

| STAFF REPORT TO THE PUBLIC HEALTH COUNCIL<br>FOR A DETERMINATION OF NEED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                   |
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| Applicant Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Dana-Farber Cancer Institute, Inc.                                |
| Applicant Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 450 Brookline Avenue, Boston, MA 02215                            |
| Filing Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | January 8, 2024                                                   |
| Type of DoN Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Substantial Capital Expenditure,<br>Substantial Change in Service |
| Total Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$1,675,700,000                                                   |
| Project Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DFCI-23040915-HE                                                  |
| Ten Taxpayer Group (TTG)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Six Formed                                                        |
| Community Health Initiative (CHI)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | \$83,785,000                                                      |
| Staff Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Approval with Conditions                                          |
| Public Health Council                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Thursday, March 20, 2025                                          |
| <p style="text-align: center;"><u>Project Summary and Regulatory Review</u></p> <p>Dana-Farber Cancer Institute, Inc. (Dana-Farber or Applicant) submitted an application for the construction of an approximately 688,100 square-foot free-standing, inpatient cancer hospital for adult care that will contain the following:</p> <ul style="list-style-type: none"> <li>• <b>300</b> adult inpatient beds (280 medical surgical (M/S) and 20 Intensive Care Unit (ICU), 270 (250 M/S and 20 ICU) will represent new beds, and 30 will be transferred from the Applicant's current bed complement at Brigham and Women's Hospital, 75 Francis Street;</li> <li>• <b>20 new</b> Observation Beds;</li> <li>• <b>Two</b> new magnetic resonance imaging (MRI) machines, <b>two</b> new computed tomography (CT) machines, and <b>one</b> new positron emission tomography-computed tomography (PET-CT) machine (collectively, the <b>Inpatient Imaging Equipment</b>); and</li> <li>• <b>Two</b> new CT simulator machines, and <b>three</b> new linear accelerators (LINACs) (the <b>New Radiation Oncology Equipment</b>).</li> </ul> <p>The capital expenditure for the Proposed Project is \$1,675,700,000. The CHI contribution is \$83,785,000.</p> <p>This DoN falls within the definition of Substantial Capital Expenditures and Substantial Changes in Service, which are reviewed under the DoN regulation 105 CMR 100.000. The Department must determine that need exists for a Proposed Project, on the basis of material in the record, where the Applicant makes a clear and convincing demonstration that the Proposed Project meets each Determination of Need Factor set forth within 105 CMR 100.210. This staff report addresses each of the six factors set forth in the regulation.</p> <p>Six groups registered as Ten Taxpayer Groups (TTGs). The Department received written comments and held a virtual public hearing on April 17, 2024. A list of commenters and a summary of the comments received can be found in Appendices IV through VI.</p> <p>The Department required an independent cost-analysis (ICA) for the Proposed Project. A summary of</p> |                                                                   |

the ICA findings can be found in Factor 2 and Factor 4. The Department received written comments on the ICA from Parties of Record, also discussed in Factor 2.

The transaction which is the subject of this DoN is also subject to review by the Health Policy Commission (HPC). On January 25, 2024, the HPC voted to authorize a Cost and Market Impact Review (CMIR). The CMIR will not be completed until after the review of this DoN. Pursuant to 105 CMR 100.310(A)(2), any Notice of DoN issued shall not go into effect until 30 days after HPC completes the CMIR.

## Contents

|                                                                                                                        |     |
|------------------------------------------------------------------------------------------------------------------------|-----|
| Background and Application Overview .....                                                                              | 4   |
| Patient Panel.....                                                                                                     | 8   |
| Factor 1: a) Patient Panel Need .....                                                                                  | 12  |
| Factor 1: b) Public health value, improved health outcomes and quality of life; assurances of health equity.....       | 45  |
| Factor 1: c) Efficiency, Continuity of Care, Coordination of Care .....                                                | 55  |
| Factor 1: d) Consultation.....                                                                                         | 56  |
| Factor 1: e) Evidence of Sound Community Engagement Through the Patient Panel.....                                     | 56  |
| Factor 1: f) Competition on price, total medical expenses (TME), costs and other measures of health care spending..... | 58  |
| Factor 1 Summary .....                                                                                                 | 60  |
| Factor 2: Cost containment, Improved Public Health Outcomes and Delivery System Transformation ..                      | 61  |
| Factor 2 Summary .....                                                                                                 | 73  |
| Factor 3: Relevant Licensure/Oversight Compliance.....                                                                 | 73  |
| Factor 4: Demonstration of Sufficient Funds as Supported by an Independent CPA Analysis.....                           | 73  |
| Factor 5: Assessment of the Proposed Project’s Relative Merit.....                                                     | 78  |
| Factor 6: Fulfillment of DPH Community-based Health Initiatives Guideline .....                                        | 80  |
| Public Comments on the Application .....                                                                               | 82  |
| Findings and Recommendations .....                                                                                     | 83  |
| Other Conditions.....                                                                                                  | 83  |
| APPENDIX I: Measures .....                                                                                             | 87  |
| Appendix II: Occupancy rates for Massachusetts AMCs, Jan 2022 to August 2024.....                                      | 90  |
| APPENDIX III: Definitions.....                                                                                         | 93  |
| Appendix IV: Speakers at the Public Hearing .....                                                                      | 94  |
| Appendix V: Written Commenters.....                                                                                    | 96  |
| Appendix VI: Summary of Comments .....                                                                                 | 99  |
| Appendix VII: TTGs Overview .....                                                                                      | 104 |
| REFERENCES.....                                                                                                        | 105 |

## Background and Application Overview

### **Dana-Farber Cancer Institute, Inc. (Applicant)**

Dana-Farber Cancer Institute, Inc. (Dana-Farber or Applicant) is a nonprofit, acute care cancer hospital and research institute dedicated to pediatric and adult cancer treatment and research.<sup>a</sup> Dana-Farber is one of 57 National Cancer Institute (NCI)-Designated Comprehensive Cancer Centers<sup>1</sup>, and is the only NCI Designated Comprehensive Cancer Center in Massachusetts.<sup>b</sup> Dana-Farber's main campus, located in Boston's Longwood Medical Area, provides care for adult and pediatric patients with cancer. For the purposes of this DoN application, Longwood is defined to include patients seen in Boston and at the Applicant's site in Chestnut Hill.<sup>2</sup> The Applicant provides outpatient care at its main campus as well as at numerous satellite locations under its license.<sup>3</sup>

The Applicant has 30 licensed medical/surgical (M/S) beds and provides inpatient care through a clinical affiliation with Brigham and Women's Hospital (BWH) that started in 1997. The Applicant states that as part of its clinical affiliation with BWH, Dana-Farber provides all medical oncology services to BWH, including all inpatient and outpatient medical oncology and hematologic malignancy care. Dana-Farber attendings staff all 15 inpatient teams, Dana-Farber employed inpatient physician assistants staff 12 teams, and Dana-Farber provides oversight of all house staff who are training on the inpatient service. The Applicant states further that Dana-Farber provides all inpatient consultative medical oncology and hematologic malignancy services throughout BWH; Dana-Farber provides oncology consultative services for the BWH pharmacy; and Dana-Farber provides research support for inpatient oncology clinical trials.<sup>4</sup> The Applicant states that BWH provides surgical oncology services, radiology services, pathology services, and radiation therapy services. The Applicant's 30 licensed beds are located in a space that is leased to the Applicant by BWH, and that are situated among BWH licensed beds. The Applicant states that it provides medical oncology services to patients in its own licensed beds and to patients in certain BWH-licensed beds which are dispersed across multiple locations within BWH.

The Applicant announced that it will end its clinical affiliation with BWH, stating developments in

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<sup>1</sup> There are 72 NCI-Designated Cancer Centers, 57 are Comprehensive Cancer Centers. Comprehensive Cancer Centers demonstrate reasonable depth and breadth of research activities in each of three major areas: basic laboratory; clinical; and prevention, control and population-based research.

<sup>2</sup> The Applicant states that Dana-Farber does not distinguish between Boston and Chestnut Hill for data tracking purposes.

<sup>3</sup> This includes Dana-Farber Cancer Institute- Chestnut Hill (Medical Oncology), Dana-Farber Cancer Institute – Foxborough (Medical Oncology), The Dana-Farber Cancer Institute at Milford Regional Medical Center (Medical Oncology), Dana-Farber Cancer Institute at South Shore Hospital (Medical Oncology, Radiation Oncology), Dana-Farber Cancer Institute - Merrimack Valley (Medical Oncology), Dana-Farber Cancer Institute at St. Elizabeth's Medical Center (Medical Oncology), Dana-Farber Cancer Institute at Libbey Park (Radiation Oncology), Dana-Farber Cancer Institute at Whittier Street Health Center (Mammography), and DFCI Mobile Mammography Service (Mammography).

<sup>4</sup> The Applicant states that Dana-Farber provides other services in related areas including, immunotherapy and related services, radiation oncology, imaging/radiology, psycho-oncology, social work, palliative care, genetics and associated counseling, and blood and cell processing/manufacturing.

cancer care require that operational and decision-making authority be vested in one entity for all medical oncology beds to best serve patients and to ensure the best outcomes for patients. The Applicant maintains that vesting of operational and decision-making authority within a dedicated cancer center can improve quality of care and the patient experience while decreasing costs and unnecessary inpatient care, and that research supports improved outcomes for patients with cancer treated in dedicated cancer hospitals.

The Applicant explained that the proposed, dedicated cancer hospital will have centralized operational and decision-making authority organized around the care of patients with cancer. The Applicant states that through the Proposed Project, Dana-Farber patients will have an oncology care team that is trained to understand the disease and symptoms of, and individual treatment regimens, for cancer, and that this model of care will be supported by Dana-Farber's multidisciplinary care teams all specializing in the unique issues that arise for patients with cancer. The Applicant notes that Dana-Farber already develops infrastructure dedicated to oncology care that improves the patient experience, citing the example of its oncology-specific Acute Care Clinic, described in more detail below in Factor 1a. The Applicant states that another reason to vest operational and decision-making authority in one entity is because the policies of general hospitals don't always serve the unique needs of the cancer population, citing conflicting recommendations regarding infection control policies and differences in benchmarking data, both of which are discussed in more detail in Factor 1b.

The Massachusetts Health Policy Commission (HPC) states that the current clinical affiliation between Dana-Farber and BWH will run until at least 2028, and at its conclusion, Beth Israel Deaconess Medical Center (BIDMC), a nonprofit academic medical center (AMC); Harvard Medical Faculty Physicians at BIDMC (HMFP), the employed physician group of BIDMC that staff BIDMC and other Beth Israel Lahey Health (BILH) facilities and community hospitals; and Dana-Farber are proposing to enter into a clinical collaboration to provide coordinated and integrated cancer care for adults in the Longwood Medical Area of Boston.<sup>c</sup> The HPC states that DFCI and BIDMC will remain corporately independent, BIDMC and HMFP will continue to contract with payors independently from Dana-Farber.<sup>d</sup>

The proposed collaboration between Dana-Farber, BIDMC, and HMFP includes a plan to build a new freestanding, inpatient hospital dedicated to adult patients with cancer. The proposed hospital will be located in the Longwood Medical Area at 1 Joslin Place, Boston, adjacent to existing Dana-Farber and BIDMC facilities and will operate under the license of Dana-Farber. If approved, it will be the only freestanding inpatient hospital dedicated to adult patients with cancer in the region. Currently, the Applicant collaborates with The Children's Hospital Corporation (Boston Children's Hospital) for the provision of pediatric oncology services on the Longwood Medical Campus. The Applicant affirms that the Proposed Project, and the Applicant's proposed affiliation with BIDMC, will not impact its relationship with Boston Children's Hospital.

## Application Overview

The Proposed Project includes the acquisition of site by lease and construction, fit-out, and equipping of an approximately 688,100 square-foot inpatient cancer hospital that will be located at 1 Joslin Place, Boston, MA. The proposed hospital will focus on cancer care for adults and will include the following:

- **300** adult inpatient beds (280 medical surgical (M/S) and 20 Intensive Care Unit (ICU)), 270 (250 M/S and 20 ICU) will represent new beds, and 30 will be transferred from the Applicant's current bed complement at Brigham and Women's Hospital, 75 Francis Street;
- **20 new** Observation Beds;
- **Two** new magnetic resonance imaging (MRI) machines, **two** new computed tomography (CT) machines, and **one** new positron emission tomography-computed tomography (PET-CT) machine (collectively, the **Inpatient Imaging Equipment**); and
- **Two** new CT simulator machines, and **three** new linear accelerators (LINACs) (the **New Radiation Oncology Equipment**).

The Proposed Project will also include the construction of a tunnel under and a bridge over Brookline Avenue connecting the proposed hospital to the Applicant's current building at 440 Brookline Avenue.<sup>5</sup>

Table 1 provides an overview of the Proposed Project. Staff note the following about Table 1:

- **Current Location:** Longwood Medical Area
  - The Applicant's 30 licensed beds are currently located at Brigham and Women's Hospital, 75 Francis Street, Boston.
  - The Applicant's 3 licensed LINACs, and the Applicant's 3 CT machines, 2 MRI machines, and 2 PET-CT machines are all currently located at the Applicant's facility at 44 Binney Street, Boston.
- **Proposed Site:** Longwood Medical Area
  - The Applicant is proposing to transfer its 30 licensed beds to the proposed site, 1 Joslin Place, Boston, MA.
  - All imaging equipment and radiation oncology equipment at the proposed site will be new.

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<sup>5</sup> The Applicant states that it is anticipated that the bridge over Pilgrim Road connecting the proposed hospital to BIDMC will be maintained and operated by BIDMC rather than the Applicant and as so it is not included in the Proposed Project.

**Table 1: Overview of the Applicant's Proposed Project**

|                                     | Total Number at Current Location | Number Transferring from Current Location | Number of New at Proposed Site (additional) | Total Number at Proposed Site after Project Implementation | Total Number at Current Location after Project Implementation |
|-------------------------------------|----------------------------------|-------------------------------------------|---------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|
| <b>Inpatient Beds<sup>6</sup></b>   |                                  |                                           |                                             |                                                            |                                                               |
| M/S                                 | 30                               | 30                                        | 250                                         | 280                                                        | 0                                                             |
| ICU                                 | 0                                | 0                                         | 20                                          | 20                                                         | 0                                                             |
| Total                               | 30                               | 30                                        | 270                                         | 300                                                        | 0                                                             |
| <b>Imaging Equipment</b>            |                                  |                                           |                                             |                                                            |                                                               |
| CT                                  | 3                                | 0                                         | 2                                           | 2                                                          | 3                                                             |
| MRI                                 | 2                                | 0                                         | 2                                           | 2                                                          | 2                                                             |
| PET-CT                              | 2                                | 0                                         | 1                                           | 1                                                          | 2                                                             |
| <b>Radiation Oncology Equipment</b> |                                  |                                           |                                             |                                                            |                                                               |
| CT Simulator                        | 0                                | 0                                         | 2                                           | 2                                                          | 0                                                             |
| LINAC                               | 3                                | 0                                         | 3                                           | 3                                                          | 3                                                             |

The Applicant states that cancer treatment has grown more sophisticated over the past few decades, and new and innovative cancer treatments provided by the Applicant, including many of those designed to target aggressive forms of cancer, require inpatient care. The Applicant states further that population projections indicate an increasing older population, and growing incidence and prevalence of cancer will further increase need for inpatient beds in part because older patients are more likely to experience side effects and complications from treatments that require an inpatient admission. The Applicant states that incidence rates of cancer in younger adults is further increasing need for inpatient care; younger adults are more likely to have more aggressive types of cancer, and are more likely to be diagnosed at an advanced stage, therefore requiring more aggressive therapy. Also, younger patients receive more surgical interventions, which require more inpatient beds. The Applicant states that disparities in cancer screening, incidence and mortality are documented, and the addition of inpatient beds dedicated to cancer in Boston can increase access for underserved communities disproportionately impacted by cancer.

The Applicant states that it provides subspecialized services to a highly-acute and medically complex patient population, that increasingly require more prolonged inpatient management and intervention. Further, its Patient Panel is growing more acute and the care it delivers is growing more complex. The Applicant cited the example of complex and novel therapies like induction therapy for acute leukemia patients, Chimeric Antigen Receptor (CAR) T-cell therapy, bi-specific T-cell engager therapy, and stem cell transplantation, all of which the Applicant states require or may lead to potentially lengthy inpatient stays, and are expanding significantly in their prevalence. As discussed further below, the Applicant provides more of these services as compared to other

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<sup>6</sup> Observed beds are not considered licensed inpatient beds.

providers in the Commonwealth that currently offer them, requiring the Applicant to have sufficient inpatient capacity.

The Applicant determined that constructing a hospital dedicated to adult cancer care will meet the growing need among Massachusetts residents for the advanced cancer care that the Applicant will provide. The Applicant maintains that identified Patient Panel need for oncology care cannot be met by other hospitals within the Commonwealth because of the highly specialized nature of inpatient oncology care required by the Applicant's Patient Panel and the growing need for such care. This is discussed further in Factor 1a.

### **Contemporaneous Review of this Transaction**

On January 25, 2024, the Massachusetts Health Policy Commission (HPC) authorized the initiation of a Cost and Market Impact Review (CMIR) which will analyze the impact of the proposed clinical affiliation between Dana-Farber, BIDMC, and HMFP and the joint construction of a new freestanding cancer hospital. The CMIR will examine the potential impact of the proposed plans on costs, market functioning, quality, care delivery, and access/health equity. The CMIR is in process at this time and its anticipated completion is May 2025. Because this transaction is subject to a CMIR, any Determination of Need (DON) approved by the Department of Public Health will not go into effect until 30 days following the HPC's completion of the CMIR. 105 CMR 100.310(A)(2).

The DoN Regulation further states that the HPC may provide a written recommendation to the Commissioner that the DoN should not go into effect based on the findings of the CMIR. If the information in the CMIR causes the Commissioner to conclude that the Holder would fail to meet one or more of the specified Factors, the Public Health Council can reconsider the matter and may rescind or amend an approved Notice of Determination of Need. Separately, HPC can make a referral of its report to the Massachusetts Attorney General's Office (AGO) and must make such a referral if the HPC determines in its preliminary report that the Provider Organization has a dominant market share for the services it provides; charges materially higher prices than the median prices; and the provider organization has materially higher health status adjusted Total Medical Expenses (TME) compared to other providers in the same market. See M.G.L. c. 6D, § 13.

### **Patient Panel<sup>7</sup>**

Table 2 shows the Applicant's Patient Panel, defined as unique patients seen from fiscal year (FY) 21 to FY23.<sup>8</sup> Unique patients include all of the Applicant's inpatients and outpatients at all of the

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<sup>7</sup> As defined in 105 CMR 100.100, Patient Panel is the total of the individual patients regardless of payer, including those patients seen within an emergency department(s) if applicable, seen over the course of the most recent complete 36-month period by the Applicant or Holder. Patient Panel also means: (1) If the Applicant or Holder has no Patient Panel itself, the Patient Panel includes the Patient Panel of the health care facilities affiliated with the Applicant; or (2) If the Proposed Project is for a new facility and there is no existing Patient Panel, Patient Panel means the anticipated patients; or (3) In the case of a Transfer of Ownership, Patient Panel also includes the Patient Panel of the Entity to be acquired.

<sup>8</sup> The Applicant's fiscal year (FY) runs from October 1 through September 30.

Applicant's sites. Table 2 includes all patients seen at all locations on the Applicant's license. The Applicant states that for inpatients only, Table 2 is based on utilization data for the Applicant's current licensed beds, as well as an estimate of utilization for patients admitted to BWH-licensed beds that were under the care of the Applicant's medical oncologists. This information was produced from professional claim data. The Applicant states that while precise utilization data for all such patients is available to the Applicant as part of its existing collaboration with BWH, portions of that data are proprietary to BWH, and the Applicant is restricted from disclosing it in the DoN Application due to confidentiality restrictions.

**Table 2: Dana-Farber Patient Panel, FY21 to FY23**

|                        | FY21   | FY22   | FY23    | % Change<br>2021-2023 |
|------------------------|--------|--------|---------|-----------------------|
| <b>Unique Patients</b> | 90,754 | 96,940 | 102,921 | 13%                   |

The Applicant provided the number of total unique patients from FY18 to FY23. This is shown in Table 3.

**Table 3: Dana-Farber Total Unique Patients, FY18 to FY23<sup>9</sup>**

|                        | FY18   | FY19   | FY20   | FY21   | FY22   | FY23    | % Change<br>FY18-FY23 |
|------------------------|--------|--------|--------|--------|--------|---------|-----------------------|
| <b>Unique Patients</b> | 73,074 | 76,789 | 79,358 | 90,754 | 96,940 | 102,921 | 41%                   |

The Applicant also provided the total number of unique inpatients and unique outpatients from FY18 to FY23. This is shown in Table 4. The Applicant defines unique inpatients as inpatients admitted to beds on the Applicant's license, as well as an estimation of inpatients admitted to BWH-licensed beds under the care of the Applicant's medical oncologists. The Applicant states that precise utilization data for all such patients is available to the Applicant as part of its existing collaboration with BWH, however portions of that data are proprietary to BWH, and the Applicant is restricted from disclosing it in this Application due to confidentiality restrictions. Unique outpatients include all the Applicant's outpatients on the Longwood Medical Campus. The Longwood Medical Campus is defined in the application to include patients seen in Boston as well as patients seen at the Applicant's site in Chestnut Hill. All data presented in Tables 2,3, and 4 include only adult patients since the Proposed Project relates only to adult oncology care.

**Table 4: Dana-Farber Unique Inpatients and Unique Outpatients (Longwood), FY18 to FY23**

|                           | FY18   | FY19   | FY20   | FY21   | FY22   | FY23   | % Change<br>FY18-FY23 |
|---------------------------|--------|--------|--------|--------|--------|--------|-----------------------|
| <b>Unique Inpatients</b>  | 4,524  | 4,819  | 4,521  | 4,784  | 4,887  | 5,004  | 11%                   |
| <b>Unique Outpatients</b> | 58,573 | 61,842 | 59,745 | 65,605 | 69,286 | 73,875 | 26%                   |

<sup>9</sup> Inclusive of all of the Applicant's inpatients and outpatients at all sites.

As shown in the tables above, the number of unique patients, unique inpatients, and unique outpatients have all been increasing over the past three fiscal years, with the greatest increases occurring in the Applicant's Patient Panel and the Applicant's outpatients. The Applicant attributes the increase in unique inpatients and outpatients to two factors:

- 1) the receipt of care that was delayed by patients during the COVID-19 pandemic, and
- 2) general increases in the incidence of cancer cases and in prevalence of cancer cases which the Applicant states lead to an increase in the number of patients seeking treatment at the Applicant's facilities, including at the Applicant's newer facilities in Methuen, Chestnut Hill, and Foxborough.

Table 5 shows the average daily census (ADC) of oncology beds that the Applicant manages in partnership with BWH from FY18 to FY23. The Applicant states that Table 5 includes Center for Health Information and Analysis (CHIA) data for Dana-Farber and BWH. The Applicant omitted FY20 due to COVID-19, and FY23 is not yet available through CHIA.

**Table 5: Dana-Farber/BWH ADC, FY18 to FY23**

|                                          | FY18  | FY19  | FY20 | FY21  | FY22  | FY23 | % Change FY18-FY22 |
|------------------------------------------|-------|-------|------|-------|-------|------|--------------------|
| <b>Dana-Farber/BWH ADC (in Patients)</b> | 168.1 | 180.8 | -    | 166.4 | 186.4 | -    | 11%                |

## Patient Information

Table 6 provides a demographic and geographic profile of the Applicant's patient populations (unique patients, unique inpatients, and unique outpatients) for FY23. The demographic and geographic profile is similar across all three patient populations.

Staff note the following about the data presented in Table 6:

- **Age:** 70% to 78% are aged 56 and older.
- **Race/Ethnicity:** 75% to 77% identify as White or Caucasian Non-Hispanic or Latino.
- **Patient Origin:** 20% to 28% come from outside of Massachusetts (United States).

**Table 6: Dana-Farber Patient Information, FY23**

|                            | Unique Patients | Unique Inpatients | Unique Outpatients |
|----------------------------|-----------------|-------------------|--------------------|
| Total                      | 102,921         | 5,004             | 73,875             |
| <b>Gender<sup>10</sup></b> |                 |                   |                    |
| Female                     | 62.2%           | 49.9%             | 62.0%              |
| Male                       | 37.8%           | 50.1%             | 38.0%              |

<sup>10</sup> Data rounded to the nearest 10 to preserve patient anonymity.

|                                             |               |               |               |
|---------------------------------------------|---------------|---------------|---------------|
| Unknown                                     | 0.0%          | 0.0%          | 0.0%          |
| <b>Total</b>                                | <b>100.0%</b> | <b>100.0%</b> | <b>100.0%</b> |
| <b>Race &amp; Ethnicity</b>                 |               |               |               |
| Asian Non-Hispanic or Latino                | 3.1%          | 4.1%          | 3.6%          |
| Black or African American                   | 3.9%          | 6.3%          | 4.3%          |
| Hispanic or Latino                          | 6.0%          | 5.6%          | 4.7%          |
| Multiracial, non-Hispanic                   | 1.4%          | 1.4%          | 1.5%          |
| Null & Other <sup>11</sup>                  | 10.2%         | 5.5%          | 9.2%          |
| White or Caucasian Non-Hispanic or Latino   | 75.4%         | 77.3%         | 76.8%         |
| <b>Total</b>                                | <b>100.0%</b> | <b>100.0%</b> | <b>100.0%</b> |
| <b>Age<sup>12</sup></b>                     |               |               |               |
| 0-18 <sup>13</sup>                          | 0.1%          | 0.2%          | 0.1%          |
| 19-35                                       | 6.5%          | 4.4%          | 6.6%          |
| 36-55                                       | 23.5%         | 17.4%         | 24.7%         |
| 56-75                                       | 52.9%         | 57.2%         | 54.3%         |
| >75                                         | 18.9%         | 21.2%         | 16.1%         |
| <b>Geography<sup>14</sup></b>               |               |               |               |
| Massachusetts                               | 75.8%         | 73.8%         | 70.7%         |
| New York                                    | 2.2%          | 2.3%          | 3.1%          |
| Outside MA (New England) <sup>15</sup>      | 23.2%         | 18.2%         | 19.1%         |
| Outside MA (United States) <sup>16</sup>    | 20.1%         | 23.7%         | 27.9%         |
| Outside MA (International) <sup>17,18</sup> | 1.0%          | 2.3%          | 1.4%          |

<sup>11</sup> The category “Other” includes patients whose gender, race, or ethnicity did not fall within the major categories specified in the table.

<sup>12</sup> Age categories may sum to more than 100%, as patients age into different categories during a fiscal year. Data rounded to the nearest 10 to preserve patient anonymity.

<sup>13</sup> Includes only patients 18 or younger seen in adult clinical departments. Excludes patients seen in pediatrics departments.

<sup>14</sup> Given overlapping geographies, percentages will sum to be over 100%.

<sup>15</sup> New England means Connecticut, Maine, New Hampshire, Rhode Island, Vermont, and unless otherwise noted, Massachusetts.

<sup>16</sup> These patients include those from New England states, excluding Massachusetts.

<sup>17</sup> These patients include those with a permanent country of residence outside the United States.

<sup>18</sup> International Patient definition from STRATA, based on unique patients with at least one international encounter.

Table 7 shows the payer mix for the Longwood Medical Campus.

**Table 7: Dana-Farber Payor Mix (Gross Revenues) Longwood Medical Campus<sup>19</sup>**

|                        | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  |
|------------------------|-------|-------|-------|-------|-------|-------|
| Medicare               | 40.3% | 41.0% | 42.0% | 43.5% | 43.4% | 46.0% |
| Medicaid               | 6.3%  | 6.0%  | 5.8%  | 6.2%  | 6.2%  | 6.7%  |
| Blue Cross             | 23.5% | 23.3% | 23.8% | 23.3% | 23.3% | 21.9% |
| HMO, Commercial, Other | 29.2% | 28.9% | 28.1% | 26.8% | 26.9% | 25.2% |
| Self-Pay               | 0.7%  | 0.7%  | 0.3%  | 0.2%  | 0.2%  | 0.2%  |
| Total                  | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |

Table 8 shows the payer mix for unique inpatients within Dana-Farber-licensed beds only. The Applicant states that payor mix data are not available for BWH-licensed beds.

**Table 8: Dana-Farber Payor Mix (Gross Revenues), Inpatients**

|                     | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  |
|---------------------|-------|-------|-------|-------|-------|-------|
| Commercial          | 49.1% | 46.1% | 42.8% | 38.6% | 39.4% | 39.9% |
| Commercial Medicare | 6.5%  | 7.6%  | 9.4%  | 12.2% | 9.7%  | 11.6% |
| Managed Medicaid    | 5.8%  | 4.8%  | 5.5%  | 7.2%  | 7.9%  | 7.2%  |
| MassHealth          | 3.5%  | 1.2%  | 1.2%  | 1.8%  | 1.3%  | 1.3%  |
| Medicare FFS        | 32.4% | 37.1% | 37.6% | 38.4% | 39.2% | 37.2% |
| Other <sup>20</sup> | 2.7%  | 3.1%  | 3.4%  | 1.8%  | 2.6%  | 2.8%  |
| Total               | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |

## Factor 1: a) Patient Panel Need

In this section, staff assesses if the Applicant has sufficiently addressed Patient Panel need for the Proposed Project.

### BACKGROUND

As noted above, the Applicant has 30 licensed M/S beds and provides inpatient care through a clinical affiliation with BWH. The Applicant provides care to patients in its own licensed beds and to patients in certain BWH-licensed beds, which are dispersed across multiple locations within BWH. The following section of this report provides additional information and context about the delivery of care to patients with cancer who are under the care of the Applicant, as described by the Applicant.

Patient Journey: The Applicant states that it provides a continuum of cancer care by a

<sup>19</sup> The Applicant states that the table represents the data for the Longwood Medical Campus, inclusive of the Applicant's Chestnut Hill location.

<sup>20</sup> Includes Health Safety Net, out-of-state Medicaid, other governmental payor, and self-pay patients.

multidisciplinary oncology care team of providers and departments. The Applicant states that most patients that come to Dana-Farber do so through the ambulatory setting, but can end up in the hospital for some aspect of their care. The Applicant describes the medical oncologist as the “central piece” of the patient’s care journey, and the coordinator of the patient’s care through their entire care journey. The Applicant states that nearly all patients with cancer presenting at the BWH ED have been previously seen by Dana-Farber in the outpatient setting and were already established under Dana-Farber’s care. Additionally, Dana-Farber is the medical oncology provider for these patients outside of the hospital.

The Applicant states that it was unable to disclose proprietary BWH ED data, but did provide information regarding admissions in its own licensed beds to demonstrate the number of inpatients whose care was established under Dana-Farber. The Applicant states that from FY21 through FY23, 93% of patients in the Applicant’s licensed beds had a prior encounter with the Applicant and the Applicant expects, based on its clinical experience, that a similar share of its patients in BWH licensed beds have had a prior encounter with the Applicant. The Applicant states further that its medical oncologists often recommend that their current patients present at the BWH ED if they experience a cancer-related medical emergency, which the Applicant states will often result in an inpatient admission. As such, the Applicant expects that the subset of its patients admitted through the BWH ED will have had prior encounters with the Applicant at similar rates as its overall patient population.

Staffing: The Applicant states that the inpatient medical oncology management structure implemented across Dana-Farber and BWH-licensed beds includes the following key personnel, all of whom are employed by Dana-Farber: the Medical Director and Associate Medical Director for Inpatient Medical Oncology, the Director of Inpatient Clinical Operations, Safety and Quality, the Medical Director for Physicians Assistants, and the Medical Director for Hospitalists. The Applicant states that patients are assigned to an inpatient team based on their disease type or modality of treatment, and their care is overseen by attendings with expertise in their specific disease.

The Applicant states, “medical oncology serves as the nucleus of the patient’s cancer treatment,” and Dana-Farber employed medical oncologists and hospitalists direct the care of patients in Dana-Farber licensed beds and in BWH licensed beds. Patients are treated in the first bed available to them, regardless of licensee. The Applicant affirms that care and consultations of inpatients are immediately overseen by Dana-Farber employed physicians; all primary attending physicians are Dana-Farber employees and Dana-Farber employs every physician assistant providing care to these inpatients. BWH physicians provide surgical and other non-oncology services to Dana-Farber patients when needed. The Applicant explained that BWH does not employ any medical oncologists or medical oncology advanced practice providers of its own and that the only BWH employees that are part of a patient’s clinical care team are individuals without specialties in medical oncology and those being trained by Dana-Farber medical oncologists who are members of the BWH house staff which includes interns, residents and fellows.

Dr. Craig Bunnell, Dana-Farber Cancer Institute Chief Medical Officer, provided comments to the Department explaining the current staffing of patients with cancer in Dana-Farber licensed beds and BWH licensed beds. Dr. Bunnell states, "An important final point is that currently all the oncology patients cared for in beds at the Brigham are Dana-Farber patients, cared for by Dana-Farber medical oncologists who also provide oversight of Dana-Farber-employed advanced practice providers. There are no Brigham medical oncologists. The only Brigham-employed clinicians on the oncology teams are the interns and residents who are being trained by, and have oversight by, Dana-Farber medical oncologists. These are our--Dana-Farber--patients."

Inpatient Bed Utilization: As noted above, 30 beds are Dana-Farber licensed beds located at BWH in space leased to Dana-Farber, and the remaining beds are licensed to BWH for which the Applicant provides professional medical oncology services. The Applicant states it identifies Dana-Farber patients admitted to BWH-licensed beds based on an analysis of patients where Dana-Farber serves as the attending physician. The Applicant states that this information is reflected in the medical record and claims data. The Applicant analyzed health care claims submitted by Dana-Farber clinicians for services provided to inpatient oncology patients, for which a Dana-Farber medical oncologist served as the attending physician, and determined that Dana-Farber served as the attending, directed the care, and treated an average of 211 distinct inpatient oncology patients each day for the period between October 2025 and January 2025.

The Applicant states that these patients are Dana-Farber patients regardless of licensee because all of these patients have Dana-Farber medical record numbers, during their inpatient stay, which the Applicant states underscores an existing treatment relationship between Dana-Farber and patients admitted to BWH-licensed beds. The Applicant states that the medical records reflect the fact that Dana-Farber employed medical oncologists and hospitalists are the patients' attending of record, that Dana-Farber medical oncologists direct the care of these patients during their inpatient admission, and that in almost all cases, a Dana-Farber medical oncologist has a previously existing treatment relationship with the patient. The Applicant states that in the instance when a Dana-Farber clinician serves as an attending for a patient requiring certain services from BWH, the Applicant considers the patient to be a Dana-Farber patient because a Dana-Farber clinician directs the patient's inpatient care. The Applicant states that patients with a BWH attending physician for whom Dana-Farber physicians provide consultations are not assigned to Dana-Farber.

Community Providers and Hospitals: The Applicant states that Dana-Farber collaborates to have patients receive inpatient care in their local hospitals, and as such, refers patients back to their community physicians once the specialized care they need at Dana-Farber is complete. The Applicant states that it links patients with cancer with referring physicians and other specialists for follow-up care, working with physicians' groups and community medical groups throughout the Commonwealth. The Applicant partners with community health centers in a co-location model that the Applicant states is focused on keeping care local.

The Department received comment from several elected officials and community health centers

describing Dana-Farber’s relationship with community providers, and efforts to keep care local. A joint comment from members of the House of Representatives states, “Dana-Farber also partners with several community hospitals in the region including St. Elizabeth’s in Brighton. Through this unique model, patients are able to receive some of their care at their local community hospital - making care more accessible, culturally competent, and personalized. This new cancer center will allow them to continue these important programs for patients in our communities.”<sup>21</sup>

**Specialization:** The Applicant states that cancer care has become more sophisticated and complex and that Dana-Farber is at the forefront of providing these services in the Commonwealth and internationally. The Applicant states further that complex and novel therapies like induction therapy for acute leukemia patients, CAR T-cell therapy, bi-specific T-cell engager therapy and stem cell transplantation are expanding in their prevalence. The Applicant states that the number of indications for CAR T-cell therapy and bi-specific T-cell engager therapy is increasing, which in turn increases the prevalence of these therapies and the need for inpatient beds to manage side effects by clinicians that are trained to manage them.

The Applicant states that patients with numerous types of cancers seek its services, as evidenced by its historical utilization. Table 9 shows inpatient utilization by disease center. Inpatient utilization includes patients seen in the Applicant’s licensed beds, and patients the Applicant cared for in certain BWH-licensed beds.

**Table 9: Inpatient Utilization by Disease Center<sup>22</sup>**

|                                        | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  |
|----------------------------------------|-------|-------|-------|-------|-------|-------|
| Total (unique patients) <sup>23</sup>  | 4,523 | 4,815 | 4,501 | 4,783 | 4,887 | 4,999 |
| Hematologic Malignancies <sup>24</sup> | 33.0% | 32.9% | 27.6% | 26.3% | 27.5% | 32.1% |
| Gastrointestinal Oncology              | 15.4% | 15.1% | 13.4% | 13.3% | 13.6% | 15.6% |
| Thoracic Oncology Program              | 8.9%  | 9.0%  | 7.8%  | 8.0%  | 8.4%  | 8.0%  |

<sup>21</sup> Chynah Tyler: State Representative, 7th Suffolk District. David Biele: State Representative, 4th Suffolk District. Rob Consalvo: State Representative, 14th Suffolk District. Brandy Fluker Oakley: State Representative, 12th Suffolk District. Kevin Honan: State Representative, 17th Suffolk District. Jay D. Livingstone: State Representative, 8th Suffolk District. William MacGregor: State Representative, 10th Suffolk District. Daniel Ryan: State Representative, 2nd Suffolk District. Christopher J. Worrell: State Representative, 5th Suffolk District.

<sup>22</sup> The Applicant states that the data provided in this table was gathered using a methodology that looks at the volume of outpatient encounters each patient had by disease center, within each FY, and attributes the disease center where the patient was seen most frequently for that year. Because the Proposed Project relates only to adult oncology care, and not to pediatric oncology care, data presented includes only adult patients.

<sup>23</sup> The Applicant states that due to limitations on the Applicant’s ability to disclose BWH data, patients with only an inpatient stay (i.e., no additional outpatient treatment provided) are included in the total patient count, but excluded from particular disease centers. Additionally, certain other patients included in the total but not specific disease centers are either (1) not assigned to a specific disease center or (2) assigned to a disease center with less than 11 unique patients. Total may not sum to disease center counts.

<sup>24</sup> “Hematologic Malignancies” is comprised of the following subgroups: Transplant Program, Leukemia, Lymphoma, Multiple Myeloma and Waldenstrom, Ungrouped Hematologic Malignancies.

|                           |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|
| Breast Oncology Center    | 7.7% | 7.3% | 5.8% | 5.3% | 6.4% | 7.7% |
| Genitourinary Oncology    | 6.1% | 7.3% | 5.5% | 6.3% | 6.4% | 7.9% |
| Gynecology Oncology       | 5.1% | 5.4% | 4.8% | 5.0% | 5.7% | 5.0% |
| Neuro-Oncology Center     | 3.8% | 4.0% | 3.1% | 3.1% | 2.8% | 4.3% |
| Head and Neck Oncology    | 4.0% | 3.4% | 2.4% | 2.8% | 3.1% | 3.2% |
| Sarcoma and Bone Oncology | 3.7% | 4.0% | 1.8% | 2.4% | 2.7% | 2.6% |
| Melanoma Center           | 1.9% | 2.2% | 1.7% | 1.8% | 1.9% | 2.7% |
| Cutaneous Oncology Center | 0.4% | 0.5% | 0.5% | 0.5% | 0.5% | 0.8% |

## PATIENT PANEL NEED

The Applicant affirms that it is experiencing increasing need for inpatient beds and imaging and radiation oncology equipment dedicated to the treatment of adult patients with cancer. The Applicant states that its need for additional inpatient beds, imaging, and radiation oncology capacity is a result of both increasing patient volume and patient acuity. The following sections of this report will discuss the numerous drivers of increasing need for additional inpatient, imaging, and radiation oncology capacity, as presented by the Applicant.

### Population Estimates/Projections and Cancer Prevalence Nationally and in Massachusetts

The Applicant states that projected national and state demographic changes will drive need for the specialized inpatient cancer care that Dana-Farber provides, citing studies and reports on the projected increases. The Applicant referenced a report from the Population Reference Bureau, which stated that the number of adults aged 65 and older in the United States is projected to increase by 69%, from 56.0 million to 94.7 million between 2020 and 2060.<sup>e</sup> The Applicant examined population projection data from the UMass Donahue Institute which show that the age 65 and over population in Massachusetts is projected to increase by 76% between 2010 and 2050.<sup>f,25</sup> The age 56 and older population within the Applicant's Patient Panel increased 31% between FY20 and FY23, which the Applicant attributes to national and state demographic changes.

The National Cancer Institute states that advancing age is the primary risk factor for cancer overall and for many individual types of cancer.<sup>g</sup> The American Cancer Society's 2024 Annual Report states that 88% of people diagnosed with cancer in the United States are 50 years of age or older, and 57% are aged 65 or older.<sup>h</sup> The Applicant cited a study from the Centers for Disease Control and Prevention (CDC) which predicted that the total number of new cancer cases (excluding nonmelanoma skin cancer) will increase by approximately 49% between 2015 and 2050, from 1,534,500 to 2,286,300, with the largest percentage increases projected to occur among adults aged 75 years and older.<sup>i</sup> The study attributes the increase in new cancer cases to population growth and an aging population.

Cancer is the second most common cause of death in the United States overall, and the leading

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<sup>25</sup> UMass Donahue Institute Population Projections (V2024) estimate an increase from 902,724 in 2010 to 1,592,166 in 2050, a 76% increase in the aged 65 and over population.

cause of death in people younger than 85 years of age.<sup>j</sup> Cancer mortality has declined since 1991 which studies attribute to earlier detection and diagnosis, advancements in cancer treatment, and reductions in smoking; however, cancer incidence continues to increase in six of the top ten cancers as well as colorectal cancer (CRC) and cervical cancer in young adults.<sup>k</sup>

The Applicant provided data from the Massachusetts Cancer Registry (MCR) Incidence and Mortality Statewide Report 2015-2019<sup>26</sup>, which summarizes cancer incidence (new cases) and mortality (deaths) for the Commonwealth of Massachusetts, to show increasing need for the Applicant's services in Massachusetts. Staff updated the information provided with data from the 2016-2020 report, the most recent report available since Application submission. The MCR report states that cancer is the most common cause of death in Massachusetts.<sup>l</sup> Between 2016 and 2020, there were 196,399 new cancer cases in Massachusetts, an average of 39,280 cases per year<sup>27</sup> and, there were 63,231 cancer deaths in Massachusetts, an average of 12,646 deaths per year.<sup>28</sup> The Applicant also provided incidence data from the National Institutes of Health (NIH) for the period from 2015-2019. Staff have included the most recent data available from 2017-2021. The age-adjusted cancer incidence rates in Massachusetts for all cancer sites based on 2017-2021 cancer cases is 433.2 cases per 100,000, which is lower than U.S. rate of 444.4 cases per 100,000.<sup>m</sup>

The Applicant states that increasing cancer incidence in younger populations will also contribute to need for the Proposed Project. Cancer normally arises in older adults aged 50 and older, however, numerous studies have reported an increase in the incidence of cancer of various organs in patients younger than 50 years old, also known as early-onset cancer.<sup>n</sup> The Applicant provided the example of CRC, once the fourth leading cause of cancer death among men and women younger than 50 years old, now the leading cause for men and second leading cause for women, due to increasing incidence of early-onset CRC.<sup>o</sup>

The Applicant states that increasing incidence of cancer in young adults creates need for treatment, which in some cases will include hospitalization. The Applicant states further that young adults diagnosed with cancer are more likely to have aggressive types of cancers and are more likely to be diagnosed at an advanced stage, and therefore have an increased need for advanced therapy which increases risk of complications and potential for hospitalization. Additionally, younger patients receive more surgical interventions, which also require inpatient beds and may have complications requiring hospitalization. The Applicant states that the increased likelihood of young patients in clinical trials, and patients with metastatic cancer living longer, will further contribute to increasing need for additional inpatient capacity.

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<sup>26</sup> The report states that due to the complexity of the cancer data collection and quality control process, there is a delay between the time a new cancer is diagnosed and the time the data are ready for analysis. The typical delay is about 24 months after the end of the calendar year of diagnosis.

<sup>27</sup> All Cancers Combined Incidence (New cases)

<sup>28</sup> All Cancers Combined Mortality (Deaths)

### Cancer Disparities

The Applicant cited its 2022 Cancer-Focused Community Health Needs Assessment (CHNA) which documents disparities in cancer incidence, mortality and screening rates.<sup>29,p</sup> The Applicant states that the Cancer-Focused CHNA shows that Black residents overall and Black males, in Boston had statistically significant higher rates of cancer incidence and cancer mortality compared to their White counterparts. In addition, there are disparities in cancer screening rates: certain groups, including Asian, Latino, Black, immigrant, low-income, and unemployed residents had lower screening rates. Studies have reported disparities in incidence of early-onset cancer in the United States, as well as survival.<sup>q,r</sup>

Sections Factor 1b and Factor 2 below, outline the Applicant's efforts to address health disparities in its Patient Panel and in the communities in its service area.

### Cancer-Related Hospitalization

The advancement of cancer treatment over the years has allowed for many treatments to be administered in the outpatient setting.<sup>s</sup> However, some patients still require treatment in the inpatient setting, or hospitalization due to a number of factors including, treatment duration and frequency, the level of supportive care that is required to administer treatment, and to manage symptoms and complications that may result from treatment.<sup>t</sup> Inpatient stays can also include patients who need palliative and hospice care. Advances allowing for earlier detection and innovative treatments as well as population increases and an increasing aging population have increased the number of individuals living after a cancer diagnosis.<sup>u,v</sup> The Applicant states that individuals are living longer with advanced or metastatic cancer due to advancements in treatment and that these patients may require intermittent hospitalizations during the course of their illness.

Table 10 shows the Applicant's inpatient discharges from FY18 to FY23 for patients in its 30 licensed beds.

**Table 10: Dana-Farber Discharges**

|                                 | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  | % Change<br>FY18 to FY22 |
|---------------------------------|-------|-------|-------|-------|-------|-------|--------------------------|
| <b>Discharges</b> <sup>30</sup> | 1,303 | 1,566 | 1,420 | 1,436 | 1,297 | 1,300 | -0.2%                    |

The Applicant provided a breakdown of inpatients by zip code for FY22, the most recent year available. Table 11 shows the top twenty zip codes by discharge count. Table 11 includes CHIA data for Dana-Farber and BWH. The Applicant's Responses to DoN Questions #2 contain the complete list of zip codes.

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<sup>29</sup> The Cancer-Focused CHNA states that consistent with the previous CHNAs, the effort focused on Dana-Farber's priority neighborhoods for Community Benefits work – Roxbury, Mission Hill, Dorchester, Mattapan, and Jamaica Plain.

<sup>30</sup> Table includes actual discharge numbers for FY18 through FY23.

**Table 11: Dana-Farber Top 20 Zip codes by Discharge Count**

|    | Zip Code | City/Town         | County    | State | Discharges (FY22) |
|----|----------|-------------------|-----------|-------|-------------------|
| 1  | 02136    | Hyde Park         | Suffolk   | MA    | 119               |
| 2  | 02131    | Roslindale        | Suffolk   | MA    | 98                |
| 3  | 02124    | Dorchester Center | Suffolk   | MA    | 91                |
| 4  | 02132    | West Roxbury      | Suffolk   | MA    | 91                |
| 5  | 02130    | Jamaica Plain     | Suffolk   | MA    | 87                |
| 6  | 02026    | Dedham            | Norfolk   | MA    | 75                |
| 7  | 02062    | Norwood           | Norfolk   | MA    | 70                |
| 8  | 02169    | Quincy            | Norfolk   | MA    | 67                |
| 9  | 02301    | Brockton          | Plymouth  | MA    | 62                |
| 10 | 02081    | Walpole           | Norfolk   | MA    | 58                |
| 11 | 02125    | Dorchester        | Suffolk   | MA    | 57                |
| 12 | 02121    | Dorchester        | Suffolk   | MA    | 56                |
| 13 | 02446    | Brookline         | Norfolk   | MA    | 55                |
| 14 | 02184    | Braintree         | Norfolk   | MA    | 54                |
| 15 | 02155    | Medford           | Middlesex | MA    | 53                |
| 16 | 02780    | Taunton           | Bristol   | MA    | 52                |
| 17 | 02115    | Boston            | Suffolk   | MA    | 49                |
| 18 | 02474    | Arlington         | Middlesex | MA    | 49                |
| 19 | 02119    | Roxbury           | Suffolk   | MA    | 48                |
| 20 | 02148    | Malden            | Middlesex | MA    | 48                |

The Applicant states that it provides care to the most acute patients with cancer in the Commonwealth, and that its Patient Panel, on average, has higher acuity conditions than most other providers' panels and tends to require more complex and prolonged inpatient management and intervention. The Applicant states that its case mix index (CMI) for medical oncology patients is higher than any other provider in the Commonwealth, based on CHIA All-Payer Claims Database (APCD) data.<sup>31</sup>

The Applicant maintains that there is insufficient inpatient bed capacity to care for higher acuity patients with cancer. The Applicant estimates that the average daily census (ADC) (the average number of inpatient stays for a day in a hospital over a designated period of time), in FY23 was approximately 116% of oncology allocated beds it manages with BWH.<sup>32</sup>

Table 12 shows CMI, average length of stay (ALOS), ADC, and patient days for BIDMC, separate from Dana-Farber and BWH, and then for BIDMC, and Dana-Farber and BWH combined. Table 12 includes CHIA data for Dana-Farber, BWH and BIDMC. The Applicant states FY23 is not yet available through

<sup>31</sup> Data Source: Center for Health Information and Analysis All-Payer Claims Database, CHIA (2022) (sourced by Massachusetts Health Data Consortium).

<sup>32</sup> From October 2022 through August 2023.

CHIA and that it omitted FY20 due to COVID-19. The Applicant explained that compared to the ADC for CY19, the COVID-19 pandemic had a significant impact on the ADC in the following year citing a 13%, 59%, and 21% reduction in its daily census in its licensed beds in March, April and May of 2020. Additionally, the Applicant states that between March and December 2020, its ADC had decreased by approximately 16% as compared to the ADC for CY19.

**Table 12: Patient Days, ALOS, ADC and CMI, by Hospital**

|                          | FY18   | FY19   | FY20 | FY21   | FY22   | FY23 | % Change<br>FY18-FY22 |
|--------------------------|--------|--------|------|--------|--------|------|-----------------------|
| <b>Patient Days</b>      |        |        |      |        |        |      |                       |
| Dana-Farber/BWH          | 61,359 | 65,983 | -    | 60,737 | 68,031 | -    | 11%                   |
| BIDMC                    | 29,983 | 29,653 | -    | 31,641 | 31,574 | -    | 5%                    |
| Combined                 | 91,342 | 95,636 | -    | 92,378 | 99,605 | -    | 9%                    |
|                          |        |        |      |        |        |      |                       |
| <b>ALOS (in Days)</b>    |        |        |      |        |        |      |                       |
| Dana-Farber/BWH          | 7.5    | 7.75   | -    | 7.79   | 8.50   | -    | 13%                   |
| BIDMC                    | 7.61   | 7.32   | -    | 8.24   | 8.83   | -    | 16%                   |
| Combined                 | 7.54   | 7.61   | -    | 7.94   | 8.60   | -    | 14%                   |
|                          |        |        |      |        |        |      |                       |
| <b>ADC (in Patients)</b> |        |        |      |        |        |      |                       |
| Dana-Farber/BWH          | 168.1  | 180.8  | -    | 166.4  | 186.4  | -    | 11%                   |
| BIDMC                    | 82.1   | 81.2   | -    | 86.7   | 86.5   | -    | 5%                    |
| Combined                 | 250.3  | 262    | -    | 253.1  | 272.9  | -    | 9%                    |
|                          |        |        |      |        |        |      |                       |
| <b>CMI</b>               |        |        |      |        |        |      |                       |
| Dana-Farber/BWH          | 2.06   | 2.19   | -    | 2.10   | 2.48   | -    | 20%                   |
| BIDMC                    | 1.71   | 1.71   | -    | 1.85   | 2.23   | -    | 30%                   |
| Combined                 | 1.95   | 2.04   | -    | 2.02   | 2.40   | -    | 23%                   |

The Applicant notes that not all allocated oncology beds are in private rooms, and that many overflow patients are being cared for in ED beds and at times, in hallways, and in other M/S beds that are located in two separate buildings and distributed among eight floors with multiple areas on each floor. The Applicant states that when the inpatient census exceeds the number of oncology beds, approximately 15% to 25% of inpatient cancer patients are located in beds that are not staffed by oncology-trained nurses.

The Applicant states that over the past ten years the number of innovative, complex treatments that require inpatient hospitalization for either the administration or monitoring of the therapy has increased, which in turn increases need for inpatient capacity. The Applicant provided the following examples of treatments for patients with cancer with complex diagnoses requiring inpatient admission:

- **Induction Therapy:** A type of chemotherapy, and the first phase of treatment for Acute Lymphoblastic Leukemia (ALL), a cancer of the bone marrow and blood, typically requires a hospital stay of four to six weeks, with frequent needs for subsequent readmissions.<sup>w</sup>
- **CAR T-cell therapy:** A cancer immunotherapy treatment for many types of blood cancers that uses the body's own immune system to help fight cancer. The Applicant states that CAR T-cell therapy usually involves an inpatient stay and can cause serious side effects or complications that can require an inpatient stay.<sup>33,x</sup> Per a reference provided by the Applicant on the development of an outpatient CAR T-cell therapy program at a tertiary care center, CAR T-cell treatment can result in hospitalization up to 70% of the time.<sup>y,34</sup>
- **Stem Cell Transplantation:** The Applicant states that it has the second largest stem cell transplant program in country, and that stem cell transplantation is associated with long inpatient stays.<sup>35</sup> The Applicant states further that even when patients receive an outpatient or ambulatory transplant, an inpatient stay can be necessary for further treatment or monitoring.<sup>z</sup>

Table 13 shows the ALOS for CAR T-cell patients, and for autologous (stem cells come from the patient with cancer) and allogenic (stem cells come from someone else) stem cell transplantations. Table 13 includes CHIA data for Dana-Farber, BWH and BIDMC. The Applicant states that FY23 is not yet available through CHIA, and no Diagnosis Related Group (DRG) was available for CAR T-cell therapy before 2022, so prior year data are not available. The Applicant states that it provided data for both Dana-Farber and BWH because patients are treated in the first bed available to them, regardless of licensee.

**Table 13: ALOS for Complex Treatments**

|                                                     | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 | % Change<br>FY18 to FY22 |
|-----------------------------------------------------|------|------|------|------|------|------|--------------------------|
| <b>Dana-Farber/BWH</b>                              |      |      |      |      |      |      |                          |
| CAR T-Cell ALOS (Days)                              | -    | -    | -    | -    | 15.2 | -    | NA                       |
| Autologous Stem Cell Transplantation<br>ALOS (Days) | 18.8 | 19.1 | 18.9 | 19.1 | 19.8 | -    | 5.3%                     |
| Allogeneic Stem Cell Transplantation<br>ALOS (Days) | 21.5 | 18.9 | 24.6 | 26.5 | 25.1 | -    | 16.7%                    |
|                                                     |      |      |      |      |      |      |                          |
| <b>BIDMC</b>                                        |      |      |      |      |      |      |                          |
| CAR T-Cell ALOS (Days)                              | -    | -    | -    | -    | 26.2 | -    | NA                       |

<sup>33</sup> The clinical toxicities of CAR T-cell therapy include cytokine release syndrome (CRS) and neurological events, particularly immune effector cell-associated neurotoxicity syndrome (ICANS), which often warrant inpatient admission for close monitoring and treatment. <https://pubmed.ncbi.nlm.nih.gov/33910041/>

<sup>34</sup> Of the 21 outpatients, 15 (71%) were admitted within 30 days after infusion, of whom five were admitted within 72 hours.

<sup>35</sup> The Applicant states that it performs approximately 600 transplants per year.

|                                                     |      |      |      |      |      |   |        |
|-----------------------------------------------------|------|------|------|------|------|---|--------|
| Autologous Stem Cell Transplantation<br>ALOS (Days) | 20.8 | 22.2 | 34.9 | 31.0 | 26.3 | - | 26.4%  |
| Allogeneic Stem Cell Transplantation<br>ALOS (Days) | 41.0 | 37.4 | 39.1 | 34.3 | 36.8 | - | -10.2% |

The Applicant maintains that because hospitalization may be necessary for some patients with cancer, projected increases in cancer prevalence, and an increasing aging population will increase the number of patients with cancer that require hospitalization throughout the course of their cancer treatment. The Applicant points to research from the Advisory Board projecting a 28% increase in inpatient oncology patients in the 75 and older age cohort in Massachusetts from 2023 to 2028.<sup>36</sup> The Applicant also noted the increase in admissions for patients who are aged 80 and older in the Applicant's Patient Panel: admissions increased by 13% from 1,138 discharges in FY18 to 1,286 discharges in FY22.<sup>37</sup> The Applicant states that comorbidities, or co-existing or co-occurring conditions, increase with increasing age, and as comorbidities increase, patient tolerance to the physical impact of both their cancer and its treatments decreases, and the frequency of hospitalizations to manage these complications increases.

To further demonstrate increasing need for inpatient cancer services the Applicant provided forecasted inpatient use rates for individuals aged 20 to 39, and for individuals aged 75 and older in New England, based on Advisory Board data. This is shown in Tables 14 and 15.<sup>38</sup> The Applicant states that Tables 14 and 15 show an association between increasing use rates for inpatient medical oncology services and increasing cancer incidence and prevalence.

**Table 14: Forecasted Medical Oncology Use Rates (20-39)**

| <b>Young Adult (20-39) Patients in New England<br/>(MA, RI, ME, NH, CT, VT)<sup>39</sup></b> | <b>10-Year Growth Rate</b> |
|----------------------------------------------------------------------------------------------|----------------------------|
| Inpatient Oncology Forecasted Use Rate per 1,000 population                                  |                            |
| Inpatient Medical Oncology / Hematology DRGs                                                 | 4.64%                      |
| Disease Prevalence Impact to Inpatient Discharges                                            |                            |
| Forecasted disease prevalence impact to<br>Inpatient Medical Oncology / Hematology DRGs      | 4.39%                      |

**Table 15: Forecasted Medical Oncology Use Rates (75 and older)**

| <b>Aged 75+ Patients in New England<br/>(MA, RI, ME, NH, CT, VT)<sup>40</sup></b> | <b>10-Year Growth Rate</b> |
|-----------------------------------------------------------------------------------|----------------------------|
| Inpatient Oncology Forecasted Use Rate per 1,000 population                       |                            |

<sup>36</sup> The Advisory Board Company, adjusted for certain factors included in The Advisory Board Company growth rates applicable only to community hospital providers.

<sup>37</sup> Based on data from the Center for Health Information and Analysis (CHIA).

<sup>38</sup> Does not take population growth into account

<sup>39</sup> Based on the Advisory Board Company data.

<sup>40</sup> Based on the Advisory Board Company data.

|                                                                                      |        |
|--------------------------------------------------------------------------------------|--------|
| Inpatient Medical Oncology / Hematology DRGs                                         | 7.96%  |
| Disease Prevalence Impact to Inpatient Discharges                                    |        |
| Forecasted disease prevalence impact to Inpatient Medical Oncology / Hematology DRGs | 11.47% |

### Shifts in Cancer Care from Inpatient to Outpatient Setting

The Applicant states that progress made in understanding the basic science behind cancer development and growth over the past decades, and the expansion of the use of therapies outside of traditional cytotoxic chemotherapy, have allowed Dana-Farber to begin offering some treatments in the outpatient setting. Examples of the movement of therapies from the inpatient to the outpatient setting that were cited by the Applicant include:

- moving several treatment regimens for hematologic malignancies from the inpatient to the outpatient setting, in 2019;
- making three CAR-T cell products and three transplant options available for outpatient administration;
- the administration of 147 cellular infusions in the outpatient setting in FY24<sup>41</sup>; and
- making T-cell engager and bispecific antibodies, a novel class of therapeutic oncology agents, more available on an outpatient basis.

The Applicant notes that it continues to offer many of the treatments that it began offering in the outpatient setting in the inpatient setting when doing so is in the best interest of the patient and when it is required for the particular treatment. The Applicant cited the example of Tarlatamab, a bispecific antibody used to treat patients with small cell lung cancer, whose manufacturer recommends patients receiving it be admitted for at least 24 hours. The Applicant affirms that as cancer care moves from the inpatient to the outpatient setting, inpatient capacity is still required because longer exposure to cancer treatments, which can result from increasing incidence of cancer, including in younger adults and people living longer with cancer, can lead to the development of toxicities and complications that require inpatient hospitalization. The Applicant states that having enough inpatient capacity allows the Applicant to offer many state-of-the-art novel treatments that require an inpatient stay.

### Cancer-Related Emergency Department Visits

Patients with cancer receive care in the emergency department (ED) to address the symptoms of cancer and cancer-related treatment.<sup>aa</sup> The Applicant states and studies report that the ED is not optimal for patients with cancer who may be immunocompromised, because these patients are at risk for complications including hospital-acquired infections, and because EDs are overcrowded and treat a variety of conditions, patients with cancer in the ED are at risk for communicable diseases.<sup>bb,cc</sup> The Applicant states that when there is limited inpatient capacity patients with cancer-

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<sup>41</sup> The Applicant states that this constitutes a more than 100% increase from FY23, and represents a savings of five inpatient beds.

related concerns often receive acute symptom management in the ED where they can experience long lengths of stay and the negative effects of ED crowding and ED boarding, which include lack of privacy, exposure to sick and potentially infectious patients, and negative health outcomes. The Applicant states further that the ED is not optimal because it lacks the specialized oncology staff and equipment that Dana-Farber provides.

In comments provided to the Department, Massachusetts Representative Ann-Margaret Ferrante detailed her experience as a patient with cancer that needed to seek care in the ED: “I undergo chemotherapy every other week for my cancer. On the occasions where I present with complications from my treatment and I am required to go to the traditional emergency room, I feel like a square peg that's unable to fit into a circle hole. At a time when my immune system is compromised because of chemotherapy, I am put into a general waiting population in the emergency room, where individuals may be present with conditions that I am going to be more susceptible to, such as respiratory viruses.”

The Applicant states that once a patient presents at the BWH ED, the patient may be treated and sent home, remain longer for observation, be admitted to a Dana-Farber licensed bed, or be admitted to a BWH-licensed bed that is managed by Dana-Farber. The Applicant, who does not currently have an ED, states that the EDs of acute care hospitals generally do not have oncology subspecialty capabilities. As a result, some patients leave the ED without being seen by a medical oncologist for cancer-specific care.

The Applicant states that because of a need for additional inpatient capacity, patients wait in the ED for an inpatient bed for days, with some patients spending their entire inpatient cancer admission in the ED due to long wait times. Table 16 shows the percent of admissions that came through the BWH ED, and Table 17 shows the ALOS in the BWH ED. Table 16 shows that in FY22, 68% of the Applicant’s admissions were admitted through BWH’s ED. The ALOS in the BWH ED increased by 36% between calendar year (CY) 2018 and 2022. Tables 16 and 17 include CHIA data for Dana-Farber and BWH. Dana-Farber states that it omitted FY20 due to COVID-19, and that FY23 is not yet available.

**Table 16: Admissions from BWH ED**

|                                           | FY18  | FY19  | FY20 | FY21  | FY22  | FY23 |
|-------------------------------------------|-------|-------|------|-------|-------|------|
| % of Admissions from BWH ED <sup>42</sup> | 66.1% | 66.8% | -    | 67.8% | 68.2% | -    |

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<sup>42</sup> The Applicant states the table includes CHIA data for Dana-Farber and BWH. Dana-Farber has omitted FY20 due to COVID-19, and FY23 is not yet available through CHIA. The CHIA dataset does not capture this metric directly. Percentage of admissions from BWH’s ED is approximated by assuming that all admissions other than “direct transfers from another hospital” and “direct admissions” (including admissions from post-acute facilities, direct from clinic, or from other healthcare or government agencies) are from the BWH ED.

**Table 17: ALOS in BWH ED**

|                                      | CY18 | CY19 | CY20 | CY21 | CY22 | CY23 | % Change<br>CY18 to<br>CY22 |
|--------------------------------------|------|------|------|------|------|------|-----------------------------|
| <b>ALOS<br/>(Hours)<sup>43</sup></b> | 6.9  | 7.3  | 7.5  | 8.7  | 9.4  | -    | 36%                         |

**Patient Transfers**

The Applicant states that additional need for inpatient capacity is demonstrated in the number of patient transfers that the Applicant cannot currently accept due to the lack of inpatient capacity. The Applicant estimates that seven patients per day who have been clinically accepted by the Applicant's medical oncologists and are awaiting a bed for transfer to one of the Applicant's licensed beds or to one of the BWH-licensed beds that are managed by the Applicant's medical oncologists, are unable to transfer due to limited inpatient capacity. The Applicant states that the number of patients that cannot be transferred includes patients established under the Applicant's care who have been receiving their ambulatory care with the Applicant, and newly diagnosed patients, seeking transfers from outside emergency rooms or inpatient settings, and clinically accepted for transfer. The Applicant maintains that the inability to transfer patients disrupts patient care, leads to fragmented care and poorer health outcomes, and increases the cost of providing cancer care. The Applicant states that only one patient per day is able to be offered transfer to one of the Applicant's licensed beds or to one of the BWH-licensed beds that are managed by the Applicant's oncologists. The Applicant estimates that approximately 300 patients were transferred to Dana-Farber licensed beds or BWH-licensed beds that are managed by the Applicant's medical oncologists, from outside facilities in FY22 and in FY23.

In response to staff inquiry about the potential sources of admission to the proposed hospital, the Applicant states that it does not anticipate that 60% of inpatients in the proposed hospital will be admitted through the BIDMC ED, but still maintains that a significant percentage likely will be. The Applicant states further that because the proposed hospital will provide additional inpatient capacity, the Applicant envisions that inpatient admissions will occur through a number of additional pathways, that include the outpatient environment, elective admissions, admissions from observation beds, admissions from the expanded Dana-Farber oncology-specific Acute Care Clinic, transfers from other general acute care hospitals, and transfers from post-acute facilities and nursing homes. The Applicant maintains that the additional inpatient capacity that will result from the Proposed Project will reduce ED wait times, increase timely access to inpatient beds for patients waiting in the ED, and allow more patients to move more efficiently between care settings.

**Post-Acute Care**

The Applicant states 7% of its discharges are to post-acute facilities, compared to 13% statewide,

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<sup>43</sup> Includes CHIA Data from Massachusetts Health Data Consortium for all BWH ED patients. The dataset calculates Length of Stay "by subtracting the arrival date and time from the departure date and time and is reported in hours."

and that the Applicant is experiencing post-acute care challenges. The Applicant maintains that patients with cancer discharged to post-acute facilities have different care plans than other medical and surgical patients, and that these patients need increased coordination for the continued management of their oncology care. The Applicant states that Vizient proprietary Clinical Data Base which the Applicant accessed on May 20, 2024, shows that other hospitals in the Alliance of Dedicated Cancer Centers<sup>44</sup>, discharge patients more efficiently to skilled nursing facilities than the Applicant. The Applicant states that the proposed hospital will address the inefficiencies and delays that patients are currently experiencing surrounding their discharge to post-acute facilities, by employing discharge staff with specialized expertise in discharge planning for oncology patients. The Applicant states that these discharge staff with specialized training will work to decrease inefficiencies for patients with cancer who are transferred to post-acute sites.

#### National Need for Inpatient Cancer Beds

The Applicant states that it has a significant patient base outside of the Commonwealth, and that patients travel from around the country and the world to receive the Applicant's care. For this reason, the Applicant states that its most comparable peers are NCI-designated Comprehensive Cancer Centers beyond the greater Boston area and include Memorial Sloan Kettering Cancer Center; Moffitt Cancer Center; MD Anderson Cancer Center; City of Hope; and The James Cancer Hospital and Solove Research Institute. The Applicant states that its national peers have or are currently undergoing significant inpatient expansions that include up-to-date technology and treatment tools, to respond to projected increases in cancer rates and need for inpatient treatment.

In response to staff inquiry about the factors that were compared across its national peers when evaluating the Applicant's Patient Panel need, the Applicant cited the higher average age of New England oncology patients where 19% of oncology patients are aged 65 and older as compared to 17.3% nationally.<sup>dd</sup> The Applicant states that it was not able to examine existing statewide inpatient capacity for advanced cancer care amongst its national peers because comparative data were not readily available. The Applicant states further that it has not modeled its out-of-state and international market share.

#### **PROJECTED BED NEED**

The Applicant projects that by 2032, there will be a need by its Patient Panel for approximately 384 inpatient beds dedicated to the advanced cancer care that the Applicant provides. This is shown in Table 18, which was included in the Applicant's DoN application submission.

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<sup>44</sup> The Alliance of Dedicated Cancer Centers (ADCC) is made up of America's leading cancer centers: City of Hope Cancer Center Duarte, CA; Dana-Farber Cancer Institute Boston, MA; Fox Chase Cancer Center Philadelphia, PA; The James Comprehensive Cancer Center Columbus, OH; Moffitt Cancer Center Tampa, FL; The University of Texas MD Anderson Cancer Center Houston, TX; Memorial Sloan Kettering Cancer Center New York, NY; Roswell Park Cancer Institute Buffalo, NY; Seattle Cancer Care Alliance Seattle, WA; and USC Norris Comprehensive Cancer Center Los Angeles, CA.

**Table 18: Projected Inpatient Bed Need<sup>45,46</sup>**

| #1                           | #2                                   | #3          | #4                            | #5                         | #6                               | #7                                      | #8                             | #9             |
|------------------------------|--------------------------------------|-------------|-------------------------------|----------------------------|----------------------------------|-----------------------------------------|--------------------------------|----------------|
| <u>Bed Types</u>             | <u>2022 Discharges</u> <sup>47</sup> | <u>ALOS</u> | <u>2022 ADC</u> <sup>48</sup> | <u>10-year growth rate</u> | <u>Projected 2032 Discharges</u> | <u>Projected 2032 ADC</u> <sup>49</sup> | <u>Projected 2032 bed need</u> | <u>85% Occ</u> |
| <b>Medical Oncology Beds</b> |                                      |             |                               |                            |                                  |                                         |                                |                |
| Cell Therapies (BMT & CAR)   | 464                                  | 23.9        | 30.4                          | 46.0%*                     | 678                              | 44.4                                    | 53                             | 52.2           |
| Neuro Oncology               | 828                                  | 7.1         | 16.0                          | 10.8%**                    | 917                              | 17.7                                    | 23                             | 20.8           |
| Palliative Care              | 953                                  | 10.0        | 26.1                          | 10.8%**                    | 1,055                            | 28.9                                    | 36                             | 34.0           |
| Young Adult Oncology         | 875                                  | 8.4         | 20.2                          | 18.5%**                    | 1,041                            | 23.9                                    | 30                             | 28.2           |
| Geriatric Oncology           | 1,371                                | 7.9         | 29.7                          | 34.8%**                    | 1,848                            | 40.0                                    | 48                             | 47.1           |
| Medical Oncology             | 7,085                                | 6.9         | 134.2                         | 10.8%**                    | 7,861                            | 148.7                                   | 169                            | 174.9          |
| <b>Intensive Care Beds</b>   |                                      |             |                               |                            |                                  |                                         |                                |                |
| Oncology ICU <sup>50</sup>   |                                      | 4.1         | 16.2                          | 10.8%**                    |                                  | 18.0                                    | 25                             | 21.1           |
| <b><u>TOTAL/AVERAGE</u></b>  | <b>11,576</b>                        | <b>8.6</b>  | <b>272.9</b><br><sub>51</sub> | <b>17.9%</b>               | <b>13,400</b>                    | <b>321.6</b>                            | <b>384</b>                     | <b>378.4</b>   |

\* Source: Sg2

\*\*Source: The Advisory Board Company, adjusted for certain factors included in The Advisory Board Company growth rates applicable only to community hospital providers.

The Applicant states that projected need for inpatient beds is based on conservative assumptions, and does not account for higher census days, above the average, nor does it account for future growth stemming from increasing cancer rates.

The Applicant anticipates that the proposed hospital will open approximately four years from the receipt of required regulatory approvals and completion of demolition of the existing building at 1 Joslin Place. Table 19 shows the Applicant's projected discharges from Year 1 through Year 5 of

<sup>45</sup> The Applicant states that this table does not include data for 2020 due to COVID-19. Analysis completed using data obtained from the Massachusetts Health Data Consortium based on CHIA Inpatient Case Mix data and includes patient volumes and days from cancer patients within the Applicant's beds and BWH beds as well as BIDMC cancer patients. Projections through 2032 based on Advisory Board projections for oncology patients in Massachusetts, filtered for Geriatric ages and Young adult age cohort.

<sup>46</sup> The Applicant states that numbers may not total due to rounding.

<sup>47</sup> The Applicant states that while precise discharge data for all such patients is available to the Applicant as part of its existing collaboration, portions of that data are proprietary to BWH, and the Applicant is restricted from disclosing it in this Application due to confidentiality restrictions.

<sup>48</sup> 2022 ADC = Actual Patient Days (sourced from CHIA for 2022)/365.

<sup>49</sup> 2032 ADC = Forecasted Patient Days/365. Forecasted Patient Days = Forecasted discharges x ALOS. For 2032, the forecast was applied to discharges and the ALOS was kept flat.

<sup>50</sup> ICU ADC was calculated using total 2022 ADC less the portion of ADC attributable to cell therapy and palliative care.

<sup>51</sup> For the FY22 ADC, the Applicant attributes 186.4 patients to the Applicant and 86.7 to BIDMC-managed patients.

project implementation.

**Table 19: Projected Discharges**

|                      | <b>Year 1<br/>2028</b> | <b>Year 2<br/>2029</b> | <b>Year 3<br/>2030</b> | <b>Year 4<br/>2031</b> | <b>Year 5<br/>2032</b> | <b>% Change<br/>Y1-Y5</b> |
|----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|---------------------------|
| Inpatient Discharges | 9,689                  | 11,832                 | 11,901                 | 12,064                 | 12,111                 | 25%                       |

The Applicant states that it is proposing to construct a 300-bed inpatient hospital because that is the capacity that can be accommodated on the land available, given applicable budgeting, design, and permitting constraints. The proposed inpatient hospital does not include any shell space for future build out.

The Applicant expects its Patient Panel will include the patients with cancer it has historically cared for, as well as patients with cancer previously admitted to BIDMC but who require the sort of advanced cancer care the Applicant will provide at the proposed hospital. The Applicant states that it expects that the hospital will absorb all inpatient medical oncology from BIDMC. The proposed hospital will not have surgical capabilities. BIDMC will serve as the Applicant's clinical partner for surgical oncology services. The Applicant states that it anticipates that a significant percentage of patients currently receiving surgical oncology services at BWH and some receiving surgical oncology services at MGH will begin receiving such services from BIDMC.

The proposed hospital will not treat pediatric patients. The Applicant states that it has a longstanding collaboration with Boston Children's Hospital whereby inpatient pediatric oncology care is provided at Boston Children's Hospital. The Applicant cited a published study on the importance of children's hospitals, and their focus on the unique needs of pediatric patients to demonstrate the importance of the collaboration with Boston Children's Hospital for the provision of inpatient pediatric oncology care.<sup>ee</sup> The study, published in 2019, notes that in the United States, children's hospitals perform 90% of all pediatric cancer care.

The Applicant maintains that need for the Proposed Project is demonstrated in its patient population, and in that of BIDMC, and therefore it does not anticipate that the proposed hospital will draw patients from other hospitals. The Applicant discussed existing processes in place to keep care local, processes that it states will be expanded on through the Proposed Project. These include providing consultations with other providers in the Commonwealth, and a review by the Applicant's attending physicians of all outside hospital transfers to ensure that the care delivered on Longwood Medical campus and in the hospital is appropriate.

#### *Inpatient Bed Need Methodology*

Included below is an overview of the steps the Applicant undertook to project the need by its Patient Panel:

- Estimated 2022 discharges (column #2), based on specific discharge level ICD-10 diagnoses codes for patients seen by the Applicant's medical oncologists and BIDMC who would require the sort of inpatient cancer care that will be provided at the proposed hospital.

- Calculated 2022 ADC (column #4), by multiplying 2022 discharges by the Applicant's historical ALOS and dividing by 365. The Applicant states that level of patient discharges and the ADC derived from these calculations are consistent with the Applicant's internal data, which the Applicant cannot disclose due to confidentiality restrictions. Approximately 30-35% of the historic ADC shown in column #4 is attributable to patients with cancer discharged from BIDMC.<sup>52</sup>
- Projected 2032 ADC (column #7), by applying national industry average 10-year growth rates sourced from Sg2 and The Advisory Board Company to the ADC.
- Calculated the minimum number of beds needed (column #8) to accommodate the projected 2032 ADC using an industry standard statistical analysis, a Poisson distribution model, using a 90% confidence interval. Column #9 shows projected bed need based on occupancy rate (85%), which is another calculation commonly used to evidence need.<sup>ff</sup>

#### *ICU Bed Methodology*

The Applicant states that a portion of admitted patients will require intensive care. Included below is an overview of the steps the Applicant took to project the need by its Patient Panel for 20 ICU beds:

- Reviewed Medicare cost report data for certain of its peer comprehensive cancer centers and found that the ICU census of those hospitals ranged from 7% to 14% of total ADC
- Assumed a census of 7.5%, because a number of those peer hospitals perform surgeries within their inpatient facilities, requiring somewhat greater ICU capacity<sup>53</sup>

#### *Observation-level Bed Need Methodology*

Included below is an overview of the steps the Applicant undertook to project the need by its Patient Panel for 20 observation beds:

- Used internal billing data for Dana-Farber to estimate the number of annual observation discharges in its licensed and managed beds and used CHIA data for BIDMC, to estimate the number of annual observation discharges at BIDMC attributable to patients with a cancer diagnosis
- Applied an average growth rate assumption of 16% to arrive at an estimate of observation level discharges in 2032<sup>54</sup>
- Used an estimated ALOS of two days for observation-level patients to estimate ADC of observation-level patients
- Used the ADC estimate to determine the number of observation-level beds necessary to satisfy Patient Panel need

The DoN application materials and responses include a complete description of the Applicant's

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<sup>52</sup> The Applicant states that the calculated historical ADC does not include, due to lack of information and difficulty in calculation, seven patients per day that the Applicant is unable to accept transfer of to one of the Applicant's licensed beds or to one of the BWH-licensed beds that are managed by the Applicant's medical oncologists due to capacity constraints.

<sup>53</sup> The Applicant states 7.5% is on the lower end of its peer hospitals and consistent with the Applicant's own experience.

<sup>54</sup> Based on average historical growth of observation discharges for Dana-Farber and BIDMC over the last three years.

methodology for calculating bed need.

The Applicant states that the observation unit in the proposed hospital will complement the Applicant's existing oncology-specific Acute Care Clinics by providing an opportunity to expand upon the Applicant's use of oncology-focused urgent treatment. The Applicant states that it currently operates two oncology-specific acute care clinics: the first clinic opened in 2018 and is located at the Yawkey Center for Cancer Care in the Longwood Medical Area, and the second clinic opened in 2021 and is located at the Applicant's adult practice site at Chestnut Hill. The Applicant states that the clinics operate Monday through Friday during regular business hours, and referrals to the clinic cannot be accepted past 5PM, because the clinic closes at 8:30PM. The Applicant states that the proposed observation unit will support continuity of care, and reduce unnecessary admissions, because it will provide care from oncology providers for patients who are seen in the clinic past the oncology-specific acute care clinics hours of operation but who have not yet had their workups completed. There were 734 visits at the Longwood clinic and 559 visits at the Chestnut Hill clinic between October 1, 2023 and September 30, 2024.

The Applicant states that it is one of only a few hospital in the Commonwealth that are equipped to provide sophisticated and complex cancer therapies, and that the few hospitals that do offer the services are experiencing capacity constraints that limit inpatient beds which then limits their ability to offer the therapies than can require a lengthy inpatient stay. In terms of inpatient capacity, the Applicant states that inadequate capacity at general acute care hospitals in the Commonwealth is well-documented citing articles stating that the Department designated all hospitals in Eastern Massachusetts as "Tier 3" indicating a "high risk for or active constraints in capacity," with a capacity Tier of "0" indicating a steady state, and Tier 4, the highest, warranting Department intervention<sup>gg,hh</sup>, and that hospitals are experiencing ED crowding, and an increase in ED boarding.<sup>ii</sup>

Staff examined the number of staffed<sup>55</sup> and occupied<sup>56</sup> M/S and ICU beds at Academic Medical Centers (AMCs)<sup>57</sup> in Massachusetts from January 2022 to August 2024<sup>58</sup> to better understand bed occupancy rates at these hospitals that provide some of the same specialized services as the Applicant. The hospitals included in the analysis are listed in Table 20.

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<sup>55</sup> Facilities self-report daily staffed beds by bed type to WebEOC.

<sup>56</sup> Facilities self-report daily occupied beds by bed type to WebEOC.

<sup>57</sup> Per CHIA Hospital Type.

<sup>58</sup> Data as of 9/18/2024 WebEOC.

**Table 20: Massachusetts Academic Medical Centers (AMCs)**

| Health System                       | Hospital Name                                             | Hospital Type | Location  | CHIA Region  | Licensed Beds <sup>59</sup> | M/S Beds | ICU Beds |
|-------------------------------------|-----------------------------------------------------------|---------------|-----------|--------------|-----------------------------|----------|----------|
| Beth Israel Lahey Health            | Beth Israel Deaconess Medical Center (BIDMC)              | AMC           | Boston    | Metro Boston | 766                         | 556      | 92       |
| Boston Medical Center Health System | Boston Medical Center Menino Pavilion <sup>60</sup> (BMC) | AMC           | Boston    | Metro Boston | 594                         | 265      | 55       |
| Mass General Brigham                | Brigham and Women's Hospital (BWH)                        | AMC           | Boston    | Metro Boston | 826                         | 620      | 89       |
| Mass General Brigham                | Massachusetts General Hospital (MGH)                      | AMC           | Boston    | Metro Boston | 1,045                       | 789      | 101      |
| Tufts Medicine                      | Tufts Medical Center (TMC)                                | AMC           | Boston    | Metro Boston | 346                         | 192      | 50       |
| UMass Memorial Health Care          | UMass Memorial Medical Center/ MEM Campus (UMass MEM)     | AMC           | Worcester | Central MA   | 302                         | 187      | 9        |
| UMass Memorial Health Care          | UMass Memorial Medical Center/ Univ Campus (UMass Univ)   | AMC           | Worcester | Central MA   | 421                         | 275      | 64       |

Staff analysis of AMC inpatient capacity based on occupancy rates was limited to licensed, staffed and occupied M/S and ICU beds because the Proposed Project is focused on the addition of M/S and ICU beds. To assess each AMC's capacity for additional patients requiring inpatient cancer care, staff calculated occupancy rates based on the monthly average licensed, staffed and occupied M/S and ICU bed counts.<sup>61</sup> Surge beds were included.<sup>62</sup> Staff considered hospitals above industry standard maximum occupancy rate of 85% for M/S beds and 75% for ICU beds. Staff assumed that the occupancy rate for each month is somewhere between the ratio of occupied to staffed beds, and the ratio of occupied beds to licensed beds. Staff found that of the AMCs under examination, most exceeded 85% occupancy for M/S beds and 75% occupancy for ICU beds for each of the months

<sup>59</sup> Beds are licensed by the Division of Health Care Facility Licensure and Certification in accordance with 105 CMR 130. Each license specifies the total number of beds within the hospital and the number of beds in each specific service for which the hospital is licensed. Licensed M/S and ICU bed numbers are from the facility's current DPH hospital license and are the maximum number of beds of a certain type that the facility could have.

<sup>60</sup> Boston Medical Center license includes 100 beds out of service, and 80 beds as part of an inpatient satellite (BMC Brockton Behavioral Health Center).

<sup>61</sup> The following equations were used:

- Occupied(M/S)/Staffed (M/S), and Occupied(M/S)/Licensed(M/S)
- Occupied(ICU)/Staffed (ICU), and Occupied(ICU)/Licensed (ICU)

<sup>62</sup> Can include unlicensed beds that can be opened and staffed within 48 hours in an emergency or when regular bed capacity has passed 100% occupancy, as well as licensed beds that can be opened, staffed, and repurposed within 48 hours to be used for something other than their licensed purpose. Capacity Data Reporting Requirements: Appendix A.

during the January 2022 to August 2024 time period under examination. Please see Appendix II for average occupancy rates for each of the AMCs under consideration.

The Applicant states that Dana-Farber provides access to complex and novel therapies, all of which the Applicant states require or may lead to potentially lengthy inpatient stays and are expanding in their prevalence. The Applicant provided the following examples of its expertise in the provision of the most complex, sophisticated, and innovative oncology care in the Commonwealth: Between 2022 and 2023, the Applicant performed more transplants than any other provider in the Commonwealth offering at least one of the two types of bone marrow transplants (allogeneic and autologous); the Applicant performed more than 75% of all such transplants in the Commonwealth between 2022 and 2023; and the Applicant performed more than five times the amount of the next most frequent provider.

Table 21 shows data obtained from a Directory of Transplant Centers, which was referenced by the Applicant. The table shows transplants performed from 2021 through 2023. Zeros or blank cells mean the center has not yet provided data for that year.

**Table 21: Transplant Centers, Massachusetts<sup>jj</sup>**

|                                                                          | Transplant Program | Transplants Performed <sup>63</sup> |      |      |
|--------------------------------------------------------------------------|--------------------|-------------------------------------|------|------|
| Center                                                                   | Type               | 2021                                | 2022 | 2023 |
| Dana-Farber Cancer Institute/Brigham & Women's Hospital <sup>64</sup>    | Autologous         | 193                                 | 190  | 159  |
|                                                                          | Allogeneic         | 265                                 | 281  | 281  |
| Massachusetts General Hospital Bone Marrow Transplant Unit <sup>65</sup> | Autologous         | 62                                  | 56   | -    |
|                                                                          | Allogeneic         | 99                                  | 107  | -    |
| Beth Israel Deaconess Medical Center <sup>66</sup>                       | Autologous         | 21                                  | 27   | -    |
|                                                                          | Allogeneic         | 30                                  | 23   | -    |
| UMass Memorial Medical Center <sup>67</sup>                              | Autologous         | 27                                  | 22   | 28   |
|                                                                          | Allogeneic         | 24                                  | 11   | 15   |
| Tufts Medical Center <sup>68</sup>                                       | Autologous         | 22                                  | 21   | -    |
|                                                                          | Allogeneic         | 8                                   | 8    | -    |
| Boston Medical Center <sup>69</sup>                                      | Autologous         | 10                                  | 17   | 10   |
| Lahey Hospital & Medical Center <sup>70</sup>                            | Autologous         | 13                                  | 10   | -    |

<sup>63</sup> Adult transplants, Autologous, and Allogeneic (includes Allogeneic Related and Allogeneic Unrelated).

<sup>64</sup> Foundation for the Accreditation of Cellular Therapy (FACT) Approved Autologous and Allogeneic.

<sup>65</sup> FACT Approved Autologous and Allogeneic.

<sup>66</sup> FACT Approved Autologous and Allogeneic.

<sup>67</sup> FACT Approved Autologous and Allogeneic.

<sup>68</sup> FACT Approved Autologous and Allogeneic.

<sup>69</sup> FACT Approved Autologous.

<sup>70</sup> FACT Approved Autologous.

The Applicant provided data on the use of CAR T-cell therapy to demonstrate its expertise in the provision of this treatment. The Applicant states that between 2022 and 2023, of the six CAR T-cell providers, it was one of three providers of CAR T-cell therapy in the Commonwealth that offered the greatest variety of CAR T-cell products to patients; it performed more CAR T-cell therapy than any other provider; and it performed approximately 75% of all CAR T-cell therapy in the Commonwealth which is more than five times the amount of the next most frequent provider.

Table 22 shows data obtained from a Directory of CAR-T cell Therapy Centers, which was referenced by the Applicant. Table 22 shows CAR T-cell therapy performed from 2021, through 2023. Dashes or blank cells mean the center has not yet provided data for that year or the program had not yet been established.

**Table 22: CAR T-Cell Therapy Centers, Massachusetts<sup>kk</sup>**

|                                                              | CAR T-cell Products                                     | CAR T-cell therapies performed |      |      |
|--------------------------------------------------------------|---------------------------------------------------------|--------------------------------|------|------|
| Center                                                       |                                                         | 2021                           | 2022 | 2023 |
| Dana-Farber/Brigham & Women's Cancer Institute <sup>71</sup> | Abecma, Breyanzi, Carvykti, Kymriah, Tecartus, Yescarta | 103                            | 153  | 159  |
| Massachusetts General Hospital <sup>72</sup>                 | Abecma, Breyanzi, Carvykti, Kymriah, Tecartus, Yescarta | 43                             | 59   | -    |
| Beth Israel Deaconess Medical Center <sup>73</sup>           | Abecma, Breyanzi, Carvykti, Kymriah, Tecartus, Yescarta | 20                             | 28   | -    |
| UMass Memorial Medical Center <sup>74</sup>                  | Kymriah, Tecartus, Yescarta                             | 0                              | 7    | 6    |
| Boston Medical Center <sup>75</sup>                          | Abecma, Breyanzi, Kymriah, Tecartus, Yescarta           | -                              | -    | 4    |
| Tufts Medical Center <sup>76</sup>                           | Kymriah                                                 | 2                              | -    | -    |

The Applicant maintains that the examples described above further support the Applicant's assertion that Dana-Farber is best equipped to oversee the expansion of complex and novel therapies within the proposed hospital.

## IMAGING EQUIPMENT

The Applicant affirms that imaging is an essential component of cancer treatment because imaging equipment assists in the detection and diagnosis of cancers, the determination of a cancer's spread,

<sup>71</sup> CAR T-cell Therapy Program Opened in 2018. FACT Approved.

<sup>72</sup> CAR T-cell Therapy Program Opened in 2017. FACT Approved.

<sup>73</sup> CAR T-cell Therapy Program Opened in 2016. FACT Approved.

<sup>74</sup> CAR T-cell Therapy Program Opened in 2022.

<sup>75</sup> CAR T-cell Therapy Program Opened in 2022.

<sup>76</sup> CAR T-cell Therapy Program Opened in 2019. FACT Approved.

the approach for delivering certain treatments, and the assessment of the efficacy of a particular treatment. Additionally, imaging is essential in the inpatient setting to detect and treat non-oncologic conditions such as infection, trauma, or other acute conditions.

The Applicant currently has 2 MRIs, 3 CT units, and 2 PET-CTs on its Longwood Campus at 44 Binney Street, Boston, MA and the Applicant expects that all the imaging equipment will remain at Binney Street following project implementation. The Applicant is proposing to add 2 MRIs, two CT units, and one PET-CT as part of the Proposed Project.

To understand Patient Panel need for imaging equipment, the Applicant provided historical utilization of imaging equipment by the Applicant's inpatients in its 30 licensed beds. Table 23 shows Inpatient Imaging Equipment utilization from FY18 to FY23 in the Applicant's 30 licensed beds by the Applicant's Patient Panel.

**Table 23: Inpatient Imaging Equipment Utilization<sup>77</sup>**

| Metric                                     | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  | % Change<br>FY18 to FY23 |
|--------------------------------------------|-------|-------|-------|-------|-------|-------|--------------------------|
| <b>Discharges</b>                          | 1,303 | 1,566 | 1,420 | 1,436 | 1,297 | 1,300 |                          |
| MRI                                        |       |       |       |       |       |       |                          |
| Inpatient Scans                            | 313   | 267   | 387   | 538   | 497   | 504   | 61%                      |
| Percentage of Inpatients<br>Requiring Scan | 24%   | 17%   | 27%   | 37%   | 38%   | 39%   |                          |
|                                            |       |       |       |       |       |       |                          |
| CT                                         |       |       |       |       |       |       |                          |
| Inpatient Scans                            | 699   | 684   | 714   | 917   | 882   | 908   | 30%                      |
| Percentage of Inpatients<br>Requiring Scan | 54%   | 44%   | 50%   | 64%   | 68%   | 70%   |                          |
|                                            |       |       |       |       |       |       |                          |
| PET-CT                                     |       |       |       |       |       |       |                          |
| Inpatient Scans                            | 32    | 38    | 38    | 68    | 56    | 50    | 56%                      |
| Percentage of Inpatients<br>Requiring Scan | 2%    | 2%    | 3%    | 5%    | 4%    | 4%    |                          |

The Applicant notes that the percentage of oncology admissions requiring use of Inpatient Imaging Equipment increased 28% for MRI scans, 24% for CT scans, and 47% for PET-CT scans between 2020 and 2022. The Applicant attributes the increase in utilization of imaging equipment during this period to (1) the receipt of care that was delayed by patients during the COVID-19 pandemic which includes patients presenting with more advanced disease requiring imaging, and (2) general

<sup>77</sup> The Applicant states that the table includes imaging equipment utilization for inpatient patients under the care of the Applicant's oncologists in the Applicant's 30 licensed beds and that the data were derived in part using imaging order data due to contractual confidentiality restrictions.

increases in the incidence and prevalence of cancer cases.

Table 24 shows utilization of imaging equipment by the Patient Panel in the outpatient setting.

**Table 24: Outpatient Imaging Equipment Utilization, Longwood Medical Campus**

| Scans  | FY18   | FY19   | FY20   | FY21   | FY22   | FY23   | % Change<br>FY18 to FY23 |
|--------|--------|--------|--------|--------|--------|--------|--------------------------|
| MRI    | 6,830  | 8,120  | 7,845  | 11,896 | 14,266 | 14,948 | 119%                     |
| CT     | 32,228 | 33,611 | 31,505 | 38,487 | 43,593 | 44,467 | 37%                      |
| PET-CT | 5,465  | 5,825  | 5,610  | 6,214  | 6,828  | 8,646  | 58%                      |

The Applicant reported a 81% increase in MRI scans, 38% increase in CT scans and 22% increase in PET-CT scans between 2021 and 2023. The Applicant attributes the increase in utilization of imaging equipment in the outpatient setting to the opening of the Applicant's site in Chestnut Hill in 2021, as well as to the following: (1) the receipt of care delayed by patients during the COVID-19 pandemic which includes patients presenting with more advanced disease requiring imaging; (2) general increases in the incidence and prevalence of cancer cases; (3) increases in the number of commercially available diagnostic radiotracers, allowing PET-CTs to be deployed to assist in the diagnosis of more types of cancer; and (4) the launch of an early detection program to find cancers earlier when they can more often be cured.

Table 25 shows inpatient imaging wait times and Table 26 shows outpatient imaging wait times.<sup>78</sup>

**Table 25: Average Inpatient Imaging Wait Times in Hours**

| Modality | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|----------|------|------|------|------|------|------|
| CT       | 4.5  | 4.6  | 4.6  | 5.0  | 4.8  | 5.6  |
| MRI      | 11.4 | 10.5 | 10.2 | 14.9 | 20.5 | 18.5 |
| PET-CT   | 33.7 | 40.3 | 39.3 | 39.8 | 59.4 | 51.2 |

**Table 26: Average Outpatient Imaging Wait Times in Days**

| Modality | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|----------|------|------|------|------|------|------|
| CT       | 2.5  | 2.1  | 2.9  | 1.9  | 1.6  | 1.6  |
| MRI      | 2.6  | 2.1  | 2.4  | 2.3  | 2.5  | 2.8  |
| PET-CT   | 2.3  | 5.6  | 5.2  | 9.1  | 22.6 | 12.9 |

The Applicant states that the proposed imaging devices are anticipated to provide same-day service for urgent appointments, and same-day access for inpatients, thereby facilitating patient progression. The Applicant anticipates providing outpatients with ordered imaging services within

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<sup>78</sup> The Applicant states that Dana-Farber calculates inpatient imaging "wait time" by measuring, in hours, the difference between the time the service is ordered by a physician and the time it is completed. Measurement includes data for Dana-Farber-licensed beds only and excludes orders with emergency priority. For outpatient imaging, Dana-Farber calculates "wait time" by the number of hours from the time of order to third next available appointment (calendar days). This does not include same-day orders with emergency priority.

three days of the order.

**Projected Need for Imaging Equipment**

The Applicant is proposing to add 2 MRI units, 2 CT units, and 1 PET-CT unit. Table 27 shows the Applicant's throughput assumptions and Table 28 shows the Applicant's projected need for imaging equipment, based on throughput. The Applicant states that there will be more than one CT scanner both to accommodate surge capacity and to ensure redundancy. The Applicant anticipates using the entirety of the new MRI machines to service inpatients, so outpatient MRI volume projections were not incorporated into the need calculations.

**Table 27: Inpatient and Outpatient Imaging Equipment Throughput Assumptions**

| Equipment         | Days/Year | Hours/Day | Patient Time (hr.) | Efficiency | Throughput          |
|-------------------|-----------|-----------|--------------------|------------|---------------------|
| <b>Inpatient</b>  |           |           |                    |            |                     |
| CT                | 365       | 10        | 0.5                | 85%        | 9,928 <sup>79</sup> |
| MRI               | 365       | 10        | 1.00               | 85%        | 3,103               |
| PET-CT            | 312       | 10        | 0.75               | 85%        | 3,536               |
| <b>Outpatient</b> |           |           |                    |            |                     |
| CT                | 250       | 10        | 0.33               | 85%        | 10,200              |
| PET-CT            | 250       | 10        | 0.50               | 85%        | 4,118               |

**Table 28: Projected Need for CT, MRI, and PET-CT with Proposed Project**

| Metric                              | 2032          | Metric                               | 2032         | Metric                                  | 2032         |
|-------------------------------------|---------------|--------------------------------------|--------------|-----------------------------------------|--------------|
| CT Applied Scan Ratio               | 0.62          | MRI Applied Scan Ratio               | 0.36         | PET-CT Applied Scan Ratio               | 0.04         |
| Projected Inpatient CT Scans        | 8,269         | Projected Inpatient MRI Scans        | 4,839        | Projected Inpatient PET-CT Scans        | 555          |
| Projected Unmet Outpatient CT Scans | 10,131        | Projected Unmet Outpatient MRI Scans | N/A          | Projected Unmet Outpatient PET-CT Scans | 2,455        |
| <b>Total Projected CT Scans</b>     | <b>18,400</b> | <b>Total Projected MRI Scans</b>     | <b>4,928</b> | <b>Total Projected PET-CT Scans</b>     | <b>3,010</b> |
| CT Weighted Average Throughput      | 10,078        | Inpatient MRI Throughput             | 3,103        | PET-CT Weighted Average Throughput      | 4,118        |
| <b>Total CT Need</b>                | <b>2</b>      | <b>Total MRI Need</b>                | <b>2</b>     | <b>Total PET-CT Need</b>                | <b>1</b>     |

Projected 2032 demand for scans was estimated by first multiplying projected 2032 discharges by the average number of scans per discharge for each modality based on historical data. The Applicant included projected 2032 outpatient scan volume which was estimated by taking the number of CT and PET-CT scans in FY22 that the Applicant transferred to other facilities due to lack of capacity at

<sup>79</sup> Initial Applicant data on CT scans was produced on an appointment-level basis. The Applicant estimates, based on internal data, that, on average during an appointment, a patient receives approximately 1.6 scans. As such, initial CT appointment-level data was multiplied by 1.6 to produce scan-level data.

its sites, and projecting that volume using Sg2 growth rate of 4% which the Applicant states is consistent with its own historical growth rate.

The Applicant determined the number of machines needed for each modality by dividing the projected 2032 annual need for scans for each imaging modality by the estimated number of scans that can be performed per machine in one year, which the Applicant defines as “throughput”.<sup>80</sup> The Applicant states that it projected inpatient imaging need based on its 30 licensed beds, because the data regarding BWH-licensed beds were not available from publicly available sources and from nonpublic sources, and because BWH data are proprietary to BWH. Additionally, the Applicant used 384 beds to calculate imaging need, as opposed to 300 beds, because 384 beds is the number of beds that was determined to meet Patient Panel need. The Applicant notes that the amount of required imaging equipment would remain the same even if a bed count of 300 had been used.

DoN application materials and responses include a complete description of the Applicant’s methodology for calculating need for imaging equipment.

### **Radiation Therapy**

The Applicant cites studies stating that radiation therapy is a critical and inseparable component of comprehensive cancer treatment and is deployed across almost all cancer types. Radiation therapy can be used alone or with other modalities of treatment including chemotherapy, immunotherapy, or surgery. LINAC-based radiation therapy is the most commonly used technique to deliver radiation therapy to patients. The Applicant currently operates three LINACs.

### **Historical Utilization**

The Applicant states that patients in the Applicant’s Patient Panel receive radiation therapy treatment either in the Applicant’s Radiation Oncology department or at BWH, based on the patient’s disease center and/or need for specialized treatment. Table 29 shows LINAC therapy utilization by the Applicant’s Patient Panel.

**Table 29: LINAC Therapy Utilization**

| <b>Metric</b>                                  | <b>FY18</b> | <b>FY19</b> | <b>FY20</b> | <b>FY21</b> | <b>FY22</b> | <b>FY23</b> | <b>% Change<br/>FY18 to FY23</b> |
|------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------------------------|
| Radiation Oncology<br>Treatments <sup>81</sup> | 20,275      | 21,067      | 17,723      | 20,966      | 21,059      | 18,288      | -10%                             |

The Applicant attributes the 18.8% increase in LINAC therapy utilization by its Patient Panel between 2020 and 2022, to (1) the receipt of care delayed by patients during the COVID-19 pandemic, including patients presenting with more advanced disease requiring radiation therapy, and (2)

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<sup>80</sup> The Applicant states that inpatient throughput assumptions reflect estimates of operational days and hours where the imaging equipment in question is expected to be routinely productive, and that in the inpatient setting, imaging will need to be available outside of normal operating hours.

<sup>81</sup> This table includes the total number of radiation oncology treatments for FY18 through FY23.

general increases in the incidence of cancer cases.

Table 30 shows radiation therapy volume by disease center. The Applicant attributes the decrease in radiation therapy usage for genitourinary oncology patients in FY23 to a deliberate change in equipment used to treat such patients. The Applicant states that Dana-Farber does not currently operate the equipment now used for treatment.

**Table 30: Radiation Therapy Volume by Disease Center, Longwood Medical Campus<sup>82</sup>**

|                              | FY18  | FY19  | FY20  | FY21  | FY22  | FY23  |
|------------------------------|-------|-------|-------|-------|-------|-------|
| Total                        | 1,034 | 1,146 | 963   | 1,125 | 1,125 | 886   |
| Breast Oncology Center       | 37.0% | 35.3% | 35.8% | 39.8% | 40.0% | 45.7% |
| Head and Neck Oncology       | 24.3% | 22.0% | 20.2% | 21.0% | 20.5% | 26.1% |
| Thoracic Oncology Program    | 19.4% | 16.9% | 20.4% | 16.9% | 14.4% | 13.8% |
| Other Oncology <sup>83</sup> | 7.8%  | 8.8%  | 7.7%  | 6.0%  | 7.6%  | 6.9%  |
| Genitourinary Oncology       | 7.7%  | 11.6% | 11.9% | 13.0% | 14.3% | 5.1%  |
| Gastrointestinal Oncology    | 2.3%  | 3.8%  | 2.2%  | 2.5%  | 2.7%  | 1.2%  |
| Gynecology Oncology          | 1.5%  | 1.8%  | 2.2%  | 1.2%  | 1.0%  | 1.4%  |

Table 31 shows outpatient LINAC Wait Times in Days.<sup>84</sup>

**Table 31: Average Outpatient LINAC Wait Times in Days**

| Modality | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|----------|------|------|------|------|------|------|
| LINAC    | 89.5 | 96.8 | 80.1 | 69   | 60   | 55.3 |

Table 32 shows outpatient LINAC Wait Times in days, excluding outliers.

**Table 32: Average Outpatient LINAC Wait Times in Days Excluding Outliers**

| Modality | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|----------|------|------|------|------|------|------|
| LINAC    | 50.4 | 52   | 54.9 | 56.6 | 51.2 | 51.1 |

The Applicant explained that LINAC wait times are derived from the time of a patient's first consult with a Dana-Farber medical oncologist to their first treatment at Dana-Farber. The Applicant states that this time span is driven by the order of a patient's oncology treatment plan and may depend on the type of cancer, tumor, or other clinical determinants. Further, patients may have an initial consult at Dana-Farber, receive care closer to home, and then later return to Dana-Farber for radiation oncology treatment. The Applicant states that this sequence can increase the time

<sup>82</sup> This table represents the data for the Longwood Medical Campus, inclusive of the Applicant's Chestnut Hill location.

<sup>83</sup> Other Oncology" includes patients assigned to the following disease centers: Cutaneous Oncology Center, Sarcoma and Bone Oncology, Hematologic Malignancies, Melanoma Center, and Neuro-Oncology Center.

<sup>84</sup> The Applicant states that this is inclusive of time spent receiving other treatments/services prior to radiation therapy. For outpatient LINAC, Dana-Farber calculates "wait time" by averaging the time between a new patient consult by a radiation oncologist at Dana-Farber and the first radiation therapy treatment thereafter. It does not include time spent receiving other treatments such as CT simulation and chemotherapy, prior to the receipt of radiation therapy.

between first consult and the time before a patient’s first treatment at Dana-Farber. Table 32 removes the impact of those patients who took longer than one year to receive treatment at Dana-Farber for the aforementioned reasons. The Applicant states further that more targeted wait time data for radiation oncology patients are proprietary to BWH and Dana-Farber is restricted from disclosing such data.

**Projected Need for Radiation Therapy**

The Applicant currently operates three LINACs in existing facilities at 44 Binney Street and is proposing to add three LINACs through the Proposed Project for a total of six LINACs. The Applicant anticipates adding additional LINAC capacity in the future through the acquisition by lease of three LINACs currently licensed to BIDMC.<sup>85</sup>

The number of LINAC machines needed was calculated by dividing the projected 2032 annual need for LINAC sessions by a LINAC machine’s throughput. Throughput, or annual session capacity, of one LINAC was estimated, based on the Applicant’s historical experience. Tables 33 and 34 show the Applicant’s projected need for LINACs.

**Table 33: LINAC Throughput Assumptions**

| Equipment | Days/Year | Hours/Day | Patient Time (hr.) | Efficiency | Throughput |
|-----------|-----------|-----------|--------------------|------------|------------|
| LINAC     | 250       | 10        | 0.3                | 85%        | 7,000      |

**Table 34: Projected Need for LINAC Sessions (w/ Proposed Project)**

| Metric                                     | Total     |
|--------------------------------------------|-----------|
| <b>Applicant</b>                           |           |
| Projected 2032 LINAC Sessions              | 51,460    |
| <b>BIDMC</b>                               |           |
| Projected 2032 LINAC Sessions              | 18,080    |
| <b>Total Projected 2032 LINAC Sessions</b> | 69,540    |
| Throughput                                 | 7,000     |
| <b>Total LINAC Need</b>                    | <b>10</b> |

DoN application materials and responses include a complete description of the Applicant’s methodology for calculating for LINAC equipment.

**Projected Need for CT simulator**

The Applicant states that the majority of patients will undergo imaging with a CT simulator to

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<sup>85</sup> The Applicant states that it expects any future addition of the BIDMC LINACs would be the subject of a separate Determination of Need application.

prepare for radiation treatment. The Applicant states that it owns and operates two CT simulators at its Radiation Oncology locations in Weymouth, MA. Currently, all CT simulators used by Dana-Farber on the Longwood Medical Campus are owned and operated by BWH. The Applicant proposes to add two CT simulators as part of the Proposed Project. In addition, BIDMC has one CT simulator, which will continue to operate as part of the collaboration with the Applicant.

Tables 35 through 37 show the Applicant's projected need for CT simulators. The Applicant states that because CT simulators are used for diagnostic purposes for all patients undergoing treatment with LINACs, the Applicant assumed that each unique patient undergoing LINAC treatment also had one CT simulator treatment prior to receiving LINAC treatment. Each unique patient represents a "new start" and will require a CT simulation appointment, resulting in the estimated number of CT simulation scans.

**Table 35: CT Simulator Throughput Assumptions**

| Equipment    | Days/Year | Hours/Day | Patient Time (hr.) | Efficiency | Throughput |
|--------------|-----------|-----------|--------------------|------------|------------|
| CT Simulator | 250       | 10        | 1.0                | 85%        | 2,125      |

**Table 36: Total CT Simulator Appointments per Unique Patient (Applicant & BIDMC Combined)**

| Metric                                         | 2032         |
|------------------------------------------------|--------------|
| Unadjusted LINAC Sessions                      | 65,536       |
| Weighted Average Treatments/Unique Patient     | 11.0         |
| <b>Total Projected CT Simulator Treatments</b> | <b>5,958</b> |

**Table 37: Projected Need for CT Simulator (w/ Proposed Project)**

| Metric                                 | 2032     |
|----------------------------------------|----------|
| Projected 2032 CT Simulator Treatments | 5,958    |
| Throughput                             | 2,125    |
| <b>Total CT Simulator Need</b>         | <b>3</b> |

DoN application materials and responses include a complete description of the Applicant's methodology for calculating need for CT simulators.

#### **TTG Comments on Factor 1a**

The Mass General Brigham TTG submitted written comments asking the Department to consider the following questions and related issues concerning the Applicant's need argument for the Proposed Project.

*Has the Applicant established its own patient panel in accordance with the definition at 105 CMR 100.100?*

The TTG's comments stated that the Applicant does not meet the regulatory definition of Patient Panel, because "we believe the Applicant created a Patient Panel that is based on an estimate of

patients historically served by another existing hospital - BWH. These patients are patients of BWH, should be properly counted in the BWH patient panel, and should not also be counted as inpatients seen by the Applicant.” The comments state further that because BWH will continue to provide hundreds of inpatient beds dedicated to cancer care, even after implementation of the Proposed Project, “the Applicant’s Proposed Project may represent unnecessary duplication of existing services.”

Staff Analysis: In the DoN regulations, Patient Panel is defined as “The total of the individual patients regardless of payer, including those patients seen within an emergency department(s) if applicable, seen over the course of the most recent complete 36-month period by the Applicant or Holder.” The Applicant has affirmed that Dana-Farber cares for 200 to 230 inpatient oncology patients every day. Thirty of these beds are located in Dana-Farber-licensed space, while the remaining are located in BWH-licensed space. The Applicant states that Dana-Farber medical oncologists and hospitalists direct the care of these patients during their inpatient stay, and Dana-Farber is the medical oncology provider for these patients outside of the hospital. Additionally, BWH does not currently employ any medical oncologists or medical oncology advanced practice providers of its own.

As discussed further in Factor 2: Cost Containment, the ICA report confirmed the Applicant’s estimates of inpatient discharges. FTI, the consultant hired to complete the ICA, developed a methodology to identify DFCI patients receiving care from DFCI attending physicians in BWH licensed beds. Through this analysis, FTI reported that in 2022, DFCI physicians provided care for 1,022 discharges in its 30 licensed beds and DFCI attending physicians also provided care for 6,434 cancer discharges in beds leased from BWH.<sup>86</sup> FTI also examined BIDMC’s discharges in 2022, and stated, “FTI’s methodology identifies 10,687 medical cancer care inpatient discharges in 2022 for BIDMC and DFCI combined. This is similar to the estimated number of combined discharges calculated by DFCI in its Application.”

Therefore, staff find that the Applicant has established its Patient Panel in accordance with 105 CMR 100.100.

*Has the Application demonstrated need for the project consistent with 105 CMR 100.210(1) and Department precedent?*

The Mass General Brigham TTG comments stated, “It appears that the need for the project is based on estimated historical discharges instead of actual historical demand data because the Applicant does not have its own patient panel to support the need for a new 300 bed hospital. Further, it appears that the Applicant bases demand for inpatient beds on cancer incidence rate projections and this could represent inflated demand because not all cancer patients will require an inpatient admission.”

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<sup>86</sup> ICA Report page 24.

Staff Analysis: Section 100.210 (A)(1)(a) of the regulation requires that, “The Applicant has demonstrated sufficient need for the Proposed Project by the Applicant's Patient Panel.”

As discussed further in Factor 2: Cost Containment, the ICA report found that existing demand from DFCI and BIDMC patients is projected to immediately exceed the capacity of the new DFCI facility, and this will occur with no other projected changes in utilization at other hospitals. The ICA report also states that FTI projects the average daily census of inpatient cancer care patients in Massachusetts to increase by 249 by 2030, regardless of the Proposed Project.

*Does the Application independently demonstrate need for additional DoN-required equipment (3 linear accelerators, 2 MRI, 2 CT, 1 PET-CT) consistent with the Department's precedent for review of similar projects?*

Mass General Brigham TTG comments requested further analysis of the Applicant's methodology used to determine need for DoN-required Equipment. The comments stated, “the Applicant bases its projected volume for imaging on historical utilization by patients in its 30 licensed beds by looking at what percentage of those inpatients required imaging and applying that percentage to 300 beds. We do not believe that the use of a small sample to project the need for a project with 10 times the number of beds is a reliable basis for projecting need.”

Staff Analysis: the Applicant states, “Dana-Farber projected inpatient imaging need based on its 30 licensed beds because the data regarding BWH-licensed beds were not available from publicly available sources and nonpublic, BWH data are proprietary to BWH.” As discussed further in Factor 2: Cost Containment, FTI evaluated DFCI's need for imaging equipment and FTI's projected MRI scanner, CT scanner, and PET-CT scanner were similar to Dana-Farber's projected need for imaging equipment.

The Department also received comments from the 1199SEIU TTG which raised concerns about the Proposed Project's impact on the healthcare landscape. The comments requested the Department conduct additional analysis and request additional information from the Applicant to better understand the implications of the Proposed Project, and to contribute to an informed vote on the Proposed Project. The written comments from 1199SEIU also expressed concerns about the proposed hospital's impact on safety net hospitals in metro Boston and potentially across the state. The comments stated, “a new facility in Boston focusing exclusively on cancer care will pull patients from safety net hospitals in metro Boston and potentially across the state, and thereby constitute a financial threat to the survival of these hospitals, which are themselves economic engines and social anchors in their communities.” To address this concern the comments included a request: “DoN staff might undertake an analysis of the extent to which net revenues at Massachusetts acute care hospitals flow from oncology care and the importance of these revenues to a hospital's financial stability,” and the “development of enhanced modeling and planning to address the potentially negative impacts of a facility such as is being proposed.”

Staff Analysis: The Applicant has stated that the proposed hospital will improve access for patients from underserved and marginalized communities requiring the specialized care that the Applicant

provides, including patients requiring transfers to the Applicant. Additionally, the Applicant maintains that it does not compete with community hospitals for patients, and refers patients back to their community physicians once the specialized care they need is complete. The Applicant states that together, Dana-Farber's inpatient volume from Dana-Farber licensed beds, and patients treated in BWH-licensed beds managed by Dana-Farber medical oncologists, and BIDMC's inpatient cancer volume demonstrate need for the proposed hospital, and the Applicant expects that existing volume from Dana-Farber and BIDMC will together bring the proposed hospital to its maximum operating capacity. As discussed further in Factor 2: Cost Containment, the ICA report found that existing demand from DFCI and BIDMC patients is projected to immediately exceed the capacity of the new DFCI facility, and does not show diversion of resources away from existing safety net providers.<sup>87</sup>

### **Staffing**

The Applicant states that all of its medical oncologists are employed by the Applicant, have privileges at BWH, and manage their patients' care at BWH. The Applicant states further that it anticipates that all of the Applicant's oncologists will move to the new facility and will continue to be employed by the Applicant. The Applicant states that it conducted town halls, faculty meetings, and faculty retreats and through these meetings, as well as through the Applicant's community engagement during the planning of the Proposed Project, Dana-Farber physician faculty have expressed enthusiasm about the Proposed Project. The Applicant states that it believes that the enthusiasm expressed through these forums will aid in the Applicant's recruitment and retention of oncologists. The Applicant states further Dana-Farber has received national recognition for its positive work environment and that the proposed hospital will provide more opportunities for Dana-Farber to support and sustain a positive work environment.

The Applicant estimates that the proposed hospital, when fully operational, will produce approximately 2,400 new full-time equivalents (FTEs). The Applicant states that the specialized workforce that is required to staff the proposed hospital must be built, and that Dana-Farber is committed to building a diverse and representative clinical staff with specialized oncology expertise through the Applicant's new and existing pipeline programs. These programs, which the Applicant states provide opportunities for diverse individuals to enter the field of oncology and aim to improve economic mobility, include Dana-Farber's Nurse Residency Program with UMass Boston, Dana-Farber's advanced practice provider fellowship program in medical oncology and palliative care, and a Dana-Farber-funded scholarship program to encourage entry-level employees to pursue nursing education. The Applicant states that it will expand its existing pipeline programs, including through such developments as the new state-of-the-art simulation center, scheduled to open in 2025; it will develop new pipeline programs; and it will expand upon its existing collaborations, in order to staff the proposed hospital. The Applicant notes that it will also be able to attract and retain talent from around the world, who will further contribute to the staffing of the proposed hospital

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<sup>87</sup> ICA Report, pg. 36.

The Applicant states that its Office of Workforce Development provides underrepresented populations from Boston's historically marginalized communities with experiences at Dana-Farber which offer professional development and mentorship. The Applicant states that the Office develops relationships with community partners, including Roxbury Community College, the Urban League, Boston Public Schools, YMCA Training Inc., and Jewish Vocational Services (JVS). The Applicant states that workforce development initiatives over the next few years for the proposed hospital will focus on the following:

- Leveraging untapped talent sources in Boston and surrounding neighborhoods
- Establishing pipeline programs to address needs not covered in existing programs such as biotechnology and clinical support
- Offering programs that support English as a Second Language (ESL), job skills training, citizenship test preparation, and college readiness
- Expanding scholarships, mentorship programs, and other resources

The Applicant states that it does not anticipate recruiting staff away from community hospitals. The Applicant affirms that its initiatives will support a diverse workforce and culturally competent providers in the proposed hospital and will also help to address economic mobility and existing wage disparities, as well as mitigate any need to recruit staff away from community hospitals.

The Applicant states that it has an existing ambulatory program for older adults, in which Geriatricians and medical oncologists develop care plans to meet the unique needs of older patients. The Applicant affirms that Geriatricians will be available for consultation when needed at the proposed hospital as part of its full complement of services.

The Department received comment from elected officials, concerning Dana-Farber's existing pipeline programming. Massachusetts State Representative Chynah Tyler stated, "Dana Farber already collaborates with community college[s] to equip young people and adults with the necessary skills to successfully pursue an education or career advancement in healthcare. They [Dana-Farber] also work with Boston Public Schools, a couple of schools in my district, in fact. The John D. O'Bryant High School, the Fenway School, the Madison Park Vocational Technical School, to provide summer intern experience for the students there from all diverse backgrounds who are placed in different departments across Dana Farber to learn about careers in healthcare. And I can tell you, these students really appreciate and enjoy the opportunity. If it weren't for opportunities like this, they probably wouldn't have that access."

The Department received comment from Dana-Farber employees about the staffing of the proposed hospital. Heidi Conway, Dana-Farber's Senior Vice President, Human Resources and Chief People Officer stated, "We expect there to be approximately 2,400 new jobs when the new hospital is fully operational - jobs at all levels including administrative, clinical, nursing, support services, radiation oncology, imaging, lab services, pharmacy, management/supervisor, etc. These new jobs will allow us to expand the diversity of our workforce – a commitment that is of primary importance to us – and enhance our existing programs to serve more people and communities in meaningful ways to

prepare them for careers in healthcare.” In response to staff inquiry, the Applicant states that it estimates that the proposed hospital, when fully operational, will yield approximately 2,400 new FTEs.

The Department also received comments from the 1199SEIU TTG that expressed support for the Applicant’s long -standing history and commitment to providing culturally competent care, and the proposed facility’s potential to make cutting edge oncology care more accessible and available to patients in Massachusetts, from across the United States and abroad. However, the comments also expressed concern about the staffing of the proposed facility in the current environment in which workforce shortages are a substantial concern, citing reporting from the Massachusetts Hospital Association (MHA) on workforce shortages at acute care hospitals and the resulting care delays and reduced access to care. The comments stated, “We are very concerned about the implications of a new 300-bed facility for the already-strained healthcare workforce in the Commonwealth. How do BID-Lahey and DFCI intend to staff the new facility in an environment already facing substantial workforce shortages?” The comments go on to state further, “If the DFCI project goes forward, it must be accompanied by a comprehensive plan to recruit and retain sufficient staff as needed for 300 new inpatient beds as well as operating rooms, imaging services, and all other planned services. And these recruitment and retention efforts should not be at the expense of other hospitals or healthcare providers.”

The Applicant affirms that its plans for staffing the proposed hospital do not include the recruitment of staff away from community hospitals. The Applicant affirms instead, its commitment to drawing staff from new and existing pipeline programs, as well as from the recruitment of staff from all over the world.

### ***Analysis***

Staff find that based on the historical and projected data provided by the Applicant, the Applicant has demonstrated need to increase inpatient beds dedicated to cancer care for adults and associated imaging and radiation oncology equipment to address Patient Panel need for oncology care. Staff concur that alleviating inpatient capacity constraints can increase timely access to the specialized care that Dana-Farber provides; address increasing need for inpatient cancer care resulting from existing capacity constraints; and address increasing need for inpatient capacity resulting from an aging population and increasing cancer incidence. As a result, Staff finds that with the “Other Conditions” Outlined below, the Proposed Project meets the requirements of Factor 1a.

### **Factor 1: b) Public health value, improved health outcomes and quality of life; assurances of health equity**

For this element of Factor 1, the Applicant must demonstrate that the Proposed Project adds public health value in terms of improved health outcomes and quality of life for the Applicant’s existing

Patient Panel, while providing reasonable assurances of health equity.

### **Public Health Value: Improved Outcomes and Quality of Life**

The Applicant states that the Proposed Project will increase the accessibility of inpatient medical oncology services and radiation therapy services for Massachusetts residents, especially for the highest acuity patients with the most complex diagnoses. To further support the argument that the proposed hospital's singular focus on cancer care, supports better outcomes, the Applicant cited a study on the long-term survival rates at hospitals that provide cancer care in the United States, including Prospective Payment System exempt (PPS-exempt) hospitals like the Applicant, National Cancer Institute-designated Cancer Centers that are not PPS-exempt, Academic Medical Centers, and Community Hospitals. The study states that survival, an important patient outcome, differed by type of treating hospital.<sup>ll,88</sup> The risk-adjusted probability of death at one year for patients treated at PPS-exempt cancer hospitals that have a singular focus on cancer was 18% compared to 28% at community hospitals, with other types of hospitals falling between the two extremes.<sup>mmm</sup> The risk-adjusted five-year survival rates for the hospital types were 53% at PPS-exempt hospitals; 49% for NCI cancer centers; 46% for AMCs; and 44% for community hospitals.<sup>nn</sup> The Applicant cited another study examining 18 postoperative outcome measures at hospitals affiliated with PPS-exempt hospitals, as compared to National Cancer Institute designated Cancer Centers and other hospitals that provide cancer care in the United States. The study found hospitals affiliated with PPS-exempt hospitals less likely to have postoperative sepsis, acute renal failure, and urinary tract infection, and had better outcomes for seven of the 18 outcomes measures.<sup>oo</sup>

The Applicant states that while the current facility is capable of supporting the subspecialized services that the Applicant provides, the current facility is not capable of keeping pace with rapid advances in cancer technologies and services, and would require renovations to keep up with advances but affirms that it is unable to undertake those renovations in the current facility, citing its lack of control of the space. The Applicant states the need for renovations is documented in patient satisfaction scores from Press-Ganey: For the last quarter of 2023, the overall rating for the Applicant's inpatient care was in the 94<sup>th</sup> percentile while the "hospital environment" scored in the 38<sup>th</sup> percentile, and the "quietness of the environment" scored in the 13<sup>th</sup> percentile. The Applicant states that the scores reflect the lack of adequate space in the current facility for the use of technology and equipment which while vital to standard cancer treatment cannot be easily accommodated in the current physical plant.

The Applicant states that the Proposed Project will support a patient-centric inpatient experience that improves health outcomes, quality of life and patient experience through the inclusion of the advanced telemedicine capacities, spaces and technology for family meetings, ICU-level capabilities to reduce the number of needed patient transfers, virtual reality systems for patient education and

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<sup>88</sup> The analysis compared survival between four different hospital types: (1) 11 freestanding cancer hospitals that are exempt from the Medicare prospective payment system (PPS-Exempt), (2) 32 NCI-designated cancer centers that are not PPS-Exempt, (3) 252 other academic teaching hospitals, and (4) 4,873 community hospitals.

treatment, clinical trial units with collaborative research space to foster interdisciplinary work, adaptable room designs for changing technology and treatment needs, and improved accessibility to patient rooms and bathrooms. The Applicant states that through the Proposed Project, it will be able to make investments in designing cutting edge solutions focused on the oncology experience, and provide for accessible equitable care using technology solutions. The Applicant states that these types of investments are not currently feasible nor are they cost effective to address in the Applicant's 30 licensed beds.

The Applicant states specifically, the Proposed Project will:

- offer greater access to high quality inpatient medical oncology and radiation therapy services for patients requiring advanced cancer care;
- meet Patient Panel need for equipment to provide needed treatment;
- create additional inpatient capacity that will help to reduce ED boarding, which is associated with negative patient-related outcomes;
- reduce delays in access to care, which is associated with poor outcomes and increased mortality; and
- improve access to clinical trials.

The Applicant also states that policies of general hospitals don't always serve the unique interests or needs of the cancer population, citing conflicting practices for treating patients in Dana-Farber licensed beds and BWH-licensed beds regarding infection control<sup>89</sup> and challenges collecting routine data for the cancer patient population.<sup>90</sup> The Applicant states that it expects survival rates, and continuity of care to improve along with the ability to benchmark and track cancer-specific quality metrics. The Applicant asserts that quality and inpatient patient satisfaction will improve and the number of adverse events will decrease, as a result of the Proposed Project and its sole focus on cancer care and treatment.

The Applicant proposed metrics to track the impact of the Proposed Project. The measures are presented in Appendix I, along with additional measures proposed by staff. The Applicant will track and report on the measures as part of their annual reporting.

### ***Analysis: Improved Outcomes and Quality of Life***

Staff find that based on the information provided by the Applicant, the various elements of the Proposed Project have the potential to contribute to improved health outcomes, quality of life, and patient satisfaction. The Applicant proposed specific outcome and process measures to track the impact of the Proposed Project, which staff have reviewed, and which will become a part of the

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<sup>89</sup> The example cited by the Applicant concerned masking, utilization of air-controlled spaces, triage of patient locations, and allocation of staff.

<sup>90</sup> The Applicant states that certain benchmarking data recommended and adopted for National Cancer Institute-designated comprehensive cancer centers (e.g., ability to administer intravenous antibiotics within 30 minutes of presentation with fever and neutropenia (an oncologic emergency)) are not routinely collected in general acute care hospitals, including AMCs.

reporting requirements. The measures are listed in Appendix I. As a result, Staff finds that the Applicant meets the requirements of Public Health Value: Health Outcomes as part of Factor 1b.

***Public Health Value: Health Equity***

The Applicant affirmed its commitment to promoting equitable access to cancer care and to reducing barriers to accessing high-quality cancer care for medically underserved patients. The Applicant states that its community outreach mission, formally adopted by the Applicant's board in 1995 and revised in 2022, seeks to accomplish the following: (1) expand access to the Applicant's programs in early detection, screening, and cancer prevention and education to reach at-risk, historically marginalized, and diverse populations; and (2) partner with community health centers, community-based organizations, and government entities to assess, enhance, and improve the overall health and well-being of the members of the Applicant's communities.

The Applicant states that Dana-Farber prioritizes two initiatives to address disparities that are consistent with the standards of The Joint Commission and Massachusetts Health and Hospital Association: (1) the development of a unique Enterprise-Wide Patient Demographics Tableau Dashboard in spring 2024, and (2) the formation, in summer 2024, of a committee chaired by Dana-Farber's Chief Clinical Access and Equity Office to support prioritization, integration and evaluation of access and equity work across the entire organization

The Applicant states that the Proposed Project will allow it to further support health equity through consolidating outreach efforts to a standalone inpatient hospital; by providing a sole focus on cancer to its priority neighborhoods, which the Applicant's 2022 Cancer-Focused CHNA identified as Roxbury, Mission Hill, Dorchester, Mattapan, and Jamaica Plain; and through expanding capacity to historically marginalized communities throughout the greater Boston area.<sup>91</sup> To that end, the Applicant described a range of existing programs that support equitable and culturally appropriate care and that will be incorporated into the proposed hospital. These programs are discussed below and described in more detail in the Applicant's DoN application submission.

***The Joint Commission National Patient Safety Goals (NPSGs)***

The Applicant states that it adopted the Joint Commission's newest National Patient Safety Goal which became effective in 2023, and which serves as a means of ensuring patient safety in the healthcare setting. The Applicant states that it met all six requirements associated with the health equity goal which is focused on improving health care equity as a quality and safety priority.<sup>pp,92</sup>

***Commitment to Clinical Access and Equity***

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<sup>91</sup> The Cancer-Focused CHNA states, "Consistent with the previous CHNA, this effort focused on Dana-Farber's priority neighborhoods for Community Benefits work – Roxbury, Mission Hill, Dorchester, Mattapan, and Jamaica Plain depicted in Figure 2 below – which are some of Boston's most diverse communities."

<sup>92</sup> Six requirements: Identify an individual to lead activities to improve health care equity • Assess the patient's health-related social needs • Analyze quality and safety data to identify disparities • Develop an action plan to improve health care equity • Take action when the organization does not meet the goals in its action plan • Inform key stakeholders about progress to improve health care equity.

Established in 2010, the Cancer Care Equity Program (CCEP) is a community-based clinical intervention that uses a combination of co-location and patient navigation, to extend cancer care to marginalized populations.<sup>qq</sup> Currently, the Applicant holds on-site cancer clinics at two Federally Qualified Health Centers (FQHCs), Harvard Street Neighborhood Health Center in Dorchester, and The Dimock Health Center in Roxbury. The Applicant states that the clinics are staffed by a Dana-Farber clinical team, and patients presenting with a cancer-related issue are navigated to a cancer facility of their choosing, including Dana-Farber, for further care. A study on the outcomes of the Program states that at the two FQHC's, the time to a cancer diagnosis dropped from a historical 32 days to 12 days, and a secondary effect was that clinical trial enrollment increased for participating patients compared to historical participation rates for marginalized populations.<sup>rr,ss</sup>

The Applicant states that CCEP leverages Dana-Farber's CHNA and the CHNA's of other hospitals to better understand health disparities in local communities, to meet the needs of historically medically underserved populations and to address cancer disparities. The Applicant states further that CCEP uses existing data to monitor trends in patient populations and access to care across the cancer continuum and develops certain program specific data dashboards, to visualize and continuously monitor the impact of CCEP's interventions. The Applicant launched a health equity patient dashboard in Spring 2024, Dana-Farber Enterprise-Wide Patient Demographics Tableau Dashboard, to standardize reporting of patient-level equity data, and to make the information more accessible for integration into programs and program measurement. The Applicant states that the Dashboard will unify operational data with health equity/social justice to better advise on clinical access, health quality, and equity work across Dana-Farber. CCEP also works with Dana-Farber's Community Benefits Office (CBO) to foster collaborative relationships with community organizations to address the root causes of health disparities.

The Applicant states that as a result of its efforts to address disparities, patients reached through the outreach clinic have a 62% faster path to diagnosis and start of treatment compared with the historical average; twice as many patients from marginalized populations have enrolled in clinical trials at Dana-Farber than the historical average; and currently, CCEP helps more than 600 patients seek diagnosis and treatment, housing, transportation, nutritional assistance, language services, and mental health care.

In comments submitted to the Department, Dr. Timothy Lathan, Dana-Farber's Critical Access and Equity Officer, and co-creator of the CCEP, spoke to the impact that the proposed hospital will have on Dana-Farber's efforts to advance health equity. Dr. Lathan states, "The future dedicated cancer hospital is a powerful opportunity to advance equity in cancer research, care and outcome[s], so that we can reach a day where no community will be referred to as underserved. Our commitment to equitable cancer care and outcomes is at the core of our plans for the future hospital in collaboration with Beth Israel Deaconess Medical Center. This collaboration will advance access to cancer care, and help close health equity gaps in the communities that need it most. It will strengthen our ability to design programs that remove barriers to treatments and ensure that all patients have access to clinical trials and high quality cancer care."

### Community-Focused Patient Navigation

The Applicant states that it created a patient navigation program in 2005 to provide guidance to medically underserved patients and their families navigating the complexities of cancer care in a culturally appropriate manner. Patient navigation provides a wide range of support to help people with cancer to overcome barriers to obtain optimal and timely cancer services and effectively use available care resources.<sup>tt</sup> The Applicant states that its patient navigators have established visible relationships with community level providers such as community health centers, primary care practices, community hospitals and other social service organizations. In 2021, the Patient Navigation Program was integrated with CCEP, in collaboration with Dana-Farber's Community Benefits Office.

The Applicant cited several studies on the effectiveness of patient navigation in cancer care.

- A 2023 study on existing literature on patient navigation in cancer care and patient navigation models found patient navigation effective for improving uptake of cancer screening programs for breast, cervical, and colorectal cancer as well as shortening time frames from screening to diagnosis and from diagnosis to treatment initiation.<sup>uu</sup>
- In a study on five strategies to reduce unplanned acute care for patients with cancer, patient navigator programs were one intervention of an enhanced access and care coordination strategy, that was shown to decrease ED visits and all-cause hospitalizations, in the last 30 days of life.<sup>vv</sup>
- A secondary analysis of Accountability for Cancer Care through Undoing Racism and Equity (ACCURE), an antiracism prospective pragmatic trial at five cancer centers, assessed its impact on overall timeliness of lung cancer surgery and racial disparities in timely surgery. Patient navigation, one component of the intervention, was shown to help improve overall timeliness of lung cancer surgery for Black and White patients and a reduction in the racial gap in timely care.<sup>ww</sup>

The Applicant states that it plans to expand patient navigation services to the entire cancer center, including regional sites, with integration into operations; and expand patient navigation services in community health centers and community networks to aid in increased access to cancer care. The Applicant states that it will replicate and expand its existing co-location model within a community health center to incorporate cancer diagnostic services and patient navigation in order to expedite evaluation and resolution of potential cancer diagnoses. The Applicant maintains that BIDMC has existing affiliations and relationships with community health centers that can expand Dana-Farber's patient navigation and co-location model into additional communities and neighborhoods which the Applicant states will improve the coordination and delivery of services and improve patient connection to care throughout the cancer care continuum.

The Applicant states that it will also identify and pursue opportunities to improve patient financial access and reduce cost barriers for patients, including opportunities for financial assistance policy

alignment with BIDMC. This is discussed further in Factor 2: Delivery System Transformation.

### Site Accessibility

The Proposed Project will be located in the Longwood Medical Area, which is accessible by both car and public transportation. The Applicant maintains that the proposed hospital will be designed so that all patients can ambulate in a safe manner, including through the use of bridges and tunnels that connect the proposed hospital to Dana-Farber's other facilities and to BIDMC. The Applicant states that connecting bridges and tunnels between the two buildings will facilitate patient transfers. Further, the proposed hospital will comply with all applicable legal and regulatory requirements, including Massachusetts Architectural Access Board and Americans with Disabilities Act (ADA). The Applicant states that it maintains psychosocial and social work programs that are designed to improve the experience of patients, including patients with intellectual or development disabilities.

Currently, patient navigators help patients to coordinate transportation to help prevent patient no-shows and delays in cancer treatment. The Applicant states that of the 15% of unique patients that reported transportation barriers, 58% self-identified as Black or African-American and 76% had either Medicare or Medicaid. The Applicant maintains that it is working to address transportation needs of its Patient Panel by securing grant funding to continue to address transportation needs and reduce no-shows.

### Interpreter Services

The Applicant states that it had adopted the Communication and Language standard under the national Culturally and Linguistically Appropriate Services (CLAS) standards. The Applicant also states that it provides medical interpreters at no charge to patients and families who speak a language other than English to ensure that all patients have access to high quality oncology services and an exceptional patient experience. The Applicant provided the following overview of Dana-Farber's provision of interpreter services:

- The Applicant's interpreter services program covers over 200 languages.
- The Applicant uses live, in person interpreter services; remote video services; and services provided over-the-phone.
- The Applicant provides interpreter and translation services for written communication in its patient portal and for other written materials provided in the provision of care.
- The Applicant currently employs 51 medical interpreters covering 17 languages.
- Interpreters meet patients who are identified as having a primary language other than English and escort them through registration.
- Interpreter Ambassadors, qualified medical interpreters that provide medical interpretation and support patients and staff through the patient's continuum of care, accompany patients to their appointments, help patients with referrals and pharmacy pick up, and inform patients of the Applicant's supportive programs and resources.
- The Applicant provides American Sign Language Interpreters, certified deaf interpreters, and captioning access in real time to patients who are deaf and hard of hearing.

- The Applicant uses braille in permanent spaces and on signage.
- The Applicant provides materials in enlarged font and high contrast (text/color paper) for low vision patients.
- The Applicant provides patients who are blind with access to audio-recording technology so patient/provider visits may be audio-recorded and referred to post-discharge.

The Applicant states that in FY24, there were 88,587 requests filed for interpreter services; 51,128 were for in-person services, 8,758 were for remote video, and 28,701 were over-the-phone. Additionally, there were 543 requests for translation of written communications; 29 were related to messages in the Applicant's patient portal and 514 were related to the translation of other written materials. In FY24, Spanish, Arabic, Chinese (Mandarin and Cantonese), Portuguese, and Russian were the top five languages requested by the Applicant's Patient Panel.

The Applicant states that Dana-Farber staff receives training on the availability of interpreter services and how to work with interpreters. Training sessions for staff occur as part of new employee orientation, at annual compliance training, at department-specific onboarding, at staff meetings, and at professional development events.

#### Training

The Applicant states that its existing required cultural competency training will also be required of any Dana-Farber employee working in the proposed hospital. The training includes an Inclusion, Diversity & Equity (ID&E) Foundational Education Curriculum covering six topics, including unconscious bias, anti-racism, cultural humility, inclusive workplaces, health equity and allyship. Additional Cultural Competency Training is required of nursing staff every other year. Disability Competency Care Training will be required of all staff starting Summer 2024. A Patient Navigator Onboarding Program was developed by CCEP and includes clinic shadowing, evidence-based training, and ongoing education to develop skills and knowledge to support patients from all backgrounds and with a variety of needs. The Applicant states that its Office for ID&E is staffed with experts who lead training and provide individual and group coaching opportunities to staff to increase understanding and awareness of ID&E in the work environment.

#### Screening and Education

The Applicant states that it will launch a new, broad-based community screening and education campaign to increase awareness and access to its services. The campaign, which aligns with City of Boston health priorities, will focus on community practices and community health centers and will leverage community-based programs currently in development, existing incidence and mortality data and the Applicant's Dashboard.

#### Additional Initiatives

The Applicant described other initiatives to promote equitable access to cancer care. These include: a strategic alliance with Boston Medical Center (BMC), which allows BMC patients and physicians to access the Applicant's clinical trials; financial counselors who work with patients to remove barriers

to accessing care by ensuring patients fully understand their available insurance coverage and any sources of potential financial assistance; and the Applicant's recent contract with WellSense, formally the Boston Medical Center HealthNet Plan, which raised the percentage of MassHealth members covered for care provided by the Applicant from 67% to 88%.<sup>93</sup>

The Applicant states that Dana-Farber maintains relationships with a set of providers, including BMC, and that it hosts multi-site Dana-Farber clinical trials on those providers' campuses. Since 2020, 79 BMC patients have participated in Dana-Farber clinical trials on the BMC campus, and since FY21, BMC has experienced an 88% increase in BMC patients receiving care at Dana-Farber.

The Applicant responded to staff inquiry about the barriers that patients insured by MassHealth experience when trying to access the Applicant's services. The Applicant cited three barriers MassHealth patients encounter when accessing Dana-Farber's services: (1) automatic assignment of primary care providers (PCPs) which can impact the patient provider relationship and delay access to care, (2) lack of coverage for certain newer treatment modalities/oncology drugs that are often ordered or prescribed by the Applicant<sup>94</sup>, and (3) MassHealth Accountable Care Organizations (ACOs) that are out of network for the Applicant.<sup>95</sup> The Applicant states its recognition of the importance of contracting with MassHealth ACOs to minimize out-of-network issues for MassHealth patients. The Applicant states that it contracts with the majority of the MassHealth ACOs, but notes that the ACO model incentivizes those health systems that own and operate an ACO to keep care in their system and the Applicant does not currently operate or own its own ACO.

The Applicant states that it recognizes the importance of informing Medicaid enrollees of the relationships that support access to Dana-Farber's services, and states further that it will leverage existing programs such as CCEP, and the Applicant's community health programs to further support efforts to expand access to Dana-Farber for patients insured by MassHealth. The Applicant states that it expects an increase in its MassHealth payor mix with the Proposed Project due in part to the efforts that BIDMC has made in recent years to increase its MassHealth population and because of the preferred provider relationship that will exist between the Applicant and BIDMC.

#### *Expanding Health Equity through the Proposed Project*

The Applicant states that the Proposed Project will allow it to expand upon existing programming and create new pathways to provide equitable access to cancer treatment across the continuum of cancer care in the following ways:

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<sup>93</sup> Under the agreement, which was finalized in December 2020, Dana-Farber and all its Massachusetts hospital-based satellite sites are now in-network providers for the approximately 325,000 members of the BMCHP, which is the second largest MassHealth managed-care plan in the Commonwealth.

<sup>94</sup> Examples of drugs not covered by MassHealth that were cited by the Applicant include Pluvicto (approved by the U.S. Food and Drug Administration (FDA) in 2022 to treat certain types of prostate cancer) and Enhertu (approved by the FDA in 2019 to treat certain types of breast, gastric, and esophageal cancers).

<sup>95</sup> The Applicant states that there are three MassHealth ACOs that are out-of-network for the Applicant: (1) Fallon 265 Care ACO; (2) Berkshire Fallon Health Collaborative ACO; and (3) Health New England BeHealthy ACO.

- The Proposed Project, with a sole focus on cancer, will allow the Applicant to consolidate outreach efforts to a standalone inpatient hospital for its community prevention and diagnostic services and expand the Applicant's capacity to impact marginalized communities throughout the greater Boston area.
- The Proposed Project will facilitate enhanced coordination of cancer prevention, outreach, and screening and diagnostic services for communities.
- The Proposed Project will allow the Applicant to continue to facilitate expedited access to fully integrated cancer care services, and provide essential supportive services that positively impact overall health outcomes and patient experience.
- The Proposed Project will increase inpatient capacity and integrate existing access and equity programming into clinical operation which will increase access for patients from marginalized communities.
- The Proposed Project will allow for the Applicant to proactively grow and expand its clinical trial programs.

The Applicants states that it is working to increase recruitment of patients from historically marginalized communities into clinical trials of new cancer therapies, citing two studies on diversity and inclusiveness in clinical trials, which discuss underrepresentation in clinical trials, the negative effects of which include understudied efficacy and safety of therapies for underrepresented populations and lack of access to the health benefits obtained through clinical trial participation.<sup>xx,yy</sup>

The Applicant states that bed constraints at BWH lead to long wait times in the ED for patients with cancer, which results in some patients leaving before a bed is available. The Applicant also states that in its experience, patients from marginalized groups experience disproportionately high rates of hospitalization, as a result of the social determinants of health (SDoH) and baseline health disparities, and are more likely to seek care from safety-net hospitals that experience resource constraints that can result in a patient transfer to another hospital when more specialized care is required.

The Applicant affirms that expanding bed capacity in the Commonwealth will improve outcomes for the most vulnerable patients because the proposed hospital will be available to all patients, including those requiring transfers for more advanced, specialized care, and will expand access to patients from historically marginalized communities. The Applicant also states that Dana-Farber will integrate access and equity into the clinical operations of the proposed hospital, into all of Dana-Farber's locations, as well as into community health centers and other community networks by expanding its community-focused navigation program.

The Applicant states that it plans to measure improvements in health equity through tracking a number of metrics, along with additional measures proposed by staff, which are included below in Appendix I.

### ***Analysis: Health Equity***

As a result of information provided by the Applicant and additional DoN Staff review of the Proposed affiliation's impact on equitable access to care, Staff finds that with the "Other Conditions" outlined below, the Applicant has provided reasonable assurances of health equity for the Patient Panel. As a result, Staff finds that the Applicant meets the requirements of the Public Health Value: Health Equity part of Factor 1b.

### **Factor 1: c) Efficiency, Continuity of Care, Coordination of Care**

The Applicant affirms that the proposed hospital's singular focus on cancer will create efficiencies in care coordination. The Applicant states that the Proposed Project will address a current challenge: the limited ability to streamline processes and make them more patient-centric and cost effective. The Applicant states further that through the Proposed Project it will be able to integrate data and analytics across the continuum of care, and that this will in turn provide more coordinated cancer care, provide the ability to benchmark safety and quality metrics, and provide the ability to facilitate continuous learning.

The Applicant states that it currently works with physicians' groups and community medical groups throughout the Commonwealth so that patients receive the appropriate follow-up care across the cancer care continuum. To ensure continuity of care through the Proposed Project, the Applicant maintains that it will continue existing formal processes for linking patients with cancer with referring physicians, often PCPs, and other specialists for follow-up care. The Applicant states that it will also continue its provision of second opinion services to community hospitals and its practice of returning patients to community hospitals when they no longer require the Applicant's specialized cancer expertise.

The Applicant affirms that it provides cancer care coordination services, through a comprehensive array of supportive resources and services that include linkages to the Applicant's adult social work program, resource specialists, financial counselors, pharmacy resource specialists, clinical nurse navigators, and interpreter services. The Applicant states that between FY21 and FY23, the Applicant's Adult Resource Office assisted 18,173 unique patients in accessing these resources. The Applicant states also that it partners with community organizations to assess, enhance, and improve the overall health and well-being of the members of the Applicant's communities.

The Applicant maintains that the Proposed Project will increase efficiency of care because fewer patients will need to rely on the ED to receive medical oncology care, and this will allow patients to move more efficiently between care settings, and reduce ED wait times.

As noted above, the proposed hospital will not have surgical capabilities and BIDMC will serve as the Applicant's clinical partner for surgical oncology services. The Applicant states that it does not expect that the provision of surgical services at BIDMC will differ significantly than the current setup but notes that confidentiality restrictions in its agreements with BWH limit its ability to discuss the

specifics of the current arrangement. The Applicant does maintain that connecting bridges and tunnels between the two buildings will facilitate patient transfers. For patients receiving surgery as part of an inpatient stay at the proposed hospital, the medical oncologist will direct the care of the patient, work closely with the surgical team at BIDMC performing the surgery, and will act as a consultant for patients requiring an inpatient stay for a cancer-related surgery. Intensivists will be responsible for directing patient care in the ICU.

The Applicant states that the provision of care for patients requiring access to non-specialty cancer care under the proposed collaboration with BIDMC, will be similar in manner and scope to the Applicant's current collaboration with BWH. The Applicant maintains that its proposed collaboration with BIDMC will provide Dana-Farber patients with cancer presenting with non-cancer related illness access to non-cancer specialists, and that these specialists will be easily integrated into the patient's oncology care team. The Applicant states that cancer and non-cancer related care will be coordinated closely through Dana-Farber's close collaboration with local community hospitals, community health centers, and PCPs.

### ***Analysis***

Staff finds that the Applicant's care coordination will contribute positively to efficiency, continuity, and coordination of care. The Applicant has outlined how patients will receive follow-up care across the care continuum, as well as linkages to resources and services providing support to patients during their cancer care experience. As a result, Staff finds that the Proposed Project meets the requirements of Factor 1c.

### **Factor 1: d) Consultation**

The Applicant has provided evidence of consultation, both prior to and after the Filing Date, with all government agencies that have licensure, certification, or other regulatory oversight, which has been done and will not be addressed further in this report.

### **Factor 1: e) Evidence of Sound Community Engagement Through the Patient Panel**

The Department's Guideline for community engagement defines "community" as the Patient Panel, and requires that at minimum, the Applicant must "consult" with groups representative of the Applicant's Patient Panel. <sup>zz</sup> Regulations state that efforts in such consultation should consist of engaging "community coalitions statistically representative of the Patient Panel."<sup>aaa</sup>

The Applicant states that it engaged in a robust community engagement process and that during its community engagement activities, it sought input on the Public Health Value of the Proposed Project and the feedback the Applicant received was considered in identifying Patient Panel need and designing the Proposed Project.

Table 38 provides an overview of the Applicant's community engagement activities.

**Table 38: Community Engagement Activities**

| Forum                 | Date                             | Attendees |
|-----------------------|----------------------------------|-----------|
| Adult PFAC meeting    | Tuesday, October 3, 2023, 5pm    | 20        |
| Virtual Patient forum | Monday, October 16, 2023, 6pm    | 269       |
| Virtual Patient forum | Tuesday, October 17, 2023, noon  | 170       |
| Virtual Patient forum | Wednesday, October 18, 2023, 9am | 135       |

**Adult Patient and Family Advisory Council (APFAC).** The APFAC is a separate council for adult care comprised of patients, family, and staff members. The Applicant states that its clinical leadership met with the APFAC Staff Management on September 14, 2023 to inform them of the public announcement of the Proposed Project. The Applicant sought feedback from the APFAC which included expressing need for increased inpatient capacity, and improved patient experience, patient satisfaction, and access to care. The Applicant's Chief Medical Officer and Senior Vice President of Patient Care Services, in collaboration with the APFAC Co-Chairs, presented on the Proposed Project on October 3, 2023, at a special APFAC meeting during which time APFAC was provided with background on the Proposed Project, a high-level timeline for project progression, and were provided an opportunity to ask questions. There were 20 attendees. The Applicant states that a discussion occurred during the meeting on such topics as the impact of the Proposed Project on patient care, and overall patient experience, as well as the benefits of a dedicated cancer hospital.

**Virtual Patient Open Forums.** Virtual patient forums took place on the 16<sup>th</sup>, 17<sup>th</sup>, and 18<sup>th</sup> of October 2023. The Applicant states that the virtual forums offered patients and families the opportunity to learn more about the Proposed Project and the Applicant's vision for the future of cancer care. There were 269 attendees for the October 16<sup>th</sup> forum, 170 attendees for the October 17<sup>th</sup> forum, and 135 attendees for the October 18<sup>th</sup> forum. The Applicant sent current patients invitations to the forums. Forum participants were able to submit questions in advance of the forums as well as submit questions anonymously during the event.

**Government Stakeholders.** The Applicant states that it met with government stakeholders prior to and will meet with them after the filing of the Application, including individuals in the Governor's Office, Lieutenant Governor's Office, Attorney General's Office, Executive Office of Health and Human Services, Department of Public Health, Health Policy Commission, elected individuals representing the City of Boston and the Commonwealth, and individuals at the Department of Health and Human Services, Centers for Medicare and Medicaid Services.

The Applicant states that it received positive feedback during the community engagement process and that patient questions focused on the following recurring themes:

- the impact of the proposed hospital on the patient experience over the next five years, such as the impact the Proposed Project will have on care team structure, coordination of care, patient portal access, urgent and emergent care, and screening services;

- the financial impact of the proposed hospital on patients;
- the expenses associated with construction of the proposed hospital; and
- patient/family communications related to the proposed hospital.

The Applicant submitted the presentation materials from the APFAC meetings and the virtual forums.

### ***Analysis***

Staff reviewed the information on the Applicant's community engagement and finds that the Applicant has met the required community engagement standard of Consult in the planning phase of the Proposed Project. As a result, Staff finds that the Proposed Project meets the requirements of Factor 1e.

### **Factor 1: f) Competition on price, total medical expenses (TME), costs and other measures of health care spending**

The Applicant states that it anticipates that the Proposed Project will have a "pro-competitive impact on the health care market in the Commonwealth" because the Proposed Project, and the Applicant's proposed clinical collaboration with BIDMC, will establish the Applicant as independent from any MGB affiliate. The Applicant states that it anticipates a significant shift in volume of cancer care from higher-priced health sites of care to relatively lower-priced sites of care. The Applicant states further that a significant percentage of patients currently receiving medical oncology services at BIDMC, and BWH, and some receiving medical oncology services at MGH, will begin receiving such services from the Applicant, and a significant percentage of patients currently receiving surgical oncology services at BWH, and some receiving surgical oncology services at MGH, will begin receiving such services from BIDMC.

The Applicant states that it expects that a significant portion of patients currently receiving medical oncology services at BWH will begin receiving those services from the Applicant because patients currently receiving medical oncology care at Dana-Farber and BWH are all under the care of Dana-Farber medical oncologists and the Applicant expects that those patients will continue to be Dana-Farber patients when the Applicant's clinical affiliation with BWH ends. In connection with its collaboration with BIDMC, the Applicant also expects that those patients receiving surgical oncology services at BWH, and some at MGH, will receive surgical services from BIDMC, subject to patient choice. The Applicant states that it does not expect to compete with community hospitals for patients because it refers many of these patients back to their community physicians once the specialized care they need at Dana-Farber is complete.

The Applicant maintains that because Dana-Farber and BIDMC provide care at lower rates than BWH and MGH, a decrease in total medical expenses (TME) can be anticipated from the Proposed Project due to the Applicant's projected shifts in sites of care. To demonstrate that the Proposed Project competes on the basis of price, the Applicant compared inpatient relative price (RP) data for MGH,

BWH, BIDMC, and Dana-Farber for the three largest local payers: Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Table 39 shows relative price data for the most recent year available. The Applicant states that RP is a calculated, aggregate measure used to evaluate variation in health care provider prices in a given calendar year.<sup>96</sup>

**Table 39: Hospital Inpatient Relative Price Data, CY2022<sup>bbb</sup>**

| Hospital | Blue Cross Blue Shield of Massachusetts | Harvard Pilgrim Health Care | Tufts Health Plan |
|----------|-----------------------------------------|-----------------------------|-------------------|
| MGH      | 1.30                                    | 1.29                        | 1.47              |
| BWH      | 1.30                                    | 1.24                        | 1.47              |
| BIDMC    | 1.19                                    | 1.24                        | 1.19              |
| DFCI     | 1.11                                    | 1.00                        | 1.18              |

The Applicant also states that reporting from the HPC shows that the Applicant had lower acuity-adjusted average commercial prices for non-maternity inpatient stays than both BWH and MGH.<sup>ccc</sup>

The HPC authorized the initiation of a CMIR which will analyze the impact of the proposed clinical affiliation between Dana-Farber, BIDMC, and HMFP and the joint construction of a new freestanding cancer hospital. The CMIR will examine the potential impact of the proposed plans on costs, market functioning, quality, care delivery, and access/health equity. Per 105 CMR 100.310 (A)(2), any Notice of Determination of Need issued to a Holder that is subject to a CMIR pursuant to M.G.L. c. 6D, § 13 and 958 CMR 7.00: Notices of Material Change and CMIRs shall not go into effect until 30 days following HPC's completed CMIR.

Dedicated cancer centers are exempt from the Medicare Prospective Payment System (PPS).<sup>97,ddd</sup> The proposed facility is expected to be exempt from the Medicare PPS. The Applicant expects that once the Proposed Project is operational, its inpatient cost-based Medicare rates will not be materially greater than those received by BIDMC and BWH under inpatient PPS (IPPS) reimbursement.<sup>98</sup>

The Applicant states that while it is exempt from the IPPS, it receives lower Medicare reimbursement from the Medicare Program. To demonstrate the cost benefits of the Proposed Project, the Applicant estimated total savings based on its rates, using 2022 data from the American Hospital Directory. Based on a review of the data, the Applicant finds:

- The average Medicare Payment for Oncology (not adjusted for acuity) was \$20,061 for Dana-

<sup>96</sup> For inpatient services, relative price compares prices paid to different providers within a payer's network, while accounting for differences in the intensity of services.

<sup>97</sup> The Social Security Amendments of 1983 exempted classified cancer hospitals from the Medicare Inpatient Prospective Payment System (IPPS). <https://data.cms.gov/provider-data/topics/hospitals/pps-exempt-cancer-hospitals>

<sup>98</sup> The Applicant notes that Medicare funding for capital expenditures may be available, but that the additional funding will consist entirely of federal funds and therefore will not increase out-of-pocket expenditures, like co-insurance, by Massachusetts residents.

Farber and \$63,303 for BWH.

- In 2022, Dana-Farber's Medicare reimbursement was \$10.1 million with 479 discharges from its 30 licensed beds or approximately \$21,000 per discharge, on average. The IPPS reimbursement for those same discharges would have been approximately \$15.1 million or approximately \$31,524 per discharge, on average.

Table 40 shows the Applicant's estimated total savings resulting from the Applicant's lower reimbursement. The Applicant states that the calculation assumes that all unique Medicare inpatients under the care of one of the Applicant's oncologist in 2022 had a single discharge from one of the Applicant's beds. Based on those assumptions, the Applicant states that estimated total savings would have been at least \$22.4 million.<sup>99</sup>

**Table 40: Dana-Farber 2022 Estimated Savings**

|                                                            | 2022           |
|------------------------------------------------------------|----------------|
| <b>A. Unique Inpatients</b>                                | 4,877          |
| <b>B. Medicare Payor Mix</b>                               | 43.4%          |
| <b>C. Estimated Number of Medicare Patients</b><br>(A x B) | ~2,121         |
| <b>D. Average Medicare Savings (vs. IPPS)</b>              | \$10,582       |
| <b>E. Estimated Savings</b><br>(D x C)                     | \$22.4 million |

The Department required an independent cost-analysis (ICA) to evaluate the Proposed Project's impact on the Commonwealth's cost containment goals. A summary of the ICA findings can be found in Factor 2:Cost Containment and Factor 4.

### **Analysis**

Staff find that the Proposed Project has potential to reduce healthcare spending by shifting cancer care from higher-cost providers to lower-cost providers. Staff finds that, on balance, the requirement that the Proposed Project will likely compete on the basis of price, TME provider costs, and other measures of health care spending and therefore, with the "Other Conditions" outlined below, the requirements of Factor 1f have been met.

### **Factor 1 Summary**

As a result of information provided by the Applicant and additional analysis, staff finds that with the "Other Conditions" required below and standard reporting requirements, the Applicant has demonstrated that the Proposed Project has met Factor 1(a-f).

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<sup>99</sup> Based on the Applicant's 4,887 unique patients in 2022, that 43.4% or approximately 2,121 of those patients were Medicare beneficiaries, and average savings per discharge of \$10,582.

## **Factor 2: Cost containment, Improved Public Health Outcomes and Delivery System Transformation**

For Factor 2 the Applicant must demonstrate that the Proposed Project will meaningfully contribute to the Commonwealth's goals for cost containment, improved public health outcomes, and delivery system transformation beyond the Patient Panel.

### **Cost Containment**

Within the Determination of Need regulation, two factors, in part, require the Department to consider cost containment as it pertains to the Proposed Project: Factor 2, which requires that a project meaningfully contribute to the Commonwealth's cost containment goals, and Factor 4, as it relates to any ICA required for a given project to demonstrate whether the project is consistent with the Commonwealth's cost containment goals. Because both factors require the Department to analyze the Proposed Project's impact on health care cost containment in the Commonwealth, the Department has considered the cost containment-specific portions of both Factor 2 and Factor 4 in this section.

### **Discussion in the Application**

As discussed above in Factor 1f, the Applicant anticipates a decrease in TME in the Commonwealth as patients transition from what the Applicant has identified as higher cost centers, BWH and MGH, to relatively lower cost centers, Dana-Farber and BIDMC. The Applicant also states that it plans to continue its pre-existing efforts at containing healthcare costs in the Commonwealth through extending care beyond inpatient academic hospitals. The Applicant provided several examples of its existing strategies to extend care beyond the inpatient setting.

- The Applicant developed oncology-specific Acute Care Clinics that caters to urgent medical needs of patients with cancer and that provides an alternative to the ED. The Applicant states that the clinic resulted in an approximately 20% reduction in ED visits and a reduction of care in acute care settings. The Applicant states further that the reduction of care in acute care settings included a doubling of the proportion of patients discharged to home and approximately one-fifth the proportion of patients admitted to an inpatient bed.
- The Applicant instituted a "Shared Care" model which allows patients to be seen locally in their communities for follow-up care after receiving allogeneic hematopoietic stem cell transplantation from the Applicant. The Applicant states that the program can help reduce reliance on academic hospitals in Boston and promote the provision of cost-effective care within local community hospitals
- The Applicant states that its efforts to bring cancer screening into underserved communities

can provide additional cost savings through earlier diagnosis and intervention and decreased variation in acute care utilization. The Applicant cited an article stating acute hospital care is the largest component of spending and the single largest driver of regional spending variation among Medicare patients with advanced cancer.<sup>eee</sup> The Applicant cited another published study on average per capita costs of breast cancer treatment for a commercially insured population of women with newly diagnosed breast cancer, where treatment and medical costs increased by disease stage at diagnosis with lower stages associated with lower treatment costs.<sup>fff</sup>

Comments received from the Mass General Brigham TTG asked the Department to consider whether the Proposed Project meaningfully contributes to the Commonwealth's goals for cost containment under 105 CMR 100.210(2)(a). The comments explained that because the Applicant is not a new entrant into the market and receives higher reimbursement from Medicare for its services, the Department should verify the cost implications of the Proposed Project through an ICA.

Pursuant to M.G.L. c. 111 § 25C(h) and to support the Department's understanding of the Proposed Project's impact on the Commonwealth's cost containment goals, an ICA was required.

The Massachusetts Health Policy Commission (HPC) authorized the initiation of a CMIR which will analyze the impact of the proposed clinical affiliation between Dana-Farber, BIDMC, and HMFP and the joint construction of a new freestanding cancer hospital. The CMIR will examine the potential impact of the proposed plans on costs, market functioning, quality, care delivery, and access/health equity. Per 105 CMR 100.310 (A)(2), any Notice of Determination of Need issued to a Holder that is subject to a Cost and Market Impact Review pursuant to M.G.L. c. 6D, § 13 and 958 CMR 7.00: Notices of Material Change and CMIRs shall not go into effect until 30 days following HPC's completed CMIR.

### ***Analysis: Cost Containment***

Pursuant to M.G.L. c. 111 § 25C(h), the Department issued a notice on February 2, 2024 requiring the Applicant to commission an independent cost-analysis (ICA) for DoN Application #DFCI-23040915-HE to support the Department's understanding of the Proposed Project's impact on the Commonwealth's health care cost-containment goals. The Applicant and the Department jointly identified a qualified firm, FTI Consulting, Inc. (FTI), to conduct the analysis. On January 10, 2025, FTI submitted its final ICA report to the Department. On January 14, 2025, the Department formally accepted the ICA report. Included below is an overview of the ICA findings.

### **Summary of ICA Findings**

FTI states that in order to address the ICA Questions, it needed to assess current utilization, volumes, and prices for cancer care services in Massachusetts. FTI's analyses included:

- Developing a methodology to identify DFCI patients admitted to BWH-licensed beds using DFCI attending physicians

- Defining five cancer care service lines based on the services currently provided by DFCI and those that would be provided through the Proposed Project
- Defining service areas for each service line
- Estimating current demand for services
- Forecasting future demand for services
- Assessing DFCI's forecasted need for services
- Predicting shifts in utilization between providers resulting from the Proposed Project
- Estimating relative prices by hospital and payor
- Assessing the impacts of the Proposed Project on provider shares and prices, and on total medical spending

The ICA analysis assumes the Proposed Project will be operational in 2025. FTI projected utilization and demand in five-year increments for fifteen years starting in 2025 and ending in 2040.

The ICA report concludes, "For each component of the Proposed Project and across all assessed time horizons, this report finds that the baseline projected impacts of the project on healthcare expenditures fall below the Commonwealth's established benchmark growth rate."<sup>100</sup> As noted in the ICA report, the Massachusetts Health Care Cost Growth Benchmark is set at 3.6%.

### **Inpatient Cancer Care<sup>101</sup>**

Proposed Project: 300 adult inpatient beds (280 (M/S) and 20 (ICU))

FTI conducted an analyses of inpatient cancer care on a statewide basis.

#### *Current Provision of Services*

- Inpatient cancer care is provided in more than seventy hospitals across more than twenty health systems statewide.
- There were **73,155** Massachusetts inpatient cancer care discharges in 2022; **63,576** discharges are classified as medical and **9,579** are classified surgical.
- DFCI accounted for **7,456** inpatient cancer care discharges in 2022, which is **10.2%** of the state total. Of these, **1,022** occurred in DFCI's 30 licensed beds and the remaining **6,434** occurred in BWH-licensed beds. Of DFCI's inpatient cancer care discharges, **5,923** were medical care and **1,533** were surgical care.
- FTI states that, on average, DFCI serves a younger patient population that is more likely to be commercially insured than the state average. FTI also states that DFCI's share of patients with Medicaid/MassHealth and its racial and ethnic patient distributions are in line with state averages.

#### *Changes in Utilization*

- FTI projects that total utilization of inpatient cancer care across all regions in the state will increase by **26.8%** from **78,122** discharges in **2025** to **99,070** discharges in **2040**.

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<sup>100</sup> ICA Report, pg. 16.

<sup>101</sup> Inpatient cancer care is defined in the ICA Report as all inpatient admissions with a cancer care diagnosis.

- FTI states that this increase will occur with or without the Proposed Project, and that the most significant drivers of the increase are an aging population and growth in cancer incidence.<sup>102</sup>

### *Shifts in Utilization*

FTI projects existing demand from DFCI and BIDMC patients to immediately exceed the capacity of the new DFCI facility. FTI states that this will occur with no other projected changes in utilization at other hospitals, with no diversion of resources away from existing safety net providers, and without any increase in the use of specialized cancer treatments such as CAR T-cell Therapy and Bi Specific Antibodies.

- The new facility's maximum **average daily census (ADC)** would be **255** based on a 85% maximum occupancy. FTI estimates that if all DFCI and BIDMC's 2025 projected medical inpatient cancer care discharges (11,270) shift to the new DFCI facility, it would have an **ADC of 265** in 2025. When accounting for out-of-state demand, the ADC would increase by another **33** patients.
- FTI modeled a second scenario assuming an **85%** maximum occupancy rate, and filling of the proposed hospital first from the transfer of DFCI discharges, then the transfer of DFCI out-of-state patients, and finally from BIDMC patients. This scenario resulted in **9,529** medical inpatient cancer care discharges in 2025; **5,136** from patients shifting from BWH to DFCI, **1,045** from patients shifting from DFCI licensed beds to the proposed hospital, and **3,348** from patients shifting from BIDMC to the proposed hospital, reaching the proposed hospital's capacity. The **5,136** discharges represent **32.5%** of total medical cancer care discharges that would have otherwise occurred in MGB academic medical centers.
- FTI estimated demand at the new DFCI facility if just half of emergency department admissions by cancer patients at BWH shifted to DFCI. FTI states the projected demand would exceed the capacity of the new DFCI facility.

### *Relative Prices*

- FTI estimated relative prices by hospital and payor in 2021, and found that DFCI's commercial prices are on average lower than **BWH (-20.6%)** and **BIDMC (-19.8%)**. Medicare reimbursement is similar between DFCI and BIDMC, with BWH having somewhat higher average reimbursement. DFCI's average, acuity adjusted MassHealth reimbursement is marginally higher than at BWH; BIDMC has significantly lower estimated MassHealth reimbursement.

### *Changes in Market Share*

- FTI forecasts DFCI's facility share of commercial inpatient cancer care discharges to increase by **15.9%**; BWH's share to decrease by **15.3%** and BIDMC's share to decrease by **0.6%**. The **Herfindahl–Hirschman index (HHI)**, a measure of market concentration, is projected to decrease from **2,261 to 1,493** due to these shifts in share. A lower value indicates less market concentration.

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<sup>102</sup> ICA Report, pg. 31.

- FTI estimates the average price for inpatient cancer care is projected to decline because the Proposed Project is estimated to primarily shift inpatient discharges to lower-priced providers (DFCI and, to a lesser extent, BIDMC) from a higher-priced provider (BWH). FTI found no projected impact on price due to changes in the mix of services provided.

#### *Changes in Total Medical Spending*

- FTI states that with status quo DFCI prices, the Proposed Project is forecast to decrease total medical spending for inpatient cancer care for Massachusetts residents by **1.8% (\$28.4 million) in 2025**.
- If DFCI were able to raise its prices to the level of BIDMC prices or closer to BWH prices, medical spending is forecast to decrease or remain essentially flat.
- If DFCI's Medicare reimbursement were to also increase substantially, total medical spending is forecast to increase by **0.7% (\$10.9 million)**.
- If 100% of newly available capacity is filled by new, general inpatient care at BWH and BIDMC, or by cancer care patients, the potential for the Proposed Project to lead to supply-induced demand related cost increases is bounded by an estimated **2.7%-3.3% (\$239 million to \$329 million)**.
- The ADC of inpatient cancer care patients in Massachusetts is projected to grow by **249** by **2030**. FTI states that this growth in demand that will occur regardless of the Proposed Project all but eliminates the scope for supply-induced demand by 2030.

#### **Imaging**<sup>103</sup>

Proposed Project: 2 MRI machines, 2 CT machines, and 1 PET-CT machine

FTI conducted its ICA analysis of outpatient imaging on a statewide basis.

#### *Current Provision of Services*

- There were **241,088 outpatient CT scans** and **7,072 outpatient PET-CT scans** in 2021.
- FTI estimates that DFCI accounted for **36,325 CT** and **5,312 PET-CT** outpatient procedures in 2021, which represents **3%** of **CT** and **23%** of **PET-CT** statewide totals.
- There are thousands of CT providers in the state and all major hospitals provide some amount of outpatient CT scans.
- Together DFCI, BILH, and MGB provide three-quarters of all PET-CT procedures.

#### *Changes in Utilization*

- FTI projects that demand for CT procedures will increase by **17.2%** from 1,340,895 in 2025 to 1,571,442 in 2040 and demand for PET-CT procedures will increase by **17.7%** from 24,225 in 2025 to 28,507 in 2040.

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<sup>103</sup> The ICA report states that the service lines were not restricted to patients with cancer diagnoses or to cancer care providers because cancer patients are not restricted from receiving imaging services from only cancer providers.

### *Projected Demand*

- FTI projects that in 2025 DFCI will have combined inpatient and outpatient demand sufficient to utilize **1.3-1.9 CT scanners**, **1.1-1.3 MRI scanners**, and **0.4-0.5 PET-CT scanners**.

### *Relative Prices*

- FTI estimated relative prices by hospital and payor in 2021 and found that DFCI's commercial prices are on average higher than BWH for outpatient imaging (except for Medicare reimbursement of PET-CT).

### *Market Shares*

- The Proposed Project is projected to shift share away from MGB to DFCI and BIDMC: the estimated shift in outpatient CT scans is **0.8%** and the estimated shift in outpatient PET-CT scans is **9.1%**. FTI determined that these shifts do not meaningfully affect market concentration, as measured by **HHI**.

### *Changes in Total Medical Spending*

- The projected shifts in utilization between MGB and DFCI are estimated to increase total medical spending for outpatient CT scans in Massachusetts by **0.3% (\$1.7 million)** in 2025, with similar but decreasing impacts in the following years.
- The projected shifts in utilization are estimated to increase total medical spending for outpatient PET-CT scans in Massachusetts by **0.1% (\$28,038)** in 2025, with similar but decreasing impacts in the following years.
- If MGB were to replace all the scans shifted to DFCI with new scans, meaning scans that would otherwise not have occurred rather than with scans pulled from other competitors, FTI states that this "supply-induced demand" would increase outpatient CT imaging costs by **1.1% (\$6.3 million)** in 2025 increase outpatient PET-CT scans costs by **7.7% (3.7 million)** in 2025.

## **Radiation Therapy**

Proposed Project: 3 LINACs and 2 CT Simulator Machines

FTI conducted its ICA analysis of radiation therapy for the Boston region, which FTI states is the region in which DFCI proposes to expand its radiation therapy equipment capacity.

### *Current Provision of Services*

- There were **96,951** LINAC procedures and **6,753** CT Simulator Procedures in 2021.
- FTI estimates that DFCI accounted for **10%** of all LINAC procedures and **4%** of all CT simulation procedures in Massachusetts in 2021.

### *Changes in Utilization*

- FTI projects that LINAC procedures in the service area will increase by **17.4%** from 36,003 in 2025 to 42,283 in 2040, and CT Simulator procedures will increase by **14.8%** from 2,541 in 2025 to 2,918 in 2040.

#### *Projected Demand*

- FTI projects that the combined demand of existing DFCI, BIDMC, and BWH LINAC procedures will require approximately **10 LINACs** in 2025. When excluding LINAC sessions currently performed by BWH LINACs, FTI projects the need will be approximately **7 LINACs** between DFCI and BIDMC in 2025.
- FTI estimates that the combined demand of existing DFCI, BIDMC, and BWH LINAC procedures will require the equivalent of **2.1 CT simulators** in 2025 or **1.2 equivalent CT simulators** without BWH demand.

#### *Relative Prices*

- FTI estimated relative prices by hospital and payor in 2021 and found that DFCI's commercial prices are lower on average than BWH for radiation therapy (except for Medicaid reimbursement of LINAC treatment), implying cost savings from shifts away from BWH.

#### *Market Shares*

- FTI projected **12.4%** of total LINAC procedures and **13.6%** of CT simulator procedures in the Boston area shift away from MGB to DFCI.

#### *Changes in Total Medical Spending*

- The projected shifts in utilization between BWH and DFCI/BIDMC are estimated to decrease total medical spending in the Boston area for LINAC procedures by **2.4% (\$0.7 million)** in 2025, with similar but diminishing cost decreases in the following years.
- The projected shifts in utilization between BWH and DFCI/BIDMC are estimated to decrease total medical spending in the Boston area for CT simulator procedures by **7.3% (\$0.1 million)** in 2025, with cost decreases of more than **7.0% (0.1 million)** through 2040.
- FTI modeled the maximum impact of the potential of BWH to compete for patients with DFCI and other radiation therapy providers, an approach that FTI states would reduce cost savings from shifts to DFCI as patients are drawn into BWH from lower-priced surrounding providers. FTI estimated the impact (maximum cost increase) of BWH replacing all of its lost patients with other patients in the Boston area is between **4.5%-4.9% (\$1.3 million to \$1.4 million)** for LINAC procedures and **5.9%-6.0% (\$100,636-\$113,358)** for CT simulator procedures.

#### **Specialized Cancer Therapies**

FTI states that as of 2024, six providers in Massachusetts were accredited by the Foundation for the Accreditation of Cellular Therapy (FACT) to perform immune effector cellular therapy (i.e., CAR-T).

- In the most recently available data in Massachusetts, FTI found no recorded bi-specific antibody therapy procedures and **152 CAR T-cell procedures**. CAR-T cell procedures had an average length of stay of **18.7 days** and an average reimbursement of **\$347,020**

- FTI states that the proposed DFCI facility is projected to reach capacity without any increase in the utilization of specialized cancer treatment.

### **Summary of Comments on the ICA from Parties of Record**

The Mass General Brigham TTG submitted comments on the ICA to the Department. A summary of the comments is included below. The summary provides a brief overview of the five points outlined in Mass General Brigham TTG's submission. In the comments, MGB concludes that the ICA is based on a flawed assumption on where volume from the proposed hospital will originate, overestimating Dana-Farber's need for 300 beds and underestimating potential increases in healthcare costs associated with the Proposed Project. Full text of Mass General Brigham TTG's comments on the ICA are available on the DoN website.

#### **The Patient Panel established in the ICA does not reflect how patients are referred for care.**

MGB states that the methodology used in the ICA to match patients with cancer admitted to BWH-licensed beds based on their attending physician during their inpatient admission does not account for how patients are typically referred for cancer care. MGB states further that patients are referred for cancer care through the patient's primary care and/or specialty provider, and referrals for many types of cancer go directly from a patient's primary or specialty care provider to surgical or radiation oncology. Additionally, the ICA looks at the affiliation of the attending physician for an inpatient stay, while primary care and provider relationships are longer-term, and the more frequent referrers of patients to BWH for care. MGB states that it has a primary patient relationship with over **70%** of patients seen at Dana-Farber/Brigham and Women's Hospital Cancer Center at BWH (primary care or specialist), and that due to these relationships, patients will likely choose to continue to receive their care at an MGB facility. As a result, MGB believes that a more accurate assumption is that no more than **30%** of the BWH patient volume will shift to DFCI.

#### **The ICA does not adequately reflect the potential impact of a new 300-bed cancer hospital on lower-cost AMCs and community hospitals.**

MGB states that because the ICA's flawed assumption about where most of the volume at the proposed hospital will come from (BWH), DFCI will need to obtain patients from sources other than MGB and BWH, to operate the 300-bed hospital, which will drive up the cost of cancer care and burden existing hospitals that provide cancer care. According to calculations included in the comments, the proposed 300-bed hospital will create capacity for **14,000** discharges per year based on Dana-Farber's estimates of average length of stay, approximately **5,000** of which are currently

unaccounted for in Dana-Farber's projected volume.<sup>104</sup> MGB states that Dana-Farber will likely draw 5,000 discharges to fill its beds from lower-priced AMC's and community hospitals, resulting in higher costs for cancer care, and a destabilization of the community hospitals. The comments include 2022 CHIA relative price (RP) data showing price differentials that will lead to increased costs. MGB states that all Massachusetts community hospitals have lower cross-payer statewide relative prices (S-RPs) than Dana-Farber, including three in particular, that MGB states are vulnerable to patients shifting to Dana-Farber: Emerson Hospital, Heywood Hospital, and Holy Family Hospital.

**The ICA underestimates the impact on Medicare reimbursement due to the costs for the care to operate a 300-bed hospital.**

MGB states that the ICA underestimates the costs of running a standalone cancer hospital in Boston and underestimates Dana-Farber's future Medicare payments due to its status as a Medicare PPS-Exempt Cancer Hospital. MGB states that the ICA relied on Dana-Farber's current cost structure for providing care in 30 leased beds at BWH for assessing the costs of running a 300-bed freestanding hospital that will have additional expenses for staffing and other overhead needs. MGB estimates the true cost structure for a cancer hospital to be **37% to 42%** higher than existing costs for Dana-Farber's 30 beds.<sup>105</sup> MGB states that the ICA does not reflect the potential for increased labor costs that will drive up Dana-Farber's costs and therefore Dana-Farber's Medicare payments, and the ICA does not account for increased demand for staff in the Longwood Medical Area which MGB states will increase labor costs for all area providers, and for providers throughout Massachusetts.

MGB states that the ICA's pricing scenarios are based on flawed assumptions that underestimate Dana-Farber's market share, and Dana-Farber's leverage to pursue higher rates in alignment with the top of the market. MGB estimates that even small increases in commercial rates for Dana-Farber<sup>106</sup>, in addition to increased Medicare rates, and a shift of patients from lower-cost hospitals to the proposed hospital, will result in a **14%** increase in TME.

MGB states that the ICA incorrectly ascribes supply-induced demand to BWH and underestimates the potential price increases from supply-induced demand from Dana-Farber based on the flawed assumption that all BWH patients will move to the new facility. MGB states that existing beds at BWH will continue to be available to MGB patients who need inpatient cancer care or other

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<sup>104</sup> MGB estimates 30% of BWH patients currently receiving cancer care at BWH may move to the new facility, amounting to 1,900 discharges a year. Dana-Farber estimates that 3,600 patients (based on ADC and ALOS provided in the DoN application) a year will come from BIDMC patients. Dana-Farber predicts that 20% of patients will be from out-of-state or out-of-country.

<sup>105</sup> The lower bound is based on BWH's current cost structure for inpatient beds and the upper bound is based on a Government Accountability Office (GAO) report which estimated that PPS-Exempt cancer hospitals (PCHs) received, on average, about 42% more in Medicare inpatient payments per discharge than a prospective payment systems (PPS) teaching hospital in the same geographic area to treat cancer beneficiaries with the same level of complexity.

<sup>106</sup> MGB states that this assumes a commercial rate level of 1.19, which is the mid-point between MGB AMC relative price based on CHIA 2022 reporting (1.29) and estimated Dana-Farber relative price for inpatient services blended by BWH commercial payer (1.09), from the ICA.

inpatient care, and that the proposed hospital will in fact create supply-induced demand to fill beds, drawing patients from community hospitals and patients who would not have otherwise received inpatient cancer care.

**ICA fails to account for financial and operational impact on existing emergency departments**

MGB states that a number of BWH/Dana-Farber patients require emergency services during their treatment, and that the proposed hospital, which lacks an ED, will exacerbate existing ED crowding and boarding in Massachusetts hospitals, leading to fragmented care and an increase in labor costs. MGB states that currently, approximately **11%** of patients treated at Dana-Farber return to an MGB ED within a year. Based on MGB's estimated **14,000** discharges per year at the proposed hospital, this would amount to **1,500** additional patients seeking care in the ED at BIDMC, and other EDs in Massachusetts, all of which are operating beyond capacity, as reflected in ED boarding.

**The ICA fails to account for what the comments describe as an over-resourcing of the area with new imaging and radiation therapy equipment.**

MGB states that there are 11 LINACs in the Longwood Area: 3 at Dana-Farber, 3 at BIDMC, and 5 at BWH. The ICA projects need for 10 LINACs, 3 of which are currently located at BWH. MGB states that the ICA's projections for the Applicant's linear accelerator need are flawed because they are based on the assumption that patients will move from receiving their care at BWH and other MGB facilities to the proposed hospital. MGB states that the ICA assumes that Dana-Farber will retain **100%** of its current volume and capture **80%** of BWH's LINAC volume, which MGB states overstates the likely migration of patients, and inflates need for LINACs in the Longwood Area. MGB states that existing LINACs at BWH primarily treat BWH surgical patients who are not expected to shift to Dana-Farber for their oncology care, neither are patients who have other medical care at BWH. As a result, the Proposed Project will result in supply-induced demand for LINAC services, with Dana-Farber obtaining patients from other sources, likely other lower-cost AMCs and community hospitals. This will in turn increase TME. MGB states that the addition of LINACs will also exacerbate the existing shortage of radiation technicians and increase labor costs for radiation technicians.

Staff finds that, with the "Other Conditions" outlined below, the Proposed Project is consistent with the Commonwealth's efforts to meet the health care cost containment goals, and therefore meets the requirements of Factor 2 and factor 4.

**Improved Public Health Outcomes**

The Applicant states that the Proposed Project will have a direct impact on public health outcomes and quality of life in the following ways, many of which were noted above in Factor 1a and Factor 1b:

- Expand the number of beds and equipment available to the Applicant to meet the needs of its Patient Panel
- Expand the availability and access to highly specialized and focused care

- Improve access to clinical trials
- Improve outcomes through the provision of inpatient care in a dedicated cancer hospital, which the Applicant has noted above have better survival outcomes
- Increase access to more timely care, and the likelihood of patients accessing the right treatment, in the appropriate setting, and at the optimal time
- Reduce wait times for tertiary level care and for radiation oncology services
- Reduce ED boarding, and the associated negative effects, to also free up capacity in the ED for other patients seeking care

The Applicant states that increasing the accessibility of inpatient medical oncology services, imaging, and radiation therapy services for Massachusetts residents will improve quality of life and save patient lives. Additionally, with a focus on providing care across the entire cancer care continuum, the Applicant states that it will focus on opportunities for innovation, improved delivery and efficiency of care, and dissemination of this knowledge to the broader oncology community to improve outcomes for cancer patients world-wide.

### ***Analysis: Public Health Outcomes***

Staff find that the Applicant has demonstrated that the Proposed Project can improve health outcomes by increasing timely access to advanced cancer care. Therefore, DoN Staff can conclude that the Proposed Project will likely meet the Public Health Outcomes component of Factor 2.

### ***Delivery System Transformation***

The Applicant states that it screens patients for health-related social needs (HRSNs) in both the ambulatory and inpatient settings. The Applicant uses MassHealth’s definition of HRSNs, which is “The immediate daily necessities that arise from the inequities caused by the social determinants of health, such as a lack of access to basic resources like stable housing, an environment free of life-threatening toxins, healthy food, utilities including heating and internet access, transportation, physical and mental health care, safety from violence, education and employment, and social connection.”<sup>107</sup>

**Outpatient/Ambulatory Patient Screens:** The Applicant states that it has screened outpatient patients for HRSNs since April 2023, as part of its New Patient Intake Questionnaire. The Applicant states the most frequently identified need through HRSN screening in the ambulatory setting is food insecurity followed by paying bills, housing insecurity, and utility costs. In FY24 25,196 patients were screened in the ambulatory setting.<sup>107</sup>

**Inpatient Patient Screens:** The Applicant states that it has screened inpatient patients since January 2024, and that the results of completed questionnaires are recorded in Dana-Farber’s electronic health records (EHR) system, and that this allows members of the patient’s care team to access the

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<sup>107</sup> Ambulatory data captures patients screened through the Dana-Farber CARES (Collecting and Responding to Social Needs) program and Cancer Care Equity Program (CCEP) Patient Navigation.

information and respond to identified HRSNs. The Applicant states that it is not able to report on top HRSN's identified through screening inpatients because analytical reporting is still under development. In FY24, 271 patients were screened in the inpatient setting.<sup>108</sup>

In comments submitted to the Department, Magnolia Contreras, Dana-Farber's Vice-President of Community Health, and a breast cancer survivor, discussed the Applicant's focus on community programming to advance health equity and future programming that will address the SDoH: "We serve as a bridge between the evidence based and sustainable outreach programs in the community organizations. We are increasingly aware of the vital importance of intervention dedicated to improving health outcomes among historically marginalized populations in our communities, and to those with access barriers. Our efforts to lessen this burden include a range of public health programs to reduce cancer incidence and mortality, support community development, and ensure that every patient who walks through our door receives equitable and culturally appropriate care... The development of a new cancer hospital will enable us to double down on our demonstrated commitment to cancer care into addressing the social determinants of health that contribute to the poor outcomes across our priority neighborhoods and beyond."

The Applicant provided examples of its partnerships with social services and community-based organizations that link its Patient Panel to resources that help to address health disparities.<sup>109</sup>

The Applicant maintains that its affiliation with BIDMC will allow it to improve its financial assistance policy and increase access to its services for patients with the greatest financial need. The Applicant's current policy provides a 100% discount to patients at or below 150% of the Federal Poverty Guidelines with other lesser discounts to patients with higher incomes. The Applicant expects that following completion of the Proposed Project it will revise its financial policy to align with BIDMC's which provides a 100% discount to patients at or below 400% of the Federal Poverty Guidelines.

The Applicant states that the services provided at its mammography van and the mammography suite at Whittier Street Health Center are linked to increased access to care at the Applicant's facility through the Applicant's patient navigation program. The results of the Program for FY23 are shown in Table 41.

#### **Table 41: Mammography Screenings, FY23**

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<sup>108</sup> Inpatient data captures screening reported by Nursing. Inpatient data reflects the Dana-Farber 30-licensed beds from February 2024 through September 2024, when screening went live for the inpatient setting.

<sup>109</sup> These partnerships include: Boston Breast Cancer Equity Coalition, Boston CHNA/CHIP Collaborative, the Boston Public Health Commission, CHNA partners, Dana-Farber/Harvard Cancer Center for Cancer Equity & Engagement (DF/HCC CCEE), Dana-Farber's Center for Community-Based Research (CCBR), Massachusetts Coalition for HPV, ongoing partnerships with the Massachusetts Department of Public Health (Department), the Prostate Cancer Foundation (PCF) and VA Boston Healthcare System, the Prostate Health Education Network (PHEN), the Tobacco Free Mass Coalition, Union Capital Boston (UCB), and, the Rian Immigrant Center (Rian) and Health Law Advocates (HLA).

|                                                     | <b>Mammography Van</b>                                   | <b>Whittier Mammography Suite</b>                        |
|-----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| Patient Screenings                                  | 1,516                                                    | 712                                                      |
| Patients Requiring Diagnostic Treatment             | 206<br>(13.6% of patient screenings)                     | 102<br>(14.3% of patient screenings)                     |
| Patients Receiving Diagnostic Treatment w/Applicant | 54<br>(26.2% of patients requiring diagnostic treatment) | 59<br>(57.8% of patients requiring diagnostic treatment) |

As part of its health equity initiatives focused on patient financial assistance, the Applicant is also developing an initiative to promote access to screening mammography for historically marginalized communities by reducing cost barriers to mammography screenings on Dana-Farber’s mammography van and at Dana-Farber’s Mammography suite at Whittier Street Health Center.<sup>110</sup> The Applicant states that starting in June 2024, patients can obtain screening on the Applicant’s mammography van with no out-of-pocket responsibility, regardless of insurance status. The Applicant affirmed its support for statewide efforts to remove such barriers to screening.

### ***Analysis: Delivery System Transformation***

Central to the goal of delivery system transformation is the integration of social services and community-based expertise. The Applicant has described, at a high level, how patients in the panel are assessed and how linkages to social services organizations are created. The Applicant also described additional programming to reduce barriers to accessing care, and to increase access to its services. DoN Staff can conclude that the Proposed Project will likely meet the Delivery System Transformation component of Factor 2.

## **Factor 2 Summary**

As a result of information provided by the Applicant and additional analysis, staff finds that with the “Other Conditions” outlined below, and the standard reporting conditions, the Applicant has demonstrated that the Proposed Project has met Factor 2.

## **Factor 3: Relevant Licensure/Oversight Compliance**

The Applicant has provided evidence of compliance and good standing with federal, state, and local laws and regulations and will not be addressed further in this report. As a result of information provided by the Applicant, staff finds the Applicant has reasonably met the standards of Factor 3.

## **Factor 4: Demonstration of Sufficient Funds as Supported by an Independent CPA Analysis**

Under Factor 4, the Applicant must demonstrate that it has sufficient funds available for capital and operating costs necessary to support the Proposed Project without negative effects or

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<sup>110</sup> The Applicant states that this is consistent with regulatory guidance.

consequences to the existing Patient Panel. Documentation sufficient to make such finding must be supported by an analysis conducted by an independent CPA. The Applicant submitted a report performed by BDO (CPA Report).

The scope of the CPA Report, performed by BDO, is limited to an analysis of the fourteen-year Projections for the fiscal years ending September 30, 2023 through 2036, prepared by the Management of Dana-Farber Cancer Institute (Management), and the supporting documentation to render an opinion as to the reasonableness of the assumptions used in the preparation and feasibility of the Projections.<sup>111</sup> 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 Proposed Project is not likely to result in a liquidation of the underlying assets or the need for reorganization. The CPA reviewed documents produced by Management as well as third party industry data sources, and historical results to formulate its conclusions; these documents included:

1. Projected Financial Model for DFCI for the periods ending September 30, 2023, through September 30, 2036;
2. Draft Dana-Farber Cancer Institute, Inc. Application Form for DoN Application as of October 13, 2023;
3. Audited Financial Statements for Dana-Farber Cancer Institute, Inc. and Subsidiaries for Fiscal Years Ended September 30, 2020 through 2022;
4. Unaudited Comparative Statement of Revenues and Expenses for Dana-Farber Cancer Institute Inc. for the period ended June 30, 2023;
5. Manager's Discussion and Analysis of Financial Condition and Operating Results for the Third Quarter ended June 30, 2023 as of September 8, 2023;
6. Capital Cost Breakout Presentation as of April 24, 2023;
7. September 12, 2023 Joint Meeting of the Executive Committee and Finance Committee of the Board of Trustees of the Dana-Farber Cancer Institute, Inc. Meeting Minutes;
8. September 13, 2023 Joint Meeting of the Executive Committee and Finance Committee of the Board of Trustees of the Dana-Farber Cancer Institute, Inc. Meeting Minutes;
9. Project Silver: Programming & Building Cost Update presented April 25, 2023;
10. Project Silver Development Schedule developed April 14, 2023;
11. Annotated Project Silver Total Project Cost estimate developed October 12, 2023;
12. Silver Project Monthly Cash Flow: July 2023 – December 2031 provided September 6, 2023;
13. Dana-Farber Cancer Institute, Inc. Research Policy and Procedure Manual Section 5: Protection of Intellectual Property effective June 2017;
14. Agreement to Lease for Air Rights of One Joslin Place, Boston MA between Joslin Diabetes Center, Inc. as Landlord and Dana-Farber Cancer Institute, Inc. as Tenant executed September 2023;
15. EPIC Asset Depreciation estimate provided on September 27, 2023;

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<sup>111</sup> The Applicant's fiscal year is defined as October 1 through September 30 throughout the entire CPA Report.

16. DFCI Goldman Sachs Engagement Letter signed October 13, 2023;
17. Max Capital Expenditure Reconciliation Model dated October 10, 2023;
18. Excerpt of the Final DFCI-BMS-Ono Settlement Agreement dated April 4, 2023;
19. Project Silver Ground Lease Present Value calculations provided on October 13, 2023;
20. Definitive Healthcare data;
21. Data obtained from Integra Information, A Division of Microbilt Corporation as of August 4, 2023; and,
22. IBISWorld Industry Report 62211: Hospitals in the US, dated January 2023.

To assess the reasonableness of the Projections, the CPA calculated key metrics which compared the operating results of the Projections to market information from Integra Reports, IBISWorld, and Definitive Healthcare, as well as the Applicant's historical performance. The key metrics fall into three categories: profitability, liquidity, and solvency.<sup>112</sup>

### **Revenue**

The CPA analyzed the revenue forecast within the Projections. Revenue streams include net patient service revenue (NPSR), research revenue from direct grants and contracts and gift related research revenue, indirect grants and contracts, unrestricted gifts, and other operating revenue.

- The CPA reports that approximately 78.0 percent of revenue on average is derived from NPSR (Average Percent of Total Operating Revenue). NPSR is projected to grow between 5.0 percent and 16.1 percent annually from FY2023 to FY2036, over the projection period, with the exception of FY2031, in which NPSR is expected to grow 26.2 percent. Historical growth in NPSR for FY2018 to FY2022 ranged from 0.2 percent to 20.5 percent.
- The projected annual growth from FY2023 to FY2036 for Direct Research Revenues, Indirect Grants and Contracts, and Unrestricted Gifts is consistent with historical growth from FY2018 to FY2022, and these revenue streams make up 20.9 percent (14.5%, 3.8%, and 2.6%, respectively) of total operating revenue over the projection period.
- Future NPSR annual growth from FY2023 to FY2036 is consistent with historical annual growth from FY2018 and FY2022 (0.2% to 20.5%). The higher NPSR growth for FY2023 (16.1 percent) is attributed to the opening of the new Foxborough cancer treatment center in Foxborough, MA (Patriot Place). NPSR growth is expected to be higher in FY2031 (26.2 percent) due primarily to the start of the operations of the Proposed Project.
- The fourteen-year compound annual growth rate (CAGR) from FY2023 to FY2036 for total operating revenue in the Projections of 8.3 percent is within the range of DFCI's revenue growth from FY2018 to FY2022, between 0.2 percent to 20.5 percent.

The CPA concluded that the revenue growth projected by Management is based on reasonable assumptions and is feasible for the combined operations of DFCI.

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<sup>112</sup> Profitability metrics are used to assist in the evaluation of management performance in how efficiently resources are utilized. Liquidity metrics, including common ratios such as "days of available cash and investments on hand", measure the quality and adequacy of assets to meet current obligations as they come due. Solvency metrics measure the company's ability to take on and service debt obligations.

## **Operating Expenses**

The CPA analyzed each of the categorized operating expenses for reasonableness and feasibility related to the Projections. Operating expenses in the analyses are broken out into three categories: patient service, research, and general & administrative.<sup>113</sup>

- The Projections indicate a total operating expense growth from FY2023 to FY2036 of 5.5 percent to 20.5 percent, with an average growth rate of 7.5 percent, excluding the highest year of 20.5 percent. The CPA states that the primary driver of the higher expenses are increased drug costs, with the pharmacy being the main contributor to expense growth. The CPA states that Management expects the drivers of expense growth to moderate over time, and decline to 5.5 percent by FY2030.
- The projected annual growth in operating expense (5.5% to 11.9%) from FY2023 to FY2036 is consistent with the historical annual growth range (2.3% to 14.7%), with the exception of FY2031 where the growth was projected to be 20.5 percent. This, the CPA states, is related to the projected added revenue generated from the operations of the Proposed Project.

The CPA notes that the projected total expenses as a percentage of total revenue range from 96.5 percent to 99.4 percent from FY2023 to FY2036, noting further that the level of total operating expenses is consistent with the historical total expenses as a percentage of total revenue, which ranged from 97.5 percent to 98.4 percent from FY2018 to FY2022, with the exception of FY2020, which was approximately 100.9 percent of total revenue.

The CPA concluded that the operating expenses within the Projections reflect reasonable estimation of future expenses of the Applicant.

## **Capital Expenditures and Proposed Project Financing**

The CPA reviewed the project costs related to the Proposed Project. The CPA states that the project costs, which were developed jointly by DFCI and Leggat McCall Properties, the Applicant's project representative, is based on the following: (1) an initial construction estimate by the Proposed Project's construction manager and (2) historic cost data from both DFCI and Leggat McCall. The CPA notes that construction costs (\$ 1,570,561,818) is approximately 93.7 percent of the total project cost.

The CPA reviewed the supporting documentation building up the total maximum capital expenditure. The CPA also reviewed the proposed financing of the Proposed Project. The Projections detailed a mix of debt financing and various types of contributions. Debt financing accounts for approximately 77.6 percent of the estimated capital expenditures, and the remaining funds will be sourced from Beth Israel Deaconess Medical Center and surplus funds drawn from the President's

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<sup>113</sup> Patient Service expenses include direct patient care, depreciation & amortization, and interest. Research expenses include direct research/restricted gifts, institute supported research, depreciation & amortization, and interest. General & Administrative expenses include general, administrative, & plant, depreciation & amortization, and interest.

Initiative Fund of the Applicant.

DICI plans to raise up to approximately \$1.8 billion through debt financing for the Proposed Project, with \$1.3 billion of that amount allocated to the DoN. The CPA reviewed the debt credit rating analysis conducted by Goldman Sachs & Co. LLC, who was engaged to assist the Applicant with the debt raising initiative, noting that their initial analysis was performed in February 2023 and was based on market assumptions at that time and reflected a lower financing amount of \$1.5 billion. The Goldman Sachs analysis in February 2023, states that there was a high probability that DICI would secure access to capital (\$1.5 billion) for the project, but with a potentially lower credit rating of Baa1 compared to the current A1 rating issued by Moody's Corporation (Moody's). The potential downgrade is primarily due to the additional debt incurred. Goldman Sachs indicated that the debt raise would likely reduce financial flexibility and could result in a credit rating downgrade potential down three notches to Baa1 by Moody's and two notches to BBB+ by Standard and Poor's (S&P).

The CPA states that during the construction period, DICI's financial metrics (days cash on hand, cash to debt, maximum annual debt service (MADS) coverage, debt to cash flow, and debt to capitalization) are expected to underperform to the weakest quartile of Moody's Baa1-rated credit metrics. This potential credit rating downgrade will impact DICI's current and future borrowing costs, potentially affecting any future lines of credit or short-term borrowings required during periods of cash flow shortfall, operational challenges, and unexpected costs. Goldman Sachs also highlighted that DICI's qualitative strengths would help mitigate the financial and strategic risks associated with the Proposed Project citing DICI's 75-year legacy providing cancer care, and its prior experience navigating financial and strategic risks.

The CPA also reviewed a partially updated analysis which included the updated maximum debt balance of \$1.8 billion and the latest construction timeline. The updated analysis from Goldman Sachs suggested that DICI is on track to recover from the risks and financial stressors associated with the construction period by the time the new hospital is expected to be operational.

To further test the financial flexibility of the Applicant, the CPA conducted a sensitivity analysis of the Projections using the current interest rate corresponding to a BB credit rating, which is one notch below what Goldman Sachs indicated and what the Applicant anticipates. The CPA's analysis indicated that under this scenario, the Applicant would still generate a positive operating surplus and maintain a positive net asset balance throughout the Projection Period, suggesting that DICI has a strong financial position and is well-equipped to handle potential financial stressors.

The CPA states that in addition to the debt financing, Beth Israel Deaconess Medical Center has made a commitment to contribute \$185.3 million towards the costs associated with the maximum capital expenditure. The remaining financial amount of \$189.6 million will be funded by the President's Initiative Fund of DICI.

## **Feasibility**

The CPA concluded, *“Within the projected financial information, the Projections exhibit a cumulative operating EBIDA surplus of approximately 6.4 percent of cumulative projected total revenue for the fourteen years from FY 2023 through FY 2036. Based upon our review of the relevant documents and analysis of the Projections, we determined the anticipated EBIDA surplus is a reasonable expectation and is based upon feasible financial assumptions. Accordingly, we determined that the Projections are reasonable and feasible, and are not likely to have a negative impact on the patient panel or result in a liquidation of assets of DFCI.”*

#### **CPA Analysis**

Staff is satisfied with the CPA’s analysis of the Applicant’s decision to proceed with the Proposed Project. As a result, staff finds the CPA analysis to be acceptable.

#### **Independent Cost Analysis for the Proposed Project**

As noted in Factor 2, the Project was required to undergo an ICA to evaluate whether the Proposed Project would be consistent with the health care cost containment goals of Massachusetts. Please see the cost containment section of Factor 2 for discussion and analysis of the ICA.

#### **Factor 4 Analysis**

Staff finds the CPA analysis to be acceptable and with the “Other Conditions” outlined below, the requirements of Factor 4 have been met.

#### **Factor 5: Assessment of the Proposed Project’s Relative Merit**

The Applicant has provided sufficient evidence that the Proposed Project, on balance, is superior to alternative and substitute methods for meeting the existing Patient Panel needs identified by the Applicant pursuant to 105 CMR 100.210(A)(1). Evaluation of 105 CMR 100.210(A)(5) 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.

The Applicant identified the following key criteria for the new facility:

- Contiguous to the Applicant’s existing care locations
- Dedicated exclusively to cancer care
- Layout and operations that reduce fragmentation of care
- Equipped with state-of-the-art research capabilities

The Applicant states that it explored a variety of options for addressing Patient Panel need for its services, including discussions with MGB surrounding their affiliation, but stated that those discussions did not yield any viable alternatives. The Applicant piloted an oncology-specific Acute Care Clinic (ACC), in the hospital outpatient setting to effectively manage patients with cancer-related symptoms who would otherwise be seen in the ED. The Applicant maintains that even with

alternative strategies like the ACC, need for inpatient care will remain.

The Applicant states that it landed on two options: the Proposed Project and one alternative, described below.

**Alternative:** The Applicant constructs and operates a completely independent comprehensive cancer center.

Quality: Because this alternative lacks a primary clinical partner it may reduce care coordination for essential cancer-adjacent services.

Efficiency: This alternative requires the Applicant to establish its own surgical service line to offer patients a full continuum of care, which the Applicant states may result in initial operating inefficiency due to the Applicant's lack of experience and cost inefficiencies associated with having duplicate services. The Applicant states that this alternative requires new construction and equipping of expensive operating surgical suites, ED and surgical ICU, and the recruitment of surgeons and specialists, such as cardiologists, dermatologists, pulmonologists, and psychiatrists. The Applicant states that these surgeons and specialists are better supported when they are a part of a larger department.

Capital Expense: This alternative requires the construction of a new facility with medical oncology and surgical oncology capacities. This alternative requires an estimated \$3.4 billion in initial capital expenditures, which is significantly higher (103%) than the Proposed Project and cost prohibitive.

Operating Costs: This alternative requires an estimated increase of \$700 million in annual operating expenses, which is significantly higher (94%) than the Proposed Project and cost prohibitive. Since the Applicant does not have surgeons or non-oncology physicians on its faculty, this option would require additional staffing, as well as facility and maintenance costs.

The Applicant states that partnering with BIDMC and HMFP provides it with access to surgeons and non-oncology specialists that are essential to the care of its patients at all points during treatment and survival. The Applicant affirms that BIDMC is the optimal clinical partner because of several advantages, that include: BIDMC's close physical proximity to Dana-Farber and the proposed hospital; BIDMC's affiliation with Harvard Medical School and its world-class clinicians; and BIDMC's existing relationships and affiliations (including with community health centers), which the Applicant states may be leveraged to expand equitable access to Dana-Farber's services.

Comments submitted to the Department discussed Dana-Farber and BIDMC's collaboration.

- Pete Healy, President of BIDMC stated, "Together, BIDMC and Dana Farber will collectively ensure that patients have access to the highest caliber of cancer care. Across Massachusetts hospitals are experiencing critical capacity challenges. This, combined with a rising incidence of cancer, which is the leading cause of death in the state, has created an urgent need to expand capacity for cancer care in our community. Developing a dedicated inpatient cancer hospital will increase capacity for high quality cancer services to meet the needs of the Commonwealth's patients."

- The CEO of Charles River Community Health Center, President and CEO of the Massachusetts League of Community Health Centers, and others stated in their remarks that “Dana-Farber and BIDMC share a deep commitment to fostering a culture of diversity, equity, and inclusion.”

### **Analysis**

Staff finds that the Applicant has appropriately considered the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives. As a result of information provided by the Applicant and additional analysis, staff finds the Applicant has reasonably met the standards of Factor 5.

## **Factor 6: Fulfillment of DPH Community-based Health Initiatives Guideline**

**Summary, relevant background and context for this application:** This is a DoN project that will result in a Tier 3 Community-based Health Initiative (CHI). The Applicant engaged in an ongoing, collaborative process in fulfilling its CHI requirement. DFCI participated in the Boston Community Health Collaborative’s (“the Collaborative”), city-wide Community Health Needs Assessment (CHNA) and Community Health Improvement Plan (CHIP) process. Coordinating with the larger Collaborative, the Applicant utilized multilingual community-wide surveys, focus groups, and interviews to obtain community input, and analyzed data from institution-specific priority Boston communities. DFCI also engaged community throughout their subsequent Cancer-Focused 2022 CHNA/CHIP. The Applicant and the Collaborative’s upcoming CHNAs will be released in 2025. Using the updated reports, the Applicant will engage its DoN Advisory Committee to select priorities and identify strategies for CHI implementation with the funds associated with this project.

To fulfill Factor 6 requirements, the Applicant submitted a CHI Narrative, Self-Assessment, Community Engagement Plan and Addendum, Partner Assessments, the Collaborative’s 2022 city-wide CHNA/CHIP, and DFCI’s Cancer-Focused 2022 CHNA/CHIP.

**Collaborative’s 2022 CHNA** built off their first, citywide 2019 assessment and focused on assessing social determinants of health (SDoH) with a health equity lens using data collection and analysis methods. Key findings included:

- *Financial stability & mobility*—jobs, low-wage/minimum wage work, employment, income, education, and food security.
- *Housing*—affordability, instability, quality, homelessness, homeownership, gentrification and displacement.
- *Behavioral health*—trauma, discrimination, racism, community violence and interactions with police, mental health, substance use, and access to care.
- *Accessing services*—childcare, healthcare, social and other services.

These findings were used to develop the Collaborative's multi-year **2022-2025 CHIP** that builds upon the engagement work conducted by the city's regional collaborative.

**DHCI's Cancer-Focused 2022 CHNA** built upon the Collaborative's CHNA to provide cancer-focused data collection using key informant surveys, focus groups, interviews and secondary data analysis. It focused on engaging the Applicant's priority neighborhoods of Roxbury, Mission Hill, Dorchester, Mattapan, and Jamaica Plain. The DHCI CHNA explored the resident, patient and survivor experiences related to supports, concerns, challenges and inequities in cancer prevention, screening, treatment and survivorship—all within a SDoH and health equity framework. The CHNA identified that socio-demographic inequities persisted in terms of cancer mortality, risk and incident rates (E.g., Black residents, Asian residents, Latino residents, immigrant residents, and low-income residents). Key SDoH findings included:

- *Income inequality*—cancer treatment can carry extreme financial costs.
- *Job/income loss*—some survivors lost jobs/left due to health concerns about in person work during the pandemic.
- *Food security*—difficult to obtain food, especially healthy food during treatment.
- *Housing*—increased medical costs, job loss or reduced work during cancer treatment makes it harder to afford housing/leads to fears about losing housing.
- *Transportation*—long distances to medical facilities can be a barrier to screen and treatment and is exhausting for those undergoing treatment.

Multisectoral partnerships contributed to the Applicant's **Cancer-Focused 2022-2025 CHIP**, which noted efforts and action steps to address the priority areas identified in both the Boston and DHCI CHNAs.

Collectively, the CHNA/CHIP reports capture SDoH needs and provide a range of prospective CHI investment areas that align with the CHI and Health Priority Guidelines. The Applicant will collaborate with the community partners who sit on their DoN Advisory Committee and select health priorities and strategies that allow for implementation and intervention at the root cause level.

**Self-Assessment** provided a summary of community engagement processes and socio-demographic information, data and highlights related to topics and themes of community needs. Through data analysis, surveys, focus groups and key informant interviews, the Applicant, participating community groups and residents identified the key priorities and strategies also highlighted in the 2022 Cancer-Focused CHNA/CHIP.

**Community Engagement Plan and Addendum** provided background information for, and explanation of existing CHNA/CHIP planning processes. These elements focused on the 2022 CHNA processes for Boston and DHCI, as well as the supplementary engagement in priority neighborhoods.

Levels of engagement in all activity areas were identified for the CHNA/CHIP processes and key CHI implementation phases from selecting health priorities to evaluating actions.

**Partner Assessments** (formerly known as Stakeholder Assessments) submitted provided information on the individuals' engagement levels (e.g., their personal participation and role) and their analysis of how the Applicant engaged the community in community health improvement planning processes. The information provided in these forms were largely consistent with the self-assessment conducted by the Applicant.

**CHI Narrative** provided an overview of the CHI funds breakdown, processes and community engagement and planning activities. It also highlighted DoN Advisory and Allocation Committee duties, timeline for CHI activities, explanation of administrative monies, and evaluation overview. DFCI plans to convene their DoN Advisory Committee to select health priorities, Allocation Committee and funding method(s) within 12 months post approval. Funding decisions, disbursement and implementation will take place within 15-18 months post approval.

DFCI plans to utilize administrative funds to promote funding opportunities, develop a Request for Proposal (RFP) process, provide applicants with technical assistance resources and support additional staff time. Administrative funds will also be utilized to support the work of the regional Boston Community Health Collaborative. The CHI team also asks the Applicant to utilize administrative dollars to address barriers to community participation and engagement (e.g., provide interpretation/translation services and/or stipends for resident participation). The proposed timeline and use of administrative and evaluation funds are all appropriate and in line with CHI planning guidelines.

### ***Analysis***

As a result of information provided by the Applicant and additional analysis, staff finds that with the conditions outlined below, and with their ongoing commitment to meaningful community engagement and based on planning timelines that staff will approve, the Applicant has demonstrated that the Proposed Project has met Factor 6.

## **Public Comments on the Application**

Any person, and any Ten Taxpayer group, may provide written or oral comment at any time during the first 30 days following the Filing Date of an Application, or during the first ten days after a public hearing.

### **Public Hearing**

The Department held a virtual public hearing in connection with the Proposed Project on April 17, 2024. A total of 26 people provided oral comments at the public hearing. Pursuant to the DoN regulation, the Department determines whether need exists for a Proposed Project, based upon whether the Applicant meets each of the relevant factors set out in those regulations. Oral comments provided at the public hearing for consideration in DoN's review and analysis would be

ones that address the Applicant's ability to meet the requirements of each of the relevant factors. The transcript of the public hearing is available online on the DoN website. The names of those testifying at the hearing are listed in Appendix IV, and a summary of comments is in Appendix VI.

### **Written Comment**

The Department received a total of 45 written comments. Pursuant to the DoN regulation, the Department determines whether need exists for a Proposed Project, based upon whether the Applicant meets each of the relevant factors set out in those regulations. Comments for consideration in DoN's review and analysis would be ones that address the Applicant's ability to meet the requirements of each of the relevant factors. The names of those submitting written comments are listed below in Appendix V and a summary of the written comments is provided below in Appendix VI. The full text of written comments is available online on the DoN website.

### **Ten Taxpayer Groups (TTGs)**

Pursuant to the DoN Regulation, any ten Taxpayers, organized as a group, may participate in the review of an Application for Determination of Need or request to amend a previously issued Notice of Determination of Need. Said group must register with the Department at any time during the first 30 days following the Filing Date of an Application, or during the first ten days after a public hearing held pursuant to 105 CMR 100.445.

Six Ten taxpayer groups (TTGs) registered in connection with the Proposed Project. Registration information for each TTG is available on the DoN website. The names of the TTGs and their participation in the review process can be found in Appendix VII. Additional information including full text of comments is available on the DoN website.

## **Findings and Recommendations**

Based upon a review of the materials submitted, Staff finds that, with the addition of the recommended Conditions detailed below, the Applicant has met each DoN Factor for the Proposed Project and recommends that the Department approve this Determination of Need, subject to all applicable Standard and Other Conditions.

## **Other Conditions**

1. Of the total required CHI contribution of \$83,785,000.
  - a. \$20,527,325 will be directed to the CHI Statewide Initiative.
  - b. \$61,581,975 will be dedicated to local approaches to the DoN Health Priorities.
  - c. \$1,675,700 will be designated as the administrative fee.
2. To comply with the Holder's obligation to contribute to the CHI Statewide Initiative, the Holder must submit a check for \$20,527,325 to Health Resources in Action (the fiscal agent for the CHI Statewide Initiative) **within 30 days** from the date of the Notice of Approval.
  - a. Payments should be made out to:

Health Resources in Action, Inc. (HRiA)  
2 Boylston Street, 4th Floor  
Boston, MA 02116  
Attn: MACHHAF c/o Bora Toro  
DoN project #: DFCI-23040915-HE

- b. Please send a PDF image of the check or **confirmation of payment** to [DONCHI@Mass.gov](mailto:DONCHI@Mass.gov) and [dongrants@hria.org](mailto:dongrants@hria.org)

If you should have any questions or concerns regarding the payment, please contact the CHI team at [DONCHI@Mass.gov](mailto:DONCHI@Mass.gov).

3. To demonstrate that the Proposed Project is advancing health equity and increasing access across the Holder's services, the Holder will track and report on its efforts to (1) identify barriers to cancer care, including but not limited to patients in the Holder's Patient Panel insured by or through MassHealth, (2) implement evidence-based programs conducted in early detection, screening, and cancer prevention and education through existing and new partnerships with community health centers, community-based organizations, and government entities, including strengthening patient access to primary care settings, and (3) report on its efforts to address identified barriers to care and expand access to care, including measurable metrics.
4. If, during the pendency of the DoN, the Department determines that the MassHealth payer mix of the Holder has materially decreased, the Holder shall submit a plan to the Department detailing its plan to increase its MassHealth payer mix. The plan shall be submitted no later than six months after such time as the Department notifies the Holder that such a plan is required. The Holder shall provide, with its annual report to the Department, a report on implementation of said plan to demonstrate measurable progress resulting from its efforts to increase its MassHealth payer mix.
5. For each full fiscal year, during the Reporting Period the Holder shall report the following metrics to the Department annually for the Project:
  - a. Total Inpatient Revenue
  - b. Total Inpatient Pharmaceutical Revenue
  - c. Total Inpatient Operating Expenses
  - d. Total Inpatient Pharmaceutical Expenses
  - e. Total Inpatient Discharges
  - f. Inpatient Case Mix Index

The DoN Program shall use the data provided to calculate, for each applicable year, the Holder's Annual Cost Per Inpatient without Pharmaceutical Expense as follows:

- a. The Holder's "Annual Revenue per Inpatient without Pharmaceutical Revenue" as follows: (i) Total Inpatient Revenue *minus* Inpatient Pharmaceutical Revenue *divided by* (ii) the product of Total Inpatient Discharges *multiplied by* the Holder's Inpatient Case Mix Index.
- b. The Holder's "Annual Inpatient Operating Income without Pharmaceutical Revenue or Expense as follows: (i) Total Inpatient Revenue *minus* Inpatient Pharmaceutical Revenue *minus* Inpatient Operating Expenses *plus* Inpatient Pharmaceutical Expenses, *divided by* (ii) the Holder's Inpatient Case Mix Index.

The DoN Program will compare the percentage growth, if any, in Annual Revenue per Inpatient without Pharmaceutical Revenue, as calculated, year over year (the "Annual Growth Percentage") against the health care Cost Growth Benchmark (CGB) established under M.G.L. c. 6D, §9 for such year.

If the DoN program determines that the Holder's Annual Growth Percentage, calculated as outlined above, exceeds the CGB, the Holder shall provide the Department with an explanation for the increase above the CGB to allow the Public Health Council to determine whether the Holder must make equity investments as described below. The Public Health Counsel shall consider whether the increase is a result of the Holder's implementation of innovative cancer treatment or the result of increases in costs that are outside the control of the Holder.

If the Public Health Council determines the increase is not attributable to implementation of innovative treatment and/or forces outside of the Holder's control, the Holder shall develop a plan, as agreed to by the Department, to make equity investments in a manner that is consistent with the health equity and access efforts articulated in Condition 3. The investments required shall not exceed an amount equal to the product of: (a) the Annual Inpatient Operating Income without Pharmaceutical Revenue or Expense *multiplied by* (b) the Annual Growth Percentage *minus* the CGB. For the avoidance of doubt, in no event shall the amount of required investments be less than zero or greater than the Holder's Annual Inpatient Operating Income without Pharmaceutical Revenue or Expense for the applicable year. The plan shall be submitted no later than six months after such time as the Department notifies the Holder that such a plan is required.

If, at any point during the reporting period, the DoN program identifies an increase in Annual Growth Percentage that is below the benchmark but substantial enough to raise concerns regarding cost containment, the Department reserves the right to require the Holder to explain the reasons for that increase to the Public Health Counsel; however, any increases that fall below the benchmark shall not trigger investment by the Holder as described above.

6. Other requirements in terms of the form, frequency and content of the reporting may be set out as contemplated in 105 CMR 100.310(12) and this Notice of DoN, and this information shall be updated annually in accordance with the Regulation.



## APPENDIX I: Measures

Below is a list of measures to assess the impact of the Proposed Project. The Applicant will report this information to the Department's DoN Program staff as part of its annual report required by 105 CMR 100.310(A)(12) following implementation of the Proposed Project. For all measures, the Applicant will provide to the program a baseline upon implementation of each project component, along with updated projections, which the program will use for comparison with the annual data submitted. Reporting will include a description of numerators and denominators.

The Annual Reports must include, but are not limited to, the following:

1. **Access:** The proportion (per 1,000 patients) of patients travelling from the New England region that are able to obtain the Applicant's inpatient cancer care services stratified by patient race, ethnicity, and language.
2. **Patient Experience:** Patients who are satisfied with care are more likely to seek additional treatment when necessary and tend to have better quality outcomes. The Applicant will review ratings of satisfaction with the care coordination of all inpatient medical oncology services via Press Ganey or an equivalent third-party firm.
  - a. **Measure:** To ensure a service-excellence approach, patient satisfaction surveys will be distributed to all patients at the proposed hospital with specific questions addressing (a) care coordination among doctors and caregivers; (b) satisfaction with care services; and (c) the likelihood of recommending services.
  - b. **Projections:** The Holder will provide baseline measures and three years of projections at least one year prior to implementation of the Proposed Project.
  - c. **Monitoring:** Any category receiving a less than exceptional rating (satisfactory level) by any subpopulation stratified by race, ethnicity or language will be evaluated and policy changes considered. These data will be evaluated on an annual basis by the Holder's performance improvement and quality staff.

The Holder shall report on policy changes instituted as a result of the Holder's evaluation of any category receiving a less than exceptional rating by any subpopulation.

3. **Radiation Therapy:** The number of patients who obtain radiation therapy at the new hospital stratified by patient race, ethnicity, and language.
4. The Holder will report on the following measures<sup>114</sup> stratified by patient race, ethnicity, and language:
  - a. Standardized infection ratios for Central Line-Associated Bloodstream Infections

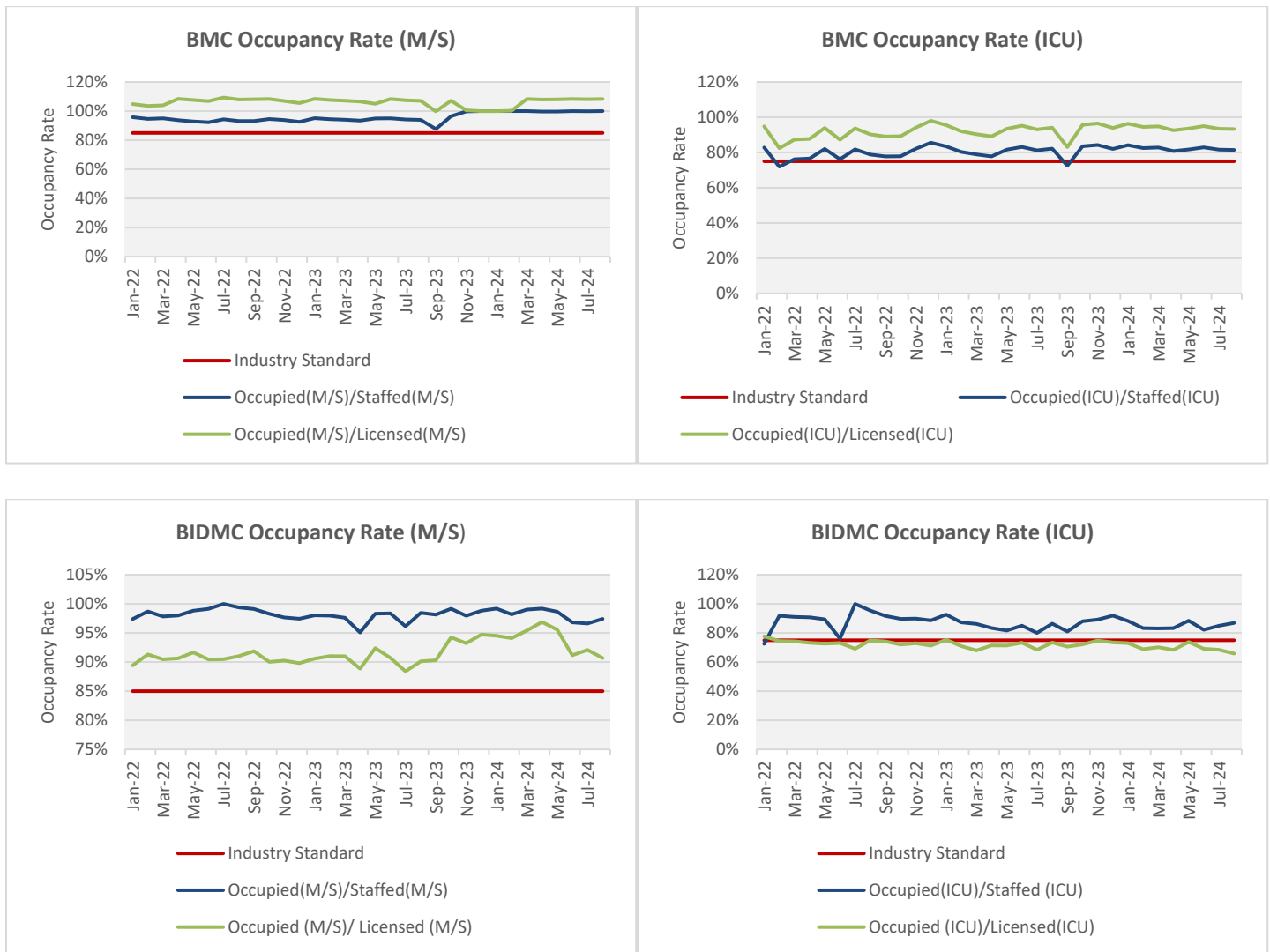
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<sup>114</sup> Included in PPS-Exempt Cancer Hospital Quality Reporting (PCHQR) Program Measures.

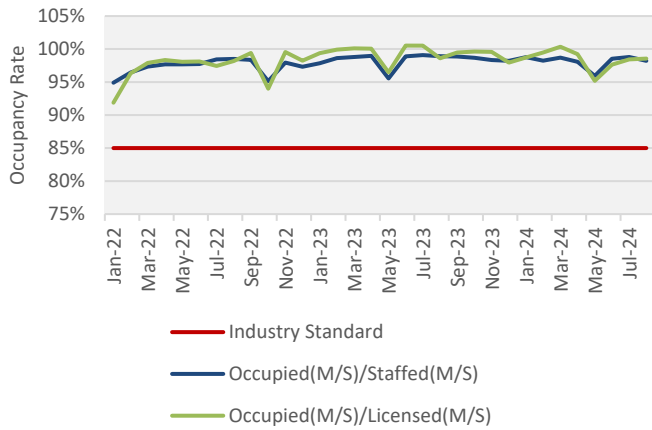
- (CLABSI),
  - b. Catheter-Associated Urinary Tract Infections (CAUTI),
  - c. Methicillin-resistant *Staphylococcus aureus* infections (MRSA),
  - d. *Clostridioides difficile* infections (CDI),
  - e. 30-day Unplanned Readmissions for cancer patients,
  - f. Admissions and Emergency Department Visits for Patients Receiving Outpatient Chemotherapy,
  - g. The Proportion of Patients Who Died of Cancer and Received Chemotherapy in the Last 14 days of Life, and
  - h. The Proportion of Patients Who Died of Cancer Not Admitted to Hospice.
5. The Holder will report on the following community-focused Patient Navigator Program metrics:
    - a. Barriers to care identified.
    - b. Barriers to care addressed.
    - c. Psychosocial oncology referral rate.
  6. The Holder will report on the following health equity metrics:
    - a. Number of cancer screenings conducted with community partners for patients in Dana-Farber's priority neighborhoods.
    - b. Time to initiation for treatment for patients coming from community partners.
    - c. Time from when a patient presents at a community partner to the development of a care plan.
  7. The Holder will report annually on oncology discharges stratified by patient race, ethnicity, language, payor mix, and zip code of residence.
  8. The Holder will provide an annual progress update on the expansion of patient navigation services across the Holder's sites, and in community health centers and community networks.
  9. The Holder will report on the source of oncology admissions, including percentage of oncology admissions from an ED.
  10. The Holder will report annually on the number of transfers accepted, on the number of transfers delayed due to lack of inpatient capacity, and on the number of transfers denied admission due to lack of inpatient capacity.
  11. The Holder will report annually on the top five most frequently identified needs through HRSN screening and the processes in place to respond to a positive screen. The Holder will report on the following measures stratified by patient race, ethnicity, and language:
    - a. Number of patients screened.

- b. Number of patients screened with identified HRSNs.
- 12. The Holder will report annually on the following screening measures stratified by patient race, ethnicity, and language for cervical cancer and breast cancer screening, and by patient race, ethnicity, language, and gender for colorectal cancer screening:
  - a. Cervical cancer screening: ages 21 to 64,
  - b. Colorectal cancer screening: ages 45-74, and
  - c. Breast cancer screening: Ages 50-74
- 13. Dana-Farber Cancer Institute Mammography Van:
  - a. Number of mobile mammography van deployments.
  - b. Number of screenings completed.
  - c. Number of patients screened.

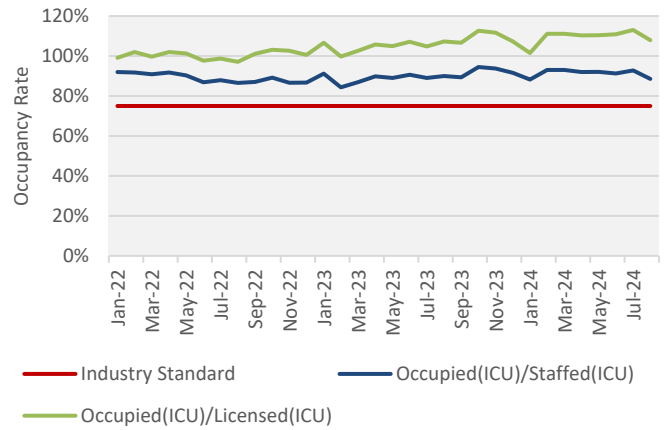
## Appendix II: Occupancy rates for Massachusetts AMCs, Jan 2022 to August 2024



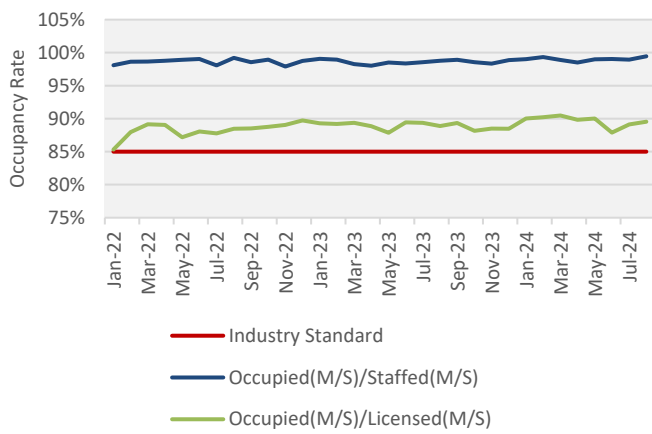
**BWH Occupancy Rate (M/S)**



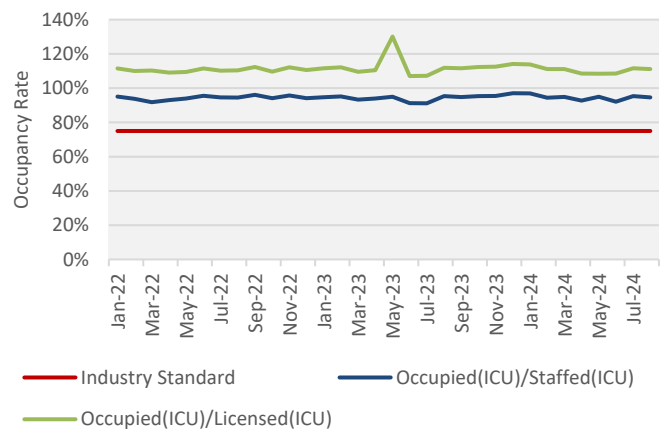
**BWH Occupancy Rate (ICU)**



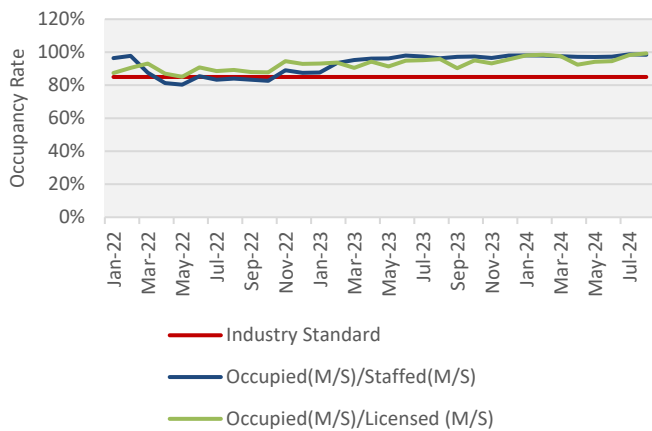
**MGH Occupancy Rate (M/S)**



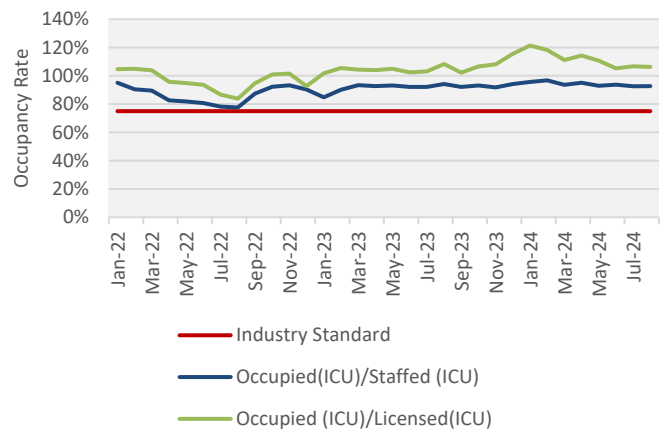
**MGH Occupancy Rate (ICU)**



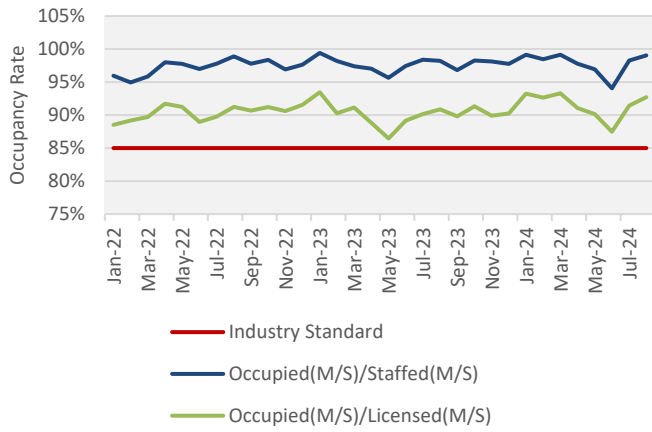
**TMC Occupancy Rate (M/S)**



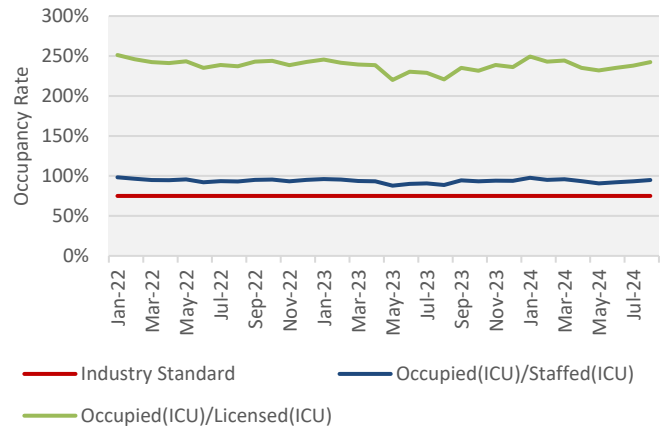
**TMC Bed Occupancy Rate (ICU)**



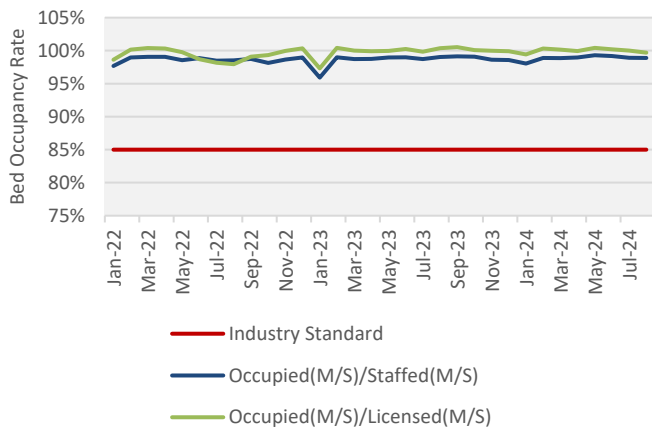
UMass MEM Campus Occupancy Rate (M/S)



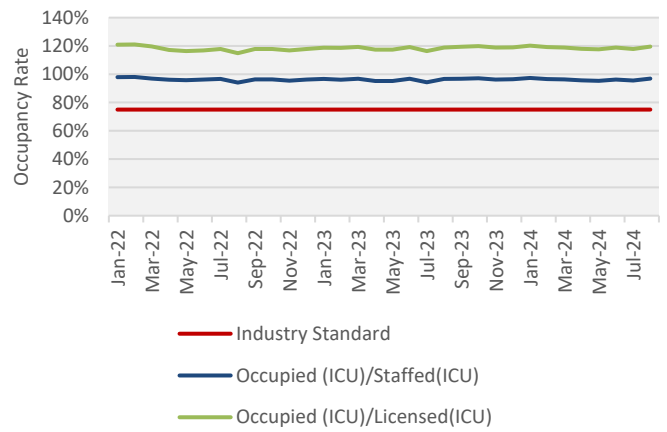
UMass MEM Campus Occupancy (ICU)



UMass Univ Campus Occupancy Rate (M/S)



UMass Univ Campus Occupancy Rate (ICU)



## APPENDIX III: Definitions

### **Computer Tomography (CT) Scan<sup>hhh,iii</sup>**

Uses radiation (x-rays) to create detailed images of structures inside of the body, including organs, blood vessels, and bones. CT scans, show a slice or cross-section of the body, and therefore provide clearer images of bones, organs, and soft tissues, than an X-ray. CT scans are used to detect cancer and to indicate the shape, size, and location of tumors. Successive CT scans help doctors determine how well patients with cancer are responding to treatment.

### **Magnetic Resonance Imaging (MRI)<sup>jjj</sup>**

Uses strong magnets, and not radiation, to create cross-sectional pictures of the inside of the body. MRI scans are used to detect cancer and to determine how significantly a particular cancer may have spread within the body. MRI can help doctors plan cancer treatment

### **Positron emission tomography–computed tomography (PET-CT)<sup>kkk,III</sup>**

Combines functionality of PET and CT to locate abnormal metabolic activity and may provide more accurate diagnoses than when the two scans are performed separately. Unlike MRIs or CT scans, which show anatomic detail, PET-CT images biochemical or physiologic irregularities. Therefore, PET-CT offers substantial advantages over anatomic imaging modalities in oncologic imaging and can often distinguish between benign and malignant lesions when CT and MRI cannot.

### **CT simulator<sup>mmm,nnn</sup>**

A CT simulation procedure is performed before radiation therapy treatment to determine the size, location and shape of a tumor which allows doctors to create custom treatment plans for patients. CT simulator is a CT scanner equipped to take images of the tumor to help that process. CT simulator machines are equipped with much of the same technology as a CT machine, but they also include multi-image display and treatment planning technology that allow doctors to create custom treatment plans for patients and are also used to investigate causes of symptoms, complications of the disease, and its treatment.

### **Linear Accelerator (LINAC)<sup>ooo,ppp,qqq</sup>**

LINACs are machines used to deliver external beam radiation treatments to patients with cancer to treat malignant tumors in a targeted fashion through the delivery of high doses of x-rays or electrons. The machine focuses the radiation beam to the exact location to conform to a tumor's shape and destroy cancer cells while minimizing the impact on normal tissue. External beam radiation is the most common type of radiation therapy used for cancer treatment.

## Appendix IV: Speakers at the Public Hearing

| Name                              | Affiliation                                                                                                                                                    |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Laurie Glimcher, MD               | President and CEO Emerita (2016-2024), Dana-Farber Cancer Institute                                                                                            |
| Ann-Margaret Ferrante             | Massachusetts State Representative, 5 <sup>th</sup> Essex District<br>Vice Chair, House Committee on Ways and Means<br>Dana-Farber Cancer Institute Patient    |
| Chynah Tyler                      | Massachusetts State Representative, 7 <sup>th</sup> Suffolk District                                                                                           |
| Frank A. Moran                    | Massachusetts State Representative, 17 <sup>th</sup> Essex District<br>Dana-Farber Cancer Institute Patient                                                    |
| William C. Hahn, MD, PhD          | Chief Operating Officer, Dana-Farber Cancer Institute                                                                                                          |
| Doug Fox                          | Resident of Needham, MA<br>Cancer Survivor, Dana-Farber Cancer Institute Patient                                                                               |
| Magnolia Contreras, MSW, MBA      | Vice-President of Community Health, Dana-Farber Cancer Institute<br>Breast Cancer Survivor                                                                     |
| Joseph D. Feaster Jr., Esq.       | Former Chairman of the Board of Urban League of Eastern MA<br>Resident of Stoughton, MA<br>Cancer Survivor                                                     |
| Barry Nelson                      | Resident of Boston, MA<br>Lung Cancer Survivor<br>Dana-Farber Cancer Institute Patient                                                                         |
| Brian Doherty                     | Greater Boston Building Trades Unions<br>Resident of Dorchester, MA                                                                                            |
| Michael Burns                     | Representative of Greater Boston Building Trades Unions<br>Resident of Boston, MA                                                                              |
| Sonny Doucette                    | Resident of Sandown, NH<br>Dana-Farber Cancer Institute Patient                                                                                                |
| Anne Gross, PhD, RN, NEA-BC, FAAN | TTG Member, Clinicians of Dana-Farber Cancer Institute<br>Senior Vice President, Patient Care Services and Chief Nursing Officer, Dana-Farber Cancer Institute |
| Chuck Stravin                     | Resident, Quincy MA<br>Dana-Farber Cancer Institute Patient                                                                                                    |
| Chaton Green                      | Greater Boston Building Trades Unions<br>Resident of Roxbury, MA                                                                                               |
| Christopher Lathan, MD, MS, MPH   | Chief Clinical Access and Equity Officer, Dana-Farber Cancer Institute                                                                                         |
| Craig A. Bunnell, MD, MPH, MBA    | Chief Medical Officer, Dana-Farber Cancer Institute                                                                                                            |
| Peter Healy                       | President, Beth Israel Deaconess Medical Center                                                                                                                |

|                        |                                                                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alexa Kimball, MD, MPH | CEO and President of Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center                                                                                       |
| Samatha Taylor, MHA    | Executive Director, Bowdoin Street Health Center                                                                                                                                      |
| Rahsaan D. Hall        | President & CEO, Urban League of Eastern Massachusetts                                                                                                                                |
| Elizabeth Browne, MBA  | CEO, Charles River Community Health (through December 31, 2024)                                                                                                                       |
| Karen Howley LaCamera  | Resident of Sudbury, MA<br>Dana-Farber Cancer Institute Patient                                                                                                                       |
| Patrick Mulkerrin      | Business Agent with Plumbers and gasfitters Local 12<br>President of Quincy and South Shore Building Trades Council                                                                   |
| Jenny Dahlstein        | TTG Member, Patient and Family Advocates of Dana-Farber Cancer Institute<br>Dana-Farber Cancer Institute Patient<br>Member of Dana-Farber's Adult Patient and Family Advisory Council |
| Desalia Gomes          | Boston Trade Union<br>Resident of Dorchester, MA                                                                                                                                      |

## Appendix V: Written Commenters

| Name                             | Affiliation                                                                                                                                                                                                                        |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kevin B. Churchwell, MD          | President and Chief Executive Officer, Boston Children's Hospital                                                                                                                                                                  |
| Austin Sarat                     | Member, Patients and Family Advocates of Dana-Farber Cancer Institute TTG<br>William Nelson Cromwell Professor of Jurisprudence and Political Science, Amherst College                                                             |
| Frederica M. Williams            | President & CEO, Whittier Street Health Center                                                                                                                                                                                     |
| Anita M. Rodriguez               | Member, Patients and Family Advocates of Dana-Farber Cancer Institute TTG<br>Primary Caretaker for former patient of DFCI and Educational Consultant                                                                               |
| Robert Sachs                     | Trustee of the Dana-Farber Cancer Institute<br>Cancer Survivor<br>Dana-Farber Cancer Institute Patient                                                                                                                             |
| Steven Eichberg                  | Member, Patients and Family Advocates of Dana-Farber Cancer Institute TTG<br>Dana-Farber Cancer Institute Patient                                                                                                                  |
| Eric W. Dickson, MD, MHCM, FACEP | President and CEO, UMass Memorial Health                                                                                                                                                                                           |
| Allan & Deborah Osborne          | Dana-Farber Cancer Institute Patient and Care Partner                                                                                                                                                                              |
| Shelly Plumb                     | TTG Representative, Patients and Family Advocates of Dana-Farber Cancer Institute<br>Colon Cancer Patient<br>Volunteer, Dana Farber Patient and Advisory Council member                                                            |
| Elizabeth Browne                 | Chief Executive Officer, Charles River Community Health                                                                                                                                                                            |
| Jenny Dahlstein                  | Volunteer, Dana-Farber Cancer Institute, Adult Patient and Family Advisory Council (PFAC)<br>Member, Patients and Family Advocates of Dana-Farber Cancer Institute TTG                                                             |
| Rameen Beroukhim, MD, PhD        | Resident of Brookline, MA<br>Provider and Researcher, Dana-Farber Cancer Institute                                                                                                                                                 |
| Mary-Ellen Taplin, MD            | Resident of Boston, MA<br>Medical Oncologist, Dana-Farber Cancer Institute                                                                                                                                                         |
| James A. Tulsky, MD              | Poorvu Jaffe Chair, Department of Psychosocial Oncology and Palliative Care, Dana-Farber Cancer Institute<br>Chief, Division of Palliative Medicine, Brigham and Women's Hospital<br>Professor of Medicine, Harvard Medical School |
| Karen F. Howley La               | Resident, Sudbury MA                                                                                                                                                                                                               |

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Camera                                                                                                                                                                                  | Dana-Farber Cancer Institute Patient                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Michael A. Curry, Esq                                                                                                                                                                   | President & CEO, Massachusetts League of Community Health Centers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Faith Simon                                                                                                                                                                             | Resident of Weymouth, MA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Nick Collins                                                                                                                                                                            | Massachusetts State Senator, First Suffolk District                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Brittany Flaherty                                                                                                                                                                       | Resident of South Hamilton, MA<br>Dana-Farber Cancer Institute Employee<br>Former Dana-Farber Cancer Institute Patient                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Mike Rush                                                                                                                                                                               | Massachusetts State Senator, Norfolk and Suffolk District                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Frank A. Moran                                                                                                                                                                          | Massachusetts State Representative , 17th Essex District<br>Second Assistant Majority Leader<br>Dana-Farber Cancer Institute Patient                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Joint Letter:<br>Chynah Tyler<br>David Biele<br>Rob Consalvo<br>Brandy Fluker Oakley<br>Kevin Honan<br>Jay D. Livingstone<br>William MacGregor<br>Daniel Ryan<br>Christopher J. Worrell | Massachusetts State Representative, 7th Suffolk District<br>Massachusetts State Representative, 4th Suffolk District<br>Massachusetts State Representative, 14th Suffolk District<br>Massachusetts State Representative, 12th Suffolk District<br>Massachusetts State Representative, 17th Suffolk District<br>Massachusetts State Representative, 8th Suffolk District<br>Massachusetts State Representative, 10th Suffolk District<br>Massachusetts State Representative, 2nd Suffolk District<br>Massachusetts State Representative, 5th Suffolk District |
| Beth Hanlon                                                                                                                                                                             | Resident of Milton, MA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Naomi Lenane                                                                                                                                                                            | Resident of Raynham, MA<br>Chief Information Officer, Dana-Farber Cancer Institute                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Russ Russell                                                                                                                                                                            | Resident of Brookline, MA<br>Dana-Farber Cancer Institute Employee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Karen Byers, MS, RBP, CBSP                                                                                                                                                              | Resident of Newton, MA<br>Director of Biosafety, Dana-Farber Cancer Institute                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Margaret T. Powers                                                                                                                                                                      | Resident of Needham, MA<br>Manager of Stem Cell Donor Services, Dana-Farber Cancer Institute                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Jeanine Rundquist<br>DNP, RN, NEA-BC                                                                                                                                                    | Resident of Beverly, MA<br>Executive Director, Center for Clinical and Professional Development at Dana-Farber Cancer Institute                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Alice Hanlon Peisch                                                                                                                                                                     | Massachusetts State Representative<br>14th Norfolk District<br>Assistant Majority Leader<br>Dana-Farber Cancer Institute Patient                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Laurie H. Glimcher, M.D                                                                                                                                                                 | President and CEO Emerita (2016-2024), Dana-Farber Cancer Institute                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ronald J. Mariano                                                                                                                                                                       | Speaker of the House of Representatives<br>Massachusetts State Representative, 3 <sup>rd</sup> Norfolk District                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Heidi Conway                      | Senior Vice President, Human Resources and Chief People Officer<br>Dana-Farber Cancer Institute                                                   |
| Caesar Palladino<br>Sodre         | Resident of Natick, MA<br>Dana-Farber Cancer Institute Patient                                                                                    |
| Ann-Margaret<br>Ferrante          | Massachusetts State Representative, 5th Essex District<br>Vice Chair, House Committee on Ways and Means<br>Dana-Farber Cancer Institute Patient   |
| Craig A. Bunnell, MD,<br>MPH, MBA | Chief Medical Officer for Dana-Farber Cancer Institute                                                                                            |
| Chuck J, Stravin III              | Resident of Quincy, MA<br>Dana-Farber Cancer Institute Patient                                                                                    |
| Steven Koppel                     | Resident of Brewster, MA<br>Member of the Dana-Farber Cancer Institute Board of Trustees                                                          |
| Michael L. Reney                  | Resident of the South End in Boston, MA<br>Executive Vice President, Chief Finance and Business Strategy Officer,<br>Dana-Farber Cancer Institute |
| David E. Avigan, MD               | Director of the Beth Israel Deaconess Medical Center Cancer Center<br>Senior Vice President of Cancer Services at Beth Israel Lahey Health        |
| Cheryl McCloud                    | Resident of Boston, MA<br>Cancer Survivor<br>Community Ambassador Volunteer                                                                       |
| Joseph R. Betancourt,<br>MD, MPH  | Resident of Cambridge, MA<br>President, The Commonwealth Fund                                                                                     |
| Hannah Theodat,<br>MSW, MBA       | Resident of Roslindale, MA<br>Senior Director for the Department of Psychosocial Oncology and<br>Palliative Care, Dana-Farber Cancer Institute    |
| Maura Finnemore                   | Resident of Somerville, MA<br>Senior Director, Planning and Consulting, Dana-Farber Cancer Institute                                              |
| Dana Alas                         | Vice President – BMC & Community<br>1199SEIU – MA Division<br>1199SEIU Ten Taxpayer Group                                                         |

## Appendix VI: Summary of Comments

Commenters include Dr. Laurie Glimcher, President and CEO Emerita of Dana-Farber Cancer Institute, Elected Officials, Dana-Farber Cancer Institute Employees, the President of Beth Israel Deaconess Medical Center (BIDMC), Ten Taxpayer Groups (TTGs), the President and CEO of Harvard Medical Faculty Physicians (HMFP), Community Partners (e.g., Health Centers and Urban League of Eastern MA), Representatives of Trade Unions, and current and former Dana-Farber Cancer Institute Patients. A transcript of the public hearing and all written comments submitted to the Department are available on the DoN website.

### Factor 1: a) Patient Panel Need

Commenters expressed need for a hospital dedicated to cancer care that will help the region keep pace with the alarming increase in cancer rates; increase timely access to inpatient cancer care; and further Dana-Farber Cancer Institute's efforts in collaboration with BIDMC, to reduce cancer health disparities and advance health equity.

#### *Need to Address Rising Cancer Rates*

- Recent reporting from the Federal Centers for Disease Control and Prevention (CDC) noted that the number of cancer diagnoses will grow by 49% by 2050.
- Cancer is the second-leading cause of death in the United States with ~40% of Americans receiving a cancer diagnosis at some point in their lifetime.
- Two million Americans are diagnosed with cancer annually, over 600,000 Americans will die from cancer. Kidney cancer impacts 80,000 Americans per year. Only 12% of kidney cancer patients with metastatic disease at the time of diagnosis survive for five years or longer.
- Every state in the nation will see double digit growth in cancer incidence and in Massachusetts cancer incidence is projected to be 28% higher this year than in 2020.
- Cancer incidence among patients over 45 are expected to increase even more than any other age group and older patients are more likely to experience side effects and complications from treatment that require an inpatient admission.
- The incidence of cancer is increasing, particularly in younger people. Cancer incidence in people younger than 50 is increasing at double the rate compared to those older than 50. Rates of young-onset colorectal cancer in particular have increased by 51% since 1994.

#### *Need to Address Health Disparities*

- Healthcare disparities exist in cancer care just as they do in healthcare overall.
- Patients from underserved and marginalized communities face barriers in cancer services leading to deep health disparities.
- Dana-Farber's needs assessment reporting has shown a significant burden of cancer across all types and need to reduce cancer burden and disparities.
- Persistent disparities of cancer screenings among communities of color is one factor that contributes to disproportionately worse health outcomes among Black, Hispanic and Asian residents in Boston.

- Cancer disparities related to screening, incidence, and mortality rates disproportionately impact communities of color, and Black patients in particular.<sup>115</sup>

#### *Need for Timely Care*

- Across Massachusetts hospitals are experiencing critical capacity challenges and combined with the rising incidence of cancer, has created the need to increase access to cancer care in the state to meet the need of the Commonwealth's patients.
- Additional need for inpatient beds is seen in delays in admission, and patients boarding in the ED while waiting for a bed. EDs are overcrowded and treat a variety of conditions, which puts a patient with cancer seeking care in the ED at greater risk for infection.

#### *Need for More Inpatient Care*

- Today in Dana-Farber's inpatient setting, in collaboration with BWH, all patients are cared for by Dana-Farber doctors and Dana-Farber physician assistants, however not all of the beds patients are admitted to are staffed by oncology nurses. In the new cancer hospital, patients will be surrounded by a team of clinicians whose sole focus is cancer: specially trained oncology physicians, to specially trained oncology nurses, nutritionists, social workers, and pharmacists.
- Cancer treatment has evolved and is now more sophisticated and complex. New cancer treatments, including many designed to target the most aggressive forms of cancer, such as CAR T-cell therapy, require inpatient care.
- Investment is needed in the care model and infrastructure to ensure patients with cancer have access to the most advanced care. The proposed facility is designed to help the region keep pace with new developments in cancer care.

As noted above in Factor 1a, the Mass General Brigham TTG raised several issues to the Department concerning the Applicant's need argument, the Applicant's establishment of its Patient Panel, and the Proposed Project's consistency with the Commonwealth's cost containment goals.

As noted above in Factor 1a, the 1199SEIU TTG raised its concerns about the potential negative impact of the Proposed Project and its potential to pull patients from safety net hospitals in the Boston area, which will then threaten the survival of those hospitals.

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<sup>115</sup> The Boston Public Health Commission's Health of Boston 2023: The Cancer Report, states that rates of death from cancer in Boston were highest among Black males and females. Black males had a mortality rate of 218.9 deaths per 100,000 residents, 52% worse than the Boston average.

## **Factor 1: b) Public Health Value, Improved Health Outcomes and Quality of Life; Assurances of Health Equity**

### *Health Outcomes*

Commenters stated that DFCI is the only institution in the region focused exclusively on cancer research and cancer care and the only one equally balancing research and patient care, and that the proposed stand-alone cancer hospital will ensure that patients will be treated by health professionals whose singular focus is cancer, allowing for more familiarity with the disease, its treatments, and its side effects. Dana-Farber's specialization and expertise in inpatient care, access to clinical trials, and patient-centered personalized care will ensure the best possible patient experience and outcomes. According to published data, patient survival outcomes are better for patients treated in a dedicated cancer hospital than those receiving care in an integrated general hospital setting, inclusive of academic medical centers.

Commenters stated the proposed hospital will:

- Provide specialized medical professionals, and supportive care teams with extensive experience and expertise managing several types of cancer. This expertise is crucial for accurate diagnosis, personalized treatment planning, and ongoing support throughout the cancer journey.
- Provide an enhanced patient experience in an inpatient facility focused solely on the needs of oncology patients, and offer a state-of-the-art facility that can adapt to the rapid advances needed in oncology care, and provide seamless integrated care supported by teams at Dana-Farber, BIDMC, and HMFP.
- Address critical needs in the community including need for specialized expertise, comprehensive treatment modalities, advanced technology and facilities, supportive facilities and research and innovation.
- Offer a comprehensive range of treatment options, tailored to the specific needs of each patient, supporting optimal outcomes and improved quality of life. This is accomplished through acquisition of advanced diagnostic tools, imaging equipment, radiation therapy machines, and surgical instruments, enabling precise and effective treatment delivery while minimizing side effects and complications.
- Integrate a variety of supportive services for patients with cancer and their families into the patient care continuum, to support holistic well-being and quality of life for individuals affected by cancer.
- Advance clinical and research efforts in cancer care through serving as a hub for medical research and innovation, facilitation of clinical trials, and the development of novel treatment strategies to improve patient outcomes.

### *Health Equity*

Commenters stated that the proposed standalone hospital will help Dana-Farber enhance patient care, expand access, and advance equity. Through the Proposed Project, Dana-Farber will address the social determinants of health (SDoH) that contribute to the poor outcomes across its priority

communities and beyond and strengthen Dana-Farber's ability to design programs that reduce barriers to treatment and ensure all patients have access to clinical trials and high quality care. Existing programs will expand through the Proposed Project, including the Community Cancer Equity Program (CCEP) which has been reducing disparities in cancer outcomes since 2010; the Patient Navigator Program which ensures patients have the resources and support they need; and programs to diversify the workforce such as collaborations with community college and local high schools.

Dana-Farber's community health center partners provide care to patients from marginalized and underserved communities facing barriers to accessing cancer care. The patient populations served include those who identify as Black, Indigenous, and people of color, the uninsured, low-income, and those with limited or low English proficiency. One example of Dana-Farber's work with a community health center partners is Dana-Farber's mammography van, the only mobile digital mammography program in Massachusetts, which provides screening mammograms and breast health education to women, prioritizing care to low-income, elderly, immigrant, and non-English speaking residents. Bowdoin Street Health Center, a community health center owned and operated by BIDMC, has partnered with Dana-Farber's Mammography van since 2009 bringing preventative screenings to women in the community, to reduce transportation and linguistic barriers.

Dana-Farber's outreach, education and cancer care equity programming will be further enhanced by its relationship with BIDMC. This new collaboration will create opportunities to expand programs and reach additional underserved communities. Based on FY21 data, Medicaid cancer discharges at BIDMC were 14%, which is double the rate of other Longwood cancer collaborations, and all government payer cancer discharges were 63%, as compared to 42% for other Longwood cancer collaborations. In the last fiscal year, BIDMC invested over \$58M in expanding equitable access to quality cancer care through such initiatives as the BIDMC Social Work Department which supports patients with cancer through support groups and patient navigator services. Through BIDMC's expansive primary care network and affiliations with community health centers, it will work to ensure that cancer screening services and referral pathways for follow-up care are available to all. Dana-Farber and its clinical partner BIDMC, will build access and equity into the system to eliminate barriers to accessing cancer care, advance cancer care and close health equity gaps in underserved neighborhoods.

#### **Factor 1: c) Efficiency, Continuity of Care, Coordination of Care**

Commenters spoke about the improved coordination of care and efficiency that will result from the Proposed Project. The physical proximity to, and clinical affiliation with BIDMC means that patients will continue to benefit from the expertise of non-oncology medical and surgical clinicians. Dana-Farber will be able to seamlessly coordinate sophisticated multidisciplinary care delivered by a number of cancer and non-cancer care specialists from inpatient to outpatient setting. For twenty years, Dana-Farber has provided ambulatory cancer care in local communities and partnered with local hospitals to keep patients in their communities, including inpatient hospitalizations. This model allows patients to receive some of their care at their local community hospital, making care more accessible, culturally competent, and personalized.

Dana-Farber expects 2,400 new jobs at all levels (administrative, clinical, nursing, support services, radiation oncology, imaging, lab services, pharmacy, and management/supervisor) when the hospital is fully operational. Dana-Farber anticipates hiring more than 700 oncology nurses in its new hospital. Dana-Farber is currently building a simulation training center, and has partnerships with several colleges of nursing and community colleges to build the pipeline of nurses that will be needed.

As noted above in Factor 1a, the 1199SEIU TTG raised its concerns to the Department about the staffing of the Proposed Project, given the current healthcare staffing crisis and the challenges hospitals are experiencing with recruiting and retaining staff.

**Factor 1: f) Competition on price, total medical expenses (TME), costs and other measures of health care spending**

Commenters spoke about the cost benefits of the Proposed Project, including the clinical collaboration between Dana-Farber and BIDMC to provide integrated, cross-disciplinary care and cost-effective care.

- Dana-Farber's proposed inpatient hospital and clinical collaboration with BIDMC will establish Dana-Farber as a competitor to the MGB network, where MGH provides subspecialty level inpatient care in Boston. This increased competition will apply downward pressure on rates and overall medical costs.
- Dana-Farber's collaboration with BIDMC will maintain or reduce healthcare costs as patients seeking cancer care shift from BWH, a higher-cost provider, to Dana-Farber and BIDMC, lower-cost providers.
- According to publicly available data, BIDMC provides high-quality care at 23% lower costs than other large hospitals in Boston.
- Dana-Farber's collaboration with BIDMC will also help to keep people out of the hospital wherever possible starting with screening in the community and partnering with hospitals across the state so people can get convenient and affordable care, without costly duplication of care and services.
- Dana-Farber has established an oncology-specific Acute Care Clinic which was shown to improve patient experience and reduce costs of expensive inpatient care.

## Appendix VII: TTGs Overview

| TTG Name                                                      | Requested Public Hearing | Requested ICA | Oral Comments Provided at Public Hearing | Written Comments Submitted |
|---------------------------------------------------------------|--------------------------|---------------|------------------------------------------|----------------------------|
| Clinicians of Dana-Farber Cancer Institute                    |                          |               | ✓                                        |                            |
| Iron Workers Local 7                                          |                          |               |                                          |                            |
| Mass General Brigham                                          | ✓                        | ✓             |                                          | ✓                          |
| Patients and Family Advocates of Dana-Farber Cancer Institute |                          |               | ✓                                        | ✓                          |
| The International Union of Operating Engineers Local 4        |                          |               |                                          |                            |
| 1199 SEIU United Health Care Workers East                     |                          |               |                                          | ✓                          |

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