

STAFF REPORT TO THE COMMISSIONER FOR A DETERMINATION OF NEED	
Applicant Name	Beth Israel Lahey Health, Inc.
Applicant Address	20 University Road, 7th Floor Cambridge, MA 02138
Filing Date	March 21, 2022
Type of DoN Application	Substantial Change in Service, DoN-required Equipment
Total Value	\$2,358,540
Project Number	BILH-21111612-RE
Ten Taxpayer Group (TTG)	None
Community Health Initiative (CHI)	\$117,927
Staff Recommendation	Approval
Delegated Review	Commissioner Approval
<p style="text-align: center;"><u>Project Summary and Regulatory Review</u></p> <p>Beth Israel Lahey Health, Inc. (Applicant) submitted a DoN Application for the addition of one computed tomography (CT) imaging unit to be located on the main campus of Beth Israel Deaconess Hospital - Needham at 148 Chestnut Street, Needham, MA. The capital expenditure for the Proposed Project is \$2,358,540; the Community Health Initiatives (CHI) contribution is \$117,927.</p> <p>This DoN application falls within the definition of Substantial Change in Service, DoN-Required Equipment and Services, 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>	

## Application Overview

### Beth Israel Lahey Health (BILH or Applicant)

The Applicant, BILH, 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.<sup>1</sup> BILH states that its purpose “is to support the patient care, research, and educational missions of its member entities” and its vision “is to have a broader impact on the health care industry and patient populations in Massachusetts by sharing best practices, investing in foundational infrastructure to support population health management, and encouraging true market competition based on value.”

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

<b>Acute Hospital<sup>2</sup></b>	<b>Type (Per CHIA Category<sup>a,b</sup>)</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.

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<sup>1</sup> The Applicant states that an estimated five million people reside in the BILH service area. See DoN application narrative, page 40 for BILH Service Area Map.

<sup>2</sup> Beth Israel Lahey Health includes the following Hospitals: Addison Gilbert Hospital (Northeast), Anna Jaques Hospital, BayRidge Hospital (Northeast), 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.

### **Beth Israel Deaconess - Needham**

Beth Israel Deaconess-Needham (BID – Needham), the site of the Proposed Project, is a community hospital (CH) that is licensed to operate 58 acute care beds.<sup>3</sup> BID-Needham provides secondary/community-based care to meet complex patient needs and serves as a community hospital for residents living in Needham and nearby communities. BID-Needham is contracted to participate in BILHPN and currently participates in its subsidiary ACO, Beth Israel Deaconess Physician Organization, LLC d/b/a Beth Israel Deaconess Care Organization of “BIDCO”. BID-Needham is a DPH-designated Primary Stroke Service (PSS) Hospital providing 24/7 care to patients experiencing stroke and stroke symptoms.<sup>4,5</sup>

### **Application Summary**

In February 2021, BID-Needham notified the Department of Public Health (DPH) that it was replacing its existing CT unit (GE VCT unit – built and installed in 2009) with a new GE CT unit and would locate that unit within the Radiology Department at BID-Needham. The Applicant is proposing to reactivate the 2009 CT unit within the same Department, so that BID-Needham will be able to operate two CT units. In order to accurately reflect the capital expenditure for the entirety of the recent changes to the CT units, in agreement with DoN staff, the costs that are being attributed to this Application are the costs associated with acquiring the replacement unit.

BID-Needham currently has one CT unit in the Department of Radiology that provides CT services, including diagnostic exams and CT-guided procedures, for the entire hospital. The unit is located on the ground floor in the main building, directly below the ED, and is in service 24 hours a day, seven days a week. Having one CT unit to serve the imaging needs of emergency patients, inpatients, and outpatients has resulted in inefficiencies. The need to accommodate inpatients or ED patients postpones non-urgent outpatient CT availability, leading to longer wait times for outpatient imaging. On the inpatient side, exams that are needed but not urgent wait for outpatient exams to be performed, which can increase length of stay (LOS) and delay diagnosis and treatment.

Because of existing capacity constraints, BID-Needham is currently unable to perform CT-guided procedures on its single CT unit. Consequently, patients travel to another facility to receive such services. Additionally, there is downtime on the single existing scanner for repairs or scheduled maintenance. During this time, ED patients and inpatients must wait for a CT scan, which can increase their LOS.

The Applicant is proposing to add a reactivated, second CT unit to address delays in access to care and to improve patient experience, timeliness of clinical decision making, and health outcomes. Operating two CT units would address the inefficiencies in the current set up and support timelier and more cost-effective care. The addition of a second CT unit would enable BID-Needham to avoid the interruptions

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<sup>3</sup> BID-Needham Primary Service Area includes Dedham, Dover, Medfield, Needham, Needham Heights, and Westwood. BID-Needham Secondary Service Area includes Canton, Millis, Natick, Newton Center, Newton Highlands, Newton Upper Falls, Chestnut Hills, Waban, Norwood, Sharon, East Walpole, South Walpole, Wayland, Wellesley, West Roxbury.

<sup>4</sup> Massachusetts Department of Public Health. Designated Primary Stroke Services Hospitals. <https://www.mass.gov/info-details/designated-primary-stroke-services-hospitals>

<sup>5</sup> Primary Stroke Service (PSS) designation in Massachusetts indicates that a health care facility is ready to evaluate and treat acute stroke patients 24 hours a day. Massachusetts PSS facilities submit data to the Bureau of Health Care Safety and Quality (BHCSQ) as part of licensing.

and delays that currently occur as a result of having only one CT unit. The proposed CT scanner will improve access for scheduled outpatient CT procedures, and timelier turnaround for inpatient studies.

The second CT unit will be located directly across from the ED elevator, serving as an ED-sited CT unit. The new primary CT and the 2009 CT control rooms share the same hallway and are both accessed via the main hallway in the Radiology Department. The second unit would be used in a similar manner as the existing CT unit and would enable BID-Needham to provide uninterrupted access to CT services, reduce delays in access to care, and accommodate increasing demand for CT services. The proposed CT unit is expected to operate at full capacity within a short period of time after becoming operational.

## Patient Panel<sup>6</sup>

The BILH Patient Panel consisted of 1,427,711 patients, in fiscal year 2021 (FY21).<sup>7,8</sup> As shown in Table 1, the number of patients utilizing BILH's services increased by 11.5% between FY19 and FY21.

**Table 1: BILH Patient Panel**

<b>FY19</b>	<b>FY20</b>	<b>FY21</b>	<b>% Change FY19-FY21</b>
1,280,699	1,219,718	1,427,711	11.5%

Table 2 provides information on BILH and BID-Needham patient populations. Staff note the following observations about the data below:

- **Age:** The BID-Needham patient population has a higher proportion of patients aged 65 and older than the BILH patient population (28.7% vs. 30.9%). Additionally, the BILH patient population has a slightly higher percentage of patients aged 0 to 17 than the BID-Needham patient population (6.6% compared to 2.6%).
- **Race:** The BILH patient population has slightly over 70% of the BILH patient population identifying as White compared to slightly less than 70% of the BID-Needham patient population. Approximately 5% of the BILH patient population identifies as Black compared to ~4% of the BID-Needham patient population.
- **Payer Mix:** Commercial payers are the primary payer source for BILH patients and Medicare is the primary payer source for BID-Needham patients, followed by Commercial payers.

<sup>6</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.

<sup>7</sup> For purposes of the Applicant's and the Hospital's Patient Panel, the fiscal year is defined as July 1 through June 30.

<sup>8</sup> BILH includes Addison Gilbert Hospital, AJH, BayRidge Hospital, Beverly Hospital, BIDMC, BID-Milton, BID-N, BID-Plymouth, LHMC-Burlington, LHMC-Peabody, MAH, NEBH, and Winchester Hospital. Counts represent the number of unique patients that visited a facility on a BILH hospital license for inpatient or outpatient services, including patients who were admitted through the emergency department. Unique patients are identified at the hospital level, with the exception of Addison Gilbert Hospital, BayRidge Hospital, and Beverly Hospital, which are jointly identified as Northeast Hospital Corp. patients, and LHMC-Burlington and LHMC-Peabody, which are also jointly identified. Patients visiting multiple BILH hospitals in a given year are not uniquely identified.

**Table 2: Overview of BILH and BID-Needham Patient Populations**

	BILH patients	BID-Needham patients
<b>Total Unique Patients (FY21)</b>		
<b>Gender</b>		
Male <sup>9</sup>	44.2%	42.1%
Female	55.8%	57.9%
Other <sup>10</sup>	0.0%	
Total	100%	100.00%
<b>Age</b>		
0 to 17	6.6%	2.6%
18 to 64	64.8%	66.5%
65+	28.7%	30.9%
Total	100%	100.00%
<b>Race<sup>11</sup></b>		
White	71.6%	69.1%
Black or African American	4.9%	4.1%
American Indian or Alaska Native	0.1%	0.1%
Asian	5.6%	3.6%
Native Hawaiian or Other Pacific Islander	0.1%	0.0%
Other	8.9%	5.0%
Unknown	7.4%	17.8%
Patient Declined	1.4%	0.3%
Total	100%	100.00%
<b>Ethnicity</b>		
Hispanic/Latino	6.0%	Not available <sup>12</sup>
Not Hispanic/Latino	81.7%	
Patient Declined	3.6%	
Unknown	6.0%	
Other	2.7%	
Total	100%	
<b>Payer Mix<sup>13</sup></b>		
Medicare Total	25.4%	48.2%
Medicaid Total	12.2%	6.2%
Commercial - Total	48.1%	43.3%
HSN		0.1%
Multiple Payers	6.0%	
Other	7.7%	1.3%

<sup>9</sup> Includes Male and Other for BID-Needham for confidentiality due to regulations around data with counts less than 11.

<sup>10</sup> BILH patients for whom a gender is not specified or whose gender varies across visits over the time period are included in "Other."

<sup>11</sup> Self-reported. Patients for whom a race is not specified are included in "Patient Declined," "Unknown," or "Other," per the local facility's data collection methodology. Patients for whom race varies across visits over the time period are included in "Other."

<sup>12</sup> 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. Ethnicity information is not available for the following BILH Hospitals: BID-Needham, BID-Milton, and BID-Plymouth.

<sup>13</sup> BID-Needham payer mix is for fiscal year 20 (FY20).

Unknown	0.6%	
Self-Pay		0.8%
Total	100%	99.9%

## Factor 1: a) Patient Panel Need

The Applicant attributes Patient Panel need for expanded access to CT imaging to the following:

- Increase in Inpatient Census
- Increase in Patient Acuity
- Increase in ED patients
- Downtime for repairs and scheduled maintenance
- Outpatient Diagnostic Use
- Increase in Need of CT-Guided Procedures for both inpatients and outpatients
- Projected Volume Growth

### Background

Since FY17, the existing BID-Needham CT unit has been operating at or above a utilization rate of 93%. The BID-Needham Department of Radiology is currently open 24 hours a day, seven days per week, to accommodate the additional CT scan slots for patient care. This includes evening slots for inpatient and ED patient use only. The variety of types of CT services being scheduled, the increase in volume, and the hours of availability for CT services (during both general and off-hours) has increased complexity of and resources required for CT scheduling. Despite efforts to optimize scheduling, current utilization increases result in ongoing delays in scheduling.

**1. Increase in Inpatient Census.** Over the past several years, BID-Needham has experienced a 1-2% increase in the number of inpatients requiring CT scans during their inpatient stay. The Applicant states that there are several key drivers contributing to an increase in inpatient use of CT services.

- BILH system-wide case management effort to ensure patients receive care in the community hospital setting where appropriate. As such, lower acuity patients who can be appropriately treated in a community hospital are shifted to local hospitals such as BID-Needham.
- An increase in the older adult population with the most acute medical needs among those seen in the community hospital settings, including greater need for CT services.
- Norwood Hospital Closure June 2020<sup>14</sup>. Capacity constraints for CT services existed prior to the closure of Norwood Hospital and were further exacerbated by it. After the closure of Norwood Hospital, BID-Needham accommodated ED and inpatient volume which

<sup>14</sup> Estimated that Norwood Hospital will remain closed for three years.

otherwise might have gone to Norwood, straining BID-Needham's outpatient resources, as the same CT serves all three patient types.

The Applicant states that the resultant combination of the factors presented in Table 3 increased CT exams and CT-guided procedures at BID-N to 16,708 in FY21, which is a 39.4% increase over the prior year.

**Table 3: Key Drivers of Increased CT Use**

Measures	FY 2019	FY 2020	FY 2021	% Change FY19-FY21
<b>BID-Needham Patient Population</b>	70,183	63,840	81,634	16%
<b>BID-Needham ED Visits</b>	16,699	15,600	21,008	26%
<b>BID-Needham Inpatient Discharges</b>	2,855	3,019	3,742	31%
<b>Average Daily Inpatient Census</b>	29.1	30.9	40.3	38%
<b>Average Daily Observation Census</b>	7	6	7	0%
<b>BID-Needham CT Exam Volume (No Procedures)</b>	11,611	11,985	16,708	44%
<b>BID- Needham CT - Guided Procedures</b>	22	16	10	-55%

- 2. Increase in Acuity of inpatients at BID-Needham.** Between FY19 and FY21 patient acuity increased alongside inpatient volume. BID-Needham's overall average case mix index (CMI) increased from 1.34 to 1.35 overall, and among ICU discharges increased from 1.55 in FY19 to 1.72 in FY21.
- 3. Increase in ED patients at BID-Needham.** BID-Needham's ED CT volume has increased from 4,300 patient studies in FY2019 to 6,800 studies in FY21. BID-Needham prioritizes time-sensitive CT service requests for uses such as stroke, trauma, post-procedural and post-surgical, and inpatient procedures resulting in the need to reschedule patients with less urgent need for a CT scan to accommodate time-sensitive CT scan requests.

BID-Needham is designated by DPH as a Primary Stroke Service (PSS) hospital which means that the Emergency Medical Services (EMS) system sends patients experiencing symptoms of a stroke to the BID-Needham ED, and the facility is ready to evaluate and treat acute stroke patients 24 hours a day.

BID-Needham has seen an increase in the number of Code Stroke cases coming into the ED and subsequently to CT service.<sup>15</sup> The Applicant states that FY20 saw 148 cases and FY21 has already seen 117 cases and is on pace for 202, a 36.5% increase. The addition of a second CT unit will increase the efficiency in which patients are transferred to and from the ED at BID-Needham.

<sup>15</sup> Code Stroke Case: a "patient presenting with symptoms of acute stroke, transient ischemic attack (TIA), or new neurological event."

#### **4. Downtime for repairs and scheduled maintenance.**

Interruptions and delays occur when the single scanner is down for scheduled maintenance, causing ED patients and inpatients to wait for a CT scan, which can increase their LOS. Repairs and maintenance can also require the Hospital to go on what they refer to as Cautionary Status. The Hospital (usually ED staff) calls the regional Central Medical Emergency Direction (CMED) Center to alert EMS that the Hospital does not have CT availability, so that ambulance crews can factor that into decision-making. The Hospital follows the same notification process when CT capability is restored. While the occurrence is infrequent, it is highly disruptive to care delivery, resulting in transfers to other facilities to accommodate treatment and increasing the time it takes for patients to obtain imaging needed to make decisions regarding their care. The Applicant states that planned downtime is scheduled in the early morning and usually lasts approximately four hours. Unplanned downtime is more variable and usually lengthy if parts are needed. The last unplanned down time of the unit lasted nine hours.

#### **5. Outpatient Diagnostic Use**

Additional ED and inpatient volume has impacted the Applicant's ability to fully accommodate the needs of a growing demand for CT services among BID-Needham's outpatient population. Outpatients can wait as long as five weeks for non-urgent, outpatient CT services with contrast. Also, outpatients are currently being rescheduled due to emergent or urgent patients and downtime for maintenance. Adding a second CT scanner can allow for more outpatient CT exams that can be coordinated with patients' medical visits in a timelier manner. Table 4 below lists wait times for CT services.

**Table 4: Wait Times for CT Services**

<b>FY21 Current Wait Times</b>	<b>Exams</b>
<b>Inpatient</b>	Same day
<b>ED</b>	Under 90 minutes
<b>OP STAT</b>	1 add-on slot same day
<b>OP Routine without contrast</b>	1 weeks
<b>OP Routine with contrast</b>	5 weeks

#### **6. Increase Need for CT-Guided Procedures for Both Inpatients and Outpatients**

Outpatient minimally invasive treatment options for oncology and cardiac patients are shown to provide improved clinical outcomes when compared to open surgery, resulting in decreased patient morbidity and increased cost efficiencies. CT-guidance is key for improved accuracy and safety in emerging new, minimally invasive, procedures for these patients that are predominantly performed in the outpatient setting where patients comfort is increased and

health care expenditures are reduced. Recent advances in surgery require high-end CT and CT angiography for triage, planning and safe execution.<sup>16</sup>

CT-guided procedures are not currently performed at BID-Needham because of existing capacity constraints. The last procedure was performed in October 2021. The Applicant states that diagnostic exams take 10-20 minutes while CT-guided procedures require at least two hours of dedicated CT scan room time per procedure. Any interventional procedures performed on the CT scanner require the ED to go on Cautionary Status for the length of the Procedure and at least an hour before and after the procedure. When the ED is on Cautionary Status and unable to use the CT scan for emergency medical treatment in patients, it can increase the time it takes for a patient to get to an alternate facility to obtain imaging that is needed to make decisions regarding care. During an interventional procedure, ED and inpatients wait for access to CT services, which can increase LOS.

BID-Needham experienced an increase in need for CT-guided procedures<sup>17</sup> for inpatients and outpatients. Between October 2017 and September 2020, the BID-Needham patient population generated a total of 37,078 inpatient, observation and outpatient (including emergency patient) CT exams and procedures. The Applicant states that reliable data that can be broken down into the requested categories is not available prior to October 2018, so yearly data on inpatient, observation, and outpatient (including emergency patient) CT exams and procedures was provided for FY19 to FY22, which Table 5 details.

**Table 5: CT Volume FY19-FY22**

	FY 2019		FY 2020		FY 2021		FY 2022 (6 months)	
	CT Exams	CT-Guided Procedures	CT Exams	CT-Guided Procedures	CT Exams	CT-Guided Procedures	CT Exams	CT-Guided Procedures
<b>Inpatient</b>	2,909	6	3,290	4	4,575	2	2,492	0
<b>Observation</b>	231	0	201	0	496	0	362	0
<b>ED</b>	4,345	0	4,585	0	6,891	0	3,767	0
<b>Outpatient</b>	4,148	16	3,925	12	4,746	8	2,039	1
<b>Total</b>	11,633	22	12,001	16	16,708	10	8,660	1

To further demonstrate increasing need for CT services, the Applicant provided data on CT utilization by daily average visits, and on the change in CT use between FY19-FY21 and FY19-FY22 which Table 6 details.

**Table 6: BID-N CT Utilization**

<sup>16</sup> Cardiac CT for patients planning for cardiac valve replacement, pancreatic CTA for pancreatic cancer surgery, low extremities CTA for patients with peripheral vascular disease, comprehensive evaluation and triage prior to organ transplant, and monitoring for complications.

<sup>17</sup> E.g. tissue biopsies, abscess drainage, and cardiac procedures.

### By Daily Average Visits

Fiscal Year	ER	%	IN	%	OBSV	%	OUT	%	FY Total
FY 2019	12.54	39	7.97	25	0.73	2	11.36	36	31.87
FY 2020	13.11	40	9.01	27	0.63	2	10.75	33	32.88
FY 2021	20.24	44	12.53	27	1.44	3	13.00	28	45.78
FY 2022 6mo	22.69	48	13.69	29	2.21	5	11.21	24	47.59
Overall Increase in CT use from FY19 - FY21	62%		57%		97.3%		14.4%		
Overall Increase in CT use from FY19 - FY22	80.9%		72%		202.7%		-1.3%		

**7. Projected Volume Growth.** Existing annual CT volume in FY21 was 16,708 scans, and the Applicant expects proposed volume to be 21,000 scans after project implementation. The Applicant is anticipating growth for CT services based on BID-Needham's patient population trends show an aging population and increasing acuity.

- An estimated five million people reside in the BILH service area. The area has experienced a 6.4% population growth since FY2010 and is projected to increase at a faster rate (4.5%) than the state (3.5%) from 2017 to 2022.
- BID-Needham's Community Health Needs Assessment (CHNA) reported that all communities in BID-Needham's community benefit service area (CBSA) have a slightly higher median age compared to the Commonwealth overall and the percentage of the population over 65 is significantly higher than the Commonwealth in all communities.<sup>c</sup>
- There was a slight increase in age 65 and older age cohort in the BID-Needham patient population from 29.9% to 30.9% between FY19 and FY21.
- In FY20, ~48.3% of BID-Needham's gross revenues were generated by Medicare and managed Medicare insurance products.
- Within the immediate surrounding 3-mile radius are six major senior care and independent living facilities that are a major source of referrals to BID-Needham.<sup>18</sup>
- The service mix at BID-Needham comprised of access to specialists in cardiology, urology, general surgery, cancer center care, neurology, and diabetes supports a senior population.

### **Analysis**

Staff find that through the Proposed Project, BID-Needham will be able to address existing and future needs of the Patient Panel for CT services, which includes exams and CT-guided procedures. The Applicant has demonstrated that bringing the replaced unit back online will reduce wait times for CT services, increase access to CT-Guided procedures, and support local

<sup>18</sup> Includes Briarwood, North Hill, Evita, Wingate and Newbridge on the Charles.

access to CT services. The additional CT capacity that will be created through the addition of a second CT unit will reduce the inconvenience of patients that seek CT services elsewhere due to the current lack of capacity. The additional CT unit is expected to relieve pressure in scheduling all types of CT procedures and exams while continuing to ensure that the most emergent and time-sensitive procedures and exams be provided in a timely manner especially for those with stroke symptoms seeking care in the ED.

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

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

The clinical benefits of CT have already been established and will not be discussed further. The Applicant cited the use of routine and emergency CT imaging as an essential component of Hospital care. Delayed access to high-quality care can have a negative impact on patient satisfaction, quality of life, and health outcomes as a result of delayed diagnosis and treatment. In terms of the Proposed Project, the addition of a second CT unit will improve health outcomes and quality of life for specific patients requiring CT.

**Stroke:** Stroke is a leading cause of death in the United States and is a major cause of serious disability for adults.<sup>d</sup> Non-contrast computed tomography (CT) remains the primary imaging modality for the initial evaluation of patients with suspected stroke.<sup>e</sup> AHA/ASA Get With the Guidelines - Stroke program and PSS Time Target Recommendations recommend best practices for stroke care and outline the critical importance of patients receiving immediate medical treatment when experiencing a stroke due to the rapid decline in brain function as a stroke progresses. This includes receiving a CT within 25 minutes (door-to-CT time) and interpretation of the CT scan within 45 minutes. Rapid imaging is important for improving health outcomes; patients that present and receive a CT in a timely manner may be eligible for tPA (clot buster) to potentially prevent long-term cerebral damage. CT is used in diagnosis and to determine the type of stroke a patient is experiencing. CT scan can also rule out other brain abnormalities. Strokes can lead to permanent disability, brain damage, and death. Early diagnosis of stroke can reduce the likelihood of a patient living with a disability.

**CT-Guided Procedures:** Complex procedures are often associated with increased procedural risks to patients and navigational tools such as CT-guidance have offered providers a way to facilitate complex interventions and improve outcomes. Image-guided procedures are the safe and preferred alternative to surgical drainage procedures such as drainage of intra-abdominal abscesses. Minimally invasive approach offered by image guided procedures offer lower morbidity, allows the use of moderate sedation (compared to general anesthesia), and is associated with lower costs of medical care. Image-guided procedures provides real-time visual

information that leads to improved health outcomes and reduced risk of damage to surrounding tissue.<sup>19</sup>

**Appropriate Use:** Commencing in 2022, providers will be required to follow Medicare Part B Appropriate Use Criteria for Advanced Diagnostic Imaging. The Radiology Department will screen CT orders to ensure appropriateness. Providers currently follow standards of care to ensure that CT imaging at the hospital is used only under appropriate circumstances. Radiology orders are checked for compliance with external payer preauthorization requirements. In addition, BID-Needham will be utilizing a unit and protocols that are already integrated within the existing BID-Needham Department of Radiology.

The Applicant has provided several measures, including wait times to appointments, which may indicate improved outcomes. Staff reviewed the suggested measures that will become part of the annual reporting to DPH. The measures are described in Appendix 1 below.

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

- **Improved Outcomes** - CT can improve quality of life by providing more accurate information to facilitate appropriate treatment and reduce unnecessary treatment.
- **Reduced wait times for imaging** - Improved access to CT can allow for prompt scanning of more patients; reducing delays in diagnosis and treatment can improve health outcomes and quality of life.
- **Local/Community Access to CT Services** – The addition of a second CT unit will support local access to CT services for patients currently seeking these services outside the service area due to capacity constraints with the existing CT unit.
- **Improved patient experience** - Reducing scan times can provide comfort to patients and improve patient experience and satisfaction. Earlier diagnosis and treatment can reduce time lost from work, family, and other activities, and as a result, patients may experience a greater sense of well-being.

The Applicant anticipates that the addition of one CT at this site will provide its patients with improved access to high quality CT services, which will improve health outcomes and thereby, quality of life. Research indicates that delayed access to quality health care negatively affects patient satisfaction as well as health outcomes due to delays in diagnosis and treatment. Quality of life is including aspects of physical health, and delayed access to care can also decrease quality of life. As a result, staff finds that through the Proposed Project, BID-Needham is likely to improve access to effective, high-quality imaging services, and thereby enhance patient satisfaction, health outcomes and quality of life for its patient population.

BID-Needham is in the process of implementing a clinical decision support tool in compliance with Medicare's Appropriate Use Criteria mandate. The Applicant has provided several measures, including wait times to appointments, which may indicate improved outcomes. Staff reviewed the suggested measures that will become part of the annual reporting to DPH.

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<sup>19</sup> The second CT unit will be used for image-guidance procedures for all body regions with the bulk localized to the head and neck, chest, and abdomen.

The measures are described in Appendix 1 below.

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

The Applicant states that BID-Needham will ensure accessibility of its services for poor, medical indigent, and/or Medicaid eligible individuals or participation in the MassHealth ACO. BID-Needham is committed to serving the community regardless of an individual's ability to pay, and the Hospital does not discriminate based on ability to pay or payor source.

The Applicant states that BID-Needham provides culturally and linguistically competent care to all patients. BID-Needham maintains an Interpreter Services program to meet the needs of its patient population. BID-Needham uses AMN Healthcare (Stratus) for its interpreter services. BID-Needham offers several options for Interpreter Services for patients, including face-to-face interpreter via video services, phone interpreting and in-person interpreter services. Interpreter iPad on wheels (Sheldons) are located throughout the Hospital. iPads allow for Video Use Remote Services which includes ASL CDI (American Sign Language Deaf Team), and "Audio Languages" which covers all languages. ASL interpreters are also available onsite. The Applicant notes that BID-Needham completes the annual submission of interpreter services report to the Department and BID-Needham and had a successful onsite survey by the Department in 2020.

A review of BILH collective communities through the CHNA process revealed a high prevalence of certain chronic conditions, including diabetes, obesity, hypertension, and cancer. Access to specialty care plays a role in the prevention, treatment and management of complex conditions. The Applicant states that BID-Needham serves as a community hospital within the BILH system, servicing the needs of the existing BID-Needham patient population for acute community hospital care and serving as the primary acute care and community hospital for neighborhoods in close proximity to BID-Needham.

***Analysis: Health Equity***

Staff finds that BID-Needham's language access services are appropriate for patients receiving CT scans. The Applicant has appropriately outlined at a high level a case for improved health outcomes and has provided reasonable assurances of health equity within for CT patients.

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

The Applicant states that BID-Needham supports and/or provides numerous community health initiatives many in conjunction with community partners such as public health departments, councils on aging, food pantries, mental health organizations and other social service organizations. Through BIDCO, BID-Needham collaborates with other BIDCO members to evaluate and manage the health of populations through affiliated ACOs, care coordination and follow-up information.

As mentioned above in Factor 1a, the addition of a second CT unit will make CT services more efficient by relieving pressure in scheduling all types of CT procedures and exams, allowing for more prompt access to CT services thereby reducing delays in diagnosis and treatment. Staff note that BID-Needham is a DPH-designated PSS Hospital and providing timely and efficient access to CT services is critical. The addition of a second CT unit will allow BID-Needham to address the imaging needs of urgent and emergent patients while preserving access for non-urgent CT services. Electronic Health Records (EHRs) provide internal ordering physicians with results and external ordering physicians receive results via fax. The BID-Needham radiologist will contact the ordering physician with any critical results.

### ***Analysis***

Staff concurs that when CT capacity is increased and the provision of CT services is more efficient, delays in diagnosis and treatment can be reduced and note that guidelines for managing stroke patients require efficient access to CT services. EHR systems enable access of imaging results and other patient information to primary care and specialty clinicians across a health system. EHRs improve efficiency for multi-faceted patient care. This helps to ensure that patients benefit from care coordination, better outcomes, and improved quality of life.

### **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<sup>20</sup> 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."<sup>21</sup>

To ensure sound community engagement throughout the development of the Proposed Project, the Applicant took the following actions:

- **Presentation to BID-Needham's Community Benefits Advisory Committee (CBAC).** December 10, 2020 and December 8, 2021. CBAC is comprised of community partners, social service organization, residents and leaders in the community benefits service area

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<sup>20</sup> Community Engagement Standards for Community Health Planning Guideline

<sup>21</sup> DoN Regulation 100.210 (A)(1)(e). <https://www.mass.gov/files/documents/2018/12/31/jud-lib-105cmr100.pdf>

(CBSA). Eighteen people attended the December 2020 meeting and 13 people were in attendance at the December 2021 meeting. Attendees expressed support for the Proposed Project.

- **Presentation to BID-Needham's Patient and Family Advisory Committee (PFAC).** January 20, 2019 and September 21, 2021. The PFAC is comprised of a group of patients and family members who volunteer their time each month to provide BID-Needham input on its care with a focus on quality, safety, and communication at the hospital. Seventeen people attended the January 2019 meeting and 11 people were in attendance at the September 2021 meeting. Attendees expressed support for the Proposed Project. Attendees expressed concern about current access to CT imaging and wait times for accessing CT services and also questioned when the addition of one CT unit was sufficient to meet Patient Panel need for CT services.

The Applicant states that generally, attendees of its community engagement activities were either patients or are representative of the Applicant's patients.

Additional presentations that were mentioned include: Presentation at numerous Hospital President employee open forum meetings in FY20 and FY21, and President's reports for bi-monthly BID-Needham Board Meetings.

### ***Analysis***

Staff finds that the Applicant met the minimum required community engagement standard of Consult in the planning phase of the Proposed Project.

## **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, TME and other measures of health care spending because BID-Needham is a low-cost provider of high quality services; the Proposed Project will not impact BID-Needham's contracted rates for CT services; and because CT services are not a separately billable event, the service is included as a component of the inpatient stay or is integrated as part of the primary intervention, thereby minimizing risk of inappropriate or over-utilization. The Applicant also notes that commencing in 2022, providers will be required to follow Medicare Part B Appropriate Use Criteria for Advanced Diagnostic Imaging, which will support appropriate use of CT imaging services.

The Applicant cited additional ways in which the Proposed Project will compete:

- BID-Needham has a lower-than-average CMI adjusted cost per discharge.<sup>22</sup>
- The Proposed Project will improve outcomes provided through CT-guided procedure use, as discussed in Factor 1b. This will reduce health care expenditures through the reduction in use of health care resources due to reduced complications and faster recovery times associated with such procedures.

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<sup>22</sup> In FY2018 the average cost per discharge for hospitals in Massachusetts was \$12,873.35 – based on data from the Center for Health Information and Analysis (CHIA). BID-Needham's average cost per discharge was \$9,035.32.

- BID-Needham's ACO affiliation with BIDCO contributes to avoiding unnecessary medical expenses.<sup>23</sup> BIDCO's total per-member spending on several low value care measures was well below several other large systems.
- Increasing access to CT imaging can assist in diagnosing and treating patients in a timelier manner; allow patients to avoid undergoing more invasive, less effective treatments; and allow patients to benefit from more targeted treatment plans, which helps to reduce healthcare expenditures.
- Increasing CT capacity will reduce inefficiencies and the added expenses created by administrative challenges.
- Reactivation of the 2009 CT scanner requires no additional buildout or disruption to the existing services.

### ***Analysis***

A reduction in healthcare utilization and spending can occur with improved access to timely care. The Proposed Project will increase timely access to CT services and this will help to reduce the costs of care for patients. The benefits of the additional scanner include updated technology, a reduction in wait time for outpatients, more availability for outpatients, a reduction in equipment issues and faster diagnosis and treatment, all of which can reduce healthcare costs.

## **FACTOR 1 SUMMARY**

As a result of information provided by the Applicant and additional analysis, staff finds that with the standard reporting requirements outlined below, the Applicant has demonstrated that the Proposed Project has met Factor 1(a-f). The Applicant proposed specific outcome, and process measures to track the impact of the Proposed Project which staff has reviewed, and which will become a part of the reporting requirements.

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

### **Cost Containment**

The Applicant cites the following reasons to demonstrate that the Proposed Project is consistent with the Commonwealth's cost containment goals:

- The Proposed Project will reduce healthcare expenditures through reducing the use of healthcare resources as a result of faster evaluation, treatment and recovery times.
- The Proposed Project will maximize use of existing hospital space, equipment, facilities and ancillary services and reduce administrative inefficiencies caused by capacity constraints, to increase timely access to care in an appropriate setting.

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<sup>23</sup> The Applicant states that BIDCO's rate of unnecessary pre-operative tests in 2017 was lower than most other provider systems of all types (25.4% as compared with the average of 26.7%).

- The Proposed Project will have no impact on BID-Needham's contracted rates for CT services. No cost will be incurred by reactivating the 2009 CT, which will be utilized as the second CT and a significant percentage of services planned for the additional CT unit are included as a component of an inpatient stay or an interventional procedure.
- BID-Needham is implementing a clinical decision support tool in accordance with federal law, to ensure that physicians ordering advanced imaging consult appropriate use criteria.
- The Proposed Project will reduce transfers to higher cost facilities for CT services.

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

Staff finds that the Applicant has adequately explained how the Proposed Project aligns with the Commonwealth's cost containment goals through increasing access to high-quality, cost-effective imaging.

### **Improved Public Health Outcomes**

The Applicant asserts that the Proposed Project will improve health outcomes and patient experience through increasing access to CT imaging and reducing wait times for imaging. As mentioned above, increasing timely access to CT services can reduce delays in diagnosis and treatment, leader to faster recovery times and improved health outcomes.

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

As detailed elsewhere in this Report, improvements in patient health outcomes result from efficient and timely access to CT services. In addition, timelier scheduling of CT services will improve access to CT services and patient experience.

### **Delivery System Transformation**

The Applicant states that BID-Needham supports and/or provides numerous community health initiatives, many in conjunction with community partners.<sup>24</sup> As noted above, BID-Needham is a member of BIDCO – a physician and hospital network and ACO, and subsidiary of BILHPN through which it evaluates and manages the health of the population it services through social determinants of health (SDoH) assessments and providing care coordination and referrals. At BID-Needham's Beth Israel Deaconess HealthCare (BIDHC) primary care practices, all patients receive an SDoH screening as part of their annual wellness exam. The screener form is modified from the Protocols for Responding to and Assessing Patients' Assets, Risks, and Experiences (PERPARE), which is filled out pre-visit, or on a tablet, or by paper just prior to the visits. SDoH screening domains include: Housing, Transportation, Isolation, Safety, Access to Resources, and

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<sup>24</sup> E.g. The Charles River YMCA, Needham Community Council, Charles River Center, and The Councils on Aging in Dedham, Dover, Needham and Westwood.

Access to Healthcare. Positive SDoH screens are referred to community health workers who follow-up with patients directly. Safety concerns are flagged for the provider to address during the visit. The Applicant states that BID-Needham offers a variety of services to address SDoH needs and health care disparities.<sup>25</sup>

### **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 how patients in the panel are assessed and how linkages to social services organizations are created.

## **FACTOR 2 SUMMARY**

As a result of information provided by the Applicant and additional analysis, staff finds that with 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.

### **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 CPA examined a range of documents and information in developing its report including five-year financial forecast (Projections) for fiscal years ending 2021 through 2025.<sup>26</sup> Additionally, it calculated key liquidity and operating metrics to assist in determining reasonableness of the Applicant's assumptions and feasibility of the Projections.<sup>27</sup>

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<sup>25</sup> E.g. interpreter services, financial assistance, social services, and partnerships with community health centers.

<sup>26</sup> 1. Financial Model for BILH for the periods ending September 30, 2021 through September 30, 2025; 2. Draft BILH Application Form for DoN Application, including narrative; 3. Audited Financial Statements for Beth Israel Lahey Health, Inc. for the seven month period ended September 30, 2019 and Fiscal Year ended September 30, 2020; 4. Audited Financial Statements for Caregroup, Inc., Seacoast Regional Health Systems, Inc. and Lahey Health Systems, Inc. for Fiscal Years Ended September 30, 2017 and 2018; 5. Beth Israel Lahey Health, Inc. draft patient volume tables for Fiscal Years Ended September 30, 2019 and 2018; 6. BILH's Fiscal Year 2021 Operating and Capital Budgets Finance Committee Presentation as of December 18, 2020; 7. BILH's Fiscal Year 2021 Budget for Growth in Patient Volume and Consolidated Statement of Revenue and Expenses; 8. RMA Annual Statement Studies, published by The Risk Management Association; 9. Definitive Healthcare data; 10. IBISWorld Industry Report, Hospitals in the US, dated January 2021.

<sup>27</sup> Liquidity metrics, measure quality and adequacy of assets to meet current obligations as they come due. Operating metrics, such as earnings before interest, taxes, depreciation and amortization ("Adjusted EBITDA") are used to assist in the evaluation

## **Revenues**

The only revenue category that the proposed capital project would impact is net patient service revenue (NPSR). Cumulative NPSR comprises 87.1 percent of the cumulative total operating revenue from FY2021 through FY2025. The CPA's analysis included the Applicant's NPSR both historical and projected. The report looked at the projected 3.7 percent four-year compound annual total operating revenue growth rate (CAGR) between FY2021 and FY 2025 and found that it is below the historical CAGR between FY2017 and FY2019 of 6.1 percent. It excluded the performance for fiscal year 2020 in this comparison given it was significantly impacted by the global COVID-19 pandemic. Based upon the foregoing, the CPA's opinion is that the revenue growth projected by Management reflects a reasonable estimation of future revenue of BILH.

## **Operating Expenses**

The projections for operating expenses for the Proposed Project were reviewed in the context of actual operating results for BILH for the years ended December 31, 2017 to 2019. The operating expenses in the analysis include salaries and benefits, depreciation and amortization, interest expenses, and supplies and other expenses. Total operating expenses are projected to grow 3.0 percent in FY 2021 as compared to FY2019. (FY 2020 was excluded given it was significantly impacted by the COVID-19 pandemic.) From FY2022 through FY 2025, operating expenses are projected to grow annually by 3.3 percent. This is slightly below the FY 2017 to FY 2019 annual historical growth, which ranged from 4.2 percent to 5.2 percent. This, the Applicant asserts, is due to synergies as a result of the integration efforts following the formation of BILH, thereby allowing it to operate more efficiently. The CPA points out that the projected total operating expenses as a percentage of total operating revenue range from 98.4 percent to 99.8 percent from FY 2021 to FY 2025, and which is in-line with the historical total operating expenses as a percentage of total operating revenue which ranged from 98.8 percent to 101.5 percent from FY 2017 to FY 2019. Thus, it is the CPA's opinion that the projected operating expenses reflect reasonable estimation of future expenses of the Applicant.

## **Capital Expenditures and Cash Flows**

The 2009 CT Unit (replacement unit) is currently in close proximity to BID-N's primary CT unit. Reactivation of the CT unit does not require additional buildout or disruption to existing services. Therefore, the Applicant does not expect any major capital expenditures required to reactivate the 2009 CT unit other than a \$5,000 inspection fee and legal fees associated with the Proposed Project, estimated to be less than \$100,000 in total. Incremental operating expense of the Proposed Project is from \$375,000 to \$450,000, representing incremental annual labor costs, CT maintenance service costs and miscellaneous supply costs required to operate an additional CT unit. The expenditures through the Proposed Project are expected to

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of management performance in how efficiently resources are utilized. Solvency metrics, such as Debt to Equity, measure the company's ability to service debt obligations.

be funded through cash on hand and cash equivalents balance included in the Projections is ~1.43 billion in FY2021, of which the initial outlay expenses and the annual operating expenses of the Proposed Project represent ~0.03 percent. The CPA found there to be sufficient room to accommodate the financing for the Proposed Project within the Applicant's available capital without the need for debt financing.

### **CPA's Conclusion of Feasibility**

As a result of its analysis the CPA states that "within the projected financial information, the Projections exhibit a cumulative operating EBITDA surplus of approximately 7.5 percent of cumulative projected net patient service revenue for BILH for the five years from FY 2021 through 2025. Based upon our review of the relevant documents and analysis of the Projections, we determined the anticipated EBITDA surplus is a reasonable expectation and based upon feasible financial assumptions." Accordingly, it determined that the Projections are reasonable and feasible, and not likely to have a negative impact on the Patient Panel or result in a liquidation of assets of BILH.

### ***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 and that the Applicant has met the requirements of Factor 4.

### **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 considered and rejected one alternative to the Proposed Project.

- **Maintain the status quo and continue to operate one CT unit.** The Applicant rejected this option because access to care would continue to be reduced and wait times and delays would continue to increase for inpatients, outpatients, and emergency patients, as demand for quality CT services increases with patient volumes. Longer wait times would continue to adversely impact patient outcomes, quality of life, and patient satisfaction. In addition, this alternative would not eliminate the need for patients to travel outside of the BID-Needham for CT services. The Applicant notes that the Radiology Department exhausted its scheduling options to accommodate current demand from inpatients, outpatients and ED patients, and that the current unit is

already operating 24 hours per day, seven days per week. The Applicant also notes that BID-Needham has no physical location on its campus where a mobile CT trailer can be parked and operated.

### ***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 and relevant background and context for this application:* This is a DoN project for an equipment project that will result in a Tier 1 CHI. Standard practice is to contribute the full CHI obligation to the statewide fund for DoN-regulated equipment. In this case, the Applicant has an existing Community Health Initiative project in the covered geography and will pool these funds with that existing investment. The Applicant and DPH have agreed to combined CHI funds for a transparent local CHI investment process, subject to DoN project approval.

In anticipation of this agreement, for this project, to fulfill Factor 6 requirements, the Applicant submitted its existing Community Health Needs Assessment (CHNA), a Self-Assessment, Stakeholder Assessments, and a CHI Narrative.

**The Community Health Needs Assessment** was conducted in 2019 by the applicant, Beth Israel Deaconess Hospital *Needham* (BID-Needham). The Community Health Needs Assessment was implemented in three phases. The first phase utilized preliminary engagement strategies including key informant interviews and an internal assessment of Community Benefits activities. The second phase included focus groups, community meetings, and a Community Health Survey. In the final phase, the Applicant utilized internal meetings, a literature review, and developed an Implementation Strategy. The Needs Assessment identifies priority populations and describes key findings and themes from the service area and participating communities. The priority populations are Youth, Older Adults, Low-to-Moderate Income Individuals and Families, and Individuals with Chronic/Complex Conditions. The priority areas identified are Social Determinants of Health, Substance Use and Mental Health, Behavioral Health Services, Chronic and Acute Physical Health Conditions, High Rates of Leading Risk Factors, and Challenges Navigating Systems and Coordinating Services. The Applicant will release a new Community Health Needs Assessment in 2022 and will employ similar strategies for engagement. The Applicant will engage its Community Benefit Advisory Council (CBAC) to select priorities and identify strategies for implementation.

**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 related to the current and ongoing assessment work (for the 2022 CHNA). Through primary data collection such as key informant interviews, focus groups, and community wide surveying, data analysis, and with guiding principles of equity, collaboration, engagement, and capacity building, the participating community groups and residents identified the key concerns to be outlined in the 2022 Community Health Needs Assessment.

**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 background and overview information for the CHI processes. The narrative also outlines advisory duties for the advisory and allocation committees, and planned use of funding for evaluation and administrative activities. Additionally, the narrative outlines the CHI funds breakdown and the anticipated timeline for CHI activities.

The timeline, RFP processes, and use of evaluation and administrative funds are all appropriate and in line with CHI planning guidelines. In order to select strategies that meet Health Priority Guideline principles, the Applicant will need to focus on the priority areas in the upcoming final assessment that allow for implementation at the root cause level. Examples of this from the 2019 CHNA submitted include the Social Determinants of Health and upstream work across the leading risk factors. The Applicant will work with its CBAC to select priorities and approve implementation strategies. Based on strategies in the Applicant's ongoing community benefit work, DPH staff have determined that if the Applicant agrees to address community conditions and root causes while engaging in ongoing work with the DoN Advisory Committee, CHI investment will align appropriately with the Health Priorities Guideline. The Applicant will also have additional touchpoints with DPH staff to share lessons learned and the final 2022 Community Health Needs Assessment to ensure sound processes for planning and implementation work moving forward.

The anticipated timeline for CHI activities includes a meeting of the Advisory Committee six weeks post approval, identifying the Health Priorities Strategies 3-4 months post approval, and deciding on best pooling strategy five to six months post approval, with funding disbursed 3-4 months thereafter.

With the administrative funds, the applicant's early plans are to encourage meeting participation through promotion and barrier reduction methods including interpreter services and stipends.

*Summary Analysis:* As a result of information provided by the Applicant and additional analysis, staff finds that with the conditions outlined below, and the ongoing communication on items outlined above, the Applicant will have demonstrated that the Proposed Project has met Factor 6.

## **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 \$117,927.00
  - a. \$11,320.99 will be directed to the CHI Statewide Initiative
  - b. \$101,888.93 will be dedicated to local approaches to the DoN Health Priorities
  - c. \$4,717.08 will be designated as the administrative fee.
2. To comply with the Holder's obligation to contribute to the Statewide CHI Initiative, the Holder must submit a check for \$11,320.99 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.

## Appendix I

### Assessing the Impact of the Proposed Project

To assess the impact of the Proposed Project, BID-Needham has developed the following quality metrics and reporting schematic, as well as metric projections for quality indicators that will measure patient satisfaction and access.

1. **Code Stroke door-to-CT time under 25 minutes:** With the addition of a second CT scanner in the department, BID-Needham will be able to decrease the critical minutes between the time a patient is identified as a potential stroke patient, definitive diagnosis, and subsequent treatment. This need was clearly demonstrated when BID-Needham recently had three code stroke cases called within an hour.
  - a. **Measure:** Monthly statistics on the percentage of all called code stroke cases imaged within 25 minutes of their arrival  
  
**Projections:** Baseline: 85%; Year 1: 95%; Year 2: 95%; Year 3: 95%  
  
**Monitoring:** The Department of Radiology in conjunction with the code stroke committee will monitor all code stroke cases on a monthly basis. The Department of Radiology will report on both the door-to-CT time and CT-to-Read time.
2. **Access-Wait Times:** The Proposed Project seeks to ensure timely access to CT services. Accordingly, in the Department of Radiology, BID-Needham will track median time from order placement to next available appointment for outpatient CT diagnostic procedures.
  - a. **Measure:** Average (mean) time interval from when the CT services request was initiated to the third next available appointment.  
  
**Projections:** Baseline: 14 days; Year 1: 5 days; Year 2: 5 days; Year 3: 5 days  
  
**Monitoring:** This data will be provided on an annual basis.

## REFERENCES

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- <sup>a</sup> Center for Health Information and Analysis. Massachusetts Hospital Profiles. Technical Appendix.  
<https://www.chiamass.gov/assets/docs/r/hospital-profiles/2019/FY19-Massachusetts-Hospital-Profiles-Technical-Appendix.pdf>
- <sup>b</sup> Center for Health Information and Analysis (CHIA). Beth Israel Lahey Health.  
<https://www.chiamass.gov/assets/docs/r/hospital-profiles/2020/hospital-health-systems/Beth-Israel-Lahey.pdf>
- <sup>c</sup> <https://www.bidneedham.org/writable/files/Needham-CHNA-Report.pdf>
- <sup>d</sup> Centers for Disease Control and Prevention (CDC). Stroke.  
<https://www.cdc.gov/stroke/index.htm#:~:text=Stroke%20is%20a%20leading%20cause,of%20serious%20disability%20for%20adults.&text=About%20795%2C000%20people%20in%20the%20United%20States%20have%20a%20stroke%20each%20year.>
- <sup>e</sup> Birenbaum D, Bancroft LW, Felsberg GJ. Imaging in acute stroke. *West J Emerg Med*. 2011;12(1):67-76.