

STAFF REPORT TO THE COMMISSIONER FOR A DETERMINATION OF NEED	
Applicant Name	Mass General Brigham, Inc.
Applicant Address	800 Boylston St, Suite 1150, Boston, MA 02199
Filing Date	January 16, 2025
Type of DoN Application	DoN Required Equipment
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Project Number	MGB-24120209-RE
Ten Taxpayer Groups (TTG)	NONE
Community Health Initiative (CHI)	\$217,087.75
Staff Recommendation	Approval
Delegated	Commissioner Approval
<p style="text-align: center;"><u>Project Summary and Regulatory Review</u></p> <p>Mass General Brigham, Inc., with a principal place of business at 800 Boylston St, Suite 1150, Boston, MA 02199, filed a Notice of Determination of Need with the Massachusetts Department of Public Health to acquire a computed tomography (CT) unit for operation at Salem Hospital's satellite site Mass General Brigham Healthcare Center (Lynn), located at 480 Lynnfield Street, Lynn, MA 01904.</p> <p>This DoN application falls within the definition of DoN-Required Equipment and Services, which is reviewed under the DoN regulation 105 CMR 100.000. The Department must determine that the 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>	

Table of Contents

Applicant Background and Application Overview	3
Factor 1.....	4
Patient Panel	4
Factor 1: a) Patient Panel Need	6
Factor 1: b) Public Health Value, Improved Health Outcomes and Quality of Life; Assurances of Health Equity	10
Factor 1: c) Efficiency, Continuity of Care, Coordination of Care	12
Factor 1: d) Consultation	13
Factor 1: e) Evidence of Sound Community Engagement through the Patient Panel	13
Factor 1: f) Competition on price, total medical expenses (TME), costs and other measures of health care spending	13
Summary, FACTOR 1.....	14
Factor 2: Cost containment, Improved Public Health Outcomes and Delivery System Transformation.....	14
Summary, FACTOR 2.....	15
Factor 3: Relevant Licensure/Oversight Compliance	16
Factor 4: Demonstration of Sufficient Funds as Supported by an Independent CPA Analysis.....	16
Factor 5: Assessment of the Proposed Project's Relative Merit	16
Factor 6: Fulfillment of DPH Community-based Health Initiatives Guideline	17
Findings and Recommendations.....	19
Other Conditions	19
Appendix I: Measures for Annual Reporting.....	19
Appendix II: Literature Review.....	20
REFERENCES	21

Applicant Background and Application Overview

Mass General Brigham, Inc.

Mass General Brigham, Inc (Applicant or MGB), is a Massachusetts not-for-profit corporation. Table 1 shows acute and non-acute care hospitals in Massachusetts that comprise the MGB system.¹

Table 1: The Hospitals that Comprise the Mass General Brigham, Inc. System

Acute Hospital	Type (Per CHIA Category ^a)
1. Brigham and Women's Hospital	Academic Medical Center (AMC)
2. Massachusetts General Hospital	Academic Medical Center
3. Massachusetts Eye and Ear Infirmary	Specialty Hospital
4. Brigham and Women's Faulkner Hospital	Community Hospital
5. Newton-Wellesley Hospital	Community Hospital
6. Cooley Dickinson Hospital	Community High Public Payer Hospital
7. Martha's Vineyard Hospital	Community Hospital
8. Nantucket Cottage Hospital	Community Hospital
9. Salem Hospital	Community High Public Payer Hospital

Non-Acute Hospital	
1. McLean Hospital	Psychiatric Hospital
2. Spaulding Rehabilitation Hospital	Rehabilitation Hospital

The Applicant also operates a home health agency, Mass General Brigham Home Care, and its physician network comprises approximately 7,500 employed and affiliated primary care and specialty care physicians. The Applicant also operates health insurance and administrative services products.²

Salem Hospital

Salem Hospital serves a large and diverse community including Danvers, Lynn, Lynnfield, Marblehead, Nahant, Peabody, Salem, and Swampscott. The Hospital, located at 81 Highland Avenue, Salem, MA 01970, is licensed to provide a range of emergency, inpatient and outpatient services across its satellites, which include Mass General Brigham Healthcare Center (Lynn), North Shore Physicians Group (Danvers), Salem Hospital Bridge Clinic (Salem), Salem Diagnostic Radiology at Lynn Community Health Care Center, Salem Hospital, Imaging (Peabody), Salem Hospital Imaging (Swampscott), Salem Hospital Imaging (Beverly) and the Community Care Van.

Mass General Brigham Healthcare Center Lynn

¹ The hospitals listed in Table 1 are principal teaching affiliates of the medical and dental schools of Harvard University. Additionally, the Applicant operates a graduate level program for health sciences and maintains both the Mass General Research Institute as well as the Brigham Research Institute (both are private, non-profit medical research enterprises).

² The Applicant operated a non-profit insurance company for MassHealth (Medicaid) and ConnectorCare members, as well as for-profit insurance company for commercial populations.

Mass General Brigham Healthcare Center Lynn (the Healthcare Center) opened in 2020 to provide a modern and convenient location for residents of Lynn and the surrounding area to access vital healthcare services in their own community.³ The Healthcare Center, and neighboring affiliated practices provides primary and specialty care, urgent care, lab/blood testing, and imaging services such as mammography, ultrasound, bone density and X-ray.

Proposed Project

The Applicant seeks to acquire a computed tomography (CT) unit for operation at the Healthcare Center (Proposed Project) to improve access for the Lynn community, and reduce wait times for outpatient CT at Salem Hospital. As the Healthcare Center does not currently offer CT services, patients are required to obtain CT imaging at Salem Hospital's main campus, the Mass General Brigham Healthcare Center in Danvers, or at Mass General Imaging in Chelsea, which the Applicant notes is a struggle for Lynn residents to access. The Proposed Project would provide patients in the region, including those in Lynn, with additional access to outpatient CT imaging by co-locating the service with existing services offered at the Healthcare Center. The Healthcare Center in Lynn would be the first and only Salem Hospital satellite to offer CT.

Factor 1

In this section, we assess whether the Applicant has sufficiently addressed Patient Panel need, public health value, competitiveness and cost containment, and community engagement for this Proposed Project.

Patient Panel⁴

Table 2 below shows the Patient Panel and patient populations from Fiscal Years (FY)2022 through FY2024.

Table 2: Overview of MGB Patient Panel and Populations

	FY2022	FY2023	FY2024
MGB Patient Panel	1,820,073	1,881,497	1,913,690
Salem Hospital Unique Patients⁵	217,010	223,256	226,637
Salem Hospital Outpatient CT Unique Patients	25,499	27,449	28,459

The Applicant provided data showing that approximately 66% of patient origins of their overall Patient Panel included MetroWest, Southeast and Boston Regions (Health Service Areas 4-6) ⁶, while 7.5% of the overall Patient Panel originated from the Northeast Region, where the Proposed Project would occur. Salem Hospital's primary service area towns included Salem, Lynn, Marblehead, Danvers,

³ The Healthcare Center is located at the same site as the former Union Hospital, previously part of the North Shore Medical Center.

⁴ 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.

⁵ All Salem Hospital patients: Inpatient, outpatient, and emergency, inclusive of Hospital satellites.

⁶ HSA regions defined here: https://matracking.ehs.state.ma.us/eohhs_regions/eohhs_regions.html

Peabody, Swampscott, Nahant, Lynnfield, and Saugus. The Applicant noted that one third of Salem Hospital's total CT patients originated in Lynn. Table 3 shows the demographic characteristics of the MGB Patient Panel, Salem Hospital patient population, and the Salem Hospital CT patient population. Staff notes the following observations:

- **Age:** Across all patient panels, at least half of the patients are in the 18-64 age range. Salem Hospital's CT serves 48% of individuals over 65.
- **Race/ Ethnicity:** The majority of patients (over 70%) self-identified as White and over 5% of patients identified as African American across all three populations. For Salem Hospital's CT population, 19% of patients identified as Hispanic/ Latino.
- **Payer Mix:** Salem Hospital and its Outpatient CT Department saw a larger percentage of Medicare patients (29% and 37% respectively) than the overall MGB Patient Panel (20%). More than half of MGB's Patient Panel (55%) were covered by Commercial insurance, compared to 18% at Salem Hospital and 31% in the Salem Outpatient CT.

Table 3: MGB Patient Panel and Salem Hospital Patient Populations Demographics, FY2024

	MGB Overall Patient Panel	Salem Hospital Unique Patients	Salem Hospital CT Unique Patients
Total Unique Patients	1,913,690	226,637	28,459
Gender			
Female	57.42%	58.89%	56.00%
Male	42.53%	40.97%	44.00%
Other/ Unknown	0.05%	0.02%	0.00%
Total	100.00%	100.00%	100.00%
Age			
0 to 17	10.37%	10.69%	2.00%
18 to 64	58.79%	58.26%	50.00%
65 and Older	30.82%	31.04%	48.00%
Age Unknown	0.02%	0.01%	0.00%
Total	100.00%	100.00%	100.00%
Race			
American Indian or Alaska Native	0.20%	0.19%	0.00%
Asian	5.01%	3.38%	2.00%
Black or African American	5.95%	6.51%	5.00%
Hispanic/Latino	0.00%	0.00%	19.00%
Native Hawaiian or Other Pacific Islander	0.08%	0.07%	0.00%
Other/Unknown ⁷	15.09%	12.12%	2.00%
White	73.66%	77.74%	72.00%

⁷ Includes other race categories that did not include enough patients to be separately reported for confidentiality.

	MGB Overall Patient Panel	Salem Hospital Unique Patients	Salem Hospital CT Unique Patients
Total	100.0%	100.0%	100.0%
Payer Mix			
Commercial (PPO/Indemnity) ⁸	38.30%	11.28%	13.72%
Commercial (HMO/POS) ⁹	17.58%	16.84%	17.73%
Medicare ¹⁰	20.39%	29.80%	37.54%
Commercial Medicare	8.66%	16.06%	18.17 %
MassHealth	3.92%	12.19%	4.66%
Managed Medicaid	4.85%	8.76%	5.01%
Other ¹¹	6.31%	5.07%	3.17%
Total	100.0%	100.0%	100.0%

Factor 1: a) 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 addition of a CT machine to four factors:

- 1) Growth in Utilization
- 2) High Volume Limiting Access
 - a. Increased Downtime for CT Equipment Maintenance
 - b. Reduced Availability of Appointments
- 3) Projected Volume Increases
- 4) Transportation Related Barriers to Healthcare in Lynn

1) Growth Utilization

Salem Hospital currently operates five CT machines, two of which are dedicated outpatient units, all located at Salem Hospital's main campus. For the past three years, outpatient CT utilization at Salem Hospital has increased, as detailed in Table 4. While the growth has been modest, the machines are operating at over 90% capacity, and the volume is expected to grow significantly in the next five years as the need for these services increases.

Table 4: Salem Hospital Historical Outpatient CT Visits

⁸ Commercial plans without an identified product type were included in the PPO/Indemnity product category.

⁹ Includes ConnectorCare plans.

¹⁰ Includes Medicare supplements.

¹¹ Includes Free Care, TriCare, VA, Uninsured COVID-19 tests, Workers Compensation, International, and other uncategorized plans.

	FY2022	FY2023	FY2024
Dedicated Outpatient CT Units	15,415	16,155	16,370

Patients at Salem Hospital receive routine CT imaging through the two dedicated outpatient units. Both machines in the dedicated outpatient units are available for appointments seven days per week from 7:30 am to 5:00 pm. Since FY22, the volume of outpatient CT appointments has grown by 6.2%. As a result, the current patient need is not met by the existing dedicated outpatient units. Even with extended hours of operation, the units are operating above 90% capacity. Outpatient appointments have a wait time of 30 days,¹² which staff notes is within the American College of Radiology recommendations and in line with the average wait times of comparable MGB Hospitals¹³ The American College of Radiology recommends that non-urgent imaging should generally not be delayed beyond a few weeks, with some guidelines indicating a typical target wait time of 2-4 weeks for routine imaging needs. ^b The Applicant's target wait time for outpatient CT is two weeks.

2) High Volume Limiting Access

Despite having two dedicated outpatient CT units at Salem Hospital, those units are operating at 90% capacity. Further, Salem Hospital has already taken steps to meet the increasing volume of outpatient CT imaging by extending its imaging hours in FY2024 to include full days on Saturday and Sunday. The Applicant states that the addition of weekend services reduced the wait time from 45-60 days to ~30 day wait but notes that CT capacity has been at or above the 90% mark since the end of FY21. The extended hours are not able to meet the community's current and projected need for CT services. Given that approximately one third of the Hospital's CT patients are from Lynn, the Proposed Project will serve the dual purpose of providing better CT access to the Lynn community as well as relieving some of the volume at the Hospital.

- a. **Increased Downtime for CT Equipment Maintenance:** The two dedicated outpatient CT units at Salem Hospital are currently overutilized due to expanded hours of operation, leading to the machines requiring both planned and unplanned maintenance and repair more frequently. Table 5 illustrates the impact of overutilization, which MGB defines as utilization above their target of 80%. When utilization is around 80%, providers are able to schedule same-day urgent add-ons that mitigate reliance on imaging in the ED while also accounting for patient no-shows.¹⁴ As illustrated in Table 5, the number of

¹² Based on third available appointment as of December 16, 2024. This averages the 3 week wait time for routine appointments and 6 week wait time for lung cancer screening appointments.

¹³ Newton Wellesley Hospital and Cooley Dickinson Hospital were identified as comparable community hospital outpatient settings under the MGB network. These outpatient CT sites have wait times between 29-45 days.

¹⁴ On average approximately 12 patients per day are urgently scheduled for a same day appointment at Salem Hospital.

downtime hours increased 56% from FY2022 to FY2024, further compounding appointment availability.¹⁵

Table 5: Salem Hospital Historical CT Scanner Downtime (Two Units)

Year	Downtime Hours
FY22	145
FY23	138
FY24	227

- b. Reduced Availability of Appointments:** Increased periods of scheduled and unscheduled maintenance reduces the availability of appointments and increases wait times, which can ultimately influence whether a patient will follow through on an appointment. While the reason for missed appointment is not tracked, the Applicant posits that scheduling delays contribute to Salem Hospital's significant rate of patients who do not come in for their scheduled CT appointment. The Applicant supported this assessment by noting that in FY2024, extended hours reduced wait times, which coincides with a slight drop in missed appointment rate. Table 6 demonstrates the historical missed appointment rate.

Table 6: Salem Hospital Outpatient CT Department Historical Missed Appointment Rate

	FY2022	FY2023	FY2024	FY2025 ¹⁶
Missed Appointment Rate	7.3%	7.4%	7.0%	7.9%

Salem Hospital's outpatient CT department's missed appointment rate has consistently been at or above 7%, which is significantly more than the average missed appointment rate for comparable MGB community hospitals¹⁷ and twice the national average for diagnostic imaging appointments.^c The Applicant estimates that in FY2024, there were approximately 1,200 missed appointments resulting in unavailability of outpatient CT services for other patients during those appointment times. Given the correlation between scheduling delay and missed appointments, the no-show rate is unlikely to improve unless wait times first decrease.^d

¹⁵ The reduction in downtime hours from FY22-FY23 is attributed to Salem Hospital upgrading its outpatient scanners with new hardware and new software. The recent increase in downtime occurred when one of Salem Hospital's outpatient CT scanners went down over the weekend, without a weekend service contract in place, resulting in 48 hours of downtime.

¹⁶ Year to Date FY2025 covers from 10/1/2024 to 1/31/2025

¹⁷ Average missed appointment rate at Cooley Dickinson Hospital and Newton Wellesley Hospital was 4.8% in FY2024.

3) Projected Volume Increases

Based on historical volume and projections for future demand, the Hospital expects outpatient CT volume will continue to grow as Salem Hospital's Primary Service Area experiences sustained growth over the coming years. A recent market analysis of outpatient imaging found that the need for CT in the primary service area shared by both Salem Hospital and the Healthcare Center will grow significantly over the next five years. The population of the primary service area shared by both the Hospital and the Healthcare Center is projected to increase by approximately 4.3% from 2022 to 2027.^e In particular, the age 70 and older cohort is expected to grow by approximately 34% from 2025 to 2050, including 26% growth between years 2025 and 2035.^f As the Hospital's service area ages, patients will more frequently require advanced diagnostic imaging to diagnose and treat age-related conditions. The Applicant notes that patients in the 65+ age cohort represented nearly half (48%) of the patient population receiving a CT scan in FY2024. Using the historical volume of outpatient CT visits at Salem Hospital, and factoring in the projected growth in the 70+ population in the primary service area, the Applicant provided the anticipated outpatient CT volume projections for the Healthcare Center following implementation of the Proposed Project in Table 7.

Table 7: Projected CT Scan Volume for Lynn Healthcare Center¹⁸

	FY2026	FY2027	FY2028	FY2029	FY2030
Annual Projected Scans	12,740	13,589	14,439	15,288	16,137

To develop projections for the Proposed Project, Salem Hospital reviewed current volume and wait times, including missed appointments. Based on the existing need for outpatient CT services, coupled with the growing need for outpatient CT services in the community for age-related and lung cancer screening, urgent need CT, and cardiac coronary CT angiography, Salem Hospital determined that an additional outpatient CT unit running 14 hours a day, seven days a week would be required to ensure timely access¹⁹. Table 8 demonstrates the anticipated impact the Proposed Project will have on both the Salem Hospital Outpatient CT machines as well as the Healthcare Center in Lynn.

Table 8: Current and Projected Outpatient CT Volumes and Utilization – Salem Hospital and Lynn Healthcare Center

	FY2025 Annualized ²⁰ Volume	FY2025 Annualized Utilization	FY2026 (Year 1) Volume	FY2026 Utilization
Salem Hospital Outpatient CT	18,802	105.6%	16,370	92%
Healthcare Center (Lynn)	0	N/A	12,740	75%
Total	18,802		29,110	

¹⁸ In line with other MGB outpatient CT services, the projections in Table 7 include a ramp up of utilization.

¹⁹ Timely access is defined as meeting the 2 week target wait time and based on an 80% target utilization.

²⁰ Based on volume 10/1/2024 – 03/31/2025

The Applicant explains that currently, the Hospital's annualized outpatient CT volume for FY2025 is approximately over 18,000 scans, above 100% of the units' operating capacity. The addition of a CT at the Healthcare Center is expected to relieve the capacity burden at Salem Hospital, reduce Salem Hospital's CT wait time from ~30 days down to 15 days, while also providing access to the Lynn community where transportation is a barrier to healthcare services.

4) Transportation Related Barriers to Healthcare in Lynn

Salem Hospital's 2022 CHNA states that 8% of community survey respondents indicated that they face transportation challenges and 15.9% selected transportation as one of the top three things hospitals should address to improve community health. In addition, 18.5% of respondents said transportation was a barrier to care. Lynn is the largest of the eight communities in Salem Hospital's service area and has the youngest and most racially/ethnically diverse population and the highest concentration of foreign-born residents in the region. The Applicant states that the Proposed Project will directly address barriers to care for the Lynn community by co-locating outpatient CT services with existing primary care, urgent care, and gastroenterology care services currently available at the Healthcare Center, which is accessible by public transportation. Patients of the Healthcare Center's urgent care services who require a CT will be able to access the service on site rather than traveling to Salem Hospital, which may relieve capacity at the Hospital.

Analysis

Staff finds that while the historic growth in CT utilization has been modest, the projected growth in CT scan volume for patients in the Lynn area, as well as the transportation challenges faced by this population, demonstrate sufficient need for an outpatient CT unit at the Healthcare Center. Providing outpatient CT access at the Healthcare Center is anticipated to reduce the current overutilization of the two outpatient CT units at Salem Hospital by patients served at the Healthcare Center. This shift in utilization may decrease the amount of machine downtime in the outpatient CT units at Salem Hospital, improving appointment availability. The addition of the outpatient CT unit is likely to reduce the wait time for outpatient CT in the primary service area, while also providing the Lynn region with outpatient CT services available by public transit. 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 through the provision of outpatient CT imaging in a community that does not currently have adequate access to the service, which will lead to earlier diagnosis and treatment, thereby improving quality of

life. The Applicant provided an array of literature (listed in Appendix II) demonstrating the clinical utility of CT technology overall, and why it is the preferred imaging modality for a number of clinical concerns. The overall themes of the various studies cited include:

- CT is a tool that provides a more detailed image than X-rays, making it an important tool in health care.
- CT technology is useful in detecting tumors or lesions within the abdomen and lungs, heart disease, abnormalities of the heart, head injuries, blood clots, and embolisms.
- CT technology aids in diagnosing disease, trauma, planning and guiding procedures, and monitoring the effectiveness of therapy.
- CT-guided interventional radiology is a tool in treating neurological conditions, cancer, heart disease, spinal problems, and vascular disease.
- CT imaging can be used for cardiac coronary computed tomography angiography (“CTA”) to visualize coronary arteries detect the presence and impact of narrowing in the coronary arteries.
- CT is used as a screening tool for lung cancer and Low Dose Computed Tomography (LDCT) can decrease lung cancer mortality.
- Advances in diagnostic imaging technologies such as CT are widely credited with leading to improved patient outcomes, through earlier and more accurate diagnoses of disease using noninvasive techniques.

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

Staff finds that CT imaging has many clinical uses and contributes to improved health outcomes for patients. DoN Staff finds that adding a CT unit to the Healthcare Center will allow greater access to CT imaging for patients in the Lynn area, including improved prevention and early treatment through lung cancer screenings. 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 CT imaging regardless of financial and payer status. The city of Lynn has a diverse population, with 12% identifying as Black, 6% identifying as Asian, and 42% identifying as Hispanic or Latino.⁸ As previously noted, Salem Hospital’s recent CHNA noted that a significant portion of the Lynn region stated that transportation was a barrier to healthcare. Co-locating a CT unit at the Healthcare Center, which is accessible by public transportation, will provide this region with greater access to CT services. The Applicant asserts that it 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 payer source. The Applicant provided examples of its ongoing efforts in language accessibility, admission screenings, transportation for eligible patients, health system-wide systemic efforts through the Applicant’s United Against Racism program, and race/ethnicity data collection to identify and address health disparities.

Analysis: Health Equity and SDoH

The DoN Staff reviewed the Applicant's efforts to ensure equitable care. 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 population. 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

The Applicant states that the Proposed Project promotes continuity and coordination of care for its patients through timely access to outpatient CT imaging, and use of technology infrastructure.

Timely Access to CT Imaging: As noted in previous sections, the Proposed Project would provide access to outpatient CT services in a community that does not currently have geographically convenient access to the service within the health network. The addition of the outpatient CT unit is expected to reduce wait times for outpatient CT appointments in the region, which the Applicant anticipates will improve missed appointment rates. Adding the outpatient CT service to the Healthcare Center in Lynn will reduce transportation barriers to outpatient CT services for the Lynn community. The Applicant asserts that more convenient access to the service will likely improve the timeliness of diagnosis, and lead to more effective treatment.

Technology Infrastructure: The technology infrastructure for the Proposed Project streamlines access for patients and facilitates improved coordination of care. Salem Hospital's Electronic Medical Record (EMR) is the primary linkage within the Hospital, across satellites (including the Healthcare Center), and with North Shore Physician Group primary care and specialty providers. Medical results are communicated quickly using the same platform for all providers. Critical findings for treating physicians within the MGB system are communicated immediately and directly to the responsible clinician who can initiate the appropriate clinical action for the patient, using a closed loop communication within one hour.

Analysis

Staff finds that timely access to outpatient CT imaging and use of existing technology infrastructure will contribute positively to efficiency, continuity, and coordination of care. Staff finds that the Applicant's proposed access to integrated health information technology systems aligns with available literature and studies on how ^haccess to a single, integrated health record can reduce errors, improve patient safety, and support better patient outcomes through reduced fragmentation and improved coordination among care providers. ^{i j} The Applicant's EMR supports communication between the patient, physician, and all care team members that can foster better collaboration. As a result, Staff finds that the Proposed Project meets the requirements of Factor 1c.

Factor 1: d) Consultation

The Applicant has provided evidence of consultation, both prior to and after the Filing Date, with all government agencies that have licensure, certification, or other regulatory oversight, which has been done and will not be addressed further in this report. 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 Guideline²¹ 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."²²

In November 2024, Salem Hospital held two meetings and presented to current Healthcare Center patients as well as the Hospital's Community Advisory Board (CAB) to provide information on the Proposed Project and address their questions. In both meetings, attendees provided positive feedback, expressed excitement to have CT access in the community rather than having to go into Salem Hospital for outpatient CT services.

Analysis

Staff reviewed the information on the Applicant's community engagement and finds that the Applicant has met the required community engagement standard 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 (TME), provider costs, and other recognized measures of health care spending by ensuring timely access to outpatient CT services. As previously discussed, Salem Hospital's two existing outpatient CT service units are operating near full capacity, which can cause delayed access to CT imaging particularly for outpatients, lung cancer screenings, and patients requiring cardiac CT. Significant wait times increase the probability of missed appointments, further contributing to longer wait times for patients. Delayed diagnosis often not only results in delayed treatment, but also treatment of a more advanced concern.^k As a result, the overall cost of care increases significantly as the patient's medical condition worsens.^l By providing convenient access to outpatient CT services at the Healthcare Center, the Applicant asserts that it will expedite both diagnosis and treatment. This will reduce healthcare costs by allowing care to be initiated when a patient's medical condition is less acute and therefore less costly to treat.

²¹ [Community Engagement Standards for Community Health Planning Guideline.](#)

²² [DoN Regulation 100.210 \(A\)\(1\)\(e\).](#)

Analysis

The Proposed Project has the potential to reduce costs by providing greater access to outpatient CT imaging services with the intention of diagnosing and treating patients in a timely manner. Earlier diagnosis and treatment can lead to a lower overall cost for providing treatment compared to treatment in advanced medical stages. Staff finds that, on balance, the Proposed Project will likely compete on the basis of price, TME provider costs, and other measures of health care spending and meets the requirements for Factor 1f.

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. 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

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

As detailed in previous sections, the Applicant asserts that the Proposed Project will contribute to the Commonwealth's goals for cost containment by providing timely access to outpatient CT imaging services in a convenient location which they anticipate will reduce wait-times for outpatient CT services, and realize cost savings through the gained efficiencies of earlier diagnosis and treatment. The Applicant states that outpatient CT services provided at the Healthcare Center will be reimbursed at the same rate as those provided at Salem Hospital. However, the availability of outpatient CT services at the Healthcare Center is expected to reduce the number of patients who require CT services at Salem Hospital's emergency department, which they expect will result in lower overall charges because the Applicant states that the average ED visit is significantly more costly than stand-alone CT scans provided in any other outpatient setting.

Analysis: Cost Containment

Staff finds that the Applicant has adequately explained how it aligns with cost containment goals through greater access to imaging services in a community experiencing transportation barriers to timely imaging. Therefore, DoN Staff can conclude that the Proposed Project will likely meet the cost containment component of Factor 2.

Improved Public Health Outcomes

As detailed in previous sections, the Applicant anticipates the Proposed Project will improve public health outcomes by ensuring timely access to outpatient CT imaging. The placement of an additional

outpatient CT unit at the Healthcare Center in Lynn will increase capacity and provide timely access to outpatient CT imaging. Reducing wait times for all outpatients and providing cardiac CT in a more central location for Salem Hospital's panel is the keystone in providing timely access. The Applicant anticipates that this will facilitate more expedient treatment and result in improved patient experience and public health outcomes.

Analysis: Public Health Outcomes

Staff finds that the Proposed Project will provide the patient population with more timely access to imaging services that have the potential to improve health outcomes. Timely access can reduce delays in diagnosis and treatment that can adversely impact health outcomes. Therefore, DoN Staff can conclude that the Proposed Project will likely meet the Public Health Outcomes component of Factor 2.

Delivery System Transformation

All primary care patients at the Healthcare Center are screened at least annually for social determinants of health using a standard MGB questionnaire. Patients who screen positive are connected to a community health worker to address their needs and connect them to community resources. Adding the CT service to the Healthcare Center is likely to expand the opportunities to screen patients and provide connections to community services that will address social determinants of health. The Healthcare Center has incorporated practices to address barriers to health and provided some past examples of how the process has assisted patients to highlight how additional patients brought in by the CT service could see a greater positive impact. One example of these efforts includes Salem Hospital's partnership with The Food Project in Lynn to build a community farm on the Healthcare Center's property as part of the larger 'Food is Medicine' community collaboration in Lynn. In addition, MGB provided \$1.85M for a food hub in downtown Lynn that includes a food pantry, a state-of-the-art teaching kitchen, and available navigation of benefits support, such as SNAP enrollment. Another linkage often used is Salem Hospital's transportation policy, which provides free transportation to eligible MassHealth and Health Safety Net patients to and from their appointments, including those at satellite locations like the Healthcare Center in Lynn.

Analysis: Delivery System Transformation

Central to the goal of Delivery System Transformation is the integration of social services and community-based expertise. The Applicant screens all patients on relevant SDoH factors and demonstrates a variety of methods for linking patients to needed community resources. Staff notes that the Healthcare Center has embedded screenings and referrals into their patient care procedures, ensuring that necessary connections occur. 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 findings must be supported by an analysis by an independent CPA.

The CPA assessed the reasonableness²³ of assumptions used in the preparation and feasibility²⁴ of the projections with regards to the Proposed Project. The CPA concluded that projections were reasonable, and that the Applicant 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.

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 two alternatives to the Proposed Project.

Alternative Option 1 - Placement of a third outpatient CT unit at Salem Hospital: The capital expense for adding a third CT dedicated to outpatient use at the Hospital would cost more than the Proposed Project due to the amount of renovation required to create space for the additional unit. The location of the Proposed Project involves an empty shell space within the Healthcare Center and requires minimal demolition. Additionally, the shell space is closer to the utility connections required for the outpatient CT unit than any space that could be made available at Salem Hospital. Placements of an additional outpatient CT unit at Salem Hospital's main campus would not address transportation barriers in a community with a high need, which contribute to delayed imaging and thus the potential for delayed diagnosis for the Lynn community.

²³ Reasonableness is defined within the context of this report as supportable and proper, given the underlying information.

²⁴ 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 the existing Patient Panel.

Alternative Option 2 – Add an outpatient CT unit at Mass General Brigham Healthcare Center at Danvers: The Applicant considered adding an outpatient CT unit at the Mass General Brigham Healthcare Center at Danvers. The Danvers location currently offers outpatient CT with wait times comparable to Salem Hospital. While Danvers is within the Hospital’s primary service area, it is located about 15 minutes north of Salem Hospital and 20 minutes north of Lynn. Because it is located at the northern edge of Salem Hospital’s service area, it would not improve access to outpatient CT for patients to the south. The Healthcare Center in Danvers already offers outpatient CT whereas there is no advanced imaging currently at the Healthcare Center in Lynn. Staff inquired whether the Applicant had considered adding another CT to Mass General Imaging in Chelsea. The Applicant did not find the Chelsea location to be a viable alternative option. Similar to the Danvers location, the Chelsea site presents transportation barriers for the Lynn population. The Proposed Project specifically addresses the need for greater availability of healthcare services in Lynn. Based on these factors, the Applicant determined that additional capacity for CT in Danvers is not an alternative that would benefit Salem Hospital’s patients to the same extent as the Proposed Project.

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 for this Application: This is a DoN project that will result in a Tier 1 CHI. The Applicant, MGB at Salem Hospital, plans to acquire a CT machine which constitutes as DoN-required equipment obtained by a hospital. Standard practice is to contribute the CHI dollars to a local CHI project and the statewide Community Health and Healthy Aging Funds.

To fulfill Factor 6 requirements, the Applicant submitted a CHI Narrative, 2022 Community Health Needs Assessment (CHNA)/Community Health Implementation Plan (CHIP), Self-Assessment, and Partner Assessments. DPH agreed that the Applicant could utilize the CHI required documents submitted for their previously approved DoN project (#MGB-22080909-AM) because both applications reference the 2022 CHNA/CHIP process, which will inform the CHI project associated with this application. Once the 2025 CHNA/CHIP is released, the Applicant agreed to provide the CHI team with additional updates on how the new assessment factored into any decisions made by the Applicant and their Community Affairs and Health Access Committee (CAHAC) related to the CHI planning and investment process.

The CHNA was finalized in Fall of 2022 by Salem Hospital. The Hospital utilized primary and secondary data collection, including online focus groups for over 100 invitees. Ultimately, 9 focus groups covering different community health sectors including housing, food security, immigrant experience, and youth

services, as well as a community survey available in 10 languages were conducted. The CHNA identifies priority populations and describes key findings and themes from the participating communities in the service area. The priority populations are residents of Danvers, Lynn, Lynnfield, Marblehead, Nahant, Peabody, Salem, and Swampscott. The themes identified in the CHNA are Behavioral Health, Health Care Access, Culturally Sensitive Care, Social Determinants of Health, and Workforce. The Hospital will engage its CAHAC to select priorities and identify strategies for CHI 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, community wide surveying, and data analysis, the participating community groups and residents identified the key concerns to be outlined in the 2022 Community Health Needs Assessment.

Partner Assessments (formally known as Stakeholder Assessments) provided information on the individuals' engagement levels (e.g. their personal participation and role) and their analysis of how the Hospital 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 Hospital.

The CHI Narrative provided background and overview information for the CHI processes. The narrative also outlined advisory duties for the CAHAC, 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. With the administrative funds, the applicant's early plans are to develop and disseminate communication materials and support participation through meeting promotion and engagement barrier reduction 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 CHI implementation strategies that meet Health Priority Guideline principles, focus will need to be on the priority areas that allow for implementation at the root cause level—these are most likely in the areas of social determinants of health and workforce. The Hospital will work with its CAHAC to select priorities and approve implementation strategies, and may want to consider enhancing impact through fewer, larger investments given the small CHI total. DPH staff have determined that if Salem Hospital agrees to address community conditions and root causes while engaging in ongoing work with the CAHAC, CHI investment will align appropriately with the Health Priorities Guideline. The Applicant will also have additional touchpoints with DPH staff to share lessons learned to ensure sound processes for planning and implementation work moving forward, including their 2025 CHNA/CHIP processes.

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 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 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 \$ 217,087.75
 - a. \$20,840.42 will be directed to the CHI Statewide Initiative
 - b. \$187,563.82 will be dedicated to local approaches to the DoN Health Priorities
 - c. \$8,683.51 may be designated as the administrative allowance.
2. To comply with the Holder's obligation to contribute to the CHI Statewide Initiative, the Holder must submit a check for \$20,840.42 to Health Resources in Action (the fiscal agent for the CHI Statewide Initiative) **within 30 days** from the date of the Notice of Approval. The Holder must submit the funds to HRiA within 30 days from the date of the Notice of Approval.
 - a. Payments should be made out to:
Health Resources in Action, Inc., (HRiA)
2 Boylston Street, 4th Floor
Boston, MA 02116 Attn: MACHHAF c/o Bora Toro
DoN project: #MGB-24120209-RE
 - b. Please send a PDF image of the check or **confirmation of payment** to DONCHI@Mass.gov and dongrants@hria.org.

If you should have any questions or concerns regarding the payment, please contact the CHI team at DONCHI@Mass.gov.

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 annual data, which the program will use the FY2024 baseline for comparison. Reporting will include a description of numerators and denominators.

1. **Overall Utilization:** Provide the number of CT visits for the Healthcare Center at Lynn and Salem Hospital Outpatient CT (for the 2 dedicated Outpatient CT Units) after the project implementation.

2. **Access - Wait times.** The Applicant notes that projected wait times are expected to increase due to the expected increase in utilization.

	Baseline (FY24)	Year One	Year Two	Year Three
Outpatient Wait Times (days)	30 days	7 days	14 days	21 days

3. **Access – Lung Cancer Screening Volumes**

	Baseline (FY24)	Year One	Year Two	Year Three
# of Annual Screenings	2082	2150	2200	2250

4. **Quality - Patient Experience Scores**

	Baseline (FY24)	Year One	Year Two	Year Three
Net Promoter Score	68	70	75	80

Appendix II: Literature Review

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Elizabeth Hanes, RN, What is Interventional Radiology?, DignityHealth, <https://www.dignityhealth.org/articles/what-is-interventional-radiology> (Aug. 26, 2017).

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First Population-Based Study Finds State-Level Lung Cancer Screening Rates Not Aligned with Lung Cancer Burden in the U.S. (Nov. 12, 2020), <http://pressroom.cancer.org/LDCTScanLCS>

Thomas B. Richards, M.D., Ashwini Soman, MBBS, et al., *Screening for Lung Cancer – 10 States, 2017*, Centers for Disease Control and Prevention, MMWR Morb Mortal Wkly Rep 2020;69:201 -206, <http://dx.doi.org/10.15585/mmwr.mm6908a1>.

Lung Cancer Key Findings, American Lung Association, <https://www.lung.org/research/state-of-lung-cancer/key-findings> (last modified June 7, 2024).

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