ABUTTER
Betty Donovan			JP	
Griffin Thomas			JP	neighbor
Shari Lyons			JP/Mass Hill	abutter

This information is public and can be made [redacted] mail address you are opting in to receive neighborhood email updates from the Boston Planning & Development Agency.

boston planning & development agency

Project	Meeting Type	Date
Faulkner Hospital Inpatient Addition & Campus Improvements	Public Meeting	14-Aug-19
Meeting Organizer	**Location**	
Edward Carmody	Faulkner Hospital Huvos Auditorium	

Name	Email or Address	Cell Phone Number	Neighborhood	Affiliation
Louise Johnson	[redacted]	~	Malcolm Rd	abutter
DAVID BOHN				VHB
Mr. Mersnell			Southend	Nutter
FRANK SANTOPIETRO			ABUTTER	

This information is public and can be made available to those who ask according to M.G.L. Chapter 66 Section 10. By providing your email address you are opting in to receive neighborhood email updates from the Boston Planning & Development Agency.

Boston Planning and Development Agency Scoping Session – 8/20/2019

boston planning & development agency

Project	Meeting Type	Date
Faulkner Hospital Inpatient Add. & Campus Improvements	Scoping Session	20-Aug-19
Meeting Organizer	**Location**	
Edward Carmody, *BPDA*	BPDA Board Room	

Name	Email or Address	Cell Phone Number	Neighborhood	Affiliation
William Moose	[redacted]			
SARAH LEWIS				DISABILITIES COMM.
Tim David				BPDA
KATIE PEDERSEN				BPDA
Mariana Bowker				BUILT/BUILT
Steve Dempsey				BWA
DAVID BOHN				VHB
George Takoudes				NPBJ
Manuel Esquivel				BPDA
Ryan Walker				BPDA
Meg Maxwell				MHC Class
Lisa Chow				VHB
Louise Hillway				BDPA
Celeste Walker				
Kathy Foley				Task force
Joe Blankenship				BPDA transportation
ELIZABETH STIFEL				BPDA

This information is public and can be made available to those who ask according to M.G.L. Chapter 66 Section 10. By providing your email address you are opting in to receive neighborhood email updates from the Boston Planning & Development Agency.

Boston Civic Design Commission Meeting – 9/3/2019

BOSTON CIVIC DESIGN COMMISSION

Tuesday, September 3, 2019

Room 900, 9th floor, Boston City Hall

AGENDA

5:15 - 5:16 Call to Order

5:16 – 5:18 Approval of August 6, 2019 BCDC Minutes
Approval of August 13, 20, and 27, 2019 Design Committee Minutes
Signature of Votes

5:18 – 5:24 Report on Principles and Priorities from Chair Andrea Leers

Report from Review Committee

Summary report on projects followed by vote to review later in the meeting

5:24 – 5:25 525 Lincoln Street, Allston
Brigham and Women's Faulkner Hospital IMP and Projects, Jamaica Plain

Report from Design Committee

Vote

5:25 – 5:45 36-70 Sprague Street, Hyde Park

Presentation to the Commission

5:45 – 6:15 525 Lincoln Street, Allston
Residential project

6:15 – 6:45 Brigham and Women's Faulkner Hospital IMP and Projects, Jamaica Plain
New Institutional Master Plan, parking garages, and clinical wing

6:45 Staff Update

Design Committee tentative schedule to date:

September 10 776 Summer Street, Allston Yards, Allston Square
September 17 Allston Square, 17-24 Hyde Park Avenue
September 24 776 Summer Street

All are welcome to attend.
After 5:30 pm enter City Hall through the Congress Street entrance.
Thank you for your interest in the public realm of the City of Boston

Appendix 3B3

Community Engagement Advisory Committee Meeting Materials

Community Engagement and Advisory Committee Meeting – 5/13/2019

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Community Engagement Committee

May 13, 2019
Tynan Conference Room, 4th floor

Agenda

Time	min	Agenda Item	Speaker/Notes
7:30	*5*	**Welcome and Introductions**	*Tracy Sylven*
7:35	*20*	**BWFH Expansion Project**	*Susan Dempsey* *BWFH VP of Support Services and Clinical Services*
[redacted]	[redacted]	[redacted]	[redacted]
8:15	*15*	**Other Announcements**	*All*
8:30	-	**Adjourn**	

Next Meetings: September 16, 2019; 7:30 – 8:30 a.m., 4th floor Tynan Conference Room
January 13, 2020; 7:30 – 8:30 a.m., 4th floor Sadowsky Conference Room

In attendance: Alysia Ordway, Ray Santos, Susan Dempsey, Mimi Jolliffe, Marion Kelly, Heather Guarnotta, Patti Cahill, Jacqueline Cucchiara, Ron Warner, Emily Morris-Litonjua, Lynda Giovaniello, Megan Walsh, Cori Loesher, David Goldberg, Katie Plante, Tracy Sylven, Bernadette Murphy, Anna Waldron, Josh Trautwein, Leigh Kalbacker

Minutes:
Susan Dempsey, VP at BWFH presented the proposed expansion project. See attached. She explained the process, progress, building use and answered questions.

[redacted]

Other announcements included an invitation to the CHNA data presentation on May 29, all invited. See attached.

BRIGHAM HEALTH

BRIGHAM AND WOMEN'S
Faulkner Hospital

BWFH Campus Planning
May, 2019


Existing Campus


Future Campus

Campus Improvement Projects

Other improvements planned for the campus include:

- Three new levels on the East Parking Garage providing 170 net new spaces to help address patient parking needs;
- Replacement of the existing West Parking Garage - built in 1973 - with a new garage built on an existing surface parking lot, with 330 net new spaces, to support the Inpatient Addition;
- A new driveway into the replacement garage from Allandale Street to help improve access to the campus and address traffic circulation.

Inpatient Addition *Additional Levels on East Parking Garage*

Replacement West Garage with new driveway from Allandale *Existing Hospital*

Community Engagement and Advisory Committee Meeting – 9/16/2019

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Community Engagement & Advisory Committee

September 16, 2019
Tynan Conference Room 1, 4th floor

Agenda

Time	min	Agenda Item	Speaker/Notes
7:30	*5*	**Welcome and Introductions**	*Tracy Sylven*
7:35	*20*	**CHNA/CHIP**	*Tracy Sylven* *BWFH, Director, Community Health and Wellness*
[redacted]	[redacted]	[redacted]	[redacted]
8:15	*15*	**Other Announcements**	*All*
8:30	-	**Adjourn**	

Next Meetings: January 13, 2020; 7:30 – 8:30 a.m., 4th floor Sadowsky Conference Room [redacted]

September 16, 2019
Community Engagement & Advisory Committee
Brigham and Women's Faulkner Hospital

- William Alves
- Patti Cahill P. Cahill
- Jacqueline Cucchiara
- Ethan d'Ablemont Burnes
- Susan Dempsey
- Donna Gillia
- ~~Lynda Giovaniello~~ Lynn Schuster (HSL)
- David Goldberg
- Heather Guarnotta
- Effie Ingram
- Margaret (Mimi) Jolliffee
- Leigh Kalbacker
- Michelle Keenan
- Marion Kelly
- Maryka Lier
- Cori Loescher
- Janet McGrail Spillane
- Emily Morris-Litonjua
- David McCready
- Lanette Francis
- Susan O'Connell
- Jane O'Donnell
- Scott O'Mara
- Alysia Ordway
- John Pappas
- Katie Plante
- Edna Rivera Carrasco
- Raymond Santos
- Cathy Slade
- Tracy Sylven
- Josh Trautwein
- Meghan Walsh
- Ronald Warner, MD
- Anna Waldron
- Lisa Relich
-
-

Community Engagement and Advisory Committee
September 16, 2019

In attendance: Patty Cahill, Susan Dempsey, Lynn Schuster, David Goldberg, Mimi Jolliffee, Michelle Keenan, Leigh Kalbacker, Marion Kelly, Cori Loescher, Emily Morris-Litonjua, Alysia Ordway, Katie Plante, Meghan Walsh, Ron Warner, MD, Lisa Relich, Joy Grover, Tracy Sylven

Thank you to all who were able to attend the meeting

Presentations:

- Tracy Sylven, Director of Community Health and Wellness at BWFH, presented the findings of the Community Health Needs Assessment (CHNA). The CHNA was done as a collaborative process in the City of Boston. In addition, Tracy stated that they took a deeper look, specifically at their priority neighborhoods of West Roxbury, Hyde Park, Jamaica Plain and Roslindale. The data and findings for those neighborhoods were presented (see attached).
- The next steps in the process are underway with a Community Health Improvement Plan (CHIP) being developed. Proposals for future work and collaborations are being reviewed and presented. The CHNA and CHIP will be framework for the next 3 years.

[redacted]

Open Discussion:

- Susan Dempsey updated the group briefly on the building expansion project for BWFH, stating that the application has been submitted to the City and that the open neighborhood discussion process was well underway. Next steps are that the City will reply with a list of what needs to happen next and there will be another 60-day open comment period for residents and neighbors to voice their concerns.

[redacted]

Appendix 3B4

Patient and Family Advisory Council
Meeting Materials

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Brigham and Women's Faulkner Hospital
PATIENT AND FAMILY
ADVISORY COUNCIL

PATIENT FAMILY ADVISORY COUNCIL (PFAC) MEETING

DATE: December 5, 2019
TIME: 4:00 – 5:30PM
LOCATION: BWFH Sadowsky Conference Room

BWFH ATTENDEES: Nichole Aguiar, Cori Loescher, Jaimie Paolucci
PATIENT/FAMILY ATTENDEES: Bonnie Fallon, Cynthia Murphy, Paula Santosuosso
EXCUSED: Linda Burgoon, Peggy Duggan MD, David Goldberg, Diane Grallo, Jane Maier, Resurreccion "Res" Santos
GUESTS: Susan Dempsey, Robin Kaufman, Estier Sayegh

TOPICS	DISCUSSION/ FEEDBACK	NEXT STEPS	WHO
Announcements	Jaimie Paolucci, *PFAC Liaison*, welcomed PFAC members and shared an announcement: • Nichole Aguiar, new Director of Patient Experience, has joined PFAC.		
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]		

BWFH's Building Expansion Update	Susan Dempsey, *Vice President of Clinical Services*, presented on BWFH's building expansion. Modernization and expansion are needed to support the growing number of patients served, as well as to increase access to care in a community setting and space to advance workflow, operations and new technologies.
	
	Proposed Plan:
	• Inpatient addition to accommodate 78 new inpatient beds (last update to inpatient facilities = 1976)
	• Expand and relocate Endoscopy to the 2nd floor
	• Add 3 new levels to the East Parking Garage (patient lot at the front entrance)
	• Replace the existing West Parking Garage (employee garage)
	  o Garage will be expanded and built underground
	  o Solar panels are expected to be placed on the roof, which will allow it to run on its own
	• Create new driveway into the garage from Allandale Street
	
	An application was filed in July 2019 to apply to build. To date, leadership has spoken to elected officials and community stakeholders to share the proposed plan and obtain feedback. BWFH aims to begin construction in October 2020 with a goal to open in 2024.
	
	Patient/Family Member Feedback:
	• Agreed with the need to expand and modernize
	• Impressed with the intent to develop an efficient and comfortable inpatient room ("mock up room")
	• Commented on the new garage design improving the view for neighbors and patients in inpatient rooms
	• Approved of the idea of solar panels on the garage roof. No concerns about glare or reflection
	• Congestion at the entrance emerged as a concern. Members felt this should be improved and liked the idea of a new driveway for employees. Suggested a traffic light or crosswalk for safety be considered.
		Share feedback, continue to work on Master Plan and file DoN application	Susan Dempsey

	• Members voiced interest in offering input on future space and design development of patient rooms, family waiting areas and new technologies		
[redacted]	[redacted]	[redacted]	[redacted]

Next PFAC Meeting:
Tuesday February 11, 2019
4:00 – 5:30pm
BWFH Sadowsky Conference Room, 4th Floor

BRIGHAM HEALTH

BRIGHAM AND WOMEN'S
Faulkner Hospital

BWFH Building Update

PFAC Meeting

December 5, 2019

Brigham and Women's Faulkner Hospital

- Established in 1900;
- 171 inpatient beds;
- 11,000 surgical procedures/year;
- 12,000 inpatients discharged/year;
- 30,000 Emergency Dept visits/year;
- 200,000 outpatient visits/year.

Founded in 1900, Faulkner Hospital has a long history of meeting the healthcare needs of the residents of Boston and surrounding areas.

Major Employer

- 1,600 employees at BWFH;
- 600 employees **(38%)** are Boston residents.

Economic Benefits

- $6.5 million of goods/services purchased in City;
- $1.1 million Payment in Lieu of Taxes (PILOT) contribution to City in 2018.

Business Rationale

- **Creating capacity to meet the demand for secondary care in the community.**
  - The incremental BWFH beds will be used to care for secondary General Medicine and Oncology patients.
- **Providing convenience and accessibility for patients.**
  - Additional capacity at BWFH will allow patients to receive the Brigham Health quality care, without traveling into the urban core.
  - Low cost parking, private rooms, and views to the arboretum contribute to a positive patient experience.
- **Modernizing Facilities**
  - The west parking garage is at the end of life and the BWFH campus has not had significant facility investment since the addition of the front atrium in 1995.
- **Reducing total medical expense.**
  - Expanding capacity at BWFH creates access for patients to receive their care in a lower cost, community setting.

Project Need – Inpatient Beds

- BWFH inpatient facilities have not been expanded since 1976.
- **New inpatient beds** needed to modernize care and meet demand.
- Space needed for new technologies, to right size support spaces, and to improve workflow and operations.
- Currently 171 beds; down from 259 in 1976.
- Current high census limits ability to provide right care in right location.

Physical Description

Building	Project	Existing
Square Footage	98,000	466,500
Inpatient Floors	3 floors	
Med/Surg Beds	78	171
Total Beds	249	
Incremental Beds	78	
Ambulatory Floors	2 floors	
Basement	1 floor	

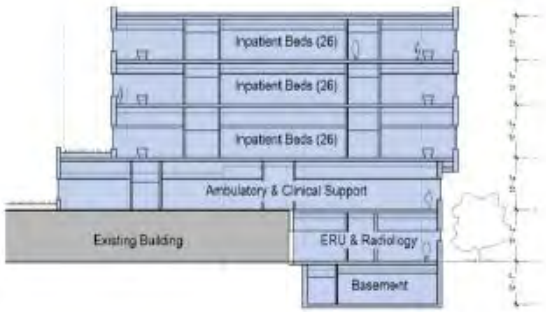
Parking	
Stories of New Garage	3 above ground 2 below ground
New Garage Parking Spaces	952
New Surface Parking Spaces	91
Garage Parking Spaces Eliminated	-580
Surface Parking Spaces Eliminated	-131
Net New Parking Spaces	332

Proposed Inpatient Addition

BWFH is proposing to build an Inpatient Addition to address growing demand for patient beds.

The Inpatient Addition will include **78 new inpatient beds**, as well as clinical support and ambulatory space.

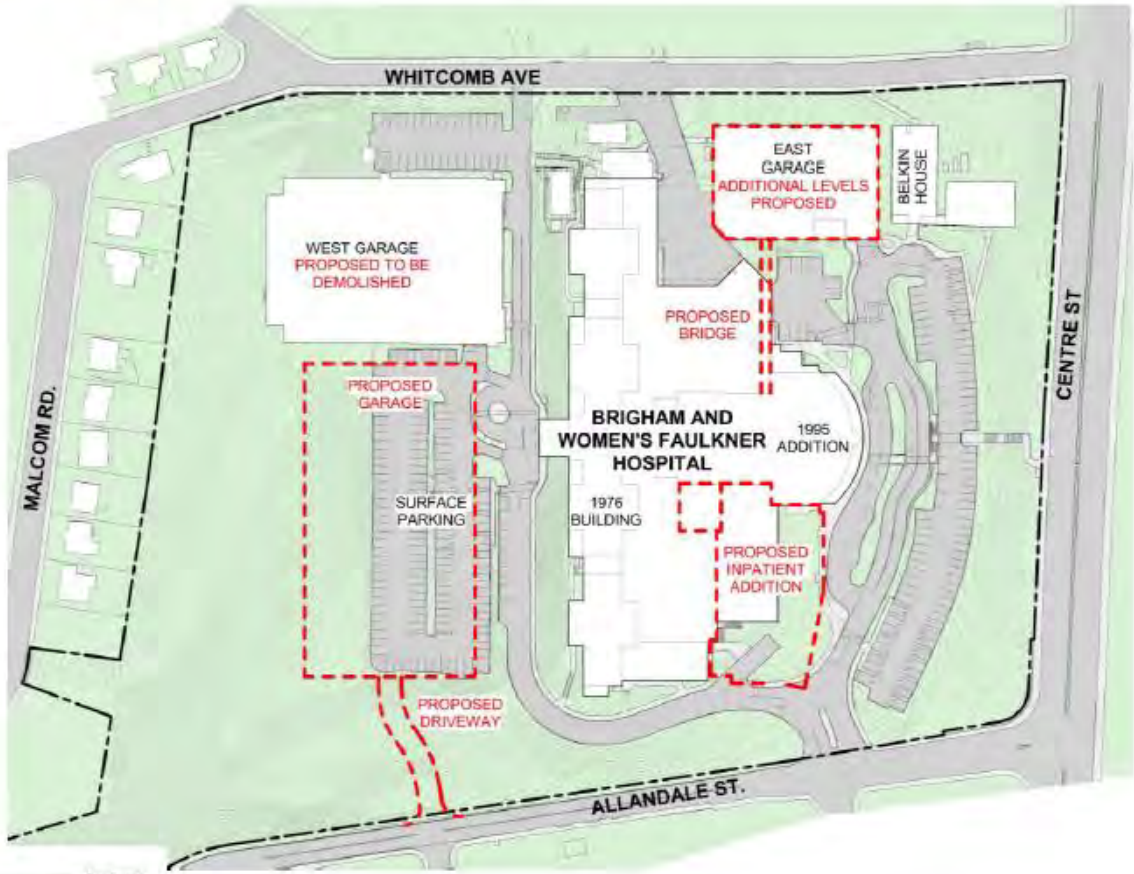
The addition's 5-story height will match the existing building facing Centre Street built in 1995.

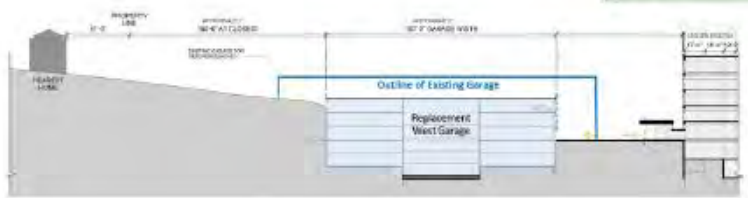


Campus Improvement Projects

Other improvements include:

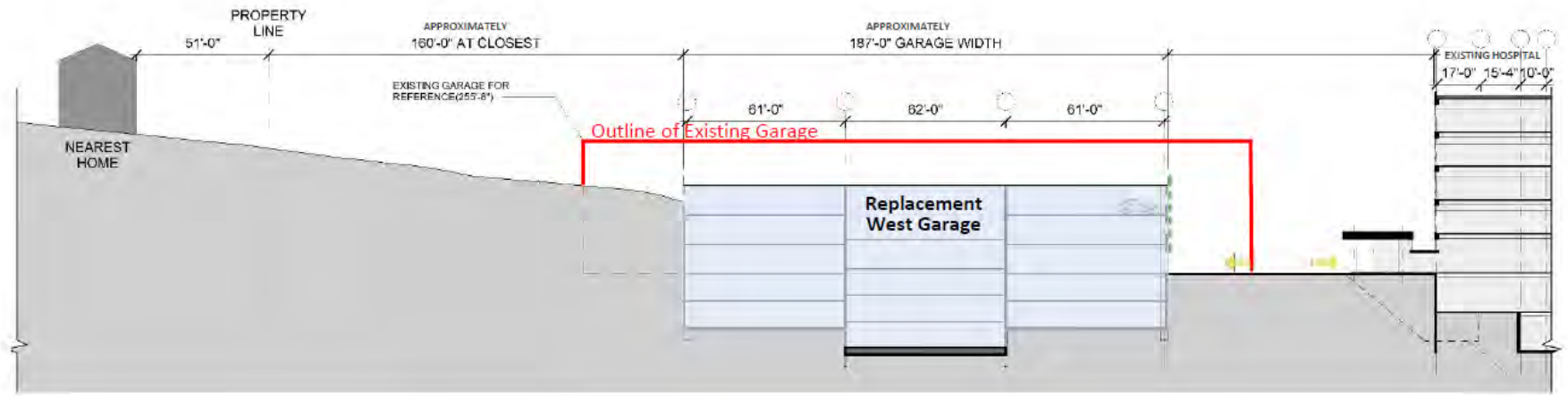
- 3 new levels on **East Parking Garage** providing 171 net new spaces;
- Replacement of the existing **West Parking Garage** (built in 1973) on an existing surface parking lot, with 332 net new spaces;
- A **new driveway** into the replacement garage from Allandale Street.





Replacement West Garage

Future Site Section



Physical Description- Schedule

Schedule	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Regulatory Approvals and Agreements	Regulatory Approvals & Agreements						
Design, Bid, Contract: Inpatient Addition	Program	SD	DD	CD	Bid/Contract		
Construction: Inpatient Addition				Construction 24 months			
Design, Bid, Contract: Garages & Driveway	Design, Bid, Contract						
Construction: Rear Garage & Driveway		earliest start		Construction 24 months			
Key Deliverables							
	Initiate City & State Reviews Draft Institutional Master Plan Begin Outreach to Community Develop Garage Design	Complete City Review Finalize IMP Submit DPH Plans Initiate DON Reivew	Finalize DPH & DON Review Sign City Cooperation Agreement Begin Rear Garage Construction Begin Inpatient Construction	In Construction	Rear Garage Complete Inpatient Building Complete Begin Relocation of Clinical Services	First Patient Day	Relocation of Clinical Services Complete

Regulatory Process

BWFH has initiated the City **Institutional Master Plan** and **Large Project Review** processes. The project will also undergo State MEPA, DPH and DoN review.

Community Feedback

- Neighbors consistently comment that the care and experience they receive at BWFH is superior to other institutions.
- Traffic and parking have emerged as the primary concerns.
- Solutions to mitigate traffic impact may include traffic lights, bike options, and shuttles.
- General consideration regarding the impact of construction on noise and disruption.

Meetings

- **Elected Officials**
  - Mayor Marty Walsh
  - State Reps Liz Malia, Michael Rush, Nika Elugardo, Ed Coppinger
  - State Senator Sonia Chang-Diaz
  - City Councilor Matt O'Malley
  - BPDA Staff
- **Community Stakeholders**
  - Sophia Snow
  - Springhouse Senior Living
  - Trinity Lutheran Church
  - Jamaica Plain Neighborhood Council
  - Jamaica Hills Association
  - Hebrew Senior Living
  - Italian Home for Children

Milestones

City

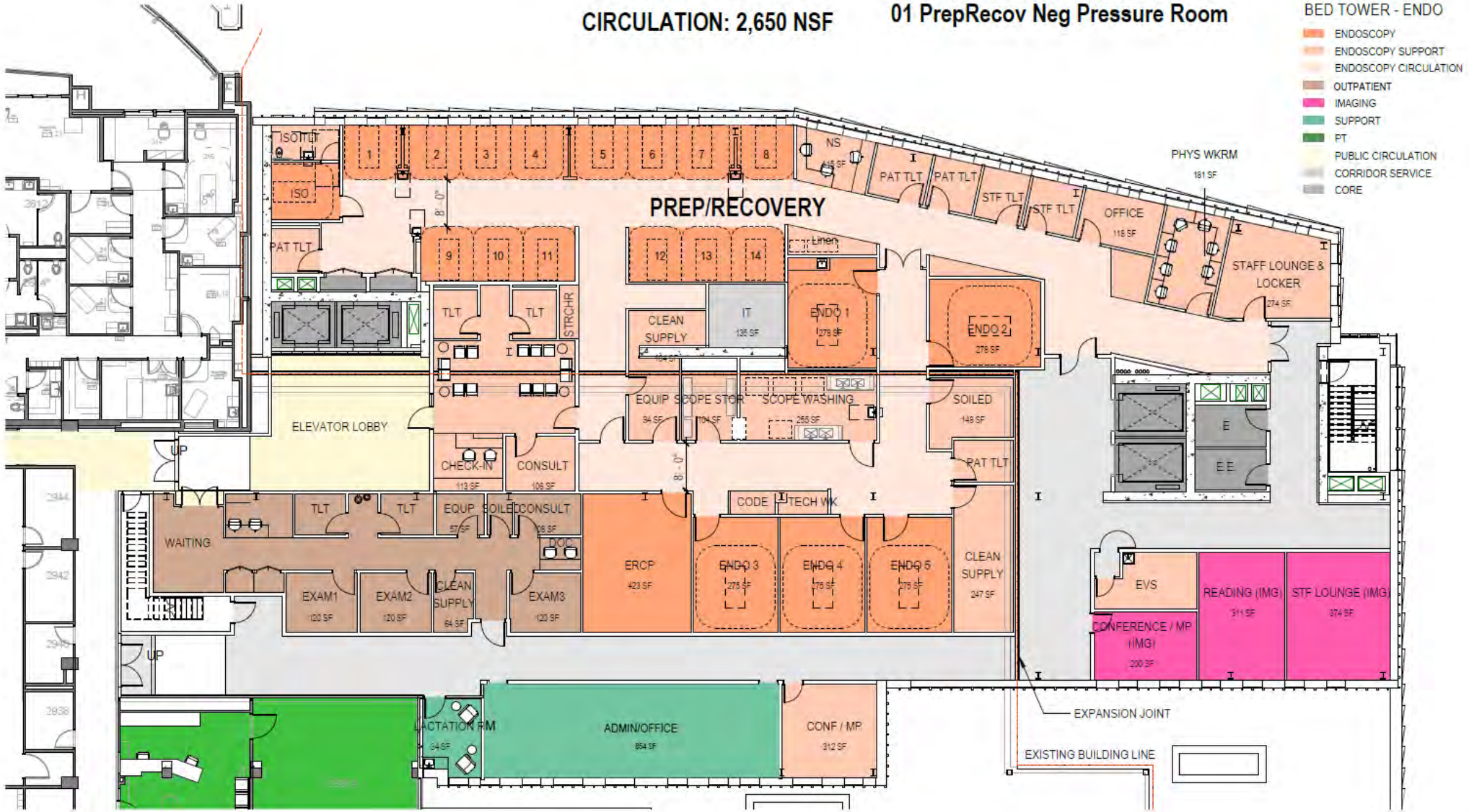
• IMPNF/PNF Filed	July 26, 2019
• BPDA Scoping Determination	October 2019
• File IMP & DPIR	February 2020
• BCDC Approval	March 2020
• BPDA Approval	June 2020
• Zoning Commission Approval	July 2020

State

• MEPA Review	Sept – Nov 2019
• File DoN Application	January 2020
• DoN Approval	June 2020
• DPH Plan Review Complete	September 2020

ENDOSCOPY: 9,990 DGSF
CIRCULATION: 2,650 NSF

14 Prep/Recovery Bays
01 PrepRecov Neg Pressure Room



09/18/19

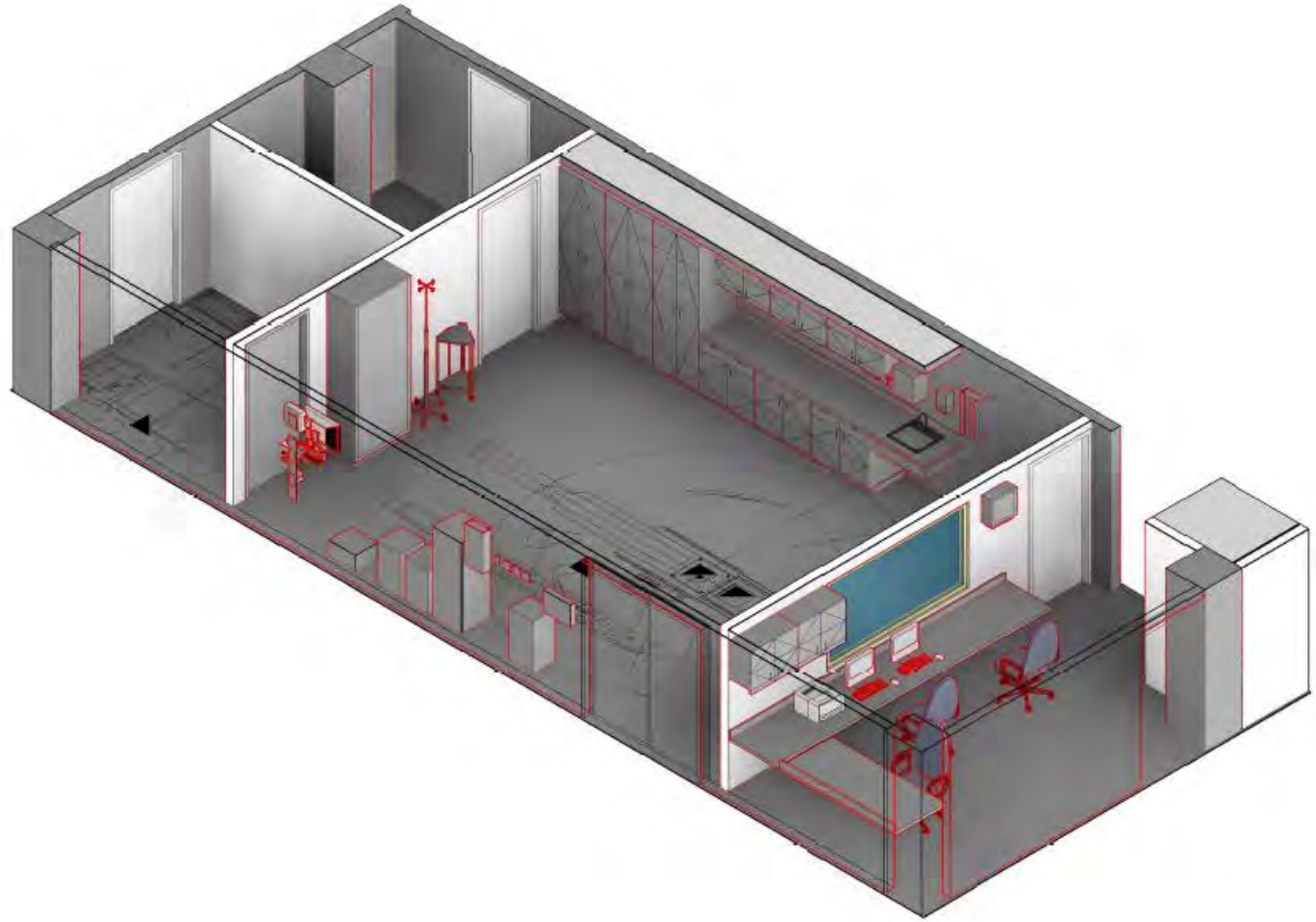
SCALE: As indicated

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

DPH Plan Review Meeting - F2

102369.00

nbbj
ONE BEACON STREET
BOSTON, MASSACHUSETTS 02108
PHONE 617 378 4800



nbbj
1 BEACON STREET SUITE 5200
BOSTON, MASSACHUSETTS 02108
PHONE 617 378 4800
www.nbbj.com

GEOTECHNICAL ENGINEER:
HALEY & ALDRICH
465 MEDFORD STREET, 8200
CHARLESTOWN, MA 02129
617.886.7300

CIVIL ENGINEER:
VANASSE HANGEN BRUSTLIN, INC.
88 HIGH STREET, 10TH FLOOR
BOSTON, MA 02110
617.728.7777

LANDSCAPE ARCHITECT:
KLOPFER MARTIN DESIGN GROUP
50 CHARLESTREET 2ND FLOOR
BOSTON, MA 02114
617.227.2300

CCDS:
CODE RED CONSULTANTS
154 TURNPIKE ROAD, SUITE 200
SOUTHBOROUGH, MA 01772
617.366.7000

STRUCTURAL ENGINEER:
McNAMARA SALVIA STRUCTURAL ENGINEERS
101 FEDERAL STREET, SUITE 1100
BOSTON, MA 02110
617.737.3040

MEP - FP&S:
FITZEMEYER & TOCCI ASSOCIATES, INC.
300 LINDEN PARK DRIVE, 5TH FLOOR
WOBURN, MA 01801
781.395.2300

LOW VOLTAGE (TELECOM & SECURITY):
IDI ENGINEERS
127 A LEWIS WHARF
BOSTON, MA 02110
617.330.1104

VERTICAL TRANSPORTATION:
VAN DEUSEN & ASSOCIATES, INC.
100 SUMMER STREET, SUITE 1600
BOSTON, MA 02110
617.374.0386

ACOUSTICS & VIBRATION:
CAVANAUGH TOCCI
327 F BOSTON POST ROAD
SUDBURY, MA 01776
978.443.7871

WATERPROOFING & MANAGEMENT:
CT & ASSOCIATES
86 THOMAS LEIGHTON BLVD.
CUMBERLAND, RI 02864
401.475.8852

BWH

ENDOSCOPY DD - 1

DESIGN DEVELOPMENT

09/18/19

SCALE: 1/16" = 1'-0"

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

DPH Plan Review Meeting - F3

102369.00

nbbj
ONE BEACON STREET
BOSTON, MASSACHUSETTS 02108
PHONE 617 378 4800

Inpatient Room Option 1

Photo 1 - Window Wall

Refer to Photo 5 for notes

Photo 2 - Patient Foot Wall

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Brigham and Women's Faulkner Hospital
PATIENT AND FAMILY
ADVISORY COUNCIL

PFAC Meeting Agenda

Tuesday, February 11, 2020

4:30pm – 6:00pm

Please note time change for this meeting

Sadowsky Conference Room, 4th floor at BWFH

TOPIC	PRESENTER	TIME
Welcome/ Announcements	All	4:30p
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

PFAC Tour of Mock Room for new Inpatient space at BWFH	Beatriz Gomez Sarah Markowitz	5:30p

Next PFAC Meeting:

Tuesday, April 14, 2020 // 4:00 – 5:30pm

BWFH Sadowsky Conference Room, 4th Floor

BWFH Patient Family Advisory Council (PFAC) Membership

	MEMBERS	EMAIL	ROLE	2/11/20 Sign In
1.	Burgoon, Linda	[redacted]	Senior Director of Ambulatory Services and Strategy Implementation	
2.	Duggan, Margaret "Peggy" MD	[redacted]	Chief Medical Officer & VP of Medical Affairs PFAC Executive Sponsor	
3.	Fallon, Bonnie	[redacted]	Patient/Family Member	Bonnie Fallon
4.	Goldberg, David	[redacted]	Executive Director of Marketing, Communications and Community Relations	
5.	Grallo, Diane	[redacted]	Patient/Family Member	
6.	Lewis-O'Connor, Annie	[redacted]	Ad-Hoc/ Virtual Patient/Family Member	
7.	Loescher, Cori	[redacted]	Chief Nursing Officer & VP of Patient Care Services PFAC Executive Sponsor	
8.	Maier, Jane	[redacted]	Patient/Family Member PFAC Co-Chair	
9.	Murphy, Cynthia	[redacted]	Patient/Family Member	
10.	Vacant		Patient Family Relations Manager PFAC Liaison	
11.	Santos, Resurreccion "Res"	[redacted]	Patient/Family Member	
12.	Santosuosso, Paula	[redacted]	Patient/Family Member	

BRIGHAM HEALTH
BRIGHAM AND WOMEN'S
Faulkner Hospital

Brigham and Women's Faulkner Hospital
PATIENT AND FAMILY
ADVISORY COUNCIL

PATIENT FAMILY ADVISORY COUNCIL (PFAC) MEETING

DATE: **February 11, 2020**
TIME: 4:30pm – 6:00pm
LOCATION: BWFH Sadowsky Conference Room

BWFH ATTENDEES: Peggy Duggan MD, Cori Loescher, RN, Nichole Aguiar, Gillian Fontana
PATIENT/FAMILY ATTENDEES: Jane Maier, Paula Santosuosso, Bonnie Fallon,
NOT ATTENDING: Dorothy Dorsey, David Goldberg, Diane Grallo, Res Santos
GUESTS: Paula Wolski MSN, Ginny Ryan RN, Robin Kaufman, RN, Bea Gomez, Sarah Markowitz

TOPICS	DISCUSSION/ FEEDBACK	NEXT STEPS	WHO
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

	[redacted]	[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]
Tour of Mock Patient Room	Bea Gomez, Project Manager, and Sarah Markowitz, Architect, took the PFAC members to the 5th floor mock room to show the proposed layout of the room, the design to allow more natural light in, and the extra space to accommodate family or care givers.	Team will update any changes	

Next PFAC Meeting:
Tuesday, April 14, 2020
4:00pm – 5:30pm
BWFH Sadowsky Conference Room, 4th Floor

Appendix 4

Factor 4 Supplemental Information

Appendix 4A

Independent CPA Analysis

Mass General Brigham Incorporated

Analysis of the Reasonableness of Assumptions Used For and Feasibility of Projected Financials of Mass General Brigham Incorporated For the Years Ending September 30, 2021 Through September 30, 2025

TABLE OF CONTENTS

BERNARD L. DONOHUE, III, CPA

One Pleasure Island Road
Suite 2B
Wakefield, MA 01880

(781) 569-0070
Fax (781) 569-0460

January 14, 2021

Ms. Meredith Wasko
Mass General Brigham Incorporated
399 Revolution Drive STE 645
Somerville, MA 02145

RE: Analysis of the Reasonableness of Assumptions and Projections Used to Support the Financial Feasibility and Sustainability of the Proposed BWFH Expansion Project

Dear Ms. Wasko:

I have performed an analysis of the financial projections prepared by Mass General Brigham Incorporated ("Mass General Brigham" or "the Company"; formerly Partners HealthCare System, Inc.) detailing the projected operations of Mass General Brigham including the projected operations of the Brigham and Women's Faulkner Hospital, Inc. ("BWFH") Expansion Project, consisting of a 5-story addition to BWFH existing hospital facility and other renovation projects to improve existing services and facilities at the BWFH main campus. This report details my analysis and findings with regards to the reasonableness of assumptions used in the preparation and feasibility of the projected financial information of Mass General Brigham as prepared by the management of Mass General Brigham ("Management"). This report is to be included by Mass General Brigham in its Determination of Need ("DoN") Application – Factor 4(a) and should not be distributed or relied upon for any other purpose.

I. EXECUTIVE SUMMARY

The scope of my analysis was limited to the five-year consolidated financial projections (the "Projections") prepared by Mass General Brigham as well as the actual operating results for Mass General Brigham for the fiscal years ended 2019 and 2020 ("Base Budget"), and the supporting documentation in order to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Projections with regards to the impact of capital projects involving and ancillary to the BWFH Expansion Project.

The impact of the proposed capital projects at BWFH, which are the subject of this DoN application, represent a relatively insignificant component of the projected operating results and financial position of Mass General Brigham. As such, I determined that the Projections are not likely to result in a scenario where there are insufficient funds available for capital and ongoing operating costs necessary to support the ongoing operations of Mass General Brigham. Therefore, it is my opinion that the Projections are financially feasible for Mass General Brigham as detailed below.

II. RELEVANT BACKGROUND INFORMATION

Refer to Factor 1 of the application for description of proposed capital projects at BWFH and the rationale for the expenditures.

III. SCOPE OF REPORT

The scope of this report is limited to an analysis of the Projections, Base Budget and the supporting documentation in order to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Projections with regards to the impact of certain capital projects involving and ancillary to BWFH. My analysis of the Projections and conclusions contained within this report are based upon my detailed review of all relevant information (see Section IV which references the sources of information). I have gained an understanding of Mass General Brigham and BWFH through my review of the information provided as well as a review of Mass General Brigham website, annual reports, and the DoN application.

Reasonableness is defined within the context of this report as supportable and proper, given the underlying information. Feasibility is defined as based on the assumptions used, the plan is not likely to result in insufficient "funds available for capital and ongoing operating costs necessary to support the proposed project without negative impacts or consequences to Mass General Brigham's existing patient panel" (per Determination of Need, Factor 4(a)).

This report is based upon historical and prospective financial information provided to me by Management. If I had audited the underlying data, matters may have come to my attention that would have resulted in my using amounts that differ from those provided. Accordingly, I do not express an opinion or any other assurances on the underlying data presented or relied upon in this report. I do not provide assurance on the achievability of the results forecasted by Mass General Brigham because events and circumstances frequently do not occur as expected, and the achievement of the forecasted results are dependent on the actions, plans, and assumptions of management. I reserve the right to update my analysis in the event that I am provided with additional information.

IV. PRIMARY SOURCES OF INFORMATION UTILIZED

In formulating my opinions and conclusions contained in this report, I reviewed documents produced by Management. The documents and information upon which I relied are identified below or are otherwise referenced in this report:

1. Five-Year Pro-Forma Statements (Projections) for the fiscal years ending 2021 through 2025, provided December 18, 2020 and updated on January 8, 2021;

2. Projected income statements for the BWFH Expansion Project, including detailed assumptions for the fiscal years 2024 through 2038, provided February 12, 2020;

3. DoN Projections (income statements, capital and debt service) for the fiscal years 2021 (budget) through 2030, provided December 15, 2020;

4. Multi-Year Financial Framework of Mass General Brigham Incorporated for the fiscal years ending 2021 through 2025 prepared for Mass General Brigham Finance Committee as of December 3, 2020;

5. Schedule of Estimated Total Capital Expenditure (Factor 4 Form F4a.ii) provided December 29, 2020;

6. Consolidating Balance Sheet and Statements of Operations of BH and Affiliates, which includes BWFH, as of and for the years ended September 30, 2017, 2018, and 2019, provided March 2, 2020;

7. Partners Finance Committee BWFH Building Update – prepared as of September 27, 2019;

8. Audited Financial Statements of Mass General Brigham Incorporated and Affiliates as of and for the years ended September 30, 2020 and 2019;

9. Company website – https://www.massgeneralbrigham.org;

10. Various news publications and other public information about the Company;

11. Determination of Need Application Instructions dated March 2017; and

12. Draft Determination of Need Factor 1, provided December 29, 2020 and updated on January 14, 2021.

V. REVIEW OF THE PROJECTIONS

This section of my report summarizes my review of the reasonableness of the assumptions used and feasibility of the Projections. The Projections are delineated between five categories of revenue and six general categories of operating expenses of Mass General Brigham as well as other nonoperating gains and losses for the Company. The following table presents the Key Metrics, as defined below, of Mass General Brigham which compares the results of the Projections for the fiscal years ending 2021 through 2025 to Mass General Brigham historical results for the fiscal year ended 2020.

($ in thousands)	MGB, as reported	Change in Key Metric of pro forma results compared to prior year				
	2020	2021	2022	2023	2024	2025
EBIDA ($)	584,250	500,504	137,579	30,719	30,919	87,579
EBIDA Margin (%)	4.2%	3.0%	0.3%	-0.2%	-0.2%	0.1%
Operating Margin (%)	-2.5%	3.5%	0.6%	-0.2%	-0.2%	0.3%
Total Margin (%)	1.9%	-1.3%	4.7%	0.1%	0.0%	0.4%
Total Assets ($)	25,040,363	71,241	689,081	1,200,355	1,213,532	1,243,828
Total Net Assets ($)	10,620,294	155,092	945,571	1,304,979	1,149,419	1,193,579
Unrestricted Cash Days on Hand (days)	324.5	(27.9)	(17.9)	2.3	1.0	1.9
Unrestricted Cash to Debt (%)	189.8%	-7.6%	8.5%	15.0%	10.1%	10.1%
Debt Service Coverage (ratio)	4.3	(0.7)	0.6	2.7	0.0	0.1
Debt to Capitalization (%)	44.1%	-0.8%	-3.6%	-3.5%	-2.1%	-2.0%

The Key Metrics fall into three primary categories: profitability, liquidity, and solvency. Profitability metrics, such as EBIDA, EBIDA Margin, Operating Margin, Total Margin, and Debt Service Coverage Ratio are used to assist in the evaluation of management performance in how efficiently resources are utilized. Liquidity metrics, such as Unrestricted Days Cash on Hand and Unrestricted Cash to Debt, measure the quality and adequacy of assets to meet current obligations as they come due. Solvency metrics, such as

Debt to Capitalization and Total Net Assets, measure the company's ability to service debt obligations. Additionally, certain metrics can be applicable in multiple categories.

The following table shows how each of the Key Metrics is calculated.

Key Metric	Definition
EBIDA ($)	(Earnings before interest, depreciation and amortization expenses) - Income (loss) from operations + interest expense + depreciation expense + amortization expense
EBIDA Margin (%)	EBIDA expressed as a % of total operating revenues. EBIDA / total operating revenues
Operating Margin (%)	Income (loss) from operations / total operating revenues
Total Margin (%)	Excess (deficit) of revenues over expenses / total operating revenues
Total Assets ($)	Total assets of the organization
Total Net Assets ($)	Total net assets of the organization (includes unrestricted net assets and donor restricted net assets)
Unrestricted Cash Days on Hand (days)	(Cash and equivalents + investments + current portion investments limited as to use + investments limited as to use - externally limited funds) / ((Total operating expenses - depreciation & amortization) / YTD days)
Unrestricted Cash to Debt (%)	(Cash and equivalents + investments + current portion investments limited as to use + investments limited as to use - externally limited funds) / (Current portion of long-term obligations + long-term obligations)
Debt Service Coverage (ratio)	(Excess (deficit) of revenues over expenses + depreciation expense + amortization expense + interest expense) / (Principal payments + interest expense)
Debt to Capitalization (%)	(Current portion of long-term obligations + long-term obligations) / (Current portion of long-term obligations + long-term obligations + unrestricted net assets)

1. Revenues

The only revenue category on which the proposed capital projects would have an impact is net patient service revenue. Therefore, I have analyzed net patient service revenue identified by Mass General Brigham in both their historical and projected financial information. Based upon my analysis of the projected results from Fiscal Year 2021 through Fiscal Year 2025, the proposed capital projects would represent approximately .135% (less than 2 tenths of 1%) of Mass General Brigham operating revenue in FY 2024, and approximately .290% (Less than 3 tenths of 1%) of Mass General Brigham operating revenue in FY 2025. The first year in which revenue is present for the proposed capital projects is FY 2024.

It is my opinion that the revenue growth projected by Management reflects a reasonable estimation based primarily upon the Company's historical operations before taking into account the financial impact of the COVID-19 pandemic in Fiscal Year 2020.

2. Operating Expenses

I analyzed each of the categorized operating expenses for reasonableness and feasibility as it relates to the projected revenue items. I reviewed the actual operating results for Mass General Brigham for the years ended 2019 and 2020 in order to determine the impact of the proposed capital projects at BWFH on the consolidated entity and in order to determine the reasonableness of the Projections for the fiscal years 2021

through 2025. Based upon my analysis of the projected results from Fiscal Year 2021 through Fiscal Year 2025, the proposed capital projects would represent approximately .178% (less than 2 tenths of 1%) of Mass General Brigham operating expenses in FY 2024, and approximately .270% (less than 3 tenths of 1%) of Mass General Brigham operating expenses in FY 2025.

It is my opinion that the growth in operating expenses projected by Management reflects a reasonable estimation based primarily upon the Company's historical operations before taking into account the financial impact of the COVID-19 pandemic in Fiscal Year 2020.

3. Nonoperating Gains/Expenses and Other Changes in Net Assets

The final categories of Mass General Brigham Projections are various nonoperating gains/expenses and other changes in net assets. The items in these categories relate to investment account activity (realized and unrealized), philanthropic and academic gifts, benefit plan funded status, fair value adjustments and other items. Because many of these items are unpredictable, nonrecurring, or dependent upon market fluctuations, I analyzed the nonoperating activity in aggregate. Based upon my analysis, there were no nonoperating expenses projected for the proposed capital projects at BWFH. Accordingly, it is my opinion that the pro-forma nonoperating gains/expenses and other changes in net assets are reasonable.

4. Capital Expenditures and Cash Flows

I reviewed Mass General Brigham capital expenditures and cash flows in order to determine whether Mass General Brigham anticipated reinvesting sufficient funds for technological upgrades and property, plant and equipment and whether the cash flow would be able to support that reinvestment.

Based upon my discussions with Management and my review of the information provided, I considered the current and projected capital projects and loan financing obligations included within the Projections and the impact of those projected expenditures on Mass General Brigham cash flow. Based upon my analysis, it is my opinion that the pro-forma capital expenditures and resulting impact on Mass General Brigham cash flows are reasonable.

VI. FEASIBILITY

I analyzed the projected operations for Mass General Brigham and the changes in Key Metrics prepared by Management as well as the impact of the proposed capital projects at BWFH upon the Projections and Key Metrics. In performing my analysis, I considered multiple sources of information including historical and projected financial information for Mass General Brigham. It is important to note that the Projections reflect changes in accounting standards which were effective in Fiscal Year 2020, such as changes in lease accounting and compensation – retirement benefits accounting.

Because the impact of the proposed capital projects at BWFH represents a relatively insignificant portion of the operations and financial position of Mass General Brigham, I determined that the Projections are not likely to result in insufficient funds available for capital and ongoing operating costs necessary to support the proposed projects. Based upon my review of the Projections and relevant supporting documentation, I determined the projects and continued operating surplus are reasonable and based upon feasible financial assumptions. Therefore, the proposed capital projects at BWFH are financially feasible and within the financial capability of Mass General Brigham.

Respectively submitted,

Bernard L. Donohue, III, CPA

Bernard L. Donohue, III, CPA

Appendix 4B

Factor 4.a.i Capital Costs Chart

Factor 4: Financial Feasibility and Reasonableness of Expenditures and Costs

Applicant has provided (as an attachment) a certification, by an independent certified public accountant (CPA) as to the availability of sufficient funds for capital and ongoing operating costs necessary to support the Proposed Projects without negative impacts or consequences to the Applicant's existing Patient Panel.

F4a.i **Capital Costs Charts:**

For each Functional Area document the square footage and costs for New Construction and/or Renovations

		Present Square Footage		Square Footage Involved in Project				Resulting Square Footage		Total Cost		Cost/Square Footage	
				New Construction		Renovation							
Add/Del Rows	Functional Areas	Net	Gross	Net	Gross	Net	Gross	Net	Gross	New Construction	Renovation	New Construction	Renovation
1	BUILDING INFRASTRUCTURE	—	—	259	362	—	—	259	362	$397,335		$1,098	
2	BASEMENT SERVICE CORRIDOR	—	—	601	842	—	—	601	842	$924,188		$1,098	
3	BASEMENT STAIR/ELEVATOR	—	—	524	734	—	—	524	734	$805,646		$1,098	
4	BASEMENT STORAGE	—	—	5,409	7,573	—	—	5,409	7,573	$8,312,201		$1,098	
6	FL 1 IMAGING	—	—	5,004	7,006	—	—	5,004	7,006	$7,689,599.66		$1,098	
7	FL 1 IMAGING RENOVATION	—	—	—	—	3,566	4992	3,566	4,992		$3,971,018		$795
8	FL 1 BUILDING INFRASTRUCTURE	—	—	690	966	—	—	690	966	$1,060,291		$1,098	
9	FL 1 OBSERVATION	—	—	1,814	2,539	—	—	1,814	2,539	$2,786,832		$1,098	
10	FL 1 SERVICE CORRIDOR	—	—	66	92	—	—	66	92	$100,980		$1,098	
11	FL 1 SERVICE CORRIDOR RENOVATION	—	—	—	—	52	73	52	73		$58,070		$795
12	FL 1 STAIR/ELEVATOR	—	—	542	759	—	—	542	759	$833,086		$1,098	
13	FL 2 ANCILLARY	—	—	888	1,243	—	—	888	1,243	$1,364,329		$1,098	
14	FL 2 CLINIC/CONSULT	—	—	502	703	—	—	502	703	$771,620		$1,098	
15	FL 2 ENDOSCOPY	—	—	7,589	10,625	—	—	7,589	10,625	$11,662,106		$1,098	
16	FL 2 IMAGING	—	—	870	1,218	—	—	870	1,218	$1,336,889		$1,098	
17	FL 2 BUILDING INFRASTRUCTURE	—	—	789	1,104	—	—	789	1,104	$1,211,761		$1,098	
18	FL 2 PHYSICAL THERAPY RENOVATION	—	—	—	—	1,909	2673	1,909	2,673		$2,126,315		$795
19	FL 2 SERVICE CORRIDOR	—	—	2,114	2,960	—	—	2,114	2,960	$3,248,926		$1,098	
20	FL 2 SERVICE CORRIDOR RENOVATION	—	—	—	—	147	206	147	206		$163,869		$795
21	FL 2 SHELL SPACE	—	—	250	350	—	—	250	350	$384,164		$1,098	
22	FL 2 STAIR/ELEVATOR	—	—	611	855	—	—	611	855	$938,457		$1,098	
23	FL 3 BUILDING INFRASTRUCTURE	—	—	864	1,210	—	—	864	1,210	$1,328,108		$1,098	
24	FL 3 BUILDING INFRASTRUCTURE RENOVATION	—	—	—	—	168	235	168	235		$186,938		$795
25	FL 3 ANCILLARY	—	—	172	241	—	—	172	241	$264,524		$1,098	
26	FL 3 ANCILLARY RENOVATION	—	—	—	—	91	128	91	128		$101,821		$795
27	FL 3 CAFETERIA	—	—	2,049	2,868	—	—	2,049	2,868	$3,147,945		$1,098	
29	FL 3 INPATIENT UNIT	—	—	11,463	16,048	—	—	11,463	16,048	$17,614,445		$1,098	
30	FL 3 SERVICE CORRIDOR	—	—	611	855	—	—	611	855	$938,457		$1,098	
31	FL 3 SERVICE CORRIDOR RENOVATION	—	—	—	—	548	767	548	767		$610,132		$795
32	FL 3 STAIR/ELEVATOR	—	—	551	771	—	—	551	771	$846,257		$1,098	
33	FL 4 BUILDING INFRASTRUCTURE	—	—	871	1,220	—	—	871	1,220	$1,339,084		$1,098	
34	FL 4 ANCILLARY	—	—	348	487	—	—	348	487	$534,536		$1,098	
35	FL 4 ANCILLARY RENOVATIONS	—	—	—	—	206	289	206	289		$229,893		$795
36	FL 4 INPATIENT UNIT	—	—	11,466	16,052	—	—	11,466	16,052	$17,618,836		$1,098	
37	FL 4 SERVICE CORRIDOR	—	—	611	855	—	—	611	855	$938,457		$1,098	
38	FL 4 SERVICE CORRIDOR RENOVATION	—	—	—	—	249	348	249	348		$276,827		$795
39	FL 4 STAIR/ELEVATOR	—	—	451	631	—	—	451	631	$692,592		$1,098	
40	FL 5 BUILDING INFRASTRUCTURE	—	—	853	1,194	—	—	853	1,194	$1,310,546		$1,098	
41	FL 5 ANCILLARY	—	—	325	455	—	—	325	455	$499,413		$1,098	
42	FL 5 INPATIENT UNIT	—	—	11,466	16,053	—	—	11,466	16,053	$17,619,933		$1,098	
43	FL 5 SERVICE CORRIDOR	—	—	641	898	—	—	641	898	$985,654		$1,098	
44	FL 5 SERVICE CORRIDOR RENOVATION	—	—	—	—	309	432	309	432		$343,647		$795
45	FL 5 STAIR/ELEVATOR	—	—	455	637	—	—	455	637	$699,178		$1,098	
46	PENTHOUSE BUILDING INFRASTRUCTURE	—	—	3,406	4,768	—	—	3,406	4,768	$5,233,404		$1,098	
47	PENTHOUSE SERVICE CORRIDOR	—	—	503	704	—	—	503	704	$772,717		$1,098	
48	PENTHOUSE STAIR/ELEVATOR	—	—	446	625	—	—	446	625	$686,006		$1,098	
49	MACHINE ROOM BUILDING INFRASTRUCTURE	—	—	532	745	—	—	532	745	$817,719		$1,098	
50	MACHINE ROOM STAIR/ELEVATOR	—	—	65	91	—	—	65	91	$99,883		$1,098	
	Total: (calculated)	**0**	**0**	**76,671**	**107,339**	**7,245**	**10,143**	**83,916**	**117,482**	**$117,816,104**	**$8,068,530**	**$41,709**	**$7,955**

Appendix 5

Factor 6 Community Health Initiative Supplemental Information

Appendix 5A

Community Health Initiative Narrative

Brigham and Women's Faulkner Hospital Determination of Need
Community Health Initiative Narrative

I. Community Health Initiative Monies

The cost breakdown of the Community Health Initiative ("CHI") monies for the Proposed Project is as follows:

- Maximum Capital Expenditure: $150,098,582
- Community Health Initiative: $7,504,929.10 (5% of Maximum Capital Expenditure)
- CHI Administrative Fee to be retained by BWFH: $150,098.58 (2% of the CHI monies)
- Overall CHI Money – less the Administrative Fee: $7,354,830.52

- CHI Funding for the Statewide Initiative: $1,838,707.63 (25% of CHI monies – less the Administrative Fee)
- CHI Local Funding: $5,516,122.89 (75% of CHI monies – less the Administrative Fee)
- Evaluation Monies to be retained by BWFH: $551,612.29 (10% of the CHI Local Funding).
- CHI Local Funding for Distribution: $4,4,964,510.60 (75% of CHI monies – less the Administrative Fee and the Evaluation Monies)

II. Background Information

The Community Health Initiative ("CHI") process and community engagement for the proposed Determination of Need ("DoN")[1] are directed by Tracy Sylven, Director of Community Health & Wellness at Brigham and Women's Faulkner Hospital ("BWFH" or the "Hospital"). Ms. Sylven works with the BWFH Community Engagement and Advisory Committee ("CEAC") to carry out community health needs assessment ("CHNA") processes. In 2019, BWFH participated in the Boston CHNA/CHIP Collaborative (the "Collaborative") on a larger needs assessment for the City of Boston. In addition to the engagement activities carried out by the Collaborative, Ms. Sylven and the CEAC also conducted 15 interview surveys to gain greater insight into BWFH's priority communities of Hyde Park, Jamaica Plain, Roslindale and West Roxbury. Interviews were semi-structured discussions and surveys that engaged CEAC members. These discussions explored interviewees' experiences in addressing community needs and opportunities for future alignment, coordination and expansion of services, initiatives and policies. Please see the attached CHNA/CHIP Self-Assessment Form and addendum for more information on the CHNA processes.

III. Oversight of CHI Processes

The BWFH CEAC oversees the Hospital's CHNA and community health improvement plan ("CHIP"), as well as the DoN community engagement activities. The CEAC is comprised of

[1] The DoN application requests approval for the following: (A) construction of a 5-story addition to BWFH's existing hospital facility that will contain the following: (1) 78 additional medical/surgical beds; (2) an 8-bed observation unit; (3) relocated and expanded endoscopy services, including one additional procedure room; (4) a magnetic resonance imaging ("MRI") unit and certain relocated radiology services; and (5) shell space for future build out to accommodate clinical services; and (B) other renovation projects to improve existing services and facilities at the BWFH main campus.

individuals representing the constituencies outlined in the Department of Public Health's *Community Engagement Standards for Community Health Planning Guideline*.

In general, the CEAC is tasked with reviewing the DoN sub-regulatory guidelines, outlining roles and responsibilities for the group, developing a charter and reviewing the BWFH CHNA to determine health priorities and strategies for the DoN – CHI. Post- selection of health priorities and strategies, CEAC members will participate in a conflict of interest process, with those individuals without conflicts participating in an Allocation Committee to disburse CHI funding.

IV. Community Advisory Board Duties

The CEAC is tasked with the following responsibilities:

- Ensuring appropriate engagement with residents from targeted communities and community partners around the CHI.
- Selecting the health priorities and strategies for CHI funding based upon the needs identified in the CHNA. The CEAC will ensure that all health priorities and strategies are aligned with the Department of Public Health's Health Priorities and the Executive Office of Health and Human Services' Focus Areas.
- Completing and submitting the Health Priorities and Strategies Selection Form for approval by the Department of Public Health.
- Conducting a conflict of interest disclosure process to determine which members will comprise the Allocation Committee (a Conflict of Interest Form will be developed).
- Providing oversight to an evaluator that is selected to carry out the evaluation of CHI-funded projects.
- Reporting to the Department of Public Health on the DoN – CHI.

V. Allocation Committee Duties

The Allocation Committee will be comprised of CEAC members who do not have a conflict of interest, as well as experts in the noted health priorities and strategies who choose to participate in the process. The scope of work that the Allocation Committee will carry out includes:

- Carrying out formal solicitation processes (targeted and/or untargeted), as well as other funding distribution processes for the disbursement of CHI funds for the noted health priorities and strategies. This process will include the development of a request for proposal ("RFP") and Bidders Conferences (complete with technical assistance resources).
- Development of creative, alternative, transparent strategies for disbursing DoN CHI monies.
- Disbursement of CHI funding.
- Review and analyze grantee reports on the impact of CHI funding.
- Report to the CEAC on funding disbursement progress.

VI. Timeline for CHI Activities

Upon a Notice of Determination of Need being issued by the Public Health Council, the CEAC will commence meeting and begin the CHI Process. The timeline for CHI activities is as follows:

- Two to Three months post-approval: The CEAC will begin selection of the health priorities and strategies for CHI funding.

- Three to fourth months post-approval: The CEAC selects health strategies for the noted health priorities and submits the Health Priorities and Strategies Selection Form to the Department of Public Health for review and approval.
- Four to five months post-approval: The CEAC conducts a conflict of interest disclosure process to determine which members of the Committee will move on to the Allocation Committee.
- Five to six months post-approval: The CEAC is developing an RFP and other funding distribution processes.
- Seven to eight months post-approval: The RFP for funding is released and other methods of funding distribution will be determined.
- Eight to nine months post-approval: Bidders conferences are held on the RFP.
- Eleven months post-approval: Responses are due for the RFP.
- Twelve to Fourteen months post-approval: Funding decisions are made, and the disbursement of funds begins.
- Seventeen to Eighteen months post-approval: The evaluator will begin evaluation work on the CHI funded initiatives.

The aforementioned process is longer than the process outlined in the DoN Guidelines for Tier 3 projects. However, given previous experience with similar RFP processes, staff feel strongly that it will take seven to eight months to develop an RFP process that is transparent, fair and appropriate and that providing three to four months for applicants to respond to the RFP is critical to obtaining thoughtful, well-written and technically accurate RFP responses. Moreover, this timing with allow the BWFH CEAC to determine alternative transparent funding processes should the Committee decide to utilize alternative processes.

VII. Request for Additional Years of Funding

BWFH is seeking additional time to carry out the disbursement of funds for the CHI. The Hospital is seeking to provide potential multi-year grants with CHI funding that lead to sustainable programs. Moreover, the Hospital will explore other opportunities for disbursing funds, such as anchor investments, mini-grants, designated funds, etc. BWHF also is seeking to disburse CHI monies over a three to five-year period to ensure the greatest impact for the largest number of individuals, as well as continued sustainability of specific projects that need additional support.

VIII. Evaluation Overview

BWFH is seeking to use up to 10% of all CHI funding ($551,612.29) for evaluation. These monies will allow the Hospital to engage a third-party evaluator to carry out evaluation of the planning process, as well as assess the overall impact of CHI funding. Through this evaluation, BWFH is seeking to learn from each of its grantees and develop a forum for sharing best practices and understanding the feasibility of replicating interventions. The evaluation team will develop annual reports for review by the CEAC, and post-review, submission to the Department of Public Health.

IX. Justification for Administrative Monies

Applicants submitting a Tier 3 CHI are eligible to obtain 2% of the CHI amount for administrative costs. Consequently, BWFH is requesting 2% of the CHI funding ($150,098.58) for administrative expenses to carry out the CHI work. First, administrative monies will be used to

offset the development of a robust solicitation process. These monies will pay for internal resources and/or external assistance in developing an RFP, technical assistance resources to assist organizations in submitting grant applications, and publication fees associated with advertising the solicitation process in local papers, as well as other operational costs, such as supplies, etc.

Appendix 5B

CHNA/CHIP Self-Assessment Form and Addendum

Massachusetts Department of Public Health
Determination of Need
Community Health Initiative
CHNA / CHIP Self Assessment

Version: 8-1-17

This self-assessment form is to understand the Community Engagement process that has led/ will lead to the identification of priorities for community health planning processes. It is being used to demonstrate to DPH that an existing community health planning process adequately meets DPH standards for community engagement specific to Determination of Need, Community Health Initiative purposes.

This form will provide the basic elements that the Department will use to determine if additional community engagement activities will be required. When submitting this form to DPH, please also submit your IRS Form 990 and Schedule H CHNA/CHIP and/or current CHNA/ CHIP that was submitted to the Massachusetts Attorney General's Office. Additionally, the Applicant is responsible for ensuring that the Department receives Stakeholder-Assessments from the stakeholders involved in the CHNA / CHIP process.

All questions in the form, unless otherwise stated, must be completed.

Approximate DoN Application Date: 01/21/2021 DoN Application Type: Hospital/Clinic Substantial Capital Expenditure

What CHI Tier is the project? ○ Tier 1 ○ Tier 2 ◉ Tier 3

1. DoN Applicant Information

Applicant Name: Mass General Brigham Incorporated

Mailing Address: 800 Boylston Street, Suite 1150

City: Boston State: Massachusetts Zip Code: 02199

2. Community Engagement Contact Person

Contact Person: Tracy Mangini Sylven, CHHC, MCHES Title: Director, Community Health & Wellness

Mailing Address: Brigham and Women's Faulkner Hospital - 1153 Centre St

City: Boston State: Massachusetts Zip Code: 02130

Phone: 617-983-7451 Ext: E-mail: tsylven@bwh.harvard.edu

3. About the Community Engagement Process

Please indicate what community engagement process (e.g. the name of the CHNA/CHIP) the following form relates to. This will be use as a point of reference for the following questions and does not need to be a fully completed CHNA or implemented CHIP.
(please limit the name to the following field length as this will be used throughout this form):

2019 BWFH CHNA/CHIP

4. Associated Community Health Needs Assessments

In addition to the above engagement process, please list Community Health Needs Assessments and/or Community Health Improvement Planning Processes, if any that the Applicant been involved with in the past 5 years (i.e. CHNA/CHIP processes not led by the Applicant bur where the Applicant was involved?

(Please see page 22 of the Community-Based Health Initiative Guidelines for reference http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf)

Add/ Del Rows	Lead Organization Name / CHNA/CHIP Name	Years of Collaboration	Name of Lead Organizer	Phone Number	Email Address of Lead Organizer
+ -	Boston CHNA/CHIP Collaborative	1	Boston CHNA/CHIP Collaborative - Steering Committee		

5. CHNA Analysis Coverage

Within the 2019 BWFH CHNA/CHIP , please describe how the following DPH Focus Issues were analyzed DoN Health Priorities and Focus Issues (please provide summary information including types of data used and references to where in the submitted CHNA/CHIP documents these issues are discussed):

5.1 Built Environment

Brigham and Women's Faulkner Hospital ("BWFH") is located in the Jamaica Plain neighborhood of Boston. In FY 2018 BWFH served approximately 89,000 people, of which over 33,000 (37.1%) were residents of Boston. Of these residents 68.4% came from the following four neighborhoods, which BWFH defines as its priority neighborhoods: Hyde Park – 15.9%; Jamaica Plain – 14.5%; Roslindale – 19.4%; and West Roxbury – 18.5% (Page 4).

Boston has many health care and social service assets that can be leveraged, but access to those services is a challenge for some residents who struggle accessing social services, health resources and public transportation. Proximity of health care services and education institutions, diversity and multiculturalism and engaged residents were noted as key strengths among Bostonians that can be leveraged in future planning. Barriers to care were multifaceted and included underinsurance, language and immigration status, navigation and care coordination challenges, transportation and lack of culturally sensitive approaches to care (Page 6).

With a current population of nearly 670,000 residents, Boston has experienced population growth of nearly 8% in the last several years. The city is expected to continue to experience growth. Growth rates across neighborhoods vary. Hyde Park is one neighborhood that has experienced double digit increases in population over the past five years.

Additionally, overall, the city is a young one, with about one third of residents under the age of 24. There is substantial variation in age profiles across neighborhoods. Our primary neighborhoods of West Roxbury, Hyde Park and Roslindale are neighborhoods that have some of the highest proportion of residents under age 18. West Roxbury also has the highest proportion of residents over age 65 (Page 12).

Across Boston, use of a personal vehicle (39%) was the most common form of transportation to work, followed by public transportation (34%), walking (15%) and carpooling (6%) in 2013–2017.

In 2015, 1,056 patients of 14 community health centers across Boston were asked about their means of transit to the health center on the day of their health center visit. The bus was the most common form of transportation for patients who identified as Black (54%), Latino (44%), Multi-Racial (44%) or who did not report a racial/ethnic identity (43%), followed by driving (27%–38%). Among respondents who identified as Asian, half (51%) reported driving to the health center and one quarter (26%) used the bus to get to the health center. Among respondents who identified as White, driving (40%) was the most common form of transit to the health center, followed by taking the bus (34%) and walking (31%).

In 2014, data show that residents in the Boston Metropolitan Statistical Area ("MSA") spent $9,997 on average on transportation costs, which includes costs relating to vehicles and public transit.3 From FY2001 to FY2014 residents in the Boston MSA spent 11 to 13% of their household income on transportation. Transportation costs as a proportion of household income peaked in FY2001 and FY2005 at 13% and were lowest in FY2011 (11%).

Across most focus groups, parking and traffic were mentioned as a day-to-day concern for many community residents. In our priority neighborhoods, in the southwest part of the city, there are very limited options due to the lack of subway lines. Many find the commuter rail cost-prohibitive, leaving the bus as the only option. The bus has issues for those with mobility challenges and does not conveniently reach some of the outer parts of the neighborhoods.

Several focus group and interview participants noted that seniors struggle with accessing transportation because of mobility issues or because assistance programs are not consistent or timely. Participants explained often being late or missing medical appointments because transportation assistance was unreliable. Others indicated that it was difficult to coordinate services because of having to book rides multiple days in advance or because the vehicles were inaccessible.

Transportation barriers were also identified by those with limited English proficiency, who reported difficulties navigating the transit system. A few focus group participants mentioned the recent increases to MBTA fares and the perception that these increases disproportionately impact seniors, low-wage workers and communities of color (Page 30).

Approximately 49% of Boston's 47 square miles (excluding the Harbor Islands) is zoned residential, while approximately 24% is zoned as business, institutional, industrial or mixed-use. The remaining 27% consists mostly of open space and miscellaneous. Boston's physical

landmass includes 8.3% of parks, playgrounds and athletic fields and 7.4% is parkways, reservations and beaches. According to the Health of Boston report, approximately 11 square miles of Boston's 48 square miles (including the Harbor Islands) is open space. Boston also comprises 29 miles of bicycle trails. One of the largest portions of bicycle trails are in Hyde Park (about 6 miles); however, there is less than one mile of bicycle trails in Roslindale. Jamaica Plain was cited as having abundant green space and areas to walk with Jamaica Pond and the Arnold Arboretum (Page 31).

Boston CHNA survey respondents noted a number of different environmental health concerns and whether they experienced any of these concerns at home, work or school. Among all the issues listed, outdoor noise pollution from vehicles (39.8%), outdoor air pollution from vehicles (38.9%) and dangerous traffic (35.6%) were the top three cited environmental health concerns around a respondent's home. Additionally, 23–29% of respondents cited extreme outdoor heat or cold, mold/mildew or water leaks, bug and/or rodent infestation and more severe storms as top environmental health concerns at home.

At work, the top three concerns were similar but in a different order: dangerous traffic was the most cited environmental health concern with 31.4% reporting this. At a respondent's school (if applicable), dangerous traffic, outdoor air pollution from vehicles, inadequate heating or cooling and outdoor noise pollution from vehicles were the top concerns reported.

By priority neighborhood (Table 23), outdoor air pollution from vehicles was the number one environmental concern for Hyde Park, Jamaica Plain and Roslindale, with West Roxbury naming dangerous traffic (Page 64).

At school, local residents named bug/rodent infestation as the top concern in Hyde Park. In Jamaica Plain, dangerous traffic was the number one concern. Dangerous traffic was in the top five for all neighborhoods, Inadequate heating/cooling was the main concern in Roslindale. It was also in the top five for all the other neighborhoods. Outdoor noise from vehicles was the major concern in West Roxbury (Page 65).

Secondhand smoke can trigger more frequent and severe asthma attacks and respiratory infections, and some studies have associated secondhand smoke exposure to contributing to deaths from coronary heart disease, stroke and lung cancer. More than one in ten Boston adults reported exposure to secondhand smoke in the BBRFSS questionnaire. Respondents who identified as Asian, Black or Latino were all significantly more likely than White respondents to report exposure to secondhand smoke. By housing status, non-homeowners were more likely than homeowners to indicate being exposed to secondhand smoke, with more than 20% of Boston Housing Authority residents and renters on rental assistance reporting exposure. Lower income and unemployed residents were significantly more likely than their higher income and employed counterparts to report secondhand smoke exposure (Page 66).

The biggest barriers to healthcare access discussed in the focus groups were being under-insured, language and immigration status, navigation and care coordination challenges, transportation and lack of culturally sensitive approaches to care. Cost was not identified as a major barrier to care for the majority of participants. However, a few focus group participants discussed cost barriers in relation to affording medication for chronic diseases, and the challenge of competing costs on a fixed income.

Unfriendly, disinterested or rushed healthcare providers and office staff were also issues that focus group participants mentioned. Some focus group participants described feeling "unseen" by their healthcare providers. Additionally, when discussing access to care, a prominent theme across focus groups and interviews was the challenge of navigating the complex health system. Focus group members spoke about the struggle to understand their healthcare benefits, reporting that they "felt lost in the system." Seniors were described as especially vulnerable to challenges navigating the health system. Several focus group participants emphasized that many simply do not know what resources are available to them or how to access them. Participants identified a need for more navigation services that could help patients access services and resources across sectors (Page 67).

Transportation was also mentioned by survey participants and as a challenge to accessing healthcare. Some focus group participants noted that public transportation is limited for accessing services locally as well as for accessing specialty care. For immigrant communities, participants described immigration status (e.g., undocumented vs. documented status) as a significant barrier to accessing healthcare. Key informants spoke of fear in undocumented or mixed status families which prevented residents from seeking care. Further, the need for increased linguistic capacity in the healthcare and social service landscape was also a common theme among qualitative conversations. The importance of culturally sensitive approaches to care were also discussed among multiple focus group and interviews. For example, some focus group participants spoke of cultural and gender norms of not seeking healthcare unless things are bad. Furthermore, LGBTQ youth described the need for more LGBTQ-centric care but also stressed the importance of providers taking into considerations the many intersecting identifies that a patient could hold. For example, being a queer-identifying teenager who is also a person of color. Some of these themes were identified in the Boston CHNA survey, while survey respondents were also likely to cite wait times and availability of hours as issues to accessing care.

When Boston CHNA survey respondents were asked about the factors that made it harder for them to get the healthcare services they needed in the past two years, issues related to convenience—long wait for an appointment (44.0%), lack of evening/weekend services

(38.2%), cost of care (33.8%), lack of transportation (19.0%) and office not accepting new patients (18.3%) were cited as the top five most challenging issues (Page 68).

5.2 Education

Among residents engaged in CHNA data collection, education was an important factor. As discussed later in this report, when Boston CHNA survey respondents were asked what defines a "healthy community," education was the fifth most cited factor in a list of 20 provided, with 45% stating it was an important defining characteristic of their ideal healthy community. Similarly, focus group participants connected educational attainment with health outcomes in their communities and perceived that increasing opportunities for educational achievement ultimately leads to healthier communities. A few key informants described education in the city of Boston as a strength, mentioning a rich history of public education and increased efforts for structural commitments to support students' social-emotional needs.

Overall, Boston is a highly educated city with nearly half of adults (48.2%) ages 25 years old or older holding a college degree or more. However, there are stark differences by race/ethnicity and by neighborhood. Nearly seven in ten White residents hold a college degree, while only two in ten Black and Latino residents do. Nearly six in ten Asian residents hold a college degree. With 26.1%, Latino adult residents are most likely to not have a high school diploma. Only 4% of White adult residents do not hold a high school diploma, while the figure is 18% among Asian adult residents and 15% among Black residents.

Addressing the educational needs of specific population groups was an issue discussed in several focus groups and interviews. Children with special needs, undocumented students, and those who have experienced trauma were identified as groups that needed more support in and outside of the classroom.

As such, the student population in Boston Public Schools is diverse in their needs. Figure 16 shows that 32.1% of Boston Public School students are considered English Language Learners (defined as a student whose first language is a language other than English and who is unable to perform ordinary classroom work in English), 20.3% are students with disabilities and 56.5% are considered economically disadvantaged. Altogether, 76.2% of Boston Public School students are deemed high needs, as either being low income, economically disadvantaged, being a current or former English Language Learner or having a disability (Page 20).

Chronic absenteeism (defined as students who are absent 10% or more of their total number of student days of membership in a school) was a concern among parents and those in the educational field. Key informant interviewees in the field discussed how chronic absenteeism is of particular concern among children from families who are homeless or with parents who have substance use disorders or co-occurring mental health issues. Interviewees indicated that children who have experienced trauma are more likely to miss school or become disengaged when they are in school.

According to data from Boston Public Schools on students who are chronically absent, about one quarter (25.5%) of all Boston Public School students from 2014 to 2018 were identified as chronically absent. The proportion is over 30% for students who are economically disadvantaged, have a disability or who identify as Latino or American Indian.

Approximately three quarters (76.6%) of students who started high school in 2013–2014 completed it in four years, graduating in 2018. This graduation rate falls in the middle of other similarly sized cities (Page 21).

5.3 Employment

Although unemployment rates are low and there is economic opportunity for many residents across the city, there are substantial differences in financial security across neighborhoods and racial and ethnic groups. Hyde Park's unemployment rate is higher than the Boston average (8.4%). The median household income in Boston is $62,021 but ranges greatly across neighborhoods. Financial insecurity was reported as a concern in the majority of focus groups and interviews, with participants indicating that it was one of the root causes of stress in their lives and reporting challenges meeting basic needs such as food, shelter and medical care. Risk-related behaviors and health outcomes generally continue to have inverse relationships with socioeconomic factors. Participants discussed the role poverty plays in exacerbating health challenges, particularly among vulnerable groups (Page 5).

Boston, like much of the rest of the nation, has experienced an economic upturn in recent years. In 2018, Boston had an unemployment rate of 3%. Quantitative data indicate differences in the proportion of residents who are not employed. Boston's unemployment rate in 2017 was 6.7% overall; however, unemployment rates are far higher for Black residents at 9% and in our primary service area of Hyde Park at 8.4%. Those with lower education or fewer skills (especially in technology), immigrants and those with a criminal record were also reported to experience employment challenges. Boston's largest employers are in the healthcare and education sectors; these sectors have experienced substantial employment gains over the past 15 years, while manufacturing and utilities have experienced decreases. Numerous Boston CHNA survey respondents reported feeling underemployed, wanting higher pay or desiring more job

satisfaction. Focus group members and interviewees saw a need for more trade schools and job centers and more opportunities for young people to access employment opportunities (Page 14).

Two main themes emerged from the data collection with Boston residents: employment satisfaction and challenges in securing a competitive job. Numerous Boston CHNA survey respondents reported feeling underemployed, wanting higher pay or desiring greater job satisfaction. Nearly 30% of Boston CHNA survey respondents indicated that they felt they had more training and experience than was required to perform their current job, and another 18% indicated this was possibly true (see Appendix I). Of the 978 CHNA survey respondents who answered that they were looking for a new job, the most commonly cited reason for looking was higher pay (33.4%) followed by job satisfaction (21.3%) and more opportunities for advancement (11.2%).

Focus group participants, however, were more likely to discuss the challenges of securing a job rather than job satisfaction itself. These challenges included educational requirement, changing hiring processes, technology skills and having a criminal record. For example, many focus group participants discussed how formal educational requirements for a job are a significant initial barrier. Participants identified the need for more trade schools and job centers that can help residents access well-paying jobs that create pathways beyond entry-level positions. They also stressed that it is imperative that training opportunities are accessible to working parents, taking in to consideration issues like childcare, time and cost (Page 15).

Focus group participants, especially parents, also discussed the importance of encouraging youth employment, both for young people to learn important skills and to focus their time on positive activities. While there are a number of youth workforce programs in the city, many youths find it challenging to get a job. Key informant interviewees explained that it is imperative that these opportunities include a focus on technology and "21st century skills" like computer programming, professional communication and critical thinking. Further, it was noted that transportation poses a challenge for young people to access employment opportunities, so it is important that jobs are available within their communities or can offset transportation barriers (Page 16).

Financial insecurity was reported as a concern in the majority of focus groups and interviews, with participants indicating that it was one of the root causes of stress in their lives, and reporting challenges meeting basic needs such as food, shelter and medical care. Focus group participants across geographies often attributed these financial stressors to stagnant salaries, higher costs of living and difficulty balancing multiple low-wage jobs (Page 16).

5.4 Housing

Housing affordability and its implications emerged as a key theme across secondary data, the community survey and focus groups and interviews. In Hyde Park (58%), Jamaica Plain (69%) and Roslindale (59%)—housing quality or affordability emerged as the top health concern and in West Roxbury (35%) it was in the top five concerns (Boston CHNA Survey). A higher proportion of residents in rental units in Roslindale (62%), Jamaica Plain (58%) and West Roxbury (53%) are cost-burden, spending at least 30% of their income on housing costs, compared to Boston's overall average. Residents frequently discussed issues of gentrification, long wait lists for Section 8 housing, housing discrimination, overcrowding and poor housing quality as consequences of a tight and expensive housing market (Page 5).

Across Boston and each of the four largest racial/ethnic groups, a higher proportion of renter-occupied units spent at least 30% of their income on housing compared to home owners (Figure 24). In 2017, 48% of Black residents who own their homes and 59% of Black residents who rent their homes spent 30% or more of their income on housing, compared to the Boston average, a significant difference. In contrast, 25% of White residents who own their homes and 41% of White residents who rent their homes spent at least 30% of their income on housing, significantly less than the Boston average. For Boston overall, residents spent an average of $1,445 per month on housing if they rent and $2,293 per month if they owned their housing unit with a mortgage (Page 27).

Given the concerns raised about housing affordability in focus groups and interviews, it is not surprising that housing costs have risen in the past several years. From 2011 to 2016, the median price for single-family homes in Boston increased by 48%, from $359,000 (2011) to $530,000 (2016). Home prices increased in each neighborhood over this period for which data were available. According to key informants and most focus group participants who identified as low-income, housing costs comprise a large part of spending for their households, leaving few resources for other needs such as healthcare, medicine or food.

Across many focus groups and in several key informant interviews, residents noted that the demand for Section 8 and other subsidy programs is much larger than what is available, resulting in very long wait lists. Section 8 refers to Section 8 of the Housing Act of 1937 and is a public program which authorizes payment rental housing assistance to private landlords on behalf of low-income households.

Those working with older adults expressed concern for seniors on fixed incomes who are not able to remain in their homes and then must face long wait lists for affordable senior housing. This was especially true in our key informant surveys for our priority neighborhoods. There was an expressed need to assist seniors to increase their ability to stay in place.

Gentrification, generally used to describe the displacement of low-income communities by affluent outsiders, was mentioned across all focus groups and interviews and was directly correlated with unaffordable housing costs. Many focus group participants spoke of experiences being "priced out" of neighborhoods and perceived that there was an influx of more affluent, White, community residents across the city (Page 28).

The housing cost burden has cascading effects on residents' home and social environment. Overcrowding, housing instability and homelessness are only a few of the themes that emerged in discussions with focus group and interview participants. For example, focus group participants who identified as low-wage workers explained that in order to make ends meet, it was often necessary to live in multigenerational households, with roommates or with multiple families.

Overcrowding is defined as more than one person per room living in a housing unit. The percent of residents reporting overcrowded housing was significantly higher than the city average in our priority neighborhoods of Hyde Park and Roslindale (Page 29).

5.5 Social Environment

Boston is a diverse city with 23% of residents identifying as Black, 20% identifying as Latino and nearly 10% identifying as Asian. Boston has a large immigrant community, with over 28% of Boston residents born outside the United States, most having been born in the Caribbean or Asia. One third of residents speak a language other than English at home, the most prevalent language being Spanish. Diversity among younger residents is greater than among older residents. At the neighborhood level, diversity varies substantially. Black residents comprise a larger portion of the population in Hyde Park (42%), with Latino (27%) making up the next largest group in the neighborhood. Between 2012 and 2017, Latinos experienced the largest population growth of all racial and ethnic groups (Page 13).

Boston is a city of many languages. Nearly 38% of residents speak a language other than English at home (Figure 5), and those numbers are significantly higher for several neighborhoods, including Hyde Park and Roslindale, compared to Boston overall. This language diversity was considered a major strength of the city, according to focus group participants, especially those who were non-English speakers. Spanish was the dominant language other than English, spoken by all of our priority neighborhoods (Page 13).

Discrimination was mentioned in several focus groups across the city, particularly with immigrants and non-English speakers, LGBTQ residents, substance users and the homeless population (Page 33). These experiences were described as both subtle and overt acts felt on a regular basis ranging from verbal altercations to more systemic issues, such as minorities being passed up for job promotions despite appropriate qualifications. All of these issues were compounded when residents belonged to multiple oppressed identities, for example, queer people of color or non-English speaking residents in recovery.

Approximately half of respondents attributed their experience of discrimination to their gender (51%) or race (48%). More than one third reported age-based discrimination (37%) and one quarter linked their experience of discrimination with their ancestry or national origins (26%). Approximately one in five respondents reported discrimination based on some other aspect of their physical appearance (21%) or their education or income level (20%) (Page 34).

5.6 Violence and Trauma

Violence and trauma were identified as important issues that had significant impact on children's health trajectories and were risk factors for mental health and substance use disorders. Strengthening partnerships was a common theme among interview participants to address issues of community violence and trauma, and community connectedness. Locally, Jamaica Plain residents reported significantly higher rates of experienced violence in their lifetime than Boston overall (Page 6).

Across geographies—violence and trauma were frequent concerns reported by focus group and interview participants. Community violence was the most frequently discussed type of violence.

Across all language groups, many focus group participants reported concerns about personal safety in their communities. Key informants and focus group participants specifically mentioned that children and communities of color are disproportionately impacted by violence. Other vulnerable groups that were mentioned by key informant and focus group assessment participants include LGBTQ youth, especially those who identify as transgender or non-binary, seniors and immigrants. Further, community residents and interviewees alike stressed that community violence needs to be addressed from a lens of collective trauma. Violence-based trauma emerged as a key health issue affecting many population groups, particularly young children and communities of color.

One in five Boston CHNA survey respondents described gunshots in the neighborhood (22%) and feeling unsafe when along on the street at night (19%) as serious problems. Almost half of respondents reported as a minor or serious problem feeling unsafe in public spaces in their neighborhood (49%) or while riding a bike in their neighborhood (46%). In Table 20, the number of violent and property crimes are reported by Area E stations that serve our four priority neighborhoods (Page 60).

In 2013–2017, 13% of Boston adults reported experiencing violence in their lifetime. In our priority neighborhoods, Jamaica Plain reported much higher at 17.1%, while both Hyde Park and West Roxbury were significantly lower than Boston (Page 61).

Among focus group and interview participants, children were identified as being the most vulnerable to violence exposure, especially for younger children.

Approximately one in ten Boston high school students (12%) reported being bullied on school property in the past year. Female students (13%) and LGBTQ students (18%) were significantly more likely to report an experience of bullying at school, while Asian students (8%) were significantly less likely to report an experience of being bullied at school in the past year.

In 2013–2017, 9% of Boston high school students reported being bullied electronically in the past year. Female (11%) and LGBTQ students (16%) were more likely than their counterparts to report experiences of electronic bullying. Female students of color were significantly less likely to report electronic bullying than White female students.

In 2017, nearly one in five Boston adults reported experiencing one adverse childhood experience (19%) over their life time. Nearly one in six Boston residents (16%) reported more than one adverse childhood experience.

The prevalence of interpersonal violence—a pattern or behavior used to establish power and control over another person through fear and intimidation, often including the threat or use of violence—was discussed by a few key informants and by some focus group participants. The need for more service providers who were bi-lingual was described. There is very little quantitative data available on interpersonal or domestic violence. In 2018, the number of restraining orders served by the Boston Police Department ranged in neighborhoods from 2 to 386. In our priority districts (Area E) there were 348 total. Additionally, in 2018, there were 823 encounters from survivors, patients, employees and community members through BWFH's domestic violence program, Passageways.

Institutional racism—or the systematic distribution of resources, power and opportunity in our society to the benefit of people who are White and the exclusion of people of color—was described as a priority by several key informants and focus group participants (Page 62).

The impacts of trauma greatly affect health outcomes for youth and adults. Different facets of trauma were described by assessment participants. For example, some key informants discussed the trauma of poverty that results in chronic stress and post-traumatic stress disorder. The topic of intergenerational trauma was also described as a concern by key informants with experience in early childhood education. These interviewees explained that trauma is cyclical, an example is generations of families living in unstable housing. Further, numerous key informants mentioned the trauma experienced by immigrant children and their families, and cited fear of deportation and family separation.

A common theme that emerged in focus groups and interviews was the need to integrate more trauma-informed care in health services and early childhood education. Focus group participants who identified as survivors of violence expressed the need for more accessible services and meaningful engagement of youth needs.

Widening the trauma-informed care lens by focusing on familial responses to trauma emerged as a theme from key informant interviews (Page 63).

5.7 The following specific focus issues

a. Substance Use Disorder

Opioids and prescription medication remain a concern in our priority neighborhoods (Page 6).

Substance use was considered a priority health issue in many focus group and interview discussions. Participants mentioned a variety of substances including opioids, marijuana and prescription drug use as being among the most concerning. Co-occurring mental health and substance use issues were frequently discussed among key informants. Additionally, key informants discussed the interrelationship between trauma, mental health and substance use.

While not mentioned as frequently as opioids, a few assessment participants did note that alcohol was a commonly abused substance, especially by those experiencing homelessness. Additionally, participants were especially concerned about the impact of substance use disorders on young people.

While Boston has seen a statistically significant decrease in smoking since 2010, nearly one in six adults (15%) reported being a current smoker in 2017. A growing concern among focus group and interview participants was e-cigarettes or vaping, which was described as an increasingly popular substance used by young people and adults. However, data from

the Youth Risk Behavior Risk Survey indicates that the use of e-cigarettes among high school students has significantly decreased, from 14.5% reporting use in 2015 down to 5.1% reporting any e-cigarette use in the past 30 days.

Marijuana concerns were discussed in multiple focus groups, particularly as they related to young people and the recent legalization of the substance. Those working with young people or in community-based settings described seeing an increase in marijuana use among students and parents in recent years, which they attributed to more social acceptance. However, Youth Risk Behavior Risk Survey data over the last few years indicates that marijuana use has remained steady since 2011, with approximately one quarter of Boston high school students reporting current marijuana use.

The percent of Boston adults reporting binge drinking (having five or more drinks on an occasion for men or four or more drinks on an occasion for women) has remained steady since 2010, with approximately one quarter of Boston adult BRFSS respondents reporting this behavior. There are several differences within groups, such as LGBTQ adults (30.5%) are significantly more likely than heterosexual/non-transgender adults (24.0%), males (29.8%) are significantly more likely than females (19.8%) and adults earning $50,000 or more (32.5%) are significantly more likely than those earning $25K-< $50K (21.4%) or those earning <$25K (18.5%) to report binge drinking.

Many focus group participants and key informants who discussed substance use as a concern identified opioids as a persistent issue in Boston. The rate of opioid overdose deaths in Boston has significantly increased since 2013 and was highest among Latino residents, followed by White residents. While a few key informants indicated that major headway around substance use and the opioid epidemic has been made in recent years, more is needed to address the severity of the issue. Several key informants indicated that heroin and Fentanyl use was on the rise, and that these substances were cheap and easily available (Page59).

A similar trend to opioids—there is a significant increase for Boston overall and Latino residents specifically in the mortality rate from 2013–2016 in all substance use deaths combined, including alcohol, other drug mortality and unintentional and intentional overdose or poisoning.

Of the 100 people (4.2%) completing the Boston CHNA survey who indicated that they needed substance use treatment or services at some point, 22% reported that they could not access the substance use services that they needed. Barriers to substance use treatment was discussed by the focus group participants in recovery and a few interviewees. These participants discussed the need for more affordable inpatient and outpatient treatment options, especially for non-English speakers. Long-term support services like sober houses were identified as limited and expensive (Page 60).

b. Mental Illness and Mental Health

In 2018, BWFH data shows that 8.3% (1,661 patients) of total (19,917 patients) ED visits by Boston residents at BWFH were for mental health and substance use disorders (Page 56).

Behavioral health, specifically mental health and drug addiction among young people, is a growing concern among community residents. In West Roxbury (59%) of survey respondents identified mental health as the top health concern. In focus groups and interviews, there was much focus on the impact of trauma and mental health, specifically with children and families. Additionally, Jamaica Plain's data showed higher suicide rates than Boston overall (Page 6).

Mental health issues were described as a priority concern across almost all focus group and interviews, and often discussed in connection with trauma. Stress, anxiety and depression were the most frequently cited challenges among Boston residents, especially those who belong to underrepresented groups. Specific vulnerable groups that were mentioned include LGBTQ, low-income residents, seniors, children, immigrants and communities of color. In conversations, these mental health issues were often discussed in relation to social determinant factors like poverty, employment and safety. Additional factors affecting mental health, according to key informants, include unstable housing situations, parental incarceration, especially for Black and Latino men, and domestic violence.

Surveillance and survey data indicate that anxiety and depression are somewhat common across Boston residents. According to the Behavioral Risk Factor Surveillance System (BRFSS), more than one in five Boston residents (12.3%) indicated feeling persistent sadness in the past 30 days (feeling sad, blue or depressed for more than 15 days within the past 30 days).

When examining responses by sub-groups, responses were significantly higher in Black, Latino residents, females, non-home owners, residents with less than some college education, those making less than $50,000 a year, LGBTQ residents and those not employed compared to the referent in their sub-group (Page 55).

Mental health concerns were not just specific to adults. Focus group and interview participants also expressed increasing concern about mental health issues experienced by children and teens. Key informants spoke of how poor social and economic factors exacerbate mental health issues for children. For example, poor children who are at risk of living under chronic stress or experiencing vicarious trauma through their parents' experiences. Though not as frequently discussed as stress, anxiety was also identified as a common concern for parents and young people who participated in focus groups. Online bullying and social media were mentioned as components of this anxiety, as well as pressure to perform in school.

The concern about youth mental health issues is validated by survey data. Responses from the Youth Risk Behavior Survey indicate approximately one third of Boston public high school students reported feeling persistent sadness (measured by feeling sad or hopeless every day for two weeks or more in the past 12 months). When looking at data by specific groups, female students (36.8%) were significantly more likely than male students (23.3%) and students who identify as LGBTQ (48.4%) were significantly more likely than students identifying as heterosexual/non-transgender (27.1%) to report feeling persistent sadness.

The Youth Risk Behavior Survey data in the previous graph were aggregated across years to provide a large enough sample for sub-group analyses. When examining the Youth Risk Behavior Survey data by year, Figure 52 shows a statistically significant trend over time, from 24.8% of Boston Public high school students reporting persistent sadness in 2011 to 33.4% reporting in 2017 (Page 57).

c. Housing Stability / Homelessness

Lack of affordable housing was a prominent theme that arose across all key informant interviews and focus groups. Participants across geographies consistently shared that the rising cost of living in Boston was a major day-to-day concern. Most reported a need for more affordable housing for low and moderate-income levels. Quantitative data also indicate that the proportion of affordable housing to market rate is decreasing, rather than increasing. Even with the growth in development, the proportion of affordable housing units in total production in Boston has been falling since 2003. In the period 1996–2003, more than 39%of all permits were for affordable units. In the following period, 2004–2010, the proportion was down to less than 26%. From 2011 to 2016, the proportion has fallen to about 18 percent.

Several focus group and interview participants noted that high housing costs were particularly difficult for people with low or fixed incomes, such as seniors and residents who work low-wage jobs. Many described the influx of housing developments being built across the city but perceived that the cost of these units was often inaccessible to the average resident.

Housing cost data aligns with resident and leader concerns cited during focus groups and interviews. Housing costs are a larger economic burden for renters in the city. According to the American Community Survey, more than half (52.1%) of renter-occupied units across Boston spent 30% or more of their income on housing costs. For BWFH's priority neighborhoods, a higher proportion of residents in rental units in Roslindale (62%), Jamaica Plain (58%) and West Roxbury (53%) spent at least 30% of their income on housing costs, compared to the Boston overall average.

On average one third (35%) of owner-occupied units in Boston spent at least 30% of their income on monthly housing costs, much smaller than the burden of housing costs for renters across the city in 2013–2017. Compared to Boston overall, a significantly higher proportion of residents of owner-occupied units in Roslindale (45%) and Hyde Park (43%) spent at least 30% of their income on housing (Page 26).

In 2018, there were an estimated 6,188 residents experiencing homelessness or housing instability in Boston. The majority or homeless residents stayed in emergency shelters (5,427 persons), followed by transitional shelters (598 persons) and unsheltered housing (163 persons). Among this homeless population, four in ten homeless residents identified as Black (45.1%), 36.1% as White and 17.0% as two or more races. More than 35% identified as Latino (any race).

In 2018, households without children (67%) comprised two thirds of the homeless population in Boston. Three in ten homeless households included at least one adult and one child (31.8%). One percent of homeless households included only children (1%). Emergency shelter was the most common type of shelter for homeless households, followed by transitional housing.

Among ACO MassHealth patients who were screened in Mass General Brigham and Boston Medical Center primary care settings, 17% were indicated that they were homeless or did not have a steady place to live (Page 29).

d. Chronic Disease with a focus on Cancer, Heart Disease, and Diabetes

The impact of chronic diseases and their risk factors—especially diabetes and obesity—emerged as priority concern among residents. Key informants and survey participants frequently discussed a number of social determinants that presented challenges to the prevention and management of these chronic conditions. More than half of Boston adults and a third of Boston Public high school students report being obese. The percentage of overweight adults in Hyde Park, West Roxbury and Roslindale is more prevalent than the Boston average. Literacy was cited as a contributor, as well as lack of access to and affordability of fresh foods in this part of the city where transportation is sparse and grocery stores are often difficult to get to. Also discussed, specifically in Hyde Park and Roslindale was the concern that cultural diets may be a contributing factor in poorer health. o Hyde Park's data showed that diabetes continues to be higher than the Boston average. Hyde Park, Roslindale and West Roxbury all report higher than average rates of hypertension. Additionally, all of our neighborhoods have higher heart disease mortality rates, with Hyde Park being significantly higher for heart disease and stroke (Page 6).

Cancer and heart disease are the leading causes of death in Boston and have remained so for the last six years. In the most recent years, accidents, which include drug overdoses, has been the third leading cause of death. In 2016, unintentional opioid overdoses accounted for 55.3% of all deaths due to accidents. Other leading causes of death in the top five are cerebrovascular diseases, which includes stroke, and chronic lower respiratory diseases, which includes conditions such as chronic obstructive pulmonary disease (COPD) and emphysema (Page 41).

While cancer and heart disease are the leading cause of death for residents of all races/ethnicities, the leading causes of death for after these two conditions varies for different groups. For Asian residents, cerebrovascular diseases, Alzheimer's Disease and hypertension/renal disease round out the top five leading causes of death. For Black, Latino and White residents, accidents are the third leading cause of death, with unintentional opioid overdoses account for a large part of these deaths (40.9% of all deaths due to accidents for Black residents, 66.7% for Latino residents and 57.2% for White residents). For Black and Latino residents, diabetes was one of the top five leading causes of death (Page 42).

According to the Massachusetts Department of Public Health, in 2015, cancer incidence rates for Asian (390.5 per 100,000 population) and Latino residents (349.4 per 100,000 population) in Boston were significantly lower than for White residents (546.7 per 100,000 population) (Page 51).

Between 2014 – 2016 in Boston for men accidents was the leading causes of premature death, which was two and a half times that for women. However, for both sexes, unintentional opioid overdoses accounted for approximately 70% of the deaths due to accidents. Heart disease was the third leading cause of premature death for both men and women. However, for men, homicide and suicide were the fourth and fifth leading causes of premature death, while for women it was chronic lower respiratory diseases and cerebrovascular diseases (Page 43).

More than half of Boston adults and a third of Boston Public high school students reported being overweight or obese. Black and Latino adults and high school students were more likely to be overweight or obese than White residents or students. The prevalence of obesity and overweight also follows a socioeconomic gradient—residents who are renters, have lower levels of education and lower income were more likely to be obese or overweight compared to their counterparts. At our priority neighborhood level, the percent of adults in Hyde Park, West Roxbury and Roslindale who were obese or overweight was significantly higher than the prevalence of obesity across Boston.

Concerns related to obesity were frequently discussed among focus group and interview participants. Focus group participants described healthy eating and physical activity as ways to prevent obesity but cited a lack of health literacy and affordable recreational programming in their communities.

Community residents indicated the need for more affordable gym and healthy food options, particularly in the winter time and especially for young people during school breaks. It was cited that for the elderly, being active helped to keep them in their homes longer and provided a social engagement component.
In Hyde Park and Roslindale, key informants discussed the concern that cultural diets have a great effect on health. A lack of knowledge and resources negatively impact choices. Additionally, childhood obesity was a common theme that emerged among focus group and interview discussion participants, who linked challenges related to healthy eating with education, time constraints and economic challenges that create barriers for them to provide healthy opportunities for their children (Page 43).

More than half (57%) of adults across Boston reported being classified as obese or overweight in 2013–2017. However, rates are different by various population groups. Nearly seven in ten Black (68%) and Latino (68%) adults reported being obese or overweight, compared with five in ten White (51%) adults across Boston—a difference that was statistically

significant. One third of Asian adults (34%) reported being obese or overweight, significantly lower than the prevalence for White adults (51%). Older adults were significantly more likely than young adults to be classified as overweight or obese. For example, 40% of adults 18–34 years of age were overweight or obese in 2013–2017, while approximately two thirds of adults 50–65 years of age (69%) and 65 years of age or older (65%) were overweight or obese. The prevalence of obesity and overweight also follows a socioeconomic gradient, with a significantly higher percent of renters (53–68%), residents with lower levels of educational attainment (61–70%) and residents with lower income (59–62%) being obese or overweight compared to their counterparts (53–58%).

At the priority neighborhood level, the percent of adults in Hyde Park (65%), West Roxbury (64%) and Roslindale (63%) who were obese or overweight was significantly higher than the prevalence of obesity across Boston (57%). In contrast, compared to the average across Boston (57%), a significantly lower proportion of adults in Jamaica Plain (50%) were obese or overweight (Page 44).

One third of Boston high school students (33%) reported being obese or overweight in 2013–2017. Similar to patterns for adults, a significantly higher proportion of Hispanic (37%) and Black (36%) high school students reported being obese or overweight than White high school students (23%). Racial/ethnic differences in the prevalence of obesity or overweight were similar for males and females. More than one third of LGBTQ (38%) students reported being obese or overweight, a proportion that was significantly higher than that for heterosexual or non-transgender students (32%) (Page 45).

Diabetes was frequently mentioned as a community concern that had an impact on both adults and children. Many focus group and interview participants discuss diabetes in connection with obesity. Further, key informants perceived the rise in type 2 diabetes symptoms among young children—particularly among Black and Latino children.

While the prevalence of reported diabetes across Boston was 9% in 2013–2017, there were significant differences in the distribution of diabetes across the population. Compared to their counterparts, a significantly higher proportion of adults who identified as Black (15%), Latino (12%), older (>50 years; 16–23%), Boston Housing Authority residents (18%), renters receiving rental assistance (17%), adults with a high school education or less (12–18%) and immigrants who have resided in the U.S. for more than 10 years (14%) reported a diabetes diagnosis.

Additionally, two of the BWFH priority neighborhoods, Hyde Park (10.7%) and Roslindale (9.3%), were higher than the Boston overall rate of 8.5% (Page 49).

Similar to patterns for diabetes diagnoses and hospitalizations, the diabetes mortality rate for Black (41 deaths per 10,000 residents) and Latino residents (29 deaths per 10,000 residents) residents was significantly higher than that for White residents (17 deaths per 10,000 residents) in 2016–2017 (Figure 42). The diabetes mortality rate among Asian residents (9 deaths per 10,000 residents) was nearly half of that for White residents (17 deaths per 10,00 residents) during the same period.

In 2013–2017, across Boston, 11% of adults reported a diagnosis of asthma. The prevalence of asthma was significantly higher for adults who identified as Black (15%), female (15%), residents of Boston Housing Authority units (18%), renters receiving rental assistance (22%), renters not receiving assistance (11%), adults with less than a high school education (16%), LGBT (17%) and less than $25,000 income (16%) compared with their counterparts. Of note, a significantly lower proportion of Asian adults (5%) and immigrants living in the U.S. for less than 10 years (4%) or 10 years or more (9%) reported an asthma diagnosis (Page 50).

In 2013–2017, one quarter (25%) of Boston adults reported being diagnosed with hypertension. A significantly higher proportion of adults who identified as Black (38%), Latino (26%), aged 35–49 (12%), aged 50–65 (40%), 65 and older (65%), residents living in Boston Housing Authority units (39%), renters on rental assistance (37%) and immigrants living in the U.S. for more than ten years (35%) reported being diagnosed with hypertension or high blood pressure, compared to their counterparts. Additionally, there was a consistent socioeconomic gradient in the prevalence of hypertension: a significantly higher percent of adults with less than a high school education (42%), a high school education (28%), incomes <$25,000 (34%), incomes $25,000–$49,999 (27%), out of work (27%) and other employment statuses (38%) reported a hypertension diagnosis compared with their counterparts of higher socioeconomic status. A significantly lower percent of adults who identified as Asian (16%), renters without assistance (19%), residents with other housing arrangements (19%), immigrants living in the U.S. for less than ten years (10%) and LGBT (19%) reported a hypertension diagnosis when compared to the comparison group (Page 52).

Data reflects that Hyde Park shows rates equal to Boston, and Roslindale and West Roxbury show rates higher than Boston in adult hypertension. Further analysis reveals that heart disease mortality rate was highest for Black adults for individuals

from young adulthood to 50–64 years of age. More specifically, among adults 18–34 years of age and 35–49 years of age, the heart disease mortality rate for Black adults was statistically higher than the mortality rate for White adults. For adults 65 years of age and older, the heart disease mortality rate for Asian, Black and Latino adults was significantly lower than that for White residents.

The prevalence of stroke among Black adults (5%) was more than twice the prevalence among White adults (2%), a difference that was statistically significant. A significantly higher proportion of adults with incomes <$25,000 (6%) or $25,000–$49,999 (2%), residents of Boston Housing Authority units (6%), renters with rental assistance (7%) and residents with less than a high school education (5%) reported a diagnosis of stroke relative to residents with higher socioeconomic status (Page 53).

The heart disease mortality rate was higher in all four of BWFH's priority neighborhoods compared to that of Boston and significantly higher in Hyde Park (Page 54).

The rate of hospitalizations due to stroke was 55% and 41% higher than the Boston average (22 hospitalizations per 10,000 residents) in Hyde Park (34 hospitalizations per 10,000 residents). The stroke-related hospitalization rate was significantly higher than the Boston average in the neighborhood of Hyde Park (Page 55).

6. Community Definition

Specify the community(ies) identified in the Applicant's 2019 BWFH CHNA/CHIP

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
+ -	Boston	Hyde Park
+ -	Jamaica Plain	
+ -	Roslindale	
+ -	West Roxbury	

7. Local Health Departments

Please identify the local health departments that were included in your 2019 BWFH CHNA/CHIP . Indicate which of these local health departments were engaged in this 2019 BWFH CHNA/CHIP . For example, this could mean participation on an advisory committee, included in key informant interviewing, etc. (*Please see page 24 in the Communit further description of this requirement* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf.)

Add/ Del Rows	Municipality	Name of Local Health Dept	Name of Primary Contact	*Email address*	Describe how the health department was involved
+ -	Boston	Boston Public Health Commission	Margaret Reid		Member of the Steering Committed; assisted in oversight of the community health needs assessment
+ -	*Type first letter then scroll*				

8. CHNA / CHIP Advisory Committee

Please list the community partners involved in the CHNA/CHIP Advisory Committee that guided the 2019 BWFH CHNA/CHIP . (please see the required list of sectorial representation in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf) Please note that these individuals are those who should complete the *Stakeholder Engagement Assessment* form. It is the responsibility of the Applicant to ensure that DPH receives the completed *Stakeholder Engagement Assessment* form:

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Municipal Staff	Department of Public Health	Janet McGrail Spillane	Health Systems Specialist		
	Education	Boston Public Schools	Patti Cahill	Librarian - JP Manning Elementary		
	Housing	Washington Beech Apts	Lanette Francis	Resident Service Coordinator		
	Social Services	Hyde Park Food Bank	Jacqueline Cucchiara	Advisory Board Member		
	Planning + Transportation					
	Private Sector/ Business	The Fresh Truck	Josh Trautwein	Owner/CEO		
	Community Health Center	Brookside Community Health Center	Margaret (Mimi) Jolliffee	Executive Director		
	Community Based Organizations	Menino (Hyde Park) YMCA	William Alves	Executive Director		
+ -	Community-based organizations	American Heart Association	Stefanie Barba	Community Impact Director		
+ -	Education	Boston Public Schools	Ethan d'Ablemont Burnes	Principal - JP Manning Elementary		
+ -	Private Sector	Brigham and Women's Faulkner Hospital	Susan Dempsey	VP of Support Services and Clinical Services		

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
+ -	Community-based organizations	ESAC	Peg Drisko	Executive Director		
+ -	Private Sector	Faulkner Community Physicians Hyde Park	Donna Gillia	Triage/staff nurse		
+ -	Housing	Hebrew SeniorLife	Lynda Giovaniello	Clinical Liaison		
+ -	Private Sector	Brigham and Women's Faulkner Hospital	David Goldberg	Executive Director, Marketing/ Communications/Community Relations		
+ -	Housing	Hebrew Senior Life	Effie Ingram	Wellness Coordinator		
+ -		Boston Public Schools	Heather Guarnotta	Parent, resident		
+ -	Community-based organizations	Community Servings	Leigh Kalbacker	Director, Client & Volunteer Services		
+ -	Private Sector	Brigham and Women's Hospital	Michelle Keenan	Director, Community Programs		
+ -	Community-based organizations	Parkway YMCA	Marion Kelly	Executive Director		
+ -	Education	Boston Public Schools	Maryka Lier	Assistant Director, Wellness Policies & Promotions		
+ -	Private Sector	Brigham and Women's Faulkner Hospital	Cori Loescher	Chief Nursing Officer		
+ -	Private Sector	Brigham and Women's Faulkner Hospital	David McCready	President		
+ -	Housing	Italian Home for Children	Joe McLean	Development, Corporations & Foundations		
+ -	Housing	Deutsches Altenheim German Center	Susan O'Connell	Hospital Liaison		
+ -	Private Sector	Community Physicians West Roxbury/Hyde Park	Jane O'Donnell	Practice Manager		
+ -	Additional municipal staff (such as elected officials, planning, etc.)	Boston Private Industry Council	Megan Orlander	Employer Engagement Manager		
+ -	Additional municipal staff (such as elected officials, planning, etc.)	City of Boston	Matt O'Malley	City Councilor - District 6		
+ -	Additional municipal staff (such as elected officials, planning, etc.)	Boston Police Department	Scott O'Mara	Area E Community Officer		
+ -		Hyde Park resident	Alysia Ordway	Strategic Partnership specialist		
+ -	Community-based organizations	Jamaica Hills Association	John Pappas	Member/resident		

+ -	Private Sector	Brigham and Women's Faulkner Hospital	Katie Plante	Community Health and Wellness Assistant		
+ -	Additional municipal staff (such as elected officials, planning, etc.)	Boston Public Health Commission	Margaret Reid	Interim Chief of Staff		
+ -	Social Services	ETHOS	Raymond Santos	Community Relations & Development Director		
+ -	Housing	Hebrew Senior Life	Lynn Schuster, RN	Clinical Nurse Liaison		
+ -		YMCA	Cathy Slade	Board Member, home health caregiver		
+ -	Private Sector	Brigham and Women's Faulkner Hospital	Tracy Sylven	Director, Community Health and Wellness		
+ -	Community-based organizations	Jamaica Plain Neighborhood Development Corporation	Anna Waldron	Director of Programs		
+ -	Private Sector	Brigham and Women's Hospital	Ronald Warner, MD	Primary Care Physician		

8a. Community Health Initiative

For Tier 2 and Tier 3 CHI Projects, is the the Applicant's CHNA / CHIP Advisory Board the same body that will serve as the CHI advisory committee as outlined in the Table 1 of the Determination of Need Community-Based Health Initiative Guideline (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-chi-planning.pdf)?

○ Yes ◉ No

For Tier 2 DON CHI Applicants: The CHI Advisory Committee is tasked with helping select DoN Health Priorities based on the CHNA / CHIP unless the Applicant is directed by DPH to conduct additional community engagement. If so, the advisory committee's role is to guide that additional work.

For Tier 3 DON CHI Applicants: The CHI Advisory Committee is to select DoN Health Priorities based on**, but not exclusive to,** the CHNA / CHIP. This includes the additional community engagement that must occur to develop the issue priorities.

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Municipal Staff	Boston Public Health Commis	Margaret Reid	Interim Chief of Staff		
	Education	Boston Public Schools	Ethan d'Ablemont Burnes	Principal - JP Manning Elementary		
	Housing	JPNDC	Anna Waldron	Director of Programs		
	Social Services	Hyde Park Food Bank	Jacqueline Cucchiara	Advisory Board Member		
	Planning + Transportation	Metropolitan Area Planning C	Barry Keppard	Director		
	Private Sector/ Business	Fresh Connect	Josh Trautwein	Co-Founder		
	Community Health Center	Brookside Community Health	Margaret (Mimi) Jolliffee	Executive Director		
	Community Based Organizations	Community Servings	Leigh Kalbacker	Director of Programs		
+ -	Additional municipal staff (such as elected officials, planning, etc.)	Boston Public Health Commis	Matt O'Malley	Councilor		
+ -	Education	Boston Public Schools	Maryka Lier	Assistant Director of Wellness Policy and Promotions		
+ -	Social Services	ETHOS	Raymond Santos	Executive Director		
+ -	Social Services	Hyde Park Community Physici	Ron Warner, MD	Physician		
+ -	Community-based organizations	YMCA of Greater Boston ...	Marion Kelly	Non Profit Manager		

9. Engaging the Community At Large

Thinking about the extent to which the community has been or currently is involved in the 2019 BWFH CHNA/CHIP , please choose one response for each engagement activity below. Please also check the box to the left to indicate whether that step is complete or not. (For definitions of each step, please see pages 12-14 in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

	Inform	Consult	Involve	Collaborate	Delegate	Community - Driven / -Led
☒ Assess Needs and Resources	○	○	○	◉	○	○
Please describe the engagement process employed during the "Assess Needs and Resources" phase.	Please see attached addendum.					
☒ Focus on What's Important	○	○	○	◉	○	○
Please describe the engagement process employed during the "Focus on What's Important" phase.	Please see attached addendum.					
☒ Choose Effective Policies and Programs	○	○	○	◉	○	○
Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.	Please see attached addendum.					
☒ Act on What's Important	○	○	○	◉	○	○
Please describe the engagement process employed during the "Act on What's Important" phase.	Please see attached addendum.					
☒ Evaluate Actions	○	○	○	◉	○	○
Please describe the engagement process employed during the "Evaluate Actions" phase.	Please see attached addendum.					

10. Representativeness

Approximately, how many community agencies are currently involved in 2019 BWFH CHNA/CHIP within the engagement of the community at large?

57 Agencies

Approximately, how many people were engaged in the process (please include team members from all relevant agencies and independent community members from the community at large)?

820 Individuals

Please describe the diversity of the people who have been engaged in the process both within the CHNA/CHIP Advisory Committee and the community at large. Explicitly describe how the process included diverse representation from different groups/individuals with varied gender, sexual orientation, race/ethnicity, disability status, international status and age. Please see page 10 and Appendix A of *the Community Engagement Standards for Community Health Planning Guideline* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf) for further explanation of this.

Both the Boston CHNA/CHIP Collaborative and the BWFH Community Health Needs Assessments ("CHNAs") included diverse representation from different groups/individuals with varied gender, sexual orientation, race/ethnicity, disability status and age. To maximize participation and ensure that diverse populations were engaged in the CHNA, the community survey was administered on-line and via hard copy in seven languages, including: English, Spanish, Portuguese, Haitian Creole, Chinese, Vietnamese, and Arabic.

Moreover, thirteen focus groups were held with diverse individuals, including:
• Female low-wage workers (e.g. housekeepers, child care workers, hotel service workers, etc.)
• Male low-wage workers (e.g. janitorial staff, construction, etc.)
• Seniors (ages 65+) with complex, challenging issues (e.g. homebound, medical complications)
• Residents who are housing insecure (no permanent address or close to eviction)
• Latino residents in East Boston (in Spanish)
• LGBTQ youth and young adults at risk of being homeless
• Immigrant parents of school age children (5-18 years)
• Survivors of violence; mothers who have been impacted by violence
• Parents who live in public housing in Dorchester
• Chinese residents living in Chinatown (in Chinese)
• Haitian residents living in Mattapan (in Haitian Creole)
• Residents in active substance use recovery
• Additional focus group with notes provided: Chinese residents living in Chinatown

In all, a total of 104 community residents participated in focus groups, representing 13 neighborhoods across the City of Boston. Nearly half of focus group participants identified as Black or African American (45%), a third of participants identified as Hispanic or Latino (34%), and 10% identified as White. The majority of participants identified as female (57%), 36% identified as male, and 7% identified as transgender or genderqueer. Fifteen community and social service organizations located throughout Boston assisted with recruiting participants and/or hosting focus groups.

Throughout the needs assessment process BWFH, as well as other Boston CHNA/CHIP Collaborative members sought ways to incorporate diverse individuals and ideas in this process.

Please describe the type of representation that was/is employed in the community engagement process and the rationale for that type of representation. For more information on types of representation and representativeness, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines (*http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf*)*. Please include descriptions of both the Advisory Board and the Community at large.

For the 2019 BWFH CHNA, staff used both a grass tops and grassroots approach. In regard to grass tops efforts, staff ensured that "varied and representative sectorial diversity were present to encourage innovation, build and enhance pre-existing work, provide sufficient representation and understand the levers by which population health could be improved." Consequently, many individuals from diverse groups were included in the overall strategy, data collection and engagement aspects of the CHNA, including school districts, public health departments, community-based organizations, clinical groups, private sector entities, municipal representatives, etc. By collaborating with these individuals from diverse groups, new perspectives were provided on all areas of the needs assessment processes.

Additionally, BWFH and the Boston CHNA/CHIP Collaborative also used a grassroots approach engaging the public whenever possible, but specifically in large public prioritization meetings (with over 100 people included) to determining the needs of the City of Boston and its various neighborhoods.

To your best estimate, of the people engaged in 2019 BWFH CHNA/CHIP approximately how many: Please indicate the number of individuals.

Number of people who reside in rural area	0
Number of people who reside in urban area	820
Number of people who reside in suburban area	0

11. Resource and Power Sharing

For more information on Power Sharing, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

By community partners, we mean agencies, organizations, tribal community, health departments, or other entities representing communities.

By Applicant partners, we mean the hospital / health care system applying for the approval of a DoN project

	Community Partners	Applicant Partners	Both	Don't Know	Not Applicable
Which partner hires personnel to support the community engagement activities?	○	◉	○	○	○
Who decides the strategic direction of the engagement process?	○	○	◉	○	○
Who decides how the financial resources to facilitate the engagement process are shared?	○	○	◉	○	○
Who decides which health outcomes will be measured to inform the process?	○	○	◉	○	○

12. Transparency

Please describe the efforts being made to ensure that the engagement process is transparent. For more information on transparency, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines*.

Focus groups, interviews and surveys were conducted with the community at large and publicized by the Boston CHNA/CHIP Collaborative and its members. As stated, surveys were translated into multiple languages and focus groups and interviews with non-English speaking residents were conducted in the common language of choice. Community focus groups were open to the public and had childcare, food and translation services available to reduce barriers to attending.

13. Formal Agreements

Does / did the 2019 BWFH CHNA/CHIP have written formal agreements such as a Memorandum of Agreement/ Understanding (MOU) or Agency Resolution?

◉ Yes, there are written formal agreements ○ No, there are no written formal agreements

Did decision making through the engagement process involve a verbal agreement between partners?

○ Yes, there are verbal agreements ◉ No, there are no verbal agreements

14. Formal Agreement Specifics

Thinking about your MOU or other formal agreement(s), does it include any provisions or language about:

	Yes	No	Don't Know	Doesn't Apply
Distribution of funds	○	◉	○	○
Written Objectives	◉	○	○	○
Clear Expectations for Partners' Roles	◉	○	○	○
Clear Decision Making Process (e.g. Consensus vs. Voting	◉	○	○	○
Conflict resolution	○	◉	○	○
Conflict of Interest Paperwork	◉	○	○	○

15. Document Ready for Filing

When the document is complete click on "document is ready to file". This will lock in the responses and date and time stamp the form. To make changes to the document un-check the "document is ready to file" box. Edit document then lock file and submit Keep a copy for your records. Click on the "Save" button at the bottom of the page.

To submit the application electronically, click on the"E-mail submission to DPH" button.

This document is ready to file: ☒

Date/time Stamp: 01/12/2021 11:58 am

E-mail submission to DPH

E-mail submission to Stakeholders and CHI Advisory Board

When providing the Stakeholder Assessment Forms to the community advisory board members(individuals identified in Section 8 of this form), please include the following information in your correspondence with them. This will aid in their ability to complete the form:

A) Community Engagement Process: 2019 BWFH CHNA/CHIP

B) Applicant: Mass General Brigham Incorporated

C) A link to the DoN CHI Stakeholder Assessment

Addendum: BWFH CHNA/CHIP Self-Assessment Form

Section 9: Engaging the Community at Large – Thinking about the extent to which the community has been or currently is involved in the 2019 BWFH CHNA/CHIP, please choose one response for each engagement activity below. Please also check the box to the left to indicate whether that step is complete or not. (For definitions of each step, please see pages 12-14 in the Community Engagement Standards for Community Health Planning Guidelines http://www.mass.gov/eohhs/docs/dph/quality/don/

Background Information

Brigham and Women's Faulkner Hospital ("BWFH") participated in the Boston CHNA/CHIP Collaborative to facilitate its community health needs assessment ("CHNA") and community health improvement plan ("CHIP"). The Boston CHNA-CHIP Collaborative (the "Collaborative") comprises a number of stakeholders, including nine teaching hospitals, community organizations, health centers and the Boston Public Health Commission. This group was formed to undertake the first city-wide CHNA and CHIP for the City of Boston. This innovative collaborative aimed to achieve the benefits of broad partnership around a Boston-based CHNA and CHIP, including deeper engagement of key community and organizational stakeholders; enhanced alignment of defined priorities and strategies; maximum allocation of resources; coordination of implementation strategies for collective impact and a healthier Boston.

To carry out robust CHNA and CHIP processes, the Collaborative created a formal administrative infrastructure with a larger Steering Committee comprised of leadership from each participating organization. The Collaborative's Steering Committee provided strategic direction and policy for the CHNA-CHIP processes. Moreover, the Steering Committee managed work plans and the accountability of all work groups. The Operations Committee was charged with addressing issues within the CHNA-CHIP processes that required immediate attention and providing direction and oversight to administrative staff. The Collaborative also formed three sub-committees/work groups to the Steering Committee ("work groups"), including:

- Community Engagement Work Group: This work group was responsible for developing a sound community engagement strategy to assess the needs and resources of the various neighborhoods within Boston. This work group also was tasked with providing input on primary data collection methods, as well as providing support and logistics for primary data collection.
- Secondary Data Work Group: This work group was tasked with providing guidance on a secondary data approaches and indicators for the CHNA. This group also was responsible for fostering connections with key networks and groups to provide relevant data for the CHNA.
- Implementation Planning (CHIP) Work Group: Members of this work group were responsible for working with Health Resources in Action ("HRiA"), the Collaborative's third party evaluator and convener for the CHNA, to develop an overall CHIP that chose effective policies and procedures and act on the health priorities that are important for Boston.

To ensure proper oversight of these processes, BWFH's Community Engagement Advisory Committee ("CEAC") was kept abreast of developments around the Boston CHNA-CHIP Collaborative's activities, strategies and work group progress by Tracy Sylven, the Director of Community Health & Wellness at BWFH, who also serves on the Boston CHNA-CHIP Steering Committee.

The vision of the Boston CHNA-CHIP Collaborative is “A healthy Boston with strong communities, connected residents and organizations, coordinated initiatives, and where every individual has an equitable opportunity to live a healthy life.” To implement this vision, the Collaborative’s Mission is “To achieve sustainable positive change in the health of Boston by collaborating with communities, sharing, knowledge, aligning resources and addressing root causes of health inequities.” The Collaborative achieves this mission by engaging with the community to:

- Conduct a joint CHNA for Boston every three years discussing the social, economic, and health needs and assets in the community;
- Develop a collaborative CHIP for Boston to address issues identified as top priority and identify opportunities for shared investment;
- Implement efforts together (where aligned) and track individual organizational activities where appropriate;
- Monitor and evaluate CHIP strategies for progress and impact to continuously inform implementation;
- Communicate about the process and results to organizational leadership, stakeholders, and the public throughout the assessment, planning and implementation time period;
- Monitor and evaluate Collaborative structure and processes to continuously improve effectiveness and results.

Given these goals, as well as the required structure of the CHNA-CHIP processes outlined in the Department of Public Health’s Community Engagement Standards for Community Health Planning Guideline, the Collaborative’s CHNA accessed the needs and resources of Boston’s neighborhoods and focused on what’s important through a prioritization process. Additionally, the CHIP allows the Collaborative to choose effective policies and programs in terms of health priorities and act on what’s important by implementing programs that address the DoN health priorities and the Executive Office of Health and Human Services (“EOHHS”) focus areas. BWFH also conducted additional engagement activities outside of the Boston CHNA/CHIP processes to ensure all of its neighborhoods were adequately represented in the needs assessment.

Access the Needs and Resources:

To access the needs and resources within BWFH’s priority communities of Hyde Park, Jamaica Plain, Roslindale and West Roxbury – BWFH and the Boston CHNA/CHIP Collaborative carried out the following activities:

Engagement and Outreach Strategy

As noted, two work groups—the Community Engagement Work Group and Secondary Data Work Group—provided input and support throughout the CHNA process. The Community Engagement group identified the goals of the community engagement process as 1) to ensure that diverse community voices are represented throughout the CHNA-CHIP process; and 2) to involve community members and stakeholders in the development and implementation of the CHNA-CHIP process to achieve shared ownership of the process and product.

During the CHNA process, the Community Engagement Work Group was instrumental in developing the goals and methods for the collection of the primary data and the community engagement approach for the CHNA. This Work Group identified topics to explore for data

collection and population groups that were highest priority, reaching out to community groups and residents for engagement, providing feedback on the survey instrument and focus group and interview guides, and pilot-testing the survey instrument. Members met seven times in a series of virtual and in-person meetings over eight months and were also engaged by email and telephone between meetings to provide feedback throughout the process.

In addition to providing guidance and input on methods, members played an integral role in data collection efforts. Work Group members volunteered to conduct interviews, recruit for focus groups, facilitate focus groups, and administer surveys in-person and via social media and email. As part of this effort, orientation sessions were offered to work group member volunteers to provide an overview of data collection protocols, including logistics, roles, and best practices.

The Secondary Data Work Group members identified the goals of the secondary data as: 1) to examine inequities by population group: by race/ethnicity, gender, age, sexual orientation, socioeconomic status (SES), etc.; 2) to provide a baseline for community health level data to track over time; and 3) to present trends to identify emerging issues or whether there have been changes over time for issues of concern. The Secondary Data Work group approach to the secondary data focused on diving deeply into topic areas identified from previous assessments and frame the discussion around the social determinants of health.

The Secondary Data Work Group was instrumental in developing and providing feedback on list of data indicators, identifying potential data sources, and making connections to those sources. Members met six times in a series of virtual and in-person meetings over eight months and were also engaged by email and telephone between meetings to provide feedback throughout the process. The Secondary Data Work Group and Community Engagement Work Group met collaboratively in October 2018 to ensure alignment across methods, and again in late April 2019 for a large-group synthesis of preliminary data. This April 2019 three-hour “Data Day” meeting provided an opportunity to reflect on preliminary data by topic area and collaboratively interpret preliminary data in the form of data placements to inform the draft CHNA report.
Secondary Data: Review of Existing Secondary Data

Secondary data are data that have already been collected for another purpose. Examining secondary utilizes data that we already have to understand trends, provide a baseline, and identify differences by sub-groups. It also helps in guiding where primary data collection can dive deeper or fill in gaps. While the secondary data for this CHNA cover a wide range of issues, there is a particular focus to dive more deeply into areas already identified in previous assessments (e.g., housing, transportation, income, employment, education, mental health, substance, chronic conditions and their risk factors, violence and trauma, and access to services) as well as frame the discussion comprehensively around the social determinants of health.

Boston CHNA Community Survey

A community survey was developed and administered over six weeks in February–March 2019. The survey focused on a range issues related to the social determinants of health, community perceptions, and access to care and was developed with extensive input from the Community Engagement Work Group and guided by existing validated questions from the field or used in other studies. The survey was pilot-tested in late January 2019, and the final instrument was launched in February 1, 2019 with wider dissemination starting the following week. The survey was administered on-line and via hard copy in seven languages (English, Spanish, Portuguese, Haitian Creole, Chinese, Vietnamese, and Arabic). Extensive outreach was conducted by

Collaborative members to disseminate the survey via social media, institutional e-newsletters, e-mails to large networks, waiting rooms, 13 Boston Public Library neighborhood branches, community events, and large apartment buildings. Additionally, Healthy Community Champions (an initiative of grassroots ambassadors) conducted targeted survey administration in specific neighborhoods. The final sample of the CHNA Community Survey comprised 2,404 respondents who were Boston residents. Table 1 provides the breakdown of those respondents by self-identified neighborhood of residence and compares the percent distribution of that neighborhood in Boston. Of BWFH's priority neighborhoods of Hyde Park, Jamaica Plain, Roslindale and West Roxbury, there were 558 respondents comprising 23.1% of the total respondents.

Table 1. Boston CHNA Survey Respondents Distribution by Priority Neighborhood Compared to % of Population in Boston

Neighborhood	# of Survey Respondents (N=2,404)	% of Survey Respondents	% of Population in Boston†
Hyde Park	101	4.2%	5.0%
Jamaica Plain	203	8.4%	5.9%
Roslindale	157	6.5%	4.9%
West Roxbury	97	4.0%	4.3%

DATA SOURCE: Boston CHNA Survey, administered by HRiA Consulting

Focus Groups and Key Informant Interviews

Focus Groups

Thirteen focus groups were conducted with specific populations of interest: 12 focus groups conducted specifically for the collaborative CHNA and one additional focus group conducted by work group members who submitted notes for the CHNA. Focus groups were 90-minute semi-structured conversations with approximately 8-12 participants per group and aimed to delve deeply into community's needs, strengths, and opportunities for the future. Focus groups were conducted with the following populations:

- Female low-wage workers (e.g. housekeepers, childcare workers, hotel service workers, etc.)
- Male low-wage workers (e.g. janitorial staff, construction, etc.)
- Seniors (ages 65+) with complex, challenging issues (e.g. homebound, medical complications)
- Residents who are housing insecure (no permanent address or close to eviction)
- Latino residents in East Boston (in Spanish)
- LGBTQ youth and young adults at risk of being homeless
- Immigrant parents of school age children (5-18 years)
- Survivors of violence; mothers who have been impacted by violence
- Parents who live in public housing in Dorchester
- Chinese residents living in Chinatown (in Chinese)
- Haitian residents living in Mattapan (in Haitian Creole)
- Residents in active substance use recovery
- Additional focus group with notes provided: Chinese residents living in Chinatown

A total of 104 community residents participated in focus groups, representing 13 neighborhoods across the city. Nearly half of focus group participants identified as Black or African American

(45%), a third of participants identified as Hispanic or Latino (34%), and 10% identified as White. The majority of participants identified as female (57%), 36% identified as male, and 7% identified as transgender or genderqueer. Fifteen community and social service organizations located throughout Boston assisted with recruiting participants and/or hosting focus groups.

Key Informant Interviews

A total of 45 key informant interviews were completed, 6 of which were additional interviews submitted by Work Group volunteers. Additionally, 15 interview surveys were done by BWFH to gain more insight into and perspective on the hospital's priority communities of Hyde Park, Jamaica Plain, Roslindale and West Roxbury. Interviews were semi-structured discussions and surveys that engaged institutional, organizational and community leaders and front-line staff across sectors, and for BWFH, interviews were solicited from our Community Engagement and Advisory Committee. Discussions explored interviewees' experiences of addressing community needs and opportunities for future alignment, coordination and expansion of services, initiatives and policies. Sectors represented in these interviews included public health, health care, housing and homelessness, transportation, community development, faith, education, public safety, environmental justice, government, workforce development, social services, food insecurity and business organizational staff that work with specific population such as youth, seniors, disabled, LGBTQ, and immigrants.

Accordingly, BWFH met the "Collaborate" level of engagement for the Assess Needs and Resources component of engagement by conducting community meetings, focus groups, key informant interviews and providing community surveys all which seek to consensus build and may allow for more participatory research.

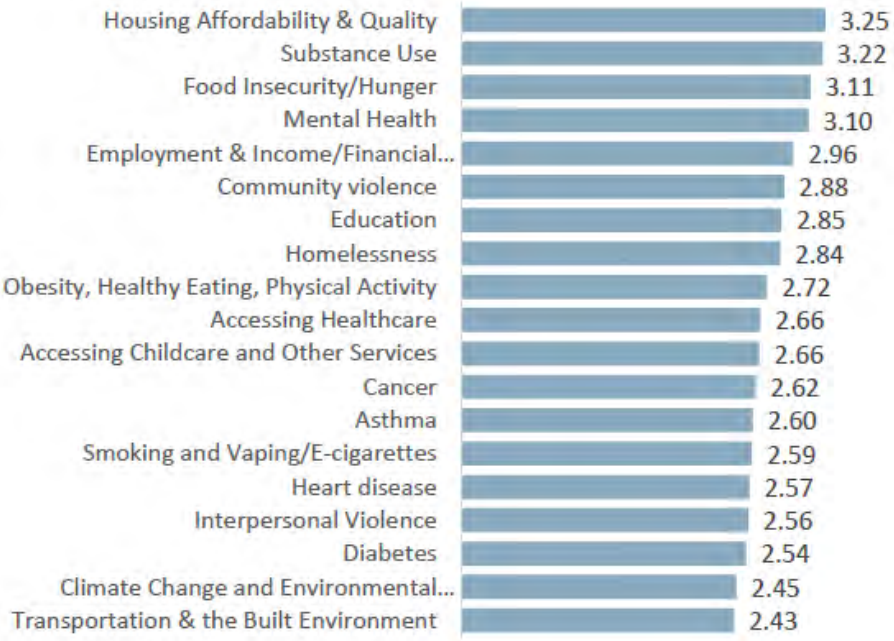
Focus on What's Important:

In April of 2019, the CHIP work group – comprised of representatives from hospitals, health centers, community organizations and the Boston Public Health Commission – developed prioritization criteria and an engagement strategy for identifying two to four priority needs for the subsequent CHIP. Criteria were selected to assess the magnitude of community issues and their impact on the most disadvantaged population groups. The criteria and guiding questions selected are below:

- Burden: How much does this issue affect health in Boston?
- Equity: Will addressing this issue substantially benefit those most in need?
- Impact: Can working on this issue achieve both short-term and long-term change?
- Feasibility: Is it possible to address this issue given infrastructure, capacity and political will
- Collaboration: Are there existing groups across sectors willing to work together on this issue?

The prioritization process was multi-stepped and aimed to be inclusive, participatory and data-driven. During May of 2019, several steps were taken to identify the final priorities for the planning process. First, a 16-page draft Executive Summary of the CHNA report was sent to over 150 organizations and individuals along with an online survey. The online survey included 19 key issues that emerged from the draft CHNA and participants were asked to rate each issue against each of the five criteria (burden, equity, impact, feasibility and collaboration) from 1 to 4 with 1=low, 2=medium, 3=high and 4=very high. Figure 1 indicates the average score across the five criteria for the issues rated.

Figure 1. Rating Tool Average Score of 1=Low, 2=Medium, 3=High, 4=Very High across Five Criteria (Burden, Equity, Impact, Feasibility and Collaboration), (N=38 organizations), 2019



Concurrently in early to mid-May, numerous small group discussions occurred throughout the City of Boston with community residents, organizational staff and other stakeholders. These discussions included a data presentation of the draft CHNA key findings, overview of the 19 key issues that emerged and the five criteria used for prioritization, as well as an interactive discussion with participants on what priorities rose to the top for them based on these criteria. A number of priorities commonly rose to the top in these qualitative discussions:

- Housing – specific concerns related to affordability, displacement, gentrification and homelessness
- Employment and income – specific concerns related to job opportunities and economic security; important to focus on upstream inequities
- Mental health – critical to note that many mental health issues co-occurring with substance use; concerns around availability of services and barriers to accessing services
- Substance use – critical to note that many substance use disorders are co-occurring with mental health issues; specific concerns around opioids, alcohol and youth smoking
- Violence and trauma – specific concerns related to community safety and the impact of trauma on mental health
- Chronic conditions – specific concerns related to obesity, healthy food access, cancer and diabetes
- Food insecurity – specific concerns around economic insecurity and the connections to obesity

The results from the online prioritization rating survey and small group discussions were used to refine the priority list from 19 topics to the following nine potential priorities:

- Housing – Affordability, Quality and Homelessness
- Food Insecurity/Hunger
- Employment and Income/Financial Insecurity
- Education
- Substance Use
- Mental Health
- Community Violence
- Obesity, Healthy Eating and Physical Activity
- Accessing Healthcare, Childcare and Other Services

The next step in the prioritization process was a large in-person meeting for further engagement and refinement in the prioritization process. On May 29, 2019, over 100 community residents and organizational staff across a multitude of sectors attended a three-hour evening meeting in Roxbury. This meeting included a brief data presentation on the key findings from the draft CHNA, a description of the prioritization process thus far and the refined set of nine priorities, small group discussions and a large group voting process. During the voting process, each participant received four dots, to vote for four issues among the nine (one dot per issue). The results of the dot voting can be found in Table 2.

Table 2. Initial Results of May 29 Prioritization Meeting Dot Voting Process

Topic	Total Votes
Housing – Affordability, Quality and Homelessness	66
Employment and Income/Financial Insecurity	63
Mental Health	48
Access to Healthcare, Childcare and Other Services	32
Education	31
Food Insecurity/Hunger	26
Substance Use	20
Community Violence	15
Obesity, Healthy Eating and Physical Activity	10
Other	1

The Boston CHNA-CHIP Collaborative Steering Committee met to discuss the identified priorities and to brainstorm a cross-cutting/overarching focus to frame future planning. From that discussion, the Steering Committee recommended renaming the Employment, Income and Education priority to be Financial Security and Mobility to encapsulate how employment, income, education and workforce training are all critical and inter-related factors that can contribute to financial security.

Additionally, there was a strong movement to have a cross-cutting and overarching focus for the plan to guide this collaborative work. Discussions centered on an overarching focus being racial equity to recognize that institutional racism and structural inequities are what drive the health disparities we see around race, ethnicity and language in the city.

Consequently, BWFH met the “Collaborate” level of engagement for the Focus on What’s Important element of engagement by conducting prioritization meetings.

Choose Effective Policies and Programs and Act on What's Important:

Based on the selected health priorities, the Collaborative developed a CHIP for BWFH. The CHIP includes priority areas for action with aspirational goals, measurable objectives, strategies to address the goals, and metrics to define success. The CHIP aims to identify opportunities for partnership, new ideas, and leveraging existing efforts to enhance collective impact. Priority areas are based on consensus building and participatory decision making.

For this phase, BWFH reached the "Collaborate" level of engagement.

Evaluate Actions:

The CEAC will revisit the goals of the CHIP annually to evaluate performance.

For this phase, BWFH will reach the "Collaborate" level of engagement.

Section 10: Representativeness – Approximately, how many people were engaged in the process (please include team members from all relevant agencies and independent community members from the community at large)?

The final sample of the CHNA Community Survey for the overall Boston CHNA/CHIP Collaborative had 2,404 respondents who were Boston residents. Of these individuals, approximately 558 survey respondents were from BWFH's priority neighborhoods. The 820 individuals listed on the CHNA/CHIP Self-Assessment Form include these 558 residents, as well as 104 community members that participated in focus groups, 45 individuals engaged for key informant interviews, the 15 additional individuals that BWFH engaged in survey interviews and the 98 people outlined in Appendices A, B and C of the BWFH CHNA.

Appendix 5C

Community Engagement Plan Form and Addendum

Massachusetts Department of Public Health
Determination of Need
Community Health Initiative
Community Engagement Plan

Version: 8-1-2017

The Community Engagement Plan is intended for those Applicants with CHIs that require further engagement above and beyond the regular and routine CHNA/CHIP processes. For further guidance, please see the *Community Engagement Standards for Community Health Planning Guidelines* and its appendices for clarification around any of the following terms and questions.

All questions in the form, unless otherwise stated, must be completed.

Approximate DoN Application Date: 01/21/2021

DoN Application Type: Hospital/Clinic Substantial Capital Expenditure

Applicant Name: Mass General Brigham Incorporated

What CHI Tier is the project? ○ Tier 1 ○ Tier 2 ◉ Tier 3

1. Community Engagement Contact Person

Contact Person: Tracy Mangini Sylven, CHHC, MCHES

Title: Director, Community Health & Wellness

Mailing Address: Brigham and Women's Faulkner Hospital - 1153 Centre St

City: Boston

State: Massachusetts

Zip Code: 02130

Phone: 6179837451

Ext:

E-mail: tsylven@bwh.harvard.edu

2. Name of CHI Engagement Process

Please indicate what community engagement process (e.g. the name DoN CHI Initiative associated with the CHI amount) the following form relates to. This will be use as a point of reference for the following questions.
(please limit the name to the following field length as this will be used throughout this form):

BWFH DoN CHI 2020

3. CHI Engagement Process Overview and Synergies with Broader CHNA /CHIP

Please briefly describe your overall plans for the CHI engagement process and specific how this effort that will build off of the CHNA / CHIP community engagement process as is stated in the *DoN Community-Based Health Initiative Planning Guideline*.

See the attached Addendum.

4. CHI Advisory Committee

In the CHNA/CHIP Self Assessment, you listed (or will list) the community partners that will be involved in the CHI Advisory Committee to guide the BWFH DoN CHI 2020 . As a reminder:

For Tier 2 DON CHI Applicants: The CHI Advisory Committee is tasked with helping select DoN Health Priorities based on the CHNA / CHIP unless the Applicant is directed by DPH to conduct additional community engagement. If so, the advisory committee's role is to guide that additional work.

For Tier 3 DON CHI Applicants: The CHI Advisory Committee is to select DoN Health Priorities based on**, but not exclusive to,** the CHNA / CHIP. This includes the additional community engagement that must occur to develop the issue priorities.

5. Focus Communities for CHI Engagement

Within the BWFH DoN CHI 2020 , please specify the target community(ies), please consider the community(ies) represented in the CHNA / CHIP processes where the Applicant is involved.

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
+ -	Boston	Hyde Park
+ -	Jamaica Plain	
+ -	Roslindale	
+ -	West Roxbury	

6. Reducing Barriers

Identify the resources needed to reduce participation barriers (e.g., translation, interpreters, child care, transportation, stipend). For more information on participation barriers that could exist, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf

BWFH staff reviewed the Community Planning Toolkit to understand the barriers and design issues that need to be considered when engaging community members. Based on this evaluation, staff should:

• Overcome barriers. By working with community partners, BWFH will mitigate barriers to participation in the RFP processes through the following approaches: translation of the RFP Announcement into appropriate languages, based on community need, for inclusion in community newspapers (as noted in question #11).
• Where needed, provide interpreters in appropriate community languages as part of the evaluation process.
• Ensure access for individuals with disabilities at meetings and gatherings associated with the CHI and community engagement.
• For the evaluation process, BWFH staff will confer with the CEAC to determine the range of options for evaluation processes.
• Develop a pre-assessment regarding location and time of any gatherings to maximize participation of relevant community members/ groups. Additionally, BWFH will provide food at these gatherings and ensure a family friendly environment that is responsive to the needs of young people and parents/caregivers in the area.

7. Communication

Identify the communication channels that will be used to increase awareness of this project or activity:

BWFH is committed to a transparent process and ongoing communication to ensure stakeholders are informed, engaged and have opportunities to provide feedback and participate as partners to shape the hospital's strategy. BWFH staff anticipate that the CHI processes will provide an opportunity to deepen community understanding of the impact of the social determinants of health and we will take every opportunity to build these messages into communication processes. The communication channels that will be utilized are described in detail in question #11 below and include broad email communication and a dedicated CHI email inbox.

8. Build Leadership Capacity

Are there opportunities with this project or activity to build community leadership capacity? (•) Yes ( ) No

If yes, please describe how.

Throughout each aspect of the CHI processes, BWFH staff and CEAC, in tandem with evaluation staff, will determine what these opportunities may be and seek to work with community partners to bolster their leadership capacity. Given the procurement and evaluation aspects of the CHI, there are potential opportunities for building community leadership capacity. During the procurement phase, the Allocation Committee members will be directly involved in all aspects of the solicitation process. This experience builds their capacity in the decision-making process and engages them as equal and valued partners in the effort.

9. Evaluation

Identify the mechanisms that will be used to evaluate the planning process, engagement outcome, and partner perception and experience:

BWFH will work with an evaluator to identify appropriate outcome and process metrics to evaluate the planning process, engagement, partner perception and experience, as well as the impact of the CHI funding.

Some of the evaluation work will include surveying CEAC members based upon a survey tool developed by the UMass Donahue Institute around their perceptions of the process.

10. Reporting

Identify the mechanisms that will be used for reporting the outcomes of this project or activity to different groups within the community:

Residents of Color

BWFH staff will submit press releases to local newspapers that reach communities of color, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Additionally, BWFH staff will identify and recruit champions in communities of color to to serve as ambassadors and repost information to their networks.

Residents who speak a primary language other than English

BWFH staff will submit press releases to local newspapers that reach non-English speaking residents, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Additionally, BWFH staff will identify and recruit champions that speak English as a second language to to serve as ambassadors and repost information to their networks.

Aging population

BWFH staff will submit information to newsletters that reach seniors, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by older adults. Additionally, staff will identify and recruit senior champions to serve as ambassadors and repost information to their networks. Staff also will ask local Senior Centers to post information to their distribution lists.

Youth

BWFH staff will post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Additionally, staff will ask youth champions to repost information to their networks. BWFH staff also will work with schools to ensure appropriate information is conveyed to students.

Residents Living with Disabilities

BWFH staff will submit information to newsletters that reach residents living with disabilities, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. Staff also will ensure organizations serving residents living with disabilities are on the distribution lists to receive updates.

GLBTQ Community

BWFH staff will submit information to newsletters and newspapers that reach members of the LGBTQ community, as well as post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups. BWFH staff also will ensure organizations serving members of the LGBTQ community are on the distribution lists to receive updates.

Residents with Low Incomes

BWFH will submit updates to community groups that work with residents that are underserved and/or considered low income. BWFH also will post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups.

Other Residents

Ms. Sylven will discuss with the CEAC, any additional groups that should be aware of the project outcomes. Once these groups are identified, she will submit press releases to local newspapers and send updates to community groups that work with the noted groups. Ms. Sylven also will post information on Facebook, Instagram, coalition websites, and community pages that are viewed by diverse groups.

11. Engaging the Community At Large

Which of the stages of a CHNA/CHIP process will the BWFH DoN CHI 2020 focus on? Please describe specific activities within each stage and what level the community will be engaged during the BWFH DoN CHI 2020 . While the step(s) you focus on are dependent upon your specific community engagement needs as a result of your previous CHNA/CHIP work, for tier 3 applicants the CHI community engagement process must at a minimum include the "Focus on What's Important," "Choose Effective Policies and Programs" and "Act on What's Important" stages. (For definitions of each step, please see pages 12-14 in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

	Inform	Consult	Involve	Collaborate	Delegate	Community - Driven / -Led
☒ Assess Needs and Resources	○	○	○	◉	○	○
Please describe the engagement process employed during the "Assess Needs and Resources" phase.	See the attached Addendum.					
☒ Focus on What's Important	○	○	○	◉	○	○
Please describe the engagement process employed during the "Focus on What's Important" phase.	See the attached Addendum.					
☒ Choose Effective Policies and Programs	○	○	○	◉	○	○
Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.	See the attached Addendum.					
☒ Act on What's Important	○	○	◉	○	○	○
Please describe the engagement process employed during the "Act on What's Important" phase.	See the attached Addendum.					
☒ Evaluate Actions	○	◉	○	○	○	○
Please describe the engagement process employed during the "Evaluate Actions" phase.	See the attached Addendum.					

12. Document Ready for Filing

When the document is complete, click on "document is ready to file". This will lock in the responses, and Date/Time stamp the form. To make changes to the document, un-check the "document is ready to file" box. Edit the document, then lock file and submit. Keep a copy for your records. Click on the "Save" button at the bottom of the page.

To submit the application electronically, click on the"E-mail submission to DPH" button.

This document is ready to file: ☐ Date/Time Stamp:

E-mail submission to DPH

Addendum: BWFH Community Engagement Plan Form

Responses to Questions 3 and 11 from the Community Engagement Plan Form

The Community Health Initiative ("CHI") process and community engagement for the proposed Determination of Need ("DoN") are directed by Tracy Sylven, Director of Community Health & Wellness at Brigham and Women's Faulkner Hospital ("BWFH"). Ms. Sylven works with the BWFH Community Engagement and Advisory Committee ("CEAC") to provide oversight to community health needs assessment and DoN CHI processes. Below are details of BWFH's plans for engagement on the CHI.

1. Development of a DoN – CEAC: The BWFH CEAC provides oversight of the Community Health Needs Assessment ("CHNA") processes, advising on DoN community engagement processes, as well as health priorities and strategies. The CEAC is comprised of individuals representing the constituencies outlined in the Department of Public Health's Community Engagement Standards for Community Health Planning Guideline. Given their various expertise, CEAC members have an understanding of the barriers to care that many local residents face, as well as the necessary social supports that are needed to ensure each resident has equal access to healthcare and other support services. The CEAC is tasked with selecting the health priorities and strategies for the CHI based on key themes from the 2019 CHNA process, as well as feedback from engaged residents and key informants. It is anticipated that the CEAC will meet two to three times to select DoN health priorities (using the 2019 CHNA as the basis for all decisions). Once health priority and strategy decisions have been made, the CEAC will engage in a conflict of interest process to determine which members of the group are eligible for participation in the Allocation Committee. Post-approval of the Health Priorities and Strategies Form, the Allocation Committee develops a request for proposal ("RFP"), so the distribution of CHI funding may occur and the allocation of all CHI monies. The CEAC will also explore other transparent means of CHI funding distribution.

2. Development of a DoN Allocation Committee: As discussed, this Committee is charged with facilitating transparent RFP processes (or an equivalent transparent process) and allocating funds to selected organizations.

3. **Assessing Needs and Resources:** The CHNA/CHIP Self-Assessment Form and the Addendum narrative outline the robust needs assessment process that BWFH conducted in 2019 to understand the needs and resources of its residents. Please see the CHNA/CHIP Self-Assessment Form and the Addendum narrative for more information.

For this phase, BWFH reached the "Collaborate" level of engagement.

4. **Focusing on What's Important and the Choosing Effective Policies and Procedures:** BWFH participated in the Boston CHNA/CHIP Collaborative prioritization sessions and these processes informed these two aspects of engagement. Please see the CHNA/CHIP Self-Assessment Form and the Addendum narrative for more information.

For this phase, BWFH reached the "Collaborate" level of engagement.

5. **Act on What's Important:** The Allocation Committee will develop transparent funding and allocation processes. The Allocation Committee is tasked with developing a sound solicitation process (or an equivalent, transparent process) including a Bidders Conference that allows potential grantees to inquire about questions on the request for proposal ("RFP"). Additionally,

the Allocation Committee will ensure that technical assistance resources are available during the RFP process, so as many applicants as possible may submit viable proposals. The Allocation Committee also will ensure there are no conflicts of interest with the distribution of funds. Finally, the Allocation Committee will explore other funding mechanisms, such as anchor investments, mini-grants, designated funds, etc.

For this phase, BWFH will reach the “Involve” level of engagement.

6. **Evaluate Actions:** For this CHI, BWFH and the CEAC will select a third-party evaluator to work with on this aspect of engagement. This evaluator will be tasked with monitoring and evaluating the community partners on an ongoing basis and reporting progress on activities. Post-review, these reports will be submitted to the Department of Public Health.

For this phase, BWFH will reach the “Consult” level of engagement.

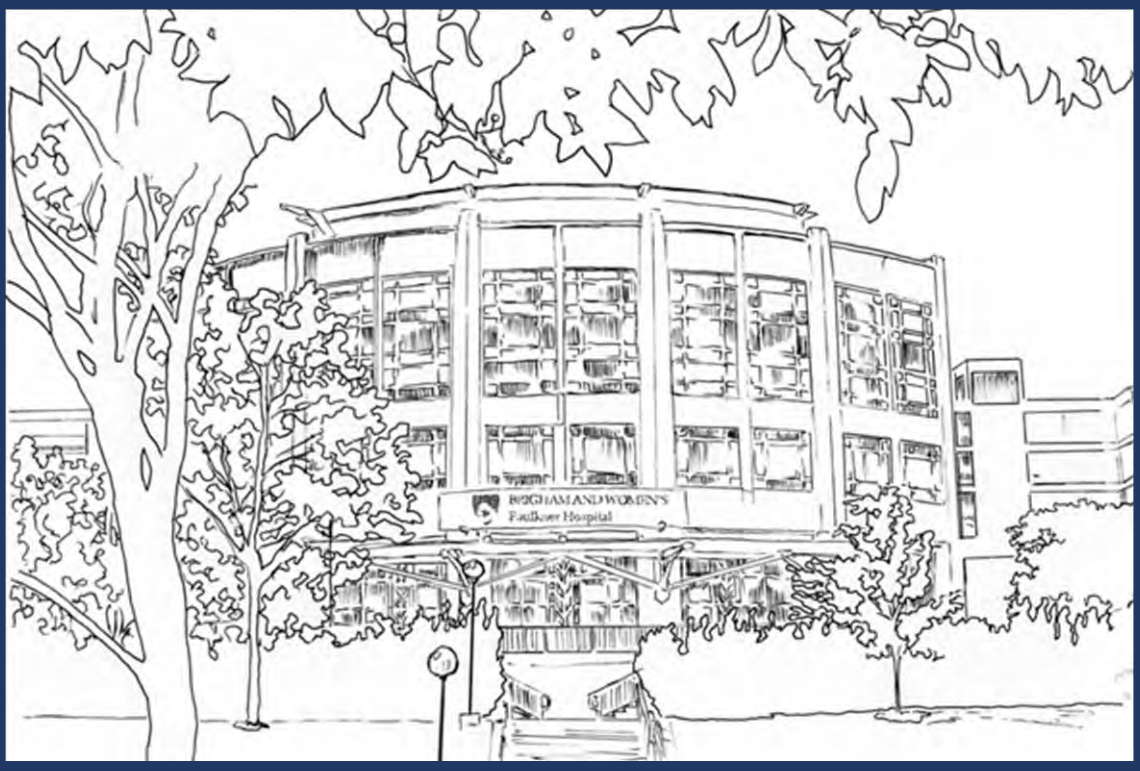
Appendix 5D

Community Health Needs Assessment

BRIGHAM HEALTH

BWH BRIGHAM AND WOMEN'S Faulkner Hospital

2019 COMMUNITY HEALTH NEEDS ASSESSMENT



Boston CHNA-CHIP Collaborative

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2019 Community Health Needs Assessment

BACKGROUND

Overview of Boston CHNA-CHIP Collaborative
The Boston CHNA-CHIP Collaborative is an initiative created by several stakeholders—community organizations, health centers, hospitals and the Boston Public Health Commission—formed to undertake the first large-scale collaborative city-wide Community Health Needs Assessment (CHNA) and Community Health Improvement Plan (CHIP) with wide-ranging partnership. While community health assessment and planning work have been long-standing endeavors among individual organizations, the Boston CHNA-CHIP Collaborative aligns and coordinates resources between multi-sector stakeholders across Boston (Learn more about the Collaborative at www.bostonchna.org).

Prior to launching the first joint community health needs assessment and planning process, the Collaborative undertook an 8-month planning process to define its scope (mission, vision, values, etc.), identify needs for stakeholder representation to outreach to other collaborative partners, define roles and relationships among collaborative partners, establish a recommended governance structure, design an organizational structure and outline a budget and member contributions.

The Collaborative's **vision** is *a healthy Boston with strong communities, connected residents and organizations, coordinated initiatives and where every individual has an equitable opportunity to live a healthy life.* The Collaborative's **mission** is to achieve sustainable positive change in the health of Boston by collaborating with communities, sharing knowledge, aligning resources and addressing root causes of health inequities. The Collaborative's **goals** are to achieve this mission by engaging with the community to:

- Conduct a joint, participatory community health needs assessment (CHNA) for Boston every 3 years discussing the social, economic and health needs and assets in the community.
- Develop a collaborative community health improvement plan (CHIP) for Boston to address issues identified as top priority and identify opportunities for shared investment.
- Implement efforts together where aligned and track individual organizational activities related to those aligned efforts.
- Monitor and evaluate CHIP strategies for progress and impact to continuously inform implementation.
- Communicate about the process and results to organizational leadership, stakeholders and the public throughout the assessment, planning and implementation time period.

The work of the Collaborative is guided by the following **shared values:**

- **Equity**: Focus on inequities that affect health with an emphasis on race and ethnicity;
- **Inclusion**: Engage diverse communities and respect diverse viewpoints;
- **Data driven**: Be systematic in its process and employ evidence-informed strategies to maximize impact;
- **Innovative**: Implement approaches that embrace continuous improvement, creativity and change;
- **Integrity**: Carry out our work with transparency, responsibility and accountability;
- **Partnership**: Build trusting and collaborative relationships between communities and organizations to foster sustainable, community-centered change.

Brigham and Women's Faulkner Hospital Community Health and Wellness Mission Statement

In addition to the work of the Collaborative, Brigham and Women's Faulkner Hospital (BWFH), the Board of Directors, the Community Engagement and Advisory Committee, hospital administration and the larger hospital community are committed to BWFH's community health and wellness mission, which is:

- To evaluate the health status of service area neighborhoods of West Roxbury, Roslindale, Hyde Park and Jamaica Plain and respond to identified needs.
- To pay particular attention to social determinates of health issues affecting children, the elderly, women and diverse populations who may experience health disparities, among others.
- To seek community participation in and feedback about our community health efforts, by involving community members in the hospital's planning, implementation and evaluation processes.
- To engage in meaningful, active collaboration with a broad range of community residents, schools, service organizations, businesses, government agencies and others to stay abreast of community needs, and to pool knowledge and resources in addressing those needs.

Community Health Needs Assessment and Community Health Improvement Plan

This report is from the Boston Collaborative Community Health Needs Assessment (CHNA), with supplementary data and information for the BWFH priority neighborhoods of Hyde Park, Jamaica Plain, Roslindale and West Roxbury. All qualitative and quantitative data collection was conducted between August 2018 and June 2019 and will inform discussions and priority areas for the upcoming CHIP. Figure 1 provides an overview of the CHNA-CHIP process.

In September 2019, along with BWFH Leadership, the CHNA Collaborative and the BWFH Community Engagement and Advisory Committee, BWFH's Community Health and Wellness Department will complete a CHIP to guide our efforts of improving the key health problems and social factors identified by the CHNA. The CHIP will be a 3-year plan to inform shared resources, support policy change and sponsor community-based programs to improve the health of our residents, especially those most in need. While this plan will contain BWFH's neighborhood-specific work, it will also be a shared effort that is driven by community partnership with the Collaborative.

Figure 1. Community Health Needs Assessment and Community Health Improvement Plan Process

SOURCE: Association for Community Health Improvement, 2017. Community Health Assessment Toolkit. Accessed at www.healthycommunities.org/assesstoolkit

Purpose and Scope of the 2019 Community Health Needs Assessment

In 2018, the Boston CHNA-CHIP Collaborative undertook a city-wide Community Health Needs Assessment to:

- Systematically identify the health-related needs, strengths and resources of a community to inform future planning.
- Understand the current health status of Boston overall and its sub-populations within their social context.
- Meet regulatory requirements for several institutions, organizations and agencies (e.g., IRS requirements for non-profit hospitals, PHAB for health departments).

Brigham and Women's Faulkner Hospital Patients

BWFH is located in the Jamaica Plain neighborhood of Boston. In FY 2018 BWFH served approximately 89,000 people, of which over 33,000 (37.1%) were residents of Boston. Of these residents 68.4% came from the following four neighborhoods, which BWFH defines as its priority neighborhoods:

- Hyde Park – 15.9%
- Jamaica Plain – 14.5%
- Roslindale – 19.4%
- West Roxbury – 18.5%

DATA SOURCE: Brigham and Women's Faulkner Hospital

The 2019 Boston CHNA focused on the geographic area of the City of Boston (Figure 2). Boston is a city of neighborhoods, and while the Collaborative CHNA is not driven by a neighborhood focus, BWFH highlighted the data for the priority neighborhoods of Jamaica Plain, Hyde Park, Roslindale and West Roxbury. Additionally, supplementary assessment that was done by BWFH was solely focused on those priority neighborhoods.

Figure 2. Map of Boston Neighborhoods

SOURCE: Boston Redevelopment Authority

KEY THEMES AND CONCLUSIONS

Through a review of the secondary data, a community survey and discussions with community residents and key informants, this assessment report provides a comprehensive overview of the social and economic environment, health conditions and behaviors that most affect residents and perceptions of strengths and gaps in the current environment across the city of Boston, with BWFH focusing on our priority neighborhoods of Hyde Park, Jamaica Plain, Roslindale and West Roxbury. Overarching themes that emerged from this synthesis that cut across multiple topic areas include the following:

While Boston is a young city, with about one-third of residents under the age of 24, concerns about the aging population and seniors were frequently identified by assessment participants**. With a current population of nearly 670,000 residents, Boston has experienced—and is expected to continue to experience—population growth across every neighborhood in the city.** Hyde Park is one experiencing double digit increases in population over the past 5 years. There is substantial variation in age profiles across neighborhoods however in our primary neighborhoods. Hyde Park and Roslindale are two that have the highest proportion of residents under age 18 while West Roxbury is one of two to have the highest proportion over age 65.

- **Boston is a richly diverse city in terms of racial, ethnic and linguistic population groups, though data show that diversity is not necessarily equally distributed across neighborhoods.** Boston has a large immigrant and non-English speaking community, and these groups were identified as facing unique challenges related to social and economic factors as well as navigating the health care system. The wide range of diversity of Boston residents presents challenges when delivering services and health care that aim to meet the multitude of needs across the city. BWFH's priority neighborhoods vary greatly in diversity. Black residents comprise a larger portion of the population in Hyde Park (42%) with Latino (27%) making up the next largest group in the neighborhood with over 43% of residents speaking a language other than English in the home; while West Roxbury is primarily (78%) white.
    - CHNA community survey results and conversations in focus groups indicated that subtle and overt discrimination is an issue in Boston, particularly for immigrants and non-English speakers, LGBTQ residents, older residents and youth, substance users and the homeless.

- **Although unemployment rates are low and there is economic opportunity for many residents across the city, there are substantial differences in financial security across neighborhoods and racial and ethnic groups.** Hyde Park's unemployment rate is higher than the Boston average (8.4%). The median household income in Boston is $62,021 but ranges greatly across neighborhoods. Financial insecurity was reported as a concern in the majority of focus groups and interviews, with participants indicating that it was one of the root causes of stress in their lives and reporting challenges meeting basic needs such as food, shelter and medical care. Risk-related behaviors and health outcomes generally continue to have inverse relationships with socioeconomic factors. Participants discussed the role poverty plays in exacerbating health challenges, particularly among vulnerable groups.

- **Housing affordability and its implications emerged as a key theme across secondary data, the community survey and focus groups and interviews**. In Hyde Park (58%), Jamaica Plain (69%) and Roslindale (59%)—housing quality or affordability emerged as the top health concern and in West Roxbury (35%) it was in the top five concerns (Boston CHNA Survey). A higher proportion of residents in rental units in Roslindale (62%), Jamaica Plain (58%) and West Roxbury (53%) are cost-burden, spending at least 30% of their income on housing costs, compared to Boston's overall average. Residents frequently discussed issues of gentrification, long wait lists for Section 8 housing, housing discrimination, overcrowding and poor housing quality as consequences of a tight and expensive housing market.

- **The impact of chronic diseases and their risk factors—especially diabetes and obesity—emerged as priority concern among residents.** Key informants and survey participants frequently discussed a number of social

determinants that presented challenges to the prevention and management of these chronic conditions. More than half of Boston adults and a third of Boston Public high school students report being obese. The percentage of overweight adults in Hyde Park, West Roxbury and Roslindale is more prevalent than the Boston average. Literacy was cited as a contributor, as well as lack of access to and affordability of fresh foods in this part of the city where transportation is sparse and grocery stores are often difficult to get to. Also discussed, specifically in Hyde Park and Roslindale was the concern that cultural diets may be a contributing factor in poorer health.

    - Hyde Park's data showed that diabetes continues to be higher than the Boston average. Hyde Park, Roslindale and West Roxbury all report higher than average rates of hypertension. Additionally, all of our neighborhoods have higher heart disease mortality rates, with Hyde Park being significantly higher for heart disease and stroke.

- **Behavioral health, specifically mental health and drug addiction among young people, is a growing concern among community residents**. Opioids and prescription medication remain a concern in our priority neighborhoods. In West Roxbury (59%) of survey respondents identified mental health as the top health concern. In focus groups and interviews, there was much focus on the impact of trauma and mental health, specifically with children and families. Additionally, Jamaica Plain's data showed higher suicide rates than Boston overall.

- **Violence and trauma were identified as important issues** that had significant impact on children's health trajectories and were risk factors for mental health and substance use disorders. Strengthening partnerships was a common theme among interview participants to address issues of community violence and trauma, and community connectedness. Locally, Jamaica Plain residents reported significantly higher rates of experienced violence in their lifetime than Boston overall.

- **Boston has many health care and social service assets that can be leveraged, but access to those services is a challenge for some residents who struggle accessing social services, health resources and public transportation.** Proximity of health care services and education institutions, diversity and multiculturalism and engaged residents were noted as key strengths among Bostonians that can be leveraged in future planning. Barriers to care were multifaceted and included underinsurance, language and immigration status, navigation and care coordination challenges, transportation and lack of culturally sensitive approaches to care.

METHODS

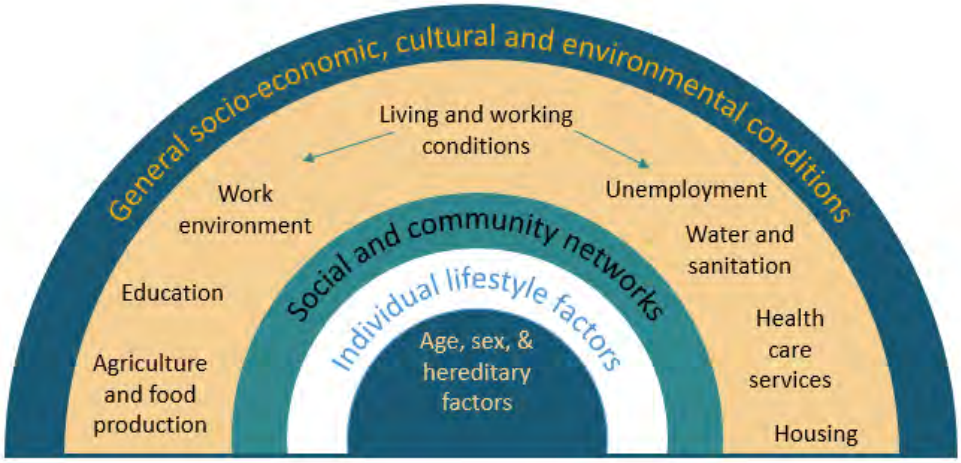
The following section details how data for the CHNA were compiled and analyzed, as well as the broader lens used to guide this process.

Social Determinants of Health Framework

Social Determinates of Health

Having a healthy population is about more than delivering quality health care to residents. Where a person lives, learns, works and plays all have an enormous impact on health. Health is not only affected by people's genes and lifestyle behaviors, but by factors such as employment status, quality of housing and economic policies. Figure 3 provides a visual representation of these relationships, demonstrating how individual lifestyle factors, which are closest to health outcomes, are influenced by more upstream factors such as employment status and educational opportunities.

Figure 3. Social Determinants of Health Framework



SOURCE: World Health Organization, Commission on Social Determinants of Health. (2005)

Health Equity Lens

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

In the present report, we describe health patterns for Boston overall and areas of need for particular population/neighborhood groups. Understanding factors that contribute to health patterns for these populations can facilitate the identification of data-informed and evidence-based strategies to provide all residents with the opportunity to live a healthy life.

Approach and Community Engagement Process

Collaborative and Work Group Structure

The CHNA aimed to engage agencies, organizations and residents in Boston through different avenues. The Collaborative's structure provided an engagement and decision-making framework for this work. It is comprised of the following:

- *Steering Committee* – comprised of 19 members representing hospitals, health centers, Boston Public Health Commission, public health organization focused on community, community development corporations and

community representatives. Its role is to provide strategic direction and oversight of the process (See the Appendix A for list of Steering Committee members).

- *Operations Committee* – comprised of Steering Committee Co-Chairs and the Collaborative's Coordinator. This committee resolves operational issues requiring immediate actions.
- *Work Groups* – comprised of general membership and open to anyone who is interested in being involved. The Work Groups provide input and assistance on implementing CHNA-CHIP activities. For the Boston CHNA, two work groups were formed:
    - *Secondary Data Work Group* – comprised of 32 members representing a range of organizations, including hospitals, health centers, local public health and community-based organizations, among others. The Work Group's charge is to provide guidance on secondary data approach and indicators and foster connections with key networks and groups to provide relevant data (See Appendix B for list of members).
    - *Community Engagement Work Group* – comprised of 54 members representing a range of organizations, including hospitals, health centers, local public health, education, community development, social services and community-based organizations, among others. The Work Group's charge is to provide guidance on the approach to community engagement, input on primary data collections methods and support with logistics for primary data collection (See Appendix B for list of members).
- *General Membership* – attends events, shares in formation and participates in Work Groups.

The Collaborative hired Health Resources in Action (HRiA), a non-profit public health organization, as a consultant partner to provide strategic guidance and facilitation of the process, collect and analyze data and develop the report deliverables.

Engagement and Outreach Strategy

As noted, two work groups—the Community Engagement Work Group and Secondary Data Work Group—provided input and support throughout the CHNA process. The Community Engagement group identified the goals of the community engagement process as 1) to ensure that diverse community voices are represented throughout the CHNA-CHIP process; and 2) to involve community members and stakeholders in the development and implementation of the CHNA-CHIP process to achieve shared ownership of the process and product.

During the CHNA process, the Community Engagement Work Group was instrumental in developing the goals and methods for the primary data and the community engagement approach for the CHNA, identifying topics to explore for data collection and population groups that were highest priority, reaching out to community groups and residents for engagement, providing feedback on the survey instrument and focus group and interview guides, and pilot-testing the survey instrument. Members met seven times in a series of virtual and in-person meetings over eight months and were also engaged by email and telephone between meetings to provide feedback throughout the process.

In addition to providing guidance and input on methods, members played an integral role in data collection efforts. Work group members volunteered to conduct interviews, recruit for focus groups, facilitate focus groups, and administer surveys in-person and via social media and email. As part of this effort, orientation sessions were offered to work group member volunteers to provide an overview of data collection protocols, including logistics, roles, and best practices.

The Secondary Data Work Group members identified the goals of the secondary data as: 1) to examine inequities by population group: by race/ethnicity, gender, age, sexual orientation, socioeconomic status (SES), etc.; 2) to provide a baseline for community health level data to track over time; and 3) to present trends to identify emerging issues or whether there have been changes over time for issues of concern. The Secondary Data Work group approach to the secondary data focused on diving delve deeply into topic areas identified from previous assessments and frame the discussion around the social determinants of health.

The Secondary Data Work Group was instrumental in developing and providing feedback on list of data indicators, identifying potential data sources, and making connections to those sources. Members met six times in a series of virtual and in-person meetings over eight months and were also engaged by email and telephone between meetings to provide feedback throughout the process. The Secondary Data Work Group and Community Engagement Work Group met collaboratively in October 2018 to ensure alignment across methods, and again in late April 2019 for a large-group synthesis of preliminary data. This April 2019 three-hour "Data Day" meeting provided an opportunity to reflect on preliminary data by topic area and collaboratively interpret preliminary data in the form of data placements to inform the draft CHNA report.

Secondary Data: Review of Existing Secondary Data

Secondary data are data that have already been collected for another purpose. Examining secondary utilizes data that we already have to understand trends, provide a baseline, and identify differences by sub-groups. It also helps in guiding where primary data collection can dive deeper or fill in gaps. While the secondary data for this CHNA cover a wide range of issues, there is a particular focus to dive more deeply into areas already identified in previous assessments (e.g., housing, transportation, income, employment, education, mental health, substance, chronic conditions and their risk factors, violence and trauma, and access to services) as well as frame the discussion comprehensively around the social determinants of health.

Data Sources

Secondary data for this CHNA were from a variety of sources, including the Boston Behavioral Risk Factor Surveillance Survey (BBRFSS), Youth Risk Behavior Survey (YRBS), U.S. Census American Community Survey (ACS), vital records, Acute Hospital Case Mix Database from the Center for Health Information and Analysis, and a number of other agencies and organizations.

Analyses

For the most part, secondary data on birth and death records, BBRFS, YRBS, and Acute Hospital Case Mix were analyzed by the Research and Evaluation Office of the Boston Public Health Commission. Other data were analyzed by the organizations cited in the data source. Analyses are presented as frequencies (percentages) and rates throughout the report. Data from the ACS and surveillance systems, such as the BBRFSS and YRBS, are presented with confidence intervals (or error bars in the figures), where possible. When statistical significance testing was conducted, it is noted in figures or in text. Specifically, when the word "significantly" is used in the text it connotes statistical significance ($p<0.05$).

Limitations

Each data source for the secondary data has its own set of limitations. Overall, for the data in this report it should be noted that different data sources use different ways of measuring similar variables (e.g., different questions to identify race/ethnicity; different boundaries for neighborhoods). There may be a time lag for many data sources from the time of data collection to data availability. Some data are not available by specific population groups or at a more granular geographic level due to small sub-sample sizes. In some cases, data from multiple years may have been aggregated to allow for data estimates at a more granular level or among specific groups.

It should also be noted that for the datasets used, it is not possible to examine data in a more granular way. For example, data are examined by race/ethnicity and by neighborhood, but the sample sizes are not large enough to look at data by race/ethnicity within neighborhood. Additionally, while data are examined by major categories of races and ethnicities (e.g., White, Black, Latino, Asian), it is not possible for most of these data sources to examine data of sub-population groups within these categories (e.g., Chinese descent, Vietnamese descent).

Primary Data

Primary data are new data collected specifically for the purpose of the CHNA. Goals of the Boston CHNA primary data were: 1) to delve deeply into people's perceptions, lived experiences, challenges, and facilitators around certain issues; and 2) to fill in gaps on specific topic areas or population groups where limited data were available. Primary data were

collected using three different methods for the Boston CHNA: a community survey, focus groups, and key informant interviews.

Boston CHNA Community Survey

A community survey was developed and administered over six weeks in February–March 2019. The survey focused on a range issues related to the social determinants of health, community perceptions, and access to care and was developed with extensive input from the Community Engagement Work Group and guided by existing validated questions from the field or used in other studies. The survey was pilot-tested in late January 2019, and the final instrument was launched in February 1, 2019 with wider dissemination starting the following week. The survey was administered on-line and via hard copy in seven languages (English, Spanish, Portuguese, Haitian Creole, Chinese, Vietnamese, and Arabic). Extensive outreach was conducted by Collaborative members to disseminate the survey via social media, institutional e-newsletters, e-mails to large networks, waiting rooms, 13 Boston Public Library neighborhood branches, community events, and large apartment buildings. Additionally, Healthy Community Champions (an initiative of grassroots ambassadors) conducted targeted survey administration in specific neighborhoods.

The final sample of the CHNA Community Survey comprises 2,404 respondents who were Boston residents. Table 1 provides the breakdown of those respondents by self-identified neighborhood of residence and compares the percent distribution of that neighborhood in Boston.

Of our priority neighborhoods of Hyde Park, Jamaica Plain, Roslindale and West Roxbury, there were 558 respondents making up 23.1% of the total respondents.

Table 1. Boston CHNA Survey Respondents Distribution by Priority Neighborhood Compared to % of Population in Boston

Neighborhood	# of Survey Respondents (N=2,404)	% of Survey Respondents	% of Population in Boston†
Hyde Park	101	4.2%	5.0%
Jamaica Plain	203	8.4%	5.9%
Roslindale	157	6.5%	4.9%
West Roxbury	97	4.0%	4.3%

DATA SOURCE: Boston CHNA Survey, administered by HRiA Consulting

Focus Groups and Key Informant Interviews

Focus Groups

Thirteen focus groups were conducted with specific populations of interest: 12 focus groups conducted specifically for the collaborative CHNA and one additional focus group conducted by work group members who submitted notes for the CHNA. Focus groups were 90-minute semi-structured conversations with approximately 8-12 participants per group and aimed to delve deeply into community's needs, strengths, and opportunities for the future. Focus groups were conducted with the following populations:

- Female low-wage workers (e.g. housekeepers, child care workers, hotel service workers, etc.)
- Male low-wage workers (e.g. janitorial staff, construction, etc.)
- Seniors (ages 65+) with complex, challenging issues (e.g. homebound, medical complications)
- Residents who are housing insecure (no permanent address or close to eviction)
- Latino residents in East Boston (in Spanish)
- LGBTQ youth and young adults at risk of being homeless
- Immigrant parents of school age children (5-18 years)
- Survivors of violence; mothers who have been impacted by violence
- Parents who live in public housing in Dorchester
- Chinese residents living in Chinatown (in Chinese)

- Haitian residents living in Mattapan (in Haitian Creole)
- Residents in active substance use recovery
- Additional focus group with notes provided: Chinese residents living in Chinatown

A total of 104 community residents participated in focus groups, representing 13 neighborhoods across the city. Nearly half of focus group participants identified as Black or African American (45%), a third of participants identified as Hispanic or Latino (34%), and 10% identified as White. The majority of participants identified as female (57%), 36% identified as male, and 7% identified as transgender or genderqueer. Fifteen community and social service organizations located throughout Boston assisted with recruiting participants and/or hosting focus groups.

Key Informant Interviews
A total of 45 key informant interviews were completed, 6 of which were additional interviews submitted by Work Group volunteers. Additionally, 15 interview surveys were done by BWFH to gain more insight into and perspective on our priority communities of Hyde Park, Jamaica Plain, Roslindale and West Roxbury. Interviews were semi-structured discussions and surveys that engaged institutional, organizational and community leaders and front-line staff across sectors and for BWFH they were solicited from our Community Engagement and Advisory Committee. Discussions explored interviewees' experiences of addressing community needs and opportunities for future alignment, coordination and expansion of services, initiatives and policies. Sectors represented in these interviews included public health, health care, housing and homelessness, transportation, community development, faith, education, public safety, environmental justice, government, workforce development, social services, food insecurity and business organizational staff that work with specific population such as youth, seniors, disabled, LGBTQ, and immigrants.

Brigham and Women's Faulkner Hospital Community Engagement and Advisory Committee

Purpose Statement
BWFH's Community Health and Wellness Department has a long-standing commitment to the community to improve access to healthcare and address social determinants of health issues. A key aspect to the success of this work is developing and maintaining active, collaborative relationships with the community.
The Community Engagement and Advisory Committee (CEAC) provides an opportunity for community input and engagement and involvement in the CHNA/CHIP. It also offers a unique perspective on community needs, resources and connections to implement the Community Benefits Mission and Plan in the most efficient and effective manner. Membership includes those from a variety of local organizations, community partners and residents. A full membership list can be found in Appendix C.

Key Goals
- Provide active participation and input to better serve the community health needs assessment and plan
- Facilitate communication and sharing, developing collaborative initiatives and partnerships
- Assist in making community connections and fostering relationships in the community
- Represent and offer a unique perspective and feedback on what the community needs are and how best to meet them

DEMOGRAPHICS

Population Overview

Population Count and Characteristics

With a current population of nearly 670,000 residents (Table 2), Boston has experienced population growth of nearly 8% in the last several years. The city is expected to continue to experience growth. Growth rates across neighborhoods vary. Hyde Park is one neighborhood that has experienced double digit increases in population over the past five years.

Additionally, overall, the city is a young one, with about one third of residents under the age of 24. There is substantial variation in age profiles across neighborhoods. Our primary neighborhoods of West Roxbury, Hyde Park and Roslindale are neighborhoods that have some of the highest proportion of residents under age 18. West Roxbury also has the highest proportion of residents over age 65 (Table 2).

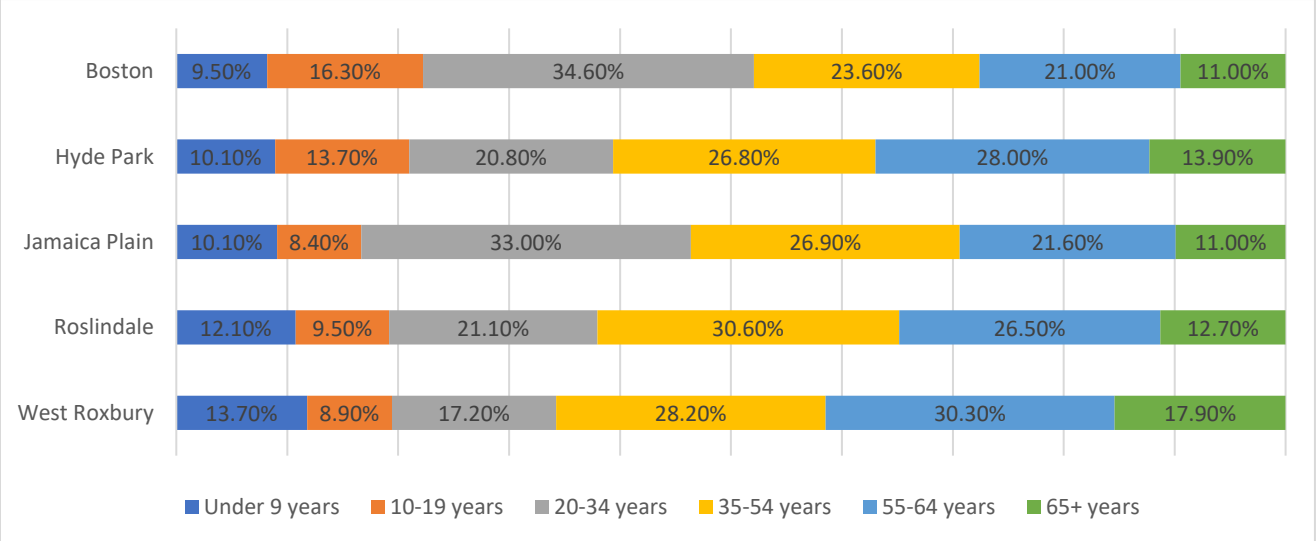
Table 2. Total Population, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2008–2012 and 2013–2017

	2008–2012	2013–2017	% Population Change 2012–2017
Boston	619,662	669,158	8.0%
Hyde Park	29,219	33,084	13.2%
Jamaica Plain	36,866	39,435	7.0%
Roslindale	30,370	32,819	8.1%
West Roxbury	27,163	28,505	4.9%

DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2008–2012 and 2013–2017

Further granular breakdowns of the under 9-year-old and 65+-year-old categories within each neighborhood (Figure 4) shows that West Roxbury is a neighborhood with both the largest percentage of children under 9 years old and of those 65+ years old.

Figure 4. Age Distribution, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017



DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: Neighborhoods as defined by Boston Public Health Commission

Racial, Ethnic, Cultural and Language Diversity

Boston is a diverse city with 23% of residents identifying as Black, 20% identifying as Latino and nearly 10% identifying as Asian. Boston has a large immigrant community, with over 28% of Boston residents born outside the United States, most having been born in the Caribbean or Asia. One third of residents speak a language other than English at home, the most prevalent language being Spanish. Diversity among younger residents is greater than among older residents. At the neighborhood level, diversity varies substantially. Black residents comprise a larger portion of the population in Hyde Park (42%), with Latino (27%) making up the next largest group in the neighborhood (Table 3). Between 2012 and 2017, Latinos experienced the largest population growth of all racial and ethnic groups.

Table 3. Racial and Ethnic Distribution, by Boston and Priority Neighborhood, 2013–2017

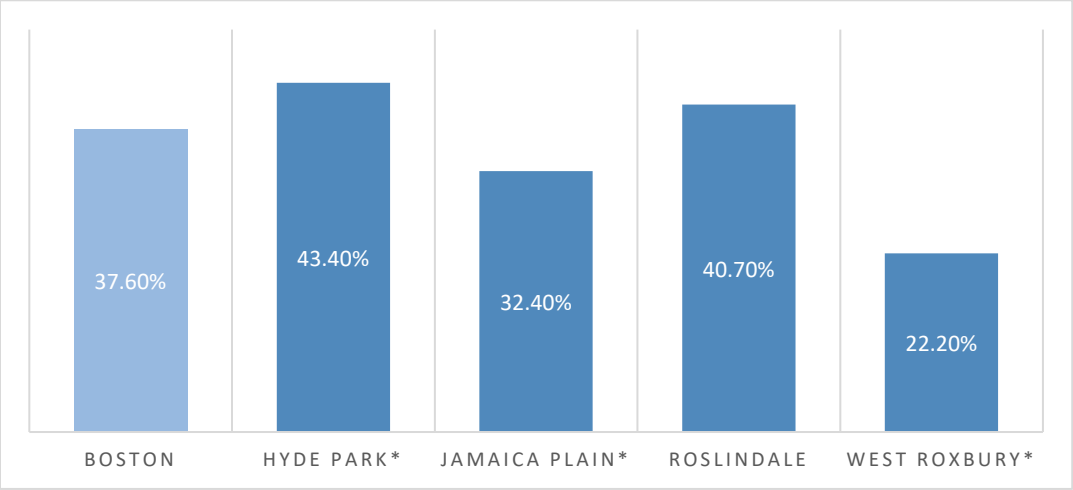
	Asian	Black	Latino	White	Other
Boston	9.4%	22.7%	19.4%	44.9%	3.6%
Hyde Park	2.1%	42.2%	27.1%	25.1%	3.4%
Jamaica Plain	6.7%	10.6%	21.8%	56.8%	4.0%
Roslindale	2.2%	21.4%	24.5%	48.9%	3.0%
West Roxbury	6.7%	5.6%	7.9%	77.8%	2.0%

DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017

Language Diversity

Boston is a city of many languages. Nearly 38% of residents speak a language other than English at home (Figure 5), and those numbers are significantly higher for several neighborhoods, including Hyde Park and Roslindale, compared to Boston overall. This language diversity was considered a major strength of the city, according to focus group participants, especially those who were non-English speakers. Spanish was the dominant language other than English, spoken by all of our priority neighborhoods (Table 4).

Figure 5. Percent Population 5 Years and Over Who Speak a Language Other Than English, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017



DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: Neighborhoods as defined by Boston Public Health Commission; Asterisk (*) denotes where the neighborhood estimate is significantly different compared to the Boston estimate ($p<0.05$)

Table 4. Most Common Language Other Than English Spoken and Percent Population 5 Years and Over Who Speak the Language, by Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017

	Most Common Language Spoken	Percent
Hyde Park	Spanish	22.6%
Jamaica Plain	Spanish	18.8%
Roslindale	Spanish	21.5%
Roxbury	Spanish	25.3%
West Roxbury	Spanish	5.4%

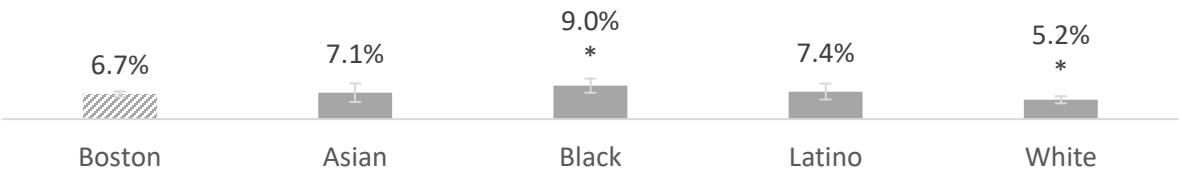
DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017

Employment and Workforce

Employment Rate and Industry

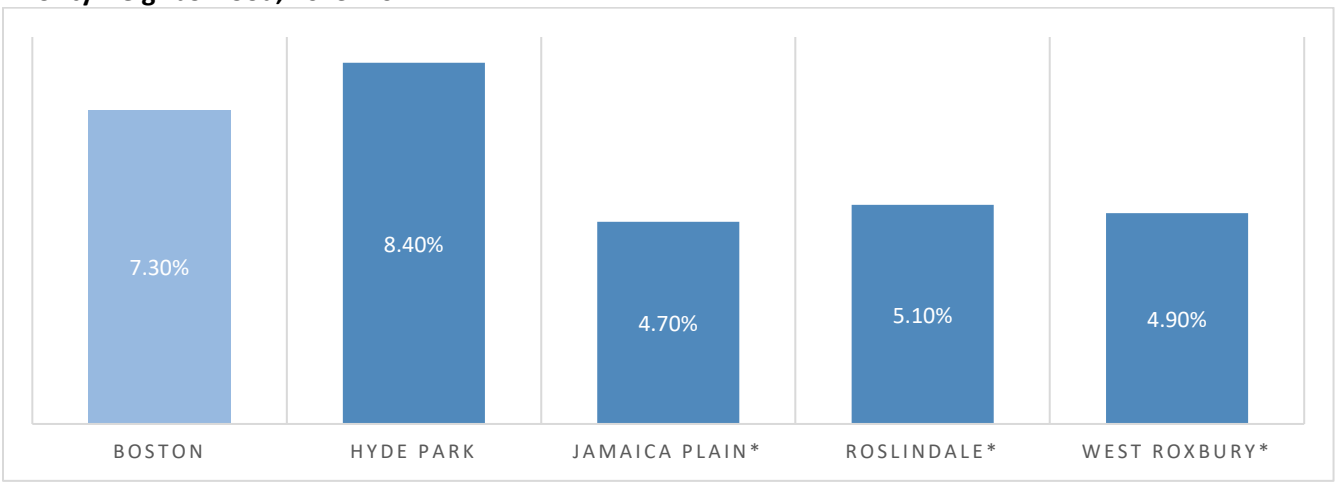
Boston, like much of the rest of the nation, has experienced an economic upturn in recent years. In 2018, Boston had an unemployment rate of 3%. Quantitative data indicate differences in the proportion of residents who are not employed. Boston's unemployment rate in 2017 was 6.7% overall; however, unemployment rates are far higher for Black residents at 9% (Figure 6) and in our primary service area of Hyde Park at 8.4% (Figure 7). Those with lower education or fewer skills (especially in technology), immigrants and those with a criminal record were also reported to experience employment challenges. Boston's largest employers are in the healthcare and education sectors; these sectors have experienced substantial employment gains over the past 15 years, while manufacturing and utilities have experienced decreases. Numerous Boston CHNA survey respondents reported feeling underemployed, wanting higher pay or desiring more job satisfaction. Focus group members and interviewees saw a need for more trade schools and job centers and more opportunities for young people to access employment opportunities.

Figure 6. Percent Population 16 Years and Over Unemployed, by Boston and Race/Ethnicity, 2017



DATA SOURCE: U.S. Census, American Community Survey 1-Year Estimates, 2017
NOTE: Asterisk (*) denotes race/ethnicity estimate was significantly different compared to the Boston estimate ($p < 0.05$); Error bars show 95% confidence interval

Figure 7. Percent Population 16 Years and Over Unemployed, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017

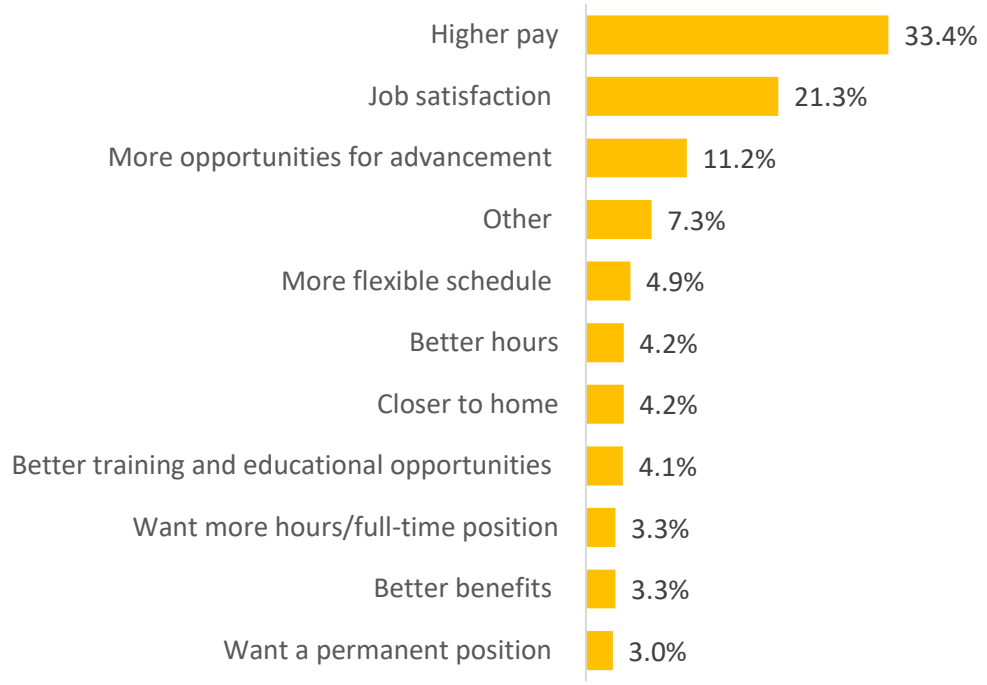


DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017

Employment Challenges and Satisfaction

Two main themes emerged from the data collection with Boston residents (Figure 8): employment satisfaction and challenges in securing a competitive job. Numerous Boston CHNA survey respondents reported feeling underemployed, wanting higher pay or desiring greater job satisfaction. Nearly 30% of Boston CHNA survey respondents indicated that they felt they had more training and experience than was required to perform their current job, and another 18% indicated this was possibly true (see Appendix I). Of the 978 CHNA survey respondents who answered that they were looking for a new job, the most commonly cited reason for looking was higher pay (33.4%) followed by job satisfaction (21.3%) and more opportunities for advancement (11.2%).

Figure 8. Percent Boston CHNA Survey Respondents Reporting Primary Reason for Looking for a New Job (N=978), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019
NOTES: Data arranged in descending order; Percentage calculations exclude respondents who selected "not looking for a new job"

Focus group participants, however, were more likely to discuss the challenges of securing a job rather than job satisfaction itself. These challenges included educational requirement, changing hiring processes, technology skills and having a criminal record. For example, many focus group participants discussed how formal educational requirements for a job are a significant initial barrier. Participants identified the need for more trade schools and job centers that can help residents access well-paying jobs that create pathways beyond entry-level positions. They also stressed that it is imperative that training opportunities are accessible to working parents, taking in to consideration issues like childcare, time and cost.

Focus group participants, especially parents, also discussed the importance of encouraging youth employment, both for young people to learn important skills and to focus their time on positive activities. While there are a number of youth workforce programs in the city, many youths find it challenging to get a job. Key informant interviewees explained that it is imperative that these opportunities include a focus on technology and "21st century skills" like computer programming, professional communication and critical thinking. Further, it was noted that transportation poses a

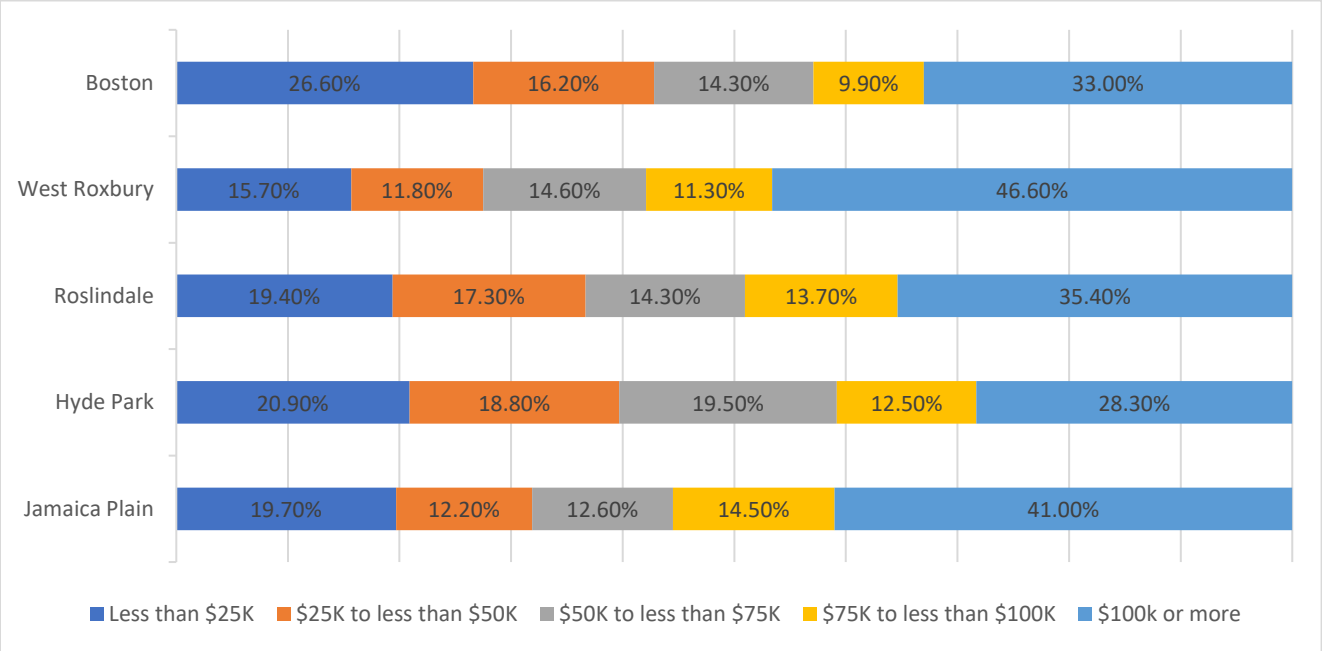
challenge for young people to access employment opportunities, so it is important that jobs are available within their communities or can offset transportation barriers.

Income and Financial Security

Household Income and Poverty

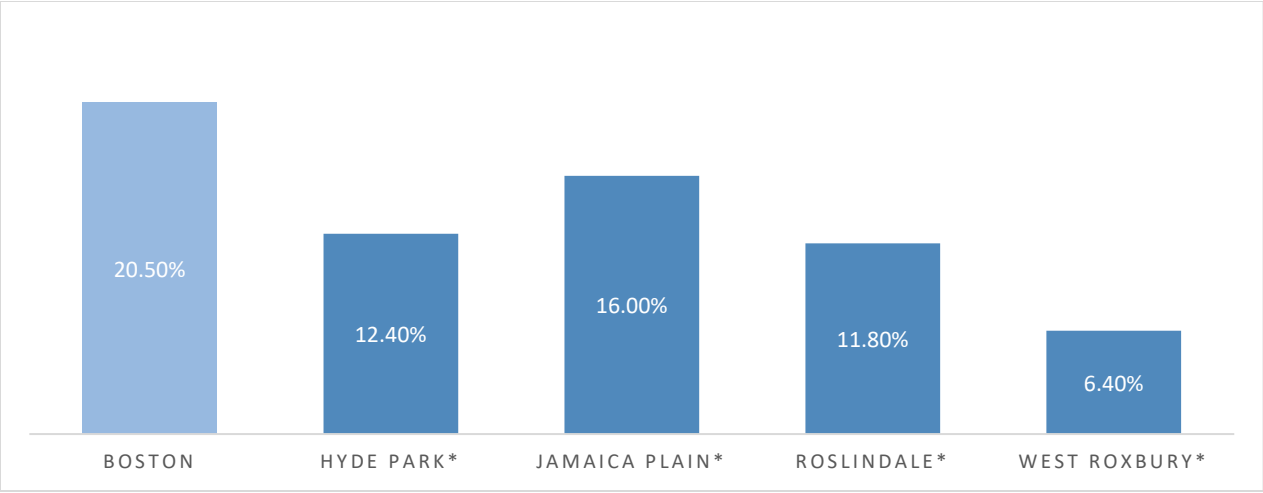
Financial insecurity was reported as a concern in the majority of focus groups and interviews, with participants indicating that it was one of the root causes of stress in their lives, and reporting challenges meeting basic needs such as food, shelter and medical care. Focus group participants across geographies often attributed these financial stressors to stagnant salaries, higher costs of living and difficulty balancing multiple low-wage jobs. Figure 9 and 10 show our priority neighborhoods in comparison to Boston overall for household income distribution and poverty levels.

Figure 9. Household Income Distribution, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017



DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: Neighborhoods as defined by Boston Public Health Commission

Figure 10. Percent Population Living Below Poverty Level, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017

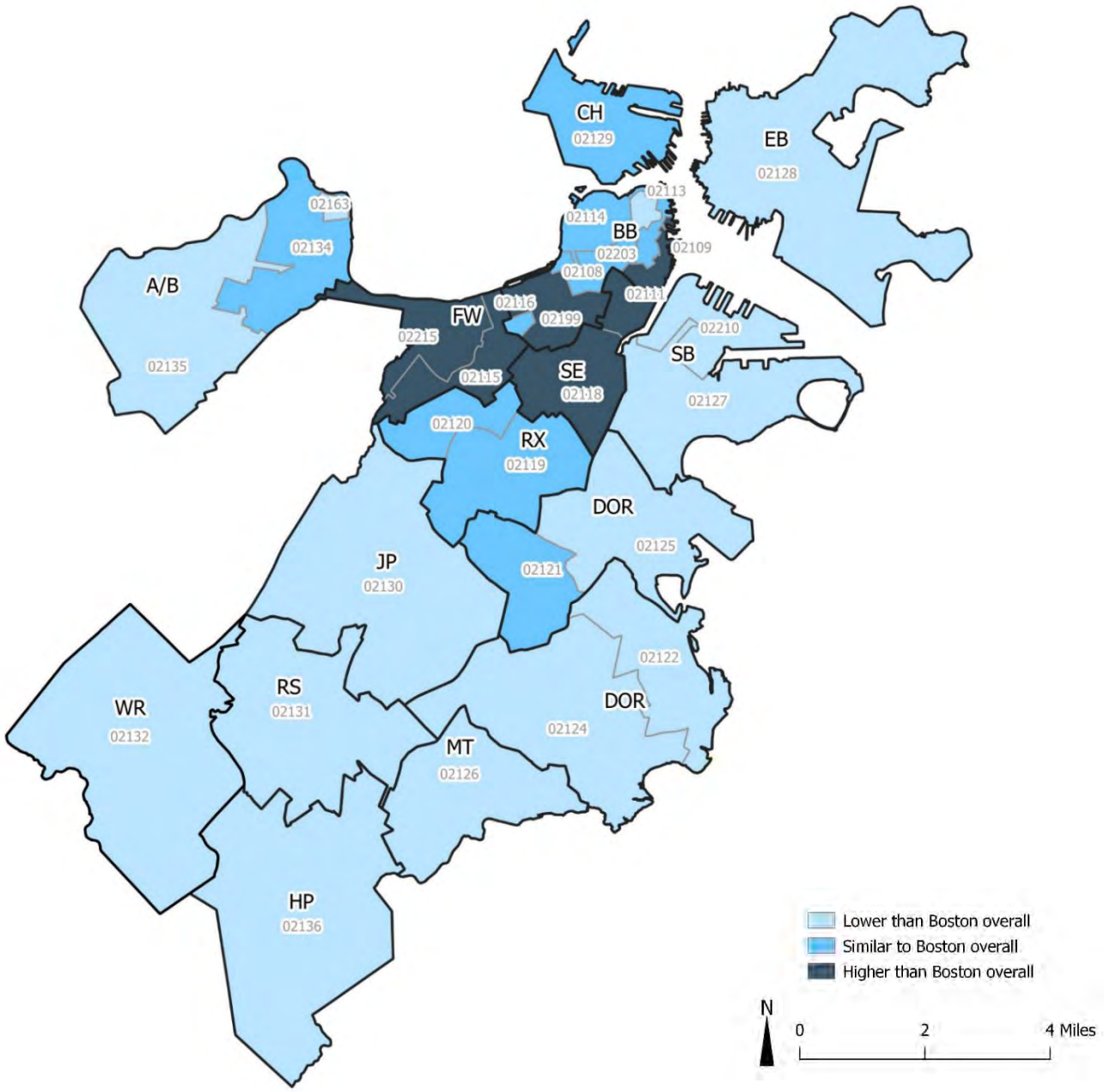


DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: Neighborhoods as defined by Boston Public Health Commission; Asterisk (*) denotes neighborhood estimate was significantly different compared to the Boston estimate ($p < 0.05$)

Income Inequality and the Wealth Gap

Income inequality of a community is expected to have direct effects on an individual's own income status, as well as indirect effects that can affect health, regardless of one's own income status. Studies have discussed that increases in income inequality could affect the availability of goods and services, the enforcement of laws banning unsafe consumer products, the benefits and costs of higher education, the social bonds among relatives and neighbors or the distribution of political influence.[1] The Gini Index is a common measure used to identify the level of income inequality in a given population, ranging from 0 (generally reflecting income equality) to 1 (generally indicating highest levels of income inequality). As shown on Figure 11, all four neighborhoods have a lower than Boston average (0.5425).

Figure 11. Gini Index, by Zip Code, 2013–2017



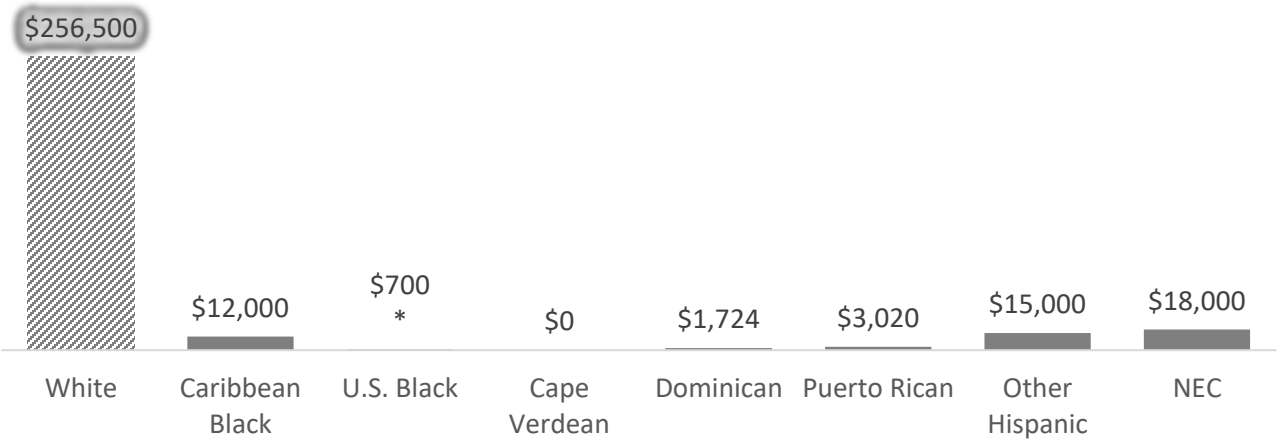
DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017

Numerous participants across focus groups perceived that there is growing economic inequality in communities of color compared to their White counterparts. People noted the gentrification of neighborhoods and rising cost of living was having a disproportionate impact on lower income families and communities of color.

> WHEN FAMILIES ARE STRUGGLING, THEY HAVE A HARD TIME GETTING THE SEEMINGLY LITTLE THINGS RIGHT, LIKE FOOD, EXERCISE AND ROUTINES. FAMILY SUPPORT IS ESSENTIAL.
>
> *BWFH Key Informant, Jamaica Plain*

Data on wealth were not available for the City of Boston, but studies have looked at the wealth of the Boston Metropolitan Statistical Area (MSA) which is comprised of the Massachusetts counties of Norfolk County, Plymouth County, Suffolk County, Middlesex County and Essex County and the New Hampshire counties of Rockingham Countyand Strafford County. In a Federal Reserve Bank of Boston 2015 report which focused on examining wealth disparities between residents who identify as White, U.S. born Black, Caribbean Black, Cape Verdean, Puerto Rican and Dominican, the median value of total assets for White residents in the Boston MSA was$256,500, far exceeding the assets reported for any racial/ethnic minority group in 2014 (Figure 12). Among residents of color, the highest household assets were reported among non-Caribbean Hispanic residents ($15,000), followed by residents who identified as Caribbean Black ($12,000). Of note, Cape Verdean ($0) and Black/African American residents ($700) had the lowest reported household assets in 2014. These patterns reflect themes in focus groups and interviews suggesting that residents of color across Boston are struggling to make ends meet, let alone get ahead financially.

Figure 12. Median Value of Total Assets Reported to Be Held by Households (in U.S. Dollars), by Boston Metropolitan Statistical Area, 2014



DATA SOURCE: Duke University, National Asset Scorecard for Communities of Color (NASCC), Boston NASCC survey, as analyzed and reported by Muñoz, A. P. et al, Federal Reserve Bank of Boston, The Color of Wealth in Boston (2015), 2014

Challenges of Financial Insecurity

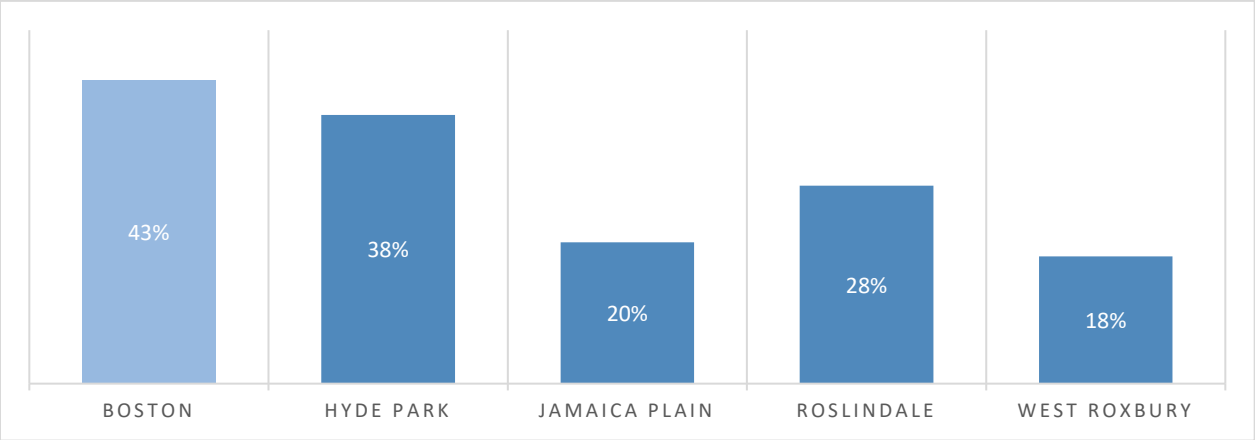
Financial insecurity was a major theme across many focus groups. Participants talked about the challenges of making ends meet. Across most groups, participants spoke of having to live paycheck to paycheck and being unable to save any additional income for emergencies.

According to key informants and non-English focus group participants, residents who were undocumented and new immigrants were especially vulnerable to financial instability between no documentation, limited power and the desire to support their families in their country of birth.

Multiple focus group participants also described what is known as “the cliff effect”—when a minor increase in income can cause a swift and total loss of benefits that are often more than the financial raise.

Figure 13 presents data by neighborhood on the percent of the population with subprime credit scores. The proportion of residents with subprime credit scores ranged from a low of 8% to a high of 51%. In BWFH's priority neighborhoods, Hyde Park was one of the highest at 38%.

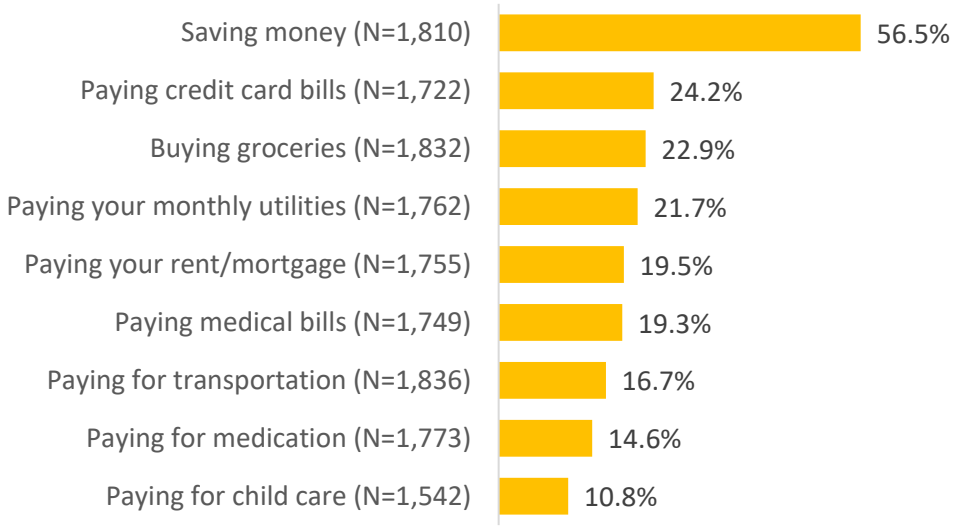
Figure 13. Percent Population with Subprime Credit Score (< 660), by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhoods, 2017



DATA SOURCE: Federal Reserve Bank of New York (FRBNY) Consumer Credit Panel/Equifax, as cited in Federal Reserve Bank of Boston, The Concentration of Financial Disadvantage: Debt Condition and Credit Report Data in Massachusetts Cities and Boston Neighborhoods (2018), 2017Q2
NOTE: Neighborhoods are defined per Boston Planning & Development Authority definitions (http://www.bostonplans.org/getattachment/d09af00c-2268-437b-9e40-fd06d0cd20a2)

Boston CHNA survey respondents were asked whether they had troubles financially in several different areas. The most common form of financial insecurity reported amongst Boston CHNA survey respondents was saving money (57%), as reported by half of participants. One quarter of respondents reported challenges in paying credit card bills (24%) or purchasing groceries (23%). One in five respondents indicated trouble paying utilities (22%), rent/mortgage (20%) and medical bills (19%). Nearly 11% of survey respondents noted that they had trouble paying for child care (Figure 14).

Figure 14. Percent Boston CHNA Survey Respondents Reporting Having Trouble with Finances, by Type of Finances, 2019



DATA SOURCE: Boston CHNA Community Survey, 2019
NOTES: Percentage calculations do not include respondents who selected "don't know/prefer not to answer"

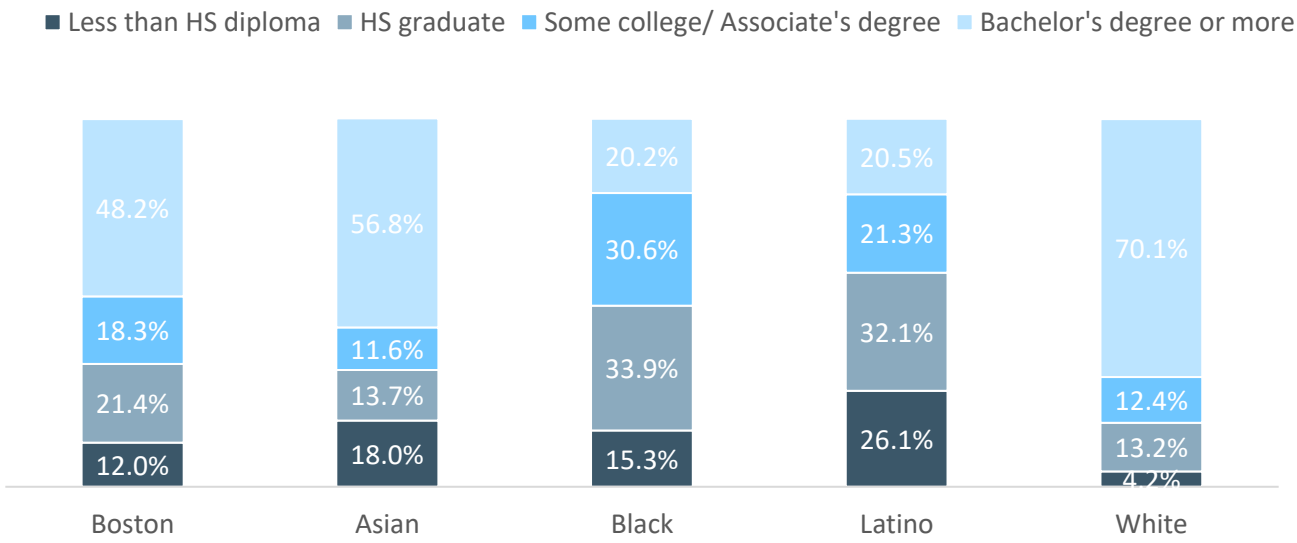
Education

Educational Attainment

Among residents engaged in CHNA data collection, education was an important factor. As discussed later in this report, when Boston CHNA survey respondents were asked what defines a "healthy community," education was the fifth most cited factor in a list of 20 provided, with 45% stating it was an important defining characteristic of their ideal healthy community. Similarly, focus group participants connected educational attainment with health outcomes in their communities and perceived that increasing opportunities for educational achievement ultimately leads to healthier communities. A few key informants described education in the city of Boston as a strength, mentioning a rich history of public education and increased efforts for structural commitments to support students' social-emotional needs.

Overall, Boston is a highly educated city (Figure 15) with nearly half of adults (48.2%) ages 25 years old or older holding a college degree or more. However, there are stark differences by race/ethnicity and by neighborhood. Nearly seven in ten White residents hold a college degree, while only two in ten Black and Latino residents do. Nearly six in ten Asian residents hold a college degree. With 26.1%, Latino adult residents are most likely to not have a high school diploma. Only 4% of White adult residents do not hold a high school diploma, while the figure is 18% among Asian adult residents and 15% among Black residents.

Figure 15. Educational Attainment for Population 25 Years and Over, by Boston and Race/Ethnicity, 2017



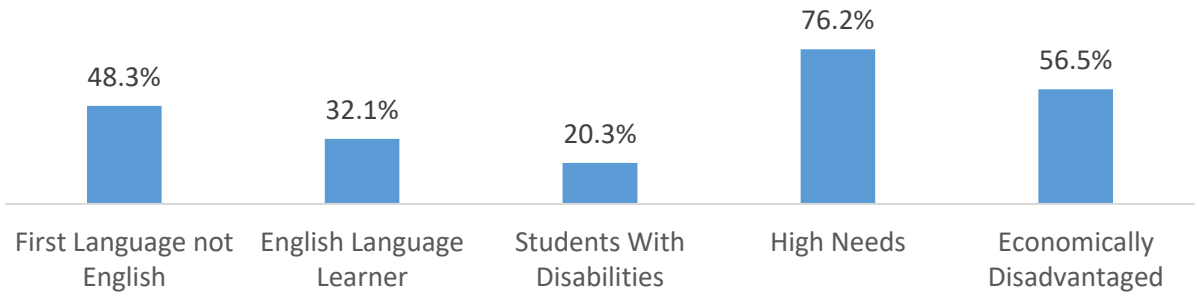
DATA SOURCE: U.S. Census, American Community Survey 1-Year Estimates, 2017

School-Age Students

Addressing the educational needs of specific population groups was an issue discussed in several focus groups and interviews. Children with special needs, undocumented students, and those who have experienced trauma were identified as groups that needed more support in and outside of the classroom.

As such, the student population in Boston Public Schools is diverse in their needs. Figure 16 shows that 32.1% of Boston Public School students are considered English Language Learners (defined as a student whose first language is a language other than English and who is unable to perform ordinary classroom work in English), 20.3% are students with disabilities and 56.5% are considered economically disadvantaged. Altogether, 76.2% of Boston Public School students are deemed high needs, as either being low income, economically disadvantaged, being a current or former English Language Learner or having a disability.

Figure 16. Percent Boston Public School Students Enrolled, by Selected Sub-Populations, 2019

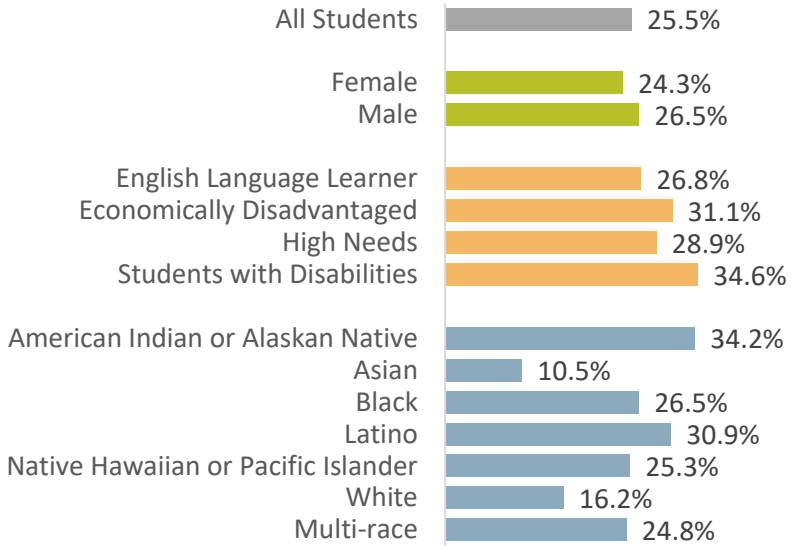


DATA SOURCE: Massachusetts Department of Elementary and Secondary Education, School and District Profiles, Selected Populations, 2019

Chronic absenteeism (defined as students who are absent 10% or more of their total number of student days of membership in a school) was a concern among parents and those in the educational field. Key informant interviewees in the field discussed how chronic absenteeism is of particular concern among children from families who are homeless or with parents who have substance use disorders or co-occurring mental health issues. Interviewees indicated that children who have experienced trauma are more likely to miss school or become disengaged when they are in school.

Figure 17 presents data from Boston Public Schools on students who are chronically absent. About one quarter (25.5%) of all Boston Public School students from 2014 to 2018 were identified as chronically absent. The proportion is over 30% for students who are economically disadvantaged, have a disability or who identify as Latino or American Indian.

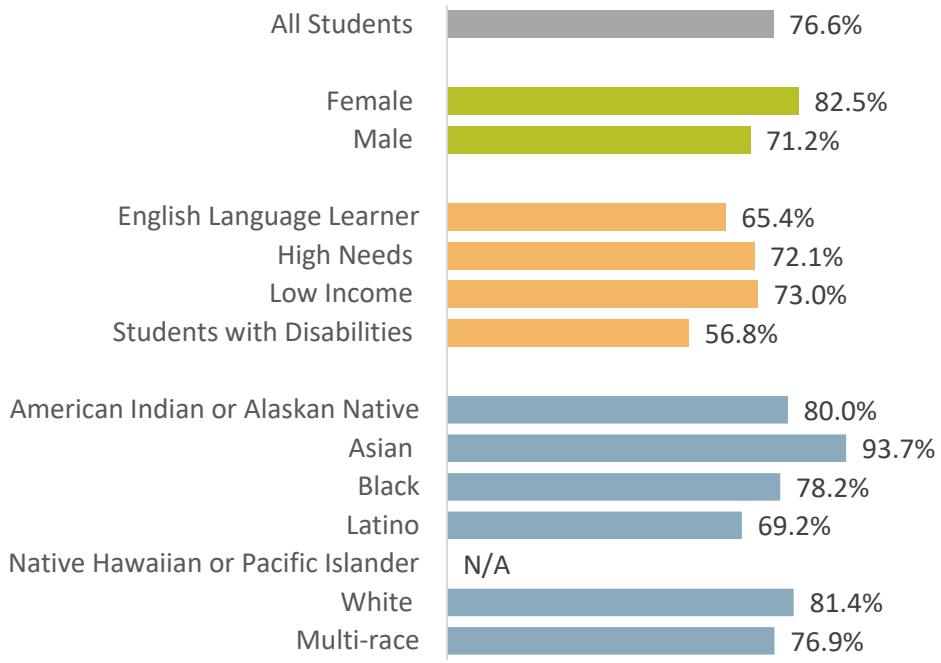
Figure 17. Percent Boston Public School Students Chronically Absent, 2018



DATA SOURCE: Massachusetts Department of Elementary and Secondary Education, School and District Profiles, Student Attendance, 2018

Approximately three quarters (76.6%) of students who started high school in 2013–2014 completed it in four years, graduating in 2018 (Figure 18). This graduation rate falls in the middle of other similarly sized cities.

Figure 18. Graduation Rate Among Boston Public High School Students, 2018



DATA SOURCE: Massachusetts Department of Elementary and Secondary Education, School and District Profiles, Cohort 2018 Graduation Rates, 2018

Key informant interviewees who work with families or who were in the educational field expressed the need for smaller class sizes, more social emotional supports, teachers that reflect the diversity of the community and more venues to discuss health and wellness.

Food Insecurity

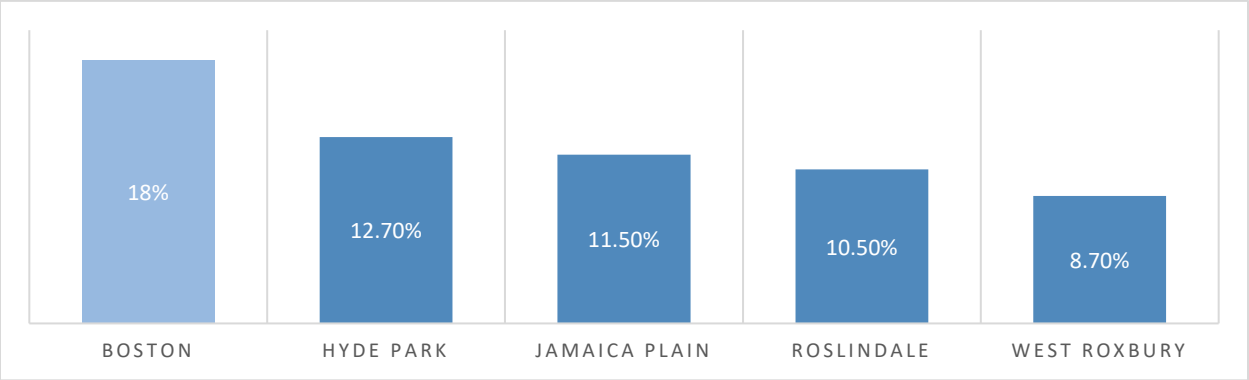
Experiences with Food Insecurity

Key informant interviews and low-income focus group participants across neighborhoods discussed the challenge of not having enough money to afford the food they and their families need. Focus group and interview participants identified seniors and children as being especially vulnerable to being food insecure. Key informants who worked with seniors described mobility and mental health issues that compounded challenges for them to access healthy food. It was also communicated that access, education and how to take advantage of services are issues. Quantitative data indicate that nearly one in five Boston residents reported being food insecure, in that it was sometimes or often true that the food they have purchased did not last and they did not have money to get more. In our priority neighborhoods, an average of 1 in 10 reported food insecurity per the Greater Boston Food Bank data (Figure 19), however, we know that number is much often higher but underreported due to shame or lack of access or knowledge to services. Experiences with food insecurity varied by population group (Figure 20). In aggregated 2013, 2015 and 2017 BRFSS data, Black (39.1%) and Latino (34.5%) residents were significantly more likely than White residents (10.7%) to report being food insecure as were foreign-born residents compared to U.S. born residents.

THE COST OF AFFORDABLE HEALTHY FOOD HAS GONE UP DRAMATICALLY. MOST PEOPLE CONCENTRATE ON KEEPING THEIR HOUSING AND WOULD RATHER GO WITHOUT ENOUGH FOOD OR OTHER NECESSITIES.

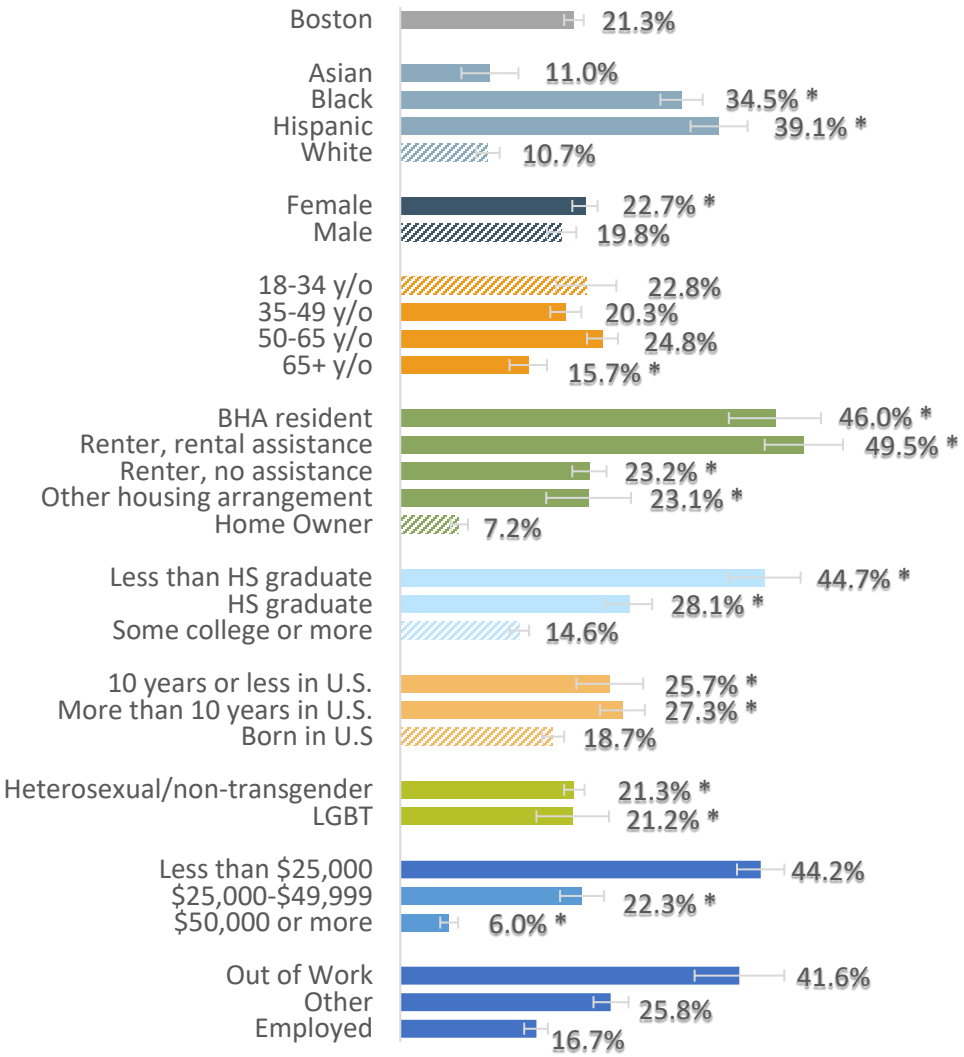
BWFH Key Informant, Hyde Park

Figure 19. Percent Population Food Insecure, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhoods, 2016



DATA SOURCE: Gundersen, C., A. Dewey, A. Crumbaugh, M. Kato & E. Engelhard. Map the Meal Gap 2018: A Report on County and Congressional District Food Insecurity and County Food Cost in the United States in 2016, Feeding America, Courtesy of The Greater Boston Food Bank, 2016
NOTE: Neighborhoods are defined per Boston Planning & Development Authority definitions

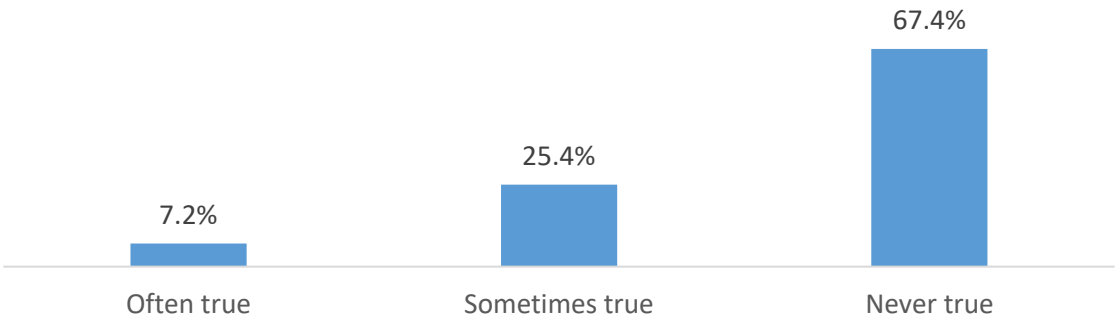
Figure 20. Percent Adults Reporting Food Purchased Did Not Last and Did Not Have Money to Get More, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined

The 2019 Boston CHNA survey asked a similar food insecurity question to Boston residents. Among this sample, one third of the sample indicated that in the past 12 months they felt it was sometimes or often true that they worried that their food would run out before they had money to buy more (Figure 21). Examining data by primary language spoken, nearly two thirds of the survey respondents (63.2%) who spoke Haitian Creole reported being food insecure, although it should be noted that the sub-sample only included 49 respondents. More than half of Spanish-speaking survey respondents (51.8%) reported feeling food insecure.

Figure 21. Percent Boston CHNA Survey Respondents Reporting That They Worried That Their Food Would Run Out Before They Got Money to Buy More in Past 12 Months (N=1,983), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019
NOTES: Question was worded: "In the last 12 months, have you worried that your food would run out before you got money to buy more?" and respondents were asked to select one of the following response options: often true, sometimes true, never true and prefer not to answer; Percentage calculations do not include respondents who selected "prefer not to answer"

Being on Medicaid is another indicator of financial insecurity and another potential risk factor for food insecurity. Food insecurity questions are now being asked of MassHealth patients in the new Accountable Care Organizations (ACOs) in the city. Among MassHealth patients screened in primary care settings in the Partners HealthCare system and Boston Medical Center, 33% indicated that in the past 12 months they were worried they would run out of food before they had money to buy more as well as that the food they had bought did not last and they did not have money to buy more (Table 5 and Table 6).

Table 5. Boston MassHealth Patients from Partners HealthCare and Boston Medical Center Screened for Social Needs and Worried Their Food Would Run Out in the Past 12 Months

Total Screened	# Worried Food Would Run Out	% Worried Food Would Run Out
7,848	2,605	33%

DATA SOURCE: Social Needs Screening Data, Partners HealthCare and Boston Medical Center (BMC), 2018
NOTES: Analyses only among MassHealth ACO primary care patients and Boston residents; Positive screen for patients who indicated it was *often* or *sometimes true* that within the past 12 months, they worried whether food would run out before they had money to buy more

Table 6. Boston MassHealth Patients from Partners HealthCare and Boston Medical Center Screened for Social Needs Who Ran Out of Food in the Past 12 Months

Total Screened	# Ran Out of Food	% Ran Out of Food
7,863	2,616	33%

DATA SOURCE: Social Needs Screening Data, Partners HealthCare and Boston Medical Center (BMC), 2018
NOTES: Analyses only among MassHealth ACO primary care patients and Boston residents;Positive screen for patients who indicated it was *often* or *sometimes true* that within the past 12 months, the food they bought just didn't last and they didn't have money to get more

Among MassHealth patients screened in primary care settings at either Brigham and Women's Hospital or Brigham and Women's Faulkner Hospital, over 20% of those in our primary service area neighborhoods indicated that in the past 12

months they were worried they would run out of food before they had money to buy more as well as that the food they had bought did not last and they did not have money to buy more (Table 7).

Table 7. Brigham and Women's Hospital/Brigham and Women's Faulkner Hospital Social Determinates of Health Food Insecurity Screening Results

Neighborhood	SDOH Question	(+) Screens	Total Unique Screened	% Positive
Hyde Park	FOOD 01—WORRIED FOOD WOULD RUN OUT	72	270	26.7%
Hyde Park	FOOD 02—FOOD BOUGHT DIDN'T LAST	69	270	25.6%
Jamaica Plain	FOOD 01—WORRIED FOOD WOULD RUN OUT	68	269	25.3%
Jamaica Plain	FOOD 02—FOOD BOUGHT DIDN'T LAST	54	269	20.1%
Roslindale	FOOD 01—WORRIED FOOD WOULD RUN OUT	72	261	27.6%
Roslindale	FOOD 02—FOOD BOUGHT DIDN'T LAST	62	261	23.8%
West Roxbury	FOOD 01—WORRIED FOOD WOULD RUN OUT	22	93	23.7%
West Roxbury	FOOD 02—FOOD BOUGHT DIDN'T LAST	n <20	93	---

DATA SOURCE: Brigham and Women's Hospital and Brigham and Women's Faulkner Hospital

Use and Perceptions of Food Assistance and Access

Nearly 20% of Boston residents receive benefits from the Supplementation Nutrition Assistance Program (SNAP) (formerly food stamps).

SOCIAL AND PHYSICIAL ENVIRONMENT

Housing

Housing Burden and Affordability

Lack of affordable housing was a prominent theme that arose across all key informant interviews and focus groups. Participants across geographies consistently shared that the rising cost of living in Boston was a major day-to-day concern. Most reported a need for more affordable housing for low and moderate-income levels. Quantitative data also indicate that the proportion of affordable housing to market rate is decreasing, rather than increasing. Even with the growth in development, the proportion of affordable housing units in total production in Boston has been falling since 2003. In the period 1996–2003, more than 39%of all permits were for affordable units. In the following period, 2004–2010, the proportion was down to less than 26%. From 2011 to 2016, the proportion has fallen to about 18 percent.[2]

HOUSING IS UNAFFORDABLE FOR MANY—IT OFTEN DISPLACES LOWER INCOME, STRUGGLING FAMILIES AND ELDERLY. WE SEE A LOT OF FAMILIES DOUBLING UP TO STAY IN THEIR HOMES.

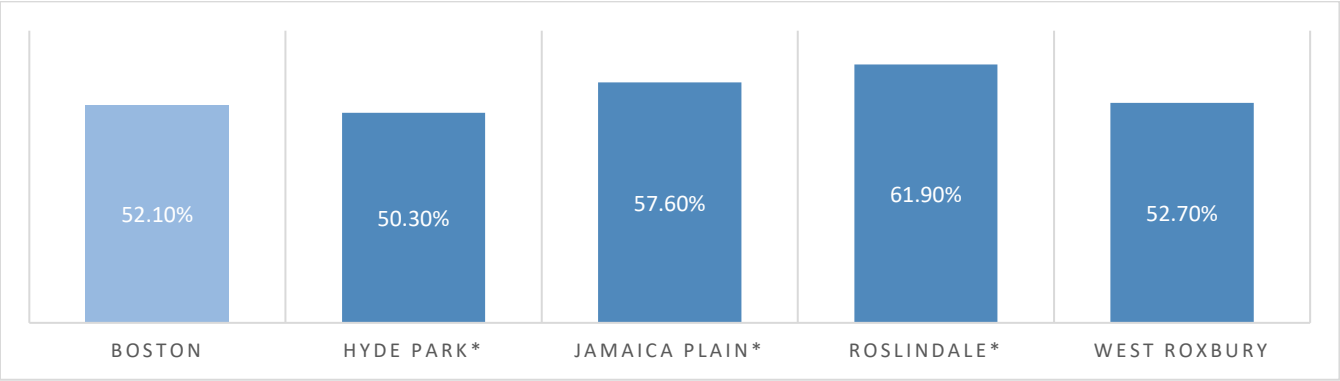
BWFH Key Informant, Hyde Park

Several focus group and interview participants noted that high housing costs were particularly difficult for people with low or fixed incomes, such as seniors and residents who work low-wage jobs. Many described the influx of housing developments being built across the city but perceived that the cost of these units was often inaccessible to the average resident.

Housing cost data aligns with resident and leader concerns cited during focus groups and interviews. Housing costs are a larger economic burden for renters in the city. According to the American Community Survey, more than half (52.1%) of renter-occupied units across Boston spent 30% or more of their income on housing costs (

Figure 22). For BWFH's priority neighborhoods, a higher proportion of residents in rental units in Roslindale (62%), Jamaica Plain (58%) and West Roxbury (53%) spent at least 30% of their income on housing costs, compared to the Boston overall average.

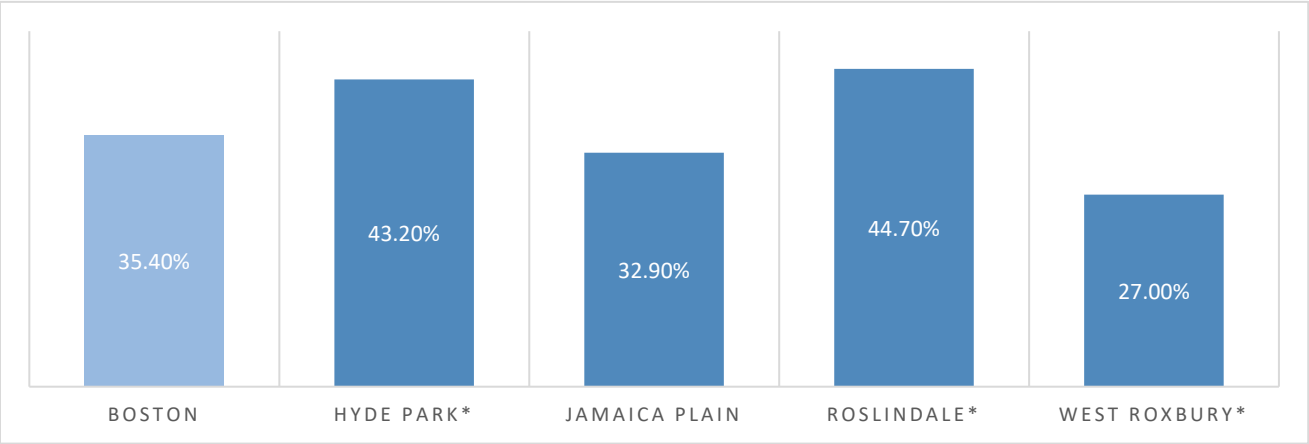
Figure 22. Percent Housing Units Where 30% or More of Income Spent on Monthly Housing Costs, by Renter, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017



DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: Neighborhoods as defined by Boston Public Health Commission; Asterisk (*) denotes neighborhood estimate was significantly different compared to the Boston estimate ($p < 0.05$)

As shown in Figure 23, on average one third (35%) of owner-occupied units in Boston spent at least 30% of their income on monthly housing costs, much smaller than the burden of housing costs for renters across the city in 2013–2017. Compared to Boston overall, a significantly higher proportion of residents of owner-occupied units in Roslindale (45%) and Hyde Park (43%) spent at least 30% of their income on housing.

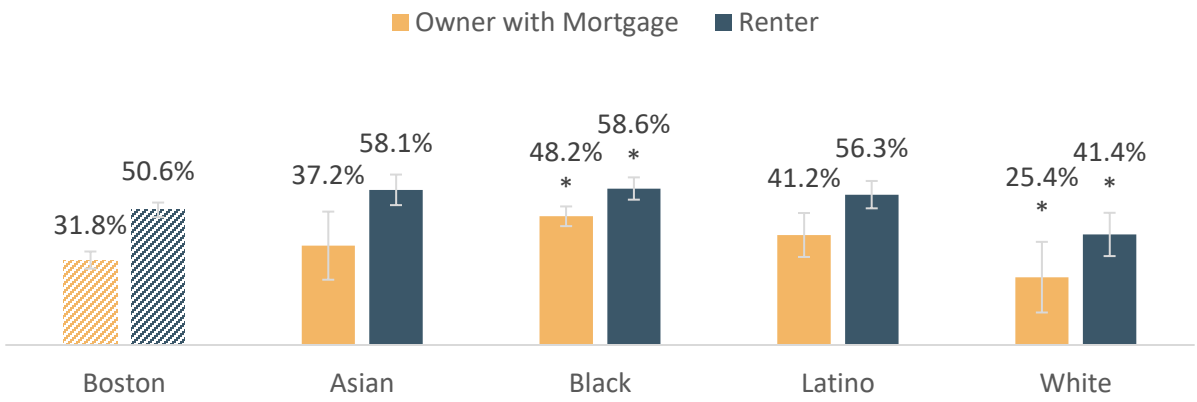
Figure 23. Percent Housing Units Where 30% or More of Income Spent on Monthly Housing Costs, by Owner with Mortgage, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013–2017



DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: Neighborhoods as defined by Boston Public Health Commission; Asterisk (*) denotes neighborhood estimate was significantly different compared to the Boston estimate ($p < 0.05$)

As discussed above, across Boston and each of the four largest racial/ethnic groups, a higher proportion of renter-occupied units spent at least 30% of their income on housing compared to home owners (Figure 24). In 2017, 48% of Black residents who own their homes and 59% of Black residents who rent their homes spent 30% or more of their income on housing, compared to the Boston average, a significant difference. In contrast, 25% of White residents who own their homes and 41% of White residents who rent their homes spent at least 30% of their income on housing, significantly less than the Boston average.

Figure 24. Percent Housing Units Where 30% or More of Income Spent on Monthly Housing Costs by Housing Tenure, by Boston and Race/Ethnicity, 2017



DATA SOURCE: U.S. Census, American Community Survey 1-Year Estimates, 2017
NOTE: Asterisk (*) denotes race/ethnicity estimate was significantly different compared to the Boston estimate ($p < 0.05$)

For Boston overall, residents spent an average of $1,445 per month on housing if they rent and $2,293 per month if they owned their housing unit with a mortgage (Table 8).

Table 8. Median Monthly Housing Costs, by Zip Code, by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2013-2017

	Neighborhood	Owner with Mortgage	Owner without Mortgage	Renter
Boston	Boston	$2,293	$776	$1,445
02136	Hyde Park	$2,097	$560	$1,178
02130	Jamaica Plain	$2,313	$879	$1,518
02131	Roslindale	$2,118	$644	$1,365
02132	West Roxbury	$2,273	$600	$1,539

DATA SOURCE: U.S. Census, American Community Survey 5-Year Estimates, 2013–2017
NOTE: NA denotes where data are suppressed due to insufficient sample size; † indicates where the median estimate falls in the upper interval of an open-ended distribution

Given the concerns raised about housing affordability in focus groups and interviews, it is not surprising that housing costs have risen in the past several years. From 2011 to 2016, the median price for single-family homes in Boston increased by 48%, from $359,000 (2011) to $530,000 (2016) (Table 9). Home prices increased in each neighborhood over this period for which data were available.

Table 9. Median Single-Family Home Price (in U.S. Dollars), by Boston and Brigham and Women's Faulkner Hospital Priority Neighborhood, 2011, 2015 and 2016

	2011	2015	2016
Boston	$359,000	$475,000	$530,000
Hyde Park	$240,000	$359,000	$385,500
Jamaica Plain	$577,500	$820,000	$782,500
Roslindale	$338,000	$450,000	$500,500
West Roxbury	$385,000	$465,000	$525,000

DATA SOURCE: Massachusetts Association of Realtors and MLS Property Information Network, as cited by Boston Magazine, https://www.bostonmagazine.com/best-places-to-live-2017-single-family-homes/, 2011, 2015 and 2016
NOTES: Neighborhoods as defined by Boston Planning and Development Agency; NA denotes where data were not available

According to key informants and most focus group participants who identified as low-income, housing costs comprise a large part of spending for their households, leaving few resources for other needs such as healthcare, medicine or food.

Housing Assistance

Across many focus groups and in several key informant interviews, residents noted that the demand for Section 8 and other subsidy programs is much larger than what is available, resulting in very long wait lists. Section 8 refers to Section 8 of the Housing Act of 1937 and is a public program which authorizes payment rental housing assistance to private landlords on behalf of low-income households.

Those working with older adults expressed concern for seniors on fixed incomes who are not able to remain in their homes and then must face long wait lists for affordable senior housing. This was especially true in our key informant surveys for our priority neighborhoods. There was an expressed need to assist seniors to increase their ability to stay in place.

Gentrification and Housing Costs

Gentrification, generally used to describe the displacement of low-income communities by affluent outsiders, was mentioned across all focus groups and interviews and was directly correlated with unaffordable housing costs. Many focus group participants spoke of experiences being *"priced out"* of neighborhoods and perceived that there was an influx of more affluent, White, community residents across the city.

Overcrowding

The housing cost burden has cascading effects on residents' home and social environment. Overcrowding, housing instability and homelessness are only a few of the themes that emerged in discussions with focus group and interview

participants. For example, focus group participants who identified as low-wage workers explained that in order to make ends meet, it was often necessary to live in multigenerational households, with roommates or with multiple families.

Overcrowding is defined as more than one person per room living in a housing unit. The percent of residents reporting overcrowded housing was significantly higher than the city average in our priority neighborhoods of Hyde Park and Roslindale.

Homelessness

Homelessness was discussed as a concern across focus group and key informant geographies.

In 2018, there were an estimated 6,188 residents experiencing homelessness or housing instability in Boston. The majority or homeless residents stayed in emergency shelters (5,427 persons), followed by transitional shelters (598 persons) and unsheltered housing (163 persons). Among this homeless population, four in ten homeless residents identified as Black (45.1%), 36.1% as White and 17.0% as two or more races. More than 35% identified as Latino (any race).

In 2018, households without children (67%) comprised two thirds of the homeless population in Boston (Table 10). Three in ten homeless households included at least one adult and one child (31.8%). One percent of homeless households included only children (1%). Emergency shelter was the most common type of shelter for homeless households, followed by transitional housing.

Table 10. Total Number of Homeless Households Living in Boston, by Household Type and Shelter Type, 2018

	Sheltered Emergency Shelter	Transitional Housing	Unsheltered	Total	Percent of Total
Households without Children	1,806	407	163	**2,376**	**67.4%**
Households with at least one adult and one child	1,075	46	0	**1,121**	**31.8%**
Households with only children	28	2	0	**30**	**0.9%**
Total	**2,909**	**455**	**163**	**3,527**	

DATA SOURCE: U.S. Department of Housing and Urban Development, Continuums of Care, HUD 2018 Continuum of Care Homeless Assistance Programs Homeless Populations and Sub Populations, 2018
NOTE: Safe Haven programs are included in the Transitional Housing category

Among ACO MassHealth patients who were screened in Partners HealthCare and Boston Medical Center primary care settings, 17% were indicated that they were homeless or did not have a steady place to live (Table 11).

Table 11. Boston MassHealth Patients from Partners HealthCare and Boston Medical Center Screened for Social Needs and Are Homeless

Total Screened	# Homeless	% Homeless
7,886	1,320	17%

DATA SOURCE: Social Needs Screening Data, Partners HealthCare and Boston Medical Center (BMC), 2018
NOTES: Analyses only among MassHealth ACO primary care patients and Boston residents; Positive screen as homeless for patients who indicated that they do not have housing or do not have a steady place to live (e.g., temporarily staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station or in a park)

Transportation

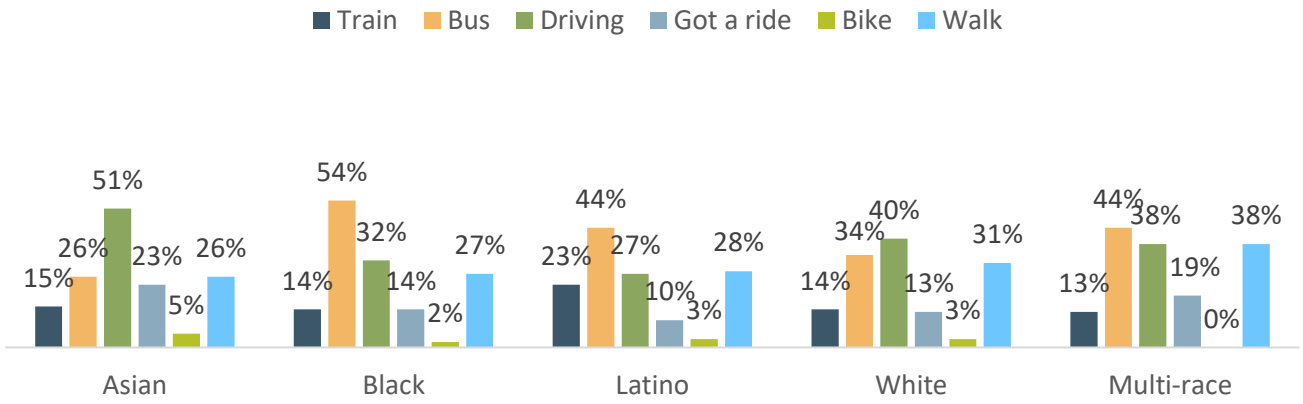
Means of Transportation and Transportation Costs

Across Boston, use of a personal vehicle (39%) was the most common form of transportation to work, followed by public transportation (34%), walking (15%) and carpooling (6%) in 2013–2017.

> PUBLIC TRANSPORTATION IS A CHALLENGE. IN HYDE PARK, THERE IS NO GREEN, ORANGE OR RED LINE. THE DOWNTOWN AREA IS REALLY ONLY ACCESSIBLE BY COMMUTER LINE OR ONE BUS.
>
> *BWFH Key Informant, Hyde Park*

In 2015, 1,056 patients of 14 community health centers across Boston were asked about their means of transit to the health center on the day of their health center visit (Figure 25). The bus was the most common form of transportation for patients who identified as Black (54%), Latino (44%), Multi-Racial (44%) or who did not report a racial/ethnic identity (43%), followed by driving (27%–38%). Among respondents who identified as Asian, half (51%) reported driving to the health center and one quarter (26%) used the bus to get to the health center. Among respondents who identified as White, driving (40%) was the most common form of transit to the health center, followed by taking the bus (34%) and walking (31%).

Figure 25. Percent Survey Respondents Reported Usual Form of Transit Taken to Health Center, by Race/Ethnicity, 2015



DATA SOURCE: Fair Public Transportation Report: Community Health Center Directors Roundtable, 2015

In 2014, data show that residents in the Boston MSA spent $9,997 on average on transportation costs, which includes costs relating to vehicles and public transit.[3] From FY2001 to FY2014 residents in the Boston MSA spent 11 to 13% of their household income on transportation. Transportation costs as a proportion of household income peaked in FY2001 and FY2005 at 13% and were lowest in FY2011 (11%).

Transportation Barriers

Across most focus groups, parking and traffic were mentioned as a day-to-day concern for many community residents. In our priority neighborhoods, in the southwest part of the city, there are very limited options due to the lack of subway lines. Many find the commuter rail cost-prohibitive, leaving the bus as the only option. The bus has issues for those with mobility challenges and does not conveniently reach some of the outer parts of the neighborhoods.

Several focus group and interview participants noted that seniors struggle with accessing transportation because of mobility issues or because assistance programs are not consistent or timely. Participants explained often being late or missing medical appointments because transportation assistance was unreliable. Others indicated that it was difficult to coordinate services because of having to book rides multiple days in advance or because the vehicles were inaccessible.

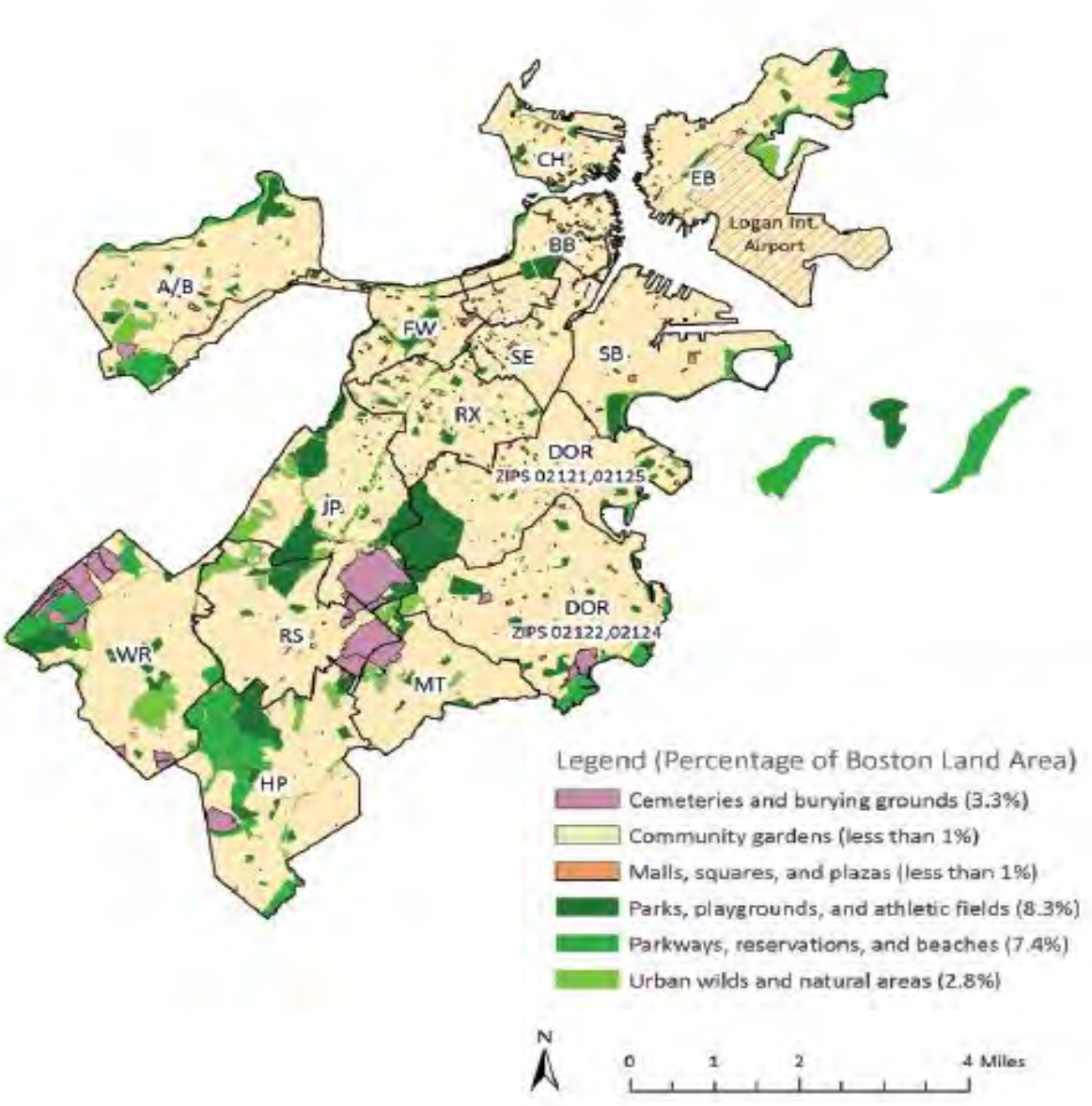
Transportation barriers were also identified by those with limited English proficiency, who reported difficulties navigating the transit system. A few focus group participants mentioned the recent increases to MBTA fares and the perception that these increases disproportionally impact seniors, low-wage workers and communities of color.

Built Environment

Green Space and Walkability

Having a safe, accessible green space is critical to health. Approximately 49% of Boston's 47 square miles (excluding the Harbor Islands) is zoned residential, while approximately 24% is zoned as business, institutional, industrial or mixed-use. The remaining 27% consists mostly of open space and miscellaneous. Figure 26 displays the green space and open space in Boston, where 8.3% of land is comprised of parks, playgrounds and athletic fields and 7.4% is parkways, reservations and beaches. As noted in the previous Health of Boston report, approximately 11 square miles of Boston's 48 square miles (including the Harbor Islands) is open space. Boston also comprises 29 miles of bicycle trails. One of the largest portions of bicycle trails are in Hyde Park (about 6 miles); however, there is less than one mile of bicycle trails in Roslindale.[4] Jamaica Plain was cited as having abundant green space and areas to walk with Jamaica Pond and the Arnold Arboretum.

Figure 26. General Open Space, by Type and Neighborhood, 2017

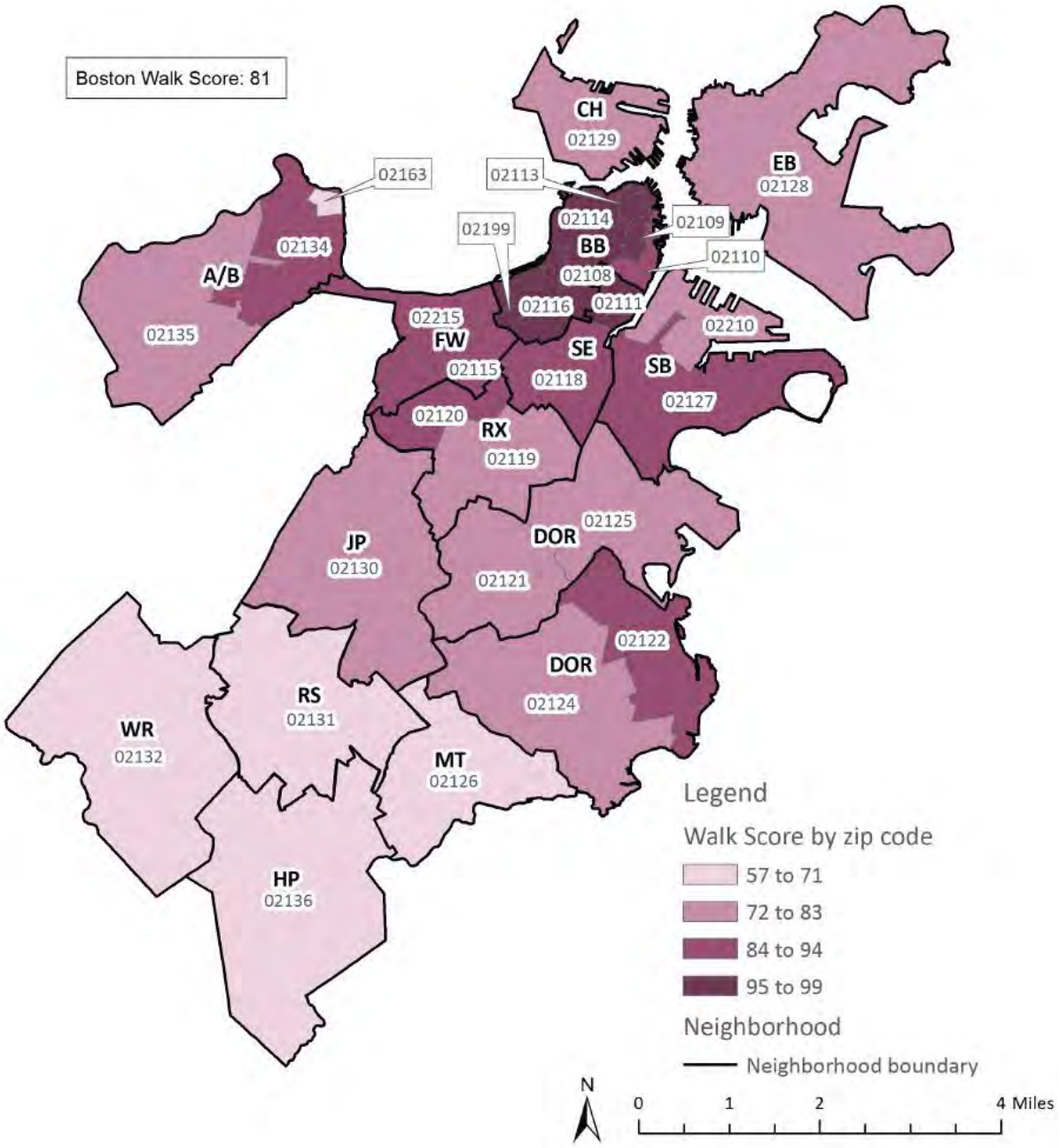


DATA SOURCE: City of Boston, Parks and Recreation Department, Boston Open Space, as reported and analyzed by Boston Public Health Commission, Research and Evaluation Office, Health of Boston Report 2016-2017, 2017

Walkability

Walkability in a neighborhood is important for facilitating physical activity as well as personal safety. The Walk Score walkability index, ranges from 0 to 100, based on walking routes to local destinations such as grocery stores, parks, schools and stores. Boston is the third most walkable large city with a Walk Score of 81. In 2017, the Walk Score varied widely by zip code in Boston from 57 to 99, with the low Walk Scores (57–71) being observed in three of our four priority neighborhoods—Hyde Park, West Roxbury and Roslindale (Figure 27).

Figure 27: Walk Score, by Zip Code, 2017

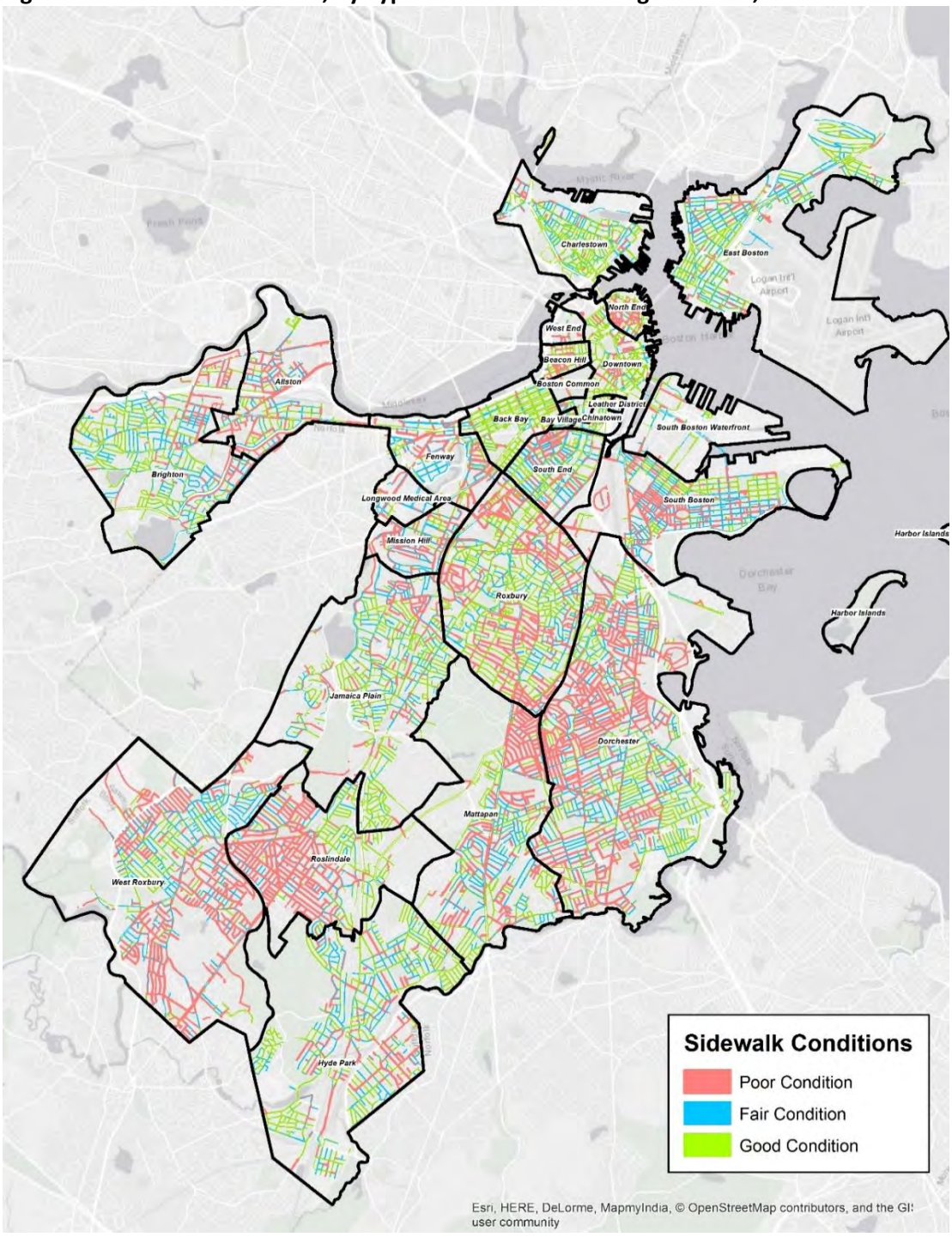


DATA SOURCE: Walk Score, www.walkscore.com, as reported and analyzed by Boston Public Health Commission, Research and Evaluation Office, Health of Boston Report 2016–2017, 2017

NOTES: "BB" includes the Back Bay, Beacon Hill, Downtown, North End and West End; "SE" includes South End and Chinatown; Walk Score is an index of pedestrian-friendliness that ranges from 0 to 100; Data for the portion of zip code 02467 in Boston were unavailable; Map does not include the Harbor Islands

Figure 28 provides a map of the city and where sidewalks are considered to be in good, fair or poor condition. Roslindale and West Roxbury are two neighborhoods in our priority area that appear to have the largest concentrations of poor condition sidewalks in the city.

Figure 28. Sidewalk Conditions, by Type of Condition and Neighborhood, 2014



DATA SOURCE: Courtesy of City of Boston, Public Works Department, 2014

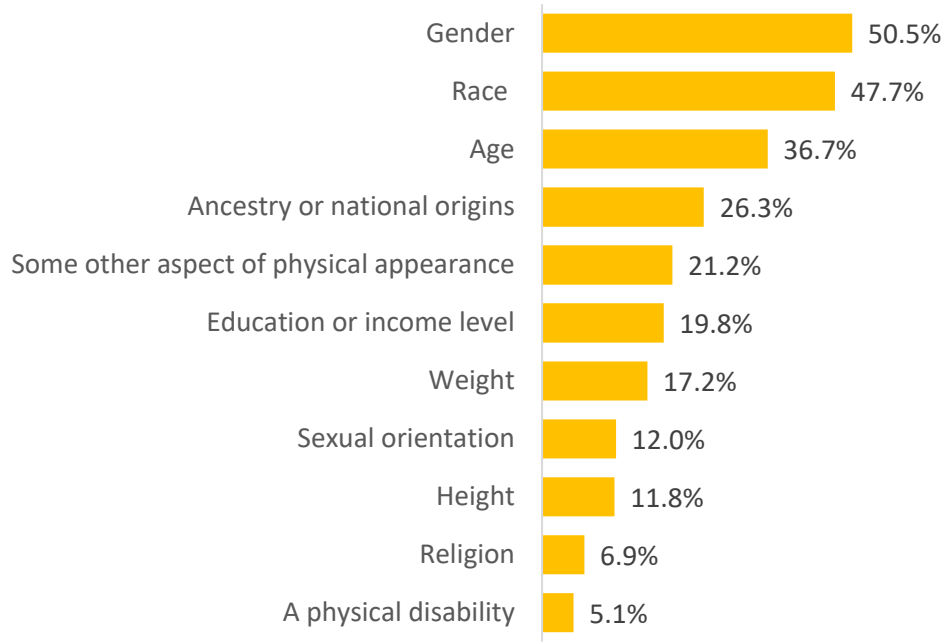
Discrimination

Discrimination was mentioned in several focus groups across the city, particularly with immigrants and non-English speakers, LGBTQ residents, substance users and the homeless population. These experiences were described as both subtle and overt acts felt on a regular basis ranging from verbal altercations to more systemic issues, such as minorities

being passed up for job promotions despite appropriate qualifications. All of these issues were compounded when residents belonged to multiple oppressed identities, for example, queer people of color or non-English speaking residents in recovery.

Approximately half of respondents attributed their experience of discrimination to their gender (51%) or race (48%). More than one third reported age-based discrimination (37%) and one quarter linked their experience of discrimination with their ancestry or national origins (26%). Approximately one in five respondents reported discrimination based on some other aspect of their physical appearance (21%) or their education or income level (20%) (Figure 29).

Figure 29. Percent Boston CHNA Survey Respondents Reporting Their Own Perceived Reasons for Their Experiences of Discrimination If They Reported Experiencing Discrimination a Few Times a Year or More (N=915), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019
NOTES: Data organized in descending order; Respondents were allowed to select multiple responses, so percentages may not sum up to 100%; Percentage calculations include respondents who selected "almost every day," "at least once a week," "a few times a month" and "a few times a year" to the previous question on experiences of discrimination; Percentage calculations do not include respondents who selected "prefer not to answer/don't know"

Community Assets

Perceptions of Community Strengths and Assets

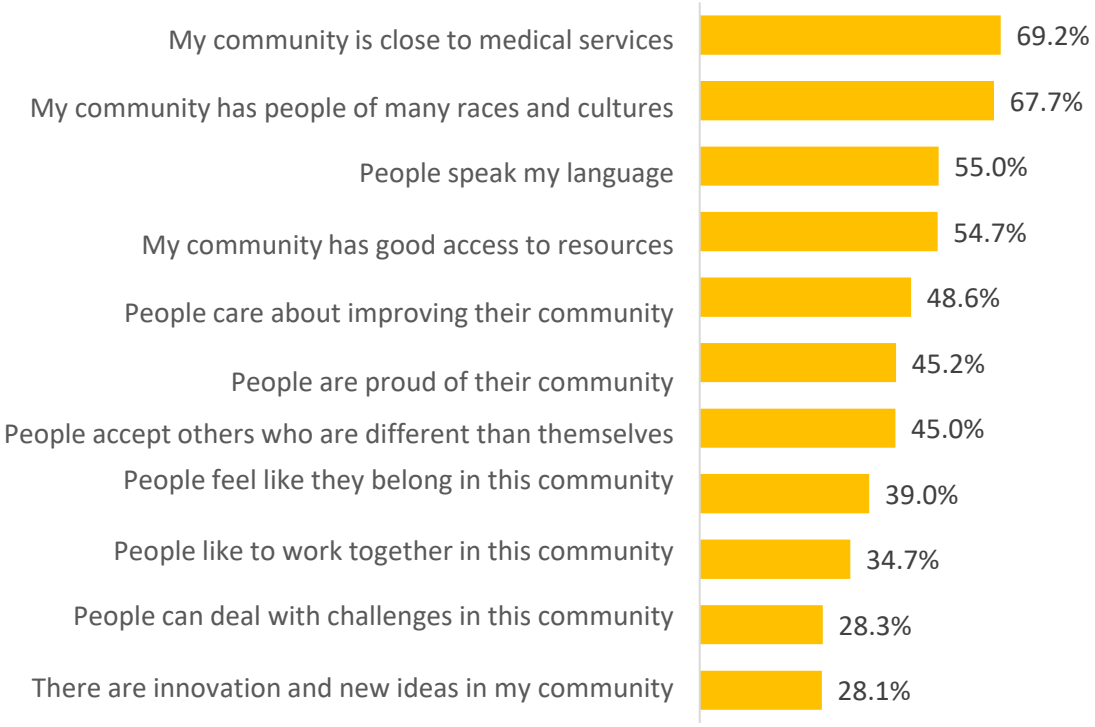
Boston communities have numerous strengths according to focus group members, interviewees and community survey respondents. Neighborhoods were described as being "tight-knit" with substantial cultural diversity and strong faith communities.

> PEOPLE IN MY NEIGHBORHOOD ARE WILLING TO HELP THEIR COMMUNITY AND NEIGHBORS WHEN THEY ARE IN NEED.
> *BWFH Key Informant, West Roxbury*

Sixty-eight percent of community survey respondents identified racial and cultural diversity as a top strength of their community. Activism and resiliency are other notable characteristics of Bostonians. The city's colleges and universities are world class. Proximity and abundance of healthcare is also a key strength. Across the city, there are 17 hospitals, 33 health center access sites and 26 facilities providing mental health and related services. Seventy percent of community survey respondents identified proximity to medical services as the top strength of their communities (Figure 30).

Other assets include services and support for students at Boston Public Schools and positive strides in the city for LGBTQ residents, including within the school system. Finally, the social services network in Boston was perceived to be large, strong and collaborative, although some suggested more could be done to enhance cooperation across institutions and reduce duplication.

Figure 30. Percent Boston CHNA Survey Respondents Reporting Strengths of Their Community or Neighborhood (N=2,078), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019
NOTES: Percentage calculations do not include respondents who selected "none of the above"

In BWFH's priority neighborhoods, race and culture was seen as the top strength for both Hyde Park and Jamaica Plain. In Roslindale, resilience to change was cited as the top strength and in West Roxbury, it was being close to medical services.
Three of the four communities, Hyde Park, Jamaica Plain and West Roxbury, cited people care about improving the community in the top five. Hyde Park, Jamaica Plain and West Roxbury all identified that people are proud of their community. Hyde Park, Roslindale and West Roxbury all named people speaking my language in the top as well (Table 12).

Table 12. Percent Boston CHNA Survey Respondents Reporting Strengths of Their Community or Neighborhood, by Selected Neighborhoods, 2019

	Hyde Park (N=85)	Jamaica Plain (N=176)	Roslindale (N=128)	West Roxbury (N=77)
1	My community has people of many races and cultures	My community has people of many races and cultures	People can deal with challenges in this community	My community is close to medical services
2	My community has good access to resources	People accept others who are different than themselves	There are innovation and new ideas in my community	My community has good access to resources
3	People care about improving their community	People care about improving their community	People like to work together in this community	People care about improving their community
4	People are proud of their community	My community is close to medical services	People feel like they belong in this community	People are proud of their community
5	People speak my language	People are proud of their community	People speak my language	People speak my language

SOURCE: Boston Collaborative CHNA Survey 2019

As noted, focus group participants who identified as LGBTQ indicated that Boston is making positive strides related to care for LGTBQ residents. Specifically, Boston Public Schools has made many inroads in this area for LGBTQ students. In the 2017–2018 school year, there were 33 Boston Public Schools (with grades 6–12) that had Gay Straight Alliances (GSA) in the schools.[5]

Additionally, Boston Public Schools offers many services and supports for different sub-populations. As shown in Table 13, more than three quarters of Boston Public Schools offer additional support for students experiencing trauma, students experiencing homelessness and English Language Learners.

Table 13. Number of and Percent of Boston Public Schools Offering Additional Supports for Sub-Populations, by Sub-Population, 2018

	Number	Percent
Expectant and parenting students	30	24.0%
Refugee, asylee, documented and undocumented immigrant students	63	50.4%
LGBTQ students	69	55.2%
Court-involved students	75	60.0%
ELL students and ELL students with disabilities	99	79.2%
Students experiencing homelessness	105	84.0%
Students experiencing trauma	110	88.0%

DATA SOURCE: DATA SOURCE: Boston Public Schools, Health and Wellness Department, 2018

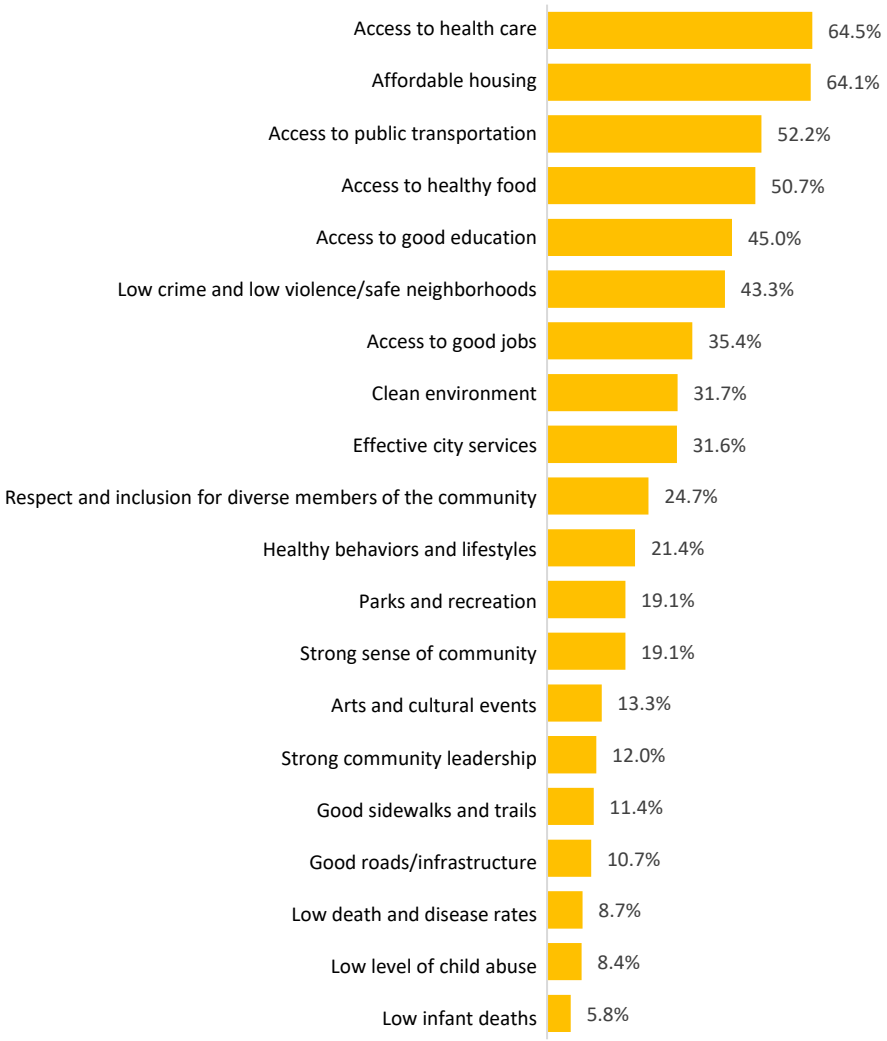
COMMUNITY HEALTH ISSUES

Perceptions of a Healthy Community

Understanding residents' perceptions of health is a critical step in the CHNA process, providing insights into lived experiences, including key health concerns and facilitators and barriers to addressing health conditions. Access to healthcare (65%) and affordable housing (64%) were the first and second leading factors, respectively, that Boston CHNA survey respondents identified as important for a healthy community (Figure 31). Access to public transportation (52%) and access to healthy food (51%) emerged as the third and fourth leading factors that respondents characterized as important for a healthy community.

As discussed in previous sections, key informants described a need for more emphasis on prevention to address these issues. The lack of providers and services—especially that meet the needs of diverse population groups—was noted as a barrier to addressing some of these issues which contribute to extensive wait lists according to participants.

Figure 31. Percent Boston CHNA Survey Respondents Reporting the Five Most Important Factors That Define a "Healthy Community" (N=2,052), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019

As shown in Table 14, nearly three quarters of Hyde Park respondents (73%) cited access to public transportation as important. Respondents in Jamaica Plain (73%) and Roslindale (62%) cited affordable housing as an area of importance. More than half of respondents in Hyde Park cited low death and disease rate (53%) and low crime and violence as important (53%) and parks and recreation (61%) as most important. In Jamaica Plain and Roslindale, more than half of respondents identified access to healthcare, healthy food and public transportation as most important with Jamaica Plain also naming access to good education (50%) as important.

Table 14. Percent Boston CHNA Survey Respondents Reporting the Five Most Important Factors That Define a "Healthy Community," by Selected Neighborhoods, 2019

	Hyde Park (N=85)	Jamaica Plain (N=179)	Roslindale (N=131)	West Roxbury (N=79)
Access to health care	41.9%	58.1%	55.0%	60.8%
Access to healthy food	47.7%	57.0%	49.6%	49.4%
Access to public transportation	73.3%	54.8%	55.0%	50.6%

Access to good jobs	44.2%	33.0%	33.6%	39.2%
Affordable housing	38.4%	72.6%	62.6%	49.4%
Access to good education	47.7%	50.3%	45.8%	44.3%
Arts and cultural events	47.7%	7.8%	13.7%	7.6%
Clean environment	37.2%	24.6%	34.4%	34.2%
Effective city services	30.2%	25.7%	37.4%	50.6%
Good roads/ infrastructure	29.1%	7.3%	8.4%	13.9%
Good sidewalks and trails	23.3%	8.4%	8.4%	13.9%
Healthy behaviors and lifestyles	1.2%	16.8%	21.4%	25.3%
Low death and disease rates	52.9%	8.9%	8.4%	10.1%
Low crime and low violence/safe neighborhoods	52.9%	43.6%	43.5%	53.2%
Low infant deaths	47.1%	5.6%	3.8%	7.6%
Low level of child abuse	30.6%	8.9%	6.1%	11.4%
Parks and recreation	61.2%	17.9%	23.7%	17.7%
Respect and inclusion for diverse members of the community	48.2%	33.5%	30.5%	38.0%
Strong community leadership	11.8%	5.0%	6.9%	12.7%
Strong sense of community	41.2%	19.6%	13.7%	26.6

DATA SOURCE: Boston CHNA Community Survey, 2019

Priority Community Health Concerns

When asked to identify the top most important concerns in their community or neighborhood that shape their community's health, housing quality or affordability (51%) and alcohol, drug abuse, addiction and overdose (49%) were the top priorities, followed by mental health (42%) and community violence (31%) (

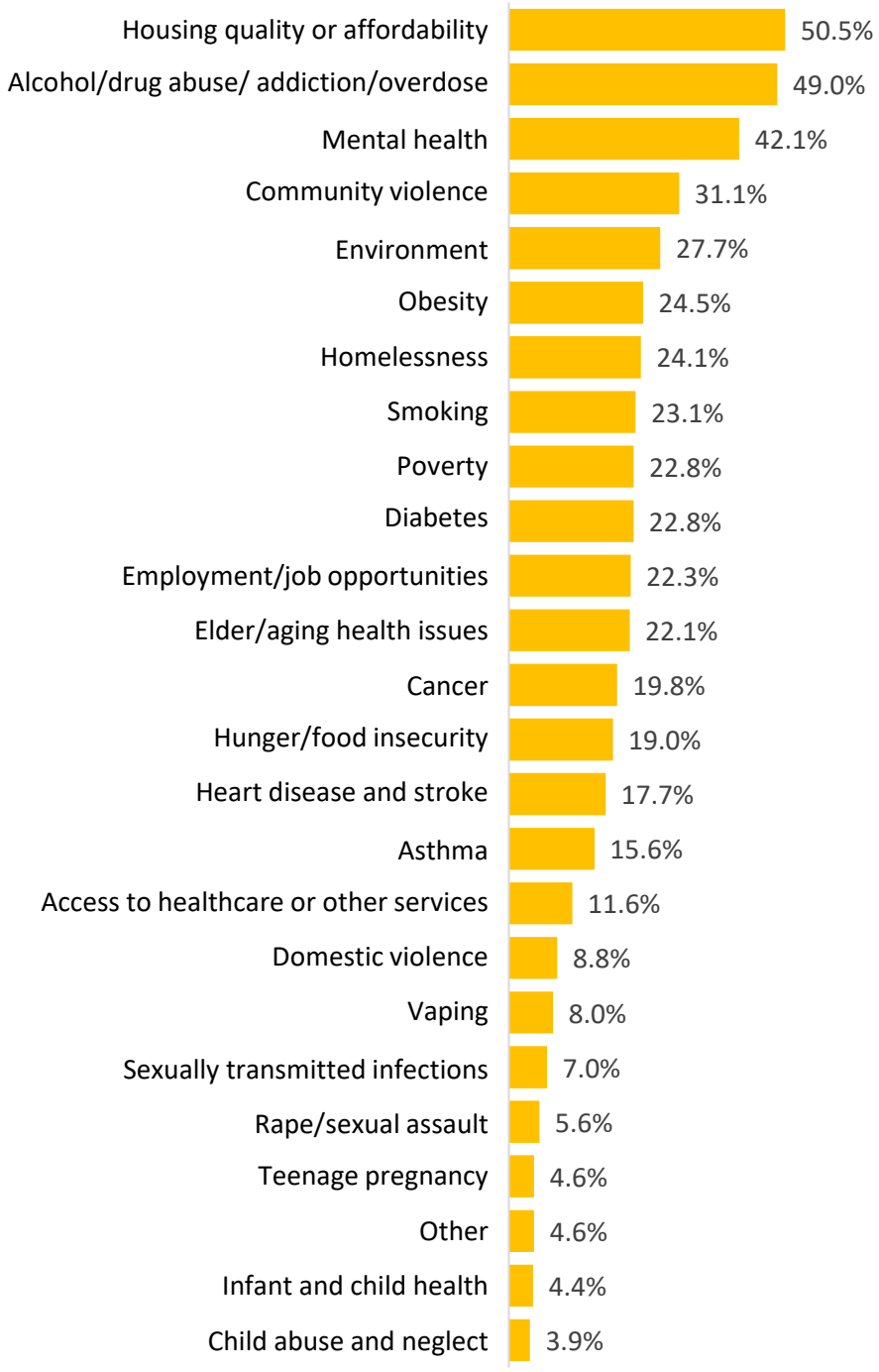
Figure 32).

Approximately one quarter of respondents cited the environment (28%), obesity (25%), homelessness (24%), smoking (23%), poverty (23%), diabetes (23%), employment/job opportunities (22%) and elder/aging health issues (22%) as among the leading concerns.

Shown in Table 15, BWFH's priority community health concerns were similar across our neighborhoods. In Hyde Park (58%), Jamaica Plain (69%) and Roslindale (59%)—housing quality or affordability emerged as the top leading health concern. In West Roxbury (35%) it was in the top five concerns. Mental health was the top concern in West Roxbury (59.0%) and alcohol, drug abuse, addiction and overdose was among the top five concerns for respondents in all neighborhoods. In Hyde Park and West Roxbury, the health of elders and aging-related concerns was among the top five concerns. In Hyde Park and Jamaica Plain, community violence also topped the list.

Hunger and food insecurity were a noteworthy mention in Hyde Park (22%), Jamaica Plain (24%) and Roslindale (30%).

Figure 32. Percent Boston CHNA Survey Respondents Reporting Top Most Important Concerns In Their Community or Neighborhood That Affect Their Community's Health (N=2,053), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019

Table 15. Percent Boston CHNA Survey Respondents Reporting Top Most Important Concerns in Their Community or Neighborhood That Affect Their Community's Health, by Selected Neighborhoods, 2019

	Hyde Park (N=85)	Jamaica Plain (N=177)	Roslindale (N=125)	West Roxbury (N=78)
Heart disease and stroke	15.3%	9.6%	12.0%	24.4%
Cancer	12.9%	7.9%	21.6%	32.1%
Asthma	16.5%	10.7%	16.8%	9.0%
Diabetes	21.2%	12.4%	14.4%	12.8%
Obesity	23.5%	20.9%	25.6%	26.9%
Hunger/food insecurity	22.4%	24.3%	30.4%	11.5%
Elder/aging health issues	31.8%	17.5%	23.2%	47.4%
Infant and child health	8.2%	4.0%	3.2%	5.1%
Mental health	43.5%	51.4%	44.0%	59.0%
Alcohol/drug abuse/ addiction/overdose	41.2%	45.8%	36.8%	38.5%
Smoking	16.5%	7.9%	16.0%	28.2%
Vaping	8.2%	5.7%	7.2%	24.4%
Sexually transmitted infections	5.9%	2.8%	1.6%	1.3%
Teenage pregnancy	5.9%	4.5%	2.4%	2.6%
Environment	22.4%	33.9%	36.8%	30.8%
Community violence	27.1%	43.5%	20.8%	11.5%
Domestic violence	9.4%	6.2%	6.4%	1.3%
Child abuse and neglect	7.1%	2.8%	2.4%	2.6%
Rape/sexual assault	5.9%	2.8%	2.4%	1.3%
Homelessness	18.8%	24.9%	10.4%	9.0%
Housing quality or affordability	57.7%	69.5%	59.2%	34.6%
Poverty	20.0%	35.0%	21.6%	11.5%
Employment/job opportunities	25.9%	26.0%	32.0%	29.5%
Access to healthcare or other services	16.5%	9.6%	16.8%	18.0%

DATA SOURCE: Boston CHNA Community Survey, 2019

Overall Morbidity and Mortality

Leading Causes of Death and Premature Death

Cancer and heart disease are the leading causes of death in Boston and have remained so for the last six years (Table 16). In the most recent years, accidents, which include drug overdoses, has been the third leading cause of death. In 2016, unintentional opioid overdoses accounted for 55.3% of all deaths due to accidents. Other leading causes of death in the top five are cerebrovascular diseases, which includes stroke, and chronic lower respiratory diseases, which includes conditions such as chronic obstructive pulmonary disease (COPD) and emphysema.

Table 16. Leading Causes of Mortality in Boston, Age-Adjusted Rate per 100,000 Residents, 2011–2016

	2011	2012	2013	2014	2015	2016
1	Cancer 171.7	Cancer 187.3	Cancer 175.9	Cancer 153.3	Cancer 163.4	Cancer 163.6
2	Heart Disease 130.4	Heart Disease 132.3	Heart Disease 133.7	Heart Disease 125.7	Heart Disease 136.8	Heart Disease 126.0
3	Accidents 28.9	Cerebrovascular Diseases 34.4	Accidents 32.1	Accidents 34.8	Accidents 44.8	Accidents 54.6
4	Chronic Lower Respiratory Diseases 28.8	Accidents 29.4	Chronic Lower Respiratory Diseases 30.4	Cerebrovascular Diseases 29.8	Cerebrovascular Diseases 29.3	Cerebrovascular Diseases 26.7
5	Cerebrovascular Diseases 26.1	Chronic Lower Respiratory Diseases 23.5	Cerebrovascular Diseases 26.6	Chronic Lower Respiratory Diseases 25.6	Chronic Lower Respiratory Diseases 27.9	Chronic Lower Respiratory Diseases 25.3

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Death Files, 2011–2016
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office

While cancer and heart disease are the leading cause of death for residents of all races/ethnicities, the leading causes of death for after these two conditions varies for different groups (Table 17). For Asian residents, cerebrovascular diseases, Alzheimer's Disease and hypertension/renal disease round out the top five leading causes of death. For Black, Latino and White residents, accidents are the third leading cause of death, with unintentional opioid overdoses account for a large part of these deaths (40.9% of all deaths due to accidents for Black residents, 66.7% for Latino residents and 57.2% for White residents). For Black and Latino residents, diabetes was one of the top five leading causes of death.

Table 17. Leading Causes of Mortality in Boston, by Race/Ethnicity, Age-Adjusted Rate per 100,000 Residents, 2014–2016 Combined

	Asian	Black	Latino	White
1	Cancer 127.0	Cancer 175.3	Cancer 109.4	Cancer 173.1
2	Heart Disease 64.6	Heart Disease 133.9	Heart Disease 87.8	Heart Disease 149.3
3	Cerebrovascular Diseases 21.5	Accidents 38.3	Accidents 41.6	Accidents 56.5
4	Alzheimer's Disease 18.1	Cerebrovascular Diseases 39.9	Diabetes 25.1	Chronic Lower Respiratory Diseases 32.7
5	Hypertension/ Renal Disease 16.1	Diabetes 38.6	Cerebrovascular Diseases 20.2	Cerebrovascular Diseases 26.6

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Death Files, 2014–2016 Combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office

Table 18 presents the leading causes of premature death for men and women in Boston, 2014–2016. For men, the death rate by accidents, their leading cause of premature death, was two and a half times that for women. However, for both sexes, unintentional opioid overdoses accounted for approximately 70% of the deaths due to accidents. Heart disease was the third leading cause of premature death for both men and women. However, for men, homicide and suicide

were the fourth and fifth leading causes of premature death, while for women it was chronic lower respiratory diseases and cerebrovascular diseases.

Table 18. Leading Causes of Premature Mortality in Boston, by Sex, Age-Adjusted Rate per 100,000 Residents, 2014–2016 Combined

	Female	Male
1	**Cancer** 41.5	**Accidents** 55.9
2	**Accidents** 19.6	**Cancer** 52.0
3	**Heart Disease** 15.0	**Heart Disease** 37.8
4	**Chronic Lower Respiratory Diseases** 3.9	**Homicide** 10.7
5	**Cerebrovascular Diseases** 3.6	**Suicide** 9.5

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Death Files, 2014–2016 Combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office

Obesity, Nutrition and Physical Activity

Obesity and Overweight

More than half of Boston adults and a third of Boston Public high school students reported being overweight or obese. Black and Latino adults and high school students were more likely to be overweight or obese than White residents or students. The prevalence of obesity and overweight also follows a socioeconomic gradient—residents who are renters, have lower levels of education and lower income were more likely to be obese or overweight compared to their counterparts. At our priority neighborhood level, the percent of adults in Hyde Park, West Roxbury and Roslindale who were obese or overweight was significantly higher than the prevalence of obesity across Boston.

Concerns related to obesity were frequently discussed among focus group and interview participants. Focus group participants described healthy eating and physical activity as ways to prevent obesity but cited a lack of health literacy and affordable recreational programming in their communities. Community residents indicated the need for more affordable gym and healthy food options, particularly in the winter time and especially for young people during school breaks. It was cited that for the elderly, being active helped to keep them in their homes longer and provided a social engagement component.

PATIENTS NEEDS TO UNDERSTAND THEIR HEALTH, HEALTHCARE AND OPTIONS TO ACHIEVE HEALTHCARE GOALS AS WELL AS AVENUES TO ADVOCATE FOR THEMSELVES AND OTHERS.

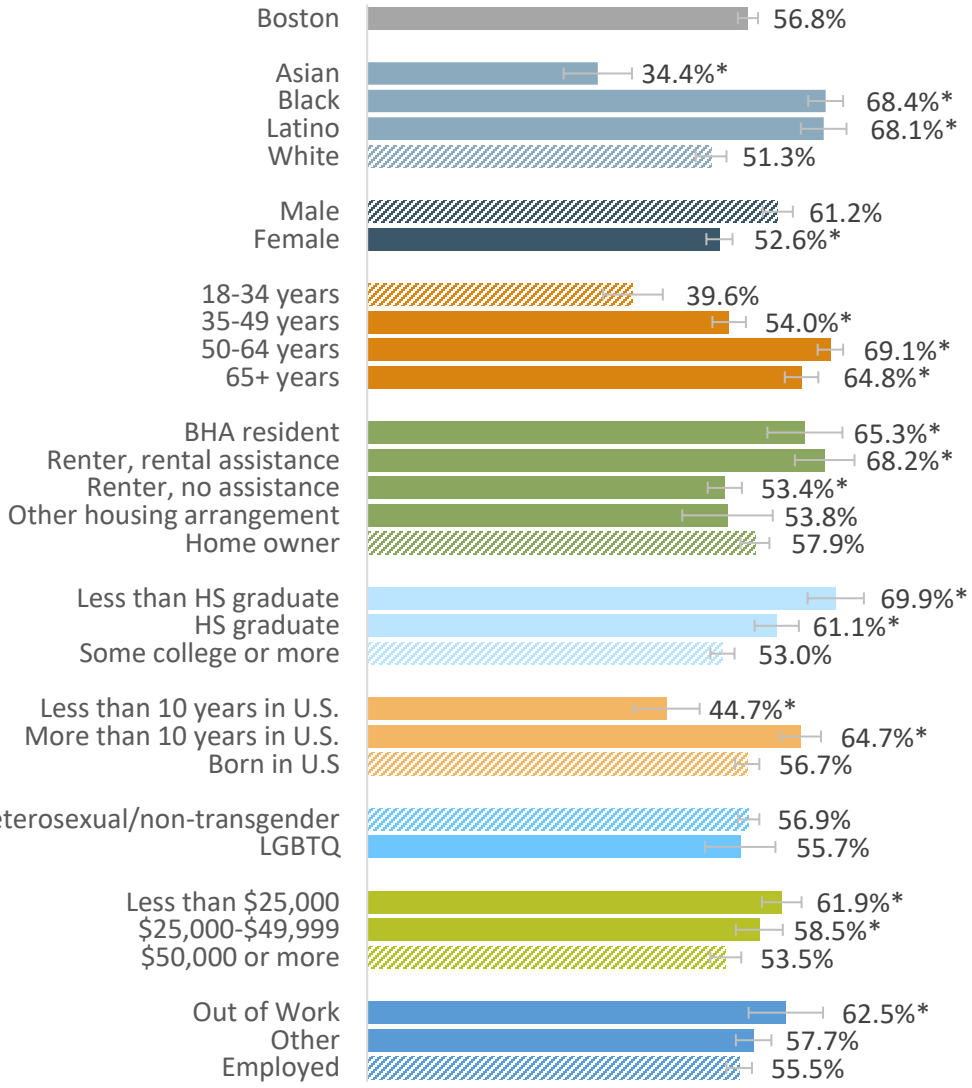
BWFH Key Informant, Hyde Park

In Hyde Park and Roslindale, key informants discussed the concern that cultural diets have a great effect on health. A lack of knowledge and resources negatively impact choices. Additionally, childhood obesity was a common theme that emerged among focus group and interview discussion participants, who linked challenges related to healthy eating with education, time constraints and economic challenges that create barriers for them to provide healthy opportunities for their children.

As shown in Figure 33, more than half (57%) of adults across Boston reported being classified as obese or overweight in 2013–2017. However, rates are different by various population groups. Nearly seven in ten Black (68%) and Latino (68%) adults reported being obese or overweight, compared with five in ten White (51%) adults across Boston—a difference

that was statistically significant. One third of Asian adults (34%) reported being obese or overweight, significantly lower than the prevalence for White adults (51%). Older adults were significantly more likely than young adults to be classified as overweight or obese. For example, 40% of adults 18–34 years of age were overweight or obese in 2013–2017, while approximately two thirds of adults 50–65 years of age (69%) and 65 years of age or older (65%) were overweight or obese. The prevalence of obesity and overweight also follows a socioeconomic gradient, with a significantly higher percent of renters (53–68%), residents with lower levels of educational attainment (61–70%) and residents with lower income (59–62%) being obese or overweight compared to their counterparts (53–58%).

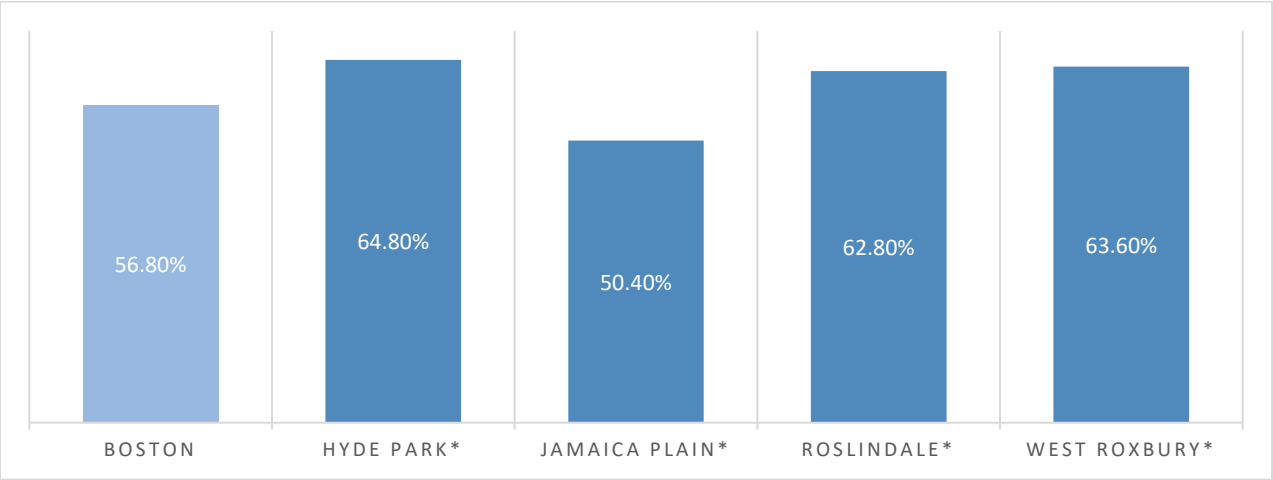
Figure 33. Percent Adults Reporting Obesity or Overweight, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05); Error bars show 95% confidence interval

At the priority neighborhood level, the percent of adults in Hyde Park (65%), West Roxbury (64%) and Roslindale (63%) who were obese or overweight was significantly higher than the prevalence of obesity across Boston (57%) (Figure 34). In contrast, compared to the average across Boston (57%), a significantly lower proportion of adults in Jamaica Plain (50%) were obese or overweight.

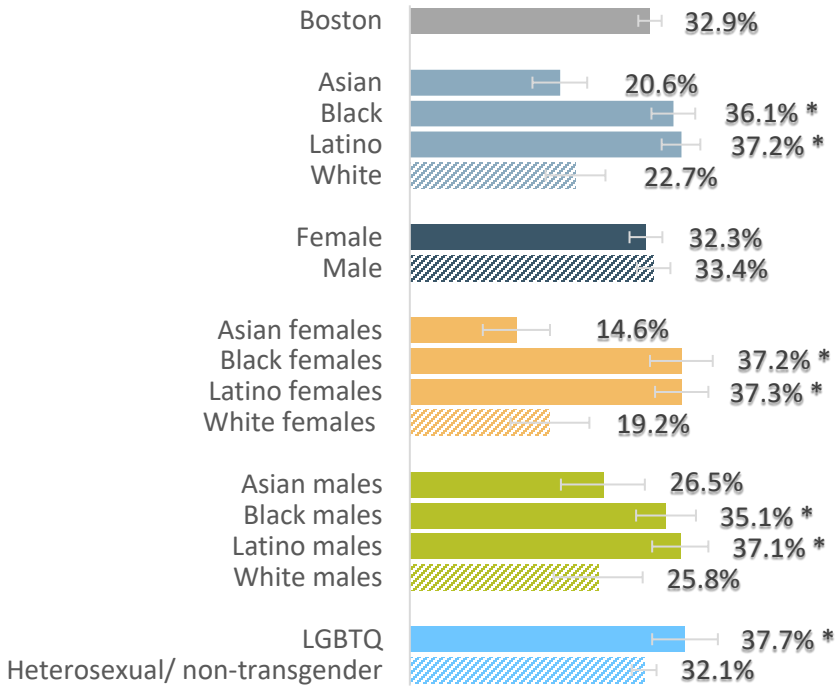
Figure 34. Percent Adults Reporting Obesity or Overweight, by Boston and Priority Neighborhood, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Asterisk (*) denotes where neighborhood estimate was significantly different compared to the rest of Boston ($p < 0.05$)

One third of Boston high school students (33%) reported being obese or overweight in 2013–2017. Similar to patterns for adults, a significantly higher proportion of Hispanic (37%) and Black (36%) high school students reported being obese or overweight than White high school students (23%). Racial/ethnic differences in the prevalence of obesity or overweight were similar for males and females. More than one third of LGBTQ (38%) students reported being obese or overweight, a proportion that was significantly higher than that for heterosexual or non-transgender students (32%).

Figure 35. Percent Boston Public High School Students Reporting Obesity or Overweight, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined



DATA SOURCE: Centers for Disease Control and Prevention and Boston Public Schools, Youth Risk Behavior Survey, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category ($p < 0.05$); Error bars show 95% confidence interval

Physical Activity

Limited access to affordable opportunities for physical activity was a common theme in discussions with residents. Seniors also expressed challenges affording these resources.

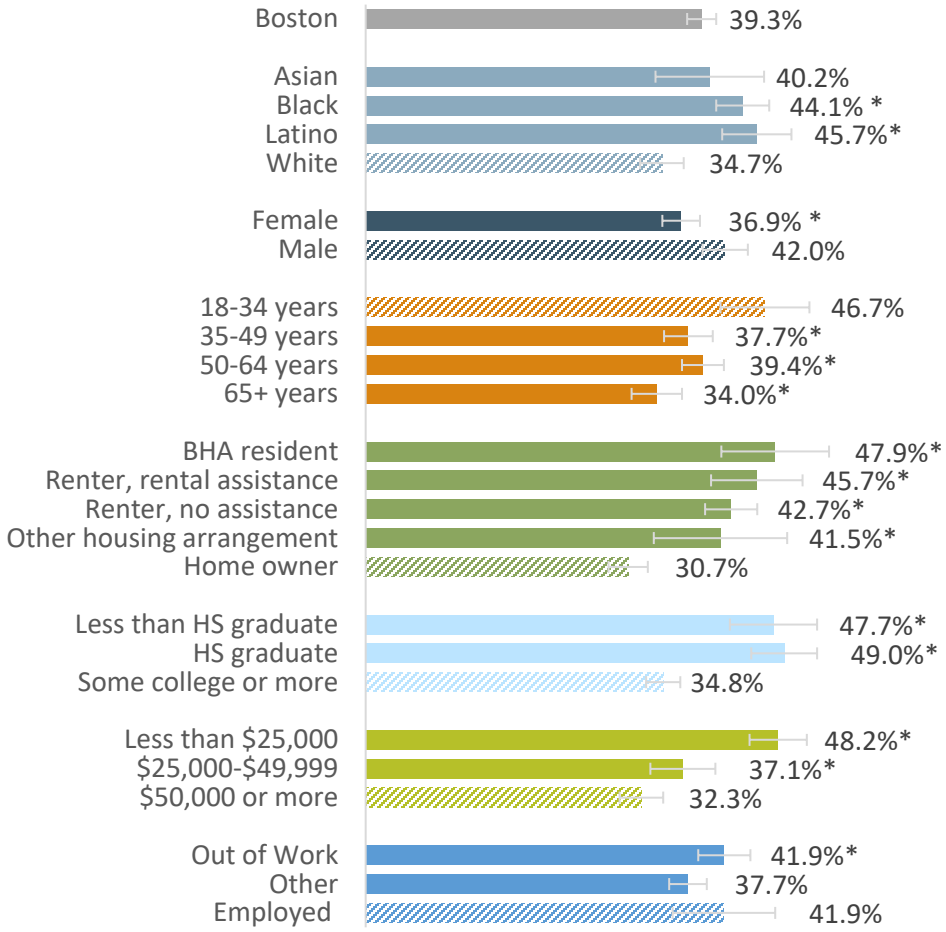
Reflecting residents' concerns, a low percent of youth across Boston reported regular exercise. Three in ten (30%) Boston high school students reported engaging in regular physical activity in 2013–2017, as reported by the Boston Public Schools Youth Risk Behavior Survey.

Healthy Eating

In 2013–2015, four in ten (39%) Boston adults reported consuming less than one fruit per day (

Figure 36). A significantly higher proportion of adults who were Black (44%), Latino (46%) male (42%), renters (42–48%) and younger (18–34 years of age; 47%) reported not consuming fruit on a daily basis compared to their counterparts. As with patterns for obesity and overweight, adults with lower socioeconomic status were more likely report fruit consumption on a less than daily basis: renters (43–48%), residents in other housing arrangements (42%), residents with less than a college education (48–49%), adults with incomes <$50,000 (37–48%), and residents who were out of work (42%) were significantly more likely than their counterparts (31–42%) to not consume fruit daily.

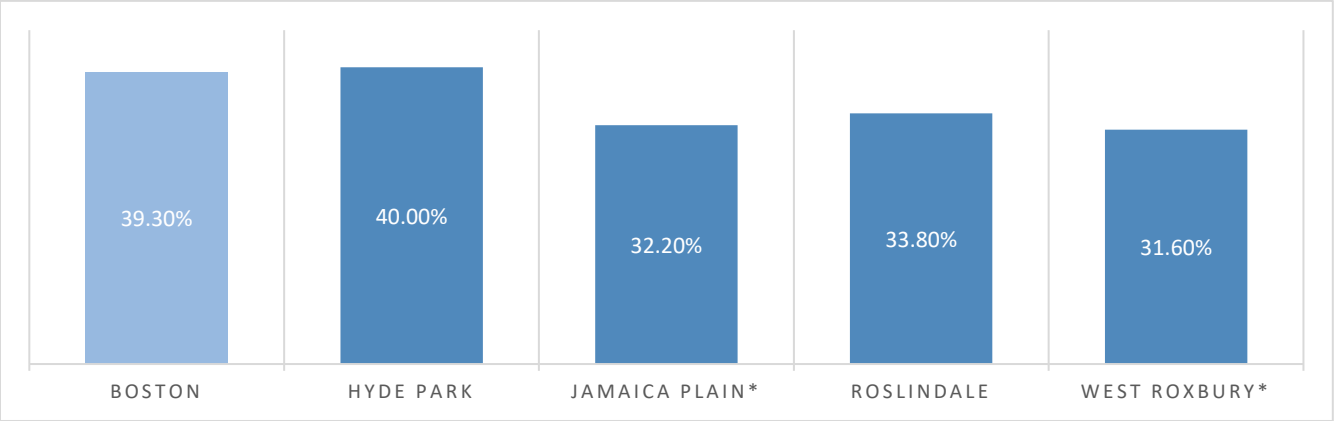
Figure 36. Percent Adults Reporting Fruit Consumption of Less Than Once per Day, by Boston and Selected Indicators, 2013 and 2015 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013 and 2015 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05); Error bars show 95% confidence interval

In our priority neighborhoods, shown in Figure 37, West Roxbury (32%), Jamaica Plain (32%) and Roslindale (34%) residents reporting less than daily fruit intake was lower than the average across Boston (39%).

Figure 37. Percent Adults Reporting Fruit Consumption of Less Than Once per Day, by Boston and Priority Neighborhood, 2013 and 2015 Combined

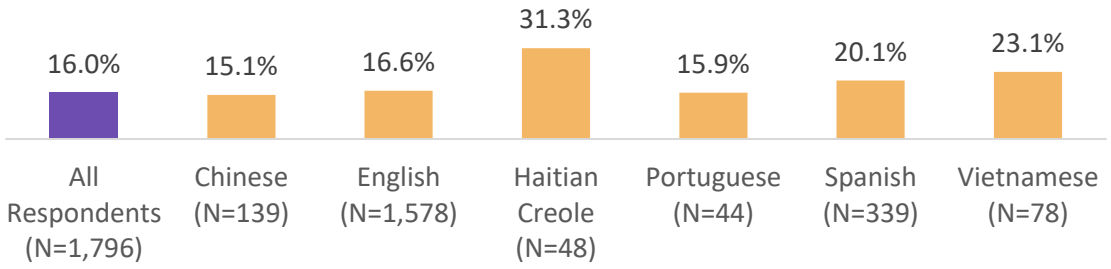


DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013 and 2015 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Asterisk (*) denotes where neighborhood estimate was significantly different compared to the rest of Boston ($p < 0.05$)

More than four in ten (45%) Boston public high school students reported consuming fruit on a less than daily basis in 2013–2017. Four in ten Boston public high school students (40%) reported drinking at least one sugar sweetened beverage in 2015–2017. As reported by the Boston Public Schools Youth Risk Behavior Survey.

Key informants and focus group participants—particularly those in non-English languages—mentioned concerns related to obesity in immigrant communities. Interviewees perceived an increase in obesity among immigrants and attributed the concerns to American diets, citing easy access to fast food restaurants and processed foods. Approximately one in seven Boston CHNA survey respondents reported sometimes choosing fast food because it was cheaper (16.1%). As shown in Figure 38, the percent of residents who indicated that they chose fast food because it was cheaper appeared to vary by language. Three in ten (31%) respondents who primarily spoke Haitian Creole reported selecting fast food on a weekly basis because it was cheaper, followed by two in ten residents who spoke primarily Vietnamese (23%) and Spanish (20%).

Figure 38. Percent Boston CHNA Survey Respondents Reporting They Chose Fast Food Because It Was Cheaper Than Other Options At Least Once Per Week in Past Month, by All Respondents and Primary Language Spoken, 2019



DATA SOURCE: Boston CHNA Community Survey, 2019
NOTES: Question was worded: "In the past month, how often did you choose fast food (such as McDonalds, KFC or Wendy's) because it was cheaper than other options?"; response options: never/rarely, 1–3 times per month (less than once a week), 1–2 times per week, 3–4 times per week, 5–6 times per week, 1+ times per day and prefer not to answer; Percentage calculations do not include respondents who selected "prefer not to answer"

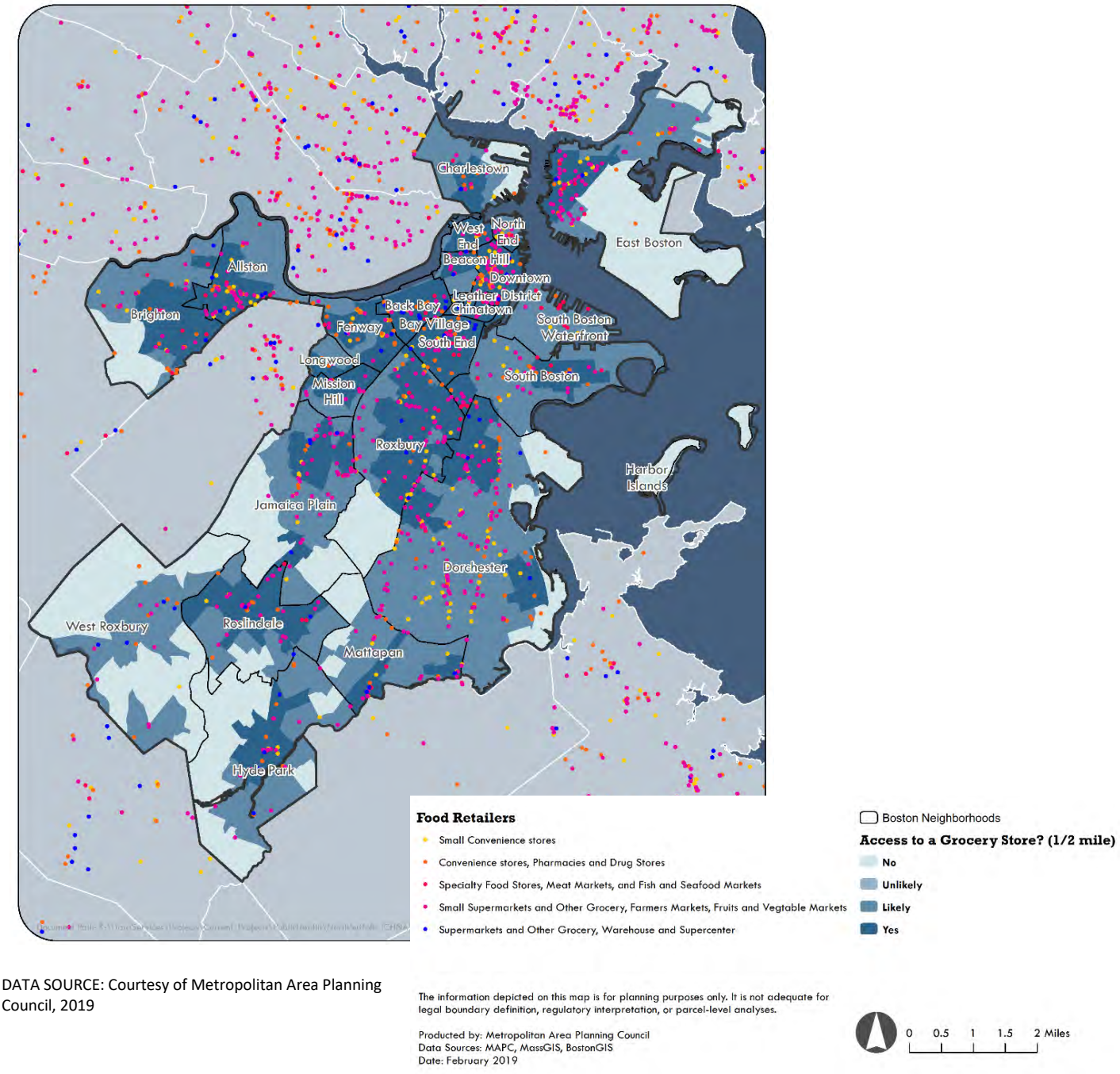
Food and Physical Activity Access

Focus group and interview participants expressed concern about limited healthy food options in lower income neighborhoods across the city. The higher cost of fresh produce and lack of time for healthy food preparation were identified as barriers to healthy eating.

Some residents in focus groups described a prevalence of convenient stores and fast food restaurants in low-income communities, which many linked to the rise of obesity and diabetes.

As shown in Figure 39, the neighborhoods of Jamaica Plain, West Roxbury and Hyde Park are characterized by sizable geographic areas with limited access to grocery stores.

Figure 39. Access to Food Retailers, by Type and Neighborhood, 2019



DATA SOURCE: Courtesy of Metropolitan Area Planning Council, 2019

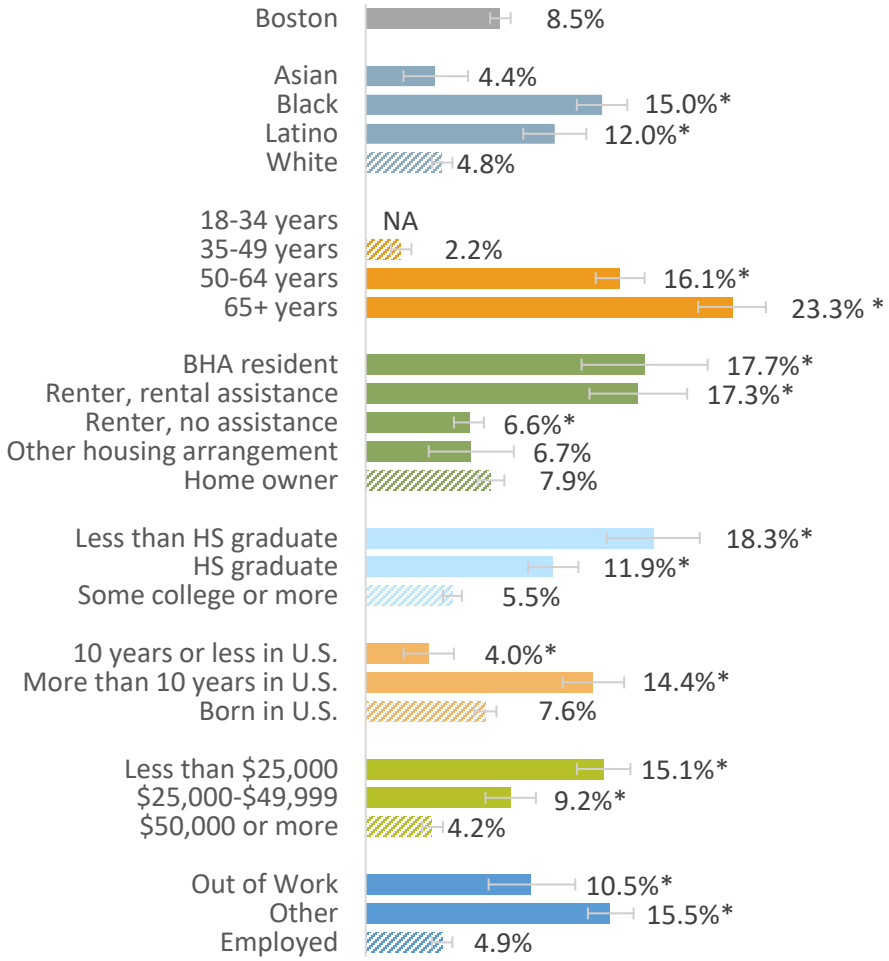
Chronic Disease

Diabetes

Diabetes was frequently mentioned as a community concern that had an impact on both adults and children. Many focus group and interview participants discuss diabetes in connection with obesity. Further, key informants perceived the rise in type 2 diabetes symptoms among young children—particularly among Black and Latino children.

While the prevalence of reported diabetes across Boston was 9% in 2013–2017, there were significant differences in the distribution of diabetes across the population. Compared to their counterparts, a significantly higher proportion of adults who identified as Black (15%), Latino (12%), older (≥50 years; 16–23%), Boston Housing Authority residents (18%), renters receiving rental assistance (17%), adults with a high school education or less (12–18%) and immigrants who have resided in the U.S. for more than 10 years (14%) reported a diabetes diagnosis (Figure 40).

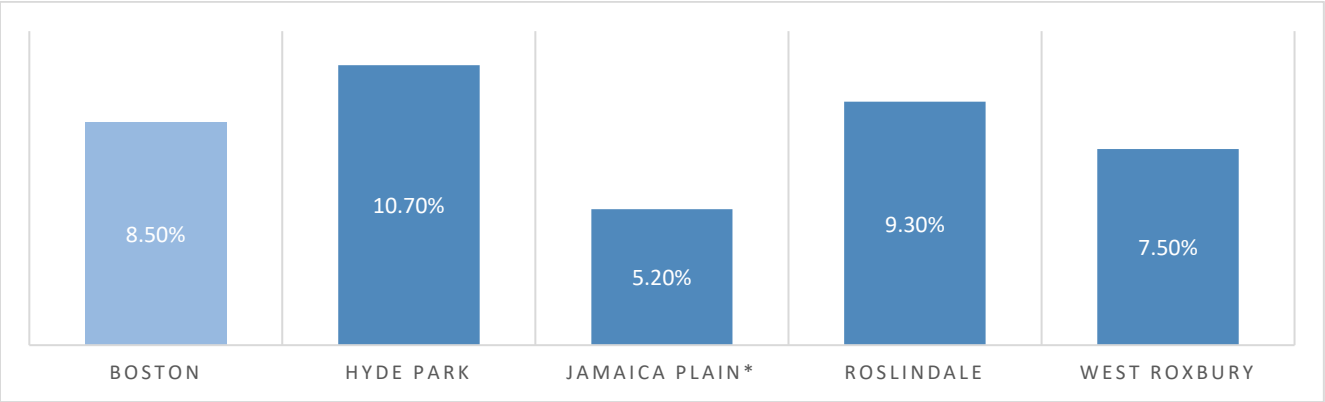
Figure 40. Percent Adults Reporting Diabetes Diagnosis, by Boston and Selected Indicators, 2013, 2015 and 2017



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05); Error bars show 95% confidence interval

Additionally, two of the BWFH priority neighborhoods, Hyde Park (10.7%) and Roslindale (9.3%), were higher than the Boston overall rate of 8.5% (Figure 41).

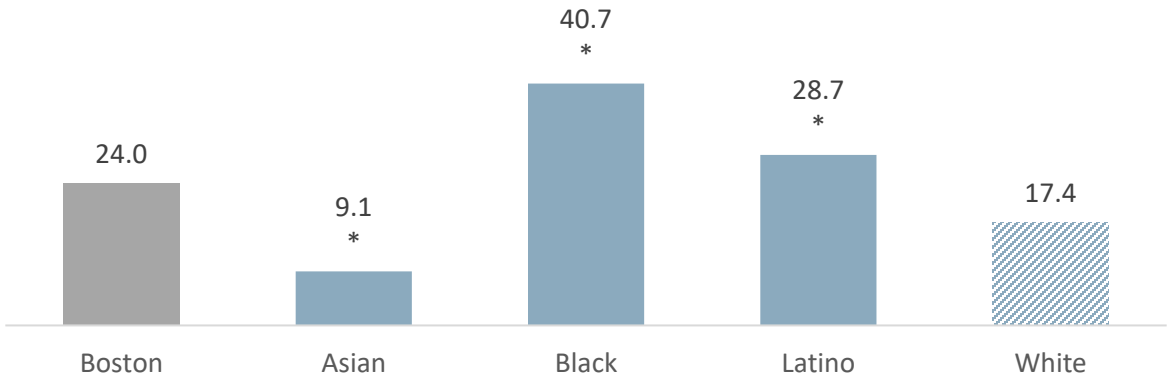
Figure 41. Percent Adults Reporting Diabetes Diagnosis, by Boston and Priority Neighborhood, 2013, 2015 and 2017



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Asterisk (*) denotes where neighborhood estimate was significantly different compared to the rest of Boston ($p < 0.05$)

Similar to patterns for diabetes diagnoses and hospitalizations, the diabetes mortality rate for Black (41 deaths per 10,000 residents) and Latino residents (29 deaths per 10,000 residents) residents was significantly higher than that for White residents (17 deaths per 10,000 residents) in 2016–2017 (Figure 42). The diabetes mortality rate among Asian residents (9 deaths per 10,000 residents) was nearly half of that for White residents (17 deaths per 10,00 residents) during the same period.

Figure 42. Diabetes Mortality Rate, by Boston and Race/Ethnicity, Age-Adjusted Rate per 100,000 Residents, 2016–2017 Combined

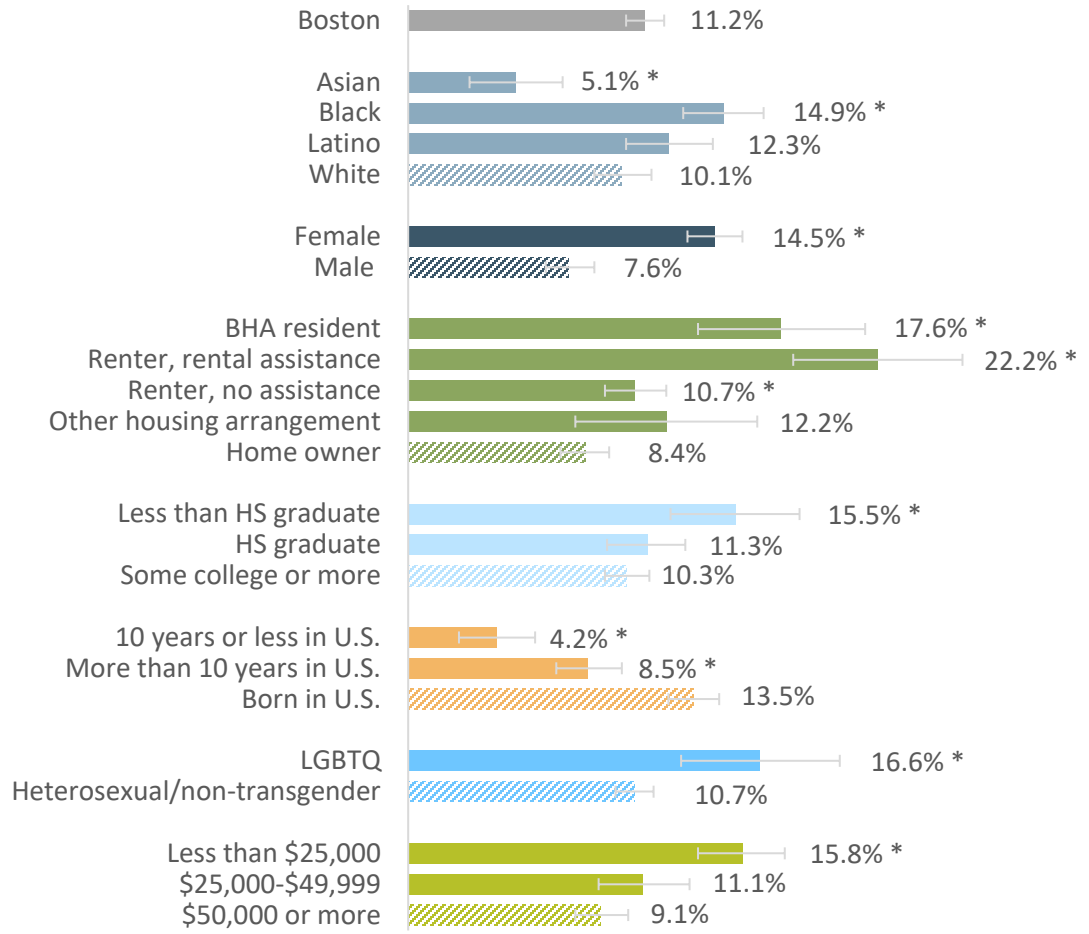


DATA SOURCE: Boston Public Health Commission, Boston resident deaths, 2016–2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category ($p < 0.05$)

Asthma

In 2013–2017, across Boston, 11% of adults reported a diagnosis of asthma. The prevalence of asthma was significantly higher for adults who identified as Black (15%), female (15%), residents of Boston Housing Authority units (18%), renters receiving rental assistance (22%), renters not receiving assistance (11%), adults with less than a high school education (16%), LGBT (17%) and less than $25,000 income (16%) compared with their counterparts. Of note, a significantly lower proportion of Asian adults (5%) and immigrants living in the U.S. for less than 10 years (4%) or 10 years or more (9%) reported an asthma diagnosis (Figure 43).

Figure 43. Percent Adults Reporting Having Asthma, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined

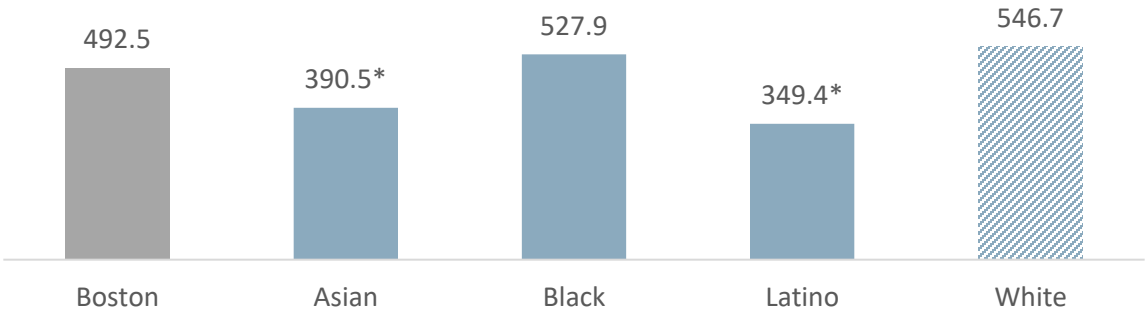


DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05); Error bars show 95% confidence interval

Cancer

According to the Massachusetts Department of Public Health, in 2015, cancer incidence rates for Asian (390.5 per 100,000 population) and Latino residents (349.4 per 100,000 population) in Boston were significantly lower than for White residents (546.7 per 100,000 population) (Figure 44).

Figure 44. Overall Invasive Cancer Incidence Rate, by Boston and Race/Ethnicity, Age-Adjusted Rate per 100,000 Residents, 2015

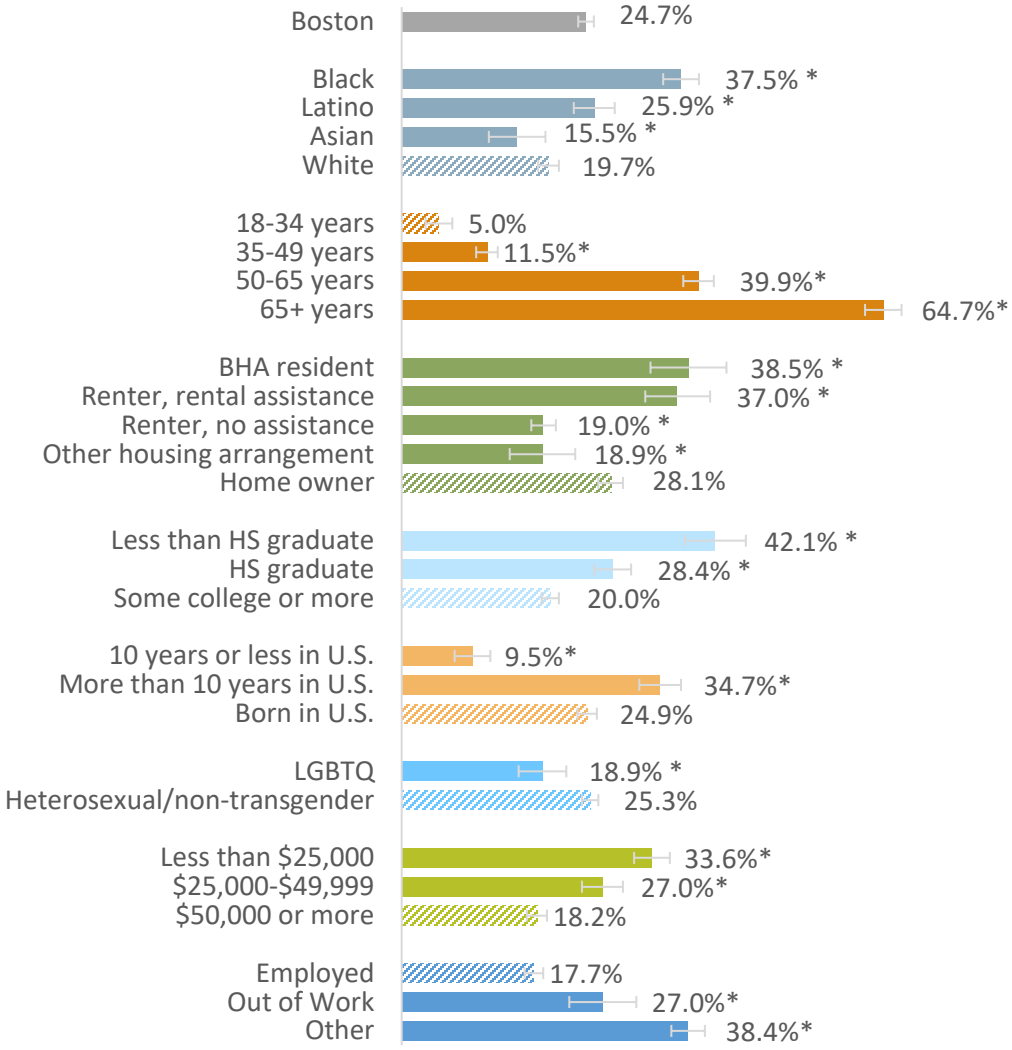


DATA SOURCE: Massachusetts Department of Public Health, Cancer Registry, 2015 DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05)

Heart Disease and Stroke

In 2013–2017, one quarter (25%) of Boston adults reported being diagnosed with hypertension. A significantly higher proportion of adults who identified as Black (38%), Latino (26%), aged 35–49 (12%), aged 50–65 (40%), 65 and older (65%), residents living in Boston Housing Authority units (39%), renters on rental assistance (37%) and immigrants living in the U.S. for more than ten years (35%) reported being diagnosed with hypertension or high blood pressure, compared to their counterparts. Additionally, there was a consistent socioeconomic gradient in the prevalence of hypertension: a significantly higher percent of adults with less than a high school education (42%), a high school education (28%), incomes <$25,000 (34%), incomes $25,000–$49,999 (27%), out of work (27%) and other employment statuses (38%) reported a hypertension diagnosis compared with their counterparts of higher socioeconomic status. A significantly lower percent of adults who identified as Asian (16%), renters without assistance (19%), residents with other housing arrangements (19%), immigrants living in the U.S. for less than ten years (10%) and LGBT (19%) reported a hypertension diagnosis when compared to the comparison group (Figure 45).

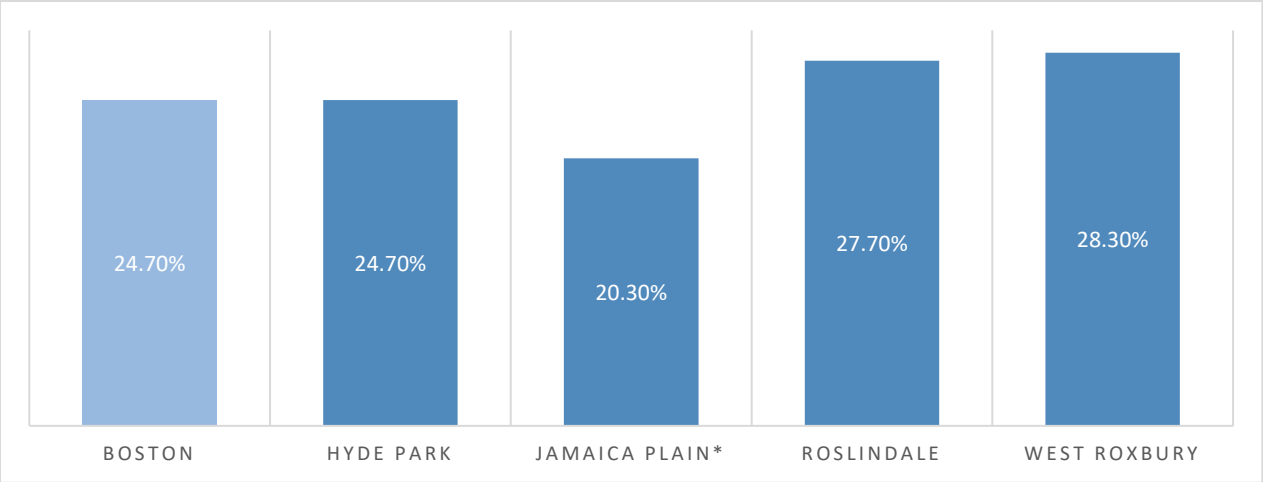
Figure 45. Percent Adults Reporting Hypertension, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05); Error bars show 95% confidence interval

As shown in Figure 46, Hyde Park shows rates equal to Boston, and Roslindale and West Roxbury show rates higher than Boston in adult hypertension.

Figure 46. Percent Adults Reporting Hypertension, by Boston and Priority Neighborhood, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Asterisk (*) denotes where neighborhood estimate was significantly different compared to the rest of Boston ($p < 0.05$)

As shown in Table 19, from young adulthood to 50–64 years of age, the heart disease mortality rate was highest for Black adults. More specifically, among adults 18–34 years of age and 35–49 years of age, the heart disease mortality rate for Black adults was statistically higher than the mortality rate for White adults. For adults 65 years of age and older, the heart disease mortality rate for Asian, Black and Latino adults was significantly lower than that for White residents.

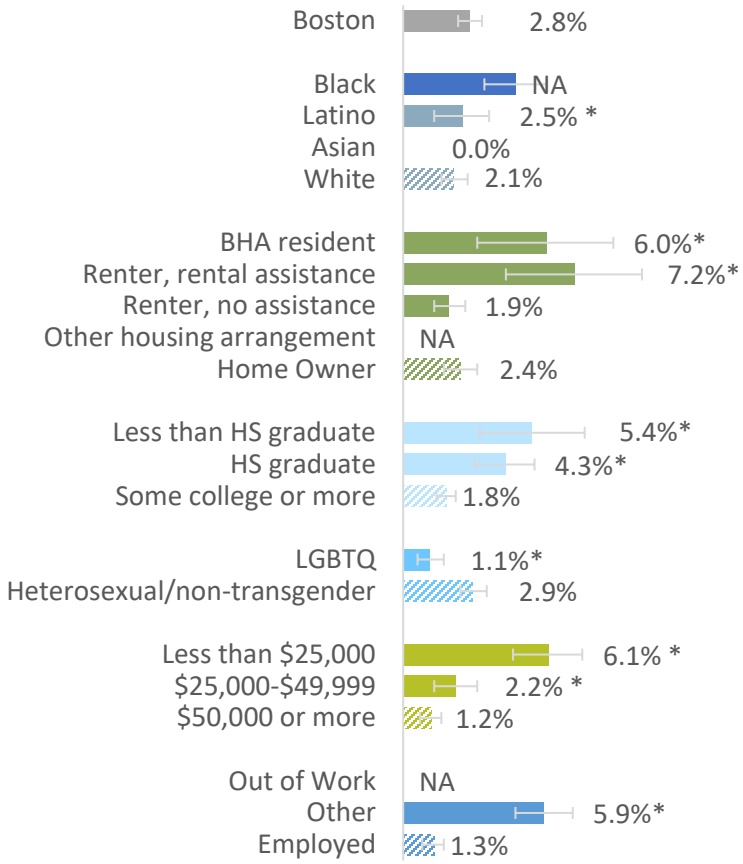
Table 19. Heart Disease Mortality Rate in Boston, by Race/Ethnicity by Age, Age-Specific Rate per 100,000 Residents, 2016–2017 Combined

	Asian	Black	Latino	White
18-34 years	NA	10.0*	2.5	1.4
35-49 years	6.9*	47.5*	20.9	29.9
50-64 years	32.3*	144.9	79.8*	135.2
65+ years	398.9*	771.5*	480.9*	1,155.0

DATA SOURCE: Boston Public Health Commission, Boston resident deaths, 2016–2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Asterisk (*) denotes where estimate was significantly different compared to White (reference group in each age category) ($p <0.05$)

The prevalence of stroke among Black adults (5%) was more than twice the prevalence among White adults (2%), a difference that was statistically significant. A significantly higher proportion of adults with incomes <$25,000 (6%) or $25,000–$49,999 (2%), residents of Boston Housing Authority units (6%), renters with rental assistance (7%) and residents with less than a high school education (5%) reported a diagnosis of stroke relative to residents with higher socioeconomic status (Figure 47).

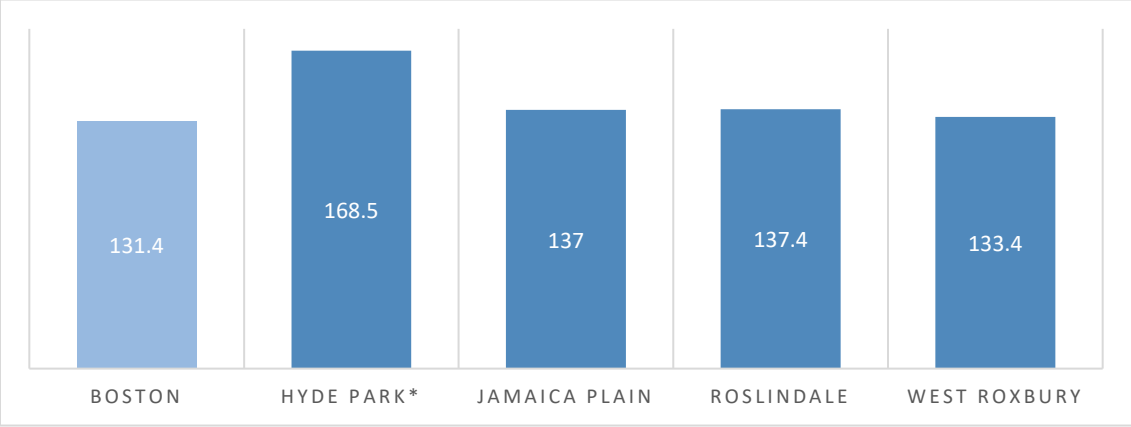
Figure 47. Percent Adults Reporting Having Ever Had a Stroke, by Boston and Selected Indicators, 2017



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office

Locally, the heart disease mortality rate was higher in all four of BWFH's priority neighborhoods compared to that of Boston and significantly higher in Hyde Park (Figure 48).

Figure 48. Heart Disease Mortality Rate in Boston, by Neighborhood, Age-Specific Rate per 100,000 Residents, 2016–2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston resident deaths, 2016–2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Asterisk (*) denotes where estimate was significantly different compared to White (reference group in each age category) ($p < 0.05$); NA denotes where data are not presented due to insufficient sample size; Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category ($p < 0.05$); Error bars show 95% confidence interval

The rate of hospitalizations due to stroke was 55% and 41% higher than the Boston average (22 hospitalizations per 10,000 residents) in Hyde Park (34 hospitalizations per 10,000 residents). The stroke-related hospitalization rate was significantly higher than the Boston average in the neighborhood of Hyde Park.

Mental Health

Depression and Anxiety

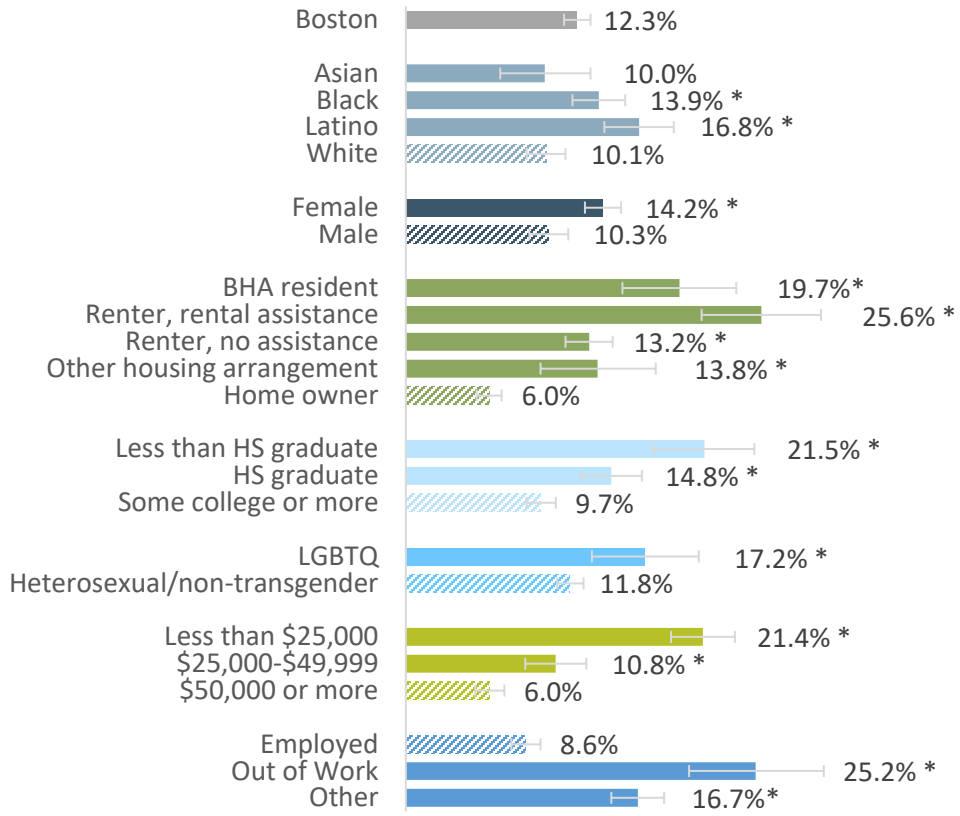
Mental health issues were described as a priority concern across almost all focus group and interviews, and often discussed in connection with trauma. Stress, anxiety and depression were the most frequently cited challenges among Boston residents, especially those who belong to underrepresented groups. Specific vulnerable groups that were mentioned include LGBTQ, low-income residents, seniors, children, immigrants and communities of color. In conversations, these mental health issues were often discussed in relation to social determinant factors like poverty, employment and safety. Additional factors affecting mental health, according to key informants, include unstable housing situations, parental incarceration, especially for Black and Latino men, and domestic violence.

> WE SEE SO MANY PARENTS THAT ARE NOT ABLE TO TAKE CARE OF AND ADVOCATE FOR THEIR CHILDREN IN WAYS THEY WOULD LIKE BECAUSE OF THEIR OWN MENTAL HEALTH NEEDS.
>
> *BWFH Key Informant, Jamaica Plain*

Surveillance and survey data indicate that anxiety and depression are somewhat common across Boston residents. According to the Behavioral Risk Factor Surveillance System (BRFSS), more than one in five Boston residents (12.3%) indicated feeling persistent sadness in the past 30 days (feeling sad, blue or depressed for more than 15 days within the past 30 days) (

Figure 49). When examining responses by sub-groups, responses were significantly higher in Black, Latino residents, females, non-home owners, residents with less than some college education, those making less than $50,000 a year, LGBTQ residents and those not employed compared to the referent in their sub-group (shaded).

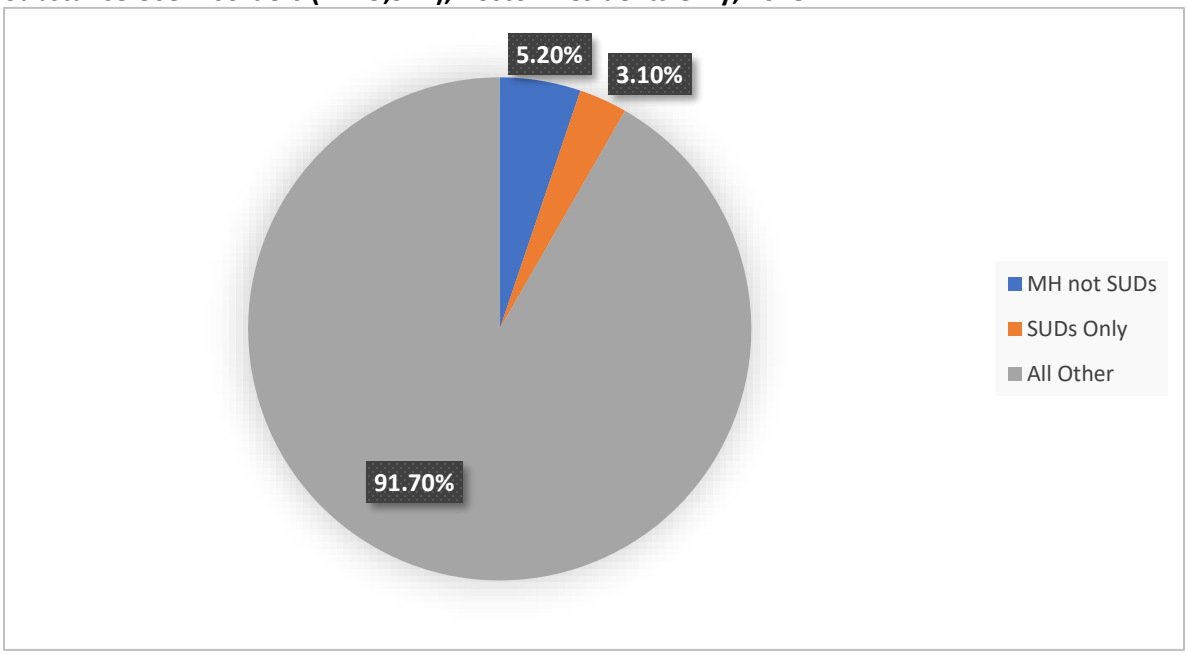
Figure 49. Percent Adults Reporting Persistent Sadness, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined

In 2018, BWFH data shows that 8.3% (1,661 patients) of total (19,917 patients) ED visits by Boston residents at BWFH were for mental health and substance use disorders (Figure 50).

Figure 50. Percent Brigham and Women's Faulkner Hospital Emergency Department Encounters for Mental Health and Substance Use Disorders (N=19,917), Boston Residents Only, 2018

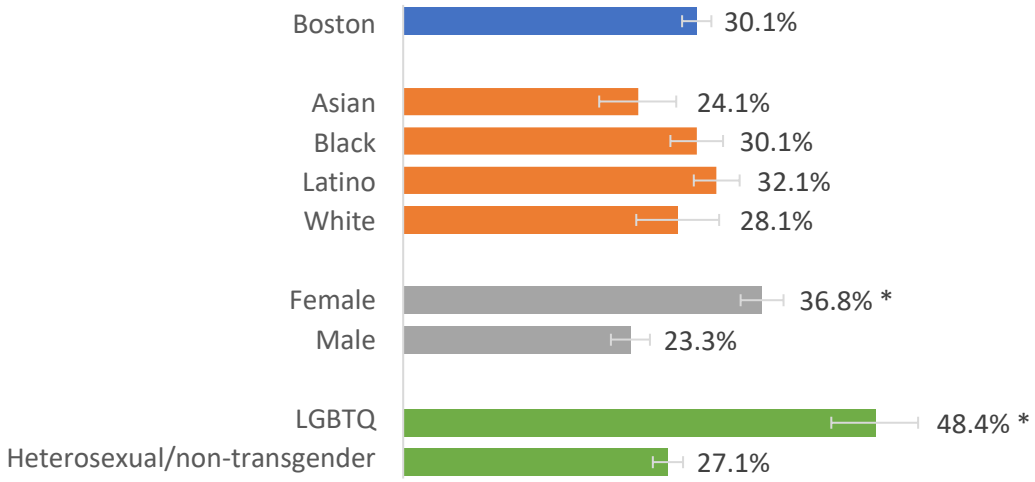


Source: Brigham and Women's Hospital and Brigham and Women's Faulkner Hospital

Mental health concerns were not just specific to adults. Focus group and interview participants also expressed increasing concern about mental health issues experienced by children and teens. Key informants spoke of how poor social and economic factors exacerbate mental health issues for children. For example, poor children who are at risk of living under chronic stress or experiencing vicarious trauma through their parents' experiences. Though not as frequently discussed as stress, anxiety was also identified as a common concern for parents and young people who participated in focus groups. Online bullying and social media were mentioned as components of this anxiety, as well as pressure to perform in school.

The concern about youth mental health issues is validated by survey data. Responses from the Youth Risk Behavior Survey indicate approximately one third of Boston public high school students reported feeling persistent sadness (measured by feeling sad or hopeless every day for two weeks or more in the past 12 months). When looking at data by specific groups, female students (36.8%) were significantly more likely than male students (23.3%) and students who identify as LGBTQ (48.4%) were significantly more likely than students identifying as heterosexual/non-transgender (27.1%) to report feeling persistent sadness. (Figure 51)

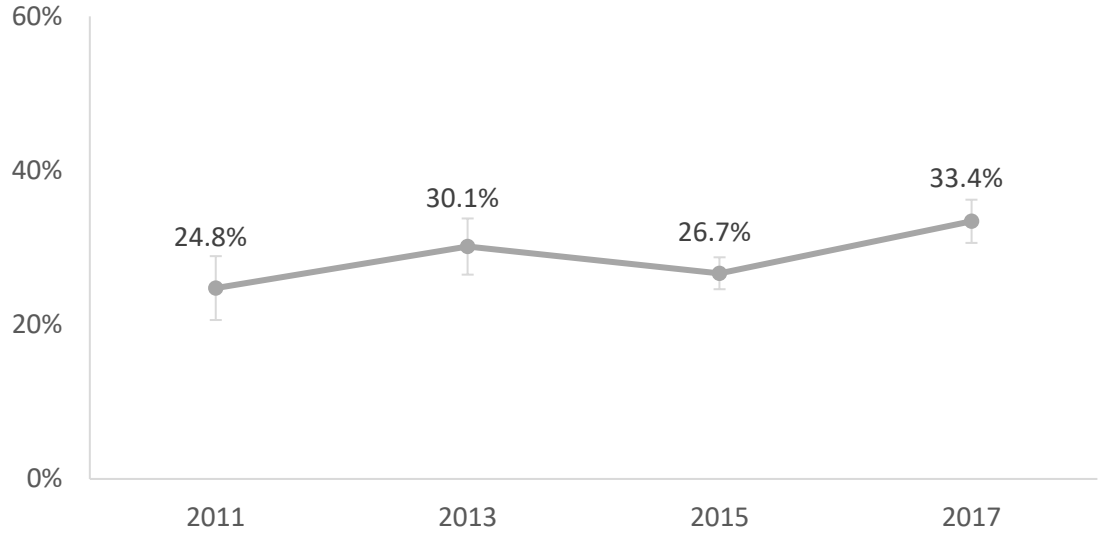
Figure 51. Percent Boston Public High School Students Reporting Persistent Sadness, by Boston and Selected Indicators, 2013, 2015 and 2017 Combined



DATA SOURCE: Centers for Disease Control and Prevention and Boston Public Schools, Youth Risk Behavior Survey, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Students were asked in the past 12 months if they felt sad or hopeless every day for two weeks or more; Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category ($p < 0.05$); Error bars show 95% confidence interval

The Youth Risk Behavior Survey data in the previous graph were aggregated across years to provide a large enough sample for sub-group analyses. When examining the Youth Risk Behavior Survey data by year, Figure 52 shows a statistically significant trend over time, from 24.8% of Boston Public high school students reporting persistent sadness in 2011 to 33.4% reporting in 2017.

Figure 52. Percent Boston Public High School Students Reporting Persistent Sadness, by Boston and Over Time, 2011–2017

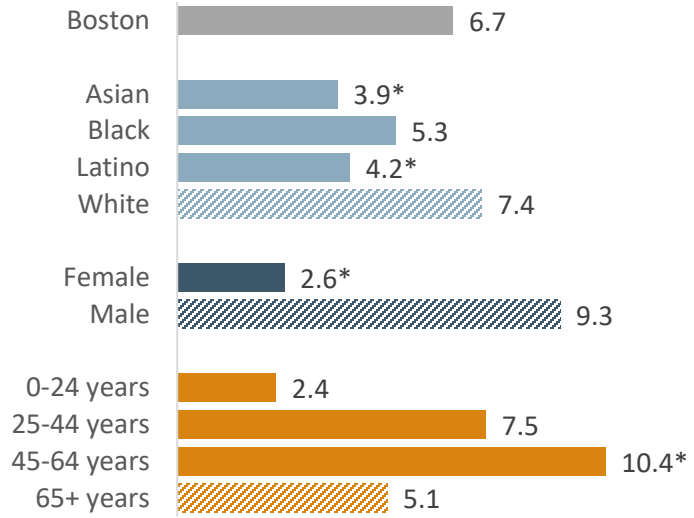


DATA SOURCE: Centers for Disease Control and Prevention and Boston Public Schools, Youth Risk Behavior Survey, 2011, 2013, 2015 and 2017
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Students were asked in the past 12 months if they felt sad or hopeless every day for two weeks or more; Error bars show 95% confidence interval; significant increase over time

Suicide and Suicidal Ideation

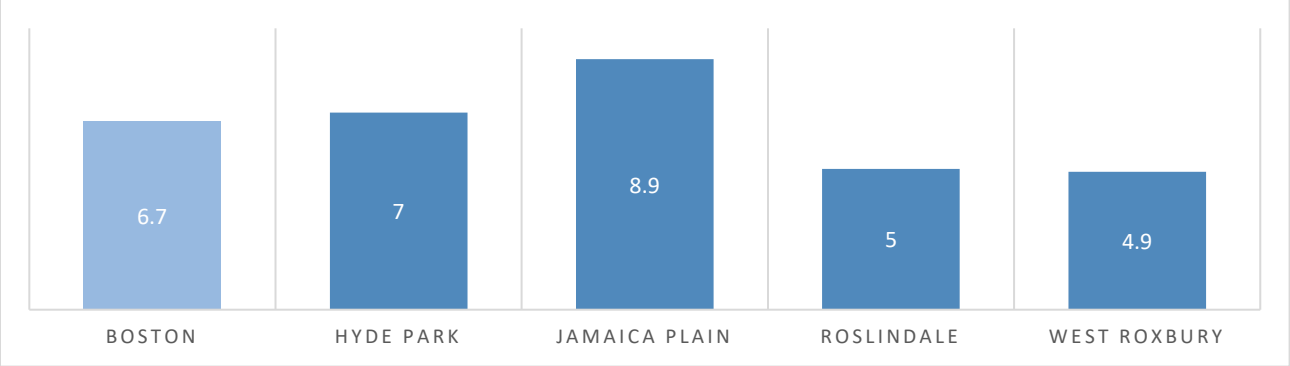
Aggregating data from 2012–2016, the age-adjusted suicide rate for Boston overall is 6.7 deaths per 100,000 residents (Figure 53). Suicide rates were significantly lower among Asian and Latino residents compared to White residents. Rates were highest among males compared to females and those in the 45–64 year age range compared to the referent of 65+ years old. Figure 54 indicates that by neighborhood, Jamaica Plain was the one neighborhood with a higher suicide rate than Boston overall.

Figure 53. Suicide Rate, by Boston and Selected Indicators, Age-Adjusted Rate per 100,000 Residents, 2012–2016 Combined



DATA SOURCE: Massachusetts Department of Public Health, Boston resident deaths, 2012–2016 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Bars with pattern indicate reference group for its specific category; Asterisk (*) denotes where estimate was significantly different compared to reference group within specific category (p <0.05); For age stratifications, rates are age-specific rates per 100,000 residents

Figure 54. Suicide Rate, by Priority Neighborhood, Age-Adjusted Rate per 100,000 Residents, 2012–2016 Combined



DATA SOURCE: Massachusetts Department of Public Health, Boston resident deaths, 2012–2016 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office

Substance Use

Substance use was considered a priority health issue in many focus group and interview discussions. Participants mentioned a variety of substances including opioids, marijuana and prescription drug use as being among the most concerning. Co-occurring mental health and substance use issues were frequently discussed among key informants. Additionally, key informants discussed the interrelationship between trauma, mental health and substance use.

While not mentioned as frequently as opioids, a few assessment participants did note that alcohol was a commonly abused substance, especially by those experiencing homelessness. Additionally, participants were especially concerned about the impact of substance use disorders on young people.

Tobacco and Marijuana Use

While Boston has seen a statistically significant decrease in smoking since 2010, nearly one in six adults (15%) reported being a current smoker in 2017. A growing concern among focus group and interview participants was e-cigarettes or vaping, which was described as an increasingly popular substance used by young people and adults. However, data from the Youth Risk Behavior Risk Survey indicates that the use of e-cigarettes among high school students has significantly decreased, from 14.5% reporting use in 2015 down to 5.1% reporting any e-cigarette use in the past 30 days.

Marijuana concerns were discussed in multiple focus groups, particularly as they related to young people and the recent legalization of the substance. Those working with young people or in community-based settings described seeing an increase in marijuana use among students and parents in recent years, which they attributed to more social acceptance. However, Youth Risk Behavior Risk Survey data over the last few years indicates that marijuana use has remained steady since 2011, with approximately one quarter of Boston high school students reporting current marijuana use.

Alcohol Use

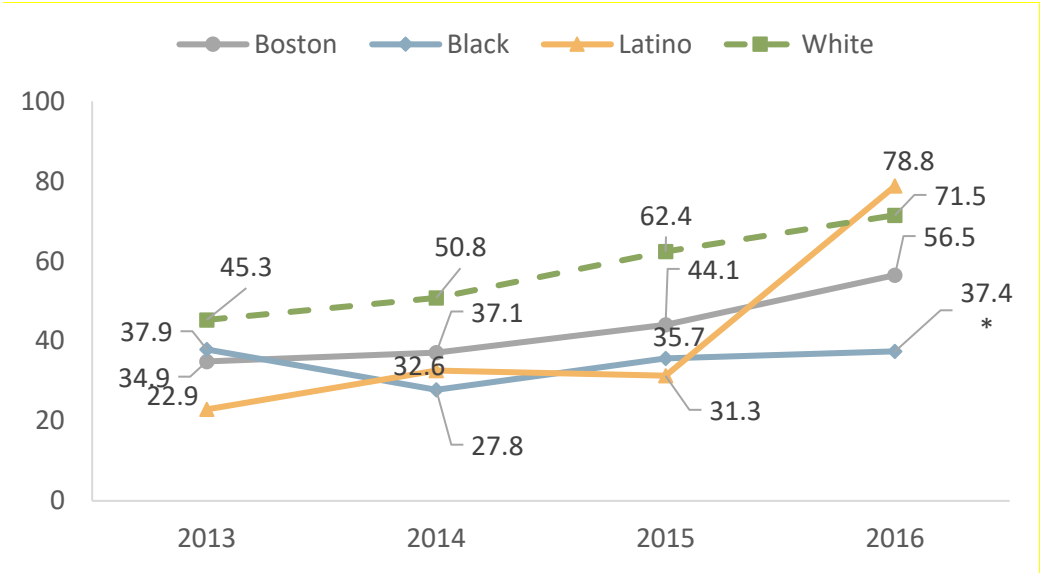
The percent of Boston adults reporting binge drinking (having five or more drinks on an occasion for men or four or more drinks on an occasion for women) has remained steady since 2010, with approximately one quarter of Boston adult BRFSS respondents reporting this behavior. There are several differences within groups, such as LGBTQ adults (30.5%) are significantly more likely than heterosexual/non-transgender adults (24.0%), males (29.8%) are significantly more likely than females (19.8%) and adults earning $50,000 or more (32.5%) are significantly more likely than those earning $25K-<$50K (21.4%) or those earning <$25K (18.5%) to report binge drinking.

Opioid and Other Drug Use

Many focus group participants and key informants who discussed substance use as a concern identified opioids as a persistent issue in Boston. The rate of opioid overdose deaths in Boston has significantly increased since 2013 and was highest among Latino residents, followed by White residents. While a few key informants indicated that major headway around substance use and the opioid epidemic has been made in recent years, more is needed to address the severity of the issue. Several key informants indicated that heroin and Fentanyl use was on the rise, and that these substances were cheap and easily available.

A similar trend to opioids—there is a significant increase for Boston overall and Latino residents specifically in the mortality rate from 2013–2016 in all substance use deaths combined, including alcohol, other drug mortality and unintentional and intentional overdose or poisoning (
Figure 55).

Figure 55. Substance Misuse Mortality Rate, by Boston and Race/Ethnicity, Age-Adjusted Rate per 100,000 Residents 12 Years and Over, 2013–2016



DATA SOURCE: Massachusetts Department of Public Health, Boston resident deaths, 2013–2016

Treatment Service Utilization and Barriers

Of the 100 people (4.2%) completing the Boston CHNA survey who indicated that they needed substance use treatment or services at some point, 22% reported that they could not access the substance use services that they needed. Barriers to substance use treatment was discussed by the focus group participants in recovery and a few interviewees. These participants discussed the need for more affordable inpatient and outpatient treatment options, especially for non-English speakers. Long-term support services like sober houses were identified as limited and expensive.

Violence and Trauma

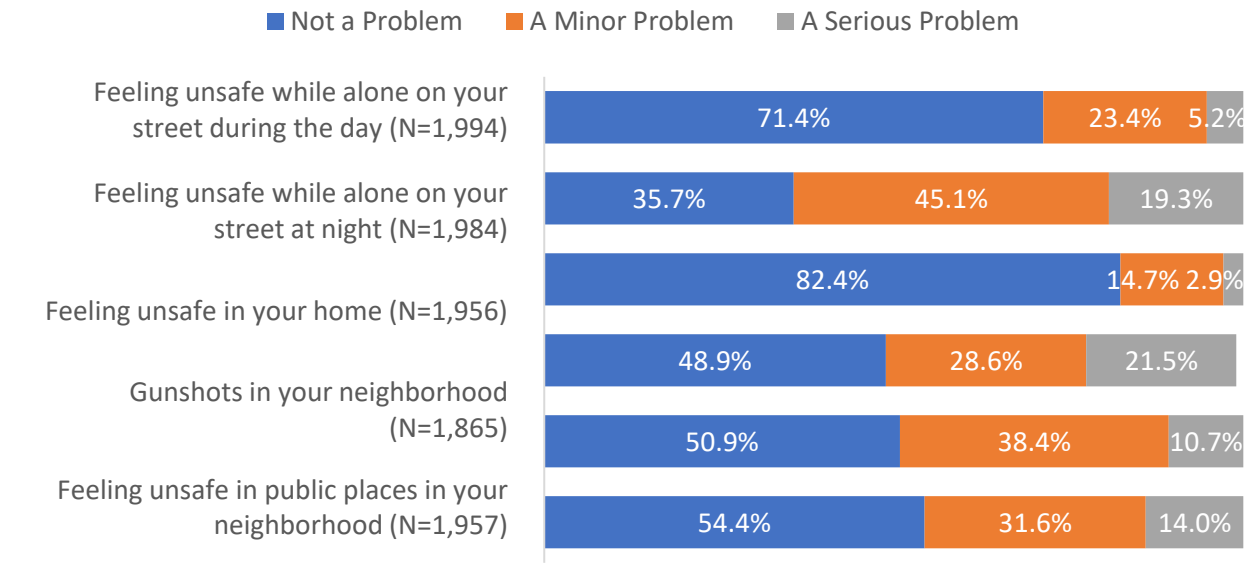
Community Violence

Across geographies—violence and trauma were frequent concerns reported by focus group and interview participants. Community violence was the most frequently discussed type of violence.

Across all language groups, many focus group participants reported concerns about personal safety in their communities. Key informants and focus group participants specifically mentioned that children and communities of color are disproportionately impacted by violence. Other vulnerable groups that were mentioned by key informant and focus group assessment participants include LGBTQ youth, especially those who identify as transgender or non-binary, seniors and immigrants. Further, community residents and interviewees alike stressed that community violence needs to be addressed from a lens of collective trauma. Violence-based trauma emerged as a key health issue affecting many population groups, particularly young children and communities of color.

One in five Boston CHNA survey respondents described gunshots in the neighborhood (22%) and feeling unsafe when along on the street at night (19%) as serious problems (Figure 56). Almost half of respondents reported as a minor or serious problem feeling unsafe in public spaces in their neighborhood (49%) or while riding a bike in their neighborhood (46%). In Table 20, the number of violent and property crimes are reported by Area E stations that serve our four priority neighborhoods.

Figure 56. Percent Boston CHNA Survey Respondents Perceptions of Safety Issues Past 12 Months, 2019



DATA SOURCE: Boston CHNA Community Survey, 2019

Table 20. Number of Violent and Property Crime Reported by the Boston Police Department, by Boston Police Department District, 2018

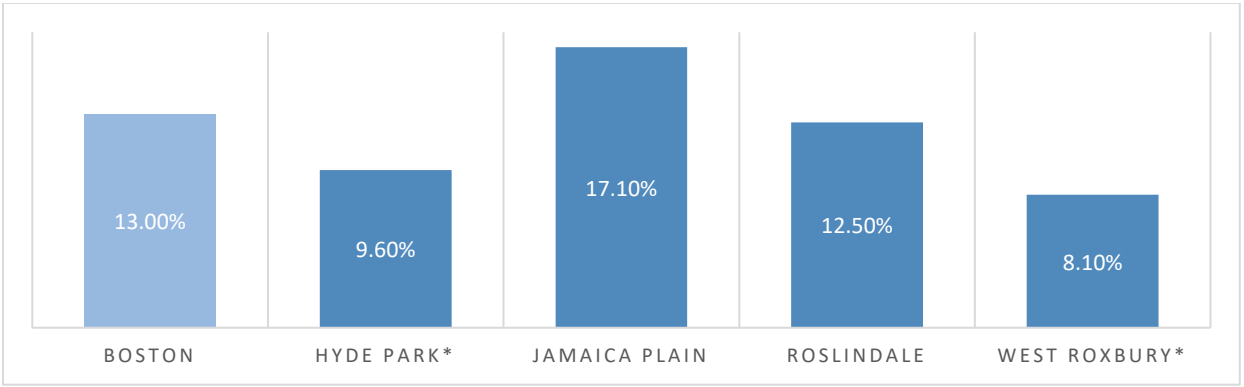
	Area	Violent Crime	Property Crime
E-5	West Roxbury	115	396
E-13	Jamaica Plain	215	750
E-18	Hyde Park	176	547

DATA SOURCE: Boston Police Department, Crime Statistics, Part One Crime Data by District 12-31-2018, 2018
NOTES: Violent crime includes homicide, rape and attempted rape, robbery and attempted robbery, domestic and non-domestic aggravated assault; Property crime includes commercial burglary, residential burglary, other burglary, larceny from motor vehicle, other larceny and auto theft

Interpersonal and Domestic Violence

In 2013–2017, 13% of Boston adults reported experiencing violence in their lifetime. In our priority neighborhoods, Jamaica Plain reported much higher at 17.1%, while both Hyde Park and West Roxbury were significantly lower than Boston (Figure 57).

Figure 57. Percent Adults Reporting Experiencing Violence in Lifetime, by Boston and Priority Neighborhood, 2013, 2015 and 2017 Combined



DATA SOURCE: Boston Public Health Commission, Boston Behavioral Risk Factor Surveillance System, 2013, 2015 and 2017 combined
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTE: Asterisk (*) denotes where neighborhood estimate was significantly different compared to the rest of Boston ($p < 0.05$)

Adverse Childhood Experiences (ACEs)

Among focus group and interview participants, children were identified as being the most vulnerable to violence exposure, especially for younger children.

Approximately one in ten Boston high school students (12%) reported being bullied on school property in the past year. Female students (13%) and LGBTQ students (18%) were significantly more likely to report an experience of bullying at school, while Asian students (8%) were significantly less likely to report an experience of being bullied at school in the past year.

In 2013–2017, 9% of Boston high school students reported being bullied electronically in the past year. Female (11%) and LGBTQ students (16%) were more likely than their counterparts to report experiences of electronic bullying. Female students of color were significantly less likely to report electronic bullying than White female students.

In 2017, nearly one in five Boston adults reported experiencing one adverse childhood experience (19%) over their life time. Nearly one in six Boston residents (16%) reported more than one adverse childhood experience.

Interpersonal and Domestic Violence

The prevalence of interpersonal violence—a pattern or behavior used to establish power and control over another person through fear and intimidation, often including the threat or use of violence—was discussed by a few key informants and by some focus group participants. The need for more service providers who were bi-lingual was described. There is very little quantitative data available on interpersonal or domestic violence. In 2018, the number of restraining orders served by the Boston Police Department ranged in neighborhoods from 2 to 386. In our priority districts (Area E) there were 348 total (Table 21). Additionally, in 2018, there were 823 encounters from survivors, patients, employees and community members through BWFH's domestic violence program, Passageways.

Table 21. Number of Restraining Orders Served by Boston Police Department, by Boston Police Department District, 2018

	Area	Number
A-1	Downtown	19
A-7	East Boston	66
A-15	Charlestown	2
B-2	Roxbury	386
B-3	Mattapan	368
C-6	South Boston	237
C-11	Dorchester	200
D-4	South End	113
D-14	Brighton	182
E-5	West Roxbury	146
E-13	Jamaica Plain	79
E-18	Hyde Park	123

DATA SOURCE: Courtesy of Boston Police Department, 2018

Institutional Racism

Institutional racism—or the systematic distribution of resources, power and opportunity in our society to the benefit of people who are White and the exclusion of people of color—was described as a priority by several key informants and focus group participants.

Trauma

The impacts of trauma greatly affect health outcomes for youth and adults. Different facets of trauma were described by assessment participants. For example, some key informants discussed the trauma of poverty that results in chronic stress and post-traumatic stress disorder. The topic of intergenerational trauma was also described as a concern by key informants with experience in early childhood education. These interviewees explained that trauma is cyclical, an example is generations of families living in unstable housing. Further, numerous key informants mentioned the trauma experienced by immigrant children and their families, and cited fear of deportation and family separation.

A common theme that emerged in focus groups and interviews was the need to integrate more trauma-informed care in health services and early childhood education. Focus group participants who identified as survivors of violence expressed the need for more accessible services and meaningful engagement of youth needs.

Widening the trauma-informed care lens by focusing on familial responses to trauma emerged as a theme from key informant interviews.

Maternal and Child Health

Parenting and Child Care

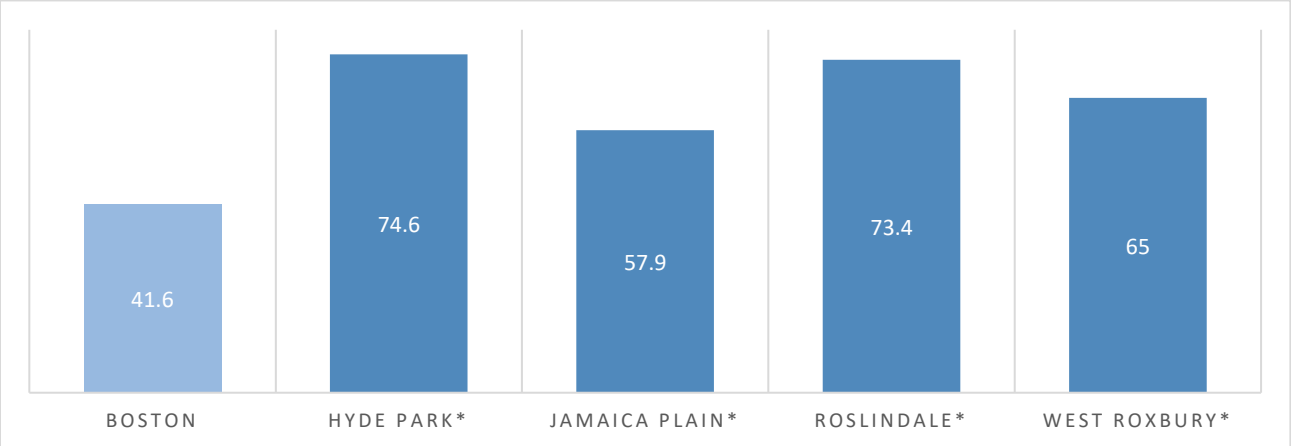
A common theme that emerged among focus groups with parents—many of whom identified as single mothers—was the need for more supports to learn positive parenting skills. Some attributed the demands of working long hours as interfering with a parent's ability to spend quality time with their children. Participants indicated that lack of time often results in behavioral issues in children.

For low-income working families, the cost of childcare was described as a substantial barrier to financial security and employment opportunities, especially for single parents. Among Boston CHNA survey respondents, nearly one quarter (23.1%) of parents of children under 18 years old indicated that they had trouble paying for child care.

Birth Rate and Birth Risk Factors

The overall birth rate in Boston has significantly declined for women 15–44 years old since 2011 from 45.1 births per 1,000 female residents to 41.6 births in 2017. However, current birth rates are significantly different by neighborhood. Hyde Park, Roslindale and West Roxbury were among our priority neighborhoods with significantly higher birth rates in 2017 compared to Boston overall (Figure 58).

Figure 58. Birth Rate, by Boston and Priority Neighborhood, Age-Specific Rate per 1,000 Female Residents Aged 15–44 Years, 2017



DATA SOURCE: Massachusetts Department of Public Health, Boston Resident Live Births, 2017
DATA ANALYSIS: Boston Public Health Commission, Research and Evaluation Office
NOTES: Asterisk (*) denotes where neighborhood estimate was significantly different compared to the rest of Boston ($p < 0.05$)

Sexual Health

Youth Sexual Activity

According to the 2013–2017 Youth Risk Behavioral Survey results, 44% of Boston public high school students reported ever having sex and 60% of sexually active Boston public high school students used a condom during the last time they had sex. About half of Latino and Black students had ever had sex (52% and 48%, respectively), which was significantly higher than White students (33%). Latino and Black students were also twice as likely to report having sex before age 13. Nearly two thirds of students who identified as LGBTQ had ever had sex, which was significantly higher than students who identified as straight, transgender or cis (41%). LGBTQ students were also more likely to report having sex before age 13 compared to heterosexual or non-transgender students.

Environmental Health

Environmental Health Concerns and Experiences

Boston CHNA survey respondents noted a number of different environmental health concerns and whether they experienced any of these concerns at home, work or school. Among all the issues listed, outdoor noise pollution from vehicles (39.8%), outdoor air pollution from vehicles (38.9%) and dangerous traffic (35.6%) were the top three cited environmental health concerns around a respondent's home (Table 22). Additionally, 23–29% of respondents cited extreme outdoor heat or cold, mold/mildew or water leaks, bug and/or rodent infestation and more severe storms as top environmental health concerns at home.

At work, the top three concerns were similar but in a different order: dangerous traffic was the most cited environmental health concern with 31.4% reporting this. At a respondent's school (if applicable), dangerous traffic, outdoor air pollution from vehicles, inadequate heating or cooling and outdoor noise pollution from vehicles were the top concerns reported.

Table 22. Percent Boston CHNA Survey Respondents Reporting Environmental Health Concerns at Home, Work or School, 2019

	Home	Work	School
Tobacco smoke (N=1,627)	17.3%	15.0%	9.3%
Mold/mildew or water leaks (N=1,627)	24.4%	12.1%	8.8%
Inadequate heating and/or cooling (N=1,600)	21.3%	14.0%	14.4%
Bug and/or rodent infestation (N=1,611)	23.8%	13.9%	10.7%
Lead in paint, lead or other contaminants in drinking water (N=2,404)	7.9%	4.3%	7.2%
Poor indoor air quality (N=1,621)	19.2%	16.3%	9.0%
No or not working smoke detectors (N=1,563)	9.3%	3.1%	3.2%
Outdoor noise pollution from vehicles (N=1,627)	39.8%	21.6%	13.9%
Outdoor air pollution from vehicles (N=1,629)	38.9%	26.2%	15.0%
Dangerous traffic (N=1,639)	35.6%	31.4%	16.6%
Industry, toxic waste, pesticides, etc. (N=1,556)	8.9%	8.7%	5.5%
Airport or airplane noise or vibrations (N=1,590)	20.1%	6.0%	5.0%
More severe storms (N=1,576)	22.8%	13.8%	7.5%
Extreme outdoor heat or cold (N=1,586)	29.3%	19.6%	12.7%
Neighborhood flooding (N=1,559)	14.1%	7.6%	4.0%

DATA SOURCE: Boston CHNA Community Survey, 2019.
NOTE: respondents able to choose more than one

By priority neighborhood (Table 23), outdoor air pollution from vehicles was the number one environmental concern for Hyde Park, Jamaica Plain and Roslindale, with West Roxbury naming dangerous traffic.

Table 23. Percent Boston CHNA Survey Respondents Reporting Environmental Health Concerns at Home, by Priority Neighborhood, 201

	Hyde Park (N=51)	Jamaica Plain (N=109)	Roslindale (N=81)	West Roxbury (N=71)
1	Outdoor air pollution from vehicles	Outdoor air pollution from vehicles	Outdoor air pollution from vehicles	Dangerous traffic
2	Outdoor noise pollution from vehicles	Dangerous traffic	Outdoor noise pollution from vehicles	Outdoor noise pollution from vehicles
3	Dangerous traffic	Outdoor noise pollution from vehicles	Dangerous traffic	Outdoor air pollution from vehicles
4	Extreme outdoor heat or cold	Extreme outdoor heat or cold	Extreme outdoor heat or cold	Extreme outdoor heat or cold
5	Bug and/or rodent infestation	Mold/mildew or water leaks	Mold/mildew or water leaks	Neighborhood flooding

DATA SOURCE: Boston CHNA Community Survey, 2019

At school (Table 24), our local residents named bug/rodent infestation as the top concern in Hyde Park. In Jamaica Plain, dangerous traffic was the number one concern. Dangerous traffic was in the top five for all neighborhoods, Inadequate heating/cooling was the main concern in Roslindale. It was also in the top five for all the other neighborhoods. Outdoor noise from vehicles was the major concern in West Roxbury.

Table 24. Percent Boston CHNA Survey Respondents Reporting Environmental Health Concerns at School, by Priority Neighborhood of Respondent Residence, 2019

	Hyde Park (N=51)	Jamaica Plain (N=109)	Roslindale (N=81)	West Roxbury (N=70)
1	Bug and/or rodent infestation	Dangerous traffic	Inadequate heating and/or cooling	Outdoor noise pollution from vehicles
2	Outdoor air pollution from vehicles	Extreme outdoor heat or cold	Outdoor noise pollution from vehicles	Dangerous traffic
3	Outdoor noise pollution from vehicles	Lead in paint, lead or other contaminants in drinking water	Dangerous traffic	Extreme outdoor heat or cold
4	Inadequate heating and/or cooling	Poor indoor air quality	Extreme outdoor heat or cold	Inadequate heating and/or cooling
5	Dangerous traffic	Inadequate heating and/or cooling	Outdoor air pollution from vehicles	Outdoor air pollution from vehicles

DATA SOURCE: Boston CHNA Community Survey, 2019

Indoor Contaminants

Secondhand smoke can trigger more frequent and severe asthma attacks and respiratory infections, and some studies have associated secondhand smoke exposure to contributing to deaths from coronary heart disease, stroke and lung cancer. More than one in ten Boston adults reported exposure to secondhand smoke in the BBRFSS questionnaire. Respondents who identified as Asian, Black or Latino were all significantly more likely than White respondents to report exposure to secondhand smoke. By housing status, non-homeowners were more likely than homeowners to indicate

being exposed to secondhand smoke, with more than 20% of Boston Housing Authority residents and renters on rental assistance reporting exposure. Lower income and unemployed residents were significantly more likely than their higher income and employed counterparts to report secondhand smoke exposure.

Climate Change

The impact of climate change was an issue raised by multiple key informant interviewees who mentioned specific concerns around heat-related illness, warming oceans, infectious disease and displacement. Interviewees identified the need for a climate-informed emergency preparedness strategy for the city of Boston to address flooding and major heat-related events in the immediate future.

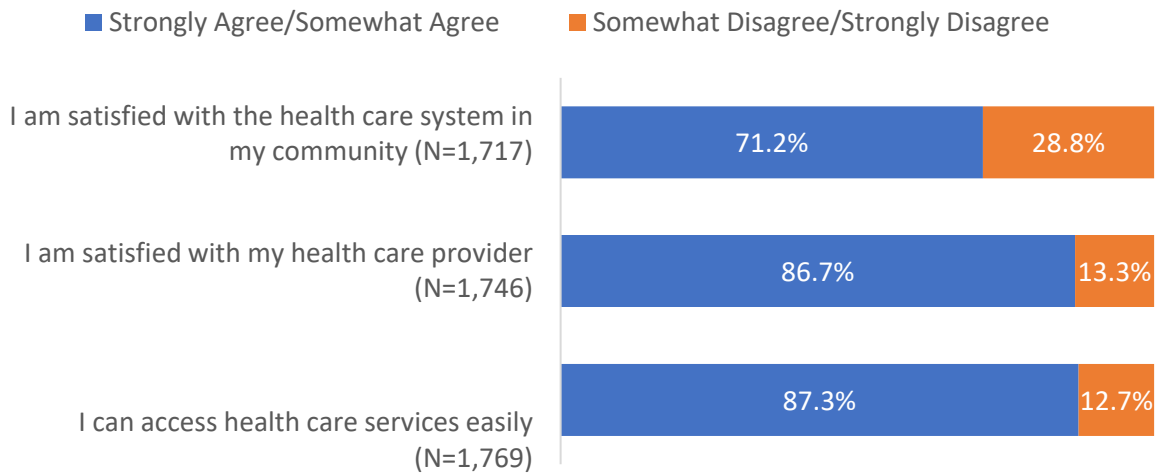
Key informant interviewees specifically identified the need for a centralized data repository to collect real-time data related to environmental health issues including climate change. This would include Emergency Department utilization during high heat days. It was also noted that more guidance is needed around evidence-based strategies to address climate change for those disproportionally impacted, sucah as children, seniors and low-income communities. There were suggestions to build from the work being led by local coalitions and city initiatives like Climate Ready Boston. Specific groups that were mentioned as potential partners include Health Care Without Harm, A Better City, Metropolitan Area Planning Council and the Boston Research Climate Group.

Healthcare Access and Utilization

Satisfaction and Use of Healthcare Services

As noted previously, Boston CHNA survey respondents identified access to healthcare as an important factor in defining a healthy community and as a strength in their community. Mirroring these sentiments, most Boston CHNA survey respondents indicated that they were satisfied with the healthcare in their community. As shown in Figure 59, 71.2% said they strongly or somewhat agreed with the statement, "I am satisfied with the healthcare system in my community," while 86.7% agreed that they are "satisfied with my healthcare provider" and 87.3% agreed that they could "access health care services easily."

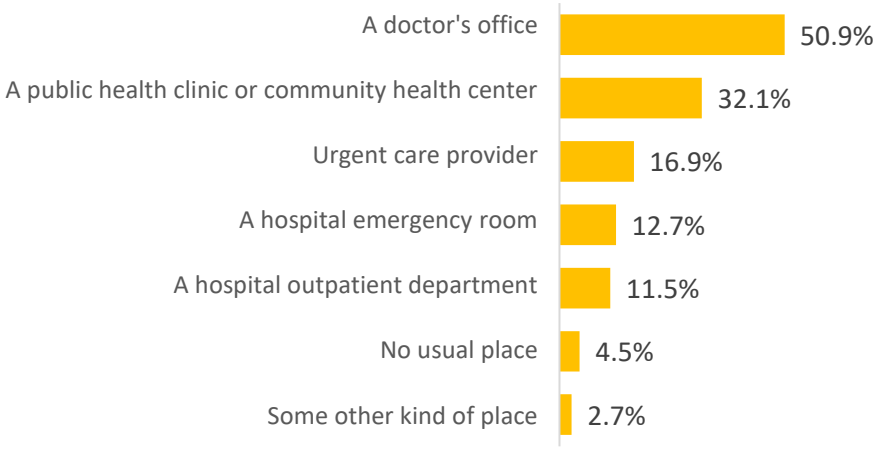
Figure 59. Percent Boston CHNA Survey Respondents Reporting Perceptions of Healthcare System and Access, 2019



DATA SOURCE: Boston CHNA Community Survey, 2019

Similarly, focus group and interview participants spoke positively about local health services in Boston, citing close proximity to leading healthcare institutions. In the Community Assets section of this report, data show that there are numerous hospitals and healthcare centers in the city. When asked about where they go if they are sick or need advice about health, of the 1,815 Boston CHNA survey respondents answering this question, 57.2% indicated that they went to a doctor's office, while 36.2% saw their public health clinic or community health center as their place of care (Figure 60). However, nearly one in seven (14.4%) indicated that they viewed the hospital Emergency Department as their place for seeking care or advice.

Figure 60. Percent Boston CHNA Survey Respondents Reporting Their Usual Place for Seeking Care (N=2,009), 2019



DATASOURCE: Boston CHNA Community Survey, 2019

Health Insurance

Very few Boston residents are uninsured. According to American Community Survey 2013–2017 estimates, 3.9% of the overall population (civilian, noninstitutionalized) in Boston were uninsured, while only 1.4% of the population under 19 years old were uninsured.[6] Among the Boston civilian population, 29.6% have Medicaid (MassHealth) coverage.[7]

A more common theme that emerged in focus group discussions was that many residents reported being **under-insured**—or having insurance coverage that does not adequately cover someone's full healthcare needs. Many focus group participants, especially those on MassHealth, perceived that there was a limited number of providers, particularly specialists, who accepted MassHealth. Focus group participants who were Dorchester residents, for example, described needing specialty treatments for chronic or debilitating conditions but being denied coverage after a limited time.

Barriers to Healthcare Access

The biggest barriers to healthcare access discussed in the focus groups were being under-insured, language and immigration status, navigation and care coordination challenges, transportation and lack of culturally sensitive approaches to care. Cost was not identified as a major barrier to care for the majority of participants. However, a few focus group participants discussed cost barriers in relation to affording medication for chronic diseases, and the challenge of competing costs on a fixed income.

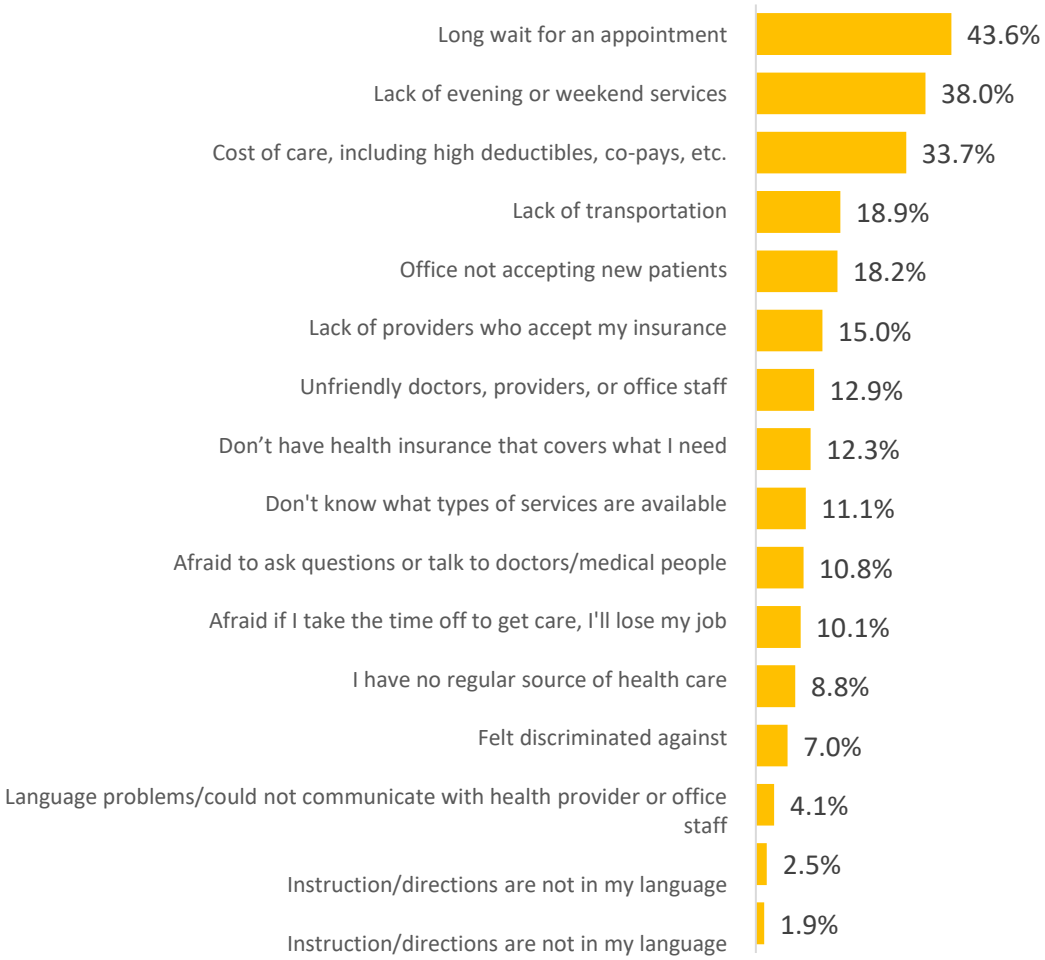
Unfriendly, disinterested or rushed healthcare providers and office staff were also issues that focus group participants mentioned. Some focus group participants described feeling "unseen" by their healthcare providers. Additionally, when discussing access to care, a prominent theme across focus groups and interviews was the challenge of navigating the complex health system. Focus group members spoke about the struggle to understand their healthcare benefits, reporting that they *"felt lost in the system."* Seniors were described as especially vulnerable to challenges navigating the health system. Several focus group participants emphasized that many simply do not know what resources are available to them or how to access them. Participants identified a need for more navigation services that could help patients access services and resources across sectors.

Transportation was also mentioned by survey participants and as a challenge to accessing healthcare. Some focus group participants noted that public transportation is limited for accessing services locally as well as for accessing specialty care. For immigrant communities, participants described immigration status (e.g., undocumented vs. documented status) as a significant barrier to accessing healthcare. Key informants spoke of fear in undocumented or mixed status

families which prevented residents from seeking care. Further, the need for increased linguistic capacity in the healthcare and social service landscape was also a common theme among qualitative conversations. The importance of culturally sensitive approaches to care were also discussed among multiple focus group and interviews. For example, some focus group participants spoke of cultural and gender norms of not seeking healthcare unless things are bad. Furthermore, LGBTQ youth described the need for more LGBTQ-centric care but also stressed the importance of providers taking into considerations the many intersecting identifies that a patient could hold. For example, being a queer-identifying teenager who is also a person of color. Some of these themes were identified in the Boston CHNA survey, while survey respondents were also likely to cite wait times and availability of hours as issues to accessing care.

When Boston CHNA survey respondents were asked about the factors that made it harder for them to get the healthcare services they needed in the past two years, issues related to convenience—long wait for an appointment (44.0%), lack of evening/weekend services (38.2%), cost of care (33.8%), lack of transportation (19.0%) and office not accepting new patients (18.3%) were cited as the top five most challenging issues (Figure 61).

Figure 61. Percent Boston CHNA Survey Respondents Reporting Factors That Made It Harder for Them to Get Health Care Services They Needed in Past Two Years (N=1,014), 2019



DATA SOURCE: Boston CHNA Community Survey, 2019

PRIORITY HEALTH NEEDS OF THE COMMUNITY

The first step in the planning process was to identify the priorities for the CHIP. Prioritization allows institutions and organizations to target and align resources, leverage efforts and focus on achievable strategies and goals for addressing priority needs. Through a systematic, engaged approach that is informed by data, priorities are identified for the Collaborative to focus its planning efforts. This section describes the process and outcomes of the Boston CHNA-CHIP Collaborative prioritization process.

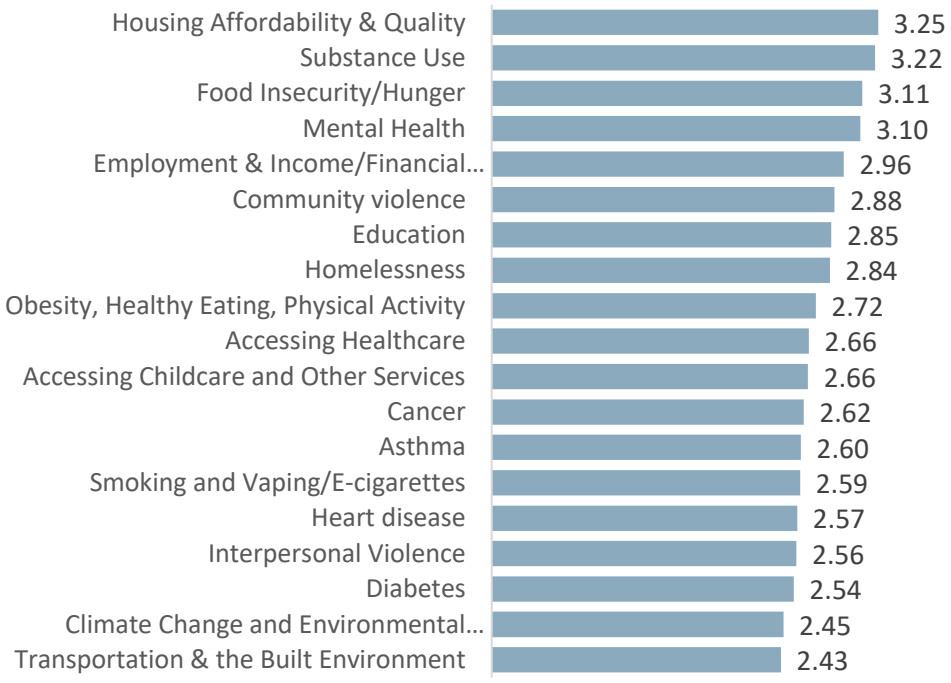
Process and Criteria for Prioritization

In April of 2019, the CHIP work group—comprised of representatives from hospitals, health centers, community organizations and the Boston Public Health Commission—developed prioritization criteria and an engagement strategy for identifying two to four priority needs for the subsequent Community Health Improvement Plan. Criteria were selected to assess the magnitude of community issues and their impact on the most disadvantaged population groups. The criteria and guiding questions selected are below.

- **Burden:** How much does this issue affect health in Boston?
- **Equity:** Will addressing this issue substantially benefit those most in need?
- **Impact:** Can working on this issue achieve both short-term and long-term change?
- **Feasibility:** Is it possible to address this issue given infrastructure, capacity and political will?
- **Collaboration:** Are there existing groups across sectors willing to work together on this issue?

The prioritization process was multi-stepped and aimed to be inclusive, participatory and data-driven. During May of 2019, several steps were taken to identify the final priorities for the planning process. First, a 16-page draft Executive Summary of the CHNA report was sent to over 150 organizations and individuals along with an online survey. The online survey included 19 key issues that emerged from the draft CHNA and participants were asked to rate each issue against each of the five criteria (burden, equity, impact, feasibility and collaboration) from 1 to 4 with 1=low, 2=medium, 3=high and 4=very high. Figure 62 indicates the average score across the five criteria for the issues rated.

Figure 62. Rating Tool Average Score of 1=Low, 2=Medium, 3=High, 4=Very High across Five Criteria (Burden, Equity, Impact, Feasibility and Collaboration), (N=38 organizations), 2019



Source: CHNA Survey of Priorities

Concurrently in early to mid-May, numerous small group discussions occurred throughout the city with community residents, organizational staff and other stakeholders. These discussions included a data presentation of the draft CHNA key findings, overview of the 19 key issues that emerged and the five criteria used for prioritization, as well as an interactive discussion with participants on what priorities rose to the top for them based on these criteria. A number of priorities commonly rose to the top in these qualitative discussions:

- *Housing* – specific concerns related to affordability, displacement, gentrification and homelessness
- *Employment and income* – specific concerns related to job opportunities and economic security; important to focus on upstream inequities
- *Mental health* – critical to note that many mental health issues co-occurring with substance use; concerns around availability of services and barriers to accessing services
- *Substance use* – critical to note that many substance use disorders are co-occurring with mental health issues; specific concerns around opioids, alcohol and youth smoking
- *Violence and trauma* – specific concerns related to community safety and the impact of trauma on mental health
- *Chronic conditions* – specific concerns related to obesity, healthy food access, cancer and diabetes
- *Food insecurity* – specific concerns around economic insecurity and the connections to obesity

The results from the online prioritization rating survey and small group discussions were used to refine the priority list from 19 topics to the following nine potential priorities:

- Housing – Affordability, Quality and Homelessness
- Food Insecurity/Hunger
- Employment and Income/Financial Insecurity
- Education
- Substance Use
- Mental Health
- Community Violence
- Obesity, Healthy Eating and Physical Activity
- Accessing Healthcare, Childcare and Other Services

The next step in the prioritization process was a large in-person meeting for further engagement and refinement in the prioritization process. On May 29, 2019, over 100 community residents and organizational staff across a multitude of sectors attended a three-hour evening meeting in Roxbury. This meeting included a brief data presentation on the key findings from the draft CHNA, a description of the prioritization process thus far and the refined set of nine priorities, small group discussions and a large group voting process. During the voting process, each participant received four dots, to vote for four issues among the nine (one dot per issue). The results of the dot voting can be found in Table 25.

Table 25. Initial Results of May 29 Prioritization Meeting Dot Voting Process

Topic	Total Votes
Housing – Affordability, Quality and Homelessness	66
Employment and Income/Financial Insecurity	63
Mental Health	48
Access to Healthcare, Childcare and Other Services	32
Education	31
Food Insecurity/Hunger	26
Substance Use	20
Community Violence	15
Obesity, Healthy Eating and Physical Activity	10
Other	1

The Boston CHNA-CHIP Collaborative Steering Committee met to discuss the identified priorities and to brainstorm a cross-cutting/overarching focus to frame future planning. From that discussion, the Steering Committee recommended renaming the Employment, Income and Education priority to be Financial Security and Mobility to encapsulate how employment, income, education and workforce training are all critical and inter-related factors that can contribute to financial security.

Additionally, there was a strong movement to have a cross-cutting and overarching focus for the plan to guide this collaborative work. Discussions centered on an overarching focus being racial equity to recognize that institutional racism and structural inequities are what drive the health disparities we see around race, ethnicity and language in the city.

Prioritized Needs for Collaborative Planning

After further definition and refinement of the priorities and cross-cutting/overarching plan focus by the Steering Committee and CHIP work group, the final prioritized needs for the planning process are:

- **Housing** (affordability, quality, homelessness, ownership, gentrification and displacement)
- **Financial Security and Mobility** (jobs, employment, income, education and workforce training)
- **Behavioral Health** (mental health and substance use)
- **Accessing Services** (healthcare, childcare and social services)

The cross-cutting and overarching focus of the plan will be around ***Achieving Racial and Ethnic Health Equity***.

Additionally, in order to best serve our priority neighborhoods, a Community Forum was held in June at BWFH. This event was an opportunity to give our priority neighborhoods a chance to voice their input on the finding and prioritization process. At the same time, feedback was solicited from our Community Engagement and Advisory Committee and many community partners. From this feedback, and based on our priority neighborhood data, BWFH will also add a fifth priority area:

- **Chronic Disease and Healthy Living** (obesity, diabetes, heart disease/hypertension, healthy eating, food insecurity and physical activity)

Next Steps

From June through September 2019, the Boston CHNA-CHIP Collaborative, in conjunction with key stakeholders and community residents, and the BWFH Community Engagement and Advisory Committee will develop an implementation strategy that outlines next steps to address the prioritized health needs from the CHNA. The CHIP development process will commence with a full-day planning session in late June of 2019 to develop the initial output for the goals, objectives, strategies and metrics within each priority area. Further refinement and development of the CHIP will occur during the summer of 2019, with final CHIP report and Year 1 Action Planning to be completed by September of 2019.

NEIGHBORHOOD PROFILES

The following section presents one-page summaries by neighborhood of key social, economic and health indicators included in this report.

Hyde Park 02136*	**Hyde Park**	**Boston Overall**	**Comparison to the Rest of Boston***
Demographics			
Population count estimate (2013–2017)	33,084	669,158	--
% population under 18 years (2013–2017)†	23.6%	16.3%	**H**
% population 65 years and over (2013–2017)†	13.1%	11.0%	**H**
% population foreign born (2013–2017)†	30.0%	28.3%	**S**
Employment, Education and Financial Insecurity			
% population 16 years and over unemployed (2013–2017)†	8.4%	7.3%	**S**
% population 25 years and over with less than a high school diploma (2013–2017)†	12.9%	13.9%	**S**
% individuals living below poverty level (2013–2017)†	12.4%	20.5%	**L**
% adults reporting food purchased did not last and did not have money to get more (2013, 2015, 2017)	18.3%	21.3%	**S**
Housing			
% renter-occupied housing units (2013–2017)†	46.8%	64.7%	**L**
% households where housing costs are 30% or more of household income for renters (2013–2017)†	50.3%	52.1%	**S**
% housing units experiencing overcrowding (2013–2017)†	3.7%	3.1%	**S**
Access to Services			
% adults reporting having a personal doctor or health care provider (2013, 2015, 2017)	89.1%	80.1%	**H**
% adults reporting could not afford to see a doctor (2013, 2015, 2017)	10.8%	10.0%	**S**
% adults reporting could not afford dental care (2017)	11.5%	17.4%	**L**
Substance Use and Mental Health			
% adults reporting binge drinking (2013, 2015, 2017)	22.5%	24.6%	**S**
% adults reporting cigarette smoking (2013, 2015, 2017)	15.8%	16.5%	**S**
% adults reporting persistent sadness (2013, 2015, 2017)	14.4%	12.3%	**S**
% adults reporting persistent anxiety (2013, 2015, 2017)	23.1%	21.3%	**S**
Suicide rate per 100,000 residents (2012–2016)	7.0	6.7	**S**
Violence and Trauma			
Nonfatal firearm related ED visit rate per 100,000 residents (2013–2017)	16.4	16.4	**S**
Homicide by firearms rate per 100,000 residents (2011–2016)	6.8	3.8	**S**
% adults reporting experiencing violence in lifetime (2013 ,2015, 2017)	9.6%	13.0%	**L**
% adults reporting having lived with adults who physically abused each other as a child (2013, 2015, 2017)	15.0%	16.9%	**S**
Chronic Conditions			
% adults reporting overweight or obesity (2013, 2015, 2017)	64.8%	56.8%	**H**
% adults reporting diabetes diagnosis (2013, 2015, 2017)	10.7%	8.5%	**S**
Overall cancer mortality rate per 100,000 residents (2015–2017)	205.7	160.0	**H**
Heart disease mortality rate per 100,000 residents (2016–2017)	168.5	131.4	**H**
% adults reporting hypertension (2013, 2015, 2017)	24.7%	24.7%	**S**
% adults reporting current asthma (2013, 2015, 2017)	11.4%	11.2%	**S**
Asthma ED visit (children under 18 years) rate per 10,000 residents (2016–2017)	199.6	191.5	**S**
Maternal and Child Health			
% mothers reporting smoking during pregnancy (2014–2017)	1.8%	2.0%	**S**
% low birthweight births (2017)	12.4%	8.7%	**S**
% children under 6 years screened with elevated blood levels (2015)	2.6%	2.3%	--
Sexual Health and Infectious Disease			
HIV/AIDS prevalence rate per 100,000 residents (2016)	821.2	855.8	**S**
Environmental Health			
% adults reporting secondhand smoke exposure in the home (2013, 2015, 2017)	10.0%	12.5%	**S**
Mortality			
Premature mortality rate per 100,000 residents (2014–2016)	233.3	200.1	**S**

*Jamaica Plain 02130**	Jamaica Plain	Boston Overall	Comparison to the Rest of Boston*
Demographics			
Population count estimate (2013–2017)	39,435	669,158	--
% population under 18 years (2013–2017)†	15.5%	16.3%	**S**
% population 65 years and over (2013–2017)†	12.3%	11.0%	**H**
% population foreign born (2013–2017)†	21.8%	28.3%	**L**
Employment, Education and Financial Insecurity			
% population 16 years and over unemployed (2013–2017)†	4.7%	7.3%	**L**
% population 25 years and over with less than a high school diploma (2013–2017)†	7.8%	13.9%	**L**
% individuals living below poverty level (2013–2017)†	16.0%	20.5%	**L**
% adults reporting food purchased did not last and did not have money to get more (2013, 2015, 2017)	12.8%	21.3%	**L**
Housing			
% renter-occupied housing units (2013–2017)†	53.6%	64.7%	**L**
% households where housing costs are 30% or more of household income for renters (2013–2017)†	57.6%	52.1%	**H**
% housing units experiencing overcrowding (2013–2017)†	1.7%	3.1%	**L**
Access to Services			
% adults reporting having a personal doctor or health care provider (2013, 2015, 2017)	84.3%	80.1%	**S**
% adults reporting could not afford to see a doctor (2013, 2015, 2017)	6.8%	10.0%	**L**
% adults reporting could not afford dental care (2017)	14.8%	17.4%	**S**
Substance Use and Mental Health			
% adults reporting binge drinking (2013, 2015, 2017)	24.9%	24.6%	**S**
% adults reporting cigarette smoking (2013, 2015, 2017)	12.7%	16.5%	**L**
% adults reporting persistent sadness (2013, 2015, 2017)	10.9%	12.3%	**S**
% adults reporting persistent anxiety (2013, 2015, 2017)	20.7%	21.3%	**S**
Suicide rate per 100,000 residents (2012–2016)	8.9	6.7	**S**
Violence and Trauma			
Nonfatal firearm related ED visit rate per 100,000 residents (2013–2017)	12.0	16.4	**L**
Homicide by firearms rate per 100,000 residents (2011–2016)	NA	3.8	--
% adults reporting experiencing violence in lifetime (2013 ,2015, 2017)	17.1%	13.0%	**S**
% adults reporting having lived with adults who physically abused each other as a child (2013, 2015, 2017)	14.7%	16.9%	**S**
Chronic Conditions			
% adults reporting overweight or obesity (2013, 2015, 2017)	50.4%	56.8%	**L**
% adults reporting diabetes diagnosis (2013, 2015, 2017)	5.2%	8.5%	**L**
Overall cancer mortality rate per 100,000 residents (2015–2017)	141.8	160.0	**S**
Heart disease mortality rate per 100,000 residents (2016–2017)	137.0	131.4	**S**
% adults reporting hypertension (2013, 2015, 2017)	20.3%	24.7%	**L**
% adults reporting current asthma (2013, 2015, 2017)	11.6%	11.2%	**S**
Asthma ED visit (children under 18 years) rate per 10,000 residents (2016–2017)	146.1	191.5	**L**
Maternal and Child Health			
% mothers reporting smoking during pregnancy (2014–2017)	0.8%	2.0%	**L**
% low birthweight births (2017)	8.3%	8.7%	**S**
% children under 6 years screened with elevated blood levels (2015)	2.6%	2.3%	--
Sexual Health and Infectious Disease			
HIV/AIDS prevalence rate per 100,000 residents (2016)	962.4	855.8	**H**
Environmental Health			
% adults reporting secondhand smoke exposure in the home (2013, 2015, 2017)	9.8%	12.5%	**S**
Mortality			
Premature mortality rate per 100,000 residents (2014–2016)	159.9	200.1	**L**

*Roslindale 02131**	Roslindale	Boston Overall	Comparison to the Rest of Boston*
Demographics			
Population count estimate (2013–2017)	32,819	669,158	--
% population under 18 years (2013–2017)†	21.1%	16.3%	**H**
% population 65 years and over (2013–2017)†	12.2%	11.0%	**H**
% population foreign born (2013–2017)†	26.9%	28.3%	**S**
Employment, Education and Financial Insecurity			
% population 16 years and over unemployed (2013–2017)†	5.1%	7.3%	**L**
% population 25 years and over with less than a high school diploma (2013–2017)†	9.5%	13.9%	**L**
% individuals living below poverty level (2013–2017)†	11.8%	20.5%	**L**
% adults reporting food purchased did not last and did not have money to get more (2013, 2015, 2017)	15.7%	21.3%	**L**
Housing			
% renter-occupied housing units (2013–2017)†	44.5%	64.7%	**L**
% households where housing costs are 30% or more of household income for renters (2013–2017)†	61.9%	52.1%	**H**
% housing units experiencing overcrowding (2013–2017)†	3.4%	3.1%	**S**
Access to Services			
% adults reporting having a personal doctor or health care provider (2013, 2015, 2017)	84.1%	80.1%	**S**
% adults reporting could not afford to see a doctor (2013, 2015, 2017)	8.8%	10.0%	**S**
% adults reporting could not afford dental care (2017)	14.6%	17.4%	**S**
Substance Use and Mental Health			
% adults reporting binge drinking (2013, 2015, 2017)	24.0%	24.6%	**S**
% adults reporting cigarette smoking (2013, 2015, 2017)	10.4%	16.5%	**L**
% adults reporting persistent sadness (2013, 2015, 2017)	12.4%	12.3%	**S**
% adults reporting persistent anxiety (2013, 2015, 2017)	20.4%	21.3%	**S**
Suicide rate per 100,000 residents (2012–2016)	5.0	6.7	**S**
Violence and Trauma			
Nonfatal firearm related ED visit rate per 100,000 residents (2013–2017)	12.4	16.4	**S**
Homicide by firearms rate per 100,000 residents (2011–2016)	5.5	3.8	--
% adults reporting experiencing violence in lifetime (2013 ,2015, 2017)	12.5%	13.0%	**S**
% adults reporting having lived with adults who physically abused each other as a child (2013, 2015, 2017)	14.5%	16.9%	**S**
Chronic Conditions			
% adults reporting overweight or obesity (2013, 2015, 2017)	62.8%	56.8%	**H**
% adults reporting diabetes diagnosis (2013, 2015, 2017)	9.3%	8.5%	**S**
Overall cancer mortality rate per 100,000 residents (2015–2017)	157.8	160.0	**S**
Heart disease mortality rate per 100,000 residents (2016–2017)	137.4	131.4	**S**
% adults reporting hypertension (2013, 2015, 2017)	27.7%	24.7%	**S**
% adults reporting current asthma (2013, 2015, 2017)	7.7%	11.2%	**L**
Asthma ED visit (children under 18 years) rate per 10,000 residents (2016–2017)	141.6	191.5	**L**
Maternal and Child Health			
% mothers reporting smoking during pregnancy (2014–2017)	1.5%	2.0%	**S**
% low birthweight births (2017)	8.7%	8.7%	**S**
% children under 6 years screened with elevated blood levels (2015)	2.5%	2.3%	--
Sexual Health and Infectious Disease			
HIV/AIDS prevalence rate per 100,000 residents (2016)	697.2	855.8	**L**
Environmental Health			
% adults reporting secondhand smoke exposure in the home (2013, 2015, 2017)	9.5%	12.5%	**S**
Mortality			
Premature mortality rate per 100,000 residents (2014–2016)	155.5	200.1	**L**

*West Roxbury 02132**	West Roxbury	Boston Overall	Comparison to the Rest of Boston*
Demographics			
Population count estimate (2013–2017)	28,505	669,158	--
% population under 18 years (2013–2017)†	20.4%	16.3%	**H**
% population 65 years and over (2013–2017)†	18.7%	11.0%	**H**
% population foreign born (2013–2017)†	18.1%	28.3%	**L**
Employment, Education and Financial Insecurity			
% population 16 years and over unemployed (2013–2017)†	4.9%	7.3%	**L**
% population 25 years and over with less than a high school diploma (2013–2017)†	7.5%	13.9%	**L**
% individuals living below poverty level (2013–2017)†	6.4%	20.5%	**L**
% adults reporting food purchased did not last and did not have money to get more (2013, 2015, 2017)	9.7%	21.3%	**L**
Housing			
% renter-occupied housing units (2013–2017)†	26.9%	64.7%	**L**
% households where housing costs are 30% or more of household income for renters (2013–2017)†	52.7%	52.1%	**S**
% housing units experiencing overcrowding (2013–2017)†	NA	3.1%	--
Access to Services			
% adults reporting having a personal doctor or health care provider (2013, 2015, 2017)	92.3%	80.1%	**H**
% adults reporting could not afford to see a doctor (2013, 2015, 2017)	4.7%	10.0%	**L**
% adults reporting could not afford dental care (2017)	NA	17.4%	--
Substance Use and Mental Health			
% adults reporting binge drinking (2013, 2015, 2017)	21.4%	24.6%	**S**
% adults reporting cigarette smoking (2013, 2015, 2017)	10.0%	16.5%	**L**
% adults reporting persistent sadness (2013, 2015, 2017)	8.1%	12.3%	**L**
% adults reporting persistent anxiety (2013, 2015, 2017)	17.8%	21.3%	**S**
Suicide rate per 100,000 residents (2012–2016)	4.9	6.7	**S**
Violence and Trauma			
Nonfatal firearm related ED visit rate per 100,000 residents (2013–2017)	NA	16.4	--
Homicide by firearms rate per 100,000 residents (2011–2016)	NA	3.8	--
% adults reporting experiencing violence in lifetime (2013 ,2015, 2017)	8.1%	13.0%	**L**
% adults reporting having lived with adults who physically abused each other as a child (2013, 2015, 2017)	9.7%	16.9%	**L**
Chronic Conditions			
% adults reporting overweight or obesity (2013, 2015, 2017)	63.6%	56.8%	**H**
% adults reporting diabetes diagnosis (2013, 2015, 2017)	7.5%	8.5%	**S**
Overall cancer mortality rate per 100,000 residents (2015–2017)	163.5	160.0	**S**
Heart disease mortality rate per 100,000 residents (2016–2017)	133.4	131.4	**S**
% adults reporting hypertension (2013, 2015, 2017)	28.3%	24.7%	**S**
% adults reporting current asthma (2013, 2015, 2017)	11.9%	11.2%	**S**
Asthma ED visit (children under 18 years) rate per 10,000 residents (2016–2017)	48.1	191.5	**L**
Maternal and Child Health			
% mothers reporting smoking during pregnancy (2014–2017)	0.6%	2.0%	**L**
% low birthweight births (2017)	3.8%	8.7%	**L**
% children under 6 years screened with elevated blood levels (2015)	0.9%	2.3%	--
Sexual Health and Infectious Disease			
HIV/AIDS prevalence rate per 100,000 residents (2016)	329.2	855.8	**L**
Environmental Health			
% adults reporting secondhand smoke exposure in the home (2013, 2015, 2017)	5.6%	12.5%	**L**
Mortality			
Premature mortality rate per 100,000 residents (2014–2016)	142.8	200.1	**L**

*NOTES FOR ALL NEIGHBORHOOD PROFILES: *Rest of Boston refers to the combined estimate/rate for all other 14 Boston neighborhoods excluding the indicated neighborhood; † Neighborhood comparison to Boston overall; NA denotes where data are suppressed due to insufficient sample size; **H** indicates the estimate/rate is significantly higher than the rest of Boston; **L** indicates the estimate/rate is significantly lower than the rest of Boston; **S** indicates the estimate/rate is statistically similar to the rest of Boston (i.e., no statistically significant difference); Statistical testing was not conducted for population count estimate and % children under 6 years screened with elevated blood levels

APPENDIX A. STEERING COMMITTEE MEMBERS

Organization	Name
Beth Israel Deaconess Medical Center	Nancy Kasen (co-chair)
Boston Children's Hospital	Ayesha Cammaerts
Boston Healthcare for the Homeless	Denise De Las Nueces
Boston Medical Center	Jennifer Fleming
Boston Public Health Commission	Margaret Reid
Brigham and Women's Faulkner Hospital	Tracy Mangini Sylven
Brigham and Women's Hospital	Wanda McClain
Community representative and Jamaica Plain Neighborhood Development Corporation	Ricky Guerra
Community Labor United	Sarah Jimenez
Dana-Farber Cancer Institute	Magnolia Contreras
Fenway Health	Carl Sciortino (co-chair)
Health Leads	Laurita Kaigler-Crawlle
Madison Park Development Corporation	Jeanne Pinado
Massachusetts Eye and Ear	Erin Duggan
Massachusetts General Hospital	Joan Quinlan
Massachusetts League of Community Health Centers	Mary Ellen McIntyre
Tufts Medical Center	Sherry Dong
Uphams Corner Health Center	Daniel Joo
Urban Edge	Robert Torres

APPENDIX B. SECONDARY DATA AND COMMUNITY ENGAGEMENT WORK GROUP MEMBERS

Organization	Name	Membership
American Diabetes Association	Albert Whitaker	Community Engagement- Member
American Heart Association	Cherelle Rozie	Community Engagement- Member
BACH	Jamiah Tappin	Community Engagement- Member
Beth Israel Deaconess Medical Center	Nancy Kasen	Secondary Data- Member
Blue Cross Blue Shield - Massachusetts	Charlotte Alger	Secondary Data- Member
Boston Children's Hospital	Urmi Bhaumik	Secondary Data- Member
Boston Children's Hospital	Ayesha Cammaerts	Secondary Data- Member
Boston Medical Center	Jennifer Fleming	Community Engagement- Member
Boston Public Health Commission	Dan Dooley	Secondary Data- Co-Chair
Boston Public Health Commission	Margaret Reid	Secondary Data- Member
Boston Public Health Commission	Triniese Polk	Community Engagement- Co-Chair
Bowdoin Street Health Center	Alberte Atine-Gibson	Secondary Data- Member
Boys and Girls Club of Boston	Grace Lichaa	Community Engagement- Member & Secondary Data- Member
Brigham and Women's Hospital	Michelle Keenan	Secondary Data- Member
Brigham and Women's Hospital-Faulkner	Tracy Mangini Sylven	Community Engagement- Member
City Life Vida Urbana	Mike Leyba	Community Engagement- Member
Dana-Farber Cancer Institute	Magnolia Contreras	Community Engagement- Co-Chair & Secondary Data- Member
East Boston Social Center	Gloria Devine	Community Engagement- Member
East Boston Social Center	Lisa Melara	Community Engagement- Member
Fenway Health	Matan Benyishay	Secondary Data- Member
Fenway Health	Sean Cahill	Secondary Data- Member
Harvard School of Public Health	Maynard Clark	Community Engagement- Member
Health Care without Harm	Jen Obadia	Community Engagement- Member
MA Department of Public Health	Halley Reeves	Secondary Data- Member
Madison Park Development Corp.	Jeanne Pinado	Community Engagement- Member
Madison Park Development Corp.	Kay Mathew	Community Engagement- Member
Massachusetts Eye and Ear	Erin Duggan	Secondary Data- Member
Massachusetts General Hospital	Danelle Marable	Community Engagement- Member

Organization	Name	Membership
Massachusetts General Hospital	Leslie Aldrich	Community Engagement- Member
Massachusetts General Hospital	Sarah Wang	Community Engagement- Member
Massachusetts General Hospital-Center for Community Health Improvement	Kelly Washburn	Secondary Data- Member
Massachusetts General Hospital-Center for Community Health Improvement	Sonia Iyengar	Community Engagement- Member & Secondary Data- Member
Massachusetts League of Community Health Center	Mary Ellen McIntyre	Secondary Data- Member
NAMI – PPAL (Parent/Professional Advocacy League)	Monica Pomare	Community Engagement- Member
Partners HealthCare	Tavinder Phull	Secondary Data- Co-Chair
Peer Health Exchange	Uchenna Ndulue	Secondary Data- Member
The Family Van	Millie Williams	Secondary Data- Member
The Family Van	Rainelle White	Community Engagement- Member
Tufts Medical Center	Sherry Dong	Community Engagement- Member
Tufts Medical Center	Stephen Muse	Secondary Data- Member
Upham's Corner Health Center	Dan Joo	Secondary Data- Member
Urban Edge	Robert Torres	Community Engagement- Member
Urban Edge	Sahar Lawrence	Secondary Data- Member
Women's Health Unit - BMC	Jennifer Pamphile	Community Engagement- Member

APPENDIX C. BWFH COMMUNITY ENGAGEMENT AND ADVISORY COMMITTEE MEMBERSHIP

Name/Organization
William Alves—Executive Director, Menino (Hyde Park) YMCA
Patti Cahill—Librarian, Manning Elementary School, local resident
Jacqueline Cucchiara—Hyde Park Food Bank
Ethan d'Ablemont Burnes—Principal, Manning Elementary School
Susan Dempsey—BWFH VP of Support Services and Clinical Services
Donna Gillia—Triage/staff nurse for Faulkner Community Physicians Hyde Park
Lynda Giovaniello—Clinical Liaison, Hebrew Senior Life
David Goldberg—Exec Director, Marketing/Communications/Community Relations, BWFH
Heather Guarnotta—local resident, end of life doula, Boston Public School parent

Name/Organization
Effie Ingram—Wellness Coordinator, Hebrew Senior Life
Margaret Jolliffee—Executive Director, Brookside Community Health Center
Leigh Kalbacker—Director, Client & Volunteer Services, Community Servings
Michelle Keenan—Director, Community Programs, Brigham and Women's Hospital
Marion Kelly—Executive Director, Parkway YMCA
Maryka Lier—Assistant Director, Wellness Policies & Promotions, Boston Public Schools
Cori Loescher—BWFH Chief Nursing Officer
Janet McGrail Spillane—Health Systems Specialist, Department of Public Health
Emily Morris-Litonjua—Executive Director, ESAC, Inc.
David McCready—President, Brigham and Women's Faulkner Hospital
Bernadette Murphy—Resident Service Coordinator, Washington Beech Apts., Roslindale
Susan O'Connell—Hospital Liaison, Deutsches Altenheim German Center
Jane O'Donnell—Practice Manager, Community Physicians West Roxbury/Hyde Park
Scott O'Mara—Boston Police Department, Area E Community Officer
Alysia Ordway—Employer Engagement Director, Boston Private Industry Council
John Pappas—member, Jamaica Hills Association, local resident
David Perry—BWFH Department of Psychiatry, social worker
Katie Plante—BWFH Community Health and Wellness Assistant
Edna Rivera Carrasco—Associate Director, Office of Health Equity, BPHC
Raymond Santos—Community Relations & Development Director, ETHOS
Cathy Slade—YMCA Board Member, home health caregiver
Tracy Sylven—BWFH, Director, Community Health and Wellness
Josh Trautwein—Owner/CEO of The Fresh Truck
Anna Waldron—Jamaica Plain Neighborhood Development Corporation
Meghan Walsh—Development Officer, Italian Home for Children
Ron Warner, MD—Primary Care Physician, Hyde Park Community Physicians

REFERENCES

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[2] Bluestone, B., & Huessy, J. (2017). *The Greater Boston Housing Report Card 2017: Ideas from the Urban Core Responsive Development as a Model for Regional Growth*. Retrieved from https://www.tbf.org/-/media/tbf/reports-and-covers/2017/2017-housingreportcard.pdf

[3] Bureau of Labor Statistics. (2014). *Consumer Expenditure Survey, as cited by Metropolitan Area Planning Council, Regional Indicators*. Retrieved from http://www.regionalindicators.org/topic_areas/2#annual-household-transportation-expenditure

[4] Boston Public Health Commission. (2017). *Health of Boston 2016-2017*. Retrieved from http://www.bphc.org/healthdata/health-of-boston-report/Documents/_HOB_16-17_FINAL_SINGLE PAGES-Revised Feb 2019.pdf

[5] Boston Public Schools, Health and Wellness Department, 2018

[6] US Census Bureau. (2017). *American Community Survey 5-Year Estimates, 2013-2017*. NOTE: Civilian noninstitutionalized population is defined as all U.S. civilians not residing in institutional group quarters facilities such as correctional institutions, juvenile facilities, skilled nursing facilities, and other long-term care living arrangements.

[7] US Census Bureau. (2017). *American Community Survey 5-Year Estimates, 2013-2017*.

CONTACT US

We welcome comments and questions regarding this report. Please contact us at Brigham and Women's Faulkner Hospital Community Health and Wellness Department:

Tracy Mangini Sylven, MCHES, CHC
Director, Community Health and Wellness
Phone: 617-983-7451
Email: tsylven@bwh.harvard.edu

Appendix 6

Affiliated Parties Form

Massachusetts Department of Public Health
Determination of Need
Affiliated Parties

Version: DRAFT 3-15-17

DRAFT

Application Date: 01/21/2021 Application Number: MGB-20121716-HE

Applicant Information

Applicant Name: Mass General Brigham Incorporated

Contact Person: Andrew Levine Title: Attorney

Phone: 6175986700 Ext: E-mail: alevine@barrettsingal.com

Affiliated Parties

1.9 **Affiliated Parties:**
List all officers, members of the board of directors, trustees, stockholders, partners, and other Persons who have an equity or otherwise controlling interest in the application.

Add/ Del Rows	Name (Last)	Name (First)	Mailing Address	City	State	Affiliation	Position with affiliated entity (or with Applicant)	Stock, shares, or partnership	Percent Equity (numbers only)	Convictions or violations	List other health care facilities affiliated with	Business relationship with Applicant
+ -	Finucane	Anne Marie	20 Trapelo Road	Lincoln	MA	Mass General Brigham Incorporated	Director		0%	No	CVS (MinuteClinic) in Rhode Island (Director)	Yes
+ -	Fish	John	776 Boylston Street, PH2A	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		Yes
+ -	Hockfield	Susan	4 Berkeley Place	Cambridge	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Holman, III	Albert	29A Chestnut Street	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Kaplan	James	32 Cart Path Road	Weston	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Klibanski, M.D.	Anne	800 Boylston Street, Suite 1150	Boston	MA	Mass General Brigham Incorporated	Director/Officer		0%	No		No
+ -	Kraft	Jonathan	One Patriot Place	Foxborough	MA	Mass General Brigham Incorporated	Director		0%	No	The General Hospital Corporation (Trustee)	No
+ -	Markell	Peter	73 Churchill Street	Milton	MA	Mass General Brigham Incorporated	Officer		0%	No		No
+ -	Martignetti	Carl	164 Chestnut Hill Road	Chestnut Hill	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Patrick	Diane	472 Beacon Street, Apartment 2	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Reeve	Pamela	35 Swan Road	Winchester	MA	Mass General Brigham Incorporated	Director		0%	No		No

Add/ Del Rows	Name (Last)	Name (First)	Mailing Address	City	State	Affiliation	Position with affiliated entity (or with Applicant)	Stock, shares, or partnership	Percent Equity (numbers only)	Convictions or violations	List other health care facilities affiliated with	Business relationship with Applicant
+ -	Salim, M.D.	Ali	75 Francis Street, A-2-L-1	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Schoen	Scott	51 Essex Road	Chestnut Hill	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Sperling	Scott	4 Moore Road	Wayland	MA	Mass General Brigham Incorporated	Director/Officer		0%	No		Yes
+ -	Thorndike	Alexander	215 Warren Street	Brookline	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	York	Gwill	16 Fayerweather Street	Cambridge	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Atchinson	Robert	115 Commonwealth Ave.	Boston	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Ives	David	5 Cherry Hill Street	West Newbury	MA	Mass General Brigham Incorporated	Director		0%	No		No
+ -	Ragon	Phillip	8 Follen Street	Cambridge	MA	Mass General Brigham Incorporated	Director		0%	No		Yes
+ -	Goggin	Maureen	730 Adams Street, Apartment #1	Dorchester	MA	Mass General Brigham Incorporated	Officer		0%	No		No

Document Ready for Filing

When document is complete click on "document is ready to file". This will lock in the responses and date and time stamp the form. To make changes to the document un-check the "document is ready to file" box. Edit document then lock file and submit Keep a copy for your records. Click on the "Save" button at the bottom of the page.

To submit the application electronically, click on the"E-mail submission to Determination of Need" button.

This document is ready to file: ☐ Date/time Stamp:

E-mail submission to Determination of Need

Appendix 7

Change in Service Form

Massachusetts Department of Public Health
Determination of Need
Change in Service

Version: DRAFT 6-14-17

DRAFT

Application Number: MGB-20121716-HE Original Application Date: 01/21/2021

Applicant Information

Applicant Name: Mass General Brigham Incorporated

Contact Person: Andrew Levine Title: Attorney

Phone: 6175986700 Ext: E-mail: alevine@barrettsingal.com

Facility: Complete the tables below for each facility listed in the Application Form

1 Facility Name: Brigham and Women's Faulkner Hospital CMS Number: 220119 Facility type: Hospital

Change in Service

2.2 Complete the chart below with existing and planned service changes. Add additional services with in each grouping if applicable.

Add/Del Rows		Licensed Beds	Operating Beds	Change in Number of Beds (+/-)		Number of Beds After Project Completion (calculated)		Patient Days	Patient Days	Occupancy rate for Operating Beds		Average Length of Stay	Number of Discharges	Number of Discharges
		Existing	Existing	Licensed	Operating	Licensed	Operating	(Current/ Actual)	Projected	Current Beds	Projected	(Days)	Actual	Projected
	Acute													
	Medical/Surgical	133	133	78	78	211	211	39,871	65,791	82%	85%	3.53	11,295	18,425
	Obstetrics (Maternity)									0%	0%			
	Pediatrics									0%	0%			
	Neonatal Intensive Care									0%	0%			
	ICU/CCU/SICU									0%	0%			
+ -										0%	0%			
	Total Acute	133	133	78	78	211	211	39,871	65,791	82%	85%	3.53	11,295	18,425
	Acute Rehabilitation									0%	0%			
+ -										0%	0%			
	Total Rehabilitation									0%	0%			
	Acute Psychiatric													

Add/Del Rows		Licensed Beds Existing	Operating Beds Existing	Change in Number of Beds (+/-) Licensed	Operating	Number of Beds After Project Completion (calculated) Licensed	Operating	Patient Days (Current/ Actual)	Patient Days Projected	Occupancy rate for Operating Beds Current Beds	Projected	Average Length of Stay (Days)	Number of Discharges Actual	Number of Discharges Projected
	Adult									0%	0%			
	Adolescent									0%	0%			
	Pediatric									0%	0%			
	Geriatric									0%	0%			
+ -										0%	0%			
	Total Acute Psychiatric									0%	0%			
	Chronic Disease									0%	0%			
+ -										0%	0%			
	Total Chronic Disease									0%	0%			
	Substance Abuse													
	detoxification									0%	0%			
	short-term intensive									0%	0%			
+ -										0%	0%			
	Total Substance Abuse									0%	0%			
	Skilled Nursing Facility													
	Level II									0%	0%			
	Level III									0%	0%			
	Level IV									0%	0%			
+ -										0%	0%			
	Total Skilled Nursing									0%	0%			

2.3 Complete the chart below If there are changes other than those listed in table above.

Add/Del Rows	**List other services** if Changing e.g. OR, MRI, etc	Existing Number of Units	Change in Number +/-	Proposed Number of Units	Existing Volume	Proposed Volume
+ -	Relocation and Expansion of Endoscopy Unit (Unit = # of Endoscopy Rooms; Volume = # of Patient Visits)	5	1	6	7,244	8,600
+ -	Addition of 3T MRI (Unit = # of MRI Units; Volume = # of Patient Scans)	1	1	2	6,096	7,546
+ -	Extended Recovery Unit (ERU) - (Unit = # of ERU Beds; Volume = # of Patients)	0	8	8	0	1,810

Document Ready for Filing

When document is complete click on "document is ready to file". This will lock in the responses and date and time stamp the form. To make changes to the document un-check the "document is ready to file" box.
Edit document then lock file and submit Keep a copy for your records. Click on the "Save" button at the bottom of the page.

To submit the application electronically, click on the"E-mail submission to Determination of Need" button.

This document is ready to file: ☐ Date/time Stamp:

E-mail submission to Determination of Need

Appendix 8

Notice of Intent

LEGAL NOTICES LEGAL NOTICES LEGAL NOTICES

NOTICE OF MORTGAGEE'S SALE OF REAL ESTATE

By virtue and in execution of the Power of Sale contained in a certain mortgage given by Antonio Jarvis and Lucy Veiga to Mortgage Electronic Registration Systems, Inc., solely as nominee for American Mortgage, Inc., dated December 19, 2008, and recorded with the Suffolk County Registry of Deeds in Book 44347, Page 269, as affected by an assignment from Mortgage Electronic Registration Systems, Inc., to Bank of America, N.A., Successor by merger to BAC Home Loans Servicing, LP FKA Countrywide Home Loans Servicing, LP, dated January 31, 2012, and recorded with the Suffolk County Registry of Deeds in Book 49049, Page 279; assignment from Bank of America, N.A., Successor by merger to BAC Home Loans Servicing, LP FKA Countrywide Home Loans Servicing, LP, to Secretary of Housing and Urban Development, dated September 4, 2013, and recorded with the Suffolk County Registry of Deeds in Book 52864, Page 212; assignment from Secretary of Housing and Urban Development to Ventures Trust 2013-I-NH- by MCM Capital Partners, LLC, its Trustee, dated September 18, 2013, and recorded with the Suffolk County Registry of Deeds in Book 52864, Page 213; assignment from Ventures Trust 2013-I-NH by MCM Capital Partners, LLC, its Trustee to Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not Individually but as Trustee for Ventures Trust 2013-I-NH, dated October 6, 2017, and recorded with the Suffolk County Registry of Deeds in Book 58698, Page 205; assignment from Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not Individually but as Trustee for Ventures Trust 2013-I-NH to Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not Individually but as Trustee for Hilldale Trust, dated October 16, 2017, and recorded with the Suffolk County Registry of Deed in Books 58698, Page 213; and Assignment from Wilmington Savings Fund Society, FSB, D/B/A Christiana Trust, Not in its Individual Capacity but solely as Trustee for Hilldate Trust to Wilmington Savings Fund Society, FSB, as Owner Trustee of the Residential Credit Opportunities Trust V-D, dated September 11, 2019, and recorded with the Suffolk County Registry of Deeds in Book 61914, Page 60; of which mortgage the undersigned is the present holder by assignment, for breach of the conditions of said mortgage and for the purpose of foreclosing the same will be sold at Public Auction at 01:00 PM o'clock on January 21, 2021 at 77-79 Bloomfield Street, Dorchester, Suffolk County, Massachusetts, all and singular the premises described in said mortgage,

To wit:

The land with the buildings thereon, situated in that part of Boston, formerly Dorchester, being Lot 4 on a plan made by Morton & Quimby dated May 28, 1894, and recorded with the Suffolk Deeds Book 2203, end, bounded and described as follows:
SOUTHEASTERLY on Bloomfield Street, 50 feet;
SOUTHWESTERLY by Lot 3 on said plan, 92.13 feet;
NORTHWESTERLY by land of the heirs of Charles B. Pierce, 50 feet; and
NORTHEASTERLY by Lot 5 on said plan, 91.49 feet
Containing 4,590 square feet of land, more or less, according to said plan.
For title reference see Deed recorded with Suffolk District Registry of Deeds at Book 37938,
Page 242.

For mortgagor's title see deed recorded at the above-named Registry of Deeds in Book 44347, Page 267.

Premises to be sold and conveyed subject to and with the benefit of all rights, rights of way, restrictions, easements, covenants, liens or claims in the nature of liens, improvements, public assessments, any and all unpaid taxes, tax titles, tax liens, water and sewer liens and any other municipal assessments or liens or existing encumbrances of record which are in force and are applicable, having priority over said mortgage, whether or not reference to such restrictions, easements, improvements, liens or encumbrances is made in the deed.

Terms of sale: A deposit of five thousand dollars ($5,000) by certified or bank check will be required to be paid by the purchaser at the time and place of sale. The balance is to be paid by certified or bank check at the offices of WCG Law Group, PLLC, 21 High Street, Suite 208B, North Andover, MA 01845 within thirty (30) days from the date of sale. Deed will be provided to purchaser for recording upon receipt in full of the purchase price. In the event of an error in this publication, the description of the premises contained in said mortgage shall control.

Other terms, if any, to be announced at the sale.

Wilmington Savings Fund Society, FSB, as Owner
Trustee of the Residential Credit Opportunities Trust V-
D

Present Holder of said mortgage
By its attorneys,
WCG Law Group, PLLC
21 High Street, Suite 208B
North Andover, MA 01845
Jarvis, Antonio and Veiga, Lucy; 1412-FCI-1036;

Dec 31 Jan 7 14

LEGAL NOTICES LEGAL NOTICES LEGAL NOTICES

Public Announcement Concerning a Proposed Health Care Project

Mass General Brigham Incorporated ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a substantial capital expenditure and substantial change in service by Brigham and Women's Faulkner Hospital ("BWFH") located at 1153 Centre Street, Boston, MA 02130. This Application includes the following: (A) construction of a 5-story addition to BWFH's existing hospital facility that will contain the following: (1) 78 additional medical/surgical beds; (2) an 8-bed observation unit; (3) relocated and expanded endoscopy services, including one additional procedure room; (4) a magnetic resonance imaging ("MRI") unit and certain relocated radiology services; and (5) shell space for future build out to accommodate clinical services; and (B) other renovation projects to improve existing services and facilities at the BWFH main campus (collectively, the "Proposed Project"). The total value of the Proposed Project based on the maximum capital expenditure is $150,098,582. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Proposed Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application by no later than February 20, 2021 or 30 days from the Filing Date, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6 th Floor, Boston, MA 02108.

Jan 7

LEGAL NOTICES LEGAL NOTICES LEGAL NOTICES

Public Announcement Concerning a Proposed Health Care Project

Mass General Brigham Incorporated ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a substantial capital expenditure and substantial change in service by The General Hospital Corporation d/b/a/ Massachusetts General Hospital ("MGH") located at 55 Fruit Street, Boston, MA 02114. This Application includes the following: (A) construction of a new building that will contain the following: (1) 482 new private medical/surgical and intensive care unit ("ICU") beds and with the corresponding closure of 388 existing semi-private beds, MGH will have a total of 94 additional licensed beds (54 additional medical/surgical; 40 additional ICU beds); (2) relocated and expanded outpatient oncology services; (3) 24 operating rooms; (4) two additional computed tomography ("CT") units; (5) two additional magnetic resonance imaging ("MRI") units; (6) two additional positron emission tomography-computed tomography ("PET/CT") units; (7) one additional positron emission tomography-magnetic resonance ("PET/MR") unit; and (B) other clinical services renovation projects at MGH's main campus and licensed satellites (collectively, the "Proposed Project"). The total value of the Proposed Project based on the maximum capital expenditure is $1,880,774,238. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Proposed Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application by no later than February 20, 2021 or 30 days from the Filing Date, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6 th Floor, Boston, MA 02108.J

Jan 7

LEGAL NOTICES LEGAL NOTICES LEGAL NOTICES

PUBLIC ANNOUNCEMENT CONCERNING A PROPOSED HEALTH CARE PROJECT

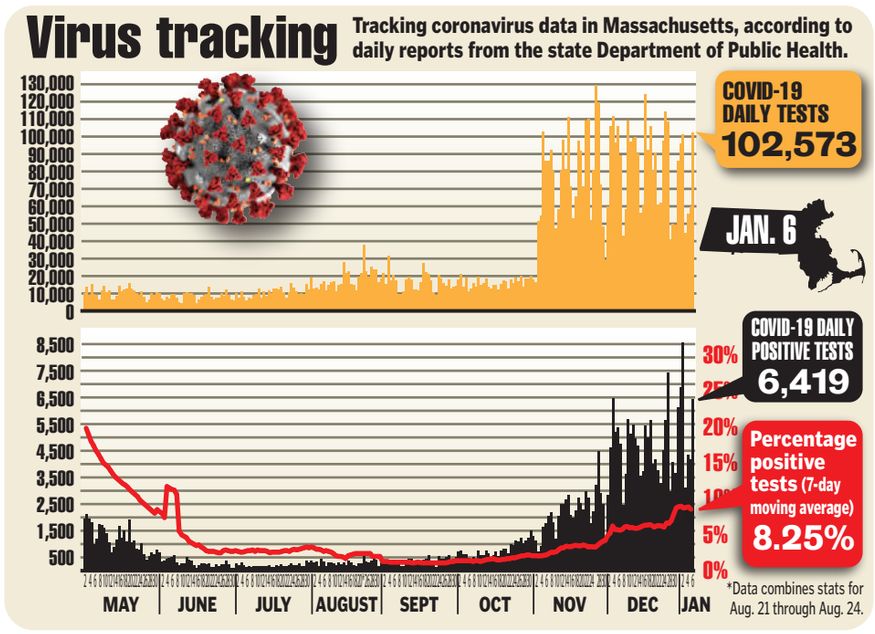
Mass General Brigham Incorporated ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199, intends to file an Application for Determination of Need ("Application") with the Massachusetts Department of Public Health for a substantial change in service and substantial capital expenditure for the (i) construction and development of a freestanding ambulatory surgery center ("ASC"), clinic space, and the acquisition of 1 magnetic resonance imaging ("MRI") unit and 1 computed tomography ("CT") unit at 1400 West Park Drive, Westborough, MA 01581; (ii) construction and development of an ASC and the acquisition of 2 MRI units and 2 CT units at 100 Brigham Way, Westwood, MA 02090; and (iii) construction and development of an ASC, clinic space, and the acquisition of 2 MRI units and 2 CT units at 2 Hill Street, Woburn, MA 01801. The total value of the Proposed Project based on the maximum capital expenditure is $223,724,658. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Proposed Project. Any ten taxpayers of Massachusetts may register in connection with the intended Application by no later than February 22, 2021, or 30 days from the filing date of the Application, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 4th Floor, Boston, MA 02108 or dph.don@state.ma.us.

Jan 7

PROBATE CITATIONS PROBATE CITATIONS

Commonwealth of
Massachusetts
The Trial Court Probate and Family Court
Suffolk Division
Docket No. SU20P2304EA
INFORMAL PROBATE PUBLICATION NOTICE
Estate of: Jeffrey T. Gauches
Date of Death: September 27, 2020 To all persons interested in the above captioned estate, by Petition of Petitioner Kathleen Gauches of South Glastonbury CT Kathleen Gauches of South Glastonbury CT has been informally appointed as the Personal Representative of the estate to serve without surety on the bond. The estate is being administered under informal procedure by the Personal Representative under the Massachusetts Uniform Probate Code without supervision by the Court. Inventory and accounts are not required to be filed with the Court, but interested parties are entitled to notice regarding the administration from the Personal Representative and can petition the Court in any matter relating to the estate, including distribution of assets and expenses of administration. Interested parties are entitled to petition the Court to institute formal proceedings and to obtain orders terminating or restricting the powers of Personal Representatives appointed under informal procedure. A copy of the Petition and Will, if any, can be obtained from the Petitioner.

Jan 7



Virus cases surge 6,419 — one of the highest single-day counts ever

By RICK SOBEY

Massachusetts health officials on Wednesday reported 99 new coronavirus deaths and 6,419 new cases, one of the highest single-day counts ever as cases surge in the wake of Christmas.

Wednesday's count of 6,419 cases comes after Tuesday's 4,178 cases and Monday's 4,358 cases. Last Thursday — the final day of 2020 — was the state's single-day record high of 6,887 new cases.

Wednesday's 99 new virus deaths and three new probable virus deaths bring the state's total COVID-19 death toll to 12,836. The seven-day average of daily deaths is now 51, a significant jump from 13 daily deaths in early October. The death average peaked with 175 daily deaths in late April.

Of Massachusetts' 404,053 total recorded cases, at least 261,672 people have recovered. Health officials estimate there are 79,967 active cases across the state.

The seven-day weighted average of the state's positive test rate — removing higher education — has surged to 9.4%. The rate was 7.3% in the week before Christmas, and 1.7% at the start of September.

Statewide coronavirus hospitalizations on Wednesday went down by 12 patients, bringing the hospitalization total to 2,416.

The 2,416 patients is a significant increase from 436 patients at the start of November. The highest peak of Massachusetts' coronavirus hospitalizations was 3,965 on April 21.

Of the 12,836 total deaths in Massachusetts, 7,501 deaths have been reported in long-term care facilities.

The U.S. has recorded more than 359,000 coronavirus deaths and 21.2 million cases. The country's death toll and case count are the highest in the world.

Public Announcement Concerning a Proposed Health Care Project

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CDC: Severe allergic reaction to vax is rare

By RICK SOBEY

Only 21 people out of the first 1.9 million recipients of the Pfizer coronavirus vaccine in the U.S. suffered a severe allergic reaction, the CDC reported Wednesday.

An anaphylaxis case after getting the Pfizer vax appears to be an extremely rare event, based on early safety monitoring, the Centers for Disease Control and Prevention said.

The majority of these severe allergic reactions (71%) happened within 15 minutes of receiving the shot.

Of the 21 anaphylaxis cases, 17 of the people have a documented history of allergies or allergic reactions, including to drugs or medical products, foods, and insect stings. Seven of the people had experienced an episode of anaphylaxis in the past, including one after getting a rabies vaccine and another after receiving an influenza (H1N1) vaccine.

Four of the patients were hospitalized, and 17 of the patients were treated in an emergency department. No deaths from anaphylaxis were reported after receiving the Pfizer COVID-19 vaccine.

The allergic reaction data from the CDC comes after officials recently noted that the reactions could be tied to a chemical called polyethylene glycol, which is found in both the Pfizer and Moderna vaccines.

A Boston oncology doctor with a shellfish allergy experienced a severe allergic reaction after he received Moderna's coronavirus vaccine at the end of December.

Because the FDA emergency use authorization for the Moderna COVID-19 vaccine was received one week later than the Pfizer vaccine, the CDC report on Wednesday focused on the Pfizer vaccine. An assessment of adverse events reported after receiving the Moderna COVID-19 vaccine will be forthcoming, the CDC said.

Appendix 9

HPC ACO Certification Approval Letter

The Commonwealth of Massachusetts
HEALTH POLICY COMMISSION
50 MILK STREET, 8TH FLOOR
BOSTON, MASSACHUSETTS 02109
(617) 979-1400

STUART H. ALTMAN
CHAIR

DAVID M. SELTZ
EXECUTIVE DIRECTOR

December 23, 2019

Esther Kim
Partners HealthCare System, Inc.
800 Boylston Street, 11TH Floor
Boston, MA 02199

RE: ACO Certification

Dear Ms. Kim:

Congratulations! The Health Policy Commission (HPC) is pleased to inform you that Partners HealthCare System meets the requirements for ACO Certification. This certification is effective from the date of this letter through December 31, 2021.

The ACO Certification program, in alignment with other state agencies including MassHealth, is designed to accelerate care delivery transformation in Massachusetts and promote a high quality, efficient health system. ACOs participating in the program have met a set of objective criteria focused on core ACO capabilities including supporting patient-centered care and governance, using data to drive quality improvement, and investing in population health. Partners HealthCare System meets those criteria.

The HPC will promote Partners HealthCare System as a Certified ACO on our website and in our marketing and public materials. In addition, a logo is enclosed for your use in accordance with the attached Terms of Use. We hope you will use the logo to highlight the ACO Certification to your patients, payers, and others.

The HPC looks forward to your continued engagement in the ACO Certification program over the next two years.

Thank you for your dedication to providing accountable, coordinated health care to your patients. If you have any questions about this letter or the ACO Certification program, please do not hesitate to contact Mike Stanek, Manager, at HPC-Certification@mass.gov or (617) 757-1649.

Best wishes,

David Seltz
Executive Director

Appendix 10

Articles of Organization

Examiner

Name Approved

The Commonwealth of Massachusetts

OFFICE OF THE MASSACHUSETTS SECRETARY OF STATE

MICHAEL J. CONNOLLY, Secretary

ONE ASHBURTON PLACE, BOSTON, MASSACHUSETTS 02108

ARTICLES OF ORGANIZATION

(Under G.L. Ch. 180)

ARTICLE I

The name of the corporation is:

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

ARTICLE II

The purpose of the corporation is to engage in the following activities:

(i) To organize, operate and support a comprehensive health care system, including without limitation hospital and other health care services for all persons, and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness: (ii) to improve the health and welfare of all persons: (iii) to operate for the benefit of and to support The Massachusetts General Hospital, The Brigham Medical Center, Inc., their respective affiliated corporations and such other charitable, scientific or educational organizations which are or are affiliated with teaching hospitals in the Greater Boston Area: and (iv) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under section 501(c)(3) of the Internal Revenue Code.

93-349060

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M ☐
R.A. ☐

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P.C.

Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on separate 8½ x 11 sheets of paper leaving a left hand margin of at least 1 inch. Additions to more than one article may be continued on a single sheet so long as each article requiring each such addition is clearly indicated.

ARTICLE III

If the corporation has one or more classes of members, the designation of such classes, the manner of election or appointments, the duration of membership and the qualification and rights, including voting rights, of the members of each class, may be set forth in the by-laws of the corporation or may be set forth below:

The designation of classes of members, if any, the manner of election or appointment, the term of office, and the qualifications and rights of members are set forth in the by-laws of the Corporation.

ARTICLE IV

* Other lawful provisions, if any, for the conduct and regulation of the business and affairs of the corporation, for its voluntary dissolution, or for limiting, defining, or regulating the powers of the corporation, or of its directors or members, or of any class of members, are as follows:

See Continuation Sheets IV-A through IV-D attached hereto and incorporated herein by reference.

* If there are no provisions, state "None".

Note: The preceding four (4) articles are considered to be permanent and may ONLY be changed by filing appropriate Articles of Amendment.

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

IV. Other Lawful Provisions for Conduct and Regulation of the Business and Affairs of the Corporation, for its Voluntary Dissolution, and for Limiting, Defining and Regulating the Powers of the Corporation and of its Trustees and Members.

4.1. The corporation shall have in furtherance of its corporate purposes all of the powers specified in Section 6 of Chapter 180 and in Sections 9 and 9A of Chapter 156B of the Massachusetts General Laws (except those provided in paragraph (m) of said Section 9) as now in force or as hereafter amended, and may carry on any operation or activity referred to in Article 2 to the same extent as might an individual, either alone or in a joint venture or other arrangement with others, or through a wholly or partly owned or controlled corporation; provided, however, that no such power shall be exercised in a manner inconsistent with said Chapter 180 or any other chapter of the Massachusetts General Laws or which would deprive it of exemption from federal income tax as an organization described in Section 501(c)(3) of the Internal Revenue Code.

4.2. The by-laws may authorize the trustees to make, amend or repeal the by-laws in whole or in part, except with respect to any provision thereof which by law, the articles of organization or the by-laws requires action by the members.

4.3. Meetings of the members may be held anywhere in the United States.

4.4. No trustee or officer of the corporation shall be personally liable to the corporation or its members for monetary damages for breach of fiduciary duty as such trustee or officer notwithstanding any provision of law imposing such liability, except to the extent that such exemption from liability is not permitted under Chapter 180 of the Massachusetts General Laws.

4.5.(a) The corporation shall, to the extent legally permissible, indemnify each person who serves as one of its members, trustees or officers, or who serves at its request as a member, trustee or officer of another organization or in a capacity with respect to any employee benefit plan (each such person being called in this Section 4.5 a "Person") against all liabilities and expenses, including amounts paid in satisfaction of judgments, in compromise or as fines and penalties, and

counsel fees, reasonably incurred by such Person in connection with the defense or disposition of any action, suit or other proceeding, whether civil or criminal, in which such Person may be involved or with which such Person may be threatened, while in office or thereafter, by reason of being or having been such a Person, except with respect to any matter as to which such Person shall have been adjudicated in any proceeding not to have acted in good faith in the reasonable belief that his or her action was in the best interests of the corporation or, to the extent that such matter relates to service at the request of the corporation for another organization or an employee benefit plan, in the best interests of such organization or of the participants or beneficiaries of such employee benefit plan. Such best interests shall be deemed to be the best interests of the corporation for the purposes of this Section 4.5.

(b) Notwithstanding the foregoing, as to any matter disposed of by a compromise payment by any Person, pursuant to a consent decree or otherwise, no indemnification either for said payment or for any other expenses shall be provided unless such compromise shall be approved as in the best interests of the corporation, after notice that it involves such indemnification, (a) by a disinterested majority of the trustees then in office; or (b) by a majority of the disinterested trustees then in office, provided that there has been obtained an opinion in writing of independent legal counsel to the effect that such Person appears to have acted in good faith in the reasonable belief that his or her action was in the best interests of the corporation; or (c) by a majority of the disinterested members entitled to vote, voting as a single class.

(c) Expenses, including counsel fees, reasonably incurred by any Person in connection with the defense or disposition of any such action, suit or other proceeding may be paid from time to time by the corporation in advance of the final disposition thereof upon receipt of an undertaking by such Person to repay the amounts so paid if such Person ultimately shall be adjudicated to be not entitled to indemnification under this Section 4.5. Such an undertaking may be accepted without reference to the financial ability of such Person to make repayment.

(d) The right of indemnification hereby provided shall not be exclusive. Nothing contained in this Section shall affect any other rights to indemnification to which any Person or other corporate personnel may be entitled by contract or otherwise under law.

(e) As used in this Section 4.5, the term "Person" includes such Person's respective heirs, executors and administrators, and

a "disinterested" member, trustee or officer is one against whom in such capacity the proceeding in question, or another proceeding on the same or similar grounds, is not then pending.

4.6.(a) No person shall be disqualified from holding any office by reason of any interest. In the absence of fraud, any trustee, officer or member of this corporation, or any concern in which any such trustee, officer or member has any interest, may be a party to, or may be pecuniarily or otherwise interested in, any contract, act or other transaction (collectively called a "transaction") of this corporation, and

(1) such transaction shall not be in any way invalidated or otherwise affected by that fact; and

(2) no such trustee, officer, member or concern shall be liable to account to this corporation for any profit or benefit realized through any such transaction;

provided, however, that such transaction either was fair at the time it was entered into or is authorized or ratified either (i) by a majority of the trustees who are not so interested and to whom the nature of such interest has been disclosed, or (ii) by vote of a majority of each class of members of the corporation entitled to vote for trustees, at any meeting of members the notice of which, or an accompanying statement, summarizes the nature of such transaction and such interest. No interested trustee or member of this corporation may vote or may be counted in determining the existence of a quorum at any meeting at which such transaction shall be authorized, but may participate in discussion thereof.

(b) For purposes of this Section 4.6, the term "interest" shall include personal interest and also interest as a trustee, officer, stockholder, shareholder, director, member or beneficiary of any concern; and the term "concern" shall mean any corporation, association, trust, partnership, firm, person or other entity other than this corporation.

(c) No transaction shall be avoided by reason of any provisions of this paragraph 4.6 which would be valid but for such provisions.

4.7. No part of the assets or net earnings of the corporation shall inure to the benefit of any member, officer or trustee of the corporation or any individual; no substantial part of the activities of the corporation shall be the carrying on of propaganda, or otherwise attempting, to influence legislation except to the extent permitted by Section 501(h) of the Internal Revenue Code; and the corporation shall not participate in, or

intervene in (including the publishing or distributing of statements), any political campaign on behalf of (or in opposition to) any candidate for public office. It is intended that the corporation shall be entitled to exemption from federal income tax as an organization described in Section 501(c)(3) of the Internal Revenue Code and shall not be a private foundation under Section 509(a) of the Internal Revenue Code.

4.8. If and so long as the corporation is a private foundation (as that term is defined in Section 509 of the Internal Revenue Code), then notwithstanding any other provisions of the articles of organization or the by-laws of the corporation, the following provisions shall apply:

A) the income of the corporation for each taxable year shall be distributed at such time and in such manner as not to subject the corporation to the tax on undistributed income imposed by Section 4942 of the Internal Revenue Code, and

B) the corporation shall not engage in any act of self dealing (as defined in Section 4941(d) of the Internal Revenue Code), nor retain any excess business holdings (as defined in Section 4943(c) of the Internal Revenue Code), nor make any investments in such manner as to subject the corporation to tax under Section 4944 of the Internal Revenue Code, nor make any taxable expenditures (as defined in Section 4945(d) of the Internal Revenue Code).

4.9. Upon the liquidation or dissolution of the corporation, after payment of all of the liabilities of the corporation or due provision therefor, all of the assets of the corporation shall be disposed of pursuant to Massachusetts General Laws, Chapter 180, Section 11A, to The Massachusetts General Hospital and The Brigham Medical Center, Inc. if exempt from taxation as organizations described in Section 501(c)(3) of the Internal Revenue Code or, if both are not, to one or more organizations with similar purposes and similar tax exemption.

4.10. All references herein: (i) to the Internal Revenue Code shall be deemed to refer to the Internal Revenue Code of 1986, as now in force or hereafter amended; (ii) to the General Laws of The Commonwealth of Massachusetts, or any chapter thereof, shall be deemed to refer to said General Laws or chapter as now in force or hereafter amended; and (iii) to particular sections of the Internal Revenue Code or said General Laws shall be deemed to refer to similar or successor provisions hereafter adopted.

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

Continuation Sheet VII(b)

	Name	Residence or Post Office Address
Officers		
Vice-President	J. Robert Buchanan, M.D.	25 Commonwealth Avenue Boston, MA 02116
President	H. Richard Nesson, M.D.	565 Boylston Street Brookline, MA 02146
Treasurer	Richard A. Spindler	210 Schoolmaster Lane Dedham, MA 02026
Clerk	David M. Donaldson	22 Weston Road Lincoln Center, MA 01773
Trustees	W. Gerald Austen, M.D.	163 Wellesley Street Weston, MA 02193
	Eugene Braunwald, M.D.	75 Scotch Pine Road Weston, MA 02193
	J. Robert Buchanan, M.D.	25 Commonealth Avenue Boston, MA 02116
	Francis H. Burr	44 Prince Street Beverly, MA 01915
	Ferdinand Colloredo-Mansfeld	Winthrop Street Hamilton, MA 01982

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

Continuation Sheet VII(b)

Name	Residence or Post Office Address
John H. McArthur	Fowler 10 Soldiers Field Boston, MA 02134
H. Richard Nesson, M.D.	565 Boylston Street Brookline, MA 02146
Richard A. Spindler	210 Schoolmaster Lane Dedham, MA 02026

ARTICLE V

By-laws of the corporation have been duly adopted and the initial directors, president, treasurer and clerk or other presiding, financial or recording officers, whose names are set out below, have been duly elected.

ARTICLE VI

The effective date of organization of the corporation shall be the date of filing with the Secretary of the Commonwealth or if a later date is desired, specify date, (not more than 30 days after date of filing).

The information contained in ARTICLE VII is NOT a PERMANENT part of the Articles of Organization and may be changed ONLY by filing the appropriate form provided therefor.

ARTICLE VII

a. The post office address of the initial principal office of the corporation IN MASSACHUSETTS is:

c/o Ropes & Gray, One International Place, Boston, MA 02110

b. The name, residence and post office address of each of the initial directors and following officers of the corporation are as follows:

	NAME	RESIDENCE	POST OFFICE ADDRESS
President:	See Continuation Sheet VII(b) attached hereto and incorporated herein by reference.		
Treasurer:			
Clerk:			

Directors: (or officers having the powers of directors).

NAME	RESIDENCE	POST OFFICE ADDRESS
See Continuation Sheet VII(b) attached hereto and incorporated herein by reference.		

c. The fiscal year of the corporation shall end on the last day of the month of: September

d. The name and BUSINESS address of the RESIDENT AGENT of the corporation, if any, is:

I/We the below-signed INCORPORATORS do hereby certify under the pains and penalties of perjury that I/We have not been convicted of any crimes relating to alcohol or gaming within the past ten years. I/We do hereby further certify that to the best of my/our knowledge the above-named principal officers have not been similarly convicted. If so convicted, explain.

IN WITNESS WHEREOF and under the pains and penalties of perjury, I/WE, whose signature(s) appear below as incorporator(s) and whose names and business or residential address(es) ARE CLEARLY TYPED OR PRINTED beneath each signature do hereby associate with the intention of forming this corporation under the provisions of General Laws Chapter 180 and do hereby sign these Articles of Organization as incorporator(s) this 9th day of December, 19 93

David M Donaldson

David M. Donaldson

Ropes & Gray
One International Place
Boston, MA 02110

NOTE: If an already-existing corporation is acting as incorporator, type in the exact name of the corporation, the state or other jurisdiction where it was incorporated, the name of the person signing on behalf of said corporation and the title he/she holds or other authority by which such action is taken.

SECRETARY OF STATE
RECEIVED
1993 DEC 15 PM 1:39
CORPORATION DIVISION

449104

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF ORGANIZATION

GENERAL LAWS, CHAPTER 180

I hereby certify that, upon an examination of the within-written articles of organization, duly submitted to me, it appears that the provisions of the General Laws relative to the organization of corporations have been complied with, and I hereby approve said articles; and the filing fee in the amount of $35.00 having been paid, said articles are deemed to have been filed with me this 15TH day of December 1993.

Effective date

Michael Joseph Connolly

MICHAEL J. CONNOLLY
Secretary of State

A PHOTOCOPY OF THESE ARTICLES OF ORGANIZATION SHALL BE RETURNED

TO: David M. Donaldson, Esq.
Ropes & Gray
One International Place, Boston, MA 02110

Telephone: (617) 951-7250

FEE: $15.00

The Commonwealth of Massachusetts

MICHAEL J. CONNOLLY
Secretary of State
ONE ASHBURTON PLACE, BOSTON, MASS. 02108

FEDERAL IDENTIFICATIO
NO. 000449104

Examined

ARTICLES OF AMENDMENT

General Laws, Chapter 180, Section 7

This certificate must be submitted to the Secretary of the Commonwealth within sixty days after the date of the vote of members or stockholders adopting the amendment. The fee for filing this certificate is $15.00 as prescribed by General Laws, Chapter 180, Section 11C(b). Make check payable to the Commonwealth of Massachusetts.

We, H. Richard Nesson, President/~~Vice President~~, and David M. Donaldson, Clerk/~~Assistant Clerk~~ of

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.
(Name of Corporation)

Name Approved

located at One International Place, Boston, MA 02110

do hereby certify that the following amendment to the articles of organization of the corporation was duly adopted at a meeting held on March 14, 19 94, by vote of all members/~~shareholders, being at least two-thirds of its members legally qualified to vote, (or, in the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock then outstanding and entitled to vote)~~:

That the Articles of Organization of this corporation be and they hereby are amended to change the name of the corporation to "Partners HealthCare System, Inc."

C

P.C.

Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on separate 8½ x 11 sheets of paper leaving a left hand margin of at least 1 inch for binding. Additions to more than one article may be continued on a single sheet so long as each article requiring each such addition is clearly indicated.

The foregoing amendment will become effective when these articles of amendment are filed in accordance with Chapter 180, Section 7 of the General Laws unless these articles specify, in accordance with the vote adopting the amendment, a later effective date not more than thirty days after such filing, in which event the amendment will become effective on such later date.

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, we have hereto signed our names this 18th day of March, in the year 1994

H. Richard Nesson ..... President/~~Vice President~~

..... Clerk/~~Assistant Clerk~~

459052

SECRETARY OF STATE
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1994 MAR 18 PM 4:10

CORPORATION DIVISION

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

I hereby approve the within articles of amendment and, the filing fee in the amount of $ 15 having been paid, said articles are deemed to have been filed with me this 18th day of March, 1994

Michael Joseph Connolly

MICHAEL J. CONNOLLY

Secretary of State

TO BE FILLED IN BY CORPORATION

PHOTO COPY OF AMENDMENT TO BE SENT

TO: John E. Beard

Ropes & Gray

One International Place, Boston 02110

Telephone 617-951-7411

Copy Mailed

FEDERAL IDENTIFICATION
NO. 042 2035
Fee: $15.00

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Boston, Massachusetts 02108-1512

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041

Examiner

Name Approved

ARTICLES OF AMENDMENT
(General Laws, Chapter 180, Section 7)

We, Samuel O. Thier, M.D., *President / ~~Vice President~~,

and Ernest M. Haddad, Secretary ~~Clerk / Assistant Clerk~~,

of Partners HealthCare System, Inc.,
(Exact name of corporation)

located at 800 Boylston Street, Suite 1150, Boston, MA 02199,
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:

II and IV
(Number those articles 1, 2, 3, and/or 4 being amended)

of the Articles of Organization were duly adopted at a meeting held on May 4 1998, by vote of:

277 members, xxxxxxxxxxxxxxxxx ~~directors, or~~ xxxxxxxxxxxxxxxxxx ~~shareholders,~~

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation ~~(or in~~ ~~the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock having the right to vote therein):~~

1. Delete Article II and insert in place thereof the following:

Article II

(i) To organize, operate and support a comprehensive health care system, including without limitation hospital and other health care services for all persons, and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness: (ii) to improve the health and welfare of all persons: (iii) to operate for the benefit of and to support The Massachusetts General Hospital, The Brigham Medical Center, Inc., The North Shore Medical Center, Inc., their respective affiliated corporations, such other hospitals, charitable, scientific or educational organizations, and their affiliated corporations that become affiliated with Partners HealthCare System, Inc.

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R.A. ☐

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P.C.

**Delete the inapplicable words.*
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

(collectively, the "Partners Affiliated Corporations") and such other charitable, scientific or educational organizations which are or are affiliated with teaching hospitals in the Greater Boston Area; and (iv) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under Section 501(c)(3) of the Internal Revenue Code; and in furtherance of the foregoing purposes to:

(a) Serve as the controlling and coordinating organization for the Partners Affiliated Corporations in order to assure the consistency and appropriateness of their respective missions, activities, governance and administration;

(b) Solicit and receive devises of real property and grants, donations and bequests of money and other property to be used to further the foregoing purposes and those of the Partners Affiliated Corporations; and

(c) Support the Partners Affiliated Corporations by loan, lease or donation of funds or other assets, by guaranty of obligations or by other action.

2. Delete Section 4.5. of Article IV.

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

XXXXXXXXXXXXXXXX _____.

SIGNED UNDER THE PENALTIES OF PERJURY, this 29TH day of MAY, 1998,

_____, *President XXXXXXXXXXXXXX

_____, Secretary
*XXXXXXXXXXXXXXXXXX

*Delete the inapplicable words.

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

S29710

SECRETARY OF THE COMMONWEALTH
98 JUN -2 AM 9:52

I hereby approve the within Articles of Amendment and, the filing fee in the amount of $ 15.00 having been paid, said articles are deemed to have been filed with me this 2nd day of JUNE 19 98.

Effective date: _____

William Francis Galvin

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

TO BE FILLED IN BY CORPORATION
Photocopy of document to be sent to:

Ernest M. Haddad, Esq.
Partners HealthCare System, Inc.
800 Boylston Street, Ste. 1150
Boston, MA 02199

Telephone: (617) 278-1065

AACR.6

FEDERAL IDENTIFICATION NO. 043230035 ✓
Fee: $15.00

Examiner

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Boston, Massachusetts 02108-1512

ARTICLES OF AMENDMENT
(General Laws, Chapter 180, Section 7)

042

N/A
Name Approved

We, Samuel O. Thier, M.D. , *President / ~~Vice President~~

and Ernest M. Haddad , Secretary *~~Clerk/Assistant Clerk~~

of Partners HealthCare System, Inc. ,
(Exact name of corporation)

located at 800 Boylston Street, Suite 1150, Boston, MA 02199 ,
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:

II
(Number those articles 1, 2, 3, and/or 4 being amended)

of the Articles of Organization were duly adopted at a meeting held on May 3 19 99 , by vote of:

293 members, ~~xxxxxxxxxxxxxxxxxx directors, xxxxxxxxxxxxxxxxxxxx shareholders,~~

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation ~~(or, in the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock having the right to vote thereon)~~

Delete Article II and insert in place thereof the following:

Article II

The purpose of the corporation is to engage in the following activities:

(i) To organize, operate, coordinate and support a comprehensive integrated health care delivery system (the "System") that provides, without limitation, hospital, physician and other health care services for all persons and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness; (ii) to improve the health and welfare of all persons; (iii) to serve as the controlling and coordinating organization for the System and its member institutions and entities including Brigham and Women's/Faulkner Hospitals, Inc., The Massachusetts General Hospital, The North Shore Medical Center, Inc., Newton-Wellesley Health Care System, Inc., and such other hospital, physician, charitable, scientific, educational,

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R.A. ☐

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P.C.

*Delete the inapplicable words.
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

research and other institutions and entities that are controlled, directly or indirectly, through sole corporate membership, stock ownership or otherwise, by the Corporation (collectively, the "Affiliated Organizations"); (iv) to assist and support the Affiliated Organizations in fulfilling their respective purposes, missions and objectives in a manner consistent with the purposes, missions and objectives of the Corporation and the System; and (v) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under Section 501(c)(3) of the Internal Revenue Code; and in furtherance of the foregoing purposes to:

(a) Solicit and receive devises of real property and grants, donations and bequests of money and other property to be used to further the foregoing purposes; and

(b) Support the Affiliated Organizations by loan, lease or donation of funds or other assets; and

(c) Support the Affiliated Organizations by guaranty of the obligations of the Affiliated Organizations or by other action.

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

~~later effective date: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~

SIGNED UNDER THE PENALTIES OF PERJURY, this 24th day of May, 19 99,

Paul O Ruer, ~~*President/Vice President~~

Secretary, ~~/Clerk/Assistant Clerk~~

*Delete the inapplicable words.

660922

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

I hereby approve the within Articles of Amendment and, the filing fee in the amount of $ 15.00 having been paid, said articles are deemed to have been filed with me this 26th day of May 19 99.

99 MAY 26 AM 9:24

Effective date: _____

William Francis Galvin

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

TO BE FILLED IN BY CORPORATION

Photocopy of document to be sent to:

Mary LaLonde

Partners HealthCare System

Office of the General Counsel
50 Staniford St., 10th floor
Boston, MA 02114

Telephone: 617-726-5315

The Commonwealth of Massachusetts
William Francis Galvin

Minimum Fee: $15.00

Secretary of the Commonwealth, Corporations Division
One Ashburton Place, 17th floor
Boston, MA 02108-1512
Telephone: (617) 727-9640

Articles of Amendment
(General Laws, Chapter 180, Section 7)

Identification Number: 043230035

We, BRENT L. HENRY __ **President** X **Vice President,**

and MARY C. LALONDE __ **Clerk** X **Assistant Clerk** ,

of PARTNERS HEALTHCARE SYSTEM, INC.
located at: 800 BOYLSTON ST., SUITE 1150 BOSTON , MA 02199 USA

do hereby certify that these Articles of Amendment affecting articles numbered:

__ Article 1 X Article 2 __ Article 3 __ Article 4

(Select those articles 1, 2, 3, and/or 4 that are being amended)

of the Articles of Organization were duly adopted at a meeting held on 4/19/2016 , by vote of: 197 members, 0 directors, or 0 shareholders,
being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation (or, in the case of a corporation having capital stock, by the holders of at least two thirds of the capital stock having the right to vote therein):

ARTICLE I

The exact name of the corporation, ***as amended***, is:
(Do not state Article I if it has not been amended.)

ARTICLE II

The purpose of the corporation, ***as amended***, is to engage in the following business activities:
(Do not state Article II if it has not been amended.)

THE PURPOSE OF THE CORPORATION IS TO ENGAGE IN THE FOLLOWING ACTIVITIES: (I) TO ORGANIZE, OPERATE, COORDINATE AND SUPPORT A COMPREHENSIVE INTEGRATED HEALTH CARE DELIVERY SYSTEM (THE "SYSTEM") THAT PROVIDES, WITHOUT LIMITATION, HOSPITAL, PHYSICIAN AND OTHER HEALTH CARE SERVICES FOR ALL PERSONS AND EDUCATION AND RESEARCH FOR THE PREVENTION, DIAGNOSIS, TREATMENT AND CURE OF ALL FORMS OF HUMAN ILLNESS; (II) TO IMPROVE THE HEALTH AND WELFARE OF ALL PERSONS AND TO CONDUCT AND SUPPORT EDUCATION, RESEARCH AND OTHER ACTIVITIES RELATING THERE TO, (III) TO SERVE AS THE CONTROLLING AND COORDINATING ORGANIZATION FOR THE SYSTEM AND ITS MEMBER INSTITUTIONS AND ENTITIES INCLUDING BRIGHAM AND WOMEN'S HEALTH CARE, INC., THE MASSACHUSETTS GENERAL HOSPITAL, NSMC HEALTHCARE, INC., NEWTON WELLESLEY HEALTH CARE SYSTEM, INC., PARTNERS COMMUNITY PHYSICIANS ORGANIZATION, INC., PARTNERS CONTINUING CARE, INC., NEIGHBORHOOD HEALTH PLAN, INC. AND SUCH OTHER HOSPITAL, PHYSICIAN, CHARITABLE, SCIENTIFIC, E

DUCATIONAL, RESEARCH AND OTHER INSTITUTIONS AND ENTITIES THAT ARE CONTROLLED, DIRECTLY OR INDIRECTLY, THROUGH SOLE CORPORATE MEMBERSHIP, STOCK OWNERSHIP OR OTHERWISE, BY THE CORPORATION (COLLECTIVELY, THE "AFFILIATED ORGANIZATIONS"); (IV) TO ASSIST AND SUPPORT THE AFFILIATED ORGANIZATIONS IN FULFILLING THEIR RESPECTIVE PURPOSES, MISSIONS AND OBJECTIVES IN A MANNER CONSISTENT WITH THE PURPOSES, MISSIONS AND OBJECTIVES OF THE CORPORATION AND THE SYSTEM; AND (V) TO CARRY ON ANY OTHER ACTIVITY THAT MAY LAWFULLY BE CARRIED ON BY A CORPORATION FORMED UNDER CHAPTER 180 OF THE MASSACHUSETTS GENERAL LAWS WHICH IS EXEMPT UNDER SECTION 501(C)(3) OF THE INTERNAL REVENUE CODE; AND IN FURTHERANCE OF THE FOREGOING PURPOSES TO: (A) SOLICIT AND RECEIVE DEVISES OF REAL PROPERTY AND GRANTS, DONATIONS AND BEQUESTS OF MONEY AND OTHER PROPERTY TO BE USED TO FURTHER THE FOREGOING PURPOSES; AND (B) SUPPORT THE AFFILIATED ORGANIZATIONS BY LOAN, LEASE OR DONATION OF FUNDS OR OTHER ASSETS; AND (C) SUPPORT THE AFFILIATED ORGANIZATIONS BY GUARANTY OF THE OBLIGATIONS OF THE AFFILIATED ORGANIZATIONS OR BY OTHER ACTION.

ARTICLE III

A corporation may have one or more classes of members. ***As amended,*** the designation of such classes, the manner of election or appointments, the duration of membership and the qualifications and rights, including voting rights, of the members of each class, may be set forth in the by-laws of the corporation or may be set forth below:

ARTICLE IV

As amended, other lawful provisions, if any, for the conduct and regulation of the business and affairs of the corporation, for its voluntary dissolution, or for limiting, defining, or regulating the powers of the business entity, or of its directors or members, or of any class of members, are as follows:
(If there are no provisions state "NONE")

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

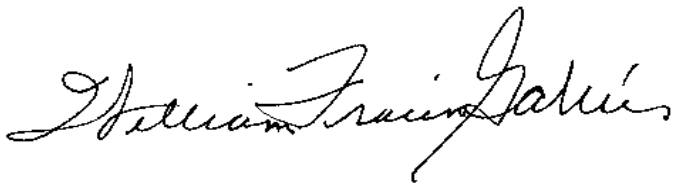
Later Effective Date:

Signed under the penalties of perjury, this 20 Day of April, 2016, BRENT L. HENRY , its , President / Vice President,
MARY C. LALONDE , Clerk / Assistant Clerk.

THE COMMONWEALTH OF MASSACHUSETTS

I hereby certify that, upon examination of this document, duly submitted to me, it appears that the provisions of the General Laws relative to corporations have been complied with, and I hereby approve said articles; and the filing fee having been paid, said articles are deemed to have been filed with me on:

April 20, 2016 04:09 PM



WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

IDENTIFICATION
no. 04-3230035
Filing Fee: $15.00

Examiner

Name Approved

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Room 1717, Boston, Massachusetts 02108-1512

ARTICLES OF AMENDMENT
(General Laws, Chapter 180, Section 7)

We, Anne Klibanski, M.D., *President / ~~*Vice President,~~

and Maureen Goggin, *Clerk / ~~*Assistant Clerk,~~

of Partners HealthCare System, Inc.,
(Exact name of corporation)

located at 800 Boylston Street, Suite 1150, Boston, Massachusetts 02199,
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:

I, II and IV
(Number those articles 1, 2, 3, and/or 4 being amended)

of the Articles of Organization were duly adopted at a meeting held on April 21, 20 20, by vote of:

347 members, _____ directors, or _____ shareholders**,

☑ Being at least two-thirds of its members legally qualified to vote in meetings of the corporation; OR

☐ Being at least two-thirds of its directors where there are no members pursuant to General Laws, Chapter 180, Section 3; OR

☐ In the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock having the right to vote therein.

Delete Articles I, II and IV in their entirety and insert in place thereof the following:

Article I

The name of the corporation is:
Mass General Brigham Incorporated

C ☐
P ☐
M ☐
R.A. ☐

*Delete the inapplicable words.
**Check only one box that applies.
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

P.C.

Article II

The purpose of the corporation is to engage in the following activities:

2.1 To organize, operate, direct and coordinate a comprehensive, integrated healthcare delivery system comprising hospital, physician and other healthcare provider organizations, managed care and other health insurance organizations and other charitable, scientific, educational, research and community organizations (i) that are controlled directly or indirectly by the corporation (collectively, the "Affiliated Organizations") and (ii) with which the corporation and the Affiliated Organizations collaborate through clinical and care management, research and other affiliations and contractual arrangements (the "Collaborative Organizations").

2.2 To promote, sponsor, support, conduct and/or provide, either alone or in conjunction with the Affiliated Organizations and/or the Collaborative Organizations, (i) healthcare services to improve the health and welfare of all persons, regardless of their ability to pay; (ii) research for the prevention, diagnosis, treatment and cure of all forms of human illness; (iii) education and training for physicians and other healthcare providers; and (iv) programs and services that address the healthcare needs of the communities served by the corporation, the Affiliated Organizations and/or the Collaborative Organizations.

2.3 To assist and support the Affiliated Organizations and the Collaborative Organizations in fulfilling their respective missions and purposes including, without limitation, by lending, leasing and donating funds and other assets to, and by guaranteeing the obligations of, the Affiliated Organizations and/or the Collaborative Organizations.

2.4 To engage in any activity that may be lawfully carried on by a corporation that is formed under Chapter 180 of the Massachusetts General Laws ("MGL") and that is exempt from federal income tax under Section 501(a) of the Internal Revenue Code ("IRC") as an organization described in Section 501(c)(3) of the IRC.

Article IV

4.1. The corporation shall have in furtherance of its corporate purposes all of the powers specified in Section 6 of MGL Chapter 180 and in Sections 9 and 9A of MGL Chapter 156B (except those powers described in paragraph (m) of said Section 9). The corporation may carry on any operation or activity referred to in Article II of these Articles of Organization to the same extent as might an individual, either alone or in a partnership or joint venture or other arrangement with others, or through a wholly or partly owned or controlled corporation; provided, however, that no such power shall be exercised by the corporation in a manner inconsistent with MGL Chapter 180 or any other chapter of the MGL or with exemption from federal income tax under Sections 501(a) and 501(c)(3) of the IRC.

4.2. The bylaws of the corporation (the "Bylaws") may authorize the Board of Directors to make, amend or repeal the Bylaws in whole or in part, except with respect to any provision thereof which by law, these Articles of Organization or the Bylaws requires action by the members.

4.3. To the fullest extent permitted under Section 3 of MGL Chapter 180, no director or officer of the corporation shall be personally liable to the corporation or its members for monetary damages for breach of fiduciary duty as a director or officer notwithstanding any provision of law imposing such liability.

4.4. The corporation shall have the power to indemnify to the extent specified in the Bylaws (i) its members, directors, officers, employees, agents and volunteers, (ii) persons who serve at its request as a member, director, trustee or officer of another organization and (iii) persons who serve on its behalf in any capacity with respect to any employee benefit plan; provided that any such indemnity shall be limited to the extent necessary to protect the corporation's status as exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC.

4.5. No part of the net assets or net earnings of the corporation shall inure to the benefit of, or be distributable to, any member, director, officer or employee of the corporation or to any other person; provided that the corporation shall be authorized and empowered (i) to pay reasonable compensation for services actually rendered and (ii) to make payments and distributions in furtherance of the corporation's purposes set forth in Article II hereof.

4.6 No substantial part of the activities of the corporation shall be the carrying on of propaganda, or otherwise attempting, to influence legislation, except to the extent permitted by Section 501(h) of the IRC. The corporation shall not participate or intervene (including the publishing or distributing of statements) in any political campaign on behalf of (or in opposition to) any candidate for public office.

4.7 It is intended that the corporation shall be entitled to exemption from federal income tax under Section 501(c)(3) of the IRC and shall not be a private foundation under Section 509(a) of the IRC. However, during any period of time in which the corporation is, or is deemed to be, a private foundation (as that term is defined in Section 509 of the IRC), notwithstanding any other provisions of these Articles of Organization or the Bylaws, the corporation shall at all times conduct its affairs as follows:

(i) the income of the corporation for each taxable year shall be distributed at such time and in such manner as not to subject the corporation to the tax on undistributed income imposed by Section 4942 of the IRC; and

(ii) the corporation shall not (1) engage in any act of self-dealing (as defined in Section 4941(d) of the IRC); (2) retain any excess business holdings (as defined in Section 4943(c) of the IRC); (3) make any investments in such manner as to subject the corporation to tax under Section 4944 of the IRC; or (4) make any taxable expenditures (as defined in Section 4945(d) of the IRC).

4.8 Upon the liquidation or dissolution of the corporation, after having paid (or made due provision for) all of the liabilities of the corporation, all of the remaining assets of the corporation shall be distributed pursuant to Section 11A of MGL Chapter 180 to Brigham Health, Inc.("BH") (if at such time BH is exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC) and to The Massachusetts General Hospital ("MGH") (if at such time MGH is exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC); or, if at such time neither BH nor MGH is so exempt, such distributions shall be made to one or more of the Affiliated Organizations that are then exempt from federal income tax under Sections 501(a) and 501(c)(3) of the IRC.

4.9. All references herein (i) to the IRC or to any section thereof shall be deemed to refer to the IRC of 1986 as now in force or hereafter amended, or to the corresponding provisions of any subsequent federal income tax laws; and (ii) to the MGL or to any chapter or section thereof shall be deemed to refer to said MGL as now in force or hereafter amended, or to the corresponding provisions of any subsequent Massachusetts laws.

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

Later effective date: May 1, 2020 .

SIGNED UNDER THE PENALTIES OF PERJURY, this 22nd day of April , 20 20

, *President / *~~Vice President~~,

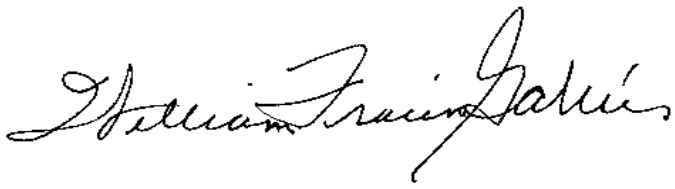
, *Clerk / *~~Assistant Clerk~~.

*Delete the inapplicable words.

THE COMMONWEALTH OF MASSACHUSETTS

I hereby certify that, upon examination of this document, duly submitted to me, it appears that the provisions of the General Laws relative to corporations have been complied with, and I hereby approve said articles; and the filing fee having been paid, said articles are deemed to have been filed with me on:

April 23, 2020 04:14 PM



WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

Appendix 11

Affidavit of Truthfulness and Compliance

Massachusetts Department of Public Health
Determination of Need
Affidavit of Truthfulness and Compliance with Law and Disclosure Form 100.405(B)

Version: 7-6-17

Instructions: Complete Information below. When complete check the box "This document is ready to print:". This will date stamp and lock the form. Print Form. Each person must sign and date the form. When all signatures have been collected, scan the document and e-mail to: **dph.don@state.ma.us** Include all attachments as requested.

Application Number: MGB-20121716-HE

Original Application Date: 01/21/2021

Applicant Name: Mass General Brigham Incorporated

Application Type: Hospital/Clinic Substantial Capital Expenditure

Applicant's Business Type: (•) Corporation ( ) Limited Partnership ( ) Partnership ( ) Trust ( ) LLC ( ) Other

Is the Applicant the sole member or sole shareholder of the Health Facility(ies) that are the subject of this Application? (•) Yes ( ) No

The undersigned certifies under the pains and penalties of perjury:

1. The Applicant is the sole corporate member or sole shareholder of the Health Facility[ies] that are the subject of this Application;
2. I have ~~read~~* 105 CMR 100.000, the Massachusetts Determination of Need Regulation;
3. I understand and agree to the expected and appropriate conduct of the Applicant pursuant to 105 CMR 100.800;
4. I have ~~read~~* this application for Determination of Need including all exhibits and attachments, and ~~certify that~~** all of the information contained herein is accurate and true;
5. I have submitted the correct Filing Fee and understand it is nonrefundable pursuant to 105 CMR 100.405(B);
6. I have submitted the required copies of this application to the Determination of Need Program, and, as applicable, to all Parties of Record and other parties as required pursuant to 105 CMR 100.405(B);
7. I have caused, as required, notices of intent to be published and duplicate copies to be submitted to all Parties of Record, and all carriers or third-party administrators, public and commercial, for the payment of health care services with which the Applicant contracts, and with Medicare and Medicaid, as required by 105 CMR 100.405(C), et seq.;
8. I ~~have caused~~** proper notification and submissions to the Secretary of Environmental Affairs pursuant to 105 CMR 100.405(E) and 301 CMR 11.00; will be made if applicable
9. If subject to M.G.L. c. 6D, § 13 and 958 CMR 7.00, I have submitted such Notice of Material Change to the HPC - in accordance with 105 CMR 100.405(G);
10. Pursuant to 105 CMR 100.210(A)(3), I certify that both the Applicant and the Proposed Project are in material and substantial compliance and good standing with relevant federal, state, and local laws and regulations, as well as with all ~~previously issued~~ Notices of Determination of Need ~~and the terms and Conditions attached therein~~***;
11. I have ~~read~~* and understand the limitations on solicitation of funding from the general public prior to receiving a Notice of Determination of Need as established in 105 CMR 100.415;
12. I understand that, if Approved, the Applicant, as Holder of the DoN, shall become obligated to all Standard Conditions pursuant to 105 CMR 100.310, as well as any applicable Other Conditions as outlined within 105 CMR 100.000 or that otherwise become a part of the Final Action pursuant to 105 CMR 100.360;
13. Pursuant to 105 CMR 100.705(A), I certify that the Applicant has Sufficient Interest in the Site or facility; and
14. Pursuant to 105 CMR 100.705(A), I certify that the Proposed Project is authorized under applicable zoning by-laws or ordinances, whether or not a special permit is required; or,
    a. If the Proposed Project is not authorized under applicable zoning by-laws or ordinances, a variance has been received to permit such Proposed Project; or,
    b. The Proposed Project is exempt from zoning by-laws or ordinances.

Corporation:

Attach a copy of Articles of Organization/Incorporation, as amende

Anne Klibanski, MD		01/12/2021
CEO for Corporation Name:	Signature:	Date
Scott M. Sperling		
Board Chair for Corporation Name:	Signature:	Date

*been informed of the contents of
**have been informed that
***issued in compliance with 105 CMR 100.00, the Massachusetts Determination of Need Regulation effective January 27, 2017 and amended December 28, 2018

This document is ready to print: ☐ Date/time Stamp:

Massachusetts Department of Public Health
Determination of Need
Affidavit of Truthfulness and Compliance with Law and Disclosure Form 100.405(B)

Version: 7-6-17

Instructions: Complete Information below. When complete check the box "This document is ready to print:". This will date stamp and lock the form. Print Form. Each person must sign and date the form. When all signatures have been collected, scan the document and e-mail to: **dph.don@state.ma.us** Include all attachments as requested.

Application Number: MGB-20121716-HE

Original Application Date: 01/21/2021

Applicant Name: Mass General Brigham Incorporated

Application Type: Hospital/Clinic Substantial Capital Expenditure

Applicant's Business Type: (•) Corporation ( ) Limited Partnership ( ) Partnership ( ) Trust ( ) LLC ( ) Other

Is the Applicant the sole member or sole shareholder of the Health Facility(ies) that are the subject of this Application? (•) Yes ( ) No

The undersigned certifies under the pains and penalties of perjury:

1. The Applicant is the sole corporate member or sole shareholder of the Health Facility[ies] that are the subject of this Application;
2. I have ~~read~~* 105 CMR 100.000, the Massachusetts Determination of Need Regulation;
3. I understand and agree to the expected and appropriate conduct of the Applicant pursuant to 105 CMR 100.800;
4. I have ~~read~~* this application for Determination of Need including all exhibits and attachments, and ~~certify that~~** all of the information contained herein is accurate and true;
5. I have submitted the correct Filing Fee and understand it is nonrefundable pursuant to 105 CMR 100.405(B);
6. I have submitted the required copies of this application to the Determination of Need Program, and, as applicable, to all Parties of Record and other parties as required pursuant to 105 CMR 100.405(B);
7. I have caused, as required, notices of intent to be published and duplicate copies to be submitted to all Parties of Record, and all carriers or third-party administrators, public and commercial, for the payment of health care services with which the Applicant contracts, and with Medicare and Medicaid, as required by 105 CMR 100.405(C), et seq.;
8. I ~~have caused~~** proper notification and submissions to the Secretary of Environmental Affairs pursuant to 105 CMR 100.405(E) and 301 CMR 11.00; will be made if applicable
9. If subject to M.G.L. c. 6D, § 13 and 958 CMR 7.00, I have submitted such Notice of Material Change to the HPC - in accordance with 105 CMR 100.405(G);
10. Pursuant to 105 CMR 100.210(A)(3), I certify that both the Applicant and the Proposed Project are in material and substantial compliance and good standing with relevant federal, state, and local laws and regulations, as well as with all ~~previously issued~~ Notices of Determination of Need ~~and the terms and Conditions attached therein~~***;
11. I have ~~read~~* and understand the limitations on solicitation of funding from the general public prior to receiving a Notice of Determination of Need as established in 105 CMR 100.415;
12. I understand that, if Approved, the Applicant, as Holder of the DoN, shall become obligated to all Standard Conditions pursuant to 105 CMR 100.310, as well as any applicable Other Conditions as outlined within 105 CMR 100.000 or that otherwise become a part of the Final Action pursuant to 105 CMR 100.360;
13. Pursuant to 105 CMR 100.705(A), I certify that the Applicant has Sufficient Interest in the Site or facility; and
14. Pursuant to 105 CMR 100.705(A), I certify that the Proposed Project is authorized under applicable zoning by-laws or ordinances, whether or not a special permit is required; or,
    a. If the Proposed Project is not authorized under applicable zoning by-laws or ordinances, a variance has been received to permit such Proposed Project; or,
    b. The Proposed Project is exempt from zoning by-laws or ordinances.

Corporation:

Attach a copy of Articles of Organization/Incorporation, as amended

Anne Klibanski, MD		
CEO for Corporation Name:	Signature:	Date
Scott M. Sperling	Scott Sperling	01/12/2021
Board Chair for Corporation Name:	Signature:	Date

*been informed of the contents of
**have been informed that
***issued in compliance with 105 CMR 100.00, the Massachusetts Determination of Need Regulation effective January 27, 2017 and amended December 28, 2018

This document is ready to print: ☐ Date/time Stamp:

Appendix 12

Filing Fee

DATE						CHECK NO
01/08/2021						0006300134
VOUCHER	INVOICE NUMBER	INVOICE DATE	PO NUMBER	GROSS AMOUNT	DISCOUNT	NET AMOUNT
30866584	PERMIT-FEES-01042021	01/04/2021		300,197.16	0.00	300,197.16
Thomas Ciaburri at 20 Kent St , Brookline, MA Courier to call 857-307-						
MM Client Services (617) 726-2142		AP 2810 FH6000 780675		TOTAL AMOUNT	DISCOUNT	NET AMOUNT
				300,197.16	0.00	300,197.16

U.S. Pat.# 6,095,407

To Remove Document Fold and Tear Along This Perforation

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

PARTNERS. HealthCare

Bank of America, N.A.
South Portland,ME

52-153
112 ME

DATE
01/08/2021

[redacted]

AMOUNT
$300,197.16

PAY **Three Hundred Thousand One Hundred Ninety-Seven and 16/100 Dollars**

TO THE ORDER OF **COMMONWEALTH OF MASSACHUSETTS**
250 WASHINGTON STREET, 4TH FLOOR
DEPARTMENT OF PUBLIC HEALTH
BOSTON MA

Peter K. Markell

AUTHORIZED SIGNATURE

VOID IF NOT CASHED WITHIN 90 DAYS

[redacted]