SHIELDS PET-CT AT EMERSON HOSPITAL, LLC
DON APPLICATION # 20081410-RE

APPLICATION FOR DETERMINATION OF NEED
SUBSTANTIAL CHANGE IN SERVICE
DON REQUIRED EQUIPMENT
ADDITION OF PET-CT SERVICES

AUGUST 14, 2020

BY

SHIELDS PET-CT AT EMERSON HOSPITAL, LLC
700 CONGRESS STREET, SUITE 204
QUINCY, MA 02169

SHIELDS PET-CT AT EMERSON HOSPITAL, LLC

DON APPLICATION# 20081410-RE

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ATTACHMENT 1

APPLICATION FORM

Massachusetts Department of Public Health
Determination of Need
Application Form

Version: 11-8-17

Application Type: DoN-Required Equipment

Application Date: 08/14/2020 10:26 am

Applicant Name: Shields PET-CT at Emerson Hospital, LLC

Mailing Address: 700 Congress Street, Suite 204

City: Quincy State: Massachusetts Zip Code: 02169

Contact Person: Kerry Whelan Title: Vice President Government Affairs

Mailing Address: 700 Congress Street, Suite 204

City: Quincy State: Massachusetts Zip Code: 02169

Phone: 6173767421 Ext: E-mail: kerry@shields.com

Facility Information

List each facility affected and or included in Proposed Project

1 Facility Name: Shields PET-CT at Emerson Hospital, LLC

Facility Address: 133 Old Road to Nine Acre Corner

City: Concord State: Massachusetts Zip Code: 01742

Facility type: Hospital CMS Number:

Add additional Facility Delete this Facility

1. About the Applicant

1.1 Type of organization (of the Applicant): for profit

1.2 Applicant's Business Type: ○ Corporation ○ Limited Partnership ○ Partnership ○ Trust ◉ LLC ○ Other

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

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

1.5 Is Applicant or any affiliated entity an HPC-certified ACO? ◉ Yes ○ No

1.5.a If yes, what is the legal name of that entity? Partners HealthCare System

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

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

1.7.a If Yes, has Material Change Notice been filed? (•) Yes ( ) No

1.7.b If yes, provide the date of filing. 04/24/2020

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

1.9 Complete the Affiliated Parties Form

2. Project Description

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

See Attached Narrative.

2.2 and 2.3 Complete the Change in Service Form

3. Delegated Review

3.1 Do you assert that this Application is eligible for Delegated Review? (•) Yes ( ) No

3.1.a If yes, under what section? Certified ACO/DoN-Required Service or Equipment

4. Conservation Project

4.1 Are you submitting this Application as a Conservation Project? ( ) Yes (•) No

5. DoN-Required Services and DoN-Required Equipment

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

5.2 If yes, is Applicant or any affiliated entity thereof a HPC-certified ACO? (•) Yes ( ) No

5.2.a If yes, Please provide the date of approval and attach the approval letter: 12/23/2019

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

6. Transfer of Ownership

6.1 Is this an application filed pursuant to 105 CMR 100.735? ( ) Yes (•) No

7. Ambulatory Surgery

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

8. Transfer of Site

8.1 Is this an application filed pursuant to 105 CMR 100.745? ( ) Yes (•) No

9. Research Exemption

9.1 Is this an application for a Research Exemption? ( ) Yes (•) No

10. Amendment

10.1 Is this an application for a Amendment? ( ) Yes (•) No

11. Emergency Application

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

12. Total Value and Filing Fee

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

Your project application is for: DoN-Required Equipment

12.1 Total Value of this project:	$292,907.00
12.2 Total CHI commitment expressed in dollars: (calculated)	$14,645.35
12.3 Filing Fee: (calculated)	$585.81
12.4 Maximum Incremental Operating Expense resulting from the Proposed Project:	$567,281.00
12.5 Total proposed Construction costs, specifically related to the Proposed Project, If any, which will be contracted out to local or minority, women, or veteran-owned businesses expressed in estimated total dollars.	

13. Factors

Required Information and supporting documentation consistent with 105 CMR 100.210

Some Factors will not appear depending upon the type of license you are applying for.

Text fields will expand to fit your response.

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

F1.a.i **Patient Panel:**

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

See Attached Narrative.

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

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

See Attached Narrative.

F1.a.iii **Competition:**

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

See Attached Narrative.

F1.b.i **Public Health Value /Evidence-Based:**

Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified.

See Attached Narrative.

F1.b.ii **Public Health Value /Outcome-Oriented:**

Describe the impact of the Proposed Project and how the Applicant will assess such impact. Provide projections demonstrating how the Proposed Project will improve health outcomes, quality of life, or health equity. Only measures that can be tracked and reported over time should be utilized.

See Attached Narrative.

F1.b.iii **Public Health Value /Health Equity-Focused:**

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

See Attached Narrative.

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

See Attached Narrative.

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

See Attached Narrative.

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

See Attached Narrative.

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

See Attached Narrative.

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

See Attached Narrative.

Factor 2: Health Priorities

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

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

See Attached Narrative.

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

See Attached Narrative.

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

See Attached Narrative.

Factor 3: Compliance

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

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

Add/Del Rows	Project Number	Date Approved	Type of Notification	Facility Name
+ -				

Factor 4: Financial Feasibility and Reasonableness of Expenditures and Costs

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

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

		Present Square Footage		Square Footage Involved in Project				Resulting Square Footage		Total Cost		Cost/Square Footage	
				New Construction		Renovation							
Add/Del Rows	Functional Areas	Net	Gross	Net	Gross	Net	Gross	Net	Gross	New Construction	Renovation	New Construction	Renovation
+ -	Mobile PET-CT		0		1,500		1,500				$50,000.00		$33.33
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
+ -													
	Total: (calculated)		0		1,500		1,500				$50,000.00		$33.33

F4.a.ii For each Category of Expenditure document New Construction and/or Renovation Costs.

	Category of Expenditure	New Construction	Renovation	Total (calculated)
	Land Costs			
	Land Acquisition Cost			
	Site Survey and Soil Investigation			
	Other Non-Depreciable Land Development			
	Total Land Costs			
	Construction Contract (including bonding cost)			
	Depreciable Land Development Cost			
	Building Acquisition Cost		$30000.	$30000.
	Construction Contract (including bonding cost)			
	Fixed Equipment Not in Contract			
	Architectural Cost (Including fee, Printing, supervision etc.) and Engineering Cost		$15000.	$15000.
	Pre-filing Planning and Development Costs		$2500.	$2500.
	Post-filing Planning and Development Costs		$2500.	$2500.
Add/Del Rows	Other (specify)			
+ -	Construction Contract (including bonding cost)		$35000.	$35000.
	Net Interest Expensed During Construction			
	Major Movable Equipment		$207907.	$207907.
	Total Construction Costs		$292907.	$292907.
	Financing Costs:			
	Cost of Securing Financing (legal, administrative, feasibility studies, mortgage insurance, printing, etc			
	Bond Discount			
Add/Del Rows	Other (specify			
+ -				
	Total Financing Costs			
	Estimated Total Capital Expenditure		$292907.	$292907.

Factor 5: Relative Merit

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

Proposal:

See Attached Narrative.

Quality:

See Attached Narrative.

Efficiency:

See Attached Narrative.

Capital Expense:

See Attached Narrative.

Operating Costs:

See Attached Narrative.

List alternative options for the Proposed Project:

Alternative Proposal:

See Attached Narrative.

Alternative Quality:

See Attached Narrative.

Alternative Efficiency:

See Attached Narrative.

Alternative Capital Expense:

See Attached Narrative.

Alternative Operating Costs:

See Attached Narrative.

Add additional Alternative Project | Delete this Alternative Project

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

Documentation Check List

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

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

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

Document Ready for Filing

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

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

This document is ready to file: ☒ Date/time Stamp: 08/14/2020 10:26 am

E-mail submission to Determination of Need

Application Number: -20081410-RE

Use this number on all communications regarding this application.

☒ Community Engagement-Self Assessment form

ATTACHMENT 2

NARRATIVE

2. Project Description

The Applicant is a newly formed joint venture between Emerson Hospital (“Emerson” or “the Hospital”) and Shields Health Care Group (“Shields”) known as Shields PET-CT at Emerson Hospital, LLC ("Applicant") located at 700 Congress Street, Suite 204, Quincy, Massachusetts 02169. The Applicant submits this request for a Notice of Determination of Need ("Application") with the Department of Public Health (“Department”) for a change in service for the establishment of a licensed clinic to provide part-time positron emission tomography (“PET”) - computed tomography (“CT”) diagnostic imaging services to Emerson patients. Specifically, the proposed new PET-CT clinic will be located on Emerson’s main campus at 133 Old Road to Nine Acre Corner, Concord, Massachusetts 01742 and will operate one day per week (“Proposed Project”).

Emerson and Shields have formed the Applicant to ensure Emerson patients have access to high-quality imaging services in the most efficient and cost-effective manner. Currently, Emerson patients receive PET-CT imaging service through an Emerson hospital-licensed department located on the main campus at 133 Old Road to Nine Acre Corner, Concord, Massachusetts. Through the Proposed Project, the Applicant will transition the existing hospital-licensed PET-CT service to a licensed clinic that will be reimbursed as an Independent Diagnostic Testing Facility (“IDTF”) license at the same location.

Through the Proposed Project, the Applicant will satisfy both existing and future patient panel needs by continuing access to PET-CT imaging services one day per week at Emerson’s main campus. The existing need for PET-CT imaging services for Emerson‘s patient panel is demonstrated by historical volume trends for the current hospital-based PET-CT service, the growth in the number of older patients seeking care at Emerson and the increased number of patients with underlying oncologic, cardiac, and neurologic conditions. National statistics indicate the prevalence of cancer, cardiovascular disease, and neurological conditions increase with age. Therefore, the need for these services is expected to expand as Emerson’s patients within the 55+ age cohort increase.

The Applicant proposes to use the integrated PET-CT unit for part-time clinical use one day per week at Emerson’s main campus. Use of the PET-CT unit will be restricted to those patients who meet the clinical protocols for combined PET-CT. A patient’s underlying condition and diagnosis will be the basis for determining whether the patient meets appropriate clinical protocols for PET-CT. Among other clinically appropriate applications, the Applicant proposes to utilize the designated PET-CT for oncology, cardiology, and neurology/neuropsychology imaging purposes, as the patient panel data provided by Emerson, as well as historical PET-CT volume indicates high oncologic, cardiologic, and neurologic/neuropsychologic disease burden.

The Applicant anticipates that the Proposed Project will provide Emerson’s patient panel with continued local access to integrated cancer services that will directly impact health outcomes and quality of life. Cardiac and neurology patients will also be referred to the Applicant’s clinic for PET-CT services. Diagnostic technology is crucial for cardiac and neurology patients to determine what treatments are most effective with their anatomy. Given the patient panel’s high acuity level of cardiac and neurological diseases, continued ready access to PET-CT services will allow clinicians to determine appropriate treatment options that will impact overall health outcomes in a time effective manner.

Finally, the Proposed Project will compete on the basis of provider price, costs and total medical expenses ("TME"). PET-CT services are currently available at Emerson and under the Proposed Project, services will shift from a Hospital-based service to a licensed clinic reimbursed as an IDTF. Therefore, services will be reimbursed at rates that are lower than hospital-based rates. Moreover, the transition will allow Shields to implement operational optimization initiatives to drive down cost to provide care and expand upon the high quality of care already offered by the Hospital. Accordingly, the Proposed Project will provide patients with continued access to high-quality PET-CT services while also meaningfully contributing to Massachusetts' goals for cost containment.

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

F1.a.i **Patient Panel:**

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

A. Overview of Applicant's Joint Venture Partners

The Applicant is a newly formed joint venture between Emerson and Shields. Emerson Hospital is a full-service, regional medical center located in Concord, Massachusetts. Emerson provides advanced medical services to more than 300,000 people residing in 25 towns. To address growing demand for health care services, Emerson maintains a 179-bed hospital with more than 300 primary care doctors and specialists. Emerson's core mission has always been to make high-quality health care more accessible to those who live and work in the community. To further this mission, Emerson has outpatient facilities in Westford, Groton, Sudbury and Concord.

Shields was founded in 1972 in Brockton, Massachusetts. Dedication to high quality and advanced care in a local setting quickly became a signature attribute of the Shields business model, continuing with Massachusetts' first independent regional MRI center in 1986. Today, Shields has expanded to manage more than 40 MRI and PET-CT facilities throughout New England, many of which are joint venture partnerships with community hospitals. While most Shields locations operate as licensed clinics, they are often on-campus or proximate to the local hospital partner, thereby enabling coordinated, seamless, and highly accessible care. A dedicated focus on operational and management service expertise in outpatient services allows Shields to provide cost savings to patients, employers, insurance providers, and joint venture partners.

B. Applicant's Patient Panel

The Applicant is a newly-formed joint venture and does not have its own patient panel. However, as Emerson is a member of the Applicant and the proposed PET-CT clinic will be sited at the hospital to ensure continued access to this service for Emerson's patients, the Applicant therefore relies on Emerson's patient panel to demonstrate the need for the Proposed Project. Historical utilization for PET-CT services offered at Emerson is also provided to demonstrate the need for the Proposed Project.

Overall Demographic Profile

Emerson serves a diverse patient panel as demonstrated by the demographic data collected for fiscal years ("FY") 2017-2019. Over the last three FY, the number of patients utilizing Emerson's services increased from 96,786 unique patients in FY17 to 100,707 unique patients in FY19 (4.1% growth). In FY19 75% of the patient panel originated from the following towns ("Primary Service Area"): Acton, Westford, Concord, Sudbury, Maynard, Littleton, Groton, Chelmsford, Stow, Bedford, Pepperell, Ayer, Hudson, Boxborough, Harvard, Carlisle, Leominster, and Townsend. During FY17-FY19 51% of Emerson's patient panel are 50 years of age or older, and 31% of patients are 60 and older. More specifically, the 60 and older population has grown by 11%, meaning that the older population is the fastest growing cohort of the patient panel. According to Census data, made available through the Advisory Board Demographic profiler, within Emerson's Primary Service Area ("PSA"), the population aged 65 and over is projected to increase on average by 20% through 2024, aging faster than the rest of Massachusetts. Between FY17 and FY19, 62% of the patient panel was female. During this same timeframe, ~5% of the patient panel self-identified as non-American, with the majority of this sub-category identifying as Asian, Asian Indian, or African American.

PET-CT-Specific Data

The Applicant also reviewed the number of PET-CT scans performed for Emerson patients since FY17. The statistics for the patient panel broken down by payer category are provided in Table 1 below. Medicare (typically patients aged 65 and older) represent almost 50% of the patients receiving PET-CT imaging in FY19. In FY19, ~60% of the PET-CT patient panel were under Managed Care (Alternative Payment Model) Contracts.

Table 1: PET-CT Payer Mix

Payer Category	FY17	FY18	FY19
Non-ACO & Managed Care	56.4%	52.7%	56.9%
Medicare	46.2%	47.6%	43.4%
Self-Pay	2.2%	3.8%	2.8%
ACO & Managed Care	2.6%	3.4%	3.5%
Medicaid Non-Managed	2.6%	2.7%	2.2%
Financial Assistance	0.4%	0.0%	0.3%

Finally, the Applicant reviewed the number of patients that Emerson served during the last three fiscal years who had an underlying oncologic, cardiovascular or neurological condition, as evidence-based research supports the use of PET-CT in these areas. In FY19, 3,644 Emerson patients had an underlying cancer diagnosis, which accounted for approximately 4% of the total patient panel; 5,270 Emerson patients had an underlying cardiac condition, which accounted for approximately 9% of the total patient panel; and 3,897 Emerson patients had an underlying neurologic condition, which accounted for more than 4% of the total patient panel. Patients with these underlying conditions grew by 12% over the prior 36 months.

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

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

Through the Proposed Project, the Applicant will satisfy both existing and future patient panel needs by providing PET-CT imaging services one day per week at Emerson's main campus. The existing and future need for PET-CT imaging services is demonstrated by historical volume trends, the growth in the number of older patients seeking care at Emerson, and the increased number of patients with underlying age-related oncologic, cardiac, and neurologic conditions for which PET-CT has proven clinical applicability.[1]

In addition to Emerson's historic patient panel data, the Applicant relies upon service line specific historic claims data from the Advisory Board Company ("Advisory Board"), to further demonstrate the need for PET-CT in the proposed PSA. The Advisory Board projects that demand for PET-CT within the PSA will grow by 12.8% through 2028.

A. Historical Demand for PET-CT Services at Emerson

As noted above, the Applicant reviewed the number of PET-CT scans performed for Emerson patients since FY17. This data indicates that between FY17 and FY19, demand for PET-CT services at the Hospital grew by 15%. Specifically, Table 2 below demonstrates the increase in the number of scans at the Hospital over the last three fiscal years.

Table 2: Demand for PET-CT Services

Fiscal Year	# Scans
FY17	350
FY18	357
FY19	402

An analysis of historical volume for PET-CT services at Emerson documents that in FY17 350 PET-CT scans were performed. This number increased to 402 PET-CT scans in FY19. The Applicant projects 527 scans will be performed in Year Five (5) of operation. Accordingly, the need for the Proposed Project is established by historical volume trends and projections for future need.

Table 3: Projected Demand for PET/CT Services

Year of Operation	# Scans
Year 1	385
Year 2	423
Year 3	465
Year 4	502
Year 5	527
Year 6	527

The current hospital-based PET-CT service at Emerson operates one 8-hour day per week. The service has an average scan time of approximately 60 minutes per PET-CT scan, including room-turnover, injections as needed and administrative functions. As outlined in the Table 3, current operating capacity based on FY19 data is approximately 96%. This historical utilization indicates the continued need for the provision of PET-CT services at Emerson's main campus.

Table 3: Current Operating Capacity

Formula	Calculation
A. Actual Number of Scans	402
B. Average Hour per Scan	1
C. Annual Scan Hours **(A X B)**	402
D. Average Available Hours per Year	416
E. % Operating Capacity **(C / D)**	96%

B. Aging Population and Need for PET-CT Services

Statewide population projections provided by the University of Massachusetts' Donahue Institute suggest that population growth in Massachusetts is expected to increase through 2035[2]. While overall statewide population growth will continue to grow at a consistent rate of 3.2% during this period, estimates suggest that certain age cohorts will account for a greater share of the population than others. Specifically, within the next 15-20 years, the largest part of the Commonwealth's population growth will be attributable to residents within the 50+ age cohort, and residents that are 65+ will represent roughly a 21% of the Massachusetts population[3].

Adults and older adults similarly comprise the bulk of Emerson's patient panel (from FY2017 to FY2019, patients in the 50+ age cohort consistently represented 51-52% of the total patient population, and patients in the 60+ age cohort consistently represented between 31% – 33% of the total patient population). Assuming that the demographic trends within Emerson's patient population continue to mirror that of the state, it is expected that Emerson will continue to see growth in the 50+ age cohort that it serves. As the number of Emerson's patients that fall into the 50+ age cohort continues to grow, the need for imaging services, such as PET-CT, becomes more important for detecting, managing, and treating age-related conditions, as discussed in further detail below. Accordingly, to ensure that Emerson's aging patient panel has continued access to high quality PET-CT services with proven

[2] http://pep.donahue-institute.org/downloads/2015/new/UMDI_LongTermPopulationProjectionsReport_2015%2004%20_29.pdf
[3] https://www.mass.gov/files/documents/2016/07/wb/healthy-aging-data-report.pdf

effectiveness in the fields of oncology, cardiology, and neurology, the Applicant seeks to establish a licensed IDTF clinic to provide PET-CT services at Emerson's main campus.

Need for PET-CT Services for Cancer Patients in Massachusetts

Research studies and their findings demonstrate that the prevalence of cancer increases with age[4]. Persons over 65 account for 60% of newly diagnosed malignancies and 70% of all cancer deaths, the incidence of cancer in individuals over 65 is 10 times greater than in those younger than 65, and the cancer death rate is 16 times greater in patients over 65 compared to younger patients[5]. From 2010 through 2014, the average annual age-adjusted incidence rate for Massachusetts residents was higher than the rest of the United States. In Middlesex County, where Emerson is located, the age adjusted annual incidence rate was 436.5 to 462.3 per 100,000 persons.[6] According to the American Cancer Society, there is projected to be 36,990 new cases of cancer in Massachusetts in 2020, and 12,430 cancer related deaths. The most commonly diagnosed type of cancer in Massachusetts for men during this time period was prostate cancer, followed by cancers of the bronchus and lung, colon/rectum, and urinary bladder. Among women in Massachusetts, the most commonly diagnosed cancer types were cancers of the breast, bronchus and lung, colon/rectum, and corpus uteri (uterus).[7]

Studies have shown that PET-CT has become an established nuclear imaging modality that has proved especially useful in oncology. Major clinical advantages of PET-CT include better localization of activity to normal vs abnormal structures, better identification of inflammatory lesions, discovery of serendipitous abnormalities, confirmation of unusual or abnormal sites, and improved localization for biopsy or radiotherapy. Studies to date typically have shown a 4% to 15% improvement in overall accuracy of staging/restaging and a 30% to 50% improvement in the confidence of lesion localization. PET-CT has become the standard of imaging care for many oncology patients.[8]

Cardiac Conditions and the Need for PET-CT Services

Similarly, it is well-established that age is a leading risk factor for cardiovascular disease. The risk for coronary heart disease increases starting at age 45 for men and at age 55 for women[9]. According to the 2018 results from the Massachusetts Behavioral Risk Factor Surveillance System, statewide, 5.6% of Massachusetts adults are diagnosed with myocardial infarction and 4.7% are diagnosed with angina or coronary heart disease annually.[10] Moreover, according to the American Heart Association, 12,140 people died of heart disease in Massachusetts in 2017, making heart disease the second leading cause of death[11].

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[4] White MC, Holman DM, Boehm JE, Peipins LA, Grossman M, Henley SJ. Age and cancer risk: a potentially modifiable relationship. *Am J Prev Med*. 2014;46(3 Suppl 1):S7-S15. doi:10.1016/j.amepre.2013.10.029

[5] Berger NA, Savvides P, Koroukian SM, et al. Cancer in the elderly. *Trans Am Clin Climatol Assoc*. 2006;117:147-156.

[6] http://www.cancerinmass.org/uploads/1/1/9/4/119429235/macancer-report2018.pdf

[7] https://cancerstatisticscenter.cancer.org/#!/state/Massachusetts

[8] Griffeth LK. Use of PET-CT scanning in cancer patients: technical and practical considerations. *Proc (Bayl Univ Med Cent)*. 2005;18(4):321-330. doi:10.1080/08998280.2005.11928089

[9] Hajar R. Risk Factors for Coronary Artery Disease: Historical Perspectives. *Heart Views*. 2017;18(3):109-114. doi:10.4103/HEARTVIEWS.HEARTVIEWS_106_17

[10] https://www.mass.gov/doc/a-profile-of-health-among-massachusetts-adults-2018/download

[11] https://www.cdc.gov/nchs/pressroom/states/massachusetts/massachusetts.htm

PET-CT images of the heart provide comprehensive information to physicians, allowing for more enhanced management of cardiovascular disease, especially for ischemic heart disease[12]. The ability for the heart to recover naturally from ischemic damage decreases with age and makes older patients more susceptible to injury[13]. Where traditional CT and PET scans have unique advantages in diagnosing coronary artery disease, a typical cause of ischemic heart disease, each have their downfalls and result in missed diagnoses or unnecessary invasive procedures. Combined PET-CT imaging remains the only technique that yields sufficient information in one procedure to quickly provide all of the necessary information for a physician to make a timely and proper medical decision[14]. In a setting where comprehensive acute care and follow-up treatment can be appropriately provided, Emerson's cardiology patients will benefit from access to PET-CT by allowing for efficient and accurate decision-making.

Neurological Conditions and the Need for PET-CT Services

Finally, recent studies have placed an increased focus on aging and neurological diseases, such as epilepsy and Alzheimer's dementia. This research provides that the risk of having a seizure increases after the age of 60[15]. Moreover, the incidence rate of Alzheimer's also increases with age. Millions of Americans have Alzheimer's or other dementias. As the size and proportion of the U.S. population age 65 and older continue to increase, the number of Americans with Alzheimer's or other dementias will grow. This number will escalate rapidly in coming years, as the population of Americans age 65 and older is projected to grow from 55 million in 2019 to 88 million by 2050. The baby boom generation has already begun to reach age 65 and beyond, the age range of greatest risk of Alzheimer's dementia. The oldest members of the baby boom generation turned age 73 in 2019. Patient panel data for Emerson's patients provide that 3,305 of patients were treated for neurological issues in FY17, 3,541 in FY18 and 3,897 in FY19.

PET-CT has been shown to enhance a clinician's ability to diagnose and effectively treat these diseases. In neurology, PET-CT plays an important role in the evaluation of various epileptic syndromes as well as in the clinical assessment of patients with a multitude of other disorders, including cognitive impairment and dementias. The PET-CT modality has become a valuable tool in the diagnosis, treatment evaluation and follow-up of patients with a variety of infections and inflammatory conditions and is already the gold standard for some neurological indications.[16]

[12] Slomka, P., Berman, D.S., Alexanderson, E. *et al.* The role of PET quantification in cardiovascular imaging. *Clin Transl Imaging* **2,** 343–358 (2014). https://doi.org/10.1007/s40336-014-0070-2

[13] Strait JB, Lakatta EG. Aging-associated cardiovascular changes and their relationship to heart failure. *Heart Fail Clin*. 2012;8(1):143-164. doi:10.1016/j.hfc.2011.08.011

[14] Knaapen P, de Haan S, Hoekstra OS, et al. Cardiac PET-CT: advanced hybrid imaging for the detection of coronary artery disease. *Neth Heart J*. 2010;18(2):90-98. doi:10.1007/BF03091744

[15] Acharya JN, Acharya VJ. Epilepsy in the elderly: Special considerations and challenges. *Ann Indian Acad Neurol*. 2014;17(Suppl 1):S18-S26. doi:10.4103/0972-2327.128645

[16] Zhuang H, Codreanu I. Growing applications of FDG PET-CT imaging in non-oncologic conditions. *J Biomed Res*. 2015;29(3):189-202. doi:10.7555/JBR.29.20140081

F1.a.iii **Competition:**

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

The Proposed Project will not negatively impact on TME as the PET-CT services will be provided through a licensed IDTF clinic. The clinic will be managed by Shields, which will seek to identify optimization opportunities to drive down the cost to provide care, while simultaneously ensuring the highest quality of care possible.

Shields operational model allows for improved scheduling, workflow, technology, and customer service. These front-end/access focused optimizations drive efficiency, which in turn drives down cost to provide care, allowing Shields to operate effectively under lower IDTF rates. The lower IDTF rates offer payers the opportunity to require lower deductibles for patients and the opportunity for lower TME overall, thus also improving access to high quality care.

Under the proposed arrangement, it is anticipated that TME will decrease. Furthermore, the Applicant's clinic represents $1.2M of net revenue annually by year 5 of operation, a statistically insignificant amount when compared to overall health care spending. Accordingly, this Proposed Project will have limited effect on costs in the state.

F1.b.i **Public Health Value /Evidence-Based:**

Provide information on the evidence-base for the Proposed Project. That is, how does the Proposed Project address the Need that Applicant has identified.

A. PET-CT as a Screening Modality

PET and CT are two well-established imaging systems that have been available for clinical use for several decades. PET is a noninvasive, molecular imaging technology that measures metabolic activity via detection of radiotracers injected in a patient's bloodstream. Specifically, PET studies evaluate the metabolism of organs and tissues inside the body, providing information about how organs and tissues are functioning on a molecular and cellular level. While other diagnostic imaging procedures predominantly offer anatomical pictures, PET, as a molecular imaging modality, allows physicians to measure chemical and biological processes. Thus, PET may detect biochemical changes in an organ or tissue that indicate the onset of a disease process before symptoms, abnormalities, or anatomical changes related to the disease can be seen with other imaging processes. PET may also be used to track treatment progress and is commonly used in the fields of oncology, cardiology, and neurology/neuropsychology[17].

While the function of PET is to provide molecular information, the function of CT scanning is to provide anatomical and structural information. A CT scan creates a three-dimensional picture of the inside of the

[17] Society of Nuclear Medicine & Molecular Imaging, Fact Sheet: What is PET, https://www.snmmi.org/AboutSNMMI/Content.aspx?ItemNumber=5649

body with an x-ray machine[18]. A computer then combines these images into a cross-sectional view that shows any tumors or physical abnormalities in tissue morphology. CT scans can be performed on every region of the body and CT images of internal organs, bones, soft tissues, and blood vessels provide greater detail and clarity compared to conventional x-ray images. CT scans are performed for a variety of reasons, and are useful in diagnosing disease, trauma, and abnormality; planning and guiding interventional and therapeutic procedures; treatment planning and monitoring the effectiveness of therapy; and screening purposes.

PET-CT is a dual-modality imaging technique that combines images from PET and CT scans that have been performed at the same time using the same machine. Since a PET scan reveals any abnormal metabolic activity that may be occurring on a molecular level and a CT scan provides detailed pictures of tissues and organs inside the body, combining these scans creates a more complete image than either test can offer alone. Specifically, a PET-CT scan merges the quantitative physiologic and metabolic information provided by stand-alone PET with the contextual anatomic information provided by stand-alone CT to deliver a clinically meaningful integrated data set containing accurately aligned anatomic and functional images[19].

As discussed in further detail below, applications of PET-CT include oncologic, cardiovascular, and neurologic/neuropsychologic imaging, areas which the Applicant has identified based on a review of Emerson's patient acuity mix as three of the top incidences for which patients need care. Moreover, the influence of the combined PET-CT modality provides an unsurpassed level of patient care and patient management. In addition to contributing to increased confidence by allowing physicians to better diagnose disease, as well as plan and monitor response to treatment more effectively, a single PET-CT scan also provides convenience for both physicians and patients. Integrated PET-CT avoids scanning delays associated with separate or sequential PET and CT and reduces acquisition times, thus leading to increased patient throughput and more efficient instrument utilization[20].

B. Research Supporting the Utility of PET-CT Technology

Research into the various uses and benefits of PET-CT has been ongoing. Studies focus on specific diseases, as well as parts of the body that may benefit from this technology.

Oncology

The most well-known and well-documented use of the integrated PET-CT scan is in the field of oncology. The hybrid modality combines PET's incomparable ability to determine the metabolic activity of tissues with CT's high-resolution anatomic information to offer an integrated data set and improve accuracy and localization of many lesions. PET-CT is a powerful tool for many types of cancer for the following: detection; establishing staging and determining whether the cancer has spread to other parts of the body; helping physicians and patients decide on a tailored treatment plan; evaluating the effectiveness

[18] National Institute of Biomedical Imaging and Bioengineering; Computed Tomography, https://www.nibib.nih.gov/science-education/science-topics/computed-tomography-ct

[19] Townsend DW. Combined positron emission tomography-computed tomography: the historical perspective. *Semin Ultrasound CT MR*. 2008;29(4):232-235. doi:10.1053/j.sult.2008.05.006

[20] Saif MW, Tzannou I, Makrilia N, Syrigos K. Role and cost effectiveness of PET-CT in management of patients with cancer. *Yale J Biol Med*. 2010;83(2):53-65.

of treatments, such as chemotherapy or radiation therapy; detecting whether the disease is recurring after treatments are completed; and helping physicians locate an area for a biopsy, if necessary[21].

Cardiology

An additional clinical application of PET-CT is cardiovascular disease, which relies on early detection to treat[22]. Various PET radiotracers are capable of probing molecular processes and tracking biologic pathways inside the body, making PET a powerful technology for understanding cardiac physiology, myocardial viability, and disease processes[23]. In addition, CT produces images of cardiovascular structure. Given the utility of both PET and CT imaging systems when used independently, an integrated PET-CT modality provides significant incremental benefits to the data provided by each modality alone. Specifically, the hybrid modality's simultaneous quantification of cardiac perfusion and assessment of coronary artery anatomy allows for direct comparison of the extent of stenosis and the severity of obstructed blood flow, and therefore provides a wealth of complementary information in the evaluation of coronary artery disease ("CAD")[24]. Moreover, the PET-CT scan provides improved characterization of atherosclerotic plaque and risk stratification in patients, and thus is clinically applicable in staging and managing CAD[25].

Neurology

Finally, PET-CT has significant potential in the fields of neurology and neuropsychiatry due to the merging of metabolic and anatomic in one examination. PET-CT can increase understanding of the pathogenesis and mechanism of various conditions, including but not limited to, epilepsy and seizures and autoimmune encephalitis ("AE")[26]. With regard to epilepsy and seizures, a PET-CT scan provides information both during a seizure and between seizures. During a seizure, the hybrid scan shows the area responsible for the seizure as an area of increase glucose use, and between seizures, the hybrid scan shows a characteristic pattern of reduced glucose need[27]. Additionally, research indicates that PET-CT may be helpful in supporting evidence of brain dysfunction in suspected patients with AE[28].

[21] Griffeth LK. Use of PET-CT scanning in cancer patients: technical and practical considerations. *Proc (Bayl Univ Med Cent)*. 2005;18(4):321-330. doi:10.1080/08998280.2005.11928089

[22] Rosiek A, Leksowski K. The risk factors and prevention of cardiovascular disease: the importance of electrocardiogram in the diagnosis and treatment of acute coronary syndrome. *Ther Clin Risk Manag*. 2016;12:1223-1229. Published 2016 Aug 8. doi:10.2147/TCRM.S107849

[23] Davidson CQ, Phenix CP, Tai TC, Khaper N, Lees SJ. Searching for novel PET radiotracers: imaging cardiac perfusion, metabolism and inflammation. *Am J Nucl Med Mol Imaging*. 2018;8(3):200-227. Published 2018 Jun 5.

[24] Knaapen P, de Haan S, Hoekstra OS, et al. Cardiac PET-CT: advanced hybrid imaging for the detection of coronary artery disease. *Neth Heart J*. 2010;18(2):90-98. doi:10.1007/BF03091744

[25] Sánchez-Roa PM, Rees JI, Bartley L, Marshall C. Systemic atherosclerotic plaque vulnerability in patients with Coronary Artery Disease with a single Whole Body FDG PET-CT scan. *Asia Ocean J Nucl Med Biol*. 2020;8(1):18-26. doi:10.22038/aojnmb.2019.40696.1273

[26] Guerin J, Watson RE, Carr CM, Liebo GB, Kotsenas AL. Autoimmune epilepsy: findings on MRI and FDG-PET. *Br J Radiol*. 2019;92(1093):20170869. doi:10.1259/bjr.20170869

[27] Sarikaya I. PET studies in epilepsy. *Am J Nucl Med Mol Imaging*. 2015;5(5):416-430. Published 2015 Oct 12.

[28] Probasco JC, Solnes L, Nalluri A, et al. Abnormal brain metabolism on FDG-PET-CT is a common early finding in autoimmune encephalitis. *Neurol Neuroimmunol Neuroinflamm*. 2017;4(4):e352. Published 2017 May 11. doi:10.1212/NXI.0000000000000352

F.1.b.ii **Public Health Value /Outcome-Oriented:**
Describe the impact of the Proposed Project and how the Applicant will assess such impact. Provide projections demonstrating how the Proposed Project will improve health outcomes, quality of life, or health equity. Only measures that can be tracked and reported over time should be utilized.

A. Improving Health Outcomes and Quality of Life

The Applicant anticipates that the Proposed Project will provide Emerson's patient panel with a lower cost option for continued access to integrated PET-CT services that will directly impact health outcomes, quality of life and patient satisfaction. Studies indicate that delayed access to healthcare services results in decreased patient satisfaction, as well as negative health outcomes due to delays in diagnosis and treatment.[29] Through the continued operation of an on-site PET-CT service at Emerson via the transition from the current hospital-based service to the proposed IDTF clinic-based service, the Applicant aims to provide timely access to optimized, lower-cost imaging services for all Emerson patients. Access to such PET-CT services for these patients – and particularly for patients who are sick or effected by oncology, cardiovascular or neurological clinical issues – allows for better quality health outcomes, as it allows clinicians to have a better understanding of an individual's condition and provide appropriate comprehensive treatment options in a timely manner. Given that patients will be able to access PET-CT services in a timely, low-cost and high-quality manner, patient satisfaction, health outcomes and quality of life will improve.

Moreover, given that Emerson a part owner of the the Applicant, imaging services will be fully integrated. Studies show that having access to integrated health information systems, including integrated picture archiving and communication systems ("PACS") information has a direct impact on health outcomes as access to a single medical record for patient's leads to enhanced care coordination by care teams. Additionally, an integrated medical record allows primary care physicians ("PCPs") and specialists to have access to the same patient information, allowing for real-time care decisions, thereby reducing duplication of services and unnecessary testing. The availability of these integrated record services for the Applicant's and Emerson's patients will facilitate quick and easy access to patient images and reports, which will in turn effect timely care, improved outcomes, and better quality of life.

B. Assessing the Impact of the Proposed Project

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

1. Patient Satisfaction: Patients that are satisfied with care are more likely to seek additional treatment when necessary. The Applicant will review patient satisfaction levels with the PET-CT imaging service.

> **Measure:** To ensure a service-excellence approach, patient satisfaction surveys will be distributed to all patients receiving imaging services with specific questions around a) satisfaction levels with pre-appointment communication; and b) satisfaction around the wait time for services.

[29] Julia C. Prentice & Steven D. Pizer, *Delayed Access to Health Care and Mortality*, 42 HEALTH SERVICES RESEARCH 644 (2007), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955366/.

Projections: As the Proposed Project is to establish a new clinic, baseline will be established following one full year of operation

Monitoring: Any category receiving a less than exceptional rating (satisfactory level) will be evaluated quarterly and policy changes instituted.

2. Quality of Care – Critical Value Reporting: When critical values or abnormal test results are registered within an electronic medical record for a patient, the referring physician is notified via electronic communication. A benefit of having an integrated electronic medical record and PACS system is the ability to send these messages to a referring physician, so that clinical decisions may be expedited.

Measure: Number of contracted radiologists conducting critical value reporting on cases being interpreted.

Projections: Baseline: 100% Year 1: 100% Year 2: 100% Year 3: 100%

Monitoring: PET-CT scans will be forwarded to the Emerson film library and follow-up will be conducted to the referring physician. The radiologist will be made available to answer any questions.

3. Quality of Care – Quality of PET-CT Scan: The quality of a PET-CT scan is imperative to its interpretation. Accordingly, the Applicant will evaluate the number of scans that need to be repeated over the course of a week to ensure radiology technicians are performing appropriate scans. Given that the PET-CT equipment will only be available one day per week, the next opportunity for a scan would be seven days later.

Measure: The number of repeat PET-CT scans performed on patients within a seven-day period (day of scan to next day of scan)

Projections: Baseline: 0% Year 1: 1% Year 2: 8% Year 3: 5%

Monitoring: PET-CT technologists will track the number of scans that are repeated and scheduled for the next scan day. Technologists will document each case and conduct a monthly comparison to total volume to meet or exceed the metric.

4. Quality of Care – Peer Review Over Read Correlation: To evaluate the accuracy of scan interpretations, the Applicant will conduct peer review readings to ensure quality outcomes for patients.

Measure: The Applicant will have contracted radiologists conduct peer review readings on a random basis (1 case per scan day) based on the American College of Radiology (“ACR”) Peer to Peer criteria and will follow-up on all discrepancies with the original reading radiologist.

Projections: Baseline: 95% Year 1: 96% Year 2: 97% Year 3: 100%

Monitoring: A random selection of cases based on ACR Peer to Peer criteria will be reviewed. Radiologists will evaluate scans documenting any inconsistencies and discuss outstanding issues with the original reading radiologist.

6. Provider Satisfaction – Value Assessment: Ensuring provider satisfaction with PET-CT scans and their overall value when treating patients is necessary to access the impact on care for patients. The Applicant will survey referring physicians to validate scan utility.

Measure: Confirmation with referral physician about the utility of PET-CT Scans.

Projections: Baseline: 95% Year 1: 96% Year 2: 97% Year 3: 100%

Monitoring: PET-CT referral physician population will be queried to validate scan utility via surveys.

F1.b.iii **Public Health Value /Health Equity-Focused:**

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

A. Non-Discrimination

To ensure health equity to all populations, including those deemed underserved, the Proposed Project will not adversely affect accessibility of the Applicant's services for poor, medically indigent, and/or Medicaid eligible individuals. The Applicant will not discriminate based on ability to pay or payer source following implementation of the Proposed Project. As further detailed throughout this narrative, the Proposed Project will increase access to high-quality PET-CT services for all patients by offering a low-cost alternative in the community setting.

Furthermore, the Applicant will offer price transparency tools to ensure that all patients have access to current pricing information. By providing this information patients may determine if specific procedures are affordable. The Applicant also will provide financial counselors for assistance in understanding insurance benefits.

The population within the PSA of the Proposed Project reflects moderate diversity that necessitates implementation of culturally appropriate support services to ensure improved patient experience and higher quality outcomes. Accordingly, the Applicant will employ culturally competent staff and plans to develop a robust translation services program. The Applicant will offer multiple tools to address language barriers, including Language Line and InDemand interpreting to provide multiple options for translation services. Language Line provides quality phone and video interpretation services from highly trained professional linguists in more than 240 languages 24 hours a day, 7 days a week, facilitating more than 35 million interactions a year. lnDemand offers leading-edge medical interpreting solutions,

such as video interpretations, allowing clinicians to provide their limited English proficient, Deaf and hard of hearing patients with access to the highest quality healthcare. Together, these solutions will eliminate language barriers for patients and ensure culturally appropriate care.

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

The Proposed Project will allow for the expansion of high-value, low-cost PET-CT services in the community setting. This delivery model is more convenient and efficient than the existing service, made possible through operational discipline and focus that cannot be achieved under traditional hospital oversite. Dedicated focus by the Shields management team offers insight on operational and scheduling efficiencies that increase capacity and improve patient and referring provider satisfaction. The Applicant also plans to implement numerous amenities, including patient access tools, such as pre-registration functionality and a cost transparency application, to improve patient experience and ensure patient satisfaction.

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

Through the Proposed Project, the Applicant will combine physician engagement with a strong technology infrastructure to ensure continuity of care, improved health outcomes and care efficiencies. The technology infrastructure for the Proposed Project encompasses streamlined patient access tools that offer pre-registration functionality. These tools interface with an electronic medical record ("EMR") system to amalgamate necessary patient health information, such as medical history, allergies and medications. EMR functionality also allows radiologist to share pertinent diagnostic information with PCPs, so both physicians may track a patient's treatment progress.

The applicant plans to conduct a pre-screening process for all scheduled patients. Certain questions in the pre-screen relate to certain SDoH issues, namely those issues that are relevant to an imaging appointment such as transportation. If, during this pre-screen process or at any time during a patient's PET-CT appointment, the Applicant's staff is made aware of an SDoH issue, staff will confirm that a request for assistance is needed and either assist the patient directly (e.g., in the case of transportation) or refer the patient back to his/her primary care physician ("PCP") for linkage to community-based support (e.g., in the case of hunger and access to food). The Applicant also provides transportation assistance via ride-share and cab vouchers when needed by a patient.

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

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

- Department of Public Health: Margo Michaels, Director, Determination of Need Program; Rebecca Rodman, Deputy General Counsel; and Ben Wood, Director, Office of Community Health Planning and Engagement
- MassHealth: Steven Sauter, Director, Acute Hospital Program, Office of Providers and Plans
- Executive Office of Health and Human Services: Robert McLaughlin, Director of Legislative Affairs
- Health Policy Commission: Alexa Paiva, Policy Associate, Market Performance

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

The Applicant identified the need to provide high-quality, cost-effective radiology services to Emerson patients. Emerson's historical utilization data for these services demonstrates ongoing demand. Additionally, demand for PET-CT services is likely to increase as the region's population ages. The Applicant engaged the community in order to more fully involve patients and families regarding the proposed transition.

The Proposed Project was presented at Emerson Hospital's Patient Family Advisory Committee ("PFAC") on June 25, 2020 with seven (7) members in attendance. The PFAC is comprised of patients of the hospital and their family members as well as staff of the hospital. Because patients of the proposed service will largely continue to be Emerson patients, it was decided that the PFAC would best represent patients from the proposed service area. The presentation sought to inform PFAC members about the purpose of the Proposed Project and what it would mean for patients.

The presentation to the PFAC offered members an overview of current PET-CT operations and how the Proposed Project will benefit current and future patients. Details included the plans to transition the mobile PET-CT services to a licensed clinic while maintaining the partnership with North Bridge Imaging for reading services. It also was explained that services would continue to be performed by Emerson staff and as a result, patients would not notice a difference during the appointment. It was noted the only difference to patients would be a change in the billing provider which would now be the Applicant and lower IDTF charges than current hospital-licensed services.

The PFAC members generally had positive reactions regarding the Proposed Project and did not voice any concerns with the Proposed Project.

Additionally, Emerson sought to engage residents and resident groups through a community forum. This meeting was held on July 30, 2020 using remote technology. The meeting was attended by 44 people, of which six (6) were Emerson staff, four (4) were members of Emerson's Board of Directors, and 34 were community members. At this forum, Emerson leadership presented an overview of the Proposed Project and the benefits of providing PET-CT services through the Applicant. Community members asked questions regarding the DoN process generally and the capacity of existing PET-CT services. Through the open meeting, the Applicant engaged patients, families and community members in thoughtful discussions regarding the Proposed Project.

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

To ensure sound community engagement throughout the development of the Proposed Project, the Applicant's joint venture partners took the following actions:

- Presentation to Emerson's PFAC on June 25, 2020; and
- Community Forum for community members on July 30, 2020.

For detailed information on these activities, see Appendix 3.A.

Factor 2: Health Priorities

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

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

The goals for cost containment in Massachusetts center around providing low-cost care alternatives without sacrificing high quality. The Proposed Project seeks to align with these goals by providing a lower cost option for patients in and around the Emerson PSA seeking PET-CT imaging services. Through the proposed project, the Applicant seeks to replace the existing imaging vendor that currently serves the Hospital. As previously discussed, the cost of providing these services will be reduced through the IDTF clinic model. Moreover, TME will not be materially impacted given that limited change will be occurring to the price or cost of PET-CT services.

Additionally, the Proposed Project meets the goal of providing a lower-cost alternative for PET-CT imaging services as services will be provided by an IDTF, rather than a hospital-based outpatient clinic. IDTFs are a more cost-effective option as the administrative costs for these types of providers are lower. This difference will allow the Applicant to provide cost-effective, quality imaging services to Emerson's patients, while having a negligible impact on the overall healthcare market.

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

Providing needed care in a more efficient and effective manner will improve public health outcomes and patient experience. PET-CT services managed under Shields operating platform expands access to

patients residing within the PSA. Increasing demand as outlined in Factor 1 will be met with greater access to high quality care. Creating streamlined pathways for access to high value care will improve overall public health outcomes.

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

Through the Proposed Project, access to high-value, low-cost PET-CT imaging services will be expanded to the community served within Emerson's PSA. In instances where patients are in need of support to address social determinants of health, the Applicant offers enhanced access to services designed to facilitate improved care pathways influenced by social determinants of health. Specifically, the Applicant plans to implement numerous amenities, including patient access tools, such as pre-registration functionality, a cost transparency application, linkages to financial counselors, culturally competent staff, and a robust translation services program. These amenities facilitate easier to access care for vulnerable and at-risk populations.

Further, the PET-CT services will align with a well-established cancer care continuum including access to Emerson-based nurse navigators to guide patients through care, treatment, recovery, and in some instances, grief. The cancer care program includes access to social work, dietary support, and wellness services through the Thurston Healing garden. The design of care navigation specifically deals with barriers to care and long-term connections to wellness offerings. PET-CT appointments and results will become embedded in this program.

Factor 5: Relative Merit

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

Proposal: Transition a hospital licensed PET-CT imaging service to a freestanding licensed clinic reimbursed as an IDTF to enhance efficiency and effectiveness of care delivery.

Quality: Care provided at Shields' operated imaging centers are high-quality, with clinical outcomes that are equal to or better than hospital-based services for the same procedures.

Efficiency: Care provided in a freestanding IDTF setting allows for greater focus on a specialized service within the broader scope of services provided on the main campus of Emerson. Highly trained staff and the ability to maintain a uniform schedule allows for greater efficiencies, and lower costs.

Capital Expense: Establishing the IDTF will result in minimal capital expense because the Hospital currently provides this service under its license. As a result, minimal renovation is needed in order to modify the existing space to comply with current DPH architectural standards.

Operating Costs: As noted above, greater efficiencies will be identified, thus reducing operating costs, savings from which should be passed along to patients through lower premiums and deductibles, subject to third-party payer adjustments to new market conditions.

Alternative option for the Proposed Project:

Alternative Proposal: Do not establish a freestanding IDTF and continue serving patients through the existing hospital-licensed PET-CT service.

Alternative Quality: This alternative is not sufficient to meet the combined patient panel's need for highly accessible, low cost and high-quality PET-CT imaging in the community. The current arrangement limits access to the patient panel through inefficient operational processes and technology, thus insufficient access and quality of care to the patients served.

Alternative Capital Expenses: Capital expense would likely increase as Emerson already plans to sever ties with its existing vendor, and therefore access to the PET-CT equipment. Emerson would incur a much more significant cost of purchasing an entire PET-CT unit rather than 1/7th of a unit under the proposed arrangement with Shields.

Alternative Operating Costs: Taking no action to establish a freestanding IDTF facility for the provision of PET-CT imaging services would result in higher operating costs and ultimately higher TME for patients served in the market.

ATTACHMENT 3

EVIDENCE OF COMMUNITY ENGAGEMENT FOR FACTOR 1

ATTACHMENT 3A

PATIENT AND FAMILY ADVISORY COUNCIL PRESENTATION

Determination of Need

PET/ CT Scan Services

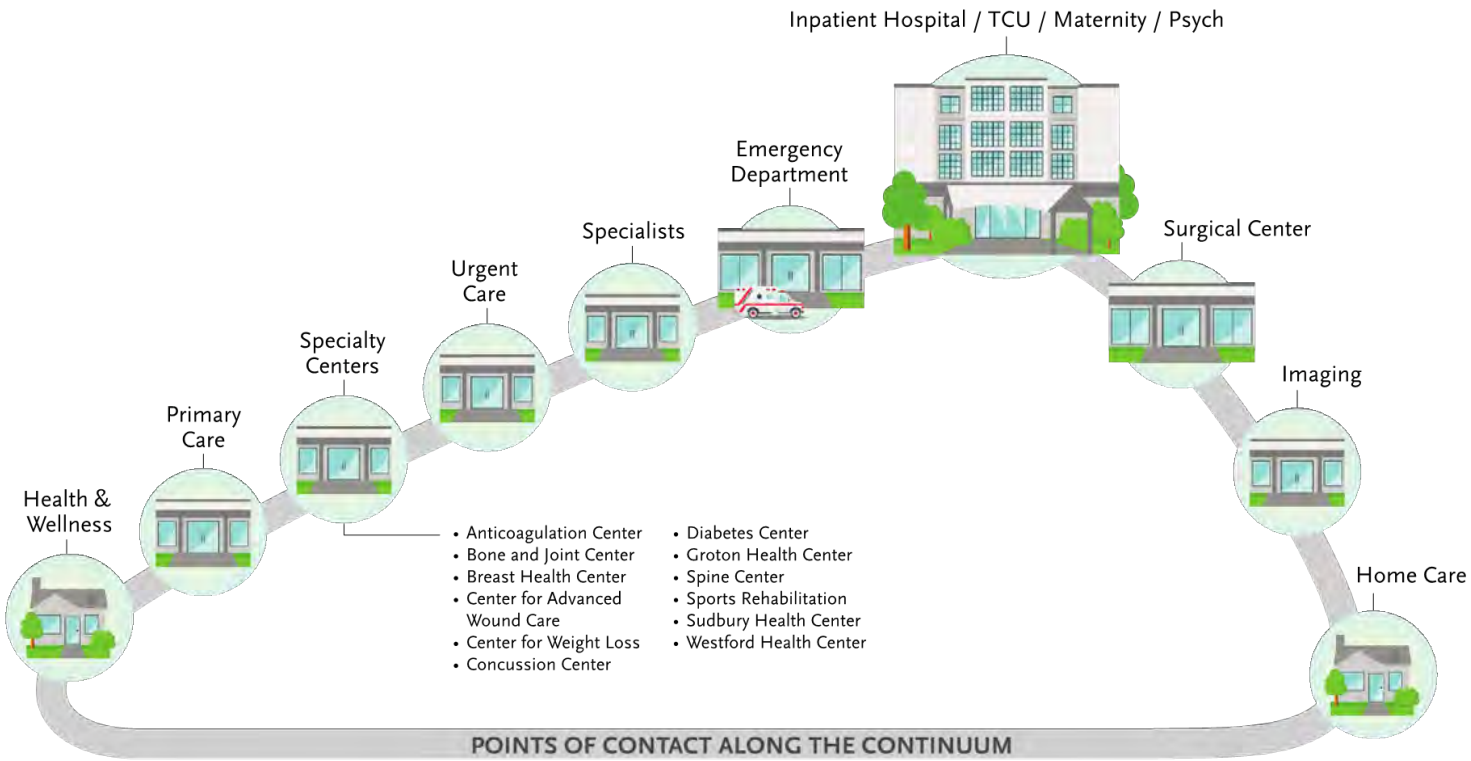
June 25, 2020

Emerson Hospital

Our Vision

To optimize health and wellness by creating an efficient and effective coordinated system that provides a continuum of care.

Emerson's Care Continuum



Purpose and Goals of Our Discussion

- Discuss new PET-CT project
- Emerson must receive approve from the Department of Public Health through a process called Determination of Need (DoN)
- An important step in this process is to engage with our community in a meaningful discussion about the project and get input and feedback.

PET-CT

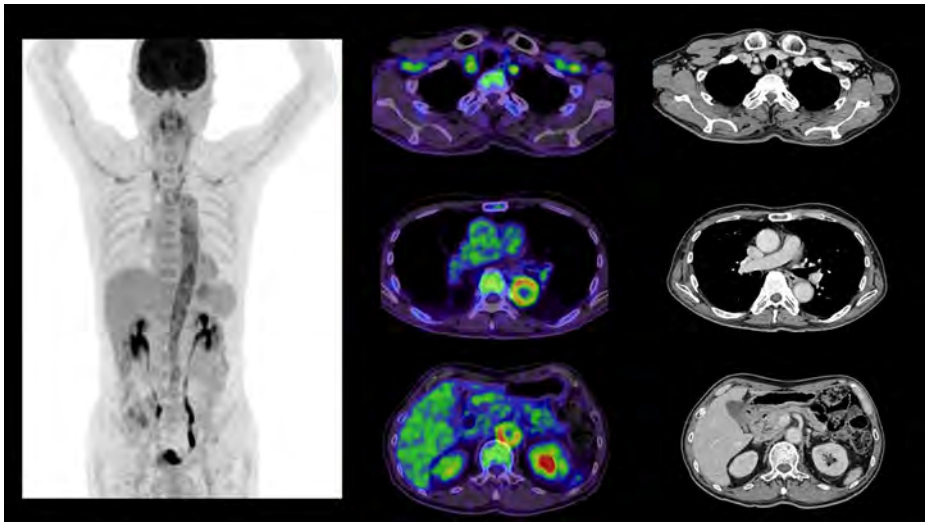
Focus on Community Health Needs

Community Health Needs Assessment

- Growing and aging population
  - Based on our 2018 Community Health Needs Assessment (CHNA), the 65+ population is expected to grow over 25% over a five year period.

PET-CT Background

- PET/CT is an advanced imaging tool that combines two scanning techniques—positron-emission tomography (PET) and computerized tomography (CT)—in one exam that not only shows what an organ looks like, but also how it's functioning.
- This is service used only on outpatients.
- Primary source of referrals is from oncology and neurology.



PET-CT at Emerson

- Emerson's PET-CT is located at our Center for Specialty Care at 54 Baker Ave in Concord.
- It is a mobile unit onsite once a week and then moved to other PET-CT locations in Massachusetts.
- We currently contract with Alliance Imaging and pay a flat fee per day to use the equipment.
- Emerson provides all the staff and does the direct billing for this service. North Bridge Imaging provides the Radiology Service.
- In FY19 Emerson conducted 402 PET-Scans and was projected to do the same scans in FY20 (pre-covid).

Emerson-Shields Partnership

- Emerson chose to form a Joint Venture with Shields for PET-CT services.
- Allows Emerson at access Shields expanded referral network.
- Shields will take over the mobile operations of the PET-CT.
- The scans will be billed by Shields and all images will continue to be read by North Bridge Imaging.
- Seamless transition to Shields from a patient perspective.

Next Steps

- Gather community input through PFAC and Open Public Forum (Date TBD)
- Keeping the public informed through news articles and future meetings
- Timeline of approval and construction
  - Official filing will occur August 1, 2020
  - DPH/Health Policy Commission takes about 6 months to review and approve
  - Construction to begin Spring of 2021 (upon DPH approval)

Questions

ATTACHMENT 3B

PUBLIC MEETING PRESENTATION

Community Benefits Forum

Christine Gallery
Senior VP Planning and Chief Strategy Officer

Kelsey Magnuson
Community Benefits Coordinator

July 30, 2020

Agenda

1. Discuss new PET-CT project
2. Community feedback

Emerson Hospital: Our Vision

To optimize health and wellness by creating an efficient and effective coordinated system that provides a continuum of care.

PET-CT

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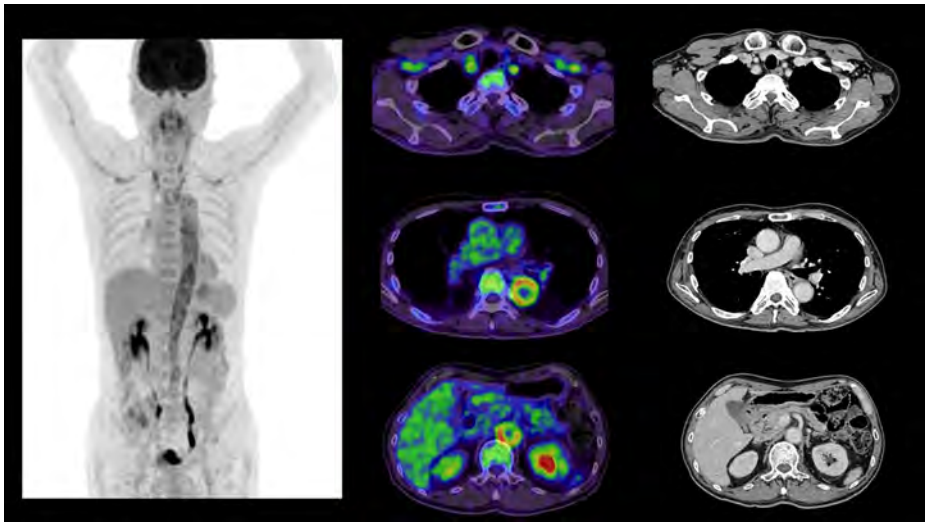

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DoN Feedback

- How do you see the DoN projects improving the health of our community?
- What suggestions/thoughts do you have for Emerson to make the DoN services successful?
- Do you have any concerns about either of the DoN projects?

Thank You!

ATTACHMENT 4

FACTOR 4 INDEPENDENT CPA ANALYSIS

Shields PET-CT at Emerson Hospital, LLC

Analysis of the Reasonableness of Assumptions and Feasibility of Shields PET-CT at Emerson Hospital, LLC

REPORT DATED JULY 31, 2020

VERALON

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VERALON
HEALTHCARE MANAGEMENT ADVISORS

July 31, 2020

Mr. Jeff Ronner, CFO
Shields Health Care Group
Crown Colony Park
700 Congress Street, Suite 204
Quincy, MA 02169

Dear Mr. Ronner:

Veralon Partners Inc. ("Veralon") has performed an analysis of the prospective financial schedules prepared by Shields Health Care Group ("Shields" or, the "Applicant") for Shields PET-CT at Emerson Hospital, LLC. ("Shields Emerson" or, as is referred to by the Massachusetts Department of Public Health Determination of Need Application Instructions (the "Proposed Project"). At this time, Shields intends to file a Determination of Need ("DoN") application to the Commonwealth of Massachusetts seeking approval for the Proposed Project. This application includes a section regarding Financial Feasibility as referenced in the Massachusetts Department of Public Health Determination of Need code section 100.210 specifically paragraph (A)(4) *Determination of Need Factors*. This Financial Feasibility component of the application provides "sufficient documentation of the availability of sufficient funds for capital and ongoing operating costs necessary to support the Proposed Project without negative impacts or consequences to the Applicant's Patient Panel." This report details our findings regarding the reasonableness of the assumptions used in preparation of the prospective financial schedules, and the feasibility of the Proposed Project based on the prospective financial schedules prepared by Shields management ("Management") for the operation of Shields Emerson.

This report is to be used by Shields in its DoN Application – Factor 4(a) and should not be distributed for any other purpose.

I. EXECUTIVE SUMMARY

The scope of our analysis was limited to reviewing six-year consolidated prospective financial schedules (the "Financials") prepared by Shields for the operation of Shields Emerson.

The Financials exhibit an operating margin ranging from 36 percent in year 1 (FY 2021) to 54 percent in year 6 (FY 2026) and positive end of year cash balances in each of the six years presented in the Financials. The Financials, as prepared by Management, are shown in the Appendix. Based on our review of the relevant documents and analysis of the Financials, we determined the assumptions used in the preparation of the Financials to be reasonable. Accordingly, we determined that the Proposed Project is feasible and sustainable and not likely to have a negative impact on the patient panel or result in a liquidation of assets of Shields Emerson.

II. RELEVANT BACKGROUND INFORMATION

Shields was founded in 1972 as a family owned and operated nursing home. In 1986, Shields opened its first MRI center. It currently operates over 30 centers across the New England area offering MRI, PET/CT and radiation therapy services.

Emerson Hospital is a 179-bed not-for profit community hospital based in Concord Massachusetts. Emerson offers a full continuum of medical specialties, including behavioral health, critical care, dermatology, oncology, orthopedics, cardiology, and emergency medicine, among other clinical service offerings. Further, Emerson offers diagnostic radiology services, which includes various modalities such as MRI imaging, PET-CT scanning, X-ray, mammography and ultrasounds. As part of their MRI service offering, Emerson operates two hospital outpatient department ("HOPD") sites for MRI services (at Concord and a satellite site at Westford, Massachusetts).

III. SCOPE OF ANALYSIS

The scope of this report is limited to an analysis of the six-year Financials prepared by Shields and the supporting documentation to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Financials. Reasonableness is defined within the context of this report as supportable and proper, given the underlying information. Feasibility is defined as based on the assumptions used, and that the plan is not likely to result in a liquidation of the underlying assets or the need for reorganization.

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

IV. SOURCES OF INFORMATION UTILIZED

In formulating our report, we reviewed documents produced by Management as well as other sources. Further, we reviewed the Financials provided by Shields and corresponding operating assumptions with Management via telephone conversation. The documents and information upon which we relied are identified below or are otherwise referenced in this report:

1. Shields Emerson CT-PET DoN six-year Financials prepared July 2, 2020;
2. Shields Emerson payer mix and per-case reimbursement assumptions;
3. Shields Emerson volume assumptions;
4. The Massachusetts Department of Public Health Determination of Need Guidelines (105 CMR 100.000);
5. Shields Healthcare Group company website www.shields.com; and
6. Emerson Hospital website www.emersonhospital.org.

V. REVIEW OF THE FINANCIALS

This section of our report summarizes our review of the reasonableness of the assumptions utilized in preparing the Financials as well as the feasibility of the Proposed Project. Table 1 presents the key metrics (the "Key Metrics") reviewed in our analysis along with definitions. Table 2 compares the operating results for the fiscal years 2021 through 2026.

Table 1

Summary of Key Metric Calculation Definitions	
Key Metric	**Calculation**
Liquidity Ratios	
Current Ratio	Current Assets/Current Liabilities
Days in Accounts Receivable	Net Patient Accounts Receivable/ (Net Patient Service Revenue / 365)
Operating Ratios	
Operating Income	Operating Income Less: Operating Expenses, Depreciation, and Amoritization
Operating Margin	Operating Income Divided by Net Revenue

The Key Metrics used in this report fall into two primary categories: liquidity and operating metrics. Liquidity ratios measure the quality and adequacy of assets to meet current obligations as they come due. Operating metrics are used to assist in the evaluation of management performance. Additionally, certain metrics can be applicable to multiple categories. Table 2 below shows the results of the Key Metric calculations.

Table 2

Shields Emerson PET/CT JV Summary of Ratios - Year 1 through Year 6[1,2]						
	Fiscal Year End					
Ratio	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Liquidity Ratios						
Current Ratio	31	30	27	27	26	26
Days in Accounts Receiveable	41	37	34	31	30	30
Operating Ratios						
Operating Income	$ 304,595	$ 441,825	$ 518,715	$ 586,462	$ 632,244	$ 640,244
Operating Margin	35%	46%	49%	51%	52%	53%

[1] Source: Shields Management.

[2] Year 1 represents FY 2021 and year 6 represents FY 2026.

We note that Shields Emerson does not have any long-term debt, and therefore, are not obligated to pay annual principal or interest payments.

I. Revenues

To determine the reasonableness of the prospective revenues, we reviewed the underlying assumptions upon which Management relied. Based upon our discussions with Management, the prospective volume was based on a Tumor Registry Analysis (see Appendix). The payer mix was determined based on Emerson's actual operating results. Reimbursement rates were determined based on Shields's historical experience.

We understand that the PET-CT scanner will be operational one day per week for 52 weeks of the year. Management estimated year one cases based on PET scan-applicable cancer cases obtained from the Tumor Registry Analysis. Management estimated that Shields Emerson would perform approximately 7.4 tests per day in Year 1. Tests per day will increase from 7.4 to 10.1 (year 5). Volumes were assumed to remain constant at Year 5 levels in Year 6. Management has represented that these volumes are in-line with other PET-CT ventures operating one day per week. The compound annual growth rate of cases from year 1 through year 5 was approximately six percent. Based upon our review of the volume assumptions, we determined that the prospective volumes provided by Management are reasonable.

Next, we reviewed the Financials to determine the reasonableness of the reimbursement rate selected for year 1 through year 6. Management provided us with supporting information used to prepare the Financials, including a summary of Emerson's payer mix along with Shields's historical reimbursement rates. Management based the budgeted reimbursement rate on a calculated weighted average of Emerson's payer mix and Shields's reimbursement rates. We further note that Management held per-test reimbursement rates constant in the Financials as they noted that while contractual rate increases from their payers are possible, they are not guaranteed. Based upon our review, we determined the projected reimbursement rate provided by Management is reasonable.

It is our opinion that the revenue growth estimated by Management reflects a reasonable estimation of future revenues of Shields Emerson based on estimated volumes and reimbursement.

II. Operating and Selling, General, and Administrative Expenses

We analyzed each of the categorized operating expenses for reasonableness. Based upon our analysis, the Financials included bad debt expenses notably higher in the first year to account for Medicare and Medicaid services which are anticipated not to be reimbursable for the first three weeks of operations until accreditation is obtained from the American College of Radiology ("ACR").

The ACR website states, "Accreditation evaluation [is] typically completed within 60 days or less of image submission."[1] Based upon our discussions with Management, when applying for accreditation for other similar projects, accreditation is typically

[1] https://www.acr.org/Clinical-Resources/Accreditation

achieved within two weeks. Accordingly, we determined Management's three week estimate to obtain accreditation in the Financials is reasonable, and therefore, the corresponding bad debt expense is also reasonable.

The next expense item we considered relates to salaries and benefits expense. Management budgeted these expenses to remain static during the six-year period presented in the Financials. Management has represented that these expenses are held static as Shields routinely looks to implement cost reduction procedures to improve quality and efficiency to offset inflationary cost increases. We tested the impact of increases on both operations and technologist salaries/benefits expenses (the largest salary and benefit related expense items) by applying a two percent increase to the operations and technologist salaries/benefits line item in years 2 through 6. We found that such an increase did not have a material impact on the net income and cash reserves across the six-year time-frame, and therefore, the existing operations and technologist related salaries and benefits were determined to be reasonable.

We evaluated several other expense items, and tested them by increasing the expense per case figures by two to three percent annually and evaluating the impact to net income and cash reserves. These expense items included Fluorodeoxyglucose Isotope Charges, Support Services, and Marketing Services. We found that increasing the expense associated with these items did not have a material impact on the net income or cash reserves.

Finally, we considered the equipment related expenses, the largest single expense item, for reasonableness. Based on the Financials, the equipment related expenses remain constant in years 1 through 6 and, on average, represent 20 percent of operating revenue annually. We find this to be a reasonable assumption, as the lease and maintenance expenses under the current configuration are fixed, and therefore would not vary depending on the number of cases performed per year. Therefore, we find the equipment related expenses reasonable.

Based upon our review of the prospective revenues and expenses for Shields Emerson, we did not find that the underlying inputs warranted additional adjustment. Accordingly, it is our opinion that the operating expenses estimated by Management are reasonable in nature.

III. Capital Expenditures and Cash Flows

We reviewed the capital expenditures and future cash flows for Shields Emerson to determine whether sufficient funds would be available to sustain the operation of Shields Emerson.

Accordingly, we determined that the prospective capital requirements and resulting impact on the cash flows of Shields Emerson are reasonable.

VI. FEASIBILITY

We analyzed the Financials and Key Metrics for Shields Emerson and determined both to be based on reasonable assumptions. The Financials do not account for any anticipated changes in accounting standards. These standards, which may have a material impact on individual future years, are not anticipated to have a material impact on the feasibility of the Proposed Project.

Shields Emerson exhibits a cumulative cash surplus in the Financials, after any scheduled distributions, of approximately 47 percent of cumulative projected revenue for the project for the six years 2021 through 2026. Based upon our discussions with Management, it is our understanding that distributions could be reduced in the event of a business downturn or interruption to increase the cash reserves of Shields Emerson. Based upon our review of the relevant documents, we determined the Financials are based upon feasible assumptions. Accordingly, we determined that the Financials are feasible and sustainable and not likely to have a negative impact on the patient panel or result in a liquidation of assets of Shields Emerson.

Respectively submitted,

Daniel M. Grauman, MBA, CPA/ABV

Managing Director & CEO
Veralon Partners Inc.

Appendix: Shields Emerson Financials and Volume Assumptions

THE FINANCIALS

Financial Pro Forma

Emerson PET/CT Financial Proforma
Statement of Profit and Losses[1]

	Year 1 - FY2021		Year 2 - FY2022		Year 3 - FY2023		Year 4 - FY2024		Year 5 - FY2025		Year 6 - FY2026	
	Total	Per Scan	Total	Per Scan	Total	Per Scan	Total	Per Scan	Total	Per Scan	Total	Per Scan
Volume	385		423		465		502		527		527	
Revenues												
Total Net Revenue	$ 880,876	$ 2,288	$ 967,819	$ 2,288	$ 1,063,915	$ 2,288	$ 1,148,571	$ 2,288	$ 1,205,770	$ 2,288	$ 1,205,770	$ 2,288
Expenses												
Operating Expenses												
Support Services	$ 5,289	$ 14	$ 5,811	$ 14	$ 6,388	$ 14	$ 6,896	$ 14	$ 7,240	$ 14	$ 7,240	$ 14
Billing	5,540	14	6,087	14	6,692	14	7,224	14	7,584	14	7,584	14
Bad Debt Expense	32,254	84	15,259	36	16,774	36	18,109	36	19,011	36	19,011	36
Total	$ 43,083	$ 112	$ 27,157	$ 64	$ 29,854	$ 64	$ 32,229	$ 64	$ 33,834	$ 64	$ 33,834	$ 64
Facilities & Equipment Related												
Equipment Related	$ 216,428	$ 562	$ 216,428	$ 512	$ 216,428	$ 465	$ 216,428	$ 431	$ 216,428	$ 411	$ 216,428	$ 411
Facilities Related	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation Expense	9,000	23	9,000	21	9,000	19	9,000	18	9,000	17	5,000	9
Other	3,850	10	4,230	10	4,650	10	5,020	10	5,270	10	5,270	10
Total Facilities and Equipment Related	$ 229,278	$ 596	$ 229,658	$ 543	$ 230,078	$ 495	$ 230,448	$ 459	$ 230,698	$ 438	$ 226,698	$ 430
Service Related												
FDG Charges	$ 45,045	$ 117	$ 49,491	$ 117	$ 54,405	$ 117	$ 58,734	$ 117	$ 61,659	$ 117	$ 61,659	$ 117
Equipment Maintenance	-	-	-	-	-	-	-	-	-	-	-	-
Other	770	2	846	2	930	2	1,004	2	1,054	2	1,054	2
Serivce Related Total	$ 45,815	$ 119	$ 50,337	$ 119	$ 55,335	$ 119	$ 59,738	$ 119	$ 62,713	$ 119	$ 62,713	$ 119
Salaries and Benefits												
Radiology	$ 424	$ 1	$ 476	$ 1	$ 524	$ 1	$ 565	$ 1	$ 593	$ 1	$ 593	$ 1
Technologists	54,933	143	65,341	154	65,341	141	65,341	130	65,341	124	65,341	124
Operations	44,774	116	27,154	64	29,771	64	32,066	64	33,610	64	33,610	64
Total Salary and Benefits - Operations	$ 100,131	$ 260	$ 92,971	$ 220	$ 95,636	$ 206	$ 97,972	$ 195	$ 99,544	$ 189	$ 99,544	$ 189
Total Operating Expenses	$ 418,307	$ 1,087	$ 400,124	$ 946	$ 410,903	$ 884	$ 420,387	$ 837	$ 426,790	$ 810	$ 422,790	$ 802
Selling, General and Admin Expenses												
Support Services	$ 14,647	$ 38	$ 16,093	$ 38	$ 17,690	$ 38	$ 19,098	$ 38	$ 20,049	$ 38	$ 20,049	$ 38
Marketing	19,250	50	21,150	50	23,250	50	25,100	50	26,350	50	26,350	50
Management	42,431	110	47,628	113	52,357	113	56,523	113	59,338	113	59,338	113
Other SG&A Expenses	72,645	189	32,000	76	32,000	69	32,000	64	32,000	61	32,000	61
Salary and Benefits - SG&A	-	-	-	-	-	-	-	-	-	-	-	-
Total SG&A Expenses	$ 148,973	$ 387	$ 116,871	$ 276	$ 125,297	$ 269	$ 132,721	$ 264	$ 137,737	$ 261	$ 137,737	$ 261
Interest Expense	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other (Income) Expense	-	-	-	-	-	-	-	-	-	-	-	-
Misc Taxes	-	-	-	-	-	-	-	-	-	-	-	-
Total Other Income, Expense and Taxes	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Expenses	$ 567,281	$ 1,473	$ 516,994	$ 1,222	$ 536,200	$ 1,153	$ 553,108	$ 1,102	$ 564,527	$ 1,071	$ 560,527	$ 1,064
Net Income (Loss)	**$ 313,595**	**$ 815**	**$ 450,825**	**$ 1,066**	**$ 527,715**	**$ 1,135**	**$ 595,462**	**$ 1,186**	**$ 641,244**	**$ 1,217**	**$ 645,244**	**$ 1,224**

[1] Source: Shields Management.

Balance Sheet

Emerson PET/CT Financial Performa
Balance Sheet[1]

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Assets						
Cash	$ 287,084	$ 246,194	$ 233,320	$ 238,145	$ 238,634	$ 238,877
Accounts Receivable	98,948	98,948	98,948	98,948	98,948	98,948
Doubtful Accounts	(21,768)	(21,768)	(21,768)	(21,768)	(21,768)	(21,768)
Other Current Assets	-	-	-	-	-	-
Total Current Assets	$ 364,264	$ 323,373	$ 310,500	$ 315,325	$ 315,813	$ 316,057
Property and Equipment	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000
Accumulated Depreciation	9,000	18,000	27,000	36,000	45,000	50,000
Net Property and Equipment	61,000	52,000	43,000	34,000	25,000	20,000
Due From Partners	-	-	-	-	-	-
Total Assets	$ 425,264	$ 375,373	$ 353,500	$ 349,325	$ 340,813	$ 336,057
Liabilities and Owners' Equity						
Current Maturities of LTD	$ -	$ -	$ -	$ -	$ -	$ -
Current Maturities of Capital Leases	-	-	-	-	-	-
Accounts Payable	11,668	10,952	11,364	11,727	11,972	11,972
Total Current Liabilites	$ 11,668	$ 10,952	$ 11,364	$ 11,727	$ 11,972	$ 11,972
Long Term Debt, Excluding Current Debt	$ -	$ -	$ -	$ -	$ -	$ -
Capital Lease Obligations, Excluding Current	-	-	-	-	-	-
Due to Partnets	-	-	-	-	-	-
Owners Equity	413,595	364,421	342,135	337,598	328,841	324,085
Total Liablities and Owners Equity	$ 425,264	$ 375,373	$ 353,500	$ 349,325	$ 340,813	$ 336,057

[1] Source: Shields Management.

Cash Flows

Emerson PET/CT Financial Proforma Statement of Cash Flows[1]	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Operating Activities						
Net Income	$ 313,595	$ 450,825	$ 527,715	$ 595,462	$ 641,244	$ 645,244
Non-Cash Adjustment	-	-	-	-	-	-
Depreciation	9,000	9,000	9,000	9,000	9,000	5,000
Total Cash From Operations	$ 322,595	$ 459,825	$ 536,715	$ 604,462	$ 650,244	$ 650,244
Change in Accounts Receivable/Accounts Payable	$ (65,511)	$ (716)	$ 412	$ 363	$ 245	$ -
Net Cash For/From Operations	$ 257,084	$ 459,109	$ 537,127	$ 604,825	$ 650,489	$ 650,244
Capital Asset Acquisitions-Pre	$ -	$ -	$ -	$ -	$ -	$ -
Capital Asset Acquisitions-DON	(70,000)	-	-	-	-	-
Net Cash Used For investments	$ (70,000)	$ -	$ -	$ -	$ -	$ -
Contributions/Distributions	$ 100,000	$ (500,000)	$ (550,000)	$ (600,000)	$ (650,000)	$ (650,000)
Net Increase/Decrease In Cash	$ 287,084	$ (40,891)	$ (12,873)	$ 4,825	$ 489	$ 244
Cash At Beginning of Period	-	287,084	246,194	233,320.32	238,145	238,634
Cash at End of Period	$ 287,084	$ 246,194	$ 233,320	$ 238,145	$ 238,634	$ 238,877

[1] Source: Shields Management.

TUMOR REGISTRY DATA

Tumor Registry Analysis Medical Center - Current Cancer Statistics[1]				
PET-Applicable Cancer Cases	Cases	PET/Incidence	Total PET	Percentage
Breast	161	1.0	161	22%
Cervical	24	2.6	62	9%
Colorectal	62	1.0	62	8%
Pancreas	11	1.0	11	2%
Lung	56	2.5	140	19%
Melanoma	8	2.6	21	3%
Lymphoma	24	3.4	82	11%
Esophageal	8	2.2	18	2%
Head Neck & Oral Cavity	26	3.6	94	13%
Thyroid	14	0.3	4	0%
Brain	25	1.0	25	3%
Renal/Urinary	40	0.5	20	3%
Ovary	33	1.0	33	5%
Myeloma	-	1.0	-	0%
Total	**492**	**23.6**	**731**	**100%**
SPN Estimate (hospital with lung screening)				
50% of Lung Cases			**28**	
Total PET[2]			**759**	

[1] Source: Shields Management.

[2] In year 1 of the project, Shields Management anticipates capturing 51 percent of the Total PET cases (approximately 385 cases).

ATTACHMENT 5

FACTOR 6 COMMUNITY HEALTH INITIATIVE SUPPLEMENTAL INFORMATION

ATTACHMENT 5A

COMMUNITY HEALTH INITIATIVE NARRATIVE

Shields PET-CT at Emerson Hospital, LLC ("Applicant")[1]
Community Health Initiative Narrative[2]

A. Community Health Initiative Monies

The breakdown of Community Health Initiative ("CHI") monies for the proposed Determination of Need ("DoN") Project is as follows. Please note, all totals are presented in the order calculated, beginning with the Maximum Capital Expenditure ("MCE").

	Combined Total	Description
MCE	$4,929,495	
CHI Monies	$246,474.75	(5% of Maximum Capital Expenditure)
Administrative Fee	$9,858.99	(4% of the CHI Monies, retained by Emerson)
Remaining Monies	$236,615.76	(CHI Monies minus the Administrative fee)
Statewide Initiative	$23,661.58	(10% of remaining monies, paid to State-wide fund)
Local Initiative	$212,954.18	(90% of remaining monies)
Evaluation Monies	$21,295.42	(10% of Local Initiative Monies, retained by Emerson)
CHI Monies for Local Disbursement	$191,658.76	

B. Overview and Discussion of CHNA/DoN Processes

The CHI processes and community engagement for the proposed DoN projects[3] will be conducted by Emerson Hospital ("Emerson"). Emerson is a 179-bed not-for-profit hospital located in Concord, Massachusetts with more than 300 primary care doctors and specialists serving over 300,000 people from 25 towns. In 2017, Emerson Hospital began its triennial community health needs assessment ("CHNA"). In addition to fulfilling the requirement by the IRS Section H/Form 990 mandate, Emerson's CHNA process was undertaken to:

- Evaluate the community's perceptions of its unmet health needs
- Assist the community to better understand its health needs and health status
- Explore opportunities for new programs to meet unmet health needs
- Monitor progress toward improving the health of the community
- Determine how to effectively allocate Community Benefit resources to best respond to community health needs

The CHNA used primary and secondary data from diverse sources to examine the community's health. As part of this assessment, Emerson was guided and overseen by its Community Benefits

[1] The Applicant is a joint venture of Emerson Hospital and Shields Healthcare Group.

[2] This is a joint CHI representing two DoN applications: (1) A clinic providing positron emission tomography ("PET")/computed tomography ("CT") diagnostic imaging services one day per week at Emerson submitted by a joint venture formed by Emerson and Shields Healthcare Group, (2) An endoscopic ambulatory surgery center submitted by a joint venture formed by Emerson Hospital and Physician Endoscopy.

[3] See above.

Advisory Committee ("CBAC") to inform the methodology, including recommendation of secondary data sources, and identification of stakeholders and focus group segments. The assessment process included analyzing existing data on social, economic, and health indicators from various sources, as well as, conducting interviews to explore perceptions of the community, health and social challenges for community members, and recommendations for how to address these concerns. Additionally, the 2018 CHNA incorporated findings from the Youth Risk Behavior Survey which was conducted in nine school districts across the Emerson service area and administered to 6th and 8th grade students as well as all high school grades. In total, approximately 25 individuals were engaged in the 2018 assessment process. Consequently, the CHNA report provides key findings of the approach and methods used, which explored a range of quantitative data sources and qualitative stakeholder interviews; social, behavioral and physical health issues and outcomes, including the social determinants of health; health care access gaps; and strengths of existing resources and services.

C. Oversight of the CHI Process

Emerson will be leveraging its existing CBAC, with modification, to oversee the CHI. For the purpose of this CHI, the CBAC will be referred to as the "Advisory Committee". In order to meet the committee standards established in the DoN guidelines, Emerson has added the following committee members since the 2018 CHNA:

- Deborah Van Walsum, Community Member
- Jeff Stephens, Westford Health Department, Community Member
- Cheryl Serpe, Eastern Bank, Community Member

D. Advisory Committee Duties

As this is a Tier 1 CHI, the scope of work that the Advisory Committee will carry out includes:

- Ensuring appropriate engagement with residents from targeted communities and community partners around the CHI.
- Determining the Health Priorities for CHI funding based upon the needs identified in the 2018 CHNA/CHIP. The Committee will ensure that all Health Priorities are aligned with the Department of Public Health's ("DPH") Health Priorities and the Executive Office of Health and Human Services' Focus Areas.
- Providing oversight to the evaluator that is carrying out the evaluation of CHI-funded projects.
- Conducting a conflict of interest disclosure process to determine which members also will comprise the Allocation Committee.
- Reporting to the DPH on the DoN – CHI.

E. Allocation Committee Duties

The Allocation Committee is comprised of individuals from the Advisory Committee who do not have a conflict of interest with respect to funding CHI strategies. The scope of work that the Allocation Committee will carry out includes:

- Selecting Strategies for the noted Health Priorities consistent with DPH's CHI guidelines.
- Carrying out a formal request for proposal ("RFP") process (or an equivalent, transparent process) for the disbursement of CHI funds.
- Engaging resources that can support and assist applicants with their responses to the RFP.
- Disbursement of CHI funding.
- Providing oversight to a third-party vendor that is selected to carry out the evaluation of CHI-funded projects.

F. Timeline for CHI Activities

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

- Six weeks post-approval: The Advisory Committee will begin meeting and reviewing the 2018 CHNA/CHIP to commence the process of selecting Health Priorities.
- Three post-approval: The Advisory Committee determines Health Priorities and Strategies for funding.
- Four months post-approval: The Advisory Committee conducts a Conflicts of Interest process to determine which members will form the Allocation Committee.
- Five months post-approval: The Allocation Committee develops the funding process for the selected strategies.
- Six months post-approval: The RFP for funding is released.
- Eight months post-approval: Responses are due for the RFP.
- Nine to ten months post-approval: Funding decisions are made, and the disbursement of funds begins.
- Eighteen months to two years post-approval: Ongoing evaluation efforts and reporting to DPH.

G. Request for Additional Years of Funding

Emerson is seeking additional time to carry out the disbursement of funds for CHI. Based on Emerson's 2018 CHNA, as well as previous experience with providing grant funding, Emerson would like to offer multi-year grants with CHI funding. Consequently, Emerson is seeking to disburse these monies over a three (3) year period to ensure the greatest impact for the largest number of individuals.

H. Evaluation Overview

Emerson is seeking to use 10% of local CHI funding ($21,295.42) for evaluation efforts. These monies will allow Emerson to develop and implement an evaluation plan for CHI-funded projects.

I. Administrative Monies

Applicants submitting a Tier 1 CHI are eligible for a 4 percent (4%) administrative fee. Accordingly, Emerson is requesting $9,858.99 in administrative funding. These monies are critical in developing a sound CHI process that complies with the DPH's expectations as administrative funding will potentially be used to hire additional support staff or a consultant to facilitate the process. These monies will also pay for reporting and dissemination of best practices and lessons learned, facilitation support for the Advisory Committee and Allocation Committee, costs associated with the development of communication materials and placement of procurement information in community newspapers. Finally, these monies will help to offset the costs of the development and implementation of the RFP process.

ATTACHMENT 5B

EMERSON HOSPITAL COMMUNITY HEALTH NEEDS ASSESSMENT

EMERSON HOSPITAL

Community Health Needs Assessment

Emerson Hospital

Premium Care. Personal Touch.

Emerson Hospital
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Emerson Hospital
Premium Care. Personal Touch.

EXECUTIVE SUMMARY

Background

Emerson Hospital is a 179-bed hospital with more than 300 primary care doctors and specialists, located in Concord, Massachusetts. Emerson Hospital provides advanced medical services to more than 300,000 people in 25 towns. The Hospital's core mission is to make high-quality health care more accessible to those who live and work in our community. The hospital provides over 32,000 emergency department visits per year, more than 14,000 day surgeries per year, and 100,000 physical therapy and other rehab treatments per year. The hospital cares for over 2,000 patients who receive 32,000 home care visits each year. Each year 1,250 newborns are born at Emerson Hospital.

Community Health Needs Assessment Process

Emerson Hospital undertook a Community Health Needs Assessment (CHNA) from October 2017 through September 2018 to better understand and address the health needs of the Emerson Hospital community and to meet all provisions of section 501(r) of the Affordable Care Act which requires hospitals to conduct a community health needs assessment (CHNA) and adopt an implementation strategy at least once every three years.

The CHNA report contains secondary data from existing sources, such as the U.S. Census, the Massachusetts Department of Public Health, the CDC Behavior Risk Factor Surveillance Survey, the Emerson Hospital Youth Risk Behavior Survey, among others. This report also includes input from key informant interviews with community residents and stakeholders, particularly those with special knowledge of local and state public health departments, representatives from Councils on Aging, Housing Authorities, local schools, and representatives of medically underserved, low-income, and minority populations.

Utilizing the dominant themes gathered from the data collection and key informant interviews; Emerson Hospital prioritized the health needs identified by the community. The key focus areas identified through the process are as follows:

1) Lack of Transportation Options

2) At-Risk Adolescents

3) The Growing Aging Population

4) Cancer

5) Mental Health and Domestic Violence

The full report presents supporting data for each identified need, as well as additional indicators related to each area of focus. This report will be used by Emerson Hospital in developing implementation strategies to work towards improving the community's health over the next three years. The goals of this assessment are to:

- Evaluate the community's perceptions of its unmet health needs
- Assist the community to better understand its health needs and health status
- Explore opportunities for new programs to meet unmet health needs
- Monitor progress toward improving the health of the community
- Determine how to effectively allocate Community Benefit resources to best respond to community health needs
- Meet all provisions of section 501(r) of the Affordable Care Act which requires hospitals to conduct a community health needs assessment (CHNA) and adopt an implementation strategy at least once every three years

The CHNA was completed using quantitative data collection and qualitative interviews. The first phase was to gather an understanding of the Emerson Hospital service area through collecting Quantitative Data from secondary sources. This secondary data includes demographics (population, age, race, education, employment and income), health behavior information, and healthcare statistics. There was an effort to use data that is regularly updated and accessible. There are some limitations to this data. Most notably, much of the data is not collected at the zip code level for towns the size of those in Emerson's community, but is instead collected at the county level or a larger regional level that may not accurately mirror Emerson's service area. When data is available at the zip code level, it is frequently suppressed in Emerson service area towns because lower population numbers lead to low occurrence figures. Low numbers of cases can also skew incidence rates.

Following the data collection, the second phase was to gather qualitative data through interviews and surveys of many community service providers throughout the Emerson Hospital community. This qualitative data, combined with the statistical data, was used to outline the health needs of the community.

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Emerson Hospital Service Area

Emerson Hospital provides advanced medical services to more than 300,000 people in 25 towns. Our core mission has always been to make high-quality health care more accessible to those who live and work in our community. To further this mission, Emerson has outpatient facilities in the towns of Westford, Groton, Sudbury and Concord, Massachusetts and Urgent Care Centers in Hudson and Littleton.

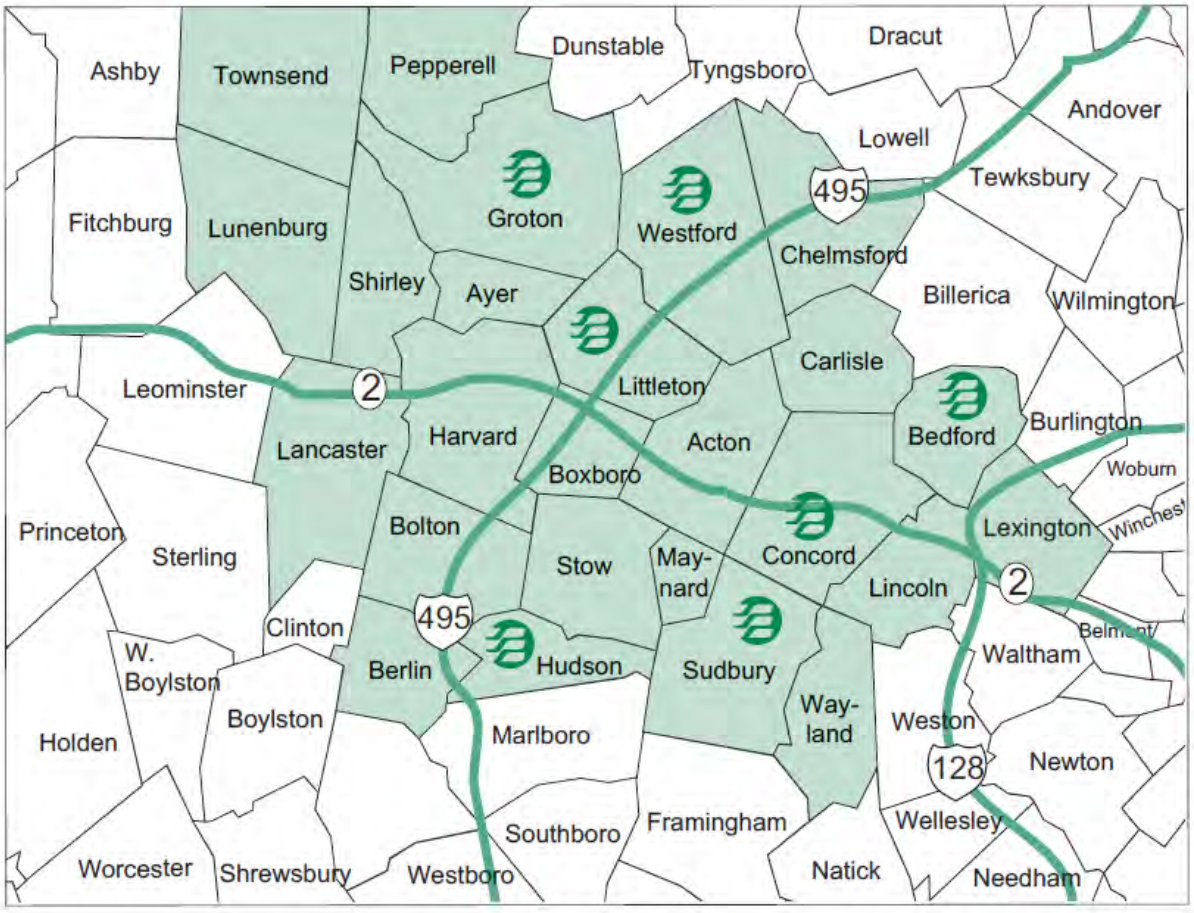


Figure 1: Emerson Hospital Service Area Map

For the purposes of this health needs assessment, the hospital is focusing primarily on 14 towns that make up the Primary Service Area (PSA), along with the secondary area to the west (Secondary West) of Emerson Hospital. In aggregate, these towns represent 70% of Emerson Hospital discharges. The PSA is made up by Acton, Bedford, Bolton, Boxborough, Carlisle, Concord, Harvard, Hudson, Lincoln, Littleton, Maynard, Stow, Sudbury and Westford. The Secondary West (SW) service are is made up by Ayer, Groton, Pepperell, Shirley, and Townsend.

Target Populations

Emerson Hospital serves a vast community of people with various needs with respect to age, race, socio-economic status and ethnicity. According to the data collected through the needs assessment process, the following populations should be targeted: the elderly, at-risk youth, low income individuals and families, and domestic violence victims.

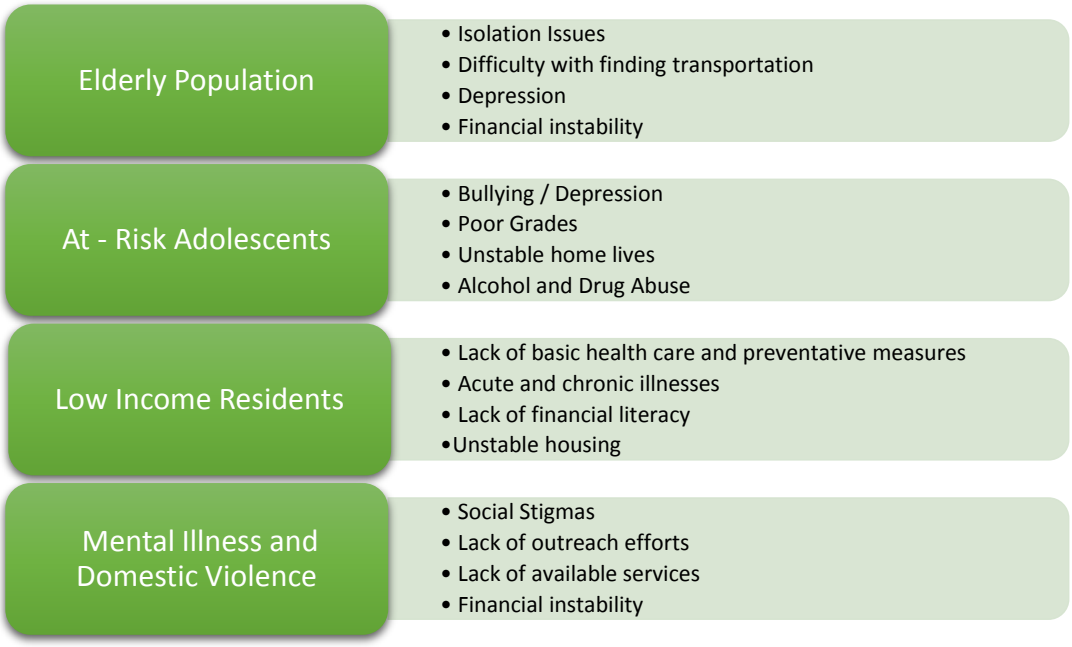


Figure 2: Target Populations of Emerson Hospital

APPROACH & METHODS

Social and Physical Determinants of Health

For the purposes of this Community Health Needs Assessment, it is important to be mindful of the social determinants of health (SDOH). These determinants are sometimes more influential in our health status than realized. Differences in health in a poor community versus an affluent community are so striking, in part, because of these determinants. Some of these social determinants of health include income status, education quality, stability of the built environment, environmental hazards, food security, etc. Understanding and grasping the relationship between these determinants and the how a population is thriving is essential to realizing the root causes of many common community issues.

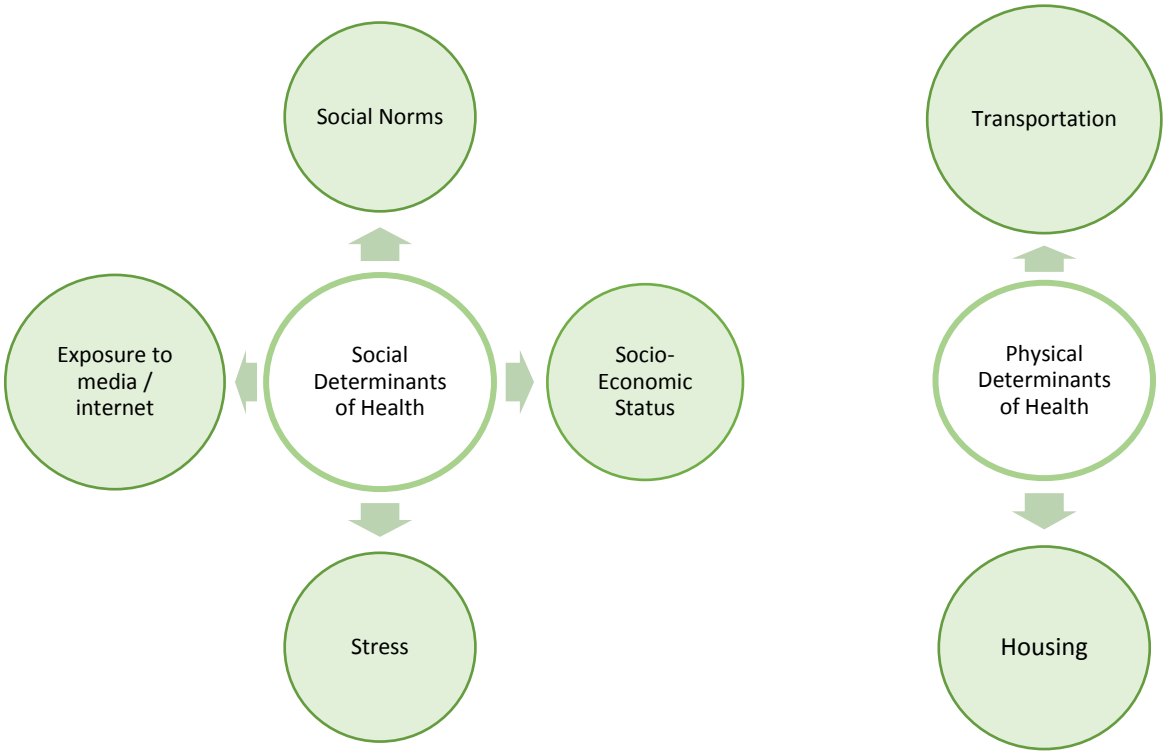


Figure 3: Social and Physical Determinants of Health of Emerson Hospital service area

In the Emerson Hospital service area, there are many determinants that have little impact due to the affluent nature of the community. However, certain populations within the community still struggle and those are the populations which we aim to reach and help with the CHNA report and subsequent programs. Figure 1 displays some of the common social and physical determinants within our area.

Community Engagement Process

Emerson Hospital used a variety of methods and sources while conducting the CHNA. First, a Youth Risk Behavior Survey (YRBS) was conducted by an outside research company, Market Street Research. The YRBS was conducted in nine school districts across the service area to students in 6th and 8th grade as well as in high school. This year, over 11,000 students participated in the YRBS. Along with the 2018 YRBS, Emerson Hospital has a Community Benefits Advisory Group (CBAG) that includes prevalent members of the various populations and communities that are served by the hospital. The committee currently has 19 members and convenes on a quarterly basis. Interviews were also conducted throughout the CHNA process with key community members, as well as some of the members of the CBAG to gauge the needs of the Emerson Hospital service area.

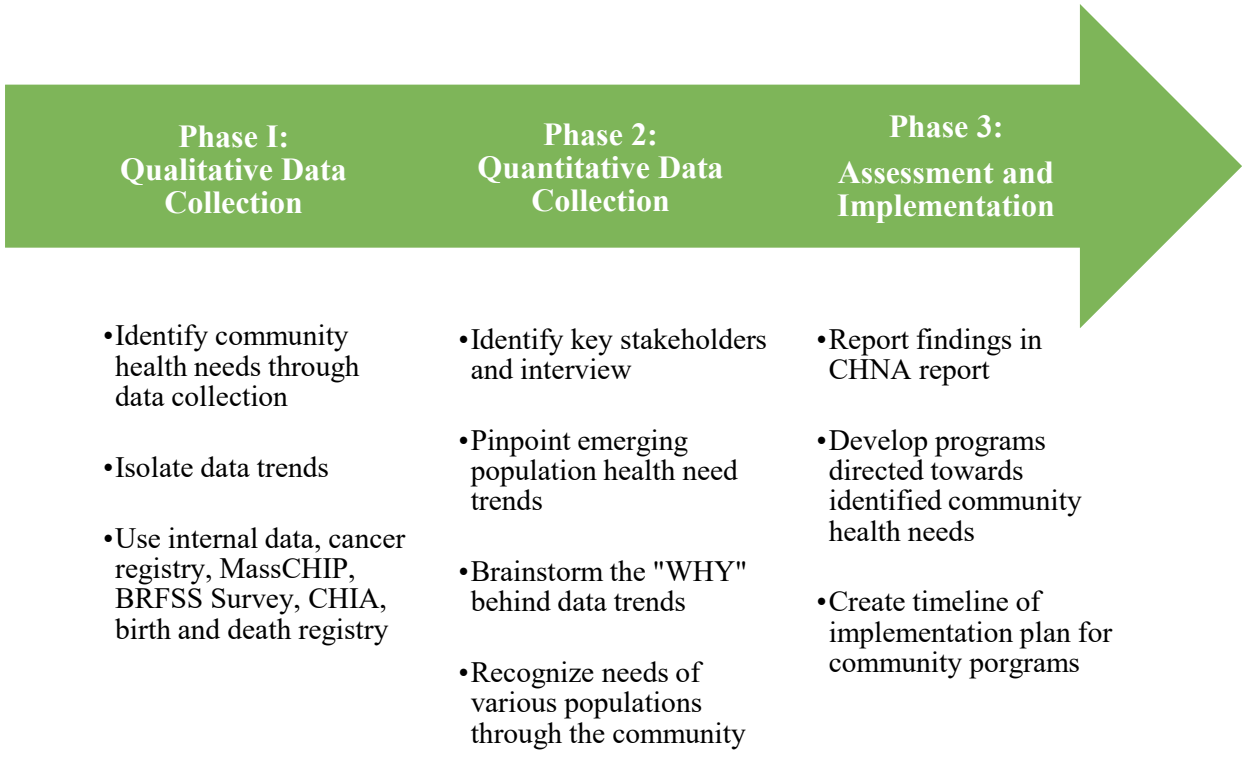


Figure 4: Phases of the Community Engagement Process for CHNA 2018

QUANTITATIVE DATA

Health Factors Data

There are approximately 179,000 people living in the Emerson Primary Service Area (PSA) as of June 2018. The Secondary West area (SW) has approximately 50,000 residents as of June 2018. The total population in the PSA is projected to grow by 4.6% or by 10,000 people from 2018-2023. The total population in the SW is projected to grow by 4.5% or by 2,000 people from 2018-2023. The growth in both these areas is primarily in the 65+ age group, followed by younger adults aged 18 - 44. Declines will be seen in the 0 - 17 age group and the 45 - 64 age group.

	2018 Estimate	2023 Projection	2018 - 2023 change	2018 - 2023 % change
0 - 17	49,782	48,991	- 791 ↓	- 1.6 % ↓
18 - 44	68,546	74,461	5,915 ↑	8.6 % ↑
45 - 64	73,144	69,156	- 3,988 ↓	- 5.5 % ↓
65 +	36,810	46,107	9,297 ↑	25.3 % ↑
Total	**228,282**	**238,715**	**10,433**	**4.6 %**

Table 1: Emerson Hospital Service Area - Age Data

Race

The population of the Emerson Hospital Service Area is 82 % White Non-Hispanic, 10 % Asian and Pacific Islanders Non-Hispanic, 4 % Hispanic, and 2 % Black Non-Hispanic.

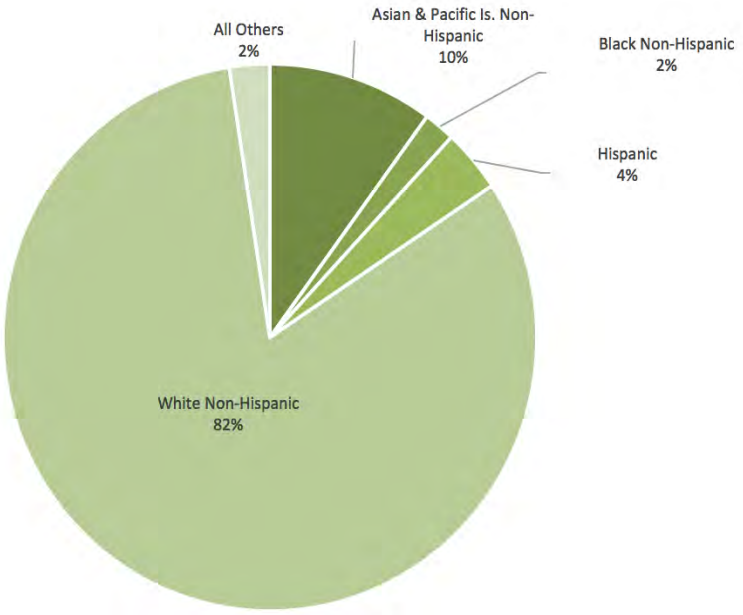


Figure 5: Emerson Hospital Service Area – Population Demographics

The Asian and Pacific Islander demographic has increased by 2% from 2015 to 2018, while the White, Non-Hispanic demographic has decreased in size by 1% during the same timeframe.

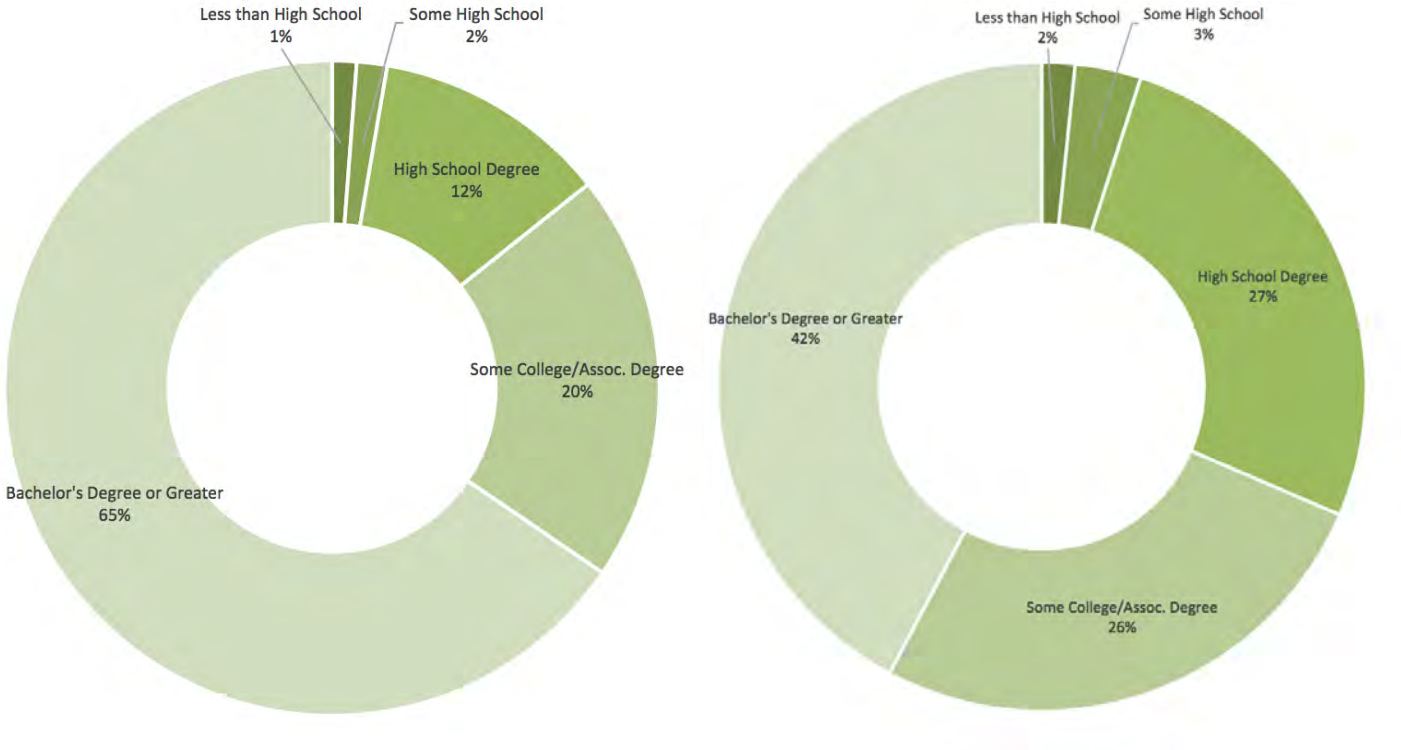
Race	2015	2018	% Change
White	**83 %**	**82 %**	**1 %** ↓
Asian	**8 %**	**10 %**	**2 %** ↑
Hispanic	**3 %**	**4 %**	**1 %** ↑
Black	**1 %**	**2 %**	**1 %** ↑

Table 2: Area Demographic Change from 2015 to 2018

Education

Education can influence health in many ways. According to the Robert Wood Johnson Foundation, "People with more education are likely to live longer, to experience better health outcomes, and to

practice health-promoting behaviors such as exercising regularly, refraining from smoking, and obtaining timely health care checkups and screenings. Educational attainment among adults is linked with children's health as well, beginning early in life: babies of more-educated mothers are less likely to die before their first birthdays, and children of more-educated parents experience better health." Emerson's PSA has a higher than average level of education with 65% of adults having earned a bachelor's degree or higher. The Secondary West service area has 42% of adults having attained a bachelor's degree or higher, compared to the state of Massachusetts which comes in around 41%.



Figures 6 & 7: Emerson Hospital Primary Service Area and Secondary West - Education Levels

Employment

Based on population estimates, both the PSA and the SW service areas have employment rates over 90%.

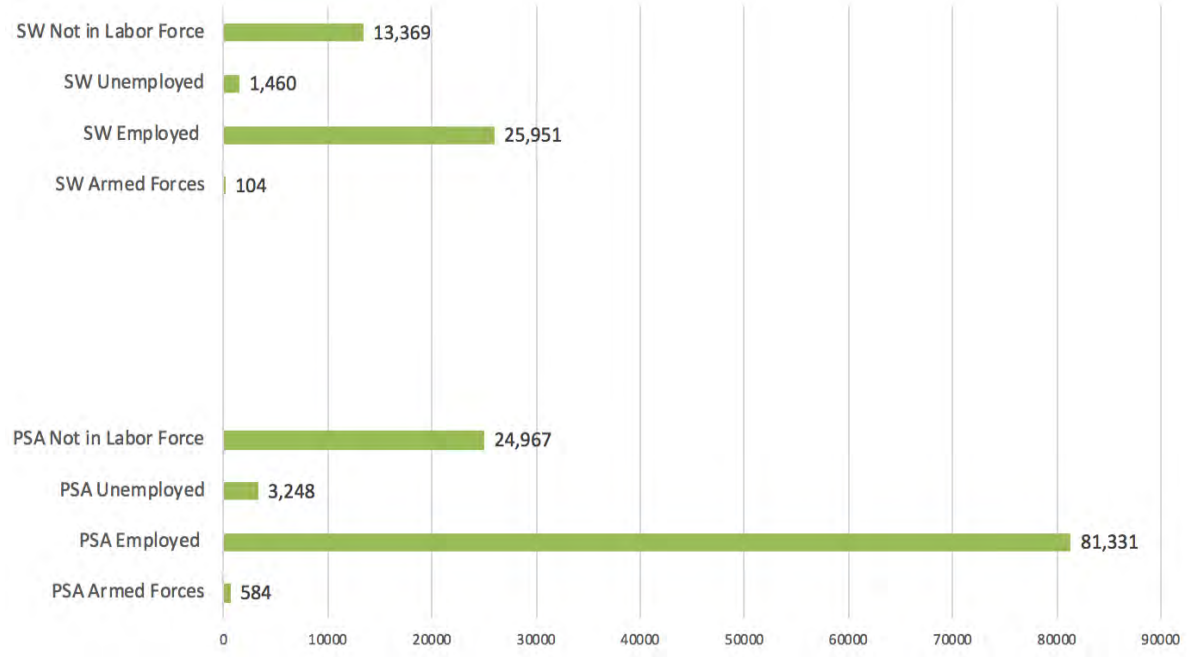


Figure 8: Emerson Hospital Service Area Population - Employment Rates

Income

Higher income is linked to better health status. With more available funds comes the assurance of living a healthier life. High socio-economic status has been linked to higher rates of exercising, including gym memberships, as well as the purchasing of healthier foods, like fresh fruits and vegetables and organic meats. The median household income of the Emerson Primary Service Area is about twice that of the Massachusetts average. However, there is a large wealth gap in the PSA. The distribution of income as seen in Figure 9 indicates that there are large income disparities in the PSA. One in five households has an income under $50,000 at the same time that one in five households have an income over $250,000.

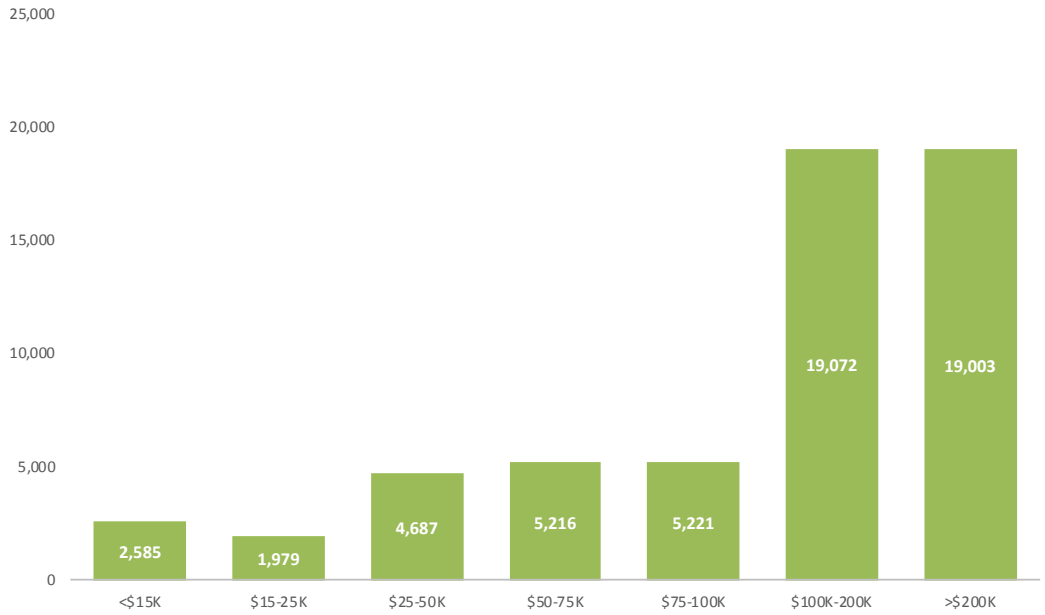


Figure 9: Emerson Hospital Primary Service Area - Household Incomes

The SW service area is less affluent than the PSA, however there are less income disparities in the SW area as compared to the PSA as seen in Figure 10. The median household income is about 1.3 times the Massachusetts average and 25% of households have incomes under $50,000 and less than 10% have an income over $250,000.

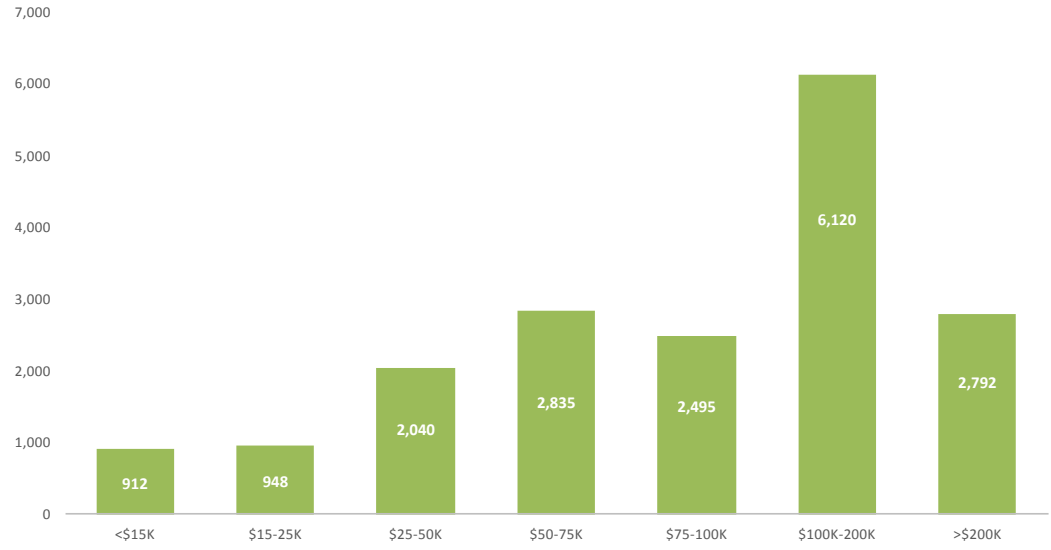


Figure 10: Emerson Hospital Secondary West Service Area - Household Incomes

Families in Poverty

Despite the overall affluence of the service area, there are over 1,700 families in the area living below poverty. Acton, Bedford, Concord, Sudbury and Westford have the highest number of families below poverty with children. Bedford, Maynard, and Westford have the highest number of families below poverty without children.

	PSA	% of Total PSA	SW	% of Total SW
2018 Families Below Poverty with Children	678	1.6 %	446	3.4 %
2018 Families Below Poverty without Children	443	1.0 %	215	1.7 %
2018 Families At/Above Poverty with Children	21,618	49.7 %	5821	44.8 %
2018 Families At/Above Poverty without Children	20,735	47.7 %	6510	50.1 %

Table 3: Area Poverty Levels

	Acton	Boxborough	Concord	Hudson	Littleton	Maynard	Stow	Westford
Adults/Families Below Poverty with Children	47	28	142	133	48	59	25	89
Adults/Families Below Poverty without Children	40	21	32	82	14	97	20	67
Adults/Families At/Above Poverty with Children	3,491	732	2,294	2,294	1,285	1,201	947	3,622
Adults/Families At/Above Poverty without Children	2,856	727	2,643	2,922	1,459	1,474	1,078	3,062

Table 4: Poverty in communities served by Emerson Hospital, 2018

Behavioral Risk Factor Surveillance System Data

The Behavioral Risk Factor Surveillance System (BRFSS) is a health-related telephone survey run by the Centers for Disease Control and Prevention. This data is not available at the town level in Emerson's service area, but is available at the Community Health Network Area (CHNA) level. The Northwest Suburban Health Alliance (CHNA 15) has been used as a proxy for the Primary Service Area. The Community Health Network of North Central Massachusetts (CHNA 9) is used as a proxy for the Secondary West area. A list of towns included in each CHNA is listed in Appendix B. BRFSS data suggests that the Emerson Hospital Service Area has favorable access to health care.

	PSA (*CHNA 15*)	**SW** (*CHNA 9*)	**Massachusetts** *(BRFSS 2016)*
Report Fair/Poor Health	7.6 %	13.5 %	14.1 %
Report 15+ Days of Poor Mental Health	5.4 %	8.9 %	11.3 %

Table 5: Overall Health Measures (https://www.mass.gov/lists/brfss-statewide-reports-and-publications#2016-)

It is important to note here that in both the PSA and the SW service areas residents report overall good health and low rates of prolonged poor mental health. We believe this may be due to the financial statuses of many of the residents in the service area as well as the higher education rates that are seen here.

	PSA (*CHNA 15*)	**SW** (*CHNA 9*)	**Massachusetts** *(BRFSS 2016)*
No Health Insurance	3.7 %	6.0 %	3.8 %
Could Not See A Doctor Due To Cost	4.5 %	7.2 %	8.8 %
Have a Personal Health Care Provider	92.2 %	90.3 %	88.9 %

Table 6: Health Care Access and Utilization (https://www.mass.gov/lists/brfss-statewide-reports-and-publications#2016-)

Residents in both service areas report high rates of possessing health insurance with only 3.7 % in the PSA reporting no health insurance and 6.0 % in the SW reporting no health insurance. These extremely low rates are most likely due to the high socio-economic status of many residents and, therefore, the ability to purchase health insurance. Also, the employment rate in the area is quite high and many residents may receive health insurance from their employers as well.

Again, high socio-economic status plays a role in the ability of individuals to see health care professionals. When asked about not seeing a doctor due to cost, only 4.5 % of residents in the PSA reported this being an issue and only 7.2 % of residents in the PSA reported this as an issue as well. The Massachusetts average is higher than both rates at 8.8 %.

	PSA *(CHNA 15)*	**SW** *(CHNA 9)*	**Massachusetts** ***(BRFSS 2016)***
Current Smoker	10.2 %	19.4 %	13.6 %
Binge Drinker (18 – 34 years old)	12. 6 %	29.8 %	29.9 %
Overweight (BMI ≥ 25.0)	48.1 %	61.5 %	60.2 %
Obese (BMI ≥ 30.0)	14.4 %	22.1 %	23.6 %
Physical Activity in the Past Month	86.0 %	79.2 %	80.0 %
Ever Tested for HIV	42.2 %	42.0 %	45.6 %

Table 7: Risk Factors and Preventative Behaviors (https://www.mass.gov/lists/brfss-statewide-reports-and-publications#2016-)

Risk factors that are common at high rates for Massachusetts also exist in the Emerson Hospital service area. Smoking rates for the PSA are lower than the state average at 10.2 %, but the rate of smokers in the SW service area is higher than the state average at 19.4 %. We believe this may be partly due to socio-economic differences between the two areas. Socio-economic status has been linked to smoking rates and with higher socio-economic status comes lower rates of smoking.

	PSA (*CHNA 15*)	SW (*CHNA 9*)	Massachusetts (*BRFSS 2016*)
Flu Vaccine in Past Year (18 – 49 years old)	29.6 %	20.8 %	34.6 %
Flu Vaccine in Past Year (50 – 64 years old)	42.5 %	30.7 %	45.1 %
Flu Vaccine in 3 Past Years (65+)	83.2 %	66.5 %	57.1 %

Table 8: Emerson Hospital Service Area - Immunization Trends (https://www.mass.gov/lists/brfss-statewide-reports-and-publications#2016-)

Immunization rates for individuals in the service area are mostly favorable. All PSA elementary schools report at least 90% of their kindergarten students having the recommended MMR immunizations as well as the DTaP and Polio vaccinations. Approximately 80% of PSA elementary schools have at least 90% of kindergarten students with all their recommended immunizations. Flu vaccinations for all age groups except for the 65+ group are lower than the state average.

	PSA (*CHNA 15*)	SW (*CHNA 9*)	Massachusetts (*BRFSS 2016*)
Diabetes	5.3 %	6.7 %	9.3 %
Heart Disease	6.1 %	5.9 %	5.5 %
High Blood Pressure	23.5 %	23.5 %	25.0 %
High Cholesterol	34.4 %	32.8 %	34.6 %

Table 9: Chronic Health Conditions in the Emerson Hospital Service Area (https://www.mass.gov/lists/brfss-statewide-reports-and-publications#2016-)

Chronic health conditions in the Emerson service area are mostly occurring at lower rates than the state average. Again, the lack of social and physical determinants in the area may account for these lower rates. Many chronic conditions, such as diabetes and heart disease, can be preventable with healthy lifestyles. As stated before, it is much more likely for someone in an affluent area to live this type of lifestyle due to their socio-economic status. The only exception to this rule is heart disease. Although it can be lessened with a healthy lifestyle, it still has a genetic component to it and, therefore, cannot be completely prevented.

	PSA (*CHNA 15)*	**SW (*CHNA 9)***	**Massachusetts *(BRFSS 2016)***
Colorectal Cancer Screening Among Men (50 – 74 years old)	69.2 %	65.0 %	76.3 %
Breast Cancer Screening Among Women (50 – 74 years old)	89.6 %	89.7 %	86.3 %
Cervical Cancer Screening Among Women	88.4 %	83.6 %	84.1 %

Table 10: Cancer Screening (https://www.mass.gov/lists/brfss-statewide-reports-and-publications#2016-)

Cancer screening rates in the service area are quite high. Almost 90% of women in both the PSA and the SW service area received some type of breast cancer screening. Among men in the PSA and SW service areas about 69% and 65%, respectively, received colorectal cancer screenings. The cancers commonly seen in the service area are not preventable through healthy lifestyle choices, similar to the aforementioned heart disease, and are, therefore, close to the Massachusetts average in all categories.

Health Outcomes Data

Birth Indicators

There were approximately 4,800 babies born in the PSA and SW service areas over the last five years. Almost 89 % of all mother in the PSA service area and 84 % of all mothers in the SW service area were able to receive at least adequate prenatal care. Birth rates per 1000 women are slightly lower for both the PSA and the SW as compared to the state birth rate. The rate of teen births in the PSA and SW service areas is significantly lower than the state rate of births to teen mothers. For the PSA, the percentage of preterm births and low birthweight births are lower than the state average. In the SW, these percentages are at the state average.

	Massachusetts	PSA	SW
Birth Rate per 1000 Women (15 – 44 years old)	52.0	48.6	50.3
Low Birthweights	7.5 %	5.1-6.4 %[1]	7.3-8.7%[1]
Teen Births per 1000 Women (age 15-19)	8.5	0.9-3.5[1]	1.2-4.9[1]
Preterm Births (<37 weeks gestation)	8.7 %	7.1-8.7 %[1]	8.5-9.2% [1]

Table 11: Birth Indicators (Massachusetts Department of Public Health Births Report 2016 Table 15, May 2018)

[1]When looking at birth indicators by town, the incidence rate is frequently too low to publish so the state provides a range from 1-4. Rates are provided using the high and low of that range.

Death Indicators

The top cause of death for 2016 in the United States was heart disease. In Massachusetts it was cancer. In the PSA and SW service areas, the top cause of death was also cancer.

	U.S. Deaths	Massachusetts Deaths	PSA Deaths	SW Deaths
Coronary Heart Disease	633,842	11,921	218	73
Cancer	595,930	12,717	269	84
Unintentional Injuries	146,571	3,831	5	2
Chronic Lower Respiratory Diseases	155,041	2,674	44	13
Stroke	140,323	2,468	54	18
Diabetes	79,535	1,268	20	10
Flu/Pneumonia	57,062	1,251	28	5
Suicide	44,193	1,621	14	4

Table 12: Top Causes of Death, 2015-2016 (https://www.mass.gov/lists/death-data#death-reports-)

Disease Indicators

Cancer

Cancer is the leading cause of death in Emerson's Primary and Secondary West service areas. In 2017, Emerson Hospital saw 635 cases of cancer. The top six types of cancers occurring in the service area are shown below along with their incidence rates compared to the incidence rates throughout the state of Massachusetts.

	PSA Incidence Rate	SW Incidence Rate	Massachusetts Incidence Rate
Breast (female)	158.6	130.0	134.5
Prostate (male)	166.5	152.9	163.8
Lung			
Male	68.5	86.9	83.0
Female	57.1	63.2	65.1
Colorectal			
Male	52.9	51.9	57.1
Female	40.7	41.6	42.5
Melanoma			
Male	43.6	25.8	28.9
Female	25.1	13.2	19.6
Non – Hodgkin's Lymphoma			
Male	23.0	23.2	24.7
Female	16.7	17.3	16.8

Table 13: Cancer Incidence Rates in the Emerson Hospital Service Area
(https://www.mass.gov/lists/cancer-incidence-city-town-supplement#2009-2013-)

The most common cancer for both the PSA and the SW service areas is prostate cancer. Prostate cancer is also the most common cancer in Massachusetts with breast cancer a close second. Both breast and prostate cancer are cancers that are caused mainly by genetic factors, uncontrolled by any social determinants of health. Also, there is a higher incidence rate due to the fact that in higher socio-economic status areas women and men are more likely to be screened regularly and catch malignancies if they occur.

Lung cancer incidence is lower than the Massachusetts incidence rate for the PSA. In the PSA, only 10.2% of residents are current smokers. However, more people in Emerson Hospital's service area die of lung cancer than any other type of cancer. Lung cancer deaths occur 2.5 times more often than colon cancer deaths, the second leading cause of death among the cancers common for the area. Lung cancer is also one of the most difficult cancers to treat.

Cancer Type	Number of deaths, PSA *(CHNA 15)*	Number of deaths, SW *(CHNA 9)*	Total Deaths
★ **Lung**	87	118	**205**
Colorectal	27	30	**57**
Prostate	24	20	**44**
Breast	17	24	**41**

Table 14: Deaths per Cancer Type (http://www.mass.gov/eohhs/researcher/community-health/masschip/health-category/cancer.html)

Substance Abuse

When surveyed about alcohol consumption, the percentage of Emerson Service Area adults age 60+ reporting heavy drinking is higher than that of the state average, particularly in the PSA where 8% of residents 60+ report being heavy drinkers. The percentage of adults age 18 – 59 who report binge drinking on any one occasion in the past month is similar to that of the state average right around 5%. The CDC defines heavy drinking as adult men having more than 14 drinks per week and adult women having more than 7 drinks per week. Binge drinking is defined as 5 or more drinks during a single occasion for men, 4 or more drinks for women.

	PSA *(CHNA 15)*	SW *(CHNA 9)*	Massachusetts
Heavy Drinkers (18 – 59 years old)	4.9 %	6.5 %	7.0 %
Heavy Drinkers (60+)	8.0 %	5.7 %	5.2 %
Binge Drinkers (18 – 59 years old)	21.2 %	20.4 %	21.8 %
Binge Drinkers (60+)	5.0 %	4.8 %	5.4 %

Table 15: Substance Abuse (http://www.mass.gov/eohhs/researcher/community-health/masschip/risk-factors-and-health-behaviors.html)

Poisonings, most of which are classified as drug overdoses, continue to be one of the leading causes of injury deaths in Massachusetts. Opioids, including heroin, oxycodone, morphine, and codeine, are the agents most associated with poisoning deaths.

PSA	Opioid Overdose Deaths
Acton	1
Bedford	3
Bolton	0
Boxborough	1
Carlisle	0
Concord	1
Harvard	0
Hudson	4
Lincoln	0
Littleton	1
Maynard	2
Stow	1
Sudbury	0
Westford	6
PSA rate per 100,000 population	**12.6**
MA Average (per 100,000)	**31.1**

Table 16: Opioid Overdose Deaths in the Primary Service Area, 2017 (https://www.mass.gov/files/documents/2018/05/22/Opioid-related%20Overdose%20Deaths%20by%20City%20Town%20-%20May%202018_0.pdf)

In 2016, the Massachusetts average rate of opioid overdose deaths per 100,000 people was 31.1. In the PSA during that same year there were 20 deaths due to opioid overdoses, or 12.6 per 100,000 people. In the SW service area, there were 11 deaths rooted from the same cause, a rate of 22.2 per 100,000.

SW	Opioid Overdose Deaths
Ayer	1
Groton	1
Pepperell	2
Shirley	3
Townsend	4
SW Rate per 100,000 population	**22.2**
MA Average (per 100,000)	**31.1**

Table 17: Opioid Overdose Deaths in the Secondary West Service Area, 2017 (https://www.mass.gov/files/documents/2018/05/22/Opioid-related%20Overdose%20Deaths%20by%20City%20Town%20-%20May%202018_0.pdf)

According to the Massachusetts Department of Public Health, "The risk of opioid-related death has increased dramatically for every population group and every type of community in the state, impacting Massachusetts residents from every age, racial, economic, and geographic group. Opioid poisoning deaths occur in poor urban areas and in affluent suburbs." This quote exemplifies the current public health crisis occurring all over the United States including within the Emerson Hospital service area.

Tick – Borne Illness

According to the Center for Disease Control and Prevention (CDC), Massachusetts has one of the highest rates of tick-borne illnesses in the country. One of the most common illnesses occurring from tick bites is Lyme disease. In 2016, there were 52 confirmed cases of Lyme disease in Middlesex County per 100,000 residents. This was an increase from the year prior which had 45 confirmed cases per 100,000 residents (WBUR). The Emerson Hospital service area comprises about 14.5% of the entire Middlesex County residents.

Youth Risk Behavior Survey (YRBS) Data

Every two years, Emerson Hospital and public school districts within Emerson Hospital's service area collaborate to conduct the Emerson Youth Risk Behavior Survey (YRBS), a comprehensive survey of youth in 6th grade and 8th grade as well as high school, regarding risk behaviors in the following general areas:

- Vehicular safety
- Social and emotional wellbeing
- Physical safety
- Sexual behavior
- Tobacco, alcohol, and drug use
- Diet, body image, and physical activity
- Sleep, school work, and screen time
- Social media

For the 2018 YRBS, 11,018 youths were surveyed. Those in 6th and 8th were administered the survey through an online platform. Those in high school received the survey through a paper questionnaire. The figures below highlight some of the areas of concern for both the hospital and the community.

Suicide

Thoughts of suicide and mental health issues in general are common among students in today's school landscape. Students were asked if they worried about peers committing suicide or were told by peers that they were planning on committing suicide. Approximately two thirds of students surveyed revealed that they were worried about peers committing suicide. About a fifth of students said that they were told by one of their peers that they were planning a suicide, but did not tell an adult about it. The commonality of this trend highlights the severity of the issue at hand.

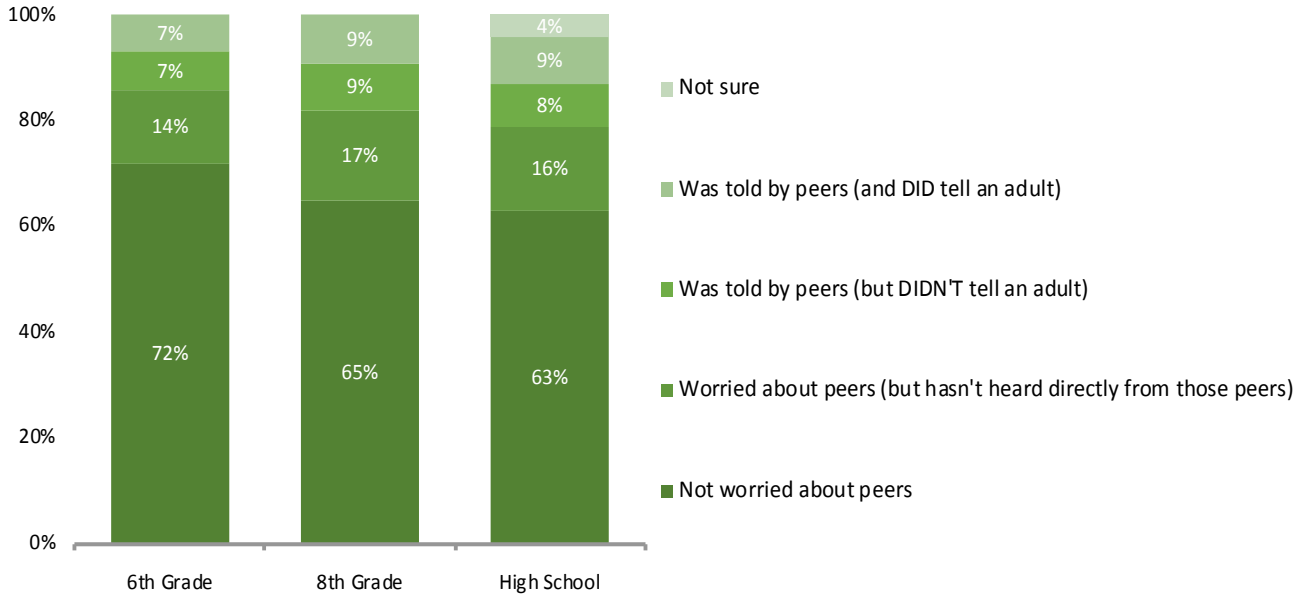


Figure 11: Suicide Data Trends from YRBS 2018

Stress

Stress is a normal component of everyday life. It is not uncommon for there to be stress in all aspects of life. However, stress for younger children and teenagers is often met with terrible outcomes, such as suicide and self-harm. It is often seen that these children are unable to cope with the common stresses of life due to the fact that they have not been taught proper coping mechanisms. Furthermore, the stress on children to succeed, especially in these highly affluent areas, is exacerbated.

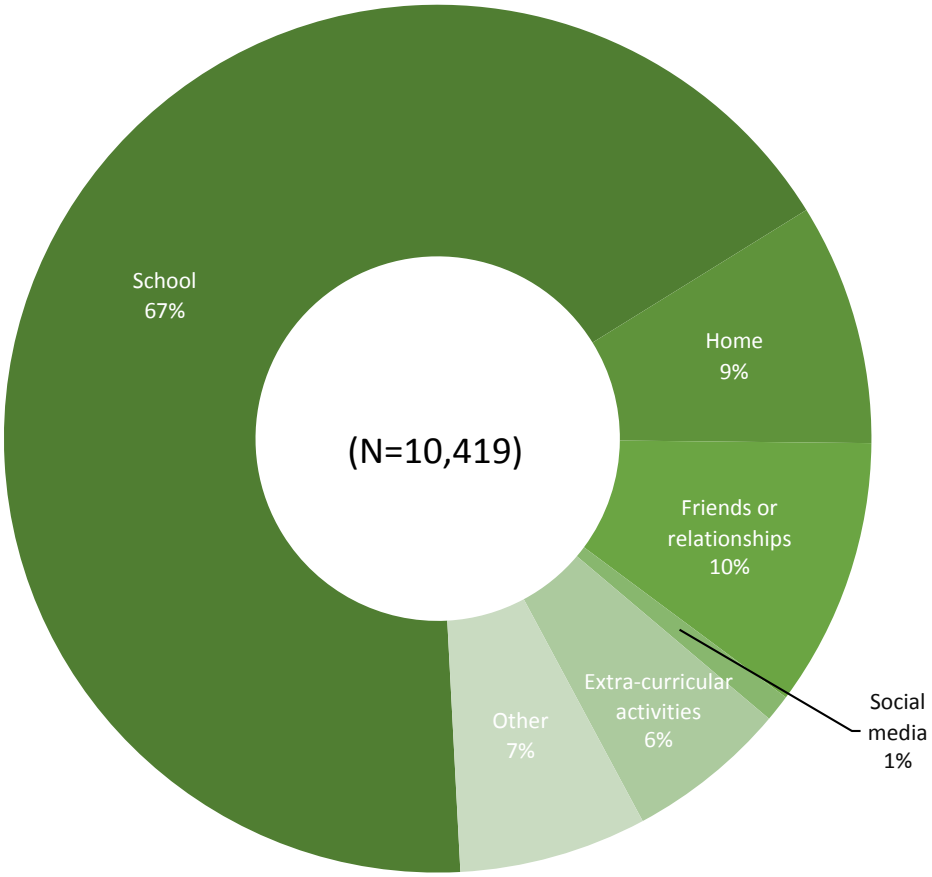


Figure 12: Greatest Sources of Stress in Life from YRBS 2018

As is seen above, 67% of students surveyed reported school as being the greatest source of stress in their lives. This stress is quite common among those in high school, especially juniors, for this is the year that the college application process begins. But, even more alarming is the rate of stress on kids as young as 6th grade. In high socio-economic status areas, such as our service area, schooling is extremely competitive and starts very early in life. It is expected that children in these areas will excel in their education path.

Vaping

In the state of Massachusetts, approximately 5% of the total population is using e-cigarettes, also known as vaping. However, according to the YRBS 2018 survey data, around 28% of all high-schoolers surveyed are "vaping". This vast difference is illuminating a new and upcoming trend in many communities, including the Emerson Hospital service area. Youth are more inclined to use these e-cigarettes due to the newfound trendiness of this product. Celebrities and rappers commonly endorse the product, bringing notoriety to an industry that was on the decline. The use of e-cigarettes is commonly thought to be safer and healthier than regular cigarettes, however this is untrue and unfounded.

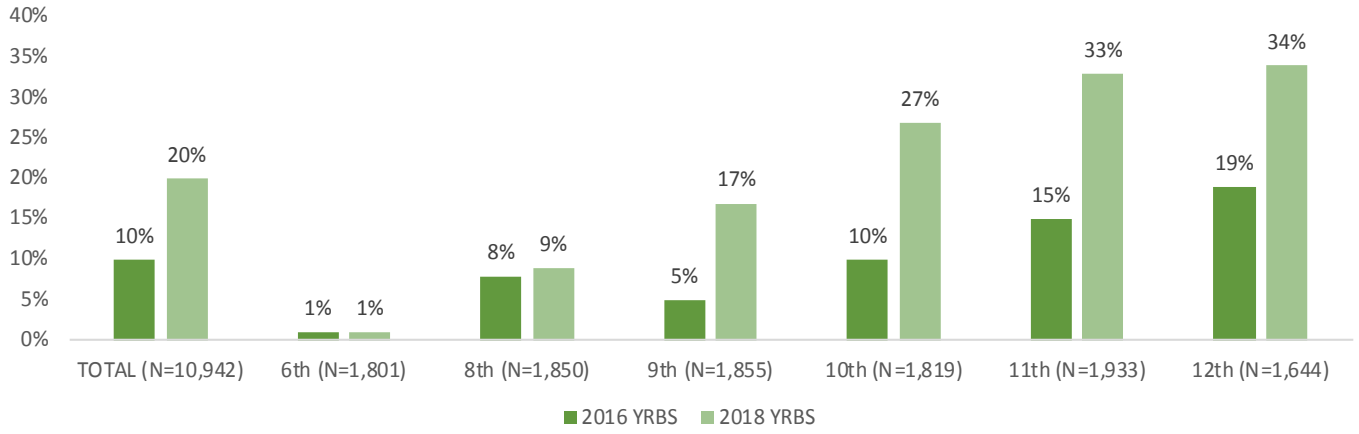
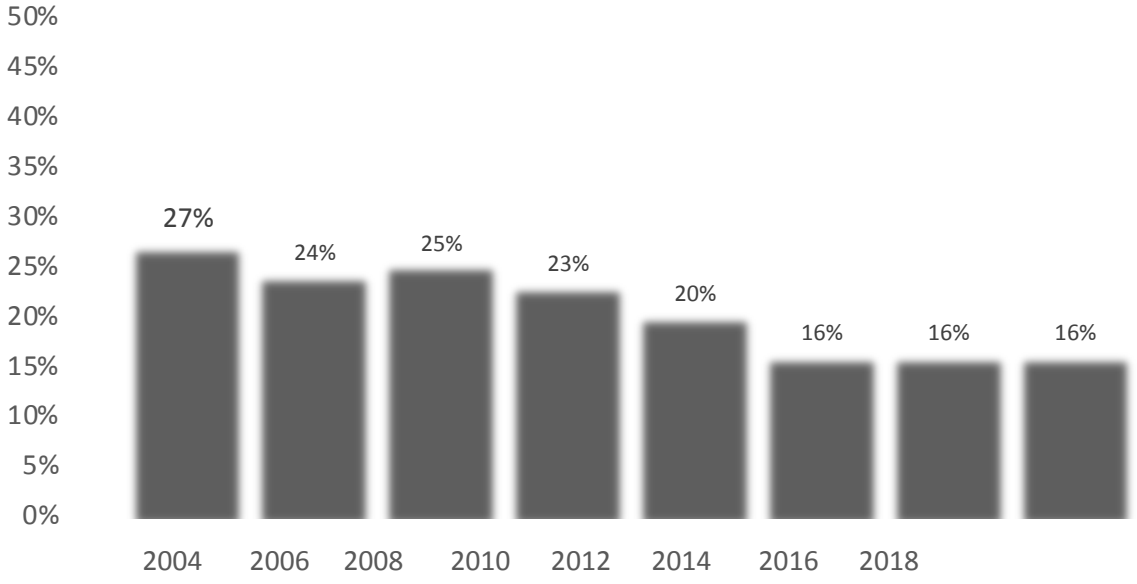


Figure 13: Vaping Data Trends 2016 – 2018 from YRBS 2018

Binge Drinking

Binge drinking is considered having 4-5+ drinks on one occasion. Approximately 20% of high schoolers in se nu ta



QUALITATIVE DATA

Key Informant Interviews

Emerson Hospital engaged Rebecca Hirsch, a Masters of Public Health candidate at the Boston University School of Public Health, to interview a series of individuals to gather their perceptions about the health care needs of the Emerson community. A list of individuals interviewed is in Appendix A. These individuals included local and state public health departments, representatives from Councils on Aging, Housing Authorities, local schools, and representatives of medically underserved, low-income, and minority populations as well as key representatives from Emerson itself. These individuals were asked:

- What health issues do you see in the community?
- Which issues do you think are most significant?
- Are there any health care services that are lacking in the community?
- What keeps the community from accessing the health care that they need?
- Do you think that if the services that are currently lacking were offered that they would be used by the community?

Throughout the interview process, there were many common themes and focus areas. The qualitative themes, combined with supporting health factors data have been organized by population cohort.

CHNA Findings Prioritization Process

The key community health needs identified through this process were reviewed by Emerson Hospital management. The health needs were prioritized based on the following criteria:

- The resources needed to address the finding align with Emerson Hospital's mission, infrastructure, and financial resources.
- The need has a significant prevalence in the Emerson Hospital community so that resources are used to improve the lives of many people
- The health need contributes significantly to the morbidity and mortality in the Emerson Community
- Emerson has the ability to make a lasting impact over a long period of time

- Emerson Hospital has the ability to measure the impact of its plan to show improved health of the community

Key Focus Areas Identified

Using prioritization criteria listed above to review the findings from data collection and key stakeholder interviews, Emerson Hospital plans to focus on the following five community needs:

1) Lack of Transportation Options

2) At-Risk Adolescents

3) The Growing Aging Population

4) Cancer

5) Mental Health and Domestic Violence

KEY INTERVIEW FINDINGS

Lack of Transportation Options

A common theme seen throughout the interview process was that of transportation. The Emerson Hospital service area is located in an area only accessible through the use of motor vehicle transportation. Public transportation routes do not directly run through the service area. To add to this dilemma, many individuals are separated from the hospital by highways with very few sidewalks available to walk on. There currently is an initiative between UberHealth and Emerson Hospital in which an Uber will take home a patient without transportation from either the Emergency Department or the Cancer Center. This initiative is in its infancy and its effects are still being monitored.

Doug Halley, the retired Town of Acton Health Director and current Transportation Coordinator, spoke to the issues surrounding transportation services in the Emerson Hospital service area. Emerson Hospital is the 2nd most common trip made through the CrossTown Connect transportation service, with Lahey Hospital and the VA being the other most common destinations. The CrossTown Connect covers seven communities, with Concord being a recent addition. The shuttle charges only $1 to its riders and can be used among all residents, not just the elderly population. When it comes to the issue of the aging community and its mobility issues, Halley said that the aging population is far more active than previous aging populations, however there are more and more people living to be 80 or 90. This 80+ demographic is using the transportation services more due to the occurrence of more health issues and disabilities at that age. As for the communication issue, Halley is hoping for there to be more outreach towards the Asian population as there is a growing population of younger Asian Americans bringing their parents to the U.S. who do not speak the language. Overall, in order to create a larger impact on the transportation issue, Halley says there is a main question we need to ask: Is it a critical need or an indeterminate need?

Holly Richardson, the Town of Hudson Social Service Advocate, and Janice Long, the Director of the Town of Hudson Senior Center, discussed the aging population and the need for more transportation options for them. Transportation for medical needs is the biggest barrier for the Center currently. The Hudson Senior Center only has two buses currently making shuttling residents to doctors' appointments all the more challenging. One bus is designated for taking seniors on everyday tasks, such as grocery shopping, leaving just one shuttle for medical appointments and other necessary trips. Janice Long mentioned that the Center recently received a grant that will go towards purchasing two more shuttles, hopefully one this year and one next year. Long said, "Even with the new shuttles, there is still an immense need in our community for people to be able to get to appointments not in the immediate area, such as getting to Emerson Hospital, which is hard for us to do by ourselves because of the time it takes".

Overall, there needs to be a concerted effort by all parties in order to address this enormous issue.

At-Risk Adolescents

There are almost 50,000 adolescents (0 - 17 years old) in the Emerson Hospital service area. Of those 50,000, more than 75% have experienced or witnessed some form of bullying, either physically or online.

Along with the bullying, many are anxious, stressed and/or depressed due to a multitude of factors such as: the need to be "perfect" academically, social pressure from peers to use alcohol and drugs, and underlying mental health issues, just to name a few. According to the YRBS survey, many of these "at-risk" adolescents also are more likely to get less than four hours of sleep on school nights, lack engagement out-of-school activities and participate in riskier behavior, such as not wearing a helmet or driving while impaired with others in the car.

Amy Gullotti, a nurse at the Sudbury middle school, spoke to the issue of at-risk adolescents. She mentioned that many of the students suffer from anxiety, depression and even self-harm. The Sudbury school district is just one of many schools in the area with students suffering from these mental health problems. Gullotti also mentioned cyber bullying as an expanding issue, especially on Mondays and Fridays due to the digital harassment that occurs for some of these students throughout the weekend. When asked about healthcare services currently lacking in the area, Gullotti mentioned the need for more outreach programs as well as programs that would better train staff on mental health issues commonly faced by adolescents. Overall, there is a lot of room for improvement in dealing with common issues for at-risk adolescents for not just Sudbury, but all the school districts in the Emerson Hospital service area.

Susan Rask, the Public Health Director of the Town of Concord, spoke about the issues facing the Town of Concord. She, like others interviewed, mentioned that there is an extremely high level of stress in the youth in the area. These at-risk youth are also partaking in vaping, cyber-bullying and often suffering from mental health issues. "There needs to be more outreach efforts to those parents of the at-risk kids […] we need to saturate the area with these to get our message across to everyone …" Outreach efforts to parents that educate them on the idea of "first use" is one way that Rask suggested of helping this at-risk adolescent population. "It would be a good first step…"

More outreach programs coordinated with the schools is a necessity. The effort has to be made because of the staggering increase in the number of children with mental health issues due to high stress levels, cyber-bullying and overall pressures to fit in. This pressure to fit in has also resulted in a dangerous new trend sweeping the Emerson Hospital service area, vaping.

Overall, there needs to be a concerted effort by parents, schools, and the community to reach at-risk children. The "at-risk" adolescents are still young enough to be taught different ways of coping and behaving. It is also of the utmost importance that these adolescents have properly trained therapists in the schools and out in the community. At the moment, there is a lack of outpatient mental health services and, for those services that do exist in the area, the cost is a chief deterrent for many families. Many insurances used in the Emerson Hospital service area do not have high reimbursement rates for mental health services, a common issue not just in our service area.

The Growing Aging Population

As of 2018, there are approximately 37,000 people in the Emerson Hospital service area above the age of 65. However, this cohort of individuals is expected to increase by 25% over the next five years making it the fastest growing population in the service area. With a rapidly increasing elderly population, comes a number of other issues. As individuals age, they tend to lose the ability to drive or their licenses are

revoked, making the need for transportation to do everyday tasks that much more necessary. As stated in the transportation section, there is a lack of any form of public transportation besides Uber and Lyft for the area. Unfortunately, those options can become quite expensive when used daily. On top of the transportation issue, comes the issue of isolation. Many elderly individuals do live alone and do not have family nearby. Add to this not having a car and much of their day can be spent alone in their homes.

Ginger Quarles, the Director of the Concord Council on Aging, believes that there needs to be better overall education about the geriatric community and its needs. Quarles mentioned that the mental health aspect of geriatric care is heavily needed in the area, but currently unavailable in our service area. Also, many in the aging community feel as though they are not treated with the same care/respect that younger individuals are and are quite often put off by poor experiences with physicians causing them to not access care again. Quarles also mentioned that "[…] patient navigators could be a helpful tool in reducing re-admission rates at the hospital …" Patient navigators would ensure that elderly patients understand what they have been told by their physician as it relates to accurate dosing and their health. Overall, there needs to be a push for more physicians specializing in geriatrics.

Susan Rask, the Public Health Director of the Town of Concord, spoke about the issues facing the Town of Concord. Common among some of the other interviews, Rask mentioned that the growing senior population in the area has created a lot of problems that didn't exist before. Transportation is one of these issues along with a lack of downsizing options for those senior citizens living alone in their homes that are "just too big for them at this stage".

Holly Richardson, the Town of Hudson Social Service Advocate, and Janice Long, the Director of the Town of Hudson Senior Center, also discussed the aging population and the needs of this unique population. As stated in the "Lack of Transportation" section, medical transportation is a large need for the center. Besides transportation, Richardson mentioned that the influx of elders to the Hudson area may pose a distinctive challenge to the area, especially when it comes to the lack of geriatricians as well as the programming offered by the senior center which are almost all at capacity.

As mentioned in the transportation section, the aging population is growing at a rapid pace. By 2023, the 80+ population will have increased by almost 5%, making it the fastest growing population of people in the Emerson Hospital service area. This population of people have a specific and unique medley of issues that they face daily. There are not enough geriatricians in the area and there are certainly not enough geriatric-psychologists. These specialties are needed in an area where there is such an enormous elderly population. There also needs to be better housing options for those who want to downsize as well as more transportation options so that individuals can get to the hospital and their doctor appointments much more easily.

Amy Loveless, the Director of the Maynard Council on Aging, also spoke on many of the issues that the rapidly growing aging population are facing. One of the biggest "problem areas" is centered on their caregivers. Loveless said that "… many times the caregiver is forgotten about …" The ones who are giving the care need an outlet or support group available for them. Many times the caregivers are an afterthought since they are not the ones "in need". However, they are a group very much in need. Loveless suggested that an after work support group would be greatly appreciated among these caregivers and would serve as their "safe space" where they can vent and discuss their feelings.

Cancer

Cancer is the leading cause of death in the Emerson Hospital service area. Breast and prostate cancer are the two most common cancers in the area followed by lung, colorectal, melanoma and lymphoma. More people in the service area died of lung cancer than any other type of cancer as it is one of the hardest cancers to cure overall. As a result of the 2015 CHNA report, twn sunscreen dispensers were ordered by Emerson Hospital to be placed in public areas in Concord, Sudbury, Hudson, Littleton and Westford. These initiatives have been a success. There was a drop in the incidence rate of melanoma from 2015 to 2018.

Robin Schoenthaler, MD, a Radiation Oncology specialist, spoke to the health issues and health access issues that those in the cancer community face. Like many others, she said that access to transportation was an issue for many patients. She also mentioned that she sees many patients who are at the poverty level and, therefore, rely on their insurance plans to help pay for their treatments. However, Dr. Schoenthaler pointed out that the insurance coverage that many of her patients have often are high deductible plans. As a result, November and December are the highest volume months of the year since many patients are trying to reach their deductibles come the end of the year and there is a push to finish all treatments in a limited amount of time. Another health issue Schoenthaler mentioned was access to mental health, or a psycho-oncologist. This is an important piece of the puzzle for those facing a life-threatening disease. One of the services that Dr. Schoenthaler would like to see implemented throughout the breast cancer service is a nurse navigator program. Currently, there are only two nurses on the Radiation Oncology staff. The center sees over 200 cases a year of breast cancer. The nurse navigator would act as a liaison between the patient and their families and their doctors. To have someone there immediately after a cancer diagnosis to tell the patient what the next steps they need to take are, such as making an oncologist or radiologist appointment, would be invaluable for the patient. The nurse navigator could also be a resource for the patient who will undoubtedly have many questions. The nurse navigator pilot program for the breast cancer service could become a much larger program implemented throughout the entire Cancer Center of Emerson Hospital.

Overall, Emerson Hospital wants to continue working to reduce the number of people dying from preventable cancers, such as melanoma, as well as continue to work towards screening more regularly for breast and prostate cancer. There is already a good infrastructure of outreach programs centered around the cancer community as well. One possible way of helping patients and their families with this would be through a nurse navigator pilot program.

Mental Health and Domestic Violence

Both mental health and domestic violence are growing health and social needs within the Emerson Hospital service area. Approximately 15% of residents within the service area reported 15 or more days of suffering from poor mental health. This is an increase from the numbers reported on this issue in the Community Health Needs Assessment of 2015.

Bethany Hadvab, the town social worker of Sudbury, spoke about the health issues she is seeing in the Sudbury area. She, like others, mentioned transportation as one of the main issues facing residents there. Financial literacy was another large issue facing the community. Hadvab told me that many residents live in subsidized housing or are seniors who have trouble with understanding property taxes. She wants to put together a financial literacy program that teaches the residents of Sudbury about common financial tasks, such as filling out tax forms and learning to put together a weekly budget. She also mentioned domestic violence and mental health as another huge issue plaguing the community. Hadvab said, "More and more people are coming forward and reporting abuse, whether it is financial abuse, mental abuse or physical abuse […] I think our number of DV cases are increasing because people feel safer reporting now due to our outreach efforts in the community." Along with this, Hadvab mentioned that there is a new sect of DV coming about coined "financial violence" in which one party in a relationship holds all the power over the other financially. All the property and all the bank accounts the couples have is in the abusive partner's name and, therefore, if the other partner tries to leave he/she is left with absolutely nothing. This is especially an issue in high socio-economic status areas, such as the Emerson Hospital service area.

Anthony Piro, the Director of Operations and Psychiatry at Emerson Hospital, and James Evans, MD, the Medical Director of Behavioral Health Service at Emerson Hospital, both spoke about mental health and the health access issues that arise within this population of individuals. One of the biggest issues that was revealed was that the addiction recovery unit does not offer suboxone as a treatment for opioid addiction. "We need to offer suboxone for treatment recovery […] methadone is on its way out …" Throughout the entire service area there is a lack of outpatient treatment centers for those suffering from mental health disorders. Also, there are very few geriatric psychiatrists in general although the need for them is great. Both Piro and Dr. Evans also said that many times substance abuse goes undetected in the geriatric patients. One of the most significant issues mentioned by them was that there is a "horrible shortage" of child and adolescent beds in behavioral psychiatric units.

Jacquelin Apsler, the Executive Director of the Domestic Violence Services Network, spoke to the issue of domestic violence and the understanding and compassion that needs to be better conveyed to those in abusive situations. Apsler mentioned that there is a large need in the community for better outreach efforts from doctors, nurses and police officers. However, she did mention that she understands the complexity of the issue. "In a perfect world", Apsler said, "we would be able to put together a class for nurses to teach them what DV looks like and how to interact with those who come into the hospital that are suspected to be suffering." Apsler went on to say that nurses are the first line of defense since many times they are the ones to interact with the injured party due to the abusive partner. "It would be a major step in the right direction."

IMPLEMENTATION PLAN

Issue 1: Lack of Transportation

Strategy 1

Emerson Hospital is working with both the Council on Aging (CoA) in Hudson and the CrossTown Connect (CTC) transportation group in order to form a partnership. The CTC provides transportation

services for those without any other option. A key component of a town becoming a member is that they would have access to the Central Dispatch Call Center. This call center allows for any CoA that is participating to have access to all the other buses from all the CoAs through the central dispatcher. One of the key areas of focus for Emerson, the Hudson CoA and the CTC is medical transportation. Previously, the CTC was not in service in the Hudson area.

- Partnership between CTC and Hudson CoA will allow Hudson to become a part of the service area for the CTC
- Hudson CoA will be able to transport residents to appointments at Emerson Hospital, which they previously were unable to do due to lack of buses

Strategy 2

Emerson Hospital is aiding in bringing TransLoc to the service area, along with various other partners around the community including many CoAs, the MetroWest Regional Transit Authority (MWRTA) and the CrossTown Connect. TransLoc is a microtransit approach to the transportation issue. Microtransit responds to the specific transportation challenges facing the community including car-dependence, population aging, increasing mobility problems, few affordable non-driving options, and a varied population density.

- Pilot program would include taxi, bus, livery and other transportation resources from within participating towns and the MWRTA
- The pilot would be a three-phase process: simulation, pilot and agency-run implementation

Issue 2: At – Risk Adolescents

Strategy 1

Emerson Hospital will continue with supporting local school districts as was in the implementation plan from the 2015 CHNA. The hospital will provide teach-the-teacher Extra Edge workshops which are adapted from the Benson-Henry Institute for Mind Body Medicine's Education Initiative. This research validated program brings stress-reduction and life-management skills to students.

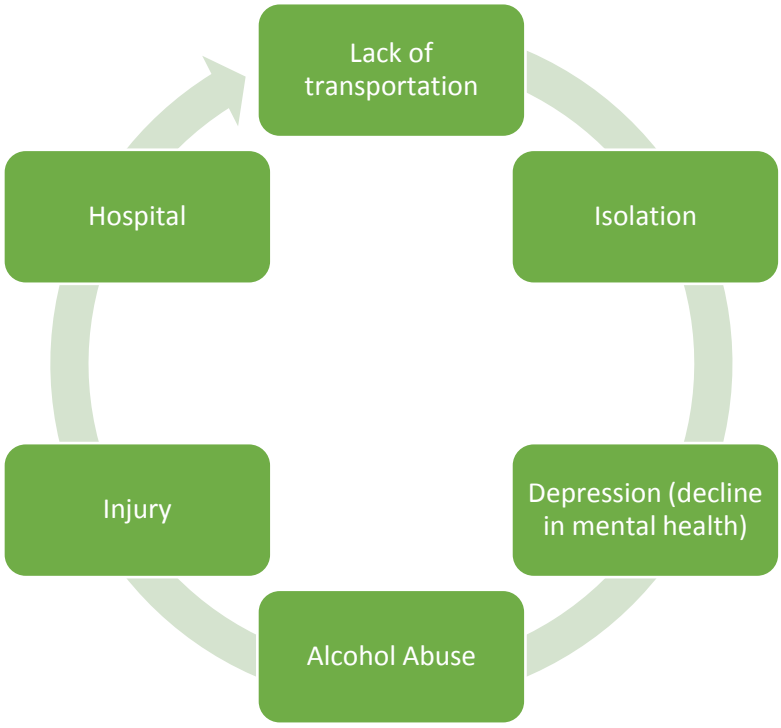
- Teach-the-Teacher will include 45 Concord teachers and 25 Westford teachers that have been trained through Emerson Hospital's sponsorship
- Emerson Hospital will sponsor 25 teachers from Acton-Boxborough and 25 teachers from Maynard as well

Strategy 2

The Youth Risk Behavior Survey (YRBS) will continue to be performed every two years by Emerson Hospital. It is an invaluable tool to the hospital and the community in order to gauge the true behaviors of adolescents and high school students. The data ascertained from the YRBS is used as a baseline for future years and as a way to track the ever-changing population of who is and who is not at risk.

Issue 3: Growing Aging Population

The rapidly growing aging population is an issue for Emerson Hospital and will only continue to grow into an even larger issue. There is not just one key issue among this population due to the vast number of problems and concerns that this population of people face. Below is an example of how the growing aging population will continue to exacerbate hospital outpatient resources unless strategies are put into place to combat issues such as lack of transportation, mental health and alcohol abuse, just to name a few.



Commonly, elderly individuals lose the ability to drive or have their cars taken away by concerned family members. This lack of transportation keeps them feeling isolated and as a result a decline in mental health is almost always seen combined with dependency on alcohol or other prescription medications. This alcohol and drug abuse can often lead to falls and broken bones which will land an elderly individual into the hospital. The cycle then begins again with the patient now having no transportation to return home.

Issue 4: Cancer

Strategy 1

Emerson Hospital will continue with the sunscreen dispenser program as was suggested in the implementation plan of the 2015 CHNA. In Phase 1 of the sunscreen dispenser program, the dispensers were targeted for Littleton, Westford, Sudbury, Concord and Hudson.

- In Phase 2, the dispensers will be placed in Groton, Bedford, Acton, Maynard and Carlisle
- Emerson will partner with the Town Public Health Directors as well as the Parks and Recreation force to ensure the dispensers are kept clean and filled with sunscreen

Strategy 2

Emerson Hospital will continue will Low-Dose CT Screenings for lung cancer as was suggested in the implementation plan of the 2015 CHNA. The low-dose CT screenings are used to help diagnose lung cancer at earlier stages. This is important for our service area as lung cancer kills more people in this community than any other type of cancer.

Strategy 3

Emerson Hospital will continue its annual Family Health and Wellness Expo. At this expo, community members can access free screening programs for cancers such as prostate, skin and oral and receive training on self-examinations for breast cancer.

Strategy 4

Emerson will work with the medical staff to present ongoing cancer prevention and education lectures for the community and our target populations.

Issue 5: Mental Health and Domestic Violence

Strategy 1A and 1B

Emerson Hospital will continue to work with local schools to sponsor the bi-annual Youth Risk Behavior Survey (YRBS) to identify at-risk adolescents. The next YRBS will be conducted in 2020. Emerson Hospital will also pilot a program that would create a baseline survey similar to the YRBS to be given to the elderly population in our service area to assess the behavioral health needs of seniors and their caregivers. The goal is that this survey would be replicated in future years to provide trend line data, similar to YRBS. The survey will be modeled after a similar survey from the Center for Disease Control and Prevention.

Strategy 2

As a part of the annual competency training that all Emerson Hospital staff receive, there will be a section added to address Domestic Violence and Financial Violence and how to deal with patients presenting with these issues.

Strategy 3

Emerson Hospital will continue working on domestic violence training with the Domestic Violence Service Network as was suggested in the implementation plan of the 2015 CHNA. In Phase 1, the training was provided to 80 Emerson patient care employees in the Emergency Department. In Phase 2, the training will be given to new staff in the Emergency Department as well as staff in Obstetrical Services and Pediatrics. Is it important to note that "financial violence" is a new term under the larger domestic violence umbrella and as such needs to be taught to all staff, even those who were previously trained.

Approval of Needs Assessment Implementation Plan

Emerson Hospital's Community Benefits Advisory Group (CBAG) met on September 25, 2018, to review the key findings, focus areas and approve the recommended priorities and implementation plan.

The Emerson Hospital Board of Directors met in October 2018 to review the findings of the 2018 Community Health Needs Assessment and approve the recommended priorities and implementation plan.

APPENDICES

Appendix A: Key Informants

Name	Position
Alice Sapienza	Member, Board of Directors, Sudbury Council on Aging
Amy Gullotti	Middle School Nurse, Sudbury
Amy Loveless	Director, Maynard Council on Aging
Anthony Piro	Director of Operations/Psychiatry, Emerson Hospital
Bethany Hadvab	Town Social Worker, Sudbury
Doug Halley	Town of Acton Health Director & Transportation Coordinator
Eva Willens	Deputy Administrator, MetroWest Regional Transit Authority
Franny Osman	Chair, Transportation Advisory Committee of Acton
Ginger Quarles	Director, Concord Council on Aging
Holly Richardson	Social Service Advocate, Town of Hudson
James Evans, MD	Medical Director of Behavioral Health Services, Emerson Hospital
Janice Long	Director, Hudson Senior Center
Jacquelin Apsler	Executive Director, Domestic Violence Services Network, Inc.
Joseph Palomba, MD	Medical Director, Emerson Urgent Care, Hudson & Littleton
Judith Labossiere	Executive Director, Home Care Services, Emerson Hospital
Margaret Hannah	Director, Freedman Center for Child and Family Development
Robin Schoenthaler, MD	Radiation Oncologist, Emerson and Massachusetts General Hospitals
Susan Rask	Public Health Director, Town of Concord

Appendix B: Community Health Network Areas (CHNA) Descriptions

CHNA 15: Northwest Suburban Health Alliance Towns (Metro West Region)

Acton, Bedford, Boxborough, Burlington, ***Carlisle, Concord***, Lexington, ***Lincoln, Littleton,*** Wilmington, Winchester, Woburn

CHNA 9: Community Health Network of North Central Massachusetts Towns (Central Region)

Ashburnham, Ashby, **Ayer**, Barre, Berlin, ***Bolton,*** Clinton, Fitchburg, Gardner, **Groton**, Hardwick, ***Harvard,*** Hubbardston, Lancaster, Leominster, Lunenburg, New Braintree, Oakham, **Pepperell,** Princeton, Rutland, **Shirley**, Sterling, Templeton, Townsend, Westminster, Winchendon

Bold Italics: Primary Service Area (PSA)

Bold: Secondary West Area (SW)

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ATTACHMENT 5C

EMERSON HOSPITAL COMMUNITY HEALTH IMPROVEMENT PLAN

The Key focus areas identified through the process are as follows:

1. Lack of Transportation Options

Population Cohort: Older adults and adults with disabilities

Assessment Findings: The Emerson Hospital service area is located in an area only accessible through the use of motor vehicle transportation. Public transportation routes do not directly run through the service area. To add to this dilemma, many individuals are separated from the hospital by highways with very few sidewalks available to walk on. The growing aging population is far more active than previous aging populations, and there are more and more people living to be 80 or 90. However, many older adults stop driving at some point and have very few transportation options. Transportation for medical needs is a large barrier for many Council on Aging sites.

Implementation Strategies:

- Emerson Hospital is working with CrossTown Connect (CTC) transportation group in close partnership. CTC provides transportation services for those without any other option. A key component of becoming a member is access to the Central Dispatch Call Center. One of the key focus areas for Emerson and CTC is to increase options for medical transportation.
- In partnership, CTC and Emerson will work on small group pilots within various departments of the hospital to reduce transportation barriers.
- Emerson Hospital is working with various communities in support of transportation efforts. Internal communication plan to staff and patients will be initiated to connect needs of patients with resources in the community.
- Emerson Hospital will continue to fund Uber rides leaving the Emergency Department, Cancer Center, and behavioral health patients.
- Provide grant funding to community agencies with the goal of improving transportation options to the community.

Goals:

- Reduce cancelled and missed appointments due to lack of transportation.
- Increase access to medical care
- Reduce transportation burden on family and friends by increasing transportation options
- Improve quality of life by promoting independence

2. At-Risk Adolescents

Population Cohort: Youth grades 6-12

Assessment Findings: The top issues found from the 2018 Youth Risk Behavior Survey include stress mostly due to school work, the increase in vaping, mental health and risk of suicide. At-Risk Adolescents are those with many risk factors in common such as lack of sleep, poor grades, has been bullied or has bullied others, has experienced sexual or physical violence and smokes, chews or uses drugs. There is a need for more outreach programs and increased staff training on mental health issues. Engaging the schools, parents, community and medical staff is key for improvements in the health of youth in the Emerson service area. Overall, there needs to be a concerted effort by parents, schools, and the community to reach at-risk children. The "at-risk" adolescents are still young enough to be taught different ways of coping and behaving. It is also of the utmost importance that these adolescents have properly trained therapists in the schools and out in the community. At the moment, there is a lack of outpatient mental health services and, for those services that do exist in the area, the cost is a chief deterrent for many families. Many insurances used in the Emerson Hospital service area do not have high reimbursement rates for mental health services, a common issue not just in our service area.

Implementation Strategies:

1. Emerson Hospital will continue its collaboration with local school districts to sponsor the biannual Emerson Hospital Youth Risk Behavior Survey (YRBS) so that mental health, substance use and other trends can continue to be understood and addressed by individual communities. In collaboration with Market Street Research and school representatives, the 2020 survey will be revised based on emerging issues. YRBS will be administered to students in March 2020.

Goals:

- Determine the prevalence of health behaviors.
- Assess whether health behaviors increase, decrease, or stay the same over time.
- Examine the co-occurrence of health behaviors.
- Provide comparable national, state, territorial, tribal, and local data.
- Provide comparable data among subpopulations of youth.
- Monitor progress toward achieving the Healthy People objectives and other program indicators.

2. Representatives from Emerson Hospital will continue participation in the West Suburban Mental Health Collaboration.

Goals:

- Strengthen partnerships between area schools and community resources.
- Launch a consistent and collaborative data-driven planning process, focused on implementing effective and sustainable strategies and interventions.

3. Address public health emergency of e-cigarette use among teens and dangers among adults.

Goals:

- Provide education to youth through schools
- Provide education to parents and communities through evening programs

- Utilize social media to promote education and resources
- Promote current cessation programming and research in person cessation options to provide through Emerson Hospital
- Support local and state policy around flavor bans and sale in 21+ shops

4. Provide grant funding to community agencies with the goal of improving youth mental health and reducing risky behavior.

3. Cancer

Population Cohort: Adults and Children

Assessment findings: Cancer is the leading cause of death in the Emerson Hospital service area. Breast and prostate cancer are the two most common cancers in the area followed by lung, colorectal, melanoma and lymphoma. More people in the service area died of lung cancer than any other type of cancer as it is one of the hardest cancers to cure overall.

Implementation Strategies:

- Emerson Hospital will continue partnership between IMPACT Melanoma and various municipalities providing sunscreen dispensers. IMPACT Melanoma will work with Emerson and communities to implement additional educational programming to spa/direct service employees and schools to support melanoma prevention.
- Emerson Hospital will continue to provide community members access to free for cancers such as prostate, skin and oral and receive training on self-examinations for breast cancer.
- Provide grant funding to community agencies with the goal of reducing cancer risks and improving cancer care.

Goals:

- Increase the awareness and knowledge of cancer prevention, care and support services within the Emerson community.
- Support community organizations in their efforts to provide programs and services to cancer patients and families.
- Reduce overall cancer incidence and increase early detection rates

4. Domestic Violence

Population Cohort: Adults

Assessment Findings: Jacquelin Apsler spoke to the issue of domestic violence and the understanding and compassion that needs to be better conveyed to those in abusive situations. Apsler mentioned that there is a large need in the community for better outreach efforts from doctors, nurses and police officers. However, she did mention that she understands the complexity of the issue. There is a new sect of Domestic Violence coming about coined “financial violence” in which one party in a relationship holds

all the power over the other financially. All the property and all the bank accounts the couples have is in the abusive partner's name and, therefore, if the other partner tries to leave he/she is left with absolutely nothing. This is especially an issue in high socio-economic status areas, such as the Emerson Hospital service area.

Implementation Strategies:

- As a part of the annual competency training that all Emerson Hospital staff receive, there will be a section added to address Domestic Violence and Financial Violence and how to deal with patients presenting with these issues.
- Emerson Hospital will work with the Domestic Violence Service Network to provide 5 trainings to hospital staff and community partners. Over 5 years ago the training was provided to 80 Emerson patient care employees in the Emergency Department. This year we will be focused on training new staff in the Emergency Department, Care Management, Maternity, Primary Care, Urgent Care and Home Care staff. Is it important to note that "financial violence" is a new term under the larger domestic violence umbrella and as such needs to be taught to all staff, even those who were previously trained.
- Provide grant funding to community agencies who aim to work with domestic violence victims, raise awareness and education.

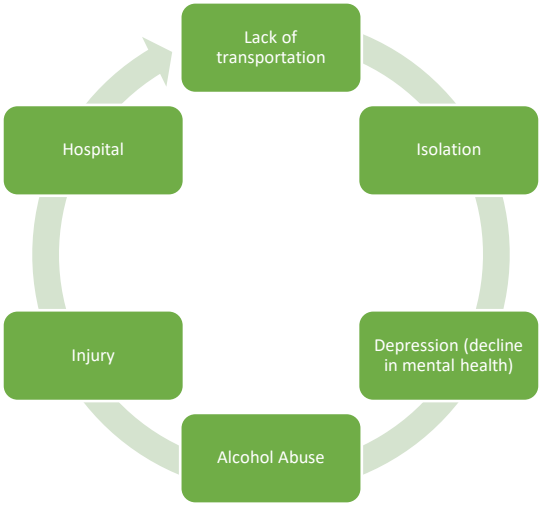
Goals:

- Increase the awareness and knowledge of domestic violence.
- Increase care and support services for victims of domestic violence.
- Increase knowledge and community support among Emerson staff and other community partners who may come in close contact with individuals who have experienced domestic violence.

5. The growing Aging Population

Population Cohort: Older Adults

Assessment findings: As of 2018, there are approximately 37,000 people in the Emerson Hospital service area above the age of 65. However, this cohort of individuals is expected to



increase by 25% over the next five years making it the fastest growing population in the service area. With a rapidly increasing elderly population, comes a number of other issues. Transportation, housing, mental health care and caregiver stress are the top issues discussed throughout the interview process.

Implementation Strategies:

- Fund caregiver support programming
- Increase funding to COA transportation
- Increase dementia friendly efforts within the hospital
    - This is Me Tool
    - Volunteer trained Dementia Buddies
- Work with the Care Transitions Collaborative through Care Management
    - Address caregiver needs
    - Increase dementia friendly efforts in the community
    - Address SDOH of older adults through community partnerships
- Work with community partners to provide education on various health topics relative to the aging population.
- Provide grant funding to community agencies who are working with older adults to improve their overall health and well-being.

Goals:

- Increase education and support to caregiver population.
- Increase education and support for dementia population.
- Reduce overall burden and stress on caregivers
- Improve overall health of aging population through addressing SDOH

Addressing SDOH

Assessment Findings: Understanding the role of Social Determinants of Health (SDOH) in the community is key to improve overall health. Some of these social determinants of health include income status, education quality, stability of the built environment, environmental hazards, food security, etc. Understanding and grasping the relationship between these determinants and the how a population is thriving is essential to realizing the root causes of many common community issues. In the Emerson Hospital service area certain populations within the community struggle with various SDOH. Older adults and lower income residents are two key populations within the Emerson service area most affected with SDOH.

Implementation Strategies:

- Transportation (previously mentioned)
- Address Food insecurity through employee food drives to gather donations from employees and on give to local food banks, and provide nutrition education in partnership with local farms and food donation sites.

- Reduce barriers to care through homecare visits to assess need of care at home after an illness, injury or surgery; provide multidisciplinary services within the home to help patients achieve the highest possible level of independence and comfort.
- Provide support groups for various health conditions and populations to increase social network, provide educational resources and counseling.
- Reduce language barriers to care through translation services.
- Provide grant funding to community agencies who are addressing SDOH in our communities.

Goals:

- Improve food security for older adults and lower income residents
- Reduce barriers to care
- Increase social support networks

ATTACHMENT 5D

CHNA/CHIP SELF-ASSESSMENT FORM

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

Version: 8-1-17

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

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

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

Approximate DoN Application Date: 08/14/2020 DoN Application Type: Hospital/Clinic Substantial Change in Service

What CHI Tier is the project? (•) Tier 1 ( ) Tier 2 ( ) Tier 3

1. DoN Applicant Information

Applicant Name: Shields PET-CT at Emerson Hospital, LLC

Mailing Address: 133 Old Road to Nine Acre Corner

City: Concord State: Massachusetts Zip Code: 01742

2. Community Engagement Contact Person

Contact Person: Kelsey Magnuson Title: Community Benefits Coordinator

Mailing Address: 310 Baker Ave

City: Concord State: Massachusetts Zip Code: 01742

Phone: 8025581871 Ext: E-mail: kmagnuson@emersonhosp.org

3. About the Community Engagement Process

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

2018 Emerson CHNA

4. Associated Community Health Needs Assessments

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

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

Add/ Del Rows	Lead Organization Name / CHNA/CHIP Name	Years of Collaboration	Name of Lead Organizer	Phone Number	Email Address of Lead Organizer
+ -					

5. CHNA Analysis Coverage

Within the 2018 Emerson CHNA , please describe how the following DPH Focus Issues were analyzed DoN Health Priorities and Focus Issues (please provide summary information including types of data used and references to where in the submitted CHNA/CHIP documents these issues are discussed):

5.1 Built Environment

a) Qualitative data collected during interviews and conversations among the Community Benefits Advisory Committee looked at the built environment of the Emerson community. Specifically, transportation options were discussed heavily in multiple interviews and were reported on in the Key Interview Findings of the CHNA on page 31. The issue of transportation was brought up by public health directors and staff at council on agings. The Emerson Hospital service area is located in an area only accessible through the use of motor vehicle transportation. Public transportation routes do not directly run through the service area. To add to this dilemma, many individuals are separated from the hospital by highways with very few sidewalks available to walk on. The growing aging population is far more active than previous aging populations, and there are more and more people living to be 80 or 90. However, many older adults stop driving at some point and have very few transportation options. Transportation for medical needs is a large barrier for many Council on Aging sites. Plans to address transportation in the community can be found in the Updated 2020 CHIP on page 1. Food access was another topic discussed in interviews and is a key part of the 2020 CHIP through partnerships with local farms and food service agencies on page 5. The community has dense woods and open areas where tics are prevalent. Information from the CDC and WBUR were captured in the health outcomes data section on page 24.

5.2 Education

a) Quantitative data retrieved from Census data was captured to understand the educational attainment of the Emerson community on page 9. Data from the Youth Risk Behavior Survey is also used to understand the behaviors and perceptions of students within the education system on page 25.

5.3 Employment

a) Quantitative data retrieved from Census data was captured to understand the employment status of the Emerson community. Employment data and income levels are captured within the 2018 CHNA on page 10-13.

5.4 Housing

a) Qualitative data collected through interviews included information about housing status of residents. There are housing concerns among older adults reported in the Key Interview Findings on page 32.

5.5 Social Environment

a) Qualitative data collected through interviews provided assessment of the social environment. There are many options of social support through Council on Aging's. However, there is concern about social isolation and its effects on overall health in the aging population details found on page 32. Staff at senior centers provided insight into the concerns of older adults with transportation and isolation. Efforts to address the aging population are included in the 2020 CHIP on page 4-5. Support groups are a key part of social environment for caregivers and serious health issues. Support groups are incorporated into the 2020 CHIP on page 6.

5.6 Violence and Trauma

a) Quantitative and qualitative data of domestic violence were captured through the assessment process and detailed in the Key Interview Findings on page 33-34 . A town social worker and director of a domestic violence support agency provided further insight to why domestic violence is an issue in the Emerson service area. Bethany Hadvab, Sudbury Town Social Worker, stated, "More and more people are coming forward and reporting abuse, whether it is financial abuse, mental abuse or physical abuse [...] I think our number of DV cases are increasing because people feel safer reporting now due to our outreach efforts in the community." Along with this, Hadvab mentioned that there is a new sect of DV coming about coined "financial violence" in which one party in a relationship holds all the power over the other financially. All the property and all the bank accounts the couples have is in the abusive partner's name and, therefore, if the other partner tries to leave he/she is left with absolutely nothing. This is especially an issue in high socio-economic status areas, such as the Emerson Hospital service area. A plan to address domestic violence is included in the Updated 2020 CHIP on page 3. The Youth Risk Behavior Survey captures data on suicide ideation and attempts; sexual behavior and trauma; online and in person bullying; and weapon use. Highlights of YRBS results and additional qualitative data through interviews is captured in the 2018 CHNA on page 25. At-Risk Adolescents are those with many risk factors in common such as lack of sleep, poor grades, has been bullied or has bullied others, has experienced sexual or physical violence and smokes, chews or uses drugs. Plans to address At-Risk Youth are included in the 2020 CHIP on page 2.

5.7 The following specific focus issues

a. Substance Use Disorder

a) Quantitative data from the Behavioral Risk Factor Surveillance Survey and opioid data from Mass.gov were captured in the Health Outcomes section of the 2018 CHNA on page 21-23. Youth Risk Behavior Survey data on alcohol consumption, electronic cigarette use and other drug use were also captured in the survey on page 25. Qualitative data on substance use is captured and reported in the Key Interview Findings on page 33-34.

b. Mental Illness and Mental Health

a) Quantitative data from the Behavioral Risk Factor Surveillance Survey and qualitative data from interviews are captured in the 2018 CHNA on page 15 and 33. Poor mental health among adults and social isolation among older adults were key issues identified. Approximately 15% of residents within the service area reported 15 or more days of suffering from poor mental health. Throughout the entire service area there is a lack of outpatient treatment centers for those suffering from mental health disorders. Also, there are very few geriatric psychiatrists in general although the need for them is great. A senior center director brought up concerns for caregiver stress and overall mental health of those caring for loved ones. Strategies for addressing older adult isolation are included in the 2020 CHIP on page 4-5. Mental health data from the Youth Risk Behavior Survey was captured and reported on in the assessment on page 25. Amy Gullotti, a nurse at the Sudbury middle school, spoke to the issue of at-risk adolescents. She mentioned that many of the students suffer from anxiety, depression and even self-harm. The Sudbury school district is just one of many schools in the area with students suffering from these mental health problems. Strategies for addressing youth stress are included in the 2020 CHIP on page 2.

c. Housing Stability / Homelessness

a) Qualitative data collected through interviews included information about housing status of residents. There are housing concerns among older adults reported in the Key Interview Findings on page 32.

d. Chronic Disease with a focus on Cancer, Heart Disease, and Diabetes

a) Quantitative data on chronic disease rates were gathered from Mass.gov is captured in the Health Outcomes section of the 2018 CHNA on pages 9-21. Cancer is the leading cause of death in the Emerson Hospital service area. Breast and prostate cancer are the two most common cancers in the area followed by lung, colorectal, melanoma and lymphoma. More people in the service area died of lung cancer than any other type of cancer as it is one of the hardest cancers to cure overall. Addressing the high Cancer rates are a priority and strategies to address this issue are found in the 2020 CHIP on page 3.

6. Community Definition

Specify the community(ies) identified in the Applicant's 2018 Emerson CHNA

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
+ -	Townsend	
+ -	Pepperell	
+ -	Lunenburg	
+ -	Shirley	
+ -	Groton	
+ -	Ayer	
+ -	Lancaster	
+ -	Harvard	
+ -	Berlin	

Add/Del Rows	Municipality	If engagement occurs in specific neighborhoods, please list those specific neighborhoods:
+ -	Bolton	
+ -	Littleton	
+ -	Westford	
+ -	Chelmsford	
+ -	Carlisle	
+ -	Acton	
+ -	Maynard	
+ -	Stow	
+ -	Hudson	
+ -	Sudbury	
+ -	Wayland	
+ -	Lincoln	
+ -	Lexington	
+ -	Bedford	
+ -	Concord	

7. Local Health Departments

Please identify the local health departments that were included in your 2018 Emerson CHNA . Indicate which of these local health departments were engaged in this 2018 Emerson CHNA . For example, this could mean participation on an advisory committee, included in key informant interviewing, etc. (*Please see page 24 in the Communit further description of this requirement* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf.)

Add/ Del Rows	Municipality	Name of Local Health Dept	Name of Primary Contact	*Email address*	Describe how the health department was involved
+ -	Concord	Concord Health Department	Susan Rask	srask@concordma.gov	key informant interview and participant on advisory committee
+ -	Sudbury	Sudbury Health Department	Bethany Hadvab	hadvabb@sudbury.ma.us	Key Informant Interview
+ -	Acton	Health Health Department	Doug Halley	Retired	Key Informant Interview

8. CHNA / CHIP Advisory Committee

Please list the community partners involved in the CHNA/CHIP Advisory Committee that guided the 2018 Emerson CHNA . (please see the required list of sectorial representation in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf) Please note that these individuals are those who should complete the *Stakeholder Engagement Assessment* form. It is the responsibility of the Applicant to ensure that DPH receives the completed *Stakeholder Engagement Assessment* form:

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Municipal Staff	Concord Health Department	Susan Rask	Public Health Director	srask@concordma.gov	9783183100
	Education	Maynard Public Schools	Lisa MacLean	Guidance Counselor	lmaclean@maynard.k12.ma.us	9788978891
	Housing					
	Social Services	Concord Council on Aging	Ginger Quarles	COA Director	gquarles@concordma.gov	9783183020
	Planning + Transportation					
	Private Sector/ Business					
	Community Health Center					
	Community Based Organizations	Open Table	Jill Block	Board member	jillblock16@gmail.com	
+ -	Community-based organizations		Bill Ryan	Community volunteer	bryan70@me.com	
+ -	Community-based organizations		Jill Stanksy	Community Volunteer	jmstansky@gmail.com	

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
+ -	Education	Simmons University	John Lowe	Associate Professor, Director of the Undergraduate Program	lowe@simmons.edu	6175212375
+ -						

8a. Community Health Initiative

For Tier 2 and Tier 3 CHI Projects, is the the Applicant's CHNA / CHIP Advisory Board the same body that will serve as the CHI advisory committee as outlined in the Table 1 of the Determination of Need Community-Based Health Initiative Guideline (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-chi-planning.pdf)?

(•) Yes ( ) No

For Tier 2 DON CHI Applicants: The CHI Advisory Committee is tasked with helping select DoN Health Priorities based on the CHNA / CHIP unless the Applicant is directed by DPH to conduct additional community engagement. If so, the advisory committee's role is to guide that additional work.

For Tier 3 DON CHI Applicants: The CHI Advisory Committee is to select DoN Health Priorities based on, **but not exclusive to,** the CHNA / CHIP. This includes the additional community engagement that must occur to develop the issue priorities.

Add/Del Rows	Sector Type	Organization Name	Name of Primary Contact	Title in Organization	Email Address	Phone Number
	Municipal Staff					
	Education					
	Housing					
	Social Services					
	Planning + Transportation					
	Private Sector/ Business					
	Community Health Center					
	Community Based Organizations					
+ -						

9. Engaging the Community At Large

Thinking about the extent to which the community has been or currently is involved in the 2018 Emerson CHNA , please choose one response for each engagement activity below. Please also check the box to the left to indicate whether that step is complete or not. (For definitions of each step, please see pages 12-14 in the *Community Engagement Standards for Community Health Planning Guidelines* http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

	Inform	Consult	Involve	Collaborate	Delegate	Community - Driven / -Led
☒ Assess Needs and Resources	○	○	◉	○	○	○
Please describe the engagement process employed during the "Assess Needs and Resources" phase.	Interviews were conducted representing a variety of populations. Key interview informants were determined by community partners and staff. Information was gathered on all SDOH to understand strengths and gaps through quantitative and qualitative data.					
☒ Focus on What's Important	○	○	◉	○	○	○
Please describe the engagement process employed during the "Focus on What's Important" phase.	Quantitative and qualitative information was presented to CBAC members throughout the assessment process. Members provided continuous feedback and priorities were set using common themes. The majority of the priority populations and focus areas were determined as a result of qualitative interviews with community members representing a diverse cross-sector set of individuals.					
☒ Choose Effective Policies and Programs	○	○	○	◉	○	○
Please describe the engagement process employed during the "Choose Effective Policies and Programs" phase.	Various community partners have guided community benefit programming to address the identified priorities. Community partners present ideas and proposals for the hospital to get involved with and to financially support. In FY 20, Emerson started a Community Benefits Award where community partners applied for funding to support projects related to top priorities. A review committee made of up staff and community representation chose specific projects to fund.					
☒ Act on What's Important	○	○	○	◉	○	○
Please describe the engagement process employed during the "Act on What's Important" phase.	Emerson Hospital is committed to collaborating with our community partners to: improve the health status of all those it serves; address root causes of health disparities; and educate the community in prevention and self-care strategies. The majority of efforts to address priorities are in strong partnership with community agencies. We rely on the innovation and creativity of those in the community to address key health issues.					
☒ Evaluate Actions	○	○	◉	○	○	○
Please describe the engagement process employed during the "Evaluate Actions" phase.	Community partners provide feedback on various programs/initiatives to help evaluate efforts. Emerson works with community partners to communicate outcomes and evaluation measures.					

10. Representativeness

Approximately, how many community agencies are currently involved in 2018 Emerson CHNA within the engagement of the community at large?

15 Agencies

Approximately, how many people were engaged in the process (please include team members from all relevant agencies and independent community members from the community at large)?

24 Individuals

Please describe the diversity of the people who have been engaged in the process both within the CHNA/CHIP Advisory Committee and the community at large. Explicitly describe how the process included diverse representation from different groups/individuals with varied gender, sexual orientation, race/ethnicity, disability status, international status and age. Please see page 10 and Appendix A of *the Community Engagement Standards for Community Health Planning Guideline* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf) for further explanation of this.

The Community Benefits Advisory Committee is made up of men and women representing many communities and serving a variety of populations. Members of the CBAC have worked with young kids, older adults, those with disabilities and the low income population. The close relationship with school representatives provides insight to school aged youth and the issues they face. Partnerships with Council on Aging staff provide insight to older adults and the health concerns they have. Engaging town employees has provided insight into residents from different ethnicities and international status. Each year we evaluate the CBAC and identify new representatives from different towns, backgrounds and priority populations.

Please describe the type of representation that was/is employed in the community engagement process and the rationale for that type of representation. For more information on types of representation and representativeness, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf). Please include descriptions of both the Advisory Board and the Community at large.

CBAC members provided input and insight into key health issues. Community members of the CBAC provided input from their own experiences, and what they were hearing from their own communities. Additionally, the CBAC guided the process for further one-on-one interviews with community stakeholders. Key interview informants then suggested other key people to gather input from. The majority of the interviews focused on community leaders of diverse populations and health issues.

To your best estimate, of the people engaged in 2018 Emerson CHNA approximately how many: Please indicate the number of individuals.

Number of people who reside in rural area	
Number of people who reside in urban area	
Number of people who reside in suburban area	24

11. Resource and Power Sharing

For more information on Power Sharing, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines* (http://www.mass.gov/eohhs/docs/dph/quality/don/guidelines-community-engagement.pdf).

By community partners, we mean agencies, organizations, tribal community, health departments, or other entities representing communities.

By Applicant partners, we mean the hospital / health care system applying for the approval of a DoN project

	Community Partners	Applicant Partners	Both	Don't Know	Not Applicable
Which partner hires personnel to support the community engagement activities?	○	◉	○	○	○
Who decides the strategic direction of the engagement process?	○	○	◉	○	○
Who decides how the financial resources to facilitate the engagement process are shared?	○	○	◉	○	○
Who decides which health outcomes will be measured to inform the process?	○	○	◉	○	○

12. Transparency

Please describe the efforts being made to ensure that the engagement process is transparent. For more information on transparency, please see Appendix A from the *Community Engagement Standards for Community Health Planning Guidelines.*

The CHNA and CHIP are posted on the hospital website for public viewing. Community Benefit processes including the CHNA and CHIP are presented at various levels in the community. Results of the CHNA were presented to the hospital board, the medical staff and to Corporators. Additionally, they have been presented to our PFAC, our local Community Health Network Area (CHNA 15) and open community forums. Community Benefit activities are presented regularly to a variety of audiences.

13. Formal Agreements

Does / did the 2018 Emerson CHNA have written formal agreements such as a Memorandum of Agreement/ Understanding (MOU) or Agency Resolution?

○ Yes, there are written formal agreements ◉ No, there are no written formal agreements

Did decision making through the engagement process involve a verbal agreement between partners?

○ Yes, there are verbal agreements ◉ No, there are no verbal agreements

14. Formal Agreement Specifics

Thinking about your MOU or other formal agreement(s), does it include any provisions or language about:

	Yes	No	Don't Know	Doesn't Apply
Distribution of funds	○	○	○	○
Written Objectives	○	○	○	○
Clear Expectations for Partners' Roles	○	○	○	○
Clear Decision Making Process (e.g. Consensus vs. Voting	○	○	○	○
Conflict resolution	○	○	○	○
Conflict of Interest Paperwork	○	○	○	○

15. Document Ready for Filing

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

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

This document is ready to file: ☒ Date/time Stamp: 08/14/2020 12:24 pm

E-mail submission to DPH

E-mail submission to Stakeholders and CHI Advisory Board

When providing the Stakeholder Assessment Forms to the community advisory board members(individuals identified in Section 8 of this form), please include the following information in your correspondence with them. This will aid in their ability to complete the form:

A) Community Engagement Process: 2018 Emerson CHNA

B) Applicant: Shields PET-CT at Emerson Hospital, LLC

C) A link to the DoN CHI Stakeholder Assessment

ATTACHMENT 6

AFFILIATED PARTIES FORM

Massachusetts Department of Public Health
Determination of Need
Affiliated Parties

Version: DRAFT 3-15-17

DRAFT

Application Date: 08/14/2020 Application Number: - 20081410-RE

Applicant Information

Applicant Name: Shields PET-CT at Emerson, LLC

Contact Person: Kerry Whelan Title: Vice President Government Affairs

Phone: 6173767421 Ext: E-mail: kerry@shields.com

Affiliated Parties

1.9 **Affiliated Parties:**
List all officers, members of the board of directors, trustees, stockholders, partners, and other Persons who have an equity or otherwise controlling interest in the application.

Add/ Del Rows	Name (Last)	Name (First)	Mailing Address	City	State	Affiliation	Position with affiliated entity (or with Applicant)	Stock, shares, or partnership	Percent Equity (numbers only)	Convictions or violations	List other health care facilities affiliated with	Business relationship with Applicant
+ -	Shields	Thomas	700 Congress Street, Suite 204	Quincy	MA	Shields Health Care Group	Chief Executive Owner			No	See Attached	No
+ -	Ferrari	Peter	700 Congress Street, Suite 204	Quincy	MA	Shields Health Care Group	President			No	See Attached	No
+ -	Hachey	Michael	700 Congress Street, Suite 204	Quincy	MA	Emerson Hospital	Chief Financial Officer			No	NA	No
+ -	Schuster	Christine	700 Congress Street, Suite 204	Quincy	MA	Emerson Hospital	President + CEO			No	NA	No

Document Ready for Filing

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

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

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

E-mail submission to Determination of Need

Legal Name	DBA	Service Location Address	City/Town	State	Zip	State	Medicare PTAN
Southeastern Massachusetts Regional MRI Limited Partnership	Shields MRI Brockton	265 Westgate Dr	Brockton	MA	02301-1817	MA	016469
Fall River-New Bedford Regional MRI Limited Partnership	Shields MRI Dartmouth	313 Faunce Corner Rd	Dartmouth	MA	02747-1252	MA	018869
Fall River-New Bedford Regional MRI Limited Partnership	Shields MRI at St Luke's Hospital	361 Allen St	New Bedford	MA	02740-2107	MA	0028894
Shields Healthcare of Cambridge Inc	Shields MRI Brighton	385 Western Ave	Brighton	MA	02135-1005	MA	020369
South Shore MRI Limited Partnership	Shields MRI Weymouth	26 Rockway Ave	Weymouth	MA	02188-3906	MA	327033
Massachusetts Bay Regional MRI Limited Partnership	Shields MRI Boston	161 Granite Ave	Dorchester	MA	02124-5492	MA	020169
Massachusetts Bay Regional MRI Limited Partnership	Shields MRI Dedham	40 Allied Dr - Ste 112	Dedham	MA	02026-6146	MA	0034538
Shields MRI & Imaging Center of Cape Cod LLC	Shields MRI & Imaging Center of Cape Cod	2 Iyanough Rd - Rt 28	W Yarmouth	MA	02673-8135	MA	327057
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial Shrewsbury St	214 Shrewsbury St	Worcester	MA	01604-4629	MA	002737301
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial Memorial Campus	119 Belmont St-U Mass Memorial Campus	Worcester	MA	01605-2903	MA	002737302
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at Wing Hospital	40 Wright St	Palmer	MA	01069-1138	MA	327040
U Mass Memorial MRI & Imaging Center LLC	Shields PETCT at UMass Memorial Burbank	275 Nichols Rd	Fitchburg	MA	01420-1919	MA	0027373
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial University Campus Ste B	55 Lake Ave North Ste H1-713B	Worcester	MA	01655-0002	MA	S300166800
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial University Campus Ste A	55 Lake Ave North Ste H1-351A	Worcester	MA	01655-0002	MA	S300563649
Baystate MRI & Imaging Center LLC	Shields MRI and Baystate Health	80 Wason Ave	Springfield	MA	01107-1132	MA	0018589
Shields Imaging of Eastern Massachusetts LLC	Shields Imaging of Eastern Massachusetts	55 Fogg Rd	S Weymouth	MA	02190-2432	MA	327088
U Mass Memorial HealthAlliance MRI Center LLC	Shields MRI at UMass Memorial Health Alliance Campus	100 Hospital Rd-Ste 1A	Leominster	MA	01453-2253	MA	327082
Shields MRI of Framingham LLC	Shields MRI of Framingham	14 Cochituate Rd	Framingham	MA	01701-7915	MA	327116
U Mass Memorial MRI-Marlborough LLC	Shields MRI at UMass Memorial Marlborough Campus	157 Union St	Marlborough	MA	01752-1228	MA	327115
Frankin MRI Center LLC	Shields MRI at Baystate Franklin Medical Center	164 High St	Greenfield	MA	01301-2613	MA	0010942
Radiation Therapy of Winchester LLC	Winchester Hospital Radiation Oncology Center	620 Washington St	Winchester	MA	01890-1328	MA	0000272
Cape Cod PET-CT Services LLC	Shields PET Service of Cape Cod Harwich	525 Long Pond Dr	Harwich	MA	02645-1227	MA	0010594
Cape Cod PET-CT Services LLC	Shields PET Service of Cape Cod Sandwich	2 Jan Sebastian Dr	Sandwich	MA	02563-2377	MA	001059401
PET-CT Services By Tufts Medical Center and Shields LLC	Shields PETCT at Tufts Medical Center	800 Washington St	Boston	MA	02111-1552	MA	0024437
PET-CT Services By Tufts Medical Center and Shields LLC	Metrowest PET-CT at Shields Framingham in Affiliation with Tufts Medical Center	14 Cochituate Rd-Ste 1A	Framingham	MA	01701-7915	MA	S300129479
Shields Imaging of Lowell General Hospital LLC	Shields MRI at Lowell General Hospital	295 Varnum Ave	Lowell	MA	01854-2134	MA	0025829
Shields Imaging of Lowell General Hospital LLC	Shields MRI at Lowell General Hospital Chelmsford	10 Research Pl	N Chelmsford	MA	01863-2456	MA	002582901
Shields Imaging of Lowell General Hospital LLC	Shields MRI at Lowell General Hospital Saints Campus	1 Hospital Dr	Lowell	MA	01852-1311	MA	S100138677
Winchester Hospital-Shields MRI LLC	Shields MRI Winchester Hospital at Unicorn Park	200 Unicord Park Dr-Ste 402	Woburn	MA	01801-3342	MA	0033808
Winchester Hospital – Shields MRI	Winchester Hospital/Shields MRI	41 Highland Ave - Ste G1	Winchester	MA	01890-1446	MA	S300634235
Shields Signature Imaging LLC	Shields Signature Imaging	680 Centre St	Brockton	MA	02302-3308	MA	S300291877
Shields Sturdy PETCT LLC	Shields Sturdy PETCT	211 Park St	Attleboro	MA	02703-3143	MA	S300305002
Shields PETCT at Cooley Dickinson Hospital LLC	Shields PETCT at Cooley Dickinson Hospital	30 Locust St	Northampton	MA	01060-2052	MA	S300333217
Shields Imaging at Anna Jaques Hospital LLC	Shields Imaging at Anna Jaques Hospital	25 Highland Ave	Newburyport	MA	01950-3867	MA	S300357534
Shields PET-CT at CMMC LLC	Shields PETCT at CMMC	300 Main St	Lewiston	ME	04240-7027	MA	E300352765
Shields PET-CT at CMMC LLC	Shields PETCT at CMMC @ Topsham	105 Topsham Fair Mall Rd	Topsham	ME	04086-1773	MA	E300511797
Shields Imaging at York Hospital LLC	Shields Imaging at York Hospital	114 Sanford Rd	Wells	ME	04090-5533	MA	E100388241
Shields PETCT at Berkshire Medical Center LLC	Shields PETCT at Berkshire Medical Center	165 Tor Court	Pittsfield	MA	01201-3001	MA	S300426507
Shields Imaging of Portsmouth LLC	Shields MRI Portsmouth	1900 Lafayette Rd	Portsmouth	NH	03801-5679	MA	n/a
Healthcare Enterprises LLC	The Surgery Center at Shrewsbury	151 Main St	Shrewsbury	MA	01545-2101	MA	S300494903
Shields Imaging with Central Maine Health LLC	Shields Imaging at Central Maine Health, Topsham	105 Topsham Fair Mall Rd	Topsham	ME	04086-1773	MA	E300498988
Shields Imaging with Central Maine Health LLC	Shields Imaging at Central Maine Health, Auburn	690 Minot Ave, Ste 1	Auburn	ME	4210	MA	E300520539
Baystate Health Urgent Care Center LLC	Baystate Health Urgent Care Longmeadow	688 Bliss Rd	Longmeadow	MA	01106-1534	ME	S100483242
Baystate Health Urgent Care Center LLC	Baystate Health Urgent Care Feeding Hills	241 S Westfield St	Feeding Hills	MA	01030-2713	ME	S100483242
Baystate Health Urgent Care Center LLC	Baystate Health Urgent Care Westfield	24 Union Street	Westfield	MA	01085	ME	S100483242
Natick Surgery Center, LLC	New England Surgical Suites	313 Speen St - Ste 200	Natick	MA	01760	MA	

Legal Name	DBA	Service Location Address	City/Town	State	Zip	State	Zip	Medicare PTAN
South Shore MRI Limited Partnership	Shields MRI Weymouth	26 Rockway Ave	Weymouth	MA	02188-3906	MA	02284-7924	327033
Shields MRI & Imaging Center of Cape Cod LLC	Shields MRI & Imaging Center of Cape Cod	2 Iyanough Rd - Rt 28	W Yarmouth	MA	02673-8135	MA	02284-7922	327057
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial Shrewsbury St	214 Shrewsbury St	Worcester	MA	01604-4629	MA	02284-7183	002737301
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial Memorial Campus	119 Belmont St-U Mass Memorial Campus	Worcester	MA	01605-2903	MA	02284-7183	002737302
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at Wing Hospital	40 Wright St	Palmer	MA	01069-1138	MA	02284-7183	327040
U Mass Memorial MRI & Imaging Center LLC	Shields PETCT at UMass Memorial Burbank	275 Nichols Rd	Fitchburg	MA	01420-1919	MA	02284-7183	0027373
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial University Campus Ste B	55 Lake Ave North Ste H1-713B	Worcester	MA	01655-0002	MA	02284-7183	S300166800
U Mass Memorial MRI & Imaging Center LLC	Shields MRI at UMass Memorial University Campus Ste A	55 Lake Ave North Ste H1-351A	Worcester	MA	01655-0002	MA	02284-7183	S300563649
Baystate MRI & Imaging Center LLC	Shields MRI and Baystate Health	80 Wason Ave	Springfield	MA	01107-1132	MA	02284-7915	0018589
U Mass Memorial HealthAlliance MRI Center LLC	Shields MRI at UMass Memorial Health Alliance Campus	100 Hospital Rd-Ste 1A	Leominster	MA	01453-2253	MA	02284-7927	327082
U Mass Memorial MRI-Marlborough LLC	Shields MRI at UMass Memorial Marlborough Campus	157 Union St	Marlborough	MA	01752-1228	MA	02284-7937	327115
Frankin MRI Center LLC	Shields MRI at Baystate Franklin Medical Center	164 High St	Greenfield	MA	01301-2613	MA	02284-7997	0010942
Radiation Therapy of Winchester LLC	Winchester Hospital Radiation Oncology Center	620 Washington St	Winchester	MA	01890-1328	MA	02284-7944	0000272
Cape Cod PET-CT Services LLC	Shields PET Service of Cape Cod Harwich	525 Long Pond Dr	Harwich	MA	02645-1227	MA	02284-7479	0010594
Cape Cod PET-CT Services LLC	Shields PET Service of Cape Cod Sandwich	2 Jan Sebastian Dr	Sandwich	MA	02563-2377	MA	02284-7479	001059401
PET-CT Services By Tufts Medical Center and Shields LLC	Shields PETCT at Tufts Medical Center	800 Washington St	Boston	MA	02111-1552	MA	02284-7165	0024437
PET-CT Services By Tufts Medical Center and Shields LLC	Metrowest PET-CT at Shields Framingham in Affiliation with Tufts Medical Center	14 Cochituate Rd-Ste 1A	Framingham	MA	01701-7915	MA	02284-7165	S300129479
Shields Imaging of Lowell General Hospital LLC	Shields MRI at Lowell General Hospital	295 Varnum Ave	Lowell	MA	01854-2134	MA	02284-7975	0025829
Shields Imaging of Lowell General Hospital LLC	Shields MRI at Lowell General Hospital Chelmsford	10 Research Pl	N Chelmsford	MA	01863-2456	MA	02284-7975	002582901
Shields Imaging of Lowell General Hospital LLC	Shields MRI at Lowell General Hospital Saints Campus	1 Hospital Dr	Lowell	MA	01852-1311	MA	02284-7975	S100138677
Winchester Hospital-Shields MRI LLC	Shields MRI Winchester Hospital at Unicorn Park	200 Unicord Park Dr-Ste 402	Woburn	MA	01801-3342	MA	02284-7931	0033808
Winchester Hospital – Shields MRI	Winchester Hospital/Shields MRI	41 Highland Ave - Ste G1	Winchester	MA	01890-1446	MA	02284-7931	S300634235
Shields Signature Imaging LLC	Shields Signature Imaging	680 Centre St	Brockton	MA	02302-3308	MA	02284-7028	S300291877
Shields Sturdy PETCT LLC	Shields Sturdy PETCT	211 Park St	Attleboro	MA	02703-3143	MA	02284-7203	S300305002
Shields PETCT at Cooley Dickinson Hospital LLC	Shields PETCT at Cooley Dickinson Hospital	30 Locust St	Northampton	MA	01060-2052	MA	02284-7219	S300333217
Shields Imaging at Anna Jaques Hospital LLC	Shields Imaging at Anna Jaques Hospital	25 Highland Ave	Newburyport	MA	01950-3867	MA	02284-7242	S300357534
Shields PET-CT at CMMC LLC	Shields PETCT at CMMC	300 Main St	Lewiston	ME	04240-7027	MA	02284-7239	E300352765
Shields PET-CT at CMMC LLC	Shields PETCT at CMMC @ Topsham	105 Topsham Fair Mall Rd	Topsham	ME	04086-1773	MA	02284-7239	E300511797
Shields Imaging at York Hospital LLC	Shields Imaging at York Hospital	114 Sanford Rd	Wells	ME	04090-5533	MA	02284-7949	E100388241
Shields PETCT at Berkshire Medical Center LLC	Shields PETCT at Berkshire Medical Center	165 Tor Court	Pittsfield	MA	01201-3001	MA	02284-7116	S300426507
Shields Imaging of Portsmouth LLC	Shields MRI Portsmouth	1900 Lafayette Rd	Portsmouth	NH	03801-5679	MA	02284-7964	n/a
Healthcare Enterprises LLC	The Surgery Center at Shrewsbury	151 Main St	Shrewsbury	MA	01545-2101	MA	02284-7027	S300494903
Shields Imaging with Central Maine Health LLC	Shields Imaging at Central Maine Health, Topsham	105 Topsham Fair Mall Rd	Topsham	ME	04086-1773	MA	02284-7311	E300498988
Shields Imaging with Central Maine Health LLC	Shields Imaging at Central Maine Health, Auburn	690 Minot Ave, Ste 1	Auburn	ME	4210	MA	02284-7311	E300520539
Baystate Health Urgent Care Center LLC	Baystate Health Urgent Care Longmeadow	688 Bliss Rd	Longmeadow	MA	01106-1534	ME	04915-4484	S100483242
Baystate Health Urgent Care Center LLC	Baystate Health Urgent Care Feeding Hills	241 S Westfield St	Feeding Hills	MA	01030-2713	ME	04915-4484	S100483242
Baystate Health Urgent Care Center LLC	Baystate Health Urgent Care Westfield	24 Union Street	Westfield	MA	01085	ME	04915-4484	S100483242
Natick Surgery Center, LLC	New England Surgical Suites	313 Speen St - Ste 200	Natick	MA	01760	MA	02284-7371	
Medford Surgery Center, LLC	pending	170 Govenors Ave -Ste 100	Medford	MA	02155	MA	02284-7367	

ATTACHMENT 7

CHANGE IN SERVICE FORM

Massachusetts Department of Public Health
Determination of Need
Change in Service

Version: DRAFT 6-14-17

DRAFT

Application Number: 20081410-RE Original Application Date: 08/14/2020

Applicant Information

Applicant Name: Shields PET-CT at Emerson Hospital, LLC

Contact Person: Kerry Whelan Title: Vice President of Government Affairs

Phone: 6173767421 Ext: E-mail: kerry@shields.com

Facility: Complete the tables below for each facility listed in the Application Form

1 Facility Name: Shields PET-CT at Emerson Hospital, LLC CMS Number: Not Applicable Facility type: Clinic

Change in Service

2.2 Complete the chart below with existing and planned service changes. Add additional services with in each grouping if applicable.

Add/Del Rows		Licensed Beds Existing	Operating Beds Existing	Change in Number of Beds (+/-) Licensed	Change in Number of Beds (+/-) Operating	Number of Beds After Project Completion (calculated) Licensed	Number of Beds After Project Completion (calculated) Operating	Patient Days (Current/ Actual)	Patient Days Projected	Occupancy rate for Operating Beds Current Beds	Occupancy rate for Operating Beds Projected	Average Length of Stay (Days)	Number of Discharges Actual	Number of Discharges Projected
	Acute													
	Medical/Surgical									0%	0%			
	Obstetrics (Maternity)									0%	0%			
	Pediatrics									0%	0%			
	Neonatal Intensive Care									0%	0%			
	ICU/CCU/SICU									0%	0%			
+ -										0%	0%			
	Total Acute									0%	0%			
	Acute Rehabilitation									0%	0%			
+ -										0%	0%			
	Total Rehabilitation									0%	0%			
	Acute Psychiatric													

Add/Del Rows		Licensed Beds Existing	Operating Beds Existing	Change in Number of Beds (+/-) Licensed	Operating	Number of Beds After Project Completion (calculated) Licensed	Operating	Patient Days (Current/ Actual)	Patient Days Projected	Occupancy rate for Operating Beds Current Beds	Projected	Average Length of Stay (Days)	Number of Discharges Actual	Number of Discharges Projected
	Adult									0%	0%			
	Adolescent									0%	0%			
	Pediatric									0%	0%			
	Geriatric									0%	0%			
+ -										0%	0%			
	Total Acute Psychiatric									0%	0%			
	Chronic Disease									0%	0%			
+ -										0%	0%			
	Total Chronic Disease									0%	0%			
	Substance Abuse													
	detoxification									0%	0%			
	short-term intensive									0%	0%			
+ -										0%	0%			
	Total Substance Abuse									0%	0%			
	Skilled Nursing Facility													
	Level II									0%	0%			
	Level III									0%	0%			
	Level IV									0%	0%			
+ -										0%	0%			
	Total Skilled Nursing									0%	0%			

2.3 Complete the chart below if there are changes other than those listed in table above.

Add/Del Rows	**List other services** if Changing e.g. OR, MRI, etc	Existing Number of Units	Change in Number +/-	Proposed Number of Units	Existing Volume	Proposed Volume
+ -	PET/CT clinic to provide services one (1) day per week	0	1	1	0	385

Document Ready for Filing

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

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

This document is ready to file: ☒ Date/time Stamp: 08/14/2020 10:28 am

E-mail submission to Determination of Need

ATTACHMENT 8

NOTICE OF INTENT

RETURN OF PUBLICATION

I, the undersigned, hereby certify under the pains and penalties of perjury, that I am employed by the publishers of the *Boston Herald* and the following Public/Legal announcement was published in two sections of the newspaper on July 18, 2020 accordingly:

1) "Public Announcement Concerning a Proposed Health Care Project" page C3, Legal Notice Section.

2) "Public Announcement Concerning a Proposed Health Care Project" page 15, Local News Section.

Astamas
Signature

Amanda Stamas
Name

classified Advertising Consultant
Title

727417.1

LEGAL NOTICES

Public Announcement Concerning a Proposed Health Care Project

Shields PET-CT at Emerson Hospital, LLC ("Applicant") with a principal place of business at 700 Congress Street, Suite 204 Quincy, MA 02169, intends to file a Notice of Determination of Need with the Massachusetts Department of Public Health for the establishment of a licensed clinic to provide positron emission tomography ("PET")/ computed tomography ("CT") diagnostic imaging services one day per week on the main campus of Emerson Hospital at 133 Old Road to Nine Acre Corner, Concord, Massachusetts 01742. The total value of the Project based on the maximum capital expenditure is $292,907. The Applicant does not anticipate any price or service impacts on the Applicant's existing patient panel as a result of the Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application no later than 30 days of the filing of the Notice of Determination of Need by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6th Floor, Boston, MA 02108.

July 18

MASSACHUSETTS WATER RESOURCES AUTHORITY

ADVERTISEMENT FOR BIDS

The Massachusetts Water Resources Authority will receive electronic bids on the MWRA Supplier Portal (www.mwra.com) for **Quabbin Park Cemetery Building Demolition and Hazardous Materials Abatement, MWRA Contract No. W329 until 2:00 p.m., Thursday,August 27, 2020, after which the bids will be publicly available.**

The contract documents will be posted on the Supplier Portal on or after **Wednesday, July 22, 2020**. To access the contract documents and submit a bid for this Event, interested firms must register and join the Planholders List through the MWRA Supplier Portal. No paper bids will be accepted.

A REMOTE pre-bid conference will be held on **Tuesday, August 11, 2020 at 10:00 a.m. and site visit (s) will be held on Thursday, August 13, 2020 by APPOINTMENT at the Quabbin Park Cemetery, Ware, MA 01082. Interested parties must contact Thomas Renaud at thomas.renaud@mwra.com by 5:00 p.m. on Wednesday, August 5, 2020 for remote meeting access information and for site visit instructions.**

The work includes: **demolition of two buildings, abatement of asbestos-containing materials (ACM), and removal of exterior lead paint. The building demolition shall include disposal of all demolition materials. The demolition of the well pump house includes removing the slab foundation and abandonment of the existing well and associated appurtenances. The slab foundation of the storage shed shall be kept intact.**

The estimated project cost is: **$100,000**.

Each bid must be accompanied by a current Certificate of Eligibility issued by DCAMM showing that the bidder has the classification and capacity rating to perform the Work and an Update Statement. In order to be eligible to bid, a bidder must be certified in:

DEMOLITION

Douglas J. Rice
Director of Procurement
Date: July 18, 2020

NOTICE TERMINATION OF ACTIVITY AND USE LIMITATION FORMER VERIZON FACILITY 540 HILLSIDE AVENUE, NEEDHAM, MASSACHUSETTS RELEASE TRACKING NUMBER (RTN) 3-29885

A release of oil and/or hazardous materials has occurred at this location, which is a disposal site as defined by M.G.L. c. 21E, § 2 and the Massachusetts Contingency Plan, 310 CMR 40.0000. On **July 10, 2020, SSG HILLSIDE NEEDHAM, LLC RECORDED with the NORFOLK COUNTY REGISTRY OF DEEDS a TERMINATION of a NOTICE OF ACTIVITY AND USE LIMITATION** on the disposal site, pursuant to 310 CMR 40.1080 through 40.1084. The **NOTICE OF ACTIVITY AND USE LIMITATION** was originally recorded and/or registered on **January 25, 2017.**

Any person interested in obtaining additional information about the **NOTICE OF ACTIVITY AND USE LIMITATION** may contact **WILLIAM GIBBONS, LSP, THE VERTEX COMPANIES, INC, 100 NORTH WASHINGTON STREET, SUITE 302, BOSTON, MA 02114, (617) 275-5407.**

The **TERMINATED NOTICE OF ACTIVITY AND USE LIMITATION** and the disposal site file can be can be viewed at MassDEP website using Release Tracking Number (RTN) **3-29885** at http://public.dep.state.ma.us/SearchableSites2/Search.aspx or at **MASSDEP, NORTHEAST REGIONAL OFFICE, 205B LOWELL STREET, WILMINGTON, MA 01606, (978) 694-3200.**

July 18

massDOT

Massachusetts Department of Transportation

MassDOT Highway Division Proposal

Electronic proposals for the following projects will be received through the internet using **Bid Express** until the date and time stated below and at that time publicly opened and read et 10 Park Plaza, Boston, Massachusetts 02116-3973. **No paper copies of bids will be accepted.**

Bidders must have a valid Digital ID issued by MassDOT in order to bid on projects. Bidders need to apply for a Digital ID at least 14 days prior to a scheduled bid opening date with Bid Express.

The bidding for and award of the contract for the following projects are to be in accordance with the requirements of **Mass General Laws Chapter 30 § 39M.**

TUESDAY, AUGUST 25, 2020 @ 2:00 P.M.	PROJECT VALUE
DISTRICT 1: Sidewalk and ADA Improvements and Related Work at Various Locations (608795)	$841,000.00
DISTRICT 4: Scheduled and Emergency Drawbridge Operation, Repairs and Related Work at Various Locations (610784)	$3,300,000.00
TUESDAY, SEPTEMBER 1, 2020 @ 2:00 P.M.	**PROJECT VALUE**
BROCKTON: FAP#s CMQ-003S(386)X, HSI-003S(386)X & STP-003S(386)X Roadway Reconstruction and Related Work (Including Signals) along a Section of Route 123 (Belmont Street) (608088)	$5,870,000.00
LEOMINSTER: FAP#s CMQ-0033(010)X, HSI-0033(010)X, STP-0033(010)X & TAP-0033(010)X Roadway Reconstruction and Related Work (Including Signals) along a Section of Route 13 (Main Street) (605651)	$5,035,000.00

The bidding for and award of the contract for the following projects are to be in accordance with the requirements of **Mass General Laws Chapter 149 as amended.**

TUESDAY, AUGUST 25, 2020 @ 2:00 P.M.	PROJECT VALUE
BOSTON: HVAC Maintenance and Repair at 10 Park Plaza - State Transportation Building (610896)	$4,800,000.00

OPENING OF BIDS POSTPONED TO: TUESDAY, JULY 28, 2020 @ 2:00 P.M.
PEABODY TO NEWBURYPORT: FAP#s HSI-0954(001) & NHP(IM)-0954(001) Resurfacing and Related Work (Including 9 Bridge Decks and Cable Guardrail Installation) on a Section of Interstate 95 (608378)

All prospective Bidders must complete end e-mail an electronic copy of "Request Proposal Form (R109)" to the MassDOT Director of Prequalification for approval: prequal.r109@dot.state.ma.us. The blank "Request Proposal Form (R109)" can be obtained at: https://www.mass.gov/prequalification-of-horizontal-construction-firms.

An award will not be made to a Contractor who is not pre-qualified by the Department prior to the opening of proposals.

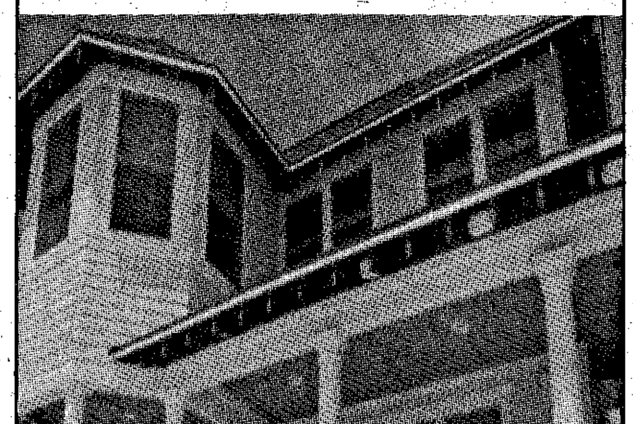
Proposal documents for official bidders are posted on www.bidx.com. Other interested parties may receive informational Contract Documents containing the Plans and Special Provisions, free of charge. All parties who wish to have access to information plans and specification must send a "Request for Informational Documents" to MassDOTBidDocuments@dot.state.ma.us.

Plans and Contract Documents will be on display and information will be available at the MassDOT Boston Headquarters Office and at each District Office wherein a project is located.

MassDOT, in compliance with Title 49 Code of Federal Regulations Part 21 (Nondiscrimination in Federally-assiated Programs of the Department of Transportation - Effectuation of Title VI of Civil Rights Act of 1964) hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award.

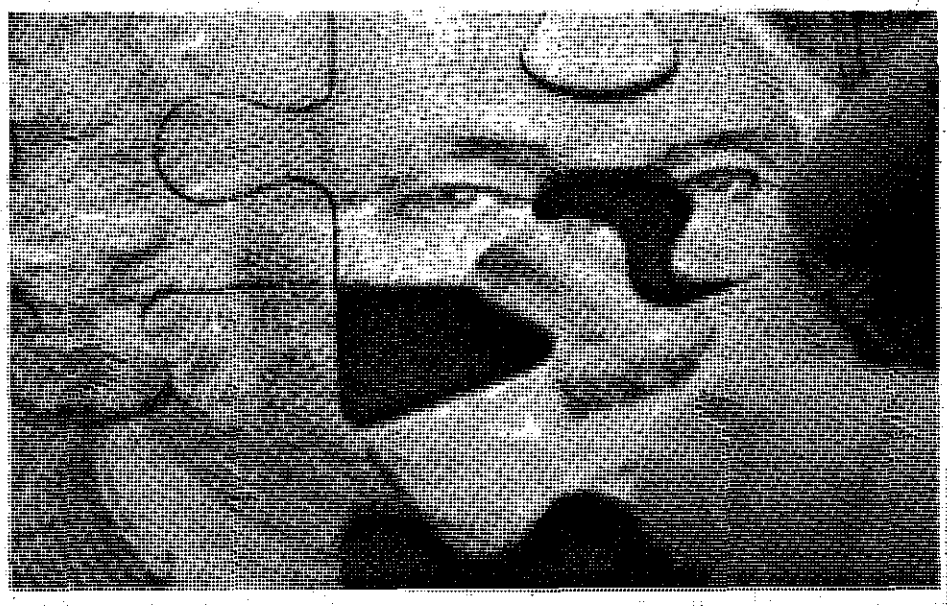
MassDOT Highway Division projects are subject to the rules and regulations of the Architectural Access Board (521 CMR 1.00 et. seq.) Prospective bidders and interested parties can access this information and more via the internet at WWW.COMMBUYS.COM.

BY: Stephanie Pollack, Secretary and CEO, MassDOT
Jonathan L. Gulliver, Highway Administrator, MassDOT Highway Division
SATURDAY, JULY 18, 2020



accounts hang in the balance

more Americans retirement savings



is a problem that won't be around this year."

oans from 401(k) ounts must be paid back r five years, if it's not d for a home purchase. 're usually allowed to row up to 50% of a vested ount balance to a maxi- n of $50,000, experts say, erest rates are deter- ed by your plan.

What we see among some ericans is perhaps what ıy Americans fear most: ing to place their long- n financial security at just to get through and ive what is happening y," said Steve Trumble, ident and CEO of ACCC. We always advise clients void borrowing against ement funds unless they faced with an absolute total financial emergency," he added in a statement. "That more than 20% of people are doing just that is yet another measure of this pandemic's severity of impact."

But the news was not all bad.

The ACCC June poll of 411 Americans — aged 25-65 with incomes of $100,000 or less — found that the number of respondents who report zero confidence in the U.S. economy rose from 16% in the March survey to 23%.

The percentage of respondents who described their employment as "very stable" also increased from 27% in March to 34% in June.

Also, unemployed Americans have been receiving an extra $600 a week, but that is set to stop by the end of July, and the payments are likely run out even earlier.

"The good news for those households that are feeling the most pain is that mortgage companies, credit card issuers, and other lenders continue to work with borrowers through forbearance and payment deferral," Trumble said. "But our economy and way of life now face structural problems: from the continued closure of schools to uncertainty about safety on public transportation and the inability to reopen entire sectors safely. We will be dealing with this for a very long time."

NANCY LANE / HERALD STAFF

e trips

od.
irmont Line customers have the option to pay s with CharlieCards at e LA stations.
avoid overcrowding, TA bus drivers have the retion to bypass a stop, ials said. If a bus driver a customer with a dis- ty waiting at that stop, lriver will alert the con- center, notify the person the stop is being passed to crowding, and let the on know the approxi- e time of the next avail- bus.
stomers should contin- social distance and are ired to wear masks e on board vehicles and in the MBTA system.

Public Announcement Concerning a Proposed Health Care Project

Shields PET-CT at Emerson Hospital, LLC ("Applicant") with a principal place of business at 700 Congress Street, Suite 204 Quincy, MA 02169, intends to file a Notice of Determination of Need with the Massachusetts Department of Public Health for the establishment of a licensed clinic to provide positron emission tomography ("PET")/computed tomography ("CT") diagnostic imaging services one day per week on the main campus of Emerson Hospital at 133 Old Road to Nine Acre Corner, Concord, Massechusetts 01742. The total value of the Project based on the maximum capital expenditure is $292,907. The Applicant does not anticipate any price or service impacts on the Applicant's existing patient panel as a result of the Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application no later than 30 days of the filing of the Notice of Determination of Need by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6th Floor, Boston, MA 02108.

ATTACHMENT 9

HPC ACO CERTIFICATION APPROVAL LETTER

The Commonwealth of Massachusetts
HEALTH POLICY COMMISSION
50 MILK STREET, 8TH FLOOR
BOSTON, MASSACHUSETTS 02109
(617) 979-1400

STUART H. ALTMAN
CHAIR

DAVID M. SELTZ
EXECUTIVE DIRECTOR

December 23, 2019

Esther Kim
Partners HealthCare System, Inc.
800 Boylston Street, 11TH Floor
Boston, MA 02199

RE: ACO Certification

Dear Ms. Kim:

Congratulations! The Health Policy Commission (HPC) is pleased to inform you that Partners HealthCare System meets the requirements for ACO Certification. This certification is effective from the date of this letter through December 31, 2021.

The ACO Certification program, in alignment with other state agencies including MassHealth, is designed to accelerate care delivery transformation in Massachusetts and promote a high quality, efficient health system. ACOs participating in the program have met a set of objective criteria focused on core ACO capabilities including supporting patient-centered care and governance, using data to drive quality improvement, and investing in population health. Partners HealthCare System meets those criteria.

The HPC will promote Partners HealthCare System as a Certified ACO on our website and in our marketing and public materials. In addition, a logo is enclosed for your use in accordance with the attached Terms of Use. We hope you will use the logo to highlight the ACO Certification to your patients, payers, and others.

The HPC looks forward to your continued engagement in the ACO Certification program over the next two years.

Thank you for your dedication to providing accountable, coordinated health care to your patients. If you have any questions about this letter or the ACO Certification program, please do not hesitate to contact Mike Stanek, Manager, at HPC-Certification@mass.gov or (617) 757-1649.

Best wishes,

David Seltz
Executive Director

ATTACHMENT 10

CERTIFICATE OF ORGANIZATION

CERTIFICATE OF ORGANIZATION

OF

SHIELDS PET-CT AT EMERSON HOSPITAL, LLC

(Pursuant to the provisions of Section 12 of the
Massachusetts Limited Liability Company Act)

To the State Secretary
Commonwealth of Massachusetts

It is hereby certified that:

FIRST: The name of the limited liability company (the "Company") is:

SHIELDS PET-CT AT EMERSON HOSPITAL, LLC

SECOND: The address of the office of the Company in the Commonwealth of Massachusetts, required to be maintained by the provisions of Section 5 of the Massachusetts Limited Liability Company Act, and where the records are to be kept as prescribed by the provisions of Section 9 of said Act, is: **700 Congress Street – Suite 204, Quincy, Massachusetts 02169.**

THIRD: The general character of the Company's business is as follows: **To engage in any or all lawful activities for which limited liability companies may be organized under the Massachusetts Limited Liability Company Act, including but not limited to the ownership and management of advanced medical imaging facilities.**

FOURTH: **The Company is not to have a specific date of dissolution**

FIFTH: The name and the address within the Commonwealth of Massachusetts of the resident agent for service of process for the Company is: **Shields Health Care Group, Inc. 700 Congress Street – Suite 204, Quincy, Massachusetts 02169.**

SIXTH: The Manager of the Company is: **None**

SEVENTH: The name and the address of the person authorized to execute any documents to be filed with the office of the Secretary of State of the Commonwealth of Massachusetts is:

NAME	ADDRESS
Thomas A. Shields	**700 Congress Street – Suite 204 Quincy, Massachusetts 02169**
Peter Ferrari	**700 Congress Street – Suite 204 Quincy, Massachusetts 02169**
Christine Schuster	**133 Old Road to Nine Acres Corner Concord, Massachusetts 01742**
Eric Stastny	**133 Old Road to Nine Acres Corner Concord, Massachusetts 01742**

EIGHTH: The name of the person authorized to execute, acknowledge, deliver and record any recordable instrument purporting to affect an interest in real property recorded with a registry of deeds or district office of the land court is:

NAME	ADDRESS
Thomas A. Shields	**700 Congress Street – Suite 204 Quincy, Massachusetts 02169**
Peter Ferrari	**700 Congress Street – Suite 204 Quincy, Massachusetts 02169**
Christine Schuster	**133 Old Road to Nine Acres Corner Concord, Massachusetts 01742**
Eric Stastny	**133 Old Road to Nine Acres Corner Concord, Massachusetts 01742**

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, the person whose signature appears below does hereby affirm and execute this certificate of organization as authorized person this **14th day of July 2020**.

Name: Peter Ferrari
Title: Authorized Person

CONSENT OF RESIDENT AGENT:

Shields Health Care Group, Inc., resident agent of the above limited liability company, consents to its appointment as resident agent pursuant to G.L., c 156C § 12.

By: Peter Ferrari, President

CONSENT TO USE NAME

The undersigned, being the President of Shields Health Care Group, Inc., and the Authorized Signatory for its affiliated companies:

Shields PET Service of Boston, LLC
Shields PET Service of Cape Cod, LLC
Shields PET-CT at Berskshire Medical Center, LLC
Shields PET-CT at Cooley Dickinson Hospital, LLC

does hereby consent to the use of the name, "SHIELDS PET-CT AT EMERSON HOSPITAL, LLC" by **SHIELDS PET-CT AT EMERSON HOSPITAL, LLC**, a limited liability company seeking to organize and do business in the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, said corporation has caused this Consent to be executed this **14th day of July 2020.**

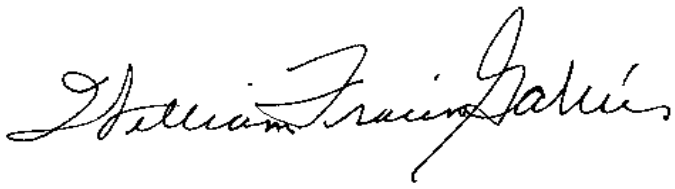
Shields Health Care Group, Inc.

By: _____
Peter Ferrari, President
And Authorized Signatory
For All Above-Referenced Entities

THE COMMONWEALTH OF MASSACHUSETTS

I hereby certify that, upon examination of this document, duly submitted to me, it appears that the provisions of the General Laws relative to corporations have been complied with, and I hereby approve said articles; and the filing fee having been paid, said articles are deemed to have been filed with me on:

July 15, 2020 08:21 AM



WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

ATTACHMENT 11

AFFIDAVIT OF TRUTHFULNESS AND COMPLIANCE

Massachusetts Department of Public Health
Determination of Need
Affidavit of Truthfulness and Compliance with Law and Disclosure Form 100.405(B)

Version: 7-6-17

Instructions: Complete Information below. When complete check the box "This document is ready to print:". This will date stamp and lock the form. Print Form. Each person must sign and date the form. When all signatures have been collected, scan the document and e-mail to: **dph.don@state.ma.us** Include all attachments as requested.

Application Number: - 20081410-RE

Original Application Date: 08/14/2020

Applicant Name: Shields PET-CT at Emerson, LLC

Application Type: Hospital/Clinic Substantial Change in Service

Applicant's Business Type: ☐ Corporation ☐ Limited Partnership ☐ Partnership ☐ Trust ☒ LLC ☐ Other

Is the Applicant the sole member or sole shareholder of the Health Facility(ies) that are the subject of this Application? ☒ Yes ☐ No

Describe the role /relationship: NA

The undersigned certifies under the pains and penalties of perjury:

1. The Applicant is ;
2. I have *~~read~~ 105 CMR 100.000, the Massachusetts Determination of Need Regulation;
3. I understand and agree to the expected and appropriate conduct of the Applicant pursuant to 105 CMR 100.800;
4. I have *~~read~~ this application for Determination of Need including all exhibits and attachments, and **~~certify that~~ all of the information contained herein is accurate and true;
5. I have submitted the correct Filing Fee and understand it is nonrefundable pursuant to 105 CMR 100.405(B);
6. I have submitted the required copies of this application to the Determination of Need Program, and, as applicable, to all Parties of Record and other parties as required pursuant to 105 CMR 100.405(B);
7. I have caused, as required, notices of intent to be published and duplicate copies to be submitted to all Parties of Record, and all carriers or third-party administrators, public and commercial, for the payment of health care services with which the Applicant contracts, and with Medicare and Medicaid, as required by 105 CMR 100.405(C), et seq.;
8. I ~~have caused~~ **proper notification and submissions to the Secretary of Environmental Affairs pursuant to 105 CMR 100.405(E) and 301 CMR 11.00;
9. If subject to M.G.L. c. 6D, § 13 and 958 CMR 7.00, I have submitted such Notice of Material Change to the HPC - in accordance with 105 CMR 100.405(G);
10. Pursuant to 105 CMR 100.210(A)(3), I certify that both the Applicant and the Proposed Project are in material and substantial compliance and good standing with relevant federal, state, and local laws and regulations, as well as with all ~~previously issued~~ Notices of Determination of Need and the terms ~~and Conditions attached therein~~***;
11. I have *~~read~~ and understand the limitations on solicitation of funding from the general public prior to receiving a Notice of Determination of Need as established in 105 CMR 100.415;
12. I understand that, if Approved, the Applicant, as Holder of the DoN, shall become obligated to all Standard Conditions pursuant to 105 CMR 100.310, as well as any applicable Other Conditions as outlined within 105 CMR 100.000 or that otherwise become a part of the Final Action pursuant to 105 CMR 100.360;
13. Pursuant to 105 CMR 100.705(A), I certify that the Applicant has Sufficient Interest in the Site or facility; and
14. Pursuant to 105 CMR 100.705(A), I certify that the Proposed Project is authorized under applicable zoning by-laws or ordinances, whether or not a special permit is required; or,
    a. If the Proposed Project is not authorized under applicable zoning by-laws or ordinances, a variance has been received to permit such Proposed Project; or,
    b. The Proposed Project is exempt from zoning by-laws or ordinances.

LLC

All parties must sign. Add additional names as needed.

Type name here THOMAS A. SHIELDS		8/12/2020
Name:	Signature:	Date

*been informed of the contents of

**have been informed that

***issued in compliance with 105 CMR 100.00, the Massachusetts Determination of Need Regulation effective January 27, 2017 and amended December 28, 2018

Type name here		
Name:	Signature:	Date

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

ATTACHMENT 12

FILING FEE

Shields Health Care Group, Inc. 90260867

VENDOR NO: 1875 NAME: Commonwealth of MA CHECK DATE: 8/6/2020

REFERENCE	INV DATE	INV DESCRIPTION	GROSS AMOUNT	DISCOUNT TAKEN	NET AMOUNT PAID
AUG 05 2020	8/5/2020	Emerson PET-CT DoN Filing Fee	585.81	0.00	585.81
		TOTAL >	585.81	0.00	585.81

Shields Health Care Group, Inc.
55 Christy's Drive
Brockton, MA 02301
Fed ID# 04-3164965
75860002874

Santander Bank
5-7515/0110

90260867

DATE 8/6/2020
AMOUNT ***585.81

Acct#

PAY Five Hundred Eighty-Five and 81/100******

TO THE ORDER OF
Commonwealth of MA
Attn Rebecca Rodman
250 Washington St.
6th Floor
Boston, MA 02108

Void if not Cashed After 90 Days

Shields Health Care Group, Inc. 90260867

VENDOR NO: 1875 NAME: Commonwealth of MA CHECK DATE: 8/6/2020

REFERENCE	INV DATE	INV DESCRIPTION	GROSS AMOUNT	DISCOUNT TAKEN	NET AMOUNT PAID
AUG 05 2020	8/5/2020	Emerson PET-CT DoN Filing Fee	585.81	0.00	585.81
		TOTAL >	585.81	0.00	585.81

THIS CHECK IS VOID WITHOUT A BLUE & RED BACKGROUND AND A WATERMARK - HOLD UP TO THE LIGHT TO VERIFY

Shields Health Care Group, Inc.
55 Christy's Drive
Brockton, MA 02301
Fed ID# 04-3164965
75860002874

Santander Bank
5-7515/0110

90260867

DATE 8/6/2020
AMOUNT ***585.81

Acct#

PAY Five Hundred Eighty-Five and 81/100******

TO THE ORDER OF
Commonwealth of MA
Attn Rebecca Rodman
250 Washington St.
6th Floor
Boston, MA 02108

CHECK IS PRINTED ON SECURITY PAPER WHICH INCLUDES A MICROPRINT BORDER & FLUORESCENT FIBERS

Void if not Cashed After 90 Days

⑈90260867⑈ ⑆011075150⑆ 75860002874⑈