

STAFF REPORT TO THE PUBLIC HEALTH COUNCIL FOR A DETERMINATION OF NEED	
Applicant Name	Beth Israel Lahey Health, Inc.
Applicant Address	20 University Road, Suite 700, Cambridge, MA 02138
Filing Date	July 17, 2023
Type of DoN Application	Substantial Capital Expenditure and Required Equipment
Total Value	\$30,182,667.00
Project Number	BILH-22111512-RE
Ten Taxpayer Groups (TTG)	None
Community Health Initiative (CHI)	\$1,509,133.35
Staff Recommendation	Approval
Public Health Council	November 8, 2023
<p style="text-align: center;"><u>Project Summary and Regulatory Review</u></p> <p>Beth Israel Lahey Health, Inc., with a principal place of business at 20 University Road, Suite 700, Cambridge, MA 02138, is filing a Notice of Determination of Need with the Department of Public Health for the relocation and expansion of the Radiation Oncology Department at Lahey Hospital and Medical Center, located at 41 Burlington Mall Road, Burlington, MA 01805. The Proposed Project will include: relocation of the Radiation Oncology Department, the addition of one high dose radiation therapy (HDR) procedure room with one mobile CT unit dedicated to HDR; and 11 exam rooms (the Proposed Project). The Proposed Project's total capital expenditure is \$30,182,667.00; the Community Health Initiatives (CHI) contribution is \$1,509,133.35.</p> <p>This Proposed Project consists of a Substantial Capital Expenditure and Required Equipment 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.</p>	

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Applicant Background and Application Overview

Beth Israel Lahey Health, Inc.

The Beth Israel Lahey Health, Inc (BILH or Applicant), is a Massachusetts, non-profit, tax-exempt corporation that oversees an integrated health care delivery system comprised of teaching and community hospitals, physician groups, behavioral health providers, post-acute care providers and other caregivers serving patients in Greater Boston and the surrounding communities in Eastern Massachusetts and South Eastern New Hampshire.¹

Collectively known as “BILH Hospitals,” BILH’s member hospitals include:

Acute Hospital ²	Type (Per CHIA Category ^{a, b})
Anna Jaques Hospital	Community Hospital
Beth Israel Deaconess Hospital–Milton	Community Hospital
Beth Israel Deaconess Hospital–Needham	Community Hospital
Beth Israel Deaconess Hospital–Plymouth	Community-High Public Payer Hospital
Beth Israel Deaconess Medical Center	Academic Medical Center
Lahey Hospital & Medical Center	Teaching Hospital
Mount Auburn Hospital	Teaching Hospital
New England Baptist Hospital	Specialty Hospital
Northeast Hospital	Community-High Public Payer
Winchester Hospital	Community Hospital

BILH operates Beth Israel Lahey Health Performance Network, LLC (BILHPN), a Massachusetts Health Policy Commission (HPC) certified Accountable Care Organization (ACO), which the Applicant states is a value-based physician and hospital network whose goal is to partner with other community hospitals and providers throughout Eastern Massachusetts to improve quality of care while managing medical costs.

Lahey Hospital and Medical Center (LHMC)

The Applicant notes that “LHMC is a world-renowned tertiary medical center known for its innovative technology, pioneering medical treatment, and leading-edge research.” LHMC includes two campuses: Lahey Hospital & Medical Center, located in Burlington (LHMC Burlington), Lahey Medical Center-Peabody; and two outpatient satellites. The Proposed Project will be located at LHMC

¹ The Applicant states that an estimated five million people reside in the BILH service area.

² Beth Israel Lahey Health includes the following Hospitals: Addison Gilbert Hospital (Northeast), Anna Jaques Hospital, Beth Israel Deaconess Hospital – Milton, Beth Israel Hospital – Needham, Beth Israel Hospital – Plymouth, Beth Israel Deaconess Medical Center, Beverly Hospital (Northeast), Lahey Hospital & Medical Center, Lahey Medical Center, Peabody, Mount Auburn Hospital, New England Baptist Hospital, and Winchester Hospital.

Burlington, which has 335 inpatient beds, an ambulatory care center, a 24-hour emergency department, and a Level I trauma center. LHMC Burlington also supports 50 medical and surgical specialties, and ancillary services, including onsite Pharmacy, Laboratory Medicine, Anesthesiology, and Radiology.

Proposed Project

The Proposed Project will include the following components:

- Relocation and expansion of LHMC Burlington's Radiation Oncology Department (Department) from the campus's John G. Trump building to the first floor of the east side of main LHMC Burlington building which includes:
 - Increase the number of exam rooms from 8 to 11
 - Colocation of Radiation Oncology with Hematology Oncology Department as well as space for social work services, behavioral oncology, and integrative wellness therapies;
 - Relocation of LINAC units to two previously poured LINAC vaults (two 1:1 replacement units);
 - Add walls and shielding need to the previously poured LINAC vaults and create a 3rd LINAC shell space by pouring footings for the walls;
 - Space to accommodate one replacement CT simulator and shell space for a third LINAC unit in case of future need;
 - Addition of one high dose radiation therapy (HDR) procedure room with one mobile CT unit dedicated to HDR.

The Applicant states that the Proposed Project will provide continued and expanded access to radiation therapy for the Patient Panel through modernized facilities and technology. The new space will also improve efficiency by centralizing cancer services, and improving care coordination.

Factor 1

In this section, we assess if the Applicant has sufficiently addressed Patient Panel need, public health value, competitiveness, and cost containment, as well as community engagement for the expansion of the Radiation Oncology Department.

Patient Panel³

As shown in Table 1, the BILH Patient Panel consisted of 1,324,649 patients in Fiscal Year (FY) 2023⁴. The Applicant notes that a drop in COVID testing and immunizations between 2022 and 2023 resulted in a lower number of total unique patients in FY2023.

Table 1: Overview of BILH Patient Panel

	FY2020	FY2021	FY2022	FY2023
BILH Total Unique Patients	1,219,718	1,427,711	1,633,109	1,324,649

The Applicant provided data showing that the top 15 patient origins of their Patient Panel included Plymouth, Woburn, Beverly, Peabody, Gloucester, Quincy, Boston, Cambridge, Billerica, Burlington, Dorchester, Arlington, Danvers, Medford, and Wilmington⁵. The Applicant also provided demographic data for BILH's Patient Panel, which is presented in Table 2. Staff notes the following observations about the two fiscal years of data below:

- **Age:** The 18-64 age group ~60% of BILH's Patient Panel, followed by the over 65 age group at ~30%.
- **Race:** The majority of BILH's patients self-identified as White (over 74%). Patients also self-identified as Black or African American (~5%), and Asian (~6%). Less than 1% self-identified as American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander.
- **Ethnicity:** Over 80% of patients identify as "Not Hispanic".
- **Payer Mix:** Approximately 50% of patients were covered by Commercial insurance, followed by Medicare (~30%) and Medicaid (~9%).

Table 2: BILH Patient Panel Demographic Profile

	FY2022 Totals	FY2023 Totals
Total Unique Patients	1,633,109	1,324,649
Gender		
Female	60.23%	58.50%
Male	39.63%	41.35%
Other ⁶	0.14%	0.15%
Total	100.00%	100.00%
Age		
0-17	11.08%	6.82%
18-64	60.84%	61.31%
65+	28.09%	31.87%

³ 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.

⁴ For purposes of the Applicant's Patient Panel, the fiscal year is defined as July 1 through June 30.

⁵ This information is from the Center for Health Information and Analysis ("CHIA") Massachusetts Acute Care Hospital Inpatient Discharge Dataset, which is only current through the end of 2021. Therefore, the data provided is from FY21.

⁶ Patients for whom a gender is not specified or whose gender varies across visits over the time period are included in "Other."

	FY2022 Totals	FY2023 Totals
Total	100.00%	100.00%
Race		
White	74.05%	74.54%
Black or African American	5.45%	5.43%
American Indian or Alaska Native	0.13%	0.11%
Asian	6.45%	6.83%
Native Hawaiian or Other Pacific Islander	0.07%	0.05%
Other ⁷	6.66%	7.14%
Unknown	5.71%	1.94%
Patient Declined	1.49%	3.94%
Total	100.00%	100.00%
Ethnicity⁸		
Hispanic/Latino	5.95%	7.13%
Not Hispanic/Latino	80.38%	84.71%
Patient Declined	2.91%	1.32%
Unknown	7.36%	4.92%
Other	3.41%	1.92%
Total	100.00%	100.00%
Payer Mix		
Commercial	53.23%	47.36%
Medicare	26.02%	34.24%
Medicaid	10.14%	8.55%
Multiple Payers	2.65%	3.66%
Other ⁹	7.96%	6.19%
Unknown	0.00%	0.68%
Total	100.00%	100.00%

The Applicant provided data for LHMC's patient population, the Hospital targeted for this DoN Application. The majority of LHMC's patients reside in northeast Massachusetts, in either Middlesex or Essex County. The top 15 patient origins for LHMC's patient population are Peabody, Burlington, Billerica, Woburn, Lexington, Beverly, Lynn, Salem, Danvers, Lowell, Wilmington, Arlington, Tewksbury, Gloucester, and Reading. Table 3 below presents information for LHMC's patient population. Some highlights from the data include:

- **Age:** Based on FY2022 data, the LHMC patient population has a higher proportion of patients aged 65 and older than the BILH Patient Panel (34% at LHMC compared to 28%

⁷ As a newly merged health system, BILH has not yet fully implemented a standardized data collection methodology for BILH Hospitals. As a result, "Other" may include patients whose race and/or ethnicity varied over time, as well as patients who did not report their race and/or ethnicity. Furthermore, patients who declined to report their race and/or ethnicity might also be captured in "Unknown" or "Patient Declined". "Other" is a choice for patients to select if they do not feel that their race/ethnicity is reflected in the list of choices.

⁸ Ethnicity information is not available at the system-level for three hospitals: BID-Milton, BID-Needham, and BID-Plymouth. For the remaining BILH hospitals, ethnicity information is self-reported. Patients for whom ethnicity is not specified are included in "Patient Declined," "Unknown," or "Other," per the local facility's data collection methodology. Patients for whom ethnicity varies across visits over the time period are included in "Other."

⁹ Includes self-pay, health safety net, and liability insurance coverage other than worker's compensation for an injury event.

BILH). Additionally, the BILH Patient Panel has a slightly higher percentage of patients aged 0 to 17 (11.1% BILH compared to 5.02% LHMC).

- **Race:** Approximately 85% of the LHMC patient population identify as White compared to ~74% of the BILH Patient Panel in FY2022.
- **Ethnicity:** Over 90% of patients identify as “Not Hispanic”, compared to BILH’s ~80%
- **Payer Mix:** Commercial payers are the primary payer source for both BILH and LHMC patients (~53% and ~50% respectively), followed by Medicare (~26% and ~33% respectively).

Table 3: LHMC Patient Demographics

	FY2022 Totals	FY2023¹⁰ YTD Totals
Total Unique Patients	270,649	243,084
Gender		
Male	44.88%	44.84%
Female	55.07%	55.09%
Other ¹¹	0.05%	0.07%
Total	100.00%	100.00%
Age		
0-17	5.02%	1.99%
18-64	60.40%	60.22%
65+	34.58%	37.79%
Total	100.00%	100.00%
Race		
White	83.34%	84.55%
Black or African American	2.53%	2.95%
American Indian or Alaska Native	0.08%	0.15%
Asian	4.86%	5.54%
Native Hawaiian or Other Pacific Islander	0.03%	0.05%
Other	7.63%	4.60%
Unknown	0.70%	1.10%
Patient Declined	0.82%	1.05%
Total	100.00%	100.00%
Ethnicity		
Hispanic/Latino	5.16%	6.23%
Not Hispanic/Latino	91.28%	91.69%
Patient Declined	0.00%	0.54%
Unknown	3.56%	1.03%
Other	0.00%	0.51%
Total	100.00%	100.00%
Payer Mix		

¹⁰ The BILH Fiscal Year runs from October 1 through September 30. The data provided for the 2023 Fiscal Year are current through July 24, 2023.

¹¹ Patients for whom a gender is not specified or whose gender varies across visits over the time period are included in “Other.”

	FY2022 Totals	FY2023 ¹⁰ YTD Totals
Payor - Commercial	49.88%	47.36%
Payor - Medicare	32.46%	34.24%
Payor - Medicaid	2.95%	8.55%
Payor - Multiple Payors	2.99%	3.66%
Payor - Other	11.72%	6.19%
Total	100.00%	100.00%

The Applicant also provided demographics for LHMC Burlington's Radiation Oncology patient population. It is notable that more than two-thirds of patients were over the age of 65, with approximately 4% of patients under the age of 45.

Table 4: LHMC Burlington Radiation Oncology Patient Demographics

	FY2022 Totals	FY2023 ¹² Totals
Total Unique Patients	650	519
Gender		
Female	52.00%	49.33%
Male	48.00%	50.67%
Total	100.00%	100.00%
Age		
0-17	0.0%	0%
18-25	0.3%	0%
26-45	3.7%	4.62%
46-64	29.1%	30.83%
65+	66.9%	64.54%
Total	100.00%	100.00%
Race		
White	90.50%	88.63%
Asian	3.20%	5.20%
Other ¹³	6.28%	6.17%
Total	100.00%	100.00%

Factor 1a: Patient Panel Need

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

Patient Panel Need

The Applicant attributes the need for the Proposed Project based on to two factors:

¹² The BILH Fiscal Year runs from October 1 through September 30. The data provided for the 2023 Fiscal Year are current through July 24, 2023.

¹³ For confidentiality, "Other" includes all races/ethnicities not separately listed.

- 1) Limitations of current facility and equipment
- 2) Current and projected increase in demand

1) Limitations of current equipment and facility

Aging LINAC Equipment

The Proposed Project is prompted by LHMC Burlington's need to replace its existing LINAC units. The two existing LINACs are older units facing formal obsolescence, meaning that the vendor will no longer support maintenance or parts for the machines. The Hospital already received notice of obsolescence for one unit in July 2023, with a notice for the other unit anticipated within the next three years. The age of the units has led to frequent and lengthy downtime, detailed in Table 5.

Table 5: LHMC Burlington LINAC Downtime

LINAC Unit	FY2021	FY2022	FY2023 YTD¹⁴
Varian 2100	78 hours	18.5 hours	6.3 hours
Novalis Tx	32 hours	54 hours	92 hours

The Hospital has extended evening and weekend hours to accommodate downtimes in the short term, but LHMC Burlington faces a significant risk of more frequent and extended periods of downtime or complete failure once the LINACs can no longer be maintained, which would result in major disruptions to patient care and potentially eliminate the Hospital's ability to provide radiation oncology services altogether.

Aging CT Simulator

LMHC Burlington's current CT Simulator is over 11 years old and performed over 1200 simulations annually in both FY2021 and FY2022. Over the past decade, CT simulator technology has improved in both quality and efficiency. The Applicant intends to replace the CT simulator with a 2023 model so that the Patient Panel will benefit from these technological advances through a more precise treatment planning process.

Facility Limitations

LINAC: The current LINAC vaults in the existing Radiation Oncology Department do not meet the modern equipment clearance requirements under Facility Guidelines Institute (FGI) and DPH standards. The John G. Trump building itself does not meet requirements for housing four or more patient's incapable of self-preservation, nor the requirements to house inpatients. The building infrastructure cannot support a major renovation, which led the Applicant to propose relocation of the LINACs to a new site within the main LHMC Burlington building that already has compliant LINAC vaults. The Applicant asserts that replacing the LINACs will improve the patient experience because the newer machines will reduce treatment times, which is particularly important for patients who benefit from breath-hold techniques during radiation therapy, as they will have reduced breath-hold times and cycles.

¹⁴ The BILH Fiscal Year runs from October 1 through September 30. The data provided for the 2023 Fiscal Year runs through June 2023.

High Dose Radiation (HDR) Treatment and Mobile CT: LHMC Burlington does not have dedicated operating room space to perform HDR treatment, nor does it have a dedicated CT scanner for imaging during HDR procedures. HDR operative insertions are currently performed in a general operating room (OR) when time is available, using the CT scanners in a separate, non-operative space, which requires transport time and patient repositioning. This arrangement significantly limits the number of HDR cases that can be performed at LHMC Burlington, and the Hospital cannot meet demand for this typically outpatient form of treatment. The current process adds to time spent in treatment for HDR patients because the patient must wake up from anesthesia, recover in the Post-Anesthesia Care Unit, and then be transported to the CT simulator for imaging. The Proposed Project will add a dedicated operating room space to perform HDR brachytherapy, as well as a mobile CT unit to support HDR procedures. Allowing for CT imaging during the procedure would eliminate intermediate transfer steps, allow for imaging and planning of the HDR treatment delivery while the patient is still under anesthesia in the OR, and decrease the possibility of applicator motion prior to the procedure.

Inefficiencies of Current Space: The existing Radiation Oncology Department has limited number of examination rooms and inadequate space to provide wraparound services within the department. The department currently has only 8 exam rooms, which are not adequate to accommodate larger sized patients. The Proposed Project will increase the number of exam rooms from 8 to 11 and expand the size of the rooms to improve patient comfort. The Proposed Project will also include space for social work services, behavioral oncology and integrative wellness therapies that will allow the Hospital to support patients' physical and emotional well-being in a location that is co-located with treatment. There will also be family consult rooms for patients and their families to meet with their multi-disciplinary healthcare team. The Proposed Project will also include multiple elevators and entrances to provide patients with easy access to the department.

2) Projected Increase in Demand

The population in LHMC Burlington's service area is expected to grow significantly in the next 20 years, with particularly pronounced increases in the population aged 65 and over. Between 2020 and 2040, the UMass Donahue Institute estimates that the population in LHMC Burlington's Primary Service Area will grow approximately 7%.^c The Applicant notes that the sub-population of adults aged 65 and over will grow by 43% during the same time period, reflecting a rapidly aging population.^d As previously noted in Table 4, the 65+ age cohort currently comprises 66.9% of the Radiation Oncology Department's patient population.

As the population grows and ages, the Applicant expects that there will be increased demand for radiation oncology services at LHMC Burlington. The likelihood of being diagnosed with cancer increases with age and the CDC estimates that more than two-thirds of all new cancers are diagnosed in patients aged 60 years and older.^e As a result of increased life expectancy, the number of cancer cases is expected to increase among adults over the age of 65.^f These increases are believed to be attributed to the body's decreasing ability to repair DNA cells as adults age.^g

The Applicant asserts that the need to access radiation therapy for the LHMC Burlington patient population has increased in recent years, despite interruptions caused by the pandemic. Between FY2020 and FY2022, the number of unique patients receiving care from LHMC Burlington's Radiation Oncology Department increased by 8.2%. This includes a 53% increase in stereotactic radiation therapy treatments and a 3.5% increase in Intensity-modulated radiation therapy (IMRT) treatments. Table 6 details LHMC Burlington's historical radiation oncology utilization and patient volume.

Table 6: LHMC Burlington Historical Radiation Oncology Utilization

Treatment type	FY2020	FY2021	FY2022	FY2023¹⁵
External Beam	3,888	3,582	3,567	3,334
Stereotactic	436	504	667	427
Intensity-Modulated Radiation Therapy (IMRT)	4,723	4,484	4,886	4,606
All LINAC Treatments	9,047	8,571	9,120	8,367
HDR	164	144	105	53
Total Radiation Treatments	9,211	8,714	9,225	8,420
Total Unique Radiation Patients	601	588	650	519

Based on historical utilization trends, demand increases due to demographic changes, and added capacity resulting from the Proposed Project, the Applicant projects an increase in Radiation Oncology Department volume in the coming years. As detailed in Table 7, the Applicant projects that total number of radiation treatments at LHMC Burlington will increase by 5.5% and the total unique radiation patients will increase by 30% from FY2022 to FY2027.

Table 7: LHMC Burlington Projected Radiation Oncology Utilization

Treatment type	FY2023	FY2024	FY2025	FY2026	FY2027
External Beam Treatment	3,630	3,612	3,624	3,633	3,642
Stereotactic	713	745	747	749	751
IMRT	5,023	5,048	5,065	5,075	5,088
All LINAC Treatments	9,366	9,405	9,435	9,458	9,481
HDR	160	239	243	247	250
Total Radiation Treatments	9,526	9,644	9,679	9,704	9,731
Total Unique Radiation Patients	656	661	667	673	679

Analysis.

Staff finds that the aging equipment in a location that cannot support the installation of new machinery necessitates new siting for the Radiation Oncology Department in order to continue serving

¹⁵ The data is reported for the BILH Fiscal Year, which runs from October 1 through September 30. The data provided for the 2023 Fiscal Year are current through July 24, 2023, as the 2023 BILH Fiscal Year is ongoing.

patients. Historical and projected volume for the Radiation Oncology Department services demonstrate there has been an increased demand, which will continue in the future based on a growing and aging population. Moreover, the new Department location will improve access and care for patients by providing space needed for new LINAC units, HDR Therapy with a dedicated mobile CT Unit, and rooms for family consult, alternative therapy, and behavioral oncology. As a result, Staff finds that 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

In this section staff will assess if the Proposed Project adds measurable 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 and Health Outcomes

The Applicant asserts that the Proposed Project aims to improve health outcomes and quality of life by maintaining and expanding access to radiation therapy for oncology patients, thereby improving quality of life for the existing Patient Panel. To demonstrate improved public health value and quality of life, the Applicant provided a summary of literature supporting the benefits of access to 1) LINAC and 2) HDR Brachytherapy.

1) Linear Accelerator (LINAC)

LINAC is the device most commonly used for external beam radiation treatments for patients with cancer. The machine produces high energy x-rays or electrons that can precisely target the tumor while leaving the surrounding healthy tissue intact.^h LINAC machines are used in a) External Beam Radiation Therapy, b) Intensity-Modulated Radiation Therapy and c) Stereotactic Treatment.

a) External Beam Radiation Therapy: The most common form of radiation therapy is external beam radiation therapy because of its ability to serve as the only form of treatment, in conjunction with surgery or chemotherapy, or as a palliative therapy to relieve a patient's symptoms.ⁱ During the treatment, patients are positioned on a moveable treatment couch so that the patient does not move during the treatment.^j Additionally, the LINAC's beam can be rotated around the patient, further ensuring radiation is delivered directly to the tumor.^k Over the course of a patient's treatment, the cancer cells will be destroyed, in turn stopping the growth of the tumor and the disease.^l

b) Intensity-Modulated Radiation Therapy (IMRT): IMRT is a form of external beam radiation therapy that uses smaller beams of radiation to minimize damage to surrounding tissue.^m IMRT allows for a more precise radiation dose that conforms to the shape of the tumor by regulating the intensity of the radiation beam in multiple small volumes.ⁿ By providing a higher radiation dose on the tumor, IMRT is able to minimize exposure elsewhere.^o Due to the preciseness of the procedure, treatment toxicity to the patient may be lessened.

c) *Stereotactic Treatment*: Stereotactic radiosurgery (SRS) and stereotactic body radiotherapy (SBRT) are noninvasive methods of treating tumors in the brain (SRS) and throughout the body (SBRT) with very precise, high-dose radiation beams delivered in one to five outpatient procedures.^p During treatment, patients lie comfortably while the advanced cancer treatment system targets their tumor and delivers numerous high-dose radiation beams directly to the tumor while sparing surrounding healthy tissue. SRS and SBRT do not require surgery or sedation, and patients typically experience minimal side effects due to the highly focused nature of treatment, which minimizes radiation exposure to normal tissue and organs.^q SBRT is a particularly useful treatment option for patients with small tumors and patients who are poor candidates for surgery,^r and it is primarily used to treat early-stage lung cancer and pancreatic cancer, as well as cancers that have spread to the lung, liver, adrenal gland, and spine.^s SRS is commonly used to treat brain tumors, as well as cancers in the neck, lungs, liver, spine.^t

2) High Dose Rate (HDR) Brachytherapy

High Dose Rate Brachytherapy is delivered internally through the placement of radiation source such as a seed, ribbon, or capsule in or near the patient's tumor.^u Similar to external radiation, the internal radiation source works to destroy cancer cells only during the treatment procedure, in turn eliminating exposure for hospital staff and individuals physically close to the patient.^v Additional benefits include reduced risk of damage to nearby healthy tissue, and in turn, fewer side effects for the patient.^w Further adding to the convenience of the procedure, hospitals may use imaging, such as CT scanners, during the treatment procedure to help guide the devices into place and confirm accurate placement.^x Using imaging during brachytherapy allows providers to optimize the dose distribution, and using CT imaging in particular during brachytherapy has been shown to improve patient outcomes^y by reducing the risk of damage to nearby healthy tissue, and resulting in fewer side effects for the patient.^z

To assess the impact of the Proposed Project, the Applicant developed quality metrics and a reporting schematic, as well as metric projections for quality indicators that will measure quality of care. The measures are presented in Appendix I and will be reported to DPH on an annual basis following implementation of the Proposed Project.

Analysis: Public Health Value, Health Outcomes, and Quality of Life

Staff finds that maintaining and enhancing access to cancer services has the potential to improve health outcomes for the Patient Panel and the greater community. The literature suggests that these treatments stop tumor growth, minimize risk of damage to healthy tissue, and may result in a reduction of side effects for the patient. Updating equipment for these standard methods of cancer treatment will likely improve the patient experience as treatments are performed more precisely and efficiently. As a result, Staff finds that the Applicant meets the requirements of the Public Health Value: Health Outcomes part of Factor 1b.

Health Equity and Social Determinants of Health (SDoH)

The Applicant states that the Proposed Project will work to reduce health inequity through increasing and improving access to radiation oncology services to all members of LHMC's community. The Applicant notes that LHMC accepts all patients and does not discriminate on the basis of age, race, ethnicity, gender/gender-identity, physical ability, sensory or speech limitations, or religious, spiritual,

and cultural beliefs, nor a patient's ability to pay or payor source. LHMC has ongoing efforts in Language Accessibility and Data Collection to facilitate equitable access to its services, including radiation oncology.

Language Accessibility: Interpretation services are available at no charge.¹⁶ Services are offered in person, by video, and by telephone, are available for over 250 different languages, and can be used 24 hours a day. Trained interpreters assist during hospitalization and inform patients and their families about procedures, medication, and other important information. LHMC uses three agencies to meet the requests for in-person interpreters that cannot be filled by in-house staff as well as contracts with two vendors for remote interpreting (audio/video) needs. Services are available to facilitate communication for deaf and hard of hearing patients. LHMC has a full time American Sign Language Interpreter and Remote video interpreting devices are available across the system for encounters that can be effectively completed via video. Assistive Devices are available to assist patients. The Hospital's Telecommunications Device for the Deaf (TDD) is available for patients 24 hours a day.

Data Collection: BILH is working to reduce health inequities through the collection of demographic data (Race, Ethnicity and Language (REAL) data). BILH launched a new initiative to request more detailed and complete demographic information from patients and created a multidisciplinary team of representatives from across the System to develop best practices and processes to support consistent capture of data in the electronic medical record (EMR).

Analysis: Health Equity and SDoH

The Applicant demonstrates efforts to achieve health equity through language accessibility, and data collection that provides a more accurate understanding of the race, ethnicity, and language of their Patient Panel. Staff finds that the Applicant has sufficiently outlined ongoing efforts to achieve health equity. 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

Continuing to offer radiation oncology at LHMC Burlington will allow the Patient Panel access to LINAC and HDR close home, preventing the potential need to seek services outside of the BILH system. The Applicant states that the Proposed Project promotes efficiency, continuity of care, and coordination of care through 1) proximity to complementary services within the Hospital, 2) equipment modernization, and 3) utilization of technology infrastructure.

Proximity to Complementary Services: The Proposed Project will place the new LHMC Burlington Radiation Oncology Department in a space that improves care coordination by physically co-locating various departments and services that cancer patients will need to access. The new Department will be

¹⁶ LHMC has interpreters on staff, and 106 video remote interpreting ("VRI") devices across in-patient/outpatient settings.

closer to the hematology oncology department and other key departments within the hospital, making it easier for patients to travel to other specialties and coordinate care between the departments. The new co-location of social work and behavioral oncology within the radiation oncology suite will also provide easier access to these services. The Proposed Project will also have a dedicated alternative therapy room that will provide greater access to massage therapy and acupuncture directly within the suite.

Equipment Modernization: Updating the Department's equipment will provide the Patient Panel with technology that improves the care delivery. The replacement LINAC units will have the following advantages over the current units:

- 4x increase in treatment delivery efficiency with flattening filter free ("FFF") beam.
- Improved precision of radiation delivery with advanced imaging guidance. Faster three-dimensional cone beam computed tomography ("CBCT") acquisition with better imaging quality for target localization.
- Upgraded motion management system, which will improve the clinical workflow for gating and deep inspiration breath hold ("DIBH") treatment.
- Includes a surface-guided radiation system, which opens the option of tattoo-less radiation therapy for breast cancer patients.
- Has pairing capabilities between machines, which allows for seamless patient transfer between machines and avoids treatment delays.

The replacement CT simulator will be equipped with the latest technology and designed with a more intuitive workflow to improve the efficiency of the scanning process. The new simulator also has higher quality imaging, faster reconstruction, and higher levels of integration with other systems, which supports a more precise treatment planning process.

Technology Infrastructure: LHMC also promotes care coordination and effective communication with primary care providers and specialists through an integrated medical record system. LHMC's Electronic Medical Record (EMR) serves as the primary linkage between the Hospital's radiology oncology department, affiliated specialists, and community primary care providers. The EMR allows LHMC's radiologists real-time access to a patient's comprehensive medical information, including medical history, lab results, and clinical notes while they are protocoling or reading a study. Once the radiologist's report is complete, the EMR enables imaging results and information to be available to primary care and specialty physicians across the system and integrated into the patient's EMR. The EMR also allows authorized providers outside of the Applicant to view their patients' records and send progress notes back for improved continuity of care.

Analysis

Staff finds that the Applicant's care coordination will contribute positively to efficiency, continuity, and coordination of care. The co-location of cancer services will make them more efficient, which will contribute to increased patient satisfaction and support continuity and coordination of care. The modernization of equipment has the potential to provide faster and more precise treatment for the Patient Panel. LHMC's EMR supports communication between the patient, physician, and all care team members that can foster better collaboration. Review of literature points to evidence which suggests

access to integrated health information technology systems directly impacts health outcomes through reducing fragmentation and improving coordination among care providers.^{aa} Similarly other studies show that integrated health information technology systems directly affect health outcomes, as access to a single, integrated health record, can reduce errors, improve patient safety, and support better patient outcomes.^{bb} 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 the following government agencies that have licensure, certification, or other regulatory oversight:

- General Counsel, Department of Public Health
- Director, Determination of Need Program, Department of Public Health
- Manager of Community Health and Engagement Practices, Bureau of Community Health and Prevention, Department of Public Health
- Massachusetts Executive Office of Health and Human Services
- Health Policy Commission
- Center for Health Information and Analysis
- The Centers for Medicare & Medicaid Services

As a result, Staff finds that the Proposed Project meets the requirements of Factor 1d.

Factor 1: e) Evidence of Sound Community Engagement through the Patient Panel

The Department's Guideline¹⁷ 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. Regulations state that efforts in such consultation should consist of engaging "community coalitions statistically representative of the Patient Panel."¹⁸

The Applicant presented the Proposed Project presented to the following groups:

- Community Benefits and Advisory Committee
- LHMC Community
- Hospital's Patient and Family Advisory Committee

During each of the presentations described below, attendees were educated on the Applicant's proposed plans, including how the Proposed Project will benefit the Hospital's Patient Panel. Following the presentation, attendees were able to share feedback and ask the presenters questions.

- 1) **Community Benefits and Advisory Committee (CBAC):** The Proposed Project was first presented to the Hospital's Community Benefit and Advisory Committee on December 13, 2022. The presentation was attended by 13 Committee members and led by the Interim Chief

¹⁷ [Community Engagement Standards for Community Health Planning Guideline.](#)

¹⁸ [DoN Regulation 100.210 \(A\)\(1\)\(e\).](#)

Operating Officer of LHMC. The discussion focused on understanding where the new department would be located and the impact on parking, as well as understanding the DoN application and CHI processes.

- 2) **LHMC Community:** The Proposed Project was presented to the LHMC Community on December 20, 2022. The presentation was attended by six (6) community members and led by the Interim Chief Operating Officer of LHMC. Community members did not have any feedback or questions for the presenters.
- 3) **Hospital's Patient and Family Advisory Committee (PFAC):** The Proposed Project was presented to the Hospital's Patient and Family Advisory Committee on February 7, 2023. The presentation was attended by sixteen (16) attendees. PFAC members did not have any feedback or questions for the presenters.

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 the Proposed Project will compete on the basis of price, total medical expenses, provider costs, and other recognized measures of health care spending by creating a centralized environment for the continued provision of cancer services in the community. These improvements, including the expansion of services, are necessary to ensure that cancer services remain available to LHMC Burlington's patients close to home.

The Applicant asserts that the Proposed Project will promote operational and clinical efficiencies, improving care delivery that will lead to positive health and quality outcomes for the Patient Panel, and thus compete on the basis of price and health care spending. The Proposed Project will site the Radiation Oncology Department in a location much closer to the Hospital's Hematology Oncology Department. Centralized services will enable better communication and collaboration among care team members and co-location of clinical services allow for a patient-centered experience. The expanded access to cancer care will contribute to cost containment goals with timely treatment that may reduce patient burden of disease and mitigate costs related to later diagnosis. The new facility will also include updated technology and space for integrative services.

As discussed in Section F1.a.ii., the Hospital currently provides radiation oncology services in an aging building that cannot be renovated to meet the size requirements needed for the replacement LINACs. However, in planning for the machines' future replacements, adequately sized vaults were previously

poured as part of a separate renovation project at the LPMC Burlington main building, further contributing to cost containment goals for the Proposed Project. Therefore, the Proposed Project will compete on the basis of price and health care spending by ensuring access to radiation treatment close to home and through cost-effective construction.

Analysis

Staff finds that the Proposed Project's expanded cancer services will help ensure residents have access to quality cancer services close to home. Further, there is evidence that complementary and integrative medicine, used for reducing physical and emotional side-effects related to cancer treatment, may reduce healthcare utilization^{cc}, thus reducing costs. Centralized services will enable better communication and collaboration among care team members and co-location of clinical services allowing for patient-centered experience. Staff finds that the Proposed Project will likely compete on the basis of price, TME provider costs, and other measures of health care spending.

Summary, FACTOR 1

As a result of the information provided by the Applicant and additional analysis, staff finds that the Applicant has demonstrated that the Proposed Project meets Factor 1.

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

The Applicant states asserts that the Proposed Project will meaningfully contribute to The Commonwealth's goals for cost containment through use of existing infrastructure and co-location of services. These efforts will maintain and expand access to radiation therapy close to home for LPMC Burlington patients.

Use of Existing Infrastructure: As part of the Hospital's strategic plan, LINAC vaults were poured during the construction of LMHC Burlington's emergency department renovation project in 2017. As a result, the Proposed Project leverages existing campus infrastructure, ensuring the proposed location of the replacement equipment is the most-cost effective solution.

Co-Location of Services: The proposed re-location will enable LPMC Burlington to improve care delivery and care coordination through the co-location of radiation oncology, hematology oncology, and wraparound services. Lack of effective care coordination leads to waste and increased costs in the health care system,^{dd} while increased care coordination can reduce costs,^{ee} including among cancer patients.^{ff} The Proposed Project will allow the Applicant to provide expanded access to forms of radiation therapy, like HDR and SBRT, that have been shown to be more cost-effective than other treatment options.^{gg}

Analysis: Cost Containment

Staff finds that the Applicant has adequately explained how it aligns with cost containment goals through the use of existing infrastructure and co-location of complimentary services. The staff finds that the Proposed Project will achieve overall cost savings by expanding the availability of a variety of radiation therapies. Lack of services available in local hospitals, which may result in transfers to other facilities that can be costly.^{hh,ii} Thus, patients having access to appropriate cancer care services locally can contribute to cost savings. Therefore, DoN Staff can conclude that the Proposed Project will likely meet the cost containment component of Factor 2.

Improved Public Health Outcomes

The Proposed Project will improve public health outcomes by providing the LHMC Patient Panel access to a wider range of radiation oncology within their community. While patients currently have access, certain services are limited in capacity or will become severely impacted without the Proposed Project. Due to the existing footprint of LHMC Burlington's radiation oncology service, HDR treatments are limited to two cases per week when an operating room is available. As a result, patients must either seek services in Boston or forego the benefit of boosting the radiation dose with prostate brachytherapy. External beam radiation therapy with androgen deprivation therapy is an option for patients with high-risk prostate cancers but local recurrence rates are improved with the addition of brachytherapy boost.^{jj} The Applicant states that having access to the variety of radiation services in the Proposed Project will have a positive impact on LHMC Burlington's ability to effectively treat the local community.

As previously noted, the Hospital's existing LINAC machines are at the end of their useful life. Without replacement, LINAC services will be reduced as the machines go offline due to lack of replacement parts and manufacturer support, which would force patients to seek treatment outside of their community. This could create a barrier to patients' adherence to their treatment plan due to the distance patients must travel to secure treatment and the increased amount of time for round trip transportation to a successive series of appointments.¹⁹

The Applicant asserts that both the expanded access to radiation therapies and the potentially detrimental effects of losing these therapies within the community suggest the Proposed Project is necessary to improving public health outcomes, and patient satisfaction.

Analysis: Public Health Outcomes

Staff finds that the Proposed Project will provide the Patient Panel timely access to radiation services that has the potential to improve health outcomes and patient satisfaction. Timely access can reduce delays in treatment that can adversely impact health outcomes. Maintaining and expanding the radiation services within the community will offer a variety of treatment options. Therefore, DoN Staff can conclude that the Proposed Project will likely meet the Public Health Outcomes component of Factor 2.

¹⁹ Many patients will receive radiation therapy once a day, five days a week, over a series of weeks personalized for their treatment plan.

Delivery System Transformation

The Applicant states that the Proposed Project will enhance the Hospital's existing integrated care model through improved care coordination and integrative wellness offerings. LHMC Burlington currently offers cancer patients access to nutrition services, social work, physical therapy, as well as acupuncture, art therapy, and yoga. However, these services are currently provided in the Hematology Oncology suite which is located in a different building from the radiation oncology department. The Proposed Project's relocation of the radiation oncology department will allow patients to experience these additional services in closer proximity to their radiation therapy treatments, both in terms of time and distance.

The Applicant states that they work with patients and primary care providers to ensure patients are linked to social service organizations as needed. To accomplish this, LHMC has an SDoH screening tool built into its electronic medical record and is used upon admission to the Hospital. In addition, Radiation Oncology nurses screen for SDoH concerns at the time of each patient's initial consult and again before the patient starts treatment in an effort to remove any barriers to a successful course of treatment.

LHMC, as well as other hospitals in the BILH system, developed a resource guide as part of its standard Community Health Needs Assessment process to highlight health and social service resources available to the community. The guide was developed in consultation with BILH Primary Care and is widely available on the LHMC website as a resource for both providers and community members. LHMC also includes a representative from the primary care team on its CBAC in an effort to provide them with additional information about available community resources through the hospital's community benefits program.

Through its community benefits program, LHMC also maintains long-standing relationships with many community-based organizations working to meet the needs of the community related to social determinants of health. These include Councils on Aging, Aging Services Access Points, food pantries, community-based nutrition programs, YMCAs, and community health centers, among many others. As one example, LHMC partners with three Councils on Aging within the community benefits service area, along with the Merrimack Valley Food Bank to provide older adults and residents of affordable housing in Lowell with free, fresh produce throughout the summer in an effort to help to increase access to healthy food and decrease the burden of cost on these historically underserved communities.

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 screening system that provide multiple points of potential intervention for patients with relevant SDoH factors. The Applicant also demonstrates a variety of methods for linking its patients to needed community resources and a history of maintaining relationships with local social service partners. Therefore, DoN Staff can conclude that the Proposed Project will likely meet the Delivery System Transformation component of Factor 2.

Summary, FACTOR 2

As a result of information provided, staff finds that the Proposed Project has sufficiently met the requirements of 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 this Factor 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 consequences to the existing Patient Panel. Documentation sufficient to make such finding must be supported by an analysis by an independent CPA.

The Applicant submitted a CPA report compiled by Meyers Brothers Kalicka. The scope of the analysis included review of the audited financial statements of BILH, Inc for the fiscal years ended 2021 and 2022, capital budget for expected costs of the Proposed Project by construction phases, the five-year financial projections and income statements prepared by BILH, Inc. including detailed assumptions and supporting documentation for the fiscal years 2024 through 2028, historical (2021 and 2022) and projected (2024-2028) radiation oncology service volume performed at Lahey Hospital and Medical Center, and relevant background information from DoN Application. The CPA assessed the reasonableness²⁰ of assumptions used in the preparation and feasibility²¹ of the projections with regards to the Proposed Project.

Revenues

The CPA analyzed the Net Patient Revenue from Fiscal Year 2024 through Fiscal Year 2028. Total increases in treatments performed are anticipated to be approximately 3% in FY2024, 1% in fiscal year ending FY2025 and less than 1% in the FY2026-2028. Net patient revenue²² projections were consistent with the base year factors of 35% Payment on Account Factor for fiscal years 2021 and 2022. The CPA's opinion is that revenue growth projected by Management reflects a reasonable estimation based primarily on historical operations.

Operating Expenses

The CPA analyzed Salaries and Benefits, Supplies and Other Operating Expenses, and Depreciation Expense for reasonableness and feasibility as related to the Proposed Project.

²⁰ Reasonableness is defined within the context of this report as supportable and proper, given the underlying information.

²¹ Feasibility is defined as based on the assumptions used, the plan is not likely to result in insufficient funds available for capital and ongoing operating costs necessary to support the proposed project without negative impacts or consequences to Baystate or BNH's existing Patient Panel.

²² CPA Report notes that net patient revenue is projected each year by calculating gross charges, net of deductions for contractual allowances.

Salaries and Benefits were calculated with 30 full-time equivalents (FTEs) to operate the radiation oncology department, an increase of 4 FTEs from FY2022. The relocation and expansion of the radiation oncology department will create a need for one additional radiation technician, one specialist, and two additional registered nurses to manage the additional volume. Management assumes an approximate 2% to 3% cost of living adjustment for from FY2025-2028.

Supplies are expected to increase significantly over FY2024 and 2025 (between 41-55% compared to the FY2022 supplies expense) based on the projected increase in new patients and treatment volume because of the expansion. Treatment volume in FY2026-2028 is expected to remain consistent as the new technology will require fewer treatments per patient over time, resulting in supplies remaining consistent as well (11% increase compared to FY2022 supplies expense).

Other expenses include costs associated with maintenance contracts, purchased services for treatment planning and other costs associated with miscellaneous equipment. Other expenses to increase by approximately 5% in FY2024, 12% increase in FY2025, and 3% increase each year between FY2026-2028.

Depreciation Expense reflects the incremental expense related to the Proposed Project. The projections reflect pre-construction and construction depreciated over an average life of 25 years.

The CPA concludes that the projected growth in operating expenses reflects a reasonable estimation based primarily upon historical operations.

Capital Expenditures

The CPA reviewed the total capital expenditures for the project which will be funded by available capital funds of the Applicant and philanthropic giving of approximately \$1 million. The CPA concludes that the capital needs and ongoing operating costs required for the relocation and expansion of the Radiation Oncology Department are not likely to result in a scenario where there is negative cash flow, and that the Applicant has the resources to fund the initial capital requirements.

As a result of its analysis, the CPA concluded the following:

Based upon our review of the projections and relevant supporting documentation, we determined the relocation and expansion of the radiation oncology department at LHMC and the capital needs associated with the project is financially feasible and within the financial capability of BILH.

Factor 4 Analysis

Staff is satisfied with the CPA's analysis of the Proposed Project's projections. As a result of information provided by the Applicant and additional analysis, staff finds that the Applicant has demonstrated that the Proposed Project has met Factor 4.

Factor 5: Assessment of the Proposed Project's Relative Merit

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 considered and rejected one alternative to the Proposed Project.

Alternative Option 1: Do not relocate the Radiation Oncology Department or expand access to cancer services through additional exam rooms and HDR treatment. This alternative was rejected because LHMC Burlington patients would lose access to LINAC once the machines stop working and would have to seek HDR treatment outside of their community. LHMC Peabody would not be able to absorb all patients, so a significant portion of patients would be forced to seek care much further from home. This option carries no capital expenses or additional operating costs. However, this option would decrease access to care for the LHMC's Patient Panel and the community.

Analysis

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

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

Summary and relevant background and context for this application: This is a DoN project that will result in a Tier 2 Community-based Health Initiative (CHI). The Applicant, Beth Israel Lahey Health at Lahey Health Medical Center (LHMC) in Burlington plans to relocate and expand the radiation oncology department. For this project, the Applicant submitted a CHI Narrative, Community Engagement Self-Assessment and Stakeholder Assessments, and their 2022 Community Health Needs Assessment (CHNA).

LHMC's 2022 CHNA assessed the communities of Burlington, Bedford, Billerica, Lexington, Lowell, Arlington, Lynnfield, Peabody, and Danvers. The CHNA was developed through data collection activities including community listening sessions, a community health survey, focus groups and key informant interviews. The Applicant prioritized community engagement efforts to include voices of community members who have been historically underserved, such as young people, individuals who experience housing instability and/or experience health inequities due to race, ethnicity, gender identity, age, disability status or other characteristics.

The CHNA identified priority areas and described key findings and themes from the service area and participating communities. LHMC's priority cohorts include youth, low-resourced populations, older adults, LGBTQIA+ and racially, ethnically, and linguistically diverse populations. The Applicant highlights that LHMC will work with its community partners to develop and/or continue programming geared to improve health and wellbeing for the priority populations in the spaces of equitable access to care, social determinants of health, mental health and substance use, and complex and chronic conditions.

The 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 and participating community groups and residents identified the key priorities and strategies also highlighted in the 2022 CHNA.

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.

The CHI Narrative provided an overview of the CHI funds breakdown and processes, as well as advisory committee duties, timeline for CHI activities, explanation of administrative monies, and evaluation overview. LHMC plans to convene their Community-Based Advisory Committee (CBAC) to select health priorities, allocation committee and funding method(s) within 6-8 months post approval. Funding decisions, disbursement and implementation will take place within 9-14 months post approval.

LHMC plans to utilize administrative funds to promote community meetings, provide interpretation/translation services, stipends for resident participation and additional staff time for these efforts. 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.

Findings and Recommendations

Based upon a review of the materials submitted and with the addition of certain conditions, set out below and imposed pursuant to 105 CMR 100.360(A), the Department finds that the Applicant has met each DoN factor and recommends approval of this Application for Determination of Need.

Other Conditions

CHI Contribution

1. Of the total required CHI contribution of \$1,509,133.35
 - a. \$365,964.84 will be directed to the CHI Statewide Initiative
 - b. \$1,097,894.51 will be dedicated to local approaches to the DoN Health Priorities
 - c. \$45,274.00 will be designated as the administrative allowance

2. To comply with the Holder's obligation to contribute to the Statewide CHI Initiative, the Holder must submit a check for \$365,964.84 to Health Resources in Action (the fiscal agent for the CHI Statewide Initiative).
 - i. The Holder must submit the funds to HRiA within 30 days from the date of the Notice of Approval.
 - ii. The Holder must promptly notify DPH (CHI contact staff) when the payment has been made.

Payment should be sent to:
Health Resources in Action, Inc., (HRiA)
2 Boylston Street, 4th Floor
Boston, MA 02116
Attn: Ms. Bora Toro

Appendix I: Measures for Annual Reporting

Outcome Measures

To assess the impact of the Proposed Project, the Applicant has developed the following outcome measures. 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.

A. LINAC Project

1. **Patient Satisfaction:** Patients that are satisfied with their care are more likely to seek additional treatment when necessary.

Measure: Patient satisfaction scores will be used to determine the impact of the Proposed Project on quality of life.

Numerator = Number of top scores, such as "likely to recommend" or "highly satisfied."

Denominator = Total number of survey respondents

Baseline, Projections, and Monitoring: As the Proposed Project will not be implemented until construction is complete, the Applicant will provide baseline measures and three years of projections one year following implementation of the Proposed Project.

- 2. Treatment Duration:** This measure will monitor the average length of SBRT and SRS treatments. As a result of the Proposed Project, the Applicant anticipates that treatment lengths will decrease, thereby improving the patient's experience and comfort.

Measure: SBRT/SRS treatment length will be used to determine the impact of the Proposed Project on quality of life and health outcomes.

Numerator = Total minutes of SBRT/SRS treatment time per month

Denominator = Total number of SBRT/SRS treatments per month

Baseline, Projections, and Monitoring: As the Proposed Project will not be implemented until construction is complete, the Applicant will provide baseline measures and three years of projections one year following implementation of the Proposed Project.

B. HDR Project

- 3. Patient Satisfaction:** Patients that are satisfied with their care are more likely to seek additional treatment when necessary. LHMC staff will review patient satisfaction scores from Press Ganey related to overall patient satisfaction.

Measure: Patient satisfaction scores will be used to determine the impact of the Proposed Project on quality of life.

Numerator = Number of top scores, such as "likely to recommend" or "highly satisfied."

Denominator = Total number of survey respondents

Baseline, Projections, and Monitoring: As the Proposed Project will not be implemented until construction is complete, the Applicant will provide baseline measures and three years of projections one year following implementation of the Proposed Project.

- 4. Treatment Duration:** This measure will monitor the average length of HDR procedures. As a result of the Proposed Project, the Applicant anticipates that treatment lengths will decrease, thereby improving the patient's experience and comfort.

Measure: HDR treatment length will be used to determine the impact of the Proposed Project on quality of life and health outcomes.

Numerator = Total minutes of HDR treatment time per month

Denominator = Total number of HDR treatments per month

Baseline, Projections, and Monitoring: As the Proposed Project will not be implemented until construction is complete, the Applicant will provide baseline measures and three years of projections one year following implementation of the Proposed Project.

5. **Treatment Access:** This measure will monitor the total number of patients who receive HDR treatment at LHMC Burlington following implementation of the Proposed Project.

Measure: By tracking the number of patients treated using HDR, LHMC will be able to assess how the Proposed Project has improved access.

Baseline, Projections, and Monitoring: As the Proposed Project will not be implemented until construction is complete, the Applicant will provide baseline measures and three years of projections one year following implementation of the Proposed Project.

REFERENCES

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- ^c UMASS DONAHUE INSTITUTE POPULATION ESTIMATES PROGRAM, *Massachusetts Population Projections* (2023), <http://www.pep.donahue-institute.org/>.
- ^d See *id.*
- ^e CTRS. FOR DISEASE CONTROL, DIV. CANCER PREVENTION & CONTROL, *Cancer Prevention During Older Adulthood* (Sept. 3, 2021), <https://www.cdc.gov/cancer/dpcp/prevention/older-adulthood.htm>.
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- ^k *Id.*
- ^l NCI, *Radiation Therapy*, *supra* note i.
- ^m See AM. COLL. RADIOLOGY, *ACR-ARS Practice Parameter for Intensity-Modulated Radiation Therapy (IMRT)* (2021), <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/imrt-ro.pdf>; NCI, *External Beam*, *supra* note 30.
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- ^o *Id.*; Taylor & Powell, *supra* note **Error! Bookmark not defined.**
- ^p NCI, *External Beam*, *supra* note 30.
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- ^v *Id.*
- ^w AM. COLL. RADIOLOGY, *ACR-ABS-ASTRO Practice Parameter for the Performance of Radionuclide-Based High-Dose-Rate Brachytherapy* (2020), <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/hdr-brachyro.pdf>.
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^y TP Hellebust, *Place of Modern Imaging in Brachytherapy Planning*. 22 CANCER RADIOTHERAPIE 326, 326-333 (2018).

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