

Shields Healthcare of Cambridge, Inc.
Determination of Need
Attachments

**Application for a Determination of Need for
Required Equipment**

Application # 22020311-RE

February 3, 2022

Shields Healthcare of Cambridge, Inc.
700 Congress Street, Suite 204
Quincy, Massachusetts 02169

Shields Healthcare of Cambridge, Inc.
Determination of Need Application

Table of Contents
Exhibits

- A. Determination of Need Application
- B. Determination of Need Attachments
 - a. Determination of Need Narrative
 - b. Copy of Notice of Intent
 - c. Affidavit of Truthfulness Form
 - d. Filing Fee – Scanned copy of Application Filing Fee
 - e. Affiliated Parties Table Question 1.9
 - f. Change in Service Tables Questions 2.2 & 2.3
 - g. Certification from an Independent Certified Public Accountant
 - h. Corporate Documents
 - i. Articles of Organization (Original)
 - ii. Articles of Merger
 - iii. Articles of Organization (Restated)
 - i. Evidence of Community Engagement for Factor 1 – Information Session Presentation
 - j. Evidence of Community Engagement for Factor 1 – Invitation to the Information Session

Exhibit A
Determination of Need
Application



Massachusetts Department of Public Health

Determination of Need

Application Form

Version: 11-8-17

Application Type:	DoN-Required Equipment			Application Date:	2 / 3 / 22		
Applicant Name:	Shields Healthcare of Cambridge, Inc.						
Mailing Address:	700 Congress Street, Suite 204						
City:	Quincy	State:	Massachusetts	Zip Code:	02169		
Contact Person:	Courtney L. Pasay Vaughan			Title:	Attorney		
Mailing Address:	One State Street, 15th Floor						
City:	Boston	State:	Massachusetts	Zip Code:	02109		
Phone:	9789982464	Ext:		E-mail:	cpvaughan@publicpolicylaw.com		

Facility Information

List each facility affected and/or included in Proposed Project

1 Facility Name:	Shields MRI Brighton				
Facility Address:	385 Western Ave				
City:	Brighton	State:	Massachusetts	Zip Code:	02135
Facility type:	MRI Clinic		CMS Number:	020369	
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:	<input checked="" type="radio"/> Corporation <input type="radio"/> Limited Partnership <input type="radio"/> Partnership <input type="radio"/> Trust <input type="radio"/> LLC <input type="radio"/> Other	
1.3 What is the acronym used by the Applicant's Organization?	NONE	
1.4 Is Applicant a registered provider organization as the term is used in the HPC/CHIA RPO program?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
1.5 Is Applicant or any affiliated entity an HPC-certified ACO?	<input type="radio"/> Yes <input checked="" type="radio"/> No	
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)?	<input type="radio"/> Yes <input checked="" type="radio"/> No	
1.7 Does the Proposed Project also require the filing of a MCN with the HPC?	<input type="radio"/> Yes <input checked="" type="radio"/> No	

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.

Please 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

5.3 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:	\$2,292,401.00
12.2 Total CHI commitment expressed in dollars: (calculated)	\$114,620.05
12.3 Filing Fee: (calculated)	\$4,584.80
12.4 Maximum Incremental Operating Expense resulting from the Proposed Project:	\$552,168.00
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.	\$0.00

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.

Please 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.

Please 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.

Please 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.

Please 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.

Please 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.

Please 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.

Please 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.

Please 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.

Please 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.

Please 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".

Please 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.

Please 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.

Please 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.

Please 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
<div><div>+</div><div>-</div></div>				

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
<div>+ -</div>	MRI Clinic					1,660	2,300	1,660	2,300	\$0.00	\$1,578,400.00		\$686.00
<div>+ -</div>													
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	Total: (calculated)					1,660	2,300	1,660	2,300	\$0.00	\$1,578,400.00		\$686.00

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	\$0.	\$0.	\$0.
	Site Survey and Soil Investigation	\$0.	\$0.	\$0.
	Other Non-Depreciable Land Development	\$0.	\$0.	\$0.
	Total Land Costs	\$0.	\$0.	\$0.
Construction Contract (including bonding cost)				
	Depreciable Land Development Cost	\$0.	\$0.	\$0.
	Building Acquisition Cost	\$0.	\$0.	\$0.
	Construction Contract (including bonding cost)	\$0.	\$900000.	\$900000.
	Fixed Equipment Not in Contract	\$0.	\$1292401.	\$1292401.
	Architectural Cost (Including fee, Printing, supervision etc.) and Engineering Cost	\$0.	\$100000.	\$100000.
	Pre-filing Planning and Development Costs	\$0.	\$0.	\$0.
	Post-filing Planning and Development Costs	\$0.	\$0.	\$0.
Add/Del Rows	Other (specify)			
<input type="checkbox"/> <input type="checkbox"/>		\$0.	\$0.	\$0.
	Net Interest Expensed During Construction	\$0.	\$0.	\$0.
	Major Movable Equipment	\$0.	\$0.	\$0.
	Total Construction Costs	\$0.	\$2292401.	\$2292401.
Financing Costs:				
	Cost of Securing Financing (legal, administrative, feasibility studies, mortgage insurance, printing, etc	\$0.	\$0.	\$0.
	Bond Discount	\$0.	\$0.	\$0.
Add/Del Rows	Other (specify)			
<input type="checkbox"/> <input type="checkbox"/>		\$0.	\$0.	\$0.
	Total Financing Costs	\$0.	\$0.	\$0.
	Estimated Total Capital Expenditure	\$0.	\$2292401.	\$2292401.

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:

Please see attached Narrative.

Quality:

Please see attached Narrative.

Efficiency:

Please see attached Narrative.

Capital Expense:

Please see attached Narrative.

Operating Costs:

Please see attached Narrative.

List alternative options for the Proposed Project:

Alternative Proposal:

Please see attached Narrative.

Alternative Quality:

Please see attached Narrative.

Alternative Efficiency:

Please see attached Narrative.

Alternative Capital Expense:

Please see attached Narrative.

Alternative Operating Costs:

Please 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.

Please see attached Narrative.

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
- ☒ Articles of Organization / Trust Agreement
- ☐ 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:

2/3/22

E-mail submission to
Determination of Need

Application Number: NONE-22020311-RE

Use this number on all communications regarding this application.

☐ Community Engagement-Self Assessment form

Exhibit B
Determination of Need
Attachments

Exhibit B.a
Determination of Need
Narrative

2. Project Description

Shields Healthcare of Cambridge, Inc. located at 700 Congress Street, Suite 204, Quincy, Massachusetts 02169 is filing a Determination of Need Application (“Application”) with the Massachusetts Department of Public Health (“DPH”) for the addition of a 1.5 Tesla (“1.5T”) magnetic resonance imaging (“MRI” or “MR imaging”) unit to be located at Shields MRI Brighton at 385 Western Ave, Brighton, Massachusetts 02135 (“Proposed Project” or “Shields MRI Brighton”). Shields MRI Brighton merged into Shields Healthcare of Cambridge, Inc. on May 2, 2017. This application was drafted in contemplation of proposed modifications to the Shields MRI Brighton site.

Shields MRI Brighton is a member of the Shields Health Care Group (“Shields”). 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 the campuses of or situated nearby partner hospitals, thereby enabling coordinated, seamless, and accessible care. A dedicated focus on operational and management service expertise in outpatient services allows Shields to provide cost savings to patients, employers, insurers, and joint venture partners.

The 1.2T Hitachi unit, currently located at Shields MRI Brighton, offers an open-sided design that provides clear, high-quality images while offering 270 degrees of unobstructed views to create a comfortable, open experience for those patients who are highly anxious about their MRI. This machine is the first open-sided, free-standing MR imaging unit in Boston and currently one of only a handful of similar units in the greater Boston Area.¹ Shields’ laser focus on imaging means more efficiency, which translates into exceptional quality of care and patient experience at a low cost.

Shields MRI Brighton is located near public transportation centers and offers free on-site parking. Imaging procedures are completed Monday through Saturday from 7:30am to 6:00pm. All insurances are accepted at Shields MRI Brighton. Shields MRI Brighton serves the greater Brighton community including patients from communities in both Middlesex and Suffolk counties.

The Proposed Project seeks to expand access to MR imaging services for Shields MRI Brighton’s patient panel. To that end, Shields MRI Brighton proposes to reinstate its Siemens Espree 1.5T MRI unit (“Espree 1.5T”), which was taken offline in 2020.² The Hitachi Oasis (“Hitachi 1.2T”) was brought online to meet the patient panel needs at that time.

The Brighton location physically hosts both the [offline] Espree 1.5T *and* the operational Hitachi 1.2T open-sided unit. The Applicant proposes that the reinstatement of the 1.5T unit is essential to meeting the needs of the patient panel for several reasons: 1) to rectify the volume and capacity challenges; 2) to accommodate local clinical demand for low-cost MRIs; 3) to help drive volume efficiencies by optimizing the use of both machines; and 4) to connect individual patient need and preference with the appropriate scan resolution.

¹ Boston area providers with Hitachi 1.2T magnets include: MGH Chelsea Imaging, CDI Woburn (now known as Rayus Radiology), and CDI Dedham (now known as Rayus Radiology).

² In November of 2020, Shields MRI Brighton filed a renovation to replace the Espree 1.5T unit with the Hitachi 1.2T, open-sided MRI machine.

Today, the gold standard for MR imaging in a clinical setting is a 1.5T high-field MRI scanner.³ A 1.5T machine is faster than lower-strength MRIs and is ideal for abdomen and chest scans (where patients are required to hold their breath for the duration of the MRI).⁴ A 1.5T magnet has a greater signal than a 1.2T (lower strength) magnet, which means it can produce higher-quality images in less time.⁵ The MRI unit will also restore, and/or increase access to high-quality MR imaging services in the community. As a result, Shields MRI Brighton expects that patients will be more likely to seek and comply with treatment if they do not experience significant delays in diagnosis.⁶ The Applicant expects that this will lead to better treatment outcomes and improve patients' quality of life.

The Proposed Project will advance Massachusetts' goals for cost containment by providing patients in the community with expanded MR imaging services at a significantly lower price. The Proposed Project will positively contribute to the Commonwealth's goals of containing the rate of growth of total medical expenses ("TME") and total healthcare expenditures ("THCE").

Through the Proposed Project, the Applicant will not only be able to offer flexible, affordable, MR imaging options and accommodate access to higher-quality MR imaging services to the patient panel, but it will also provide the added benefits of reducing delays in scheduling appointments and decreasing MR imaging wait times while patients are at their appointment. Additionally, the Applicant seeks to improve patient satisfaction and create volume efficiencies in the local market.

For the aforementioned reasons, the Applicant respectfully submits that the Proposed Project meets the standards delineated in the factors of review for Determination of Need approval.

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. MRI Patient Panel Overview

- a. The Applicant reviewed its patient panel to determine the need for the Proposed Project.⁷ Shields MRI Brighton provides care primarily to the greater Brighton/Allston community

³ HealthTech Zone. *Top 8 Considerations When Redesigning MRI Suites*. Online at:

<https://www.healthtechzone.com/topics/healthcare/articles/2014/12/12/395126-top-8-considerations-when-redesigning-mri-suites.htm>

⁴ GE Healthcare. *What does tesla mean for an MRI and its magnet?* Online at: <https://www.gehealthcare.com/article/what-does-tesla-mean-for-an-mri-and-its-magnet#:~:text=The%20magnet%20field%20produced%20by%20the%20magnet%20in%20a%201.S.images%20for%20a%20MRI%20exam>

⁵ Shields Health Care Group. *What patients want to know about MRI machines. 1.2T, 1.5T, 3.0T – what's the difference?*

<https://info.shields.com/bid/85107/what-patients-want-to-know-about-mri-machines-1-2t-1-5t-3t-whats-the-difference>

⁶ This claim is supported by the following study findings: Thornton CS, Tsai WH, Santana MJ, et al. Effects of Wait Times on Treatment Adherence and Clinical Outcomes in Patients With Severe Sleep-Disordered Breathing: A Secondary Analysis of a Noninferiority Randomized Clinical Trial. *JAMA Netw Open*. 2020;3(4):e203088. Published 2020 Apr 1. doi:10.1001/jamanetworkopen.2020.3088. Online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7171552/>

⁷ All Patient Panel Data was sourced from Shields Internal Business Intelligence Reporting (BI) tool. Shields leverages QlikView software for the BI system, and eRad as the RIS system. Patient data is stored/collected in eRad and is fed into our BI system for reporting purposes.

and served 4,323 patients in 2021 (4,441 patients in FY18; 4,337 patients in FY19; and 3,288 patients in FY20).

As previously mentioned, Shields MRI Brighton currently has one operating MRI unit, the Hitachi 1.2T, and one offline MRI unit (the Espree 1.5T) located at the Brighton facility. The Applicant proposes to bring its Espree 1.5T back online.

In addition to reviewing the demographic and utilization data for the site, the Applicant also performed a concentrated review of its patient panel's historical MR imaging service demographic profile to assist in determining the need for the Proposed Project.⁸

With respect to age, FY20 data indicates that most of Shields MRI Brighton's patients are between the ages of 19-64 (76%), followed by patients 65+ (23%) and a small portion of patients between the ages of 0-18 (1%).

	2020	2019	2018
Total Volume	3,288	4,337	4,441
0-18	1%	1%	1%
19-30	24%	26%	26%
31-40	16%	16%	18%
41-50	13%	12%	12%
51-64	24%	21%	21%
65+	23%	23%	22%

The number of residents who will be entering the 65+ cohort is increasing. According to the University of Massachusetts' Donahue Institute Population Estimates Program, by 2035 15.35% of Boston's population will be over 65, compared to 11.5% in 2010.

The patient mix consists of approximately 52% females and 48% males based on FY20 data.

Data indicates that most Shields MRI Brighton patients originate from Middlesex County and Suffolk County. In FY20, approximately 58% of MRI patients originated from Middlesex County (see 55 communities in the grid below) and 24% from Suffolk County (see 19 communities in the grid below). The fact that over half of the patient panel of Shields MRI Brighton originates from Middlesex County suggests that patients are willing to travel farther distances to receive a more comfortable and less expensive on the Hitachi 1.2T.

⁸ Shields MRI Brighton includes age, gender, geographical region, and scan type demand in its analysis of its patient panel.

Middlesex County Patients - FY20		
List of Towns		
Acton	Lexington	Shirley
Arlington	Lincoln	Somerville
Ashland	Littleton	Stoneham
Auburndale	Lowell	Sudbury
Ayer	Malden	Tewksbury
Bedford	Marlborough	Tyngsboro
Belmont	Medford	Waban
Billerica	Melrose	Wakefield
Burlington	Natick	Waltham
Cambridge	Newton	Watertown
Chelmsford	Newton Center	Wayland
Chestnut Hill	Newton Highlands	West Newton
Concord	Newton Lower Falls	Westford
Dracut	Newton Upper Falls	Weston
Everett	Newtonville	Wilmington
Framingham	Nonantum	Winchester
Holliston	North Reading	Woburn
Hopkinton	Reading	
Hudson	Sherborn	

Suffolk County Patients - FY20
List of Towns
Allston
Boston
Brighton
Charlestown
Chelsea
Dorchester
Dorchester Center
East Boston
Hyde Park
Jamaica Plain
Mattapan
Revere
Roslindale
Roxbury
Roxbury Crossing
South Boston
West Roxbury
Winthrop

A review of patients who had undergone MRI scanning at the Shields MRI Brighton location defines the most common areas of the body scanned. In FY20, patients underwent MRI scans for the following top 5 body areas: Lower Extremity (32%), Lumbar (18%), Upper Extremity (16%), Brain (13%), and Cervical (8%).

The scan volume breakout for these top 5 areas from 2018-2020 can be seen below.

Sub-Category	2020	% of total	2019	% of total	2018	% of total
Lower Extremity	1,050	32%	1,411	33%	1,502	34%
Lumbar	576	18%	741	17%	760	17%
Upper Extremity	511	16%	652	15%	641	14%
Brain	415	13%	531	12%	543	12%
Cervical	254	8%	332	8%	309	7%
Arthrogram	116	4%	211	5%	215	5%
Abdomen	106	3%	127	3%	105	2%
Thoracic Spine	61	2%	79	2%	96	2%
Pelvis	54	2%	76	2%	87	2%
Head/Neck	55	2%	56	1%	78	2%
Breast	30	1%	36	1%	41	1%
Chest	18	1%	30	1%	26	1%
Prostate	16	0%	21	0%	6	0%
Sacrum	14	0%	20	0%	13	0%
(Other)	12	0%	14	0%	19	0%
Total Volume	3,288		4,337		4,441	

The Applicant does not have historical data related to patient race/ethnicity due to data platform limitations that have recently been rectified. Furthermore, the Applicant is committed to collecting this data going forward.

B. Payer Mix

- a. The payer mix for the Shields MRI Brighton site is demonstrated in the table below:

Payer	FY18	FY19	FY20
Commercial (HMO/POS & PPO/Indemnity)	72.89%	72.65%	69.04%
MassHealth	1.55%	1.57%	2.49%
Medicare	14.46%	15.19%	15.91%
Medicare Advantage	0.92%	1.08%	1.76%
Other	6.85%	6.02%	5.75%
Private Medicaid/MCOs	3.33%	3.48%	5.05%

The payer mix is further demonstrated by the site's managed care and ACO contracts:

Payer	FY18	FY19	FY20
ACO-Managed Care	2.36%	1.59%	2.10%
Non-ACO Managed Care	97.64%	98.41%	97.90%

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.

A. Overview

The Applicant seeks approval to bring online its higher strength Espree 1.5T MRI unit to offer Shields MRI Brighton patients greater scheduling flexibility and increased access to higher quality, low cost, MR imaging through operation of this unit. The current hours of operation of the Shields MRI Brighton are Monday through Saturday 7:30am-6:00pm. The Applicant made the determination, based on historical and projected demand highlighted in section F1.a.ii.B.a, that the Espree 1.5T unit will address capacity and meet the demand for convenient, low cost, higher resonance MR imaging services in the area while helping ensure that volume efficiencies are created by scheduling the proper machine for the scan needed.

B. Need for Additional Services

- a. Additional MR imaging services at Brighton is supported by historical and projected volume needs.

As previously mentioned, the Brighton facility performed 4,323 scans for patients in 2021 (4,441 patients in FY18; 4,337 patients in FY19; and 3,288 patients in FY20).

While there was a slight decrease in scan volume from CY2019 to CY2020, the Applicant notes this is both an anomaly and a derivative of the COVID-19 pandemic.⁹ Scan volume at the Brighton site decreased from CY2019 to CY2020 by -24%, or -1,049 scans. The large decrease in volume year-over-year (YOY) was due to the impact of the COVID-19 pandemic, which resulted in a steep decline in volume from March 2020 to December 2020. The table below shows the volumes seen in 2019/2020 by month, and where these YOY decreases occurred.

Month	2020	2019	Variance %
Jan	370	349	6%
Feb	374	355	5%
Mar	292	382	-24%
Apr	69	389	-82%
May	154	407	-62%
Jun	263	345	-24%
Jul	278	291	-4%
Aug	292	346	-16%
Sep	309	359	-14%
Oct	371	417	-11%
Nov	280	375	-25%
Dec	236	322	-27%
Total	3,288	4,337	-24%

Total Scan Volume Projections for Brighton by Unit:

	Current	Year 1	Year 2	Year 3	Year 4	Year 5
Volume	4,300	5,000	5,700	6,300	7,000	7,600
<i>Hitachi 1.2T</i>	4,300	3,800	4,050	4,150	4,300	4,400
<i>Espreo 1.5T</i>	-	1,200	1,650	2,150	2,700	3,200

The volume data above represents the 5-year projections at Brighton, broken down by unit. Volumes are projected to increase by +16% in the first year of operation, +14% in Year 2, +11% in Year 3 & 4, and +9% in Year 5.¹⁰

⁹ Radiology. *The Impact of the COVID-19 Pandemic on the Radiology Research Enterprise: Radiology Scientific Expert Panel*. Online at: <https://pubs.rsna.org/doi/10.1148/radiol.2020201393>

¹⁰ Volume projections for the Brighton site were determined based on historical utilization data, market forecasting data, and the continued trend of shifting imaging services to a freestanding/OP setting.

Shields determined that the appropriate scan capacity range for a Hitachi 1.2T unit is 3,800 – 4,400 scans per year, which is significantly lower than a traditional 1.5T. The more powerful magnet can accommodate scans in the range of 5,200 to 7,000 per year.¹¹

The Hitachi 1.2T unit has a significantly lower scan capacity due to longer scan times and challenges related to serving many claustrophobic patients, who often require longer scan times, which leads to increased wait times for others at the facility.

Based on the current operating hours/schedule of the Hitachi 1.2T, full capacity of the unit is estimated to be 3,800 – 4,400 scans (please see table below for the methodology). Given that the Brighton location performed over 4,300 scans in FY2021, this unit is nearly at full operating capacity, indicating a necessity for the Espree 1.5T magnet to be reinstated to serve the total projected volume for the site over the next 5 years.

	Scan Capacity (85%)	Scan Capacity (100%)	Hours/Day	Days/Week	Number of Weeks	Utilization Rate	Scan Times
Hitachi 1.2T (M - F)	3,264	3,840	12	5	48	85%	45
Hitachi 1.2T (Sat)	490	576	9	1	48	85%	45
Total	3,754	4,416					

Suitable Scan Volume Projections for Espree 1.5T:¹²

Scan Type	Volume Breakdown (2021A)	Suitable Scan Projections				
		Year 1	Year 2	Year 3	Year 4	Year 5
<i>Shoulder</i>	585	605	625	647	668	691
<i>Hip/Thigh</i>	165	170	175	180	186	191
<i>Abdomen</i>	75	80	85	90	96	101
<i>Pelvis</i>	70	74	79	84	89	95
<i>Breast</i>	0	100	200	300	400	475
<i>Prostate</i>	20	100	225	350	475	600
<i>Chest/MRCP</i>	20	25	31	39	49	61
Total Suitable Scans	935	1,154	1,420	1,690	1,963	2,214

It is important to note that the table above highlights scan projections that are more suitable for the Espree 1.5T unit rather than the Hitachi 1.2T unit, but it does not represent the total volume that is expected to be seen on each unit over the next 5

¹¹ See page 24 of the Staff Report to the Public Health Council for a Determination of Need submitted pursuant to Partners HealthCare System, Inc., Massachusetts General Physician's Organization's October 2019 application for DoN Required Equipment.

<https://www.mass.gov/doc/partners-healthcare-system-somerville-mri-staff-report/download>

¹² Projected volumes for these scan types were determined by leveraging historical growth rates and applying a similar compound annual growth rate (CAGR) over the next 5 years of operation. Projections for Prostate and Breast scans were determined based on the increase in referrals the center is expected to see from strengthening relationships with key local physicians over a 5-year period.

years.¹³ As described later in section F1.a.ii.c, F1.a.ii.d, and F1.b.i, many scans are clinically more appropriate for a 1.5T machine than a 1.2T machine due to the higher resolution imaging enabled by the stronger magnet

Another factor that Shields MRI Brighton considered in its analysis of the prospective volume is the significant decrease in MRI referrals from college athletic/health services departments to Brighton because of COVID-19, in 2020/2021. As students have started to return to school in-person, these departments experience higher traffic. Presently, the Brighton location has been seeing these referral numbers grow.¹⁴ The Applicant expects to see a steady increase in 2022 and beyond.

Harvard University specifically, has seen one of its largest student body populations in recent years,¹⁵ and is recovering to pre-COVID referral patterns. Restoring the Espree 1.5T unit will be a key component to accommodating this volume. It is noteworthy that these scans cannot be supported by the Hitachi 1.2T given the long scan times and current capacity limits of that unit.

The list of schools that currently leverage the Brighton location for MRI services include Harvard University, Boston University, MIT, Boston College, Northeastern University, Tufts University, as well as several other small Division II and III schools in the greater Boston area.

With additional growth of +800 scans projected over the next 5 years from these colleges/universities, restoring the use of the Espree 1.5T will be crucial to the ability to accommodate students who are seeking low-cost imaging services. College referrals at Brighton have seen a compound annual growth rate (CAGR) of +10% from 2015-2019, and when applying this same growth percentage over the next 5 years to 2021 volume Brighton is expecting to see, the following growth is projected:

	College Athletics/Health Services Referral Growth				
Total Referrals	Year 1	Year 2	Year 3	Year 4	Year 5
1,250	+130	+144	+158	+175	+193

In addition to the analysis of its volume projections, it is also important to mention that statewide population projections provided by the University of Massachusetts Donahue Institute suggest that population growth in Massachusetts is expected to increase through 2035.¹⁶ Initial projections suggested a consistent statewide population growth rate of 3.2%, while updated projections anticipate that the Massachusetts population will

¹³ e.g. Brain scans while not categorized as a 'suitable scan', can still be seen on the Espree 1.5T unit as the image quality/patient experience is fine for non-claustrophobic patients.

¹⁴ Growth is similar to what Applicant was seeing in 2015-2019 (+10%).

¹⁵ Data USA: Harvard University. Online at: <https://datausa.io/profile/university/harvard-university#enrollment>

¹⁶ UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, LONG-TERM POPULATION PROJECTIONS FOR MASSACHUSETTS REGIONS AND MUNICIPALITIES 11 (Mar. 2015), available at: http://pep.donahue-institute.org/downloads/2015/new/UMDI_LongTermPopulationProjectionsReport_2015%2004%20_29.pdf

The Massachusetts Secretary of the Commonwealth contracted with the University of Massachusetts Donahue Institute ("UMDI") to produce population projections by age and sex for all 351 municipalities.

grow by 11.8% from 2010 to 2035.¹⁷ Additionally, the Greater Boston region, which has been growing at an estimated 1.1% per year since 2010,¹⁸ is expected to increase by 22.5% in the 2010 to 2035 period.¹⁹

Over the next 15-20 years, the largest part of the Commonwealth's population growth will be attributed to residents within the 50+ age cohort. The 65+ cohort will increase at a rate higher than all other age cohorts.²⁰ By 2035, residents that are 65+ will represent roughly a quarter of the state's population.²¹ This striking increase suggests that there will be a commensurate increase in demand for healthcare services, including the MR imaging services contained in the Proposed Project.

Like the overall aging population, the Shields MRI Brighton patient panel is older than the general population and is aging. Patients in the 60+ cohort represented on average around 31% of the MRI panel (30% in 2018, 31% in 2019, and 32% in 2020).

The average age for patients at Brighton in 2019 was 47 years old, compared to the Massachusetts average of 39 years old. This illustrates that the patient population at Brighton is older than the general population.²² (See Advisory Board Demographic Profiler table below)

Massachusetts Demographics	
Total Population	6,918,895
Male Population Count	3,359,879
Female Population Count	3,559,001
Median Age	39

	2020	2019	2018
Total Volume	3,288	4,337	4,441
0-18	1%	1%	1%
19-30	24%	26%	26%
31-40	16%	16%	18%
41-50	13%	12%	12%
51-64	24%	21%	21%
65+	23%	23%	22%

This increase in older adult patients indicates future demand as MR imaging is beneficial in connection with diagnosis and treatment of a variety of neurological disorders,

¹⁷ *Ibid.* Updated projections account for rapid growth experienced through 2014.

¹⁸ Source : U.S. Census Bureau NST-EST2013-01.

¹⁹ UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 1, at 15.

²⁰ Massachusetts Population Projections – EXCEL Age/Sex Details, UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE (2015), http://pep.donahue-institute.org/downloads/2015/Age_Sex_Details_UMDI_V2015.xls; see also UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 1. Figure 2.5 in the University of Massachusetts Donahue Institute's Long-Term Populations Projection report demonstrates that while all other cohorts are predicted to decrease, the 65+ cohort increases from 2015 to 2035. UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 1, at 14.

²¹ UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 1, at 14.

²² Massachusetts demographics taken from the Advisory Board Profiler tool located online at: <https://www.advisory.com/en/topics/market-analytics-and-forecasting/2016/07/demographics-profiler>

musculoskeletal conditions, cardiovascular diseases, and cancers that have higher incidence rates related to aging.²³ Common diagnoses for older patients within these categories include stroke and dementia; osteoarthritis, hip fracture, and intervertebral disc disorders; congestive heart failure and coronary atherosclerosis; and oncology.²⁴ To that point, some of the most frequently scanned areas of the body at Brighton include the brain, upper and lower extremities, and lumbar. Based on this data, the Applicant notes that the anticipated continued growth among older adults in the population will contribute to increases in patients within this cohort who will require MRI for diagnosis and treatment.

- b. Restoring the use of the Espree 1.5T MRI unit will help meet the local need for higher strength MR imaging in the area.

The open-sided 1.2T unit at the Brighton location was allows patient access to more comfortable and efficient scanning for claustrophobic and bariatric patient populations in Middlesex County and Suffolk County. Over a year ago, Shields MRI Brighton sought to address that local need by taking the Espree 1.5T offline and bringing online its Hitachi 1.2T open-sided machine. Based on Shields' FY19 data, there were approximately ~800 patients within proximity of the Brighton location, who could not complete their scan due to the above-mentioned challenges. This replacement made clinical sense for the patient panel as very few local MRI facilities offer open-sided units.²⁵

Over the past year of operations, the Applicant discovered that in addition to providing MR imaging services for *past* claustrophobic patients, the Hitachi 1.2T has attracted *new* claustrophobic patients seeking a more comfortable imaging environment. Year-to-Date (YTD) September 2021, Brighton has seen 430 new/unique claustrophobic patients (12% of overall volume),²⁶ and these numbers reached ~570 new patients by the end of 2021.²⁷

While there have been several measurable benefits that arose from the introduction of the 1.2T unit to the Brighton location, one of the shortcomings of the unit swap is that over the last year, patients who were [formerly] able to access the Brighton 1.5T unit have had to travel farther, to proximate Shields locations in Winchester, Dorchester (Mass Bay), Tufts MC, Dedham, Brockton, Weymouth, Framingham, and Wellesley. In effect, the swap displaced local patients who for clinical reasons required higher-resolution images and deprived them of a convenient, low cost, high-quality, *local*, MR imaging

²³ WORLD HEALTH ORGANIZATION, WORLD REPORT ON AGEING AND HEALTH (2015). Online at: http://apps.who.int/iris/bitstream/handle/10665/186463/9789240694811_eng.pdf;jsessionid=A56A3A05F3C1A25CCC001F148B499904?sequence=1

²⁴ Lauren Wier et al., Healthcare Cost and Utilization Project Statistical Brief #103: Hospital Utilization among Oldest Adults, 2008, AGENCY FOR HEALTHCARE RESEARCH & QUALITY 2010, online at: <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb103.pdf>; Rebecca Anhang Price et al., Healthcare Cost and Utilization Project Statistical Brief #125: Cancer Hospitalizations for Adults, 2009 AGENCY FOR HEALTHCARE RESEARCH & QUALITY 2012, online at: <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb125.pdf>

²⁵ Boston area providers with Hitachi 1.2T magnets include: MGH Chelsea Imaging, CDI Woburn (now known as Rayus Radiology), and CDI Dedham (now known as Rayus Radiology).

²⁶ 12% represents the % of volume unique claustrophobic patients has accounted for in YTD September 2021 period.

²⁷ The name of the BI analysis platform/system is called Qlikview.

option. Bringing the Espree 1.5T back online would help keep these displaced patients, conveniently local.

The reinstatement of the Espree 1.5T unit will also help meet the growing demand for outpatient/freestanding MR imaging services within the Boston/Brighton market. Within a 5-mile radius of the Brighton location, freestanding MRI volume is expected to grow +16.6% over the next 5 years (information taken from the Advisory Board table in section F1.b.i.C.a).

- c. Higher quality imaging is required for certain types of scans.

The 1.2T MRI open-sided unit, currently located at the Shields MRI Brighton site, is ideal for a certain percentage of the site's patients. It offers high levels of patient comfort; it reduces claustrophobia and patient-size challenges; and allows for greater ease when placing critical body parts directly under the magnet. All smart part exams (wrist, hand, finger, toes, foot, elbow, arm, etc.) have good image quality on the open-sided Hitachi 1.2T. Additionally, this unit can also be used for both routine and contrast brain exams.

That said, based on the Applicant's historical volume as a percentage of total, it is estimated that around ~935 scans (~20%) of the 2021 volume would be more clinically appropriate on the Espree 1.5T. The stronger magnet in the Espree 1.5T allows for higher quality images for shoulder, abdomen, chest, hip/thigh, and pelvis exams. Magnetic resonance cholangiopancreatography ("MRCP")²⁸ scans also have better image quality on the Espree 1.5T. According to the American College of Radiology, prostate scans must be at least 1.5T.²⁹ Breast scans cannot be achieved on the Hitachi 1.2T due to technical limitations in the coils within the 1.2T machine. Furthermore, the minimum recommended equipment for breast MRI by the American College of Radiology Imaging Network (ACRIN)³⁰ is a 1.5T unit. As such, all prostate and breast scans would be completed on the Espree 1.5T.

Lastly, while both routine and contrast brain exams meet industry standards on the Hitachi 1.2T, the quality of examinations for Multiple Sclerosis and Epilepsy³¹ patients are higher on the Espree 1.5T. Accordingly, the 1.5T MRI would best serve the [at least] 22%³² of patients whose scanning needs must be met with a stronger image quality.

- d. Shields MRI Brighton seeks to reduce the amount of time it takes to schedule an MRI and reduce the MR imaging scan times to create volume efficiencies.

²⁸ MRCP uses a powerful magnetic field, radio waves and a computer to evaluate the liver, gallbladder, bile ducts, pancreas and pancreatic duct for disease.

²⁹ Fact available online at the American College of Radiology at: <https://www.acraccreditation.org/prostate-cancer-mri-center>

³⁰ DeMartini WB, Ichikawa L, Yankaskas BC, et al. Breast MRI in community practice: equipment and imaging techniques at facilities in the Breast Cancer Surveillance Consortium. J Am Coll Radiol. 2010;7(11):878-884. doi:10.1016/j.jacr.2010.06.019. Online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2994070/>

³¹ Please note that Multiple Sclerosis and Epilepsy patients are only a very small portion of the panel.

³² Figure based on 2021 forecasted volume: 935/4,300 = 22%

The Applicant strongly considered time implications with respect to the patient, which included an evaluation of the current state of scheduling, current wait times while at the appointment, and an assessment of how volume efficiencies³³ can be built into the Proposed Project to better serve patient panel needs.

The documented increase in clinical demand for MRIs within the Brighton market, has brought a commensurate increase to the scheduling backlog at the Brighton location. It currently takes approximately 10-14 days for a patient to get an appointment/exam on the Hitachi 1.2T.

Wait times have also increased at the Brighton location since the Hitachi 1.5T unit has been operational, where longer scan times have resulted in delays. Approximately 35% of all exams at Brighton were considered "late"³⁴ in 2021. Wait times at Brighton have increased by around +12% compared to FY 2020.

The average appointment time depends on several factors. More specifically, the type of patient (particularly claustrophobic patients), the type of test, the area of the body being imaged, and whether [or not] a contrast agent is recommended, all contribute to the duration of the time that the patient is on the site and in the scan.

Hitachi 1.2T accommodates patients who cannot complete their scans on a regular unit.³⁵ Scans being completed on this unit are typically longer than scans done on a traditional 1.5T, as this machine requires different protocols than a 1.5T unit and primarily caters to claustrophobic/bariatric patients. The average scan time for a patient on the Hitachi 1.2T in 2021 was 40 minutes for a routine study, and closer to 55 minutes for contrast studies. These scan times also factor in preparation time, and additional time it takes to get the patient in/out of the unit. It is also appropriate to note that with more challenging claustrophobic patients, these scan times can even run well over 60 minutes.

The table below outlines routine/contrast scan times for several claustrophobic patients who received their exams at Brighton in 2021. These represent the time a patient was on the actual scanner, with an additional 15 minutes added for preparation time.

³³ Volume efficiency is defined as a center that has average or above average patient throughput, where patients are getting scanned in an appropriate time per hour and avoid any delays due to claustrophobia issues. For example, adding the Espree into operation at Brighton will allow for patient throughput as claustrophobic patients can be seen on the Hitachi instead, and this would not affect the amount of patients/volume the facility sees in each hour.

³⁴ The Applicant defines "wait time" as the amount of time a patient must wait for his/her exam to start after the original scheduled time, and a late exam represents one that starts +15 minutes from the original scheduled time.

³⁵ Enders J, Zimmermann E, Rief M, et al. Reduction of claustrophobia during magnetic resonance imaging: methods and design of the "CLAUSTRO" randomized controlled trial. *BMC Med Imaging*. 2011;11:4. Published 2011 Feb 10. doi:10.1186/1471-2342-11-4. Online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3045881/>

	Average Scan time (Minutes)	Added Prep time (Minutes)	Total Scan Time
Routine Study	25.02	15	40.02
Contrast Study	40.04	15	55.04

One of the most significant scheduling challenges Shields MRI Brighton currently faces is claustrophobic patients often exceed standard time slots (30 minutes for routine and 45 minutes for contrast). The Patient Care Representative ("PCR") must monitor patient lists in real time and add additional scan time where possible (though it is not always possible). This contributes to the center running behind schedule and therefore negatively impacting other patients.

Shields MRI Brighton hopes to decrease the duration of time needed for a scan whenever possible with the addition of the Espree 1.5T to improve patient satisfaction and drive volume efficiencies by using the unit that is most appropriate to meet the specific needs of each patient and their clinical team.

Scans on the 1.5T machine unit can be completed more quickly.³⁶ The motion distortion in the images is also significantly reduced, thus producing higher quality images.³⁷ While some patients prefer the open 1.2T machine due to its open-air nature, many patients are more satisfied with a shorter scan duration that provides a higher quality image to their clinicians. It is important to mention that one of the "areas of improvement" noted by patients who had appointments at the Brighton site was wait time, where 19% of all survey respondents cited this as an issue.³⁸

The Applicant anticipates that the addition of the Espree 1.5T unit could free-up volume currently seen on the Hitachi 1.2T to accommodate all patient needs from scheduling, to wait times, to accommodating patient limitations.

e. Summary

As a result of the Proposed Project, Shields MRI Brighton will be able to meet future needs for MR imaging as demand by its patient population is expected to grow in the coming years. The patient panel will once again have access to higher-quality, low cost, convenient MR imaging in their community and patients in need of breast scans will be able to, once again, receive them at the Shields MRI Brighton site. The additional unit will also help improve scheduling challenges, drive volume efficiencies, and reduce the amount of time that many patients must spend at the appointment.

³⁶ DirectMed Parts & Service. Understanding MRI Machines – The 1.2T, 1.5T, and 3.0T Scanners. Online at: <https://directmedparts.com/understanding-mri-machines-the-1-2-1-5t-and-3t-scanners/>

³⁷ *Ibid.*

³⁸ Surveys are collected in Shields' "feedback stat" and fed into its internal BI system, Qlikview.

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 Applicant's Proposed Project will compete on the basis of price, total medical expenses ("TME"), provider costs and other recognized measures of health care spending by increasing MR imaging capacity and capabilities at Shields MRI Brighton in order to meet current and projected demand at the Brighton location. The Applicant's primary objective with the Proposed Project is to accommodate volume demands, provide further, higher quality, low cost, MRI services to Shields MRI Brighton patients through operation of an additional MRI unit that is already located at the Shields MRI Brighton site.

As noted in Factor F1.a.ii, historical utilization and other indicators of future demand demonstrate a *continued* need for MRI services at Brighton. Historical and projected growth in the across several cohorts indicates there will be *increased* need for higher quality MR imaging services at Shields MRI Brighton into the future.

Downtown Boston and the surrounding area are primarily covered by hospital-based imaging locations, where patients are subject to higher cost imaging services, especially when factoring-in professional fees, facility fees, and the hospital mandatory offering of multiple services lines found at downtown academic medical centers (AMC)). Shields MRI Brighton is up to 60% less expensive than hospital-based MRI scans.³⁹

There are currently only two freestanding/Independent Diagnostic Testing Facility (IDTF) locations within the Boston market (Shields Brighton & Longwood MRI). Reinstating the Espree 1.5T unit will give patients another local, lower cost alternative. This will allow them to avoid having to travel to downtown Boston AMCs to receive higher cost hospital-based imaging services.

Furthermore, many national insurers have implemented site-of-care reviews for diagnostic imaging.⁴⁰ Payers like United Healthcare, Cigna, and Anthem/BCBS have all implemented these policies as an attempt to push patients to lower cost sites of care for imaging. If a procedure is to be performed at a freestanding center like Brighton, a site of care review will not occur (and therefore no additional charges will be incurred). The review will only occur (or be billed) if the procedure is performed in a hospital-based setting.

Additionally, Shields MRI Brighton does not anticipate that operating costs will increase arbitrarily given that the Shields operating model allows for improved scheduling, workflow, technology, and customer service, all of which will have a positive impact on the cost to provide care.

³⁹ Data to support the same is available on the Shields online calculator, which compares Shields rates to hospital-based imaging sites.

⁴⁰ Links to site of care policies: [United Healthcare Site of Service Review for MRI Services](#); [Cigna Site of Service Review for MRI Services](#); and [Anthem/BCBS Site of Service Review for MRI Services](#)

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 the Applicant has identified.

A. Overview

Factor F1.a.ii outlines the Proposed Project will meet patient panel needs. As described below, the Proposed Project is also supported by evidence-based literature related to the utility of MR imaging and its [aforementioned] benefits. This overview summarizes clinical applicability, as well as access, convenience, and quality.

B. MRI as an Imaging Modality

MRI is a well-established, non-invasive imaging system that uses a magnetic field combined with pulses of radio waves to produce detailed images of organs, tissues, and structures within the human body.⁴¹ MR images are valuable because they are obtained without using any ionizing radiation, so patients are not exposed to the harmful effects that are associated with x-ray, computed tomography ("CT"), and positron emission tomography ("PET") imaging.⁴² To obtain bodily images and information via MRI, patients are placed at the center of a powerful magnetic field and measurements related to how atoms respond to pulses of radiofrequency energy are collected and analyzed.⁴³ The function of MRI is to provide clinicians access to anatomical and functional information that is important in diagnosing, planning treatment for, and monitoring a variety of conditions.⁴⁴

Magnetic Resonance Imaging, as the name implies, would not exist without the magnet. Likewise, the magnetic field used by the scanner would not exist without the magnet. The magnetic field produced by Earth is 0.5 gauss.⁴⁵ The magnetic field produced by the magnet in a 1.5T MRI machine is 15,000 gauss, meaning the magnet in a 1.5T scanner is 30,000 times stronger than that produced by the Earth.⁴⁶ The scanner uses this strength to align the hydrogen nuclei and produce the images for an MRI exam and the scanner uses the magnet to generate a magnetic field, which causes the signal produced by a patient's body.⁴⁷ The strength of the magnet directly affects the strength of this signal.⁴⁸

The tesla (symbol T) is the derived SI unit of magnetic flux density, which represents the strength of a magnetic field – one tesla equals exactly 10,000 gauss.⁴⁹

⁴¹ Magnetic Resonance Imaging (MRI), NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING. Online at: <https://www.nibib.nih.gov/science-education/science-topics/magnetic-resonance-imaging-mri>

⁴² (MRI) Magnetic Resonance Imaging: Benefits and Risks, U.S. FOOD & DRUG ADMIN. Online at: <https://www.fda.gov/radiation-emitting-products/mri-magnetic-resonance-imaging/benefits-and-risks>

⁴³ Magnetic Resonance Imaging (MRI), supra note 8.

⁴⁴ (MRI) Magnetic Resonance Imaging: Benefits and Risks, supra note 9.

⁴⁵ "How Magnetic Resonance Imaging works explained simply." howequipmentworks.com. Web. 13 December 2018. Online at: https://www.howequipmentworks.com/mri_basics/

⁴⁶ "What does tesla mean for an MRI and its magnet?" gehealthcare.com. Web. 27 February 2019. Online at: <https://www.gehealthcare.com/article/what-does-tesla-mean-for-an-mri-and-its-magnet>

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

⁴⁹ Bell, D. Tesla (SI unit). Reference article, Radiopaedia.org. 8 March 2018. Online at: <https://radiopaedia.org/articles/tesla-si-unit>

C. Clinical Applications of MRI
a. Overview

Clinical applications for MRI are extensive. As discussed in further detail below, some of these clinical applications include conditions that fall within the categories of neurology, orthopedics, and the cardiovascular system. Significant with respect to the Proposed Project, in FY20, patients underwent MRI scans for the following top 5 body areas: Lower Extremity (32%), Lumbar (18%), Upper Extremity (16%), Brain (13%), and Cervical (8%).

The use of MRI has increased significantly over the past decade driven by technology advancements, expansion of clinical applications for imaging, and increased patient demand within the market. The 5 body areas mentioned in section above are specifically expected to see a rise in freestanding demand within the Brighton market over the next 5 years (5-mile radius – taken from Advisory Board table below).⁵⁰

- *Brain: +20.5% over 5 years
- *Lumbar: +16.0% over 5 years
- *Bone/Joint MRI: +15.3% over 5 years

Service Line	Subservice Line	Outpatient Grouping	2019 Volume	2024 Volume	5 Yr. Growth
Radiology	MRI	Spine MRI *	14,415	16,727	16.0%
Radiology	MRI	Spine MR Angiography	2	2	16.3%
Radiology	MRI	Other MRI	12	14	16.8%
Radiology	MRI	MRI Guided Procedure	15	19	24.1%
Radiology	MRI	MR Spectroscopy	19	23	20.5%
Radiology	MRI	Head/Neck MRI	640	741	15.8%
Radiology	MRI	Head/Neck MR Angiography	2,415	2,854	18.1%
Radiology	MRI	Extremity MR Angiography	639	773	21.1%
Radiology	MRI	Chest MRI	99	112	13.1%
Radiology	MRI	Chest MR Angiography	54	63	17.2%
Radiology	MRI	Cardiac MRI	43	58	35.9%
Radiology	MRI	Breast MRI	1,356	1,500	10.6%
Radiology	MRI	Brain MRI *	6,753	8,140	20.5%
Radiology	MRI	Brain MR Angiography	2,910	3,258	12.0%
Radiology	MRI	Bone/Joint MRI *	13,231	15,258	15.3%
Radiology	MRI	Abdominal/Pelvic MRI	1,480	1,860	25.7%
Radiology	MRI	Abdominal/Pelvic MR Angiography	506	602	19.0%
Total			44,588	52,004	16.6%

⁵⁰ This represents a 5 Mile radius from the Brighton zip code, 02135. List of zip codes: 02108; 02111; 02112; 02114; 02115; 02116; 02117; 02118; 02119; 02120; 02121; 02123; 02130; 02131; 02132; 02133; 02134; 02135; 02138; 02139; 02140; 02141; 02142; 02143; 02144; 02145; 02163; 02196; 02199; 02201; 02203; 02204; 02206; 02207; 02211; 02212; 02215; 02216; 02217; 02222; 02238; 02239; 02241; 02266; 02293; 02295; 02297; 02445; 02446; 02447; 02452; 02453; 02455; 02456; 02458; 02459; 02460; 02461; 02464; 02465; 02466; 02467; 02468; 02471; 02472; 02474; 02476; 02477; 02478; 02479; 02495

b. Clinical Application: Neurology / Brain Imaging

Using different sequences of magnetic pulses, MRI can show anatomical images of the brain or spinal cord, measure blood flow, or reveal deposits of minerals such as iron.⁵¹ MRI is used to diagnose stroke, traumatic brain injury, brain and spinal cord tumors, inflammation, infection, vascular irregularities, brain damage associated with epilepsy, abnormally developed brain regions, and some neurodegenerative disorders.⁵² MRI is also used to diagnose and monitor disorders such as multiple sclerosis.⁵³ Another important application is diagnosing and managing stroke and degenerative diseases such as Alzheimer's, the risks of which increase with age.⁵⁴

c. Clinical Application: Orthopedic

In orthopedics, an MRI may be used to examine bones, joints, and soft tissues such as cartilage, muscles, and tendons for injuries or the presence of structural abnormalities or certain other conditions, such as tumors, inflammatory disease, congenital abnormalities, osteonecrosis, bone marrow disease, and herniation or degeneration of spinal cord discs.⁵⁵ MRIs demonstrate clinical utility across all age groups to diagnose a wide spectrum of musculoskeletal conditions, they are particularly important in the diagnosis and treatment of older adults age 65+, who are affected by orthopedic/musculoskeletal issues at higher rates.⁵⁶ As referenced above, approximately 23% of the Brighton site's patient panel falls within this cohort. Research indicates that with older age comes bone fragility, loss of cartilage resilience, reduced ligament elasticity, loss of muscular strength, and fat redistribution that decreases the ability of the tissues to carry out their normal functions.⁵⁷

Loss of mobility and physical independence resulting from age-related orthopedic/musculoskeletal issues, such as osteoarthritis, degenerative disc disorders, fractures, and fall-related injuries, are particularly devastating in this population and can lead to increased ED use and hospitalization,⁵⁸ which, in turn, contributes to the ever-swelling cost of health care.⁵⁹

⁵¹ National Institute of Neurological Disorders and Stroke. *Neurological Diagnostic Tests and Procedures* (Fact Sheet). Online at: <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Neurological-Diagnostic-Tests-and-Procedures-Fact>

⁵² *Ibid.*

⁵³ *Ibid.*

⁵⁴ Vemuri P, Jack CR Jr. Role of structural MRI in Alzheimer's disease. *Alzheimers Res Ther.* 2010 Aug 31;2(4):23. doi: 10.1186/alzrt47. PMID: 20807454; PMCID: PMC2949589. Online at: <https://pubmed.ncbi.nlm.nih.gov/20807454/>

⁵⁵ Johns Hopkins Medicine. *Magnetic Resonance Imaging (MRI) of the Bones, Joints, and Soft Tissues*. Online at: <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/mri-of-the-bones-joints-and-soft-tissues>

⁵⁶ Gheno R, Cepparo JM, Rosca CE, Cotten A. Musculoskeletal disorders in the elderly. *J Clin Imaging Sci.* 2012;2:39. doi:10.4103/2156-7514.99151. Online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3424705/>

⁵⁷ AJ Freemont & JA Hoyland, Morphology, mechanisms and pathology of musculoskeletal ageing, 211 *J. PATHOLOGY* 252 (2007). Online at: <https://pubmed.ncbi.nlm.nih.gov/17200936/>

⁵⁸ Aminzadeh F, Dalziel WB. Older adults in the emergency department: a systematic review of patterns of use, adverse outcomes, and effectiveness of interventions. *Ann Emerg Med.* 2002 Mar;39(3):238-47. doi: 10.1067/mem.2002.121523. PMID: 11867975. Online at: <https://pubmed.ncbi.nlm.nih.gov/11867975/>

⁵⁹ Revcycle Intelligence. Avoidable Hospital ED Visits Cost Healthcare System \$32B Annually. Online at: <https://revcycleintelligence.com/news/avoidable-hospital-ed-visits-cost-healthcare-system-32b-annually>

Special attention is required in older adult populations, as an early diagnosis can avoid delays in treatment, which are associated with increased morbidity and mortality.⁶⁰ Appropriate use of MR imaging holds great potential for diagnosing and helping to treat these conditions, due to its ability to noninvasively display high-definition images of the musculoskeletal system.⁶¹

d. Clinical Application: Breast Exams

Breast MR imaging is recommended for women at high risk for breast cancer and is increasingly being used for surgical planning and treatment monitoring.⁶² The current state of breast MRI focuses on collecting morphologic and dynamic information at a 1.5T magnetic field strength.⁶³ High-resolution images yield information regarding tumor morphology, while rapidly collected images acquired after contrast injections generate dynamic contrast-enhanced (DCE) information – which is clinically meaningful.⁶⁴ The Shields Brighton location has historically seen around 50-75 breast scans per year, but these scans cannot be performed on the Hitachi 1.2T unit due to not having the necessary coil. Therefore, the Brighton location has not been able to accommodate individuals who required breast scans over the last year. Bringing the Espree 1.5T back online will allow these scans to be completed at Brighton once again. Please see breast projections in the volume table cited in the Suitable Scans Volume Projections table in section F1.a.ii.B.a.

e. Clinical Application: Oncology

MRI also plays a role in cancer diagnosis, staging, and treatment planning.⁶⁵ MRI's superior soft tissue resolution allows clinicians to distinguish between normal and diseased tissue to precisely pinpoint and monitor treatment of cancerous tumors and metastases within certain parts of the body.⁶⁶ MRIs are useful tools in the treatment response evaluation of cancer patients with thoracic lesions, including involvement of the chest wall, lungs, esophagus, and heart.⁶⁷ This capability is particularly important for older adults, as advancing age is the most important risk factor for cancer overall and for many individual cancer types.⁶⁸ The incidence rates for cancer overall climb steadily as age

⁶⁰ Gheno et al., *supra*.

⁶¹ Dean Deyle G. The role of MRI in musculoskeletal practice: a clinical perspective. *J Man Manip Ther.* 2011;19(3):152-161. doi:10.1179/2042618611Y.0000000009. Online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143009/>

⁶² Applied Radiology – the Journal of Practical Medical Imaging and Management. Breast MRI at 3T. Online at: <https://www.appliedradiology.com/articles/breast-mri-at-3t>

⁶³ *Ibid.*

⁶⁴ *Ibid.*

⁶⁵ American Cancer Society. *MRI for Cancer*. Online at: <https://www.cancer.org/treatment/understanding-your-diagnosis/tests/mri-for-cancer.html>

⁶⁶ *Ibid.*

⁶⁷ Guimaraes MD, Hochegger B, Santos MK, Santana PR, Sousa AS Júnior, Souza LS, Marchiori E. Magnetic resonance imaging of the chest in the evaluation of cancer patients: state of the art. *Radiol Bras.* 2015 Jan-Feb;48(1):33-42. doi: 10.1590/0100-3984.2013.1794. PMID: 25798006; PMCID: PMC4366027. Online at: <https://pubmed.ncbi.nlm.nih.gov/25798006/>

⁶⁸ National Cancer Institute. Age and Cancer Risk. Online at: <https://www.cancer.gov/about-cancer/causes-prevention/risk/age>

increases, from fewer than 25 cases per 100,000 people in age groups under age 20, to about 350 per 100,000 people among those aged 45–49, to more than 1,000 per 100,000 people in age groups 60 years and older.⁶⁹

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.

A. Improving Health Outcomes and Quality of Life

The reinstatement of the Espree 1.5T will improve health outcomes and quality of life by expanding access to higher quality, low cost, imaging services that can be performed in less time, while both maintaining the ability continuing to offer scans on the 1.2T to accommodate claustrophobic/bariatric patients⁷⁰ and by accommodating the growing volume demands.

The Espree 1.5T not only allows for faster scans for the patient, but it also permits Shields MRI Brighton to operate with greater *efficiency* while accommodating the growing demand for these services. *Efficiency* improves timely *access* to local imaging services for local patients. Ease of *access* improves quality of life for patients because early detection and treatment of diseases improves patient outcomes.⁷¹ Satisfied patients are more likely to be compliant with their medical care plan, ultimately leading to improved outcomes and more efficient utilization of healthcare resources.⁷²

Furthermore, shorter perceived and actual wait times of patient appointments were both correlated with higher patient satisfaction scores.⁷³ Patient satisfaction is an important indicator used for measuring quality in health care.⁷⁴

B. Assessing the Impact of the Proposed Project

- a. To assess the impact of the Proposed Project, the Applicant has developed the following measures of patient satisfaction, access, and quality of care. The measures are discussed below:

⁶⁹ *Ibid.*

⁷⁰ Several patients have shared their experience with Shields MRI Brighton with respect to getting scanned on the Hitachi 1.2T for the first time: One patient stated that he “likes the open sided Hitachi Oasis much better than other types of magnets.” This patient had tried to get a shoulder scan elsewhere and was not able to complete the scan. The patient reported that it Shields Brighton was able to scan without issues. Another patient was able to get a scan done on the Hitachi because the patient’s significant other was able to lean in and hold hands while the unit scanned the cervical spine. The patient reported that the machine was much better than what past experiences. Yet another patient reported “loving” the 1.2T machine. This patient was not able to complete scan multiple times in Dartmouth but was able to go through the whole lumbar scan at the visit to Brighton.

⁷¹ American College of Radiology. *Early Action Boosts Patient Satisfaction*. Online at: <https://www.acr.org/Practice-Management-Quality-Informatics/Imaging-3/Case-Studies/Quality-and-Safety/Early-Action-Boosts-Patient-Satisfaction>

⁷² Otani K, Ye S, Chumbler NR, Judy Z, Herrmann PA, Kurz RS. The impact of self-rated health status on patient satisfaction integration process. *Journal of Healthcare Management*. 2015;60(3):205-218. Online at: <https://pubmed.ncbi.nlm.nih.gov/26554265/>

⁷³ Holbrook A, Glenn H Jr, Mahmood R, Cai Q, Kang J, Duszak R Jr. Shorter Perceived Outpatient MRI Wait Times Associated With Higher Patient Satisfaction. *J Am Coll Radiol*. 2016 May;13(5):505-9. doi: 10.1016/j.jacr.2015.11.008. Epub 2016 Jan 4. PMID: 26768544. Online at: <https://pubmed.ncbi.nlm.nih.gov/26768544/>

⁷⁴ Bhanu Prakash, Patient Satisfaction, 3 J. CUTANEOUS & AESTHETIC SURGERY 151 (2010), online at: <https://pubmed.ncbi.nlm.nih.gov/21430827/>

- i. **Patient Experience/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 MRI service.
 1. **Measure:** To ensure a service-excellence approach, patient satisfaction surveys will be distributed to all patients receiving MRI services with specific questions around a) satisfaction with pre-appointment communication; and b) satisfaction with the wait time for services.
 2. **Projections:** Baseline: 90%; Year 1: 90% Year 2: 91% Year 3: 92%
 3. **Monitoring:** Any category receiving a less than exceptional rating (satisfactory level) on an annual basis will be evaluated⁷⁵ and policy changes instituted if needed.
- ii. **Wait Times:** Access-Backlog: The timeliness of MRI scans is important for appropriate diagnosis and treatment, contributes to patient satisfaction, and can be used to measure patient access. The Applicant will monitor access for the MRI service.
 1. **Measure:** The number of times scanning day utilization is greater than 90% and adjustments need to be made to the schedule.
 2. **Projections:** Baseline: <10%; Year 1: <10%; Year 2: <10%; Year 3: <8%
 3. **Monitoring:** The Applicant's staff will assess daily hours of service and implement adjustments if necessary.
- iii. **Important Finding Alert ("IFA"):** The Applicant will review the percentage of MRI scans that triggered an IFA for which the radiologist conducted a critical value report.
 1. **Measure:** Number of contracted radiologists conducting critical value reporting on cases being interpreted.
 2. **Projections:** Baseline: 100%; Year 1: 100%; Year 2: 100%; Year 3: 100%
 3. **Monitoring:** IFAs will be monitored and follow up will be conducted with the referring physician. The radiologist will be made available to answer any questions.
- iv. **Quality of Care - Quality of MRI Scan:** The quality of an MRI scan is imperative to its interpretation. Accordingly, the Applicant will evaluate the number of scans that need to be repeated within a 48-hour period from the date of the original scan to ensure radiology technicians are performing appropriate scans.
 1. **Measure:** The number of repeat MRI scans performed on patients within a 48-hour period from the date of the original scan.
 2. **Projections:** Baseline: <1%; Year 1: <1%; Year 2: <1%; Year 3: <1%
 3. **Monitoring:** MRI 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 that meets or exceeds the metric.

⁷⁵ The Applicant collects patient satisfaction ratings in its BI system daily. These ratings are evaluated by Customer Care and Patient Care representatives.

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.

The Applicant ensures equal access to high-quality MR imaging by providing effective, understandable, and respectful care with an understanding of patients' cultural health beliefs and practices and preferred languages. The Applicant offers ongoing education and training of staff in culturally and linguistically appropriate care and offers several tools to accommodate patients' needs and preferences.

During the scheduling process, a patient's preferred language is determined and the need for whether language assistance services will be needed at the time of appointment, is documented. The Applicant uses In Demand as the preferred tool for video and voice interpreting during the appointment. Language Line Solutions phone interpreting may also be used in the event the In Demand system is not functioning properly. Designated iPads are used for the In Demand interpreting which provides the following: real-time, full motion video and audio over a dedicated high-speed internet connection, wide and width video connection or wireless connection that delivers high quality video images; a sharply delineated image large enough to display the interpreter's face and the participating individual's face; a clear, audible transmission of voices; a choice of female or male interpreter, based on patient preference if requested; adequate training to users on the operation of the video remote interpreting system; and phone interpreting services when needed.

As is outlined in detail above, Shields MRI Brighton provides free language services to people whose primary language is not English. Language offerings include:

<ul style="list-style-type: none">• Español (Spanish)• American Sign Language• العربية (Arabic)• 繁體中文 (Chinese)• kreyòl ayisyen (Haitian Creole)• 한국어 (Korean)• नेपाली (Nepali)• Polski (Polish)	<ul style="list-style-type: none">• Português (Portuguese)• Română (Romanian)• Русский (Russian)• Soomaali (Somali)• Kiswahili (Swahili)• Türkçe (Turkish)• Українська (Ukrainian)• Tiếng Việt (Vietnamese)
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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.

To that end the Applicant will not discriminate based on ability to pay or payer source following implementation of the Proposed Project. In addition, Shields MRI Brighton accepts all forms of insurance. The Applicant offers 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. For patients on a high-deductible health plan or without insurance coverage, Shields offers financing options through Care Credit.

The Applicant ascribes great import to the notion that health equity is inexorably tied to affordability of the health care service being provided. A Kaiser Family Foundation survey⁷⁶ found that half of U.S. adults say they or a family member put off or skipped some sort of health care or dental care or relied on an alternative treatment because of the cost, and about one in eight say their medical condition got worse as a result. Health care costs top the list of expenses that people report difficulty affording.⁷⁷ Shields MRI Brighton is addressing this disparity by offering rates that are up to 60% less expensive than hospital-based MRI scans.⁷⁸

Lastly, the Proposed Project will provide the opportunity for patients to, once again, receive breast scans at the Shields Brighton MRI location, thus removing barriers to this service locally.⁷⁹ Throughout the duration of 2021, access to this service ceased, and those patients in need of this type of scan had to seek alternative clinic locations outside the convenient Brighton location. The Applicant's Proposed Project will help ensure equal access to MR imaging services thus promoting health equity in the community.

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.

Shields MRI Brighton is committed to improving health outcomes and quality of life of its patient panel, while providing reasonable assurances of health equity for all the reasons outlined throughout this application. In addition, however, the Applicant can further demonstrate its commitment to improving health outcomes and quality of life – for more than 25 years, Shields Health Care Group (“Shields”) has advanced a delivery model that offers affordable, accessible care coupled with top-quality treatment and diagnostic accuracy. The Applicant offers low price (and competitive transparency), radiologist expertise, top-tier technology, and easy referrals.

⁷⁶ Kaiser Family Foundation. *America's Challenges with Health Care Costs*. December 14, 2021. Online at: <https://www.kff.org/health-costs/issue-brief/americans-challenges-with-health-care-costs/>

⁷⁷ *Ibid.*

⁷⁸ Data to support the same is available on the Shields online calculator, which compares Shields rates to hospital-based imaging sites.

⁷⁹ “A relationship between travelling further and having worse health outcomes cannot be ruled out and should be considered within the healthcare services location debate.” Kelly C, Hulme C, Farragher T, Clarke G. Are differences in travel time or distance to healthcare for adults in global north countries associated with an impact on health outcomes? A systematic review. *BMJ Open*. 2016;6(11):e013059. Published 2016 Nov 24. doi:10.1136/bmjopen-2016-013059. Online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5178808/>

Shields' laser focus on imaging means more efficiency, and that translates into savings for patients. Hospitals offer multiple service lines with high overhead costs that often filter down into the price for imaging. Shields' broad presence and value proposition across the Commonwealth allows it to offer convenient and comfortable services to patients near where they reside.

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.

Shields MRI Brighton currently operates efficiently and effectively by promoting continuity and coordination of care for its patients. The Shields business model offers savings, convenient locations, cutting-edge technology, open-sided MR imaging, radiological expertise, and rapid results. The Applicant delivers images and reports to the referring provider expeditiously. Shields MRI Brighton works in collaboration with its patients' providers to assist in accurately addressing patients' immediate medical requirements.

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 social determinants of health (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 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.

The Applicant sought input from a variety of stakeholders in planning the Proposed Project. The Applicant conducted a formal consultative process with individuals at various regulatory agencies regarding the Proposed Project. The following individuals are some of those consulted about the Proposed Project:

- Lara Szent-Gyorgyi, Director, Determination of Need Program, Department of Public Health
- Torey McNamara, Deputy Chief of Staff, Department of Public Health
- Rebecca Rodman, Esq., Deputy General Counsel, Department of Public Health
- Jennica F. Allen Community Health Planning and Engagement Specialist, Department of Public Health
- Ben Wood, Director, Office of Community Health Planning and Engagement, Department of Public Health

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 higher quality, cost-effective MR Imaging services to Shields MRI Brighton patients. The Applicant's historical utilization data for these services demonstrates ongoing demand. Additionally, demand for higher quality MR imaging services is likely to increase as the region's population ages.

Shields MRI Brighton engaged residents and resident groups through a virtual community engagement forum. This meeting was held on December 10, 2021, using remote technology. At this forum, Dr. David C. Yu, a neuroradiology specialist, presented an overview of the Proposed Project and the benefits of providing enhanced MR imaging services through the Applicant. Community members asked questions regarding the Determination of Need process generally and the capacity of existing MR imaging services. Through the open meeting, the Applicant engaged patients, families, and community members in thoughtful discussions regarding the Proposed Project.

To ensure appropriate awareness within the community about the Proposed Project, the legal notice associated with the Proposed Project was published on the Shields website. This was done to bring awareness of the Proposed Project to all patients, family members, local residents, and resident groups, informing them of the efforts to address access and capacity constraints with respect to the growing need for local, low-cost MR imaging. It also provides an opportunity for public comment on 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 took the following actions:

- Virtual Community Engagement Forum was held on December 10, 2021.

For detailed information on these activities, see Exhibit B.i.

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.

The goals for cost containment in Massachusetts center around providing low-cost care alternatives without sacrificing high quality. The Proposed Project seeks to expand services at Shields MRI Brighton without a net increase in Total Medical Expense (TME).

As previously discussed, the Proposed Project is for the reinstatement of its 1.5T MRI unit that is currently located [although offline] on location. This unit will be in addition to the existing 1.2T MRI unit at the site. Bringing the second unit online with additional imaging capabilities will allow Shields MRI Brighton to expand the access to and quality of MR imaging services locally, which in turn will help ensure that patients are receiving the right type of scan for the imaging that they need at a significantly lower price point. In addition, the 1.5T allows for shorter scan times which bolsters patient satisfaction and helps drive volume efficiency.

Providing patients with accessible, low-cost, high-quality MR imaging services and helping ensure that all patients receive necessary care in a timely manner, is another way to promote cost containment goals. By offering additional MR imaging services where the patient panel has historically gone for this type of service, helps promote faster diagnosis, intervention, and treatment and can contribute to improving health care quality, thereby reducing the overall costs of health care.

F2.b Public Health Outcomes:

Describe, as relevant, for each new or expanded service, how the Proposed Project will improve public health outcomes.

To effectively address current and projected demand for MR imaging services in the community, additional capacity and capability is needed. MR imaging is a powerful modality that allows clinicians to better understand the disease process and make treatment decisions. Through the Proposed Project, Shields MRI Brighton seeks to not only increase the number of imaging appointments available, but also increase the type of MR imaging services available, such as those needed for certain cancers, like prostate and breast cancer. Through continued access to imaging services at Shields MRI Brighton, community clinicians will have the necessary tools to appropriately diagnose and treat patients, thereby improving health outcomes for the patient panel.

Expanding MR imaging services at Shields MRI Brighton to improve public health outcomes is also supported by the [aforementioned] historical imaging service volume which indicates rising utilization rates. As is discussed throughout this narrative, as the patient population ages, the

demand for imaging services will likely grow. An aging population will have an increased need for high-quality imaging services to diagnose and treat age-related conditions.

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.

Social Determinants of Health (“SDoH”) are the conditions and environments in which people are born, grow, live, eat, work, play and age, that affect access to the healthcare system and a wide range of health risks and outcomes.⁸⁰ Socioeconomic status, education, employment, housing, food security, transportation, social protective factors, social support, and language/literacy are all examples of SDoH that have an impact on the physical and mental well-being of the population.

Through the Proposed Project, access to high-value, low-cost imaging services will be expanded to the community served by this location. In instances where patients need 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 preregistration 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. 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.

A. Proposal

The Proposed Project seeks to expand access to MRI services for Shields MRI Brighton’s patient panel. Shields MRI Brighton proposes to reinstate its Siemens Espree 1.5T MRI unit, which was taken offline in 2020 and replaced with the Hitachi Oasis to meet growing patient panel needs at that time.

⁸⁰ Ara Ohanian, The ROI of Addressing Social Determinants of Health, AJMC (Jan. 11, 2018), <https://www.ajmc.com/view/the-roi-of-addressing-social-determinants-of-health>

B. Quality

Bringing the Espree 1.5T back online will expand local access to higher quality imaging services that can be performed in less time, while both maintaining the status quo by continuing to offer scans on the 1.2T to accommodate claustrophobic/bariatric patients and by accommodating growing volume demands.

C. Efficiency

The Proposed Project will improve efficiency by reducing wait times for MR imaging services and allowing for improved scheduling capacity and efficiency, both of which will in turn provide more timely patients access to necessary diagnostic information

D. Capital Expense

The total value of replacing the Espree 1.5T with the Oasis 1.2T was \$2,292,401. This number represents the expenses associated with taking the Applicant's Siemens Espree 1.5T MRI unit offline in 2020 and replacing it with the Hitachi Oasis unit. There are no capital expenses associated with the proposed reinstatement of the Espree 1.5T.

E. Operating Costs

The operating expenses for the first year⁸¹ of operating the Hitachi 1.2T were approximately \$309,795.⁸² The first full year of operation of both units at the Brighton location is expected to be \$360,725.⁸³

F. List of Alternative Options for the Proposed Project

a. Option 1

i. Alternative Proposal

The Applicant considered not reinstating the Espree 1.5T.

ii. Alternative Quality

Quality of care and access would be further reduced, and the growing volume demands would remain unaddressed under this alternative. The benefits of the Proposed Project are outlined in the content above.

iii. Alternative Efficiency

Not reinstating the Espree 1.5T is not a superior alternative in that it would not help improve efficiency by reducing wait times for MR imaging services, which assists providing more timely patient access to necessary diagnostic information. Volume considerations for 2022 and beyond would not be met, further contributing to the issue of wait time and diminished patient access.

iv. Alternative Capital Expenses

⁸¹ January 2021 – December 2021

⁸² This figure was taken from the Financial Appendix of the Veralon January 2022 Report: Analysis of the Reasonableness of Assumptions and Feasibility of Shields MRI Brighton, included with this submission.

⁸³ *Ibid.*

The total value of replacing the Espree 1.5T with the Oasis 1.2T was \$2,292,401. This number represents the expenses associated with taking the Applicant's Siemens Espree 1.5T MRI unit offline in 2020 and replacing it with the Hitachi Oasis unit. In this alternative option to the Proposed Project, this figure would remain the same and no new expenses would be incurred.

v. Alternative Operating Costs

Refraining from reinstating the Espree 1.5T would not result in operating costs that are dissimilar to the operating costs at the site over the last year. Not reinstating the Espree 1.5T would simply be maintenance of the status quo from an operating cost perspective.

Factor 6: Community Based Health Initiatives

The Determination of Need Community-Based Health Initiative Planning Guidelines recite that the obligation to the Community-Based Health Initiative ("CHI") Program for proposed projects that classify as DoN-Required Equipment acquired by an entity other than a hospital will fulfill such obligations through a payment to the CHI Statewide Initiative at such time that the Applicant receives project approval.

The Applicant's proposed project falls into the category of DoN Required Equipment and as such, will not submit CHI forms with this application.

Exhibit B.b
Copy of Notice of Intent



Public Policy Law Group.

Pursuant to 105 CMR 100.405(C), please find enclosed a notice of intent for a proposed health care project.

Public Announcement Concerning a Proposed Health Care Project

Shields Healthcare of Cambridge, Inc. ("Applicant") located at 700 Congress Street, Suite 204, Quincy, Massachusetts 02169 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health ("DPH") for the addition of a 1.5 Tesla magnetic resonance imaging ("MRI") unit to be located at Shields MRI Brighton at 385 Western Ave, Brighton, Massachusetts 02135. The total value of the Project is \$2,292,401. The Applicant does not anticipate any price or service impacts to 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 February 4, 2022 or 30 days of the Filing Date, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6th floor, Boston, MA 02108 or dph.don@state.ma.us

Public Announcement Concerning a Proposed Health Care Project

Shields Healthcare of Cambridge, Inc. (“Applicant”) located at 700 Congress Street, Suite 204, Quincy, Massachusetts 02169 intends to file a Notice of Determination of Need (“Application”) with the Massachusetts Department of Public Health (“DPH”) for the addition of a 1.5 Tesla magnetic resonance imaging (“MRI”) unit to be located at Shields MRI Brighton at 385 Western Ave, Brighton, Massachusetts 02135. The total value of the Project is \$2,292,401. The Applicant does not anticipate any price or service impacts to 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 February 4, 2022 or 30 days of the Filing Date, whichever is later, by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6th floor, Boston, MA 02108 or dph.don@state.ma.us

Exhibit B.c
Affidavit of Truthfulness Form



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: 22o2o311-RE

Original Application Date: 2/3/22

Applicant Name: Shields Healthcare of Cambridge, Inc.

Application Type: [DoN-Required Equipment]

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.

Thomas Shields

Name:

Signature:

Date:

12/20/2021

*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

Courtney Pasay Vaughan

CP Vaughan

2/3/2022

Name:

Signature:

Date

This document is ready to print: ☒

Date/time Stamp: 2/3/2022

Exhibit B.d

Scanned Copy of Application Filing Fee Check

Shields Healthcare of Cambridge Inc
V1873--Commonwealth of Massachusetts - DO
Print As: Commonwealth of Massachusetts

250 Washington Street
6th Floor
Boston, MA 02108

Santander Bank
Santander_02399 2981
Date: 01/17/2022

Date	Bill #	Reference Number	Amount Paid/Applied
01/12/2022	JAN 12 2022	DON FILING FEE	\$4,584.80
Net Amount:			\$4,584.80

Page 1 of 1

Shields Healthcare of Cambridge Inc
V1873--Commonwealth of Massachusetts - DO
Print As: Commonwealth of Massachusetts

250 Washington Street
6th Floor
Boston, MA 02108

Santander Bank
Santander_02399 2981
Date: 01/17/2022

Date	Bill #	Reference Number	Amount Paid/Applied
01/12/2022	JAN 12 2022	DON FILING FEE	\$4,584.80
Net Amount:			\$4,584.80

Page 1 of 1

Shields Healthcare of Cambridge Inc
55 Christy's Drive
Brockton, MA 02301

Santander Bank

Date: 01/17/2022

Pay Four Thousand Five Hundred Eighty Four Dollars and 80 Cents

\$4,584.80

Pay to the
Order of
Commonwealth of Massachusetts
250 Washington Street
6th Floor
Boston, MA 02108
United States

Non-negotiable
Not Cashed After 90 Days

Exhibit B.e

Affiliated Parties Table Question 1.9



Massachusetts Department of Public Health Determination of Need Affiliated Parties

Version: DRAFT
3-15-17

DRAFT

Application Date: 02/03/2022

Application Number: 220203II-RE

Applicant Information

Applicant Name: Shields Healthcare of Cambridge, Inc.

Contact Person: Courtney Pasay Vaughan

Title: Attorney

Phone: 9789982464

Ext:





E-mail: cpvaughan@publicpolicylaw.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
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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	45 Satuit Meadow Lane	Norwell	MA	Shields Health Care Group	Partnership			No	Legal name Southeastern Massachusetts Regional MRI Limited Partnership Fall River-New Bedford Regional MRI Limited Partnership Fall River-New Bedford Regional MRI Limited Partnership Shields Healthcare of Cambridge Inc. South Shore MRI Limited Partnership Massachusetts Bay Regional MRI Limited Partnership Massachusetts Bay Regional MRI Limited Partnership Shields MRI & Imaging Center of Cape Cod LLC U Mass Memorial MRI & Imaging Center LLC U Mass Memorial MRI & Imaging Center LLC U Mass Memorial MRI & Imaging Center LLC U Mass Memorial MRI & Imaging Center LLC Chelmsford Surgery Center LLC	
 					MA							

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: 2/3/22 1:38

[E-mail submission to
Determination of Need](#)

Exhibit B.f

Change in Service Tables Questions 2.2 & 2.3



Massachusetts Department of Public Health

Determination of Need

Change in Service

Version: DRAFT
6-14-17

DRAFT

Application Number: 22020 311-RE

Original Application Date: 2/ 3/22

Applicant Information

Applicant Name: Shields Healthcare of Cambridge, Inc.

Contact Person: Courtney Pasay Vaughan

Title: Attorney

Phone: 9789982464

Ext:

E-mail: cpvaughan@publicpolicylaw.com

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

1 Facility Name: Shields Healthcare of Cambridge, Inc.

CMS Number: 020369

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		Operating Beds		Change in Number of Beds (+/-)		Number of Beds After Project Completion (calculated)		Patient Days		Occupancy rate for Operating Beds		Average Length of Stay (Days)	Number of Discharges	
		Existing		Existing		Licensed	Operating	Licensed	Operating	(Current/ Actual)	Projected	Current Beds	Projected		Actual	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											0%	0%			

Add/Del Rows		Licensed Beds	Operating Beds	Change in Number of Beds (+/-)		Number of Beds After Project Completion (calculated)		Patient Days	Patient Days	Occupancy rate for Operating Beds		Average Length of Stay (Days)	Number of Discharges	Number of Discharges
		Existing	Existing	Licensed	Operating	Licensed	Operating	(Current/ Actual)	Projected	Current Beds	Projected		Actual	Projected
	Adult									0%	0%			
	Adolescent									0%	0%			
	Pediatric									0%	0%			
	Geriatric									0%	0%			
<input type="checkbox"/> <input type="checkbox"/>										0%	0%			
	Total Acute Psychiatric									0%	0%			
	Chronic Disease									0%	0%			
<input type="checkbox"/> <input type="checkbox"/>										0%	0%			
	Total Chronic Disease									0%	0%			
	Substance Abuse													
	detoxification									0%	0%			
	short-term intensive									0%	0%			
<input type="checkbox"/> <input type="checkbox"/>										0%	0%			
	Total Substance Abuse									0%	0%			
	Skilled Nursing Facility													
	Level II									0%	0%			
	Level III									0%	0%			
	Level IV									0%	0%			
<input type="checkbox"/> <input type="checkbox"/>										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
<input type="checkbox"/> <input type="checkbox"/>	MRI	1	1	2		

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: 2/3/22 1:39

E-mail submission to
Determination of Need

Exhibit B.g

Certification from an Independent Certified Public Accountant

Shields MRI Brighton

Analysis of the Reasonableness of
Assumptions and Feasibility of Shields MRI
Brighton

REPORT DATED JANUARY 19, 2022

Table of Contents

- I. Executive Summary 1
- II. Relevant Background Information 2
- III. Scope of Analysis 2
- IV. Sources of Information Utilized 4
- V. Review of the Financials 4
- VI. Feasibility 7



January 19, 2022

Mr. Paul Anderson
Shields Health Care Group
Crown Colony Park
700 Congress Street, Suite 204
Quincy, MA 02169

Dear Mr. Anderson,

Veralon Partners Inc. ("Veralon") performed an analysis of the prospective financial schedules prepared by Shields Health Care Group ("Shields" or, the "Applicant") for Shields MRI Brighton ("Shields MRI Brighton" or, as is referred to by the Massachusetts Department of Public Health Determination of Need ("MA DPH DoN") 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 MA DPH DoN 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 MRI Brighton.

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 2021 (estimated) and five-year consolidated prospective financial schedules (the "Financials") prepared by Management for the operation of Shields MRI Brighton. The Financials are shown in the Appendix.

The Financials reflect positive operating margins and positive year-end cash balances in each of the years presented. 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 MRI Brighton. Management has represented that the impact of the COVID-19 Pandemic was considered in the development of the prospective Financials.

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. Shields currently operates over 40 centers across the New England area offering MRI and PET/CT services.

Shields MRI Brighton is an MRI facility wholly owned by Shields, located at 385 Western Ave, Brighton, MA 02135. Shields currently operates a Hitachi, 1.2T open-sided MRI, which was purchased in December 2020, and plans on adding an Espree 1.5T closed MRI in Year 1.

During calendar year 2021, Shields MRI Brighton operated the Hitachi unit. November 2021 year-to-date budgeted volumes for the Hitachi were approximately 4,700 compared to an actual of 3,900. Shields management notes that the volume shortfall was due primarily to two factors, the first being lighter than expected volumes during the months of January and February associated with the COVID-19 pandemic, and second, the longer total scan times associated with the operation of an open-sided MRI as compared to a closed unit. From an operational perspective, while the open-sided MRI is attractive to claustrophobic patients and those looking for an open scan experience, total scan times are often longer and as a result, not as many scans are able to be performed in a given time period, resulting in longer patient wait times for scans. These longer wait times were the basis for Shields' decision to pursue the operation of a 2nd MRI unit (the Espree unit) at this location which will more efficiently serve patients who do not require an open-sided MRI.

Despite lower than expected volumes and staffing challenges associated with the COVID-19 pandemic, Shields MRI Brighton is forecasted to end 2021 with a net income of approximately \$203K and an ending cash balance of \$762K. Shields MRI Brighton will have no imaging maintenance service contract in 2021 as the Hitachi unit is under warranty. The Hitachi unit maintenance service contract expense will start in November of 2022, and is \$99K annually. The Espree unit will have no warranty period as it is an existing unit. The imaging maintenance service contract on the Espree unit is \$115K and will start once the Espree unit is operational. The total imaging maintenance service contract expense for both units will be \$215K annually once the warranty period ends on the Hitachi unit.

III. SCOPE OF ANALYSIS

The scope of this report is limited to an analysis of the Financials prepared by Management 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 we 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 Management because events and circumstances frequently do not occur as expected, and the achievement of the forecasted results are dependent on the actions, plans, and

Mr. Paul Anderson
January 19, 2022
Page 3

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 the Financials as well as discussed corresponding assumptions with Management via video conference call. The documents and information upon which we relied are identified below or are otherwise referenced in this report:

1. Shields MRI Brighton Financials, prepared December 1, 2021;
2. Volume assumptions;
3. Payer mix and per-case reimbursement assumptions;
4. The MA DPH DoN Guidelines (105 CMR 100.000); and
5. Shields company website (www.shields.com).

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 Shields MRI Brighton. Table 1 presents the key metrics (the "Key Metrics") reviewed in our analysis along with definitions.

Table 1

Summary of Key Metric Calculation Definitions	
Key Metric	Calculation
Liquidity	
Current Ratio	Current Assets/Current Liabilities
Days in Accounts Receivable	Net Patient Accounts Receivable/(Net Patient Service Revenue/365)
Operating	
EBITDA	Net Income Plus: Interest, Taxes, Depreciation, and Amortization
EBITDA Margin	EBITDA/Net Revenue
Coverage	
Debt Service Coverage	(Net Income Plus: Depreciation Expense and Interest Expense)/(Current Portion of Long-Term Debt Plus: Interest Expense)

The Key Metrics used in this report fall into three categories: liquidity, operating, and coverage metrics. Liquidity ratios measure the quality and adequacy of assets to meet current obligations as they come due. Operating ratios are used to assist in the evaluation of management performance. Coverage ratios are intended to measure a company's ability to service its debt and meet its financial obligations, such as interest payments. Table 2 shows the results of the Key Metric calculations for the fiscal years ("FY") 2021 through 2026 (i.e., Year 5).

Table 2

Shields MRI Brighton Summary of Key Metrics						
Ratio	Forecast 2021	Year 1	Year 2	Year 3	Year 4	Year 5
Liquidity Ratios						
Current Ratio	2.3	1.7	1.5	1.7	3.6	4.6
Days in Accounts Receivable	53.9	55.0	55.0	55.0	55.0	55.0
Operating Ratios						
EBITDA	\$ 734,127	\$ 787,080	\$ 985,571	\$ 1,253,647	\$ 1,376,411	\$ 1,666,165
EBITDA Margin	25.1%	23.1%	25.5%	29.0%	28.8%	32.0%
Coverage Ratio						
Debt Service Coverage ¹	1.8	2.0	2.5	3.3	35.3	N/A

¹Current maturities of long-term debt and interest expense are negligible in year 5.

I. Revenues

To determine the reasonableness of the prospective revenues, we reviewed Management's underlying assumptions. Based upon our discussions with Management, the prospective volumes were based on Shields MRI Brighton's historical and forecasted imaging volume for 2021. The prospective revenue per scan was determined based on Shields MRI Brighton's actual 2021 payer mix and reimbursement rates.

We understand that the Hitachi MRI scanner will continue to be operational seven days per week for 52 weeks of the year. An Espree MRI scanner, to be located at Shields MRI Brighton, will be operational two days per week in Years 1 through 3 and three days per week in Years 4 and 5. Management estimated Forecast 2021 case volumes based on Shields MRI Brighton's 2021 historical imaging volume for eight months of 2021 (through August 31, 2021) and 4 months of forecasted volume. Management estimated that approximately 11.7 tests per day would be performed at Shields MRI Brighton in Forecast 2021. Tests per day are assumed to increase overall from 11.7 to 14.6 (Year 5). 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 rates selected for Forecast 2021 through Year 5. Management provided supporting information used to prepare the Financials, including a summary of Shields MRI Brighton's payer mix and historical reimbursement rates. Management based the budgeted reimbursement rate on a calculated weighted average of historical payer mix and reimbursement rates. Management noted that while contractual rate increases from their payers are possible, they are not guaranteed. As such, Management held per-test reimbursement rates constant for all periods. Based upon our review, we determined the reimbursement rates provided by Management are reasonable.

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

II. Expenses

We analyzed the expense categories included in the Financials for reasonableness. Generally, our approach included a review of the total expenses for each category, a calculation of a compound annual growth rate ("CAGR") to analyze year-over-year trends, and consideration to the extent that each expense item is tied to volume or more fixed in nature. Below are the expense categories provided in the Financials along with relevant findings.

Operating Expenses

Operating expenses include support services, billing, and bad debt expense. Management projected the expense per scan for all three categories to remain the same in all periods. We calculated an operating expense CAGR of twelve percent with Year 5 expenses totaling \$552,168.

Facilities & Equipment Related Expenses

Facilities and equipment-related expenses include equipment related, facilities related, depreciation, and other facility and equipment expenses. Management represented that the facilities-related expense increases in Year 1 due to additional rent and electricity costs associated with the Espree MRI beginning operation. The Hitachi MRI was purchased in December 2020 and is depreciated over five years. Depreciation expense does not include the Espree MRI as this unit has reached the end of its useful life. Management represented that the decrease in Year 5 depreciation expense is a result of the end of the Hitachi MRI useful life. As such, Forecast 2021 and Year 5 were not included when calculating the CAGR of facilities and equipment related expenses, which are constant from Years 1 through 4. We find this to be a reasonable assumption, as the facilities and equipment expenses under the current configuration are fixed, and therefore are not expected to vary based on the number of cases performed per Year.

Service Related Expenses

Service-related expenses include contrast/film expense, equipment maintenance, and other service related expenses. We calculated a CAGR of three percent from Year 2 through Year 5. Forecast 2021 and Year 1 were not included in the CAGR calculation as the one-year service contract warranty and two-year warranty on the Hitachi MRI machine are projected by Management to significantly decrease the equipment maintenance cost in those years.

Salaries & Benefits - Operations

Salaries and benefits include radiology, technologist, and operations expense. We calculated a CAGR of eight percent from Forecast 2021 through Year 5. Management represented that the increase in technologist expense in Year 4 reflects additional volume and upwardly adjust technologist costs per scan to levels experienced historically. We found these to be reasonable assumptions.

Selling, General & Administrative ("SG&A") Expenses

SG&A expenses include support services – SG&A, management fees, and other SG&A expenses. We calculated a CAGR of 11 percent from Forecast 2021 through Year 5. As represented by Management, there is an additional \$25,000 of other SG&A expenses in Year 1 for the estimated one-time start-up costs associated with initiating operations for the Espree MRI, such as legal fees, a community health needs assessment, etc.

Interest Expense

Interest expense for the Hitachi MRI is projected by Management to decrease from \$44,818 in Forecast 2021 to less than \$100 in Year 5.

Based upon our review of the prospective expenses for Shields MRI Brighton, 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.

III. Capital Expenditures and Cash Flows

We reviewed the capital expenditures and future cash flows for Shields MRI Brighton to determine whether sufficient funds would be available to sustain operations.

There are \$155,493 in capital asset acquisitions in Forecast 2021 and no capital expenditures expected from Year 1 through Year 5. Accordingly, we determined that the prospective capital requirements and resulting impact on the cash flows of Shields MRI Brighton are reasonable.

VI. FEASIBILITY

We analyzed the Financials and Key Metrics for Shields MRI Brighton 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 MRI Brighton exhibits a cumulative cash surplus in the Financials, after any scheduled distributions, of 14 percent of cumulative projected revenue for the six years.

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 MRI Brighton. 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 MRI Brighton.

Respectively submitted,

A handwritten signature in blue ink, reading "Daniel M. Grauman". The signature is fluid and cursive, with the first name "Daniel" being the most prominent part.

Daniel M. Grauman, MBA, CPA/ABV

Managing Director & CEO
Veralon Partners Inc.

Appendix: Shields MRI Brighton Financials

FINANCIALS

Operating Statement

Shields MRI Brighton Financial Pro Forma Operating Statement ¹												
	Forecast 2021		Year 1		Year 2		Year 3		Year 4		Year 5	
	Total	Per Scan	Total	Per Scan	Total	Per Scan	Total	Per Scan	Total	Per Scan	Total	Per Scan
Total Volume	4,264		4,965		5,644		6,312		6,972		7,600	
Revenues												
Net Patient Revenue	\$ 2,922,682	\$ 685.43	\$ 3,403,170	\$ 685.43	\$ 3,868,579	\$ 685.43	\$ 4,326,447	\$ 685.43	\$ 4,778,833	\$ 685.43	\$ 5,209,284	\$ 685.43
Year Over Year % Change			16%	0%	14%	0%	12%	0%	10%	0%	9%	0%
Expenses												
Operating Expenses												
Support Services - Operations	\$ 201,337	\$ 47.22	\$ 234,436	\$ 47.22	\$ 266,497	\$ 47.22	\$ 298,039	\$ 47.22	\$ 329,203	\$ 47.22	\$ 358,855	\$ 47.22
Billing	\$ 41,873	\$ 9.82	\$ 48,757	\$ 9.82	\$ 55,425	\$ 9.82	\$ 61,985	\$ 9.82	\$ 68,466	\$ 9.82	\$ 74,633	\$ 9.82
Bad Debt Expense	\$ 66,585	\$ 15.62	\$ 77,532	\$ 15.62	\$ 88,135	\$ 15.62	\$ 98,566	\$ 15.62	\$ 108,873	\$ 15.62	\$ 118,680	\$ 15.62
Total	\$ 309,795	\$ 72.65	\$ 360,725	\$ 72.65	\$ 410,057	\$ 72.65	\$ 458,590	\$ 72.65	\$ 506,541	\$ 72.65	\$ 552,168	\$ 72.65
Year Over Year % Change			16%		14%		12%		10%		9%	
Facilities & Equipment Related												
Equipment Related	\$ 34,528	\$ 8.10	\$ 34,528	\$ 6.95	\$ 34,528	\$ 6.12	\$ 34,528	\$ 5.47	\$ 34,528	\$ 4.95	\$ 34,528	\$ 4.54
Facilities Related	\$ 361,547	\$ 84.79	\$ 423,668	\$ 85.33	\$ 423,668	\$ 75.07	\$ 423,668	\$ 67.12	\$ 423,668	\$ 60.77	\$ 423,668	\$ 55.75
Depreciation Expense	\$ 485,972	\$ 113.97	\$ 469,812	\$ 94.62	\$ 469,812	\$ 83.24	\$ 461,479	\$ 73.11	\$ 461,479	\$ 66.19	\$ 458,604	\$ 60.45
Other Facility & Equipment	\$ 23,348	\$ 5.48	\$ 27,187	\$ 5.48	\$ 30,905	\$ 5.48	\$ 34,563	\$ 5.48	\$ 38,177	\$ 5.48	\$ 41,615	\$ 5.48
Total Facilities & Equipment Related	\$ 905,395	\$ 212.33	\$ 955,194	\$ 192.39	\$ 958,912	\$ 169.90	\$ 954,237	\$ 151.18	\$ 957,851	\$ 137.39	\$ 958,414	\$ 126.22
Year Over Year % Change			6%		0%		0%		0%		-26%	
Service Related												
Contrast / Film	\$ 17,467	\$ 4.10	\$ 20,339	\$ 4.10	\$ 23,120	\$ 4.10	\$ 25,857	\$ 4.10	\$ 28,560	\$ 4.10	\$ 31,133	\$ 4.10
Equipment Maintenance	\$ 6,200	\$ 1.45	\$ 126,200	\$ 25.42	\$ 225,200	\$ 39.90	\$ 225,200	\$ 35.68	\$ 225,200	\$ 32.30	\$ 225,200	\$ 29.63
Other Service Related	\$ 36,934	\$ 8.66	\$ 43,005	\$ 8.66	\$ 48,887	\$ 8.66	\$ 54,673	\$ 8.66	\$ 60,389	\$ 8.66	\$ 65,829	\$ 8.66
Total Service Related	\$ 60,601	\$ 14.21	\$ 189,544	\$ 38.18	\$ 297,207	\$ 52.66	\$ 305,729	\$ 48.44	\$ 314,150	\$ 45.06	\$ 322,162	\$ 42.39
Year Over Year % Change			213%		57%		2,868%		2,754%		2,550%	
Salary & Benefits - Operations												
Radiology	\$ 402,095	\$ 94.30	\$ 468,200	\$ 94.30	\$ 532,229	\$ 94.30	\$ 595,222	\$ 94.30	\$ 657,460	\$ 94.30	\$ 716,680	\$ 94.30
Technologists	\$ 388,684	\$ 91.15	\$ 411,779	\$ 82.94	\$ 411,779	\$ 72.96	\$ 411,779	\$ 65.24	\$ 553,882	\$ 79.44	\$ 516,151	\$ 67.91
Operations	\$ 100,729	\$ 23.62	\$ 98,879	\$ 19.92	\$ 98,879	\$ 17.52	\$ 98,879	\$ 15.67	\$ 98,879	\$ 14.18	\$ 98,879	\$ 13.01
Total Salary & Benefits - Operations	\$ 891,508	\$ 209.08	\$ 978,858	\$ 197.15	\$ 1,042,887	\$ 184.78	\$ 1,105,880	\$ 175.20	\$ 1,310,220	\$ 187.93	\$ 1,331,711	\$ 175.23
Year Over Year % Change			10%		7%		6%		18%		2%	
Total Operating Expenses	\$ 2,167,299	\$ 508.28	\$ 2,484,321	\$ 500.37	\$ 2,709,064	\$ 479.99	\$ 2,824,436	\$ 447.47	\$ 3,088,762	\$ 443.02	\$ 2,914,454	\$ 383.48
Year Over Year % Change			15%		9%		4%		9%		-6%	
Selling, General & Admin. Expenses												
Support Services - SG&A	\$ 250,484	\$ 58.74	\$ 291,664	\$ 58.74	\$ 331,551	\$ 58.74	\$ 370,792	\$ 58.74	\$ 409,563	\$ 58.74	\$ 446,454	\$ 58.74
Management Fee	\$ 171,266	\$ 40.19	\$ 199,538	\$ 40.19	\$ 226,827	\$ 40.19	\$ 253,673	\$ 40.19	\$ 280,198	\$ 40.19	\$ 305,436	\$ 40.19
SG&A - Other	\$ 85,379	\$ 20.02	\$ 110,379	\$ 22.23	\$ 85,379	\$ 15.13	\$ 85,379	\$ 13.53	\$ 85,379	\$ 12.25	\$ 85,379	\$ 11.23
Total SG&A Expense	\$ 507,229	\$ 118.96	\$ 601,581	\$ 121.16	\$ 643,756	\$ 114.06	\$ 709,843	\$ 112.46	\$ 775,139	\$ 111.18	\$ 837,269	\$ 110.17
Year Over Year % Change			19%		7%		10%		9%		8%	
Other Expenses												
Interest Expense	\$ 44,818	\$ 10.51	\$ 31,177	\$ 6.28	\$ 22,824	\$ 4.04	\$ 14,283	\$ 2.26	\$ 5,550	\$ 0.80	\$ 62	\$ 0.01
Other (Income)/Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Misc. Taxes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Other Income, Expense & Taxes	\$ 44,818	\$ 10.51	\$ 31,177	\$ 6.28	\$ 22,824	\$ 4.04	\$ 14,283	\$ 2.26	\$ 5,550	\$ 0.80	\$ 62	\$ 0.01
Year Over Year % Change			\$ 13,641	-30%	\$ 8,353	-27%	\$ 8,541	-37%	\$ 8,733	-61%	\$ 5,488	-99%
Net Income (Loss)	\$ 203,336	\$ 47.69	\$ 286,091	\$ 57.62	\$ 492,935	\$ 87.34	\$ 777,885	\$ 123.24	\$ 909,382	\$ 130.43	\$ 1,457,498	\$ 191.78
Year Over Year % Change			41%		72%		58%		17%		60%	

¹ Source: Shields Management.

Balance Sheet

Shields MRI Brighton Financial Pro Forma Balance Sheet ¹						
	Forecast 2021	Year 1	Year 2	Year 3	Year 4	Year 5
Assets						
Current Assets						
Cash	\$ 761,824	\$ 600,013	\$ 472,406	\$ 507,081	\$ 465,021	\$ 624,967
Accounts Receivable	431,779	512,806	582,937	651,930	720,098	784,961
Doubtful Accounts	(104,824)	(124,495)	(141,521)	(158,270)	(174,820)	(190,566)
Other Current Assets	27,385	27,385	27,385	27,385	27,385	27,385
Total Current Assets	\$ 1,116,164	\$ 1,015,709	\$ 941,207	\$ 1,028,125	\$ 1,037,685	\$ 1,246,746
Property & Equipment	\$ 4,715,427	\$ 4,715,427	\$ 4,715,427	\$ 4,715,427	\$ 4,715,427	\$ 4,715,427
Less: Accumulated Depreciation	(2,827,444)	(3,297,256)	(3,767,068)	(4,228,547)	(4,690,026)	(4,715,427)
Net Property & Equipment	\$ 1,887,983	\$ 1,418,171	\$ 948,359	\$ 486,880	\$ 25,401	\$ (0)
Due from Partners	\$ 151,620	\$ 151,620	\$ 151,620	\$ 151,620	\$ 151,620	\$ 151,620
Total Assets	\$ 3,155,768	\$ 2,585,501	\$ 2,041,186	\$ 1,666,625	\$ 1,214,705	\$ 1,398,366
Liabilities and Owner's Equity						
Current Liabilities						
Current Maturities of LTD	\$ 369,380	\$ 369,379	\$ 369,379	\$ 369,379	\$ 33,429	\$ -
Current Maturities of Capital Leases	-	-	-	-	-	-
Accounts Payable	22,345	136,741	153,599	163,801	173,881	183,472
Accrued Expenses	84,754	84,754	84,754	84,754	84,754	84,754
Total Current Liabilities	\$ 476,479	\$ 590,875	\$ 607,732	\$ 617,935	\$ 292,065	\$ 268,227
Long Term Debt, Excl Current	\$ 1,197,941	\$ 827,187	\$ 448,080	\$ 60,432	\$ -	\$ -
Capital Lease Obligations, Excl Current	-	-	-	-	-	-
Due to Partners	16,731	16,731	16,731	16,731	16,731	16,731
Owner's Equity	1,464,617	1,150,708	968,643	971,528	905,910	1,113,408
Total Liabilities & Owner's Equity	\$ 3,155,768	\$ 2,585,501	\$ 2,041,186	\$ 1,666,625	\$ 1,214,705	\$ 1,398,366

¹ Source: Shields Management.

Statement of Cash Flows

Shields MRI Brighton Financial Pro Forma Statement of Cash Flows ¹						
	Forecast 2021	Year 1	Year 2	Year 3	Year 4	Year 5
Operating Activities						
Net Income	\$ 203,336	\$ 286,091	\$ 492,935	\$ 777,885	\$ 909,382	\$ 1,457,498
Non-Cash Adjustment	-	-	-	-	-	-
Depreciation	485,972	469,812	469,812	461,479	461,479	25,401
Total Cash From Operations	\$ 689,309	\$ 755,903	\$ 962,747	\$ 1,239,364	\$ 1,370,861	\$ 1,482,899
Change in AR/AP/Accrued Expenses	\$ (219,856)	\$ 53,040	\$ (36,247)	\$ (42,042)	\$ (41,538)	\$ (39,524)
Change in Other Current Assets	11,811	-	-	-	-	-
Change in Due To/From	35,779	-	-	-	-	-
Net Cash For/From Operations	\$ 517,042	\$ 808,943	\$ 926,500	\$ 1,197,322	\$ 1,329,322	\$ 1,443,375
Investing Activities						
Capital Asset Acquisitions	\$ (155,493)	\$ -	\$ -	\$ -	\$ -	\$ -
Net Cash For/From Investments	\$ (155,493)	\$ -	\$ -	\$ -	\$ -	\$ -
Financing Activities						
Proceeds from Lease/Loans	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repayments on Lease/Loans	(332,679)	(370,754)	(379,107)	(387,648)	(396,381)	(33,430)
Net Cash For/From Financing	\$ (332,679)	\$ (370,754)	\$ (379,107)	\$ (387,648)	\$ (396,381)	\$ (33,430)
Contributions (Distributions)	\$ -	\$ (600,000)	\$ (675,000)	\$ (775,000)	\$ (975,000)	\$ (1,250,000)
Net Increase (Decrease) In Cash	\$ 28,870	\$ (161,811)	\$ (127,607)	\$ 34,674	\$ (42,059)	\$ 159,945
Cash at Beginning of Period	\$ 732,954	\$ 761,824	\$ 600,013	\$ 472,406	\$ 507,080	\$ 465,022
Cash at End of Period	\$ 761,824	\$ 600,013	\$ 472,406	\$ 507,080	\$ 465,022	\$ 624,967

¹ Source: Shields Management.

Exhibit B.h

Corporate Documents

Articles of Organization (Original)

Articles of Merger

Articles of Organization (Restated)

The Commonwealth of Massachusetts

OFFICE OF THE MASSACHUSETTS SECRETARY OF STATE

MICHAEL J. CONNOLLY, Secretary

ONE ASHBURTON PLACE, BOSTON, MASSACHUSETTS 02108

ARTICLES OF ORGANIZATION

(Under G.L. Ch. 156B)

ARTICLE I

The name of the corporation is:

Shields Healthcare of Cambridge, Inc.

ARTICLE II

The purpose of the corporation is to engage in the following business activities:

To own and operate a magnetic resonance imaging facility; to own, manage and deal in real and personal property of every kind and description; and, in general, to carry on any other lawful business permitted by the laws of the Commonwealth of Massachusetts to a corporation organized under Chapter 156B of the Massachusetts General Laws.

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Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on separate 8½ x 11 sheets of paper leaving a left hand margin of at least 1 inch. Additions to more than one article may be continued on a single sheet so long as each article requiring each such addition is clearly indicated.

ARTICLE III

The type and classes of stock and the total number of shares and par value, if any, of each type and class of stock which the corporation is authorized to issue is as follows:

WITHOUT PAR VALUE STOCKS

TYPE	NUMBER OF SHARES
COMMON:	
Voting Common	1,000
PREFERRED	
Non-Voting Common	9,000

WITH PAR VALUE STOCKS

TYPE	NUMBER OF SHARES	PAR VALUE
COMMON:		
	None	---
PREFERRED:		
	None	---

ARTICLE IV

If more than one type, class or series is authorized, a description of each with, if any, the preferences, voting powers, qualifications, special or relative rights or privileges as to each type and class thereof and any series now established.

See Continuation Sheet IV

ARTICLE V

The restrictions, if any, imposed by the Articles of Organization upon the transfer of shares of stock of any class are as follows:

See Continuation Sheets V(a),
V(b), and V(c)

ARTICLE VI

Other lawful provisions, if any, for the conduct and regulation of business and affairs of the corporation, for its voluntary dissolution, or for limiting, defining, or regulating the powers of the corporation, or of its directors or stockholders, or of any class of stockholders: (If there are no provisions state "None".)

See Continuation Sheets VI(a) and VI(b)

Note: The preceding six (6) articles are considered to be permanent and may ONLY be changed by filing appropriate Articles of Amendment.

Continuation Sheet IV

ARTICLE IV

Preferences, voting powers, qualifications,
special or relative rights or privileges as
to each type or class of authorized stock.

The respective preferences, voting powers, qualifications, rights and privileges of or applicable to the shares of Voting Common Stock and Non-Voting Common Stock shall be the same in all respects except that the holders of Non-Voting Common Stock shall not be entitled to vote on any matter other than those matters which, under Chapter 156B of the Massachusetts General Laws, require a vote of the holders of such stock, in which event the holders of Non-Voting Common Stock shall be entitled to one vote for each share of Non-Voting Stock held by them.

Continuation Sheet V(a)

ARTICLE V

Restrictions Upon the Transfer of Shares of Stock

Section 1 Restrictions on Transfer; Right of First Refusal.

1.1 General. All present or future stockholders of the corporation and their legal representatives shall be subject to the requirements and restrictions upon sale, disposition and transfer of shares of all types and classes of capital stock of the corporation contained in this Article V; provided, however, that this Article V shall not restrict or apply to the sale or transfer of shares (a) from a stockholder to another person who is already a stockholder of the corporation or (b) from a stockholder to his child or children or to a trust for the benefit of his child or children.

1.2 Offer to Corporation. Any stockholder before selling, pledging, encumbering, or in any other way transferring or disposing of any of his shares of the corporation (other than to a transferee as described in the last clause of Section 1.1 above) shall first notify the President or Clerk of the corporation by certified mail, return receipt requested, of his intention to do so, setting forth in full the nature and terms of the proposed sale, transfer or other disposition, the name of the proposed transferee and the consideration, if any, to be received therefor. Said notification shall contain an offer to sell such shares to the corporation at the purchase price per share as of the date of such offer determined in accordance with section 1.5 below (the "Purchase Price"), such shares to be tendered and paid for in accordance with Sections 2 and 3 below. A stockholder's offer to the corporation shall be accepted (in whole or in part) or rejected by the Board of Directors within 30 days following receipt of such letter. If such offer is not accepted in writing within such period, it shall be deemed to be rejected.

1.3 Offer to Other Stockholders. If the corporation shall reject in whole or in part a stockholder's offer made in accordance with Section 1.2, then the stockholder shall, before making the proposed disposition of any of said shares not being purchased by the corporation, first notify all other stockholders and offer to sell said shares to them, at the Purchase Price per share, in proportion to their respective holdings of shares. Such notification and offer shall be upon the same terms as the notification and offer to the corporation made as provided in Section 1.2. If some stockholders accept such offer and others do not, the shares which stockholders not accepting such offer would be entitled to purchase shall be re-offered, pro rata, to those who did

Continuation Sheet V(b)

accept such offer. Each offer to a stockholder shall be accepted (in whole or in part) or rejected by that stockholder within 30 days following receipt of the letter making the offer (or, in the case of a letter making a re-offer as provided in the preceding sentence, within 10 days following receipt). If an offer is not accepted in writing within such period, it shall be deemed to be rejected.

1.4 Sale of Shares After Rejected Offers. To the extent that any offers made pursuant to Sections 1.2 and 1.3 have been rejected as to any shares, then the stockholder shall for a period of no more than 30 days thereafter be at liberty to sell, transfer or otherwise dispose of such shares to the transferee named by him in his original letter offering his shares but to no other person, and then only in the manner, at the price and upon the exact terms stated in such letter. If the stockholder fails to make such sale, transfer or other disposition within such 30 days, then the stockholder may not thereafter sell, transfer or dispose of such stock without again complying with the provisions of Section 1.2 and 1.3 of this Article.

1.5 Purchase Price. The Purchase Price per share as of any date shall be equal to (a) the book value per share of the shares of the corporation as of the end of the month most recently completed as of such date, or (b) \$1 per share, whichever is higher. The amount referred to in (a) above shall be as determined by the corporation's regular accountants from the books of the corporation kept in accordance with its customary accounting practices consistently applied, and such determination shall be deemed conclusive and binding on all parties.

1.6 Breach of Restriction on Transfer. The corporation shall not register the transfer of any shares of its stock on its books unless the provisions of this Section 1 have been fully complied with. The foregoing shall not be deemed to limit any other remedy the corporation or other stockholders not attempting such transfer might have at law or in equity.

1.7 Waiver of Restrictions. These restrictions may be waived or modified with respect to any specific transfer or transaction by the written consent of the holders of two-thirds (2/3) of the total number of outstanding shares of the corporation.

Section 2 Delivery of Shares.

In the event the shares of a stockholder are to be sold to the corporation or to other stockholders pursuant to any of the terms of this Article V, the stockholder or his legal representatives shall deliver said shares to the corporation or the other stockholders on a date which is 30 business days following the date on which the obligation to sell such shares becomes fixed in accordance with any

2

Continuation Sheet V(c)

of the terms of this Article 10, unless some other date is mutually agreed upon by the parties. The certificates evidencing such shares shall be delivered to the principal office of the corporation, endorsed and otherwise in proper form for transfer, against payment of the Purchase Price in accordance with Section 3.

Section 3 Terms of Payment.

Payment for shares purchased shall be made at the time specified in Section 2 for the delivery of the shares, against presentation of the shares properly endorsed for transfer. Payment shall be made as follows: (a) in cash in full, or (b) at the option of the purchaser, at least 50% of the Purchase Price in cash upon delivery of the shares and the balance by delivery at that time of an unsecured promissory note of the purchaser payable one year from the date of the initial cash payment. Such note shall bear interest on the unpaid principal amount outstanding at a rate equal to ten per cent (10%) per annum, with such interest to be paid at maturity. The purchaser shall have the right to prepay such note in whole at any time or in part from time to time without penalty or premium.

Section 4 Restriction When S Corporation.

During any period that the corporation is an electing small business corporation under the federal Internal Revenue Code, no shares may be sold or transferred (by gift, bequest or otherwise) so as to terminate such election.

**ARTICLES OF MERGER
OF
DOMESTIC LIMITED LIABILITY COMPANY
INTO
DOMESTIC CORPORATION**

Pursuant to Chapter 156C, Section 61 of the Massachusetts Limited Liability Company Act and Chapter 156D, Section 11.06 of the Massachusetts Business Corporation Act, the undersigned surviving corporation hereby submits the following Articles of Merger for filing:

1. Exact names, addresses, dates of formation and states of formation of the entities involved in the merger:

	Name and Address	Date of Formation	State of Formation
1.	Shields Healthcare of Cambridge, Inc. 700 Congress Street – Suite 204 Quincy, MA 02169 (The Surviving Entity)	March 16, 1988	Massachusetts
2.	Shields Healthcare of Brighton, LLC 700 Congress Street – Suite 204 Quincy, MA 02169	May 5, 2006	Massachusetts

2. Exact name and address of surviving entity:

Shields Healthcare of Cambridge, Inc.
700 Congress Street – Suite 204
Quincy, MA 02169

3. The merger has been duly adopted in accordance with the law under which each entity is organized and in accordance with the provisions of each entity's organizational documents.

4. The effective date of the merger is: **May 1, 2017.**


5. An agreement of merger was duly approved by the shareholders of Shields Healthcare of Cambridge, Inc. and, where required, by each separate voting group as required by G.L. Chapter 156D and the articles of organization of Shields Healthcare of Cambridge, Inc. **A copy of the agreement of merger will kept on file at the office of the surviving entity at 700 Congress Street – Suite 204, Quincy, MA 02169.**

6. An agreement of merger was duly approved by the members of Shields Healthcare of Brighton, LLC.

7. A copy of the agreement of merger will be furnished by the surviving corporation, on request and without cost, to any shareholder of the surviving corporation or to any person holding an interest in the other business entity which is to merge into the surviving corporation.

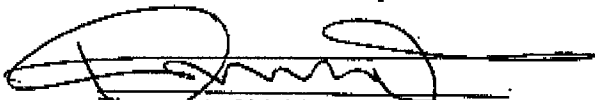
IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, the person whose signature appears below does hereby affirm and execute these Articles of Merger as an authorized person on behalf of each of the entities involved in this merger as of the 27th day of APRIL 2017.

Shields Healthcare of Cambridge, Inc.



Thomas A. Shields
President

Shields Healthcare of Brighton, LLC



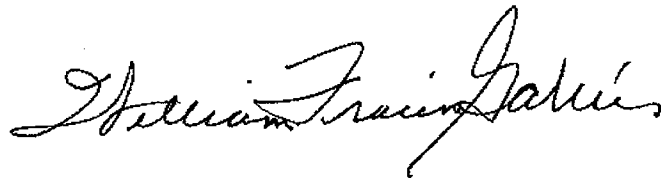
Thomas A. Shields
Manager

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:

May 01, 2017 04:17 PM

A handwritten signature in black ink, reading "William Francis Galvin". The signature is written in a cursive style with a large, stylized initial "W".

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

Restated Articles of Organization
(General Laws Chapter 156D, Section 10.07; 950 CMR 113.35)

Shields Healthcare of Cambridge, Inc., having a registered office at 700 Congress St., Suite 204, Quincy, MA 02169, certifies as follows:

FIRST, the Restated Articles were duly adopted and approved on April 25, 2017 by the board of directors and the shareholders in the manner required by G. L. Chapter 156D and the corporation's Articles of Organization.

SECOND, the following information is required to be in the Articles of Organization pursuant to G. L. Chapter 156D, Section 2.02, except that the supplemental information provided for in Article VIII is not required:

ARTICLE I. The exact name of the corporation is Shields Healthcare of Cambridge, Inc.

ARTICLE II. The corporation may engage in any lawful business.

ARTICLE III. The total number of shares of each class of stock that the corporation is authorized to issue is 100,000 shares, which shall consist of the voting common stock, without par value (the "Voting Common Stock"), and of the non-voting common stock, without par value (the "Non-Voting Common Stock").

Without Par Value		With Par Value		
Type	Number of Shares	Type	Number of Shares	Par Value
Voting Common Stock	1,000	N/A	N/A	N/A
Non-Voting Common Stock	99,000	N/A	N/A	N/A

ARTICLE IV. The preferences, limitations and relative rights of the Voting Common Stock and of the Non-Voting Common Stock are as follows:

The respective preferences, voting powers, limitations and relative rights of or applicable to the shares of the Voting Common Stock and of the Non-Voting Common Stock shall be the same in all respects except that the holders of shares of the Non-Voting Common Stock shall not be entitled to vote on any matter other than as provided in Article V(7) below and other than those matters which, under G. L. Chapter 156D, require a vote of the holders of such shares, in which events the holders of shares of the Non-Voting Common Stock shall be entitled to one vote for each share of the Non-Voting Common Stock held by them. Without limiting the foregoing, holders of shares of the Non-Voting Common Stock shall not, unless and to the extent required otherwise by G. L. Chapter 156D, have any right or power to vote for the election of directors of the Corporation.

ARTICLE V. The restrictions imposed by the Articles of Organization upon the transfer of shares of any class or series of stock are as follows:

1. Restrictions on Transfer. All present and future stockholders of the corporation and their Legal Representatives (as defined below) shall be subject to the requirements and restrictions upon sale, disposition and transfer of shares of all types and classes of capital stock of the corporation as set forth in this Article V; provided, however, that this Article V shall not restrict or apply to the sale or transfer of shares (a) from a stockholder to another person who is already a stockholder of the corporation or (b) from a stockholder to his or her child or children or to a trust for the benefit of his or her child or children.

2. Right of First Offer. Except as provided in Section 1 above or with respect to transfers upon a stockholder's death (to which the provisions of Section 3 below shall apply), any sale, pledge, encumbrance or other disposition by a stockholder of any of his or her shares of capital stock of the corporation shall first comply with the provisions of this Section 2.

2.1 Offer to Corporation. Any stockholder before selling, pledging, encumbering, or in any other way transferring or disposing of any of his or her shares of the corporation (other than to a transferee as described in the proviso to Section 1 above or with respect to transfers upon death to which the provisions of Section 3 below apply) shall first notify the President or Secretary of the corporation by certified mail, return receipt requested, of his intention to do so, setting forth in full the nature and terms of the proposed sale, transfer or other disposition, the name of the proposed transferee and the consideration, if any, to be received therefor. Said notification shall contain an offer to sell such shares to the corporation at the purchase price per share as of the date of such offer determined in accordance with Section 2.3 below (the "Section 2 Purchase Price"), such shares to be tendered and paid for in accordance with Sections 2.4 and 2.5 below. A stockholder's offer to the corporation shall be accepted (in whole or in part) or rejected by the Board of Directors within 30 days following receipt of such letter. If such offer is not accepted in writing within such period, it shall be deemed to be rejected.

2.2 Sale of Shares After Rejected Offers. To the extent that any offers made pursuant to Section 2.1 above have been rejected as to any shares, then the stockholder shall for a period of no more than 30 days thereafter be at liberty to sell, transfer or otherwise dispose of such shares to the transferee named by him or her in his or her original letter offering his or her shares but to no other person, and then only in the manner, at the price and upon the terms stated in such letter. If the stockholder fails to make such sale, transfer or other disposition within such 30 days, then the stockholder may not thereafter sell, transfer or dispose of such stock without again complying with the provisions of this Section 2.

2.3 Section 2 Purchase Price. The Section 2 Purchase Price per share as of any date shall be equal to (a) the book value (less goodwill) per share of the shares of the corporation as of the end of the month most recently completed as of such date, or (b) \$1 per share, whichever is higher. The amount referred to in (a) above shall be as determined by the corporation's regular accountants from the books of the corporation kept in accordance with its customary accounting practices consistently applied, and such determination shall be deemed conclusive and binding on all parties.

2.4 Section 2 Closing. Any purchase made under this Section 2 shall take place at a closing (the "Section 2 Closing") to be held at the principal office of the corporation at 10:00 a.m. local time on the sixtieth day following the date on which the corporation provided to the stockholder the written notice of the corporation's acceptance or rejection of the stockholder's offer to sell the Shares. At the Section 2 Closing, the stockholder will deliver to the corporation (or its assignee, as applicable) the certificates evidencing the Shares (or an appropriate instrument of transfer if the subject shares are uncertificated), endorsed (or accompanied by a duly executed stock power) and otherwise in proper form for transfer, free and clear of all restrictions, liens, encumbrances, and adverse rights. Payment for the Shares purchased by the corporation (or its assignee, as applicable) pursuant to this Section 2 shall be made in accordance with the provisions of Section 2.5.

2.5 Section 2 Purchase Price Payment. Payment for the Shares purchased by the corporation pursuant to this Section 2 shall be made at the Section 2 Closing, as follows: (a) in cash in full, or (b) at the option of the purchaser, at least 50% of the Purchase Price in cash upon delivery of the Shares and the balance by delivery at that time of an unsecured promissory note of the purchaser payable one year from the date of the initial cash payment. Such note shall bear interest on the unpaid principal amount outstanding at a rate equal to a rate per annum equal to the prime rate published from time to time in *The Wall Street Journal* (Eastern edition), with such interest to be paid at maturity. The purchaser shall have the right to prepay such note in whole at any time or in part from time to time without penalty or premium.

3. Disposition on Death.

3.1 Corporation's Call Option. Upon death of any stockholder (the person so having died being hereinafter referred to as the "Decedent"), such Decedent's Legal Representative shall, within ninety days after the date of death, give written notice thereof to the corporation and to the other stockholders, offering to the corporation for purchase as set forth herein all of the shares of capital stock of the corporation owned by the Decedent as of the date of his or her death (the "Shares"). Within sixty days after receipt of the notice, the corporation may elect to exercise its right to purchase all (but not less than all) of the Shares so offered (the "Call Option") by providing written notice of such election (the "Call Notice") to the Legal Representative. Upon the exercise of the Call Option by the corporation within the sixty day period, the Legal Representative shall be obligated to sell all of the Shares to the corporation, at a price equal to the Final Value (as defined below) of such Shares, determined as provided in Section 3.2. If the Final Value is determined pursuant to Section 3.2 by appraisal, the corporation shall have the right to withdraw its exercise of its Call Option upon written notice to the Legal Representative given within ten days after the determination of Final Value by such appraisal, in which event the corporation shall not be obligated to purchase such Shares from the Legal Representative.

3.2 Determination of Fair Value. The fair value (the "Value"), as of the Valuation Date (as defined below), of the Shares shall be determined as follows:

3.2.1 The corporation and the Legal Representative (each, a "Valuation Party" and together, the "Valuation Parties") shall, for a period of not less than 45 days after the date of

the Call Notice, use their respective good faith efforts to reach agreement with respect to the Value of the Shares and, if they are unable to reach such agreement, to instead reach agreement with respect to the identity of an investment banking, appraisal or valuation firm with not less than 10 years' experience in valuing closely held businesses (any such firm, an "Appraiser") to be engaged to determine the Value. If such agreement has been reached with respect to the mutual engagement of the Appraiser for the purposes of determining the Value prior to expiration of such 45-day period, then such Appraiser shall be directed to provide each of the Valuation Parties, within 30 days after such Appraiser's engagement, with a written Value determination made using such assumptions and methodologies (including, without limitation, application of minority interest, lack of control, illiquidity and similar discounts) as the Appraiser deems appropriate under the circumstances, and such determination shall constitute the Final Value (as defined below) and shall be final and binding on all parties absent manifest error.

3.2.2 If no such agreement with respect to the mutual engagement of the Appraiser has been reached prior to expiration of such 45-day period, then each of the Valuation Parties shall, within 15 days after expiration of such 45-day period, give to the other a notice designating the Appraiser to determine the Value on behalf of such Valuation Party. Each Appraiser so designated by a Valuation Party (each, a "Party Appraiser") shall then each independently determine the Value as of the Valuation Date; provided, however, that if either Valuation Party (but not both) fails to timely designate its Party Appraiser in accordance with the preceding sentence, the Party Appraiser that was timely designated by the other Valuation Party shall alone determine the Value as of the Valuation Date, and such determination shall constitute the Final Value and shall be final and binding on all parties absent manifest error.

3.2.3 Each of the two Party Appraisers shall be directed to provide, within 30 days following the date of engagement of the later of them, a written report of such Party Appraiser's respective determination of Value as of the Valuation Date, made using such assumptions and methodologies (including, without limitation, application of minority interest, lack of control, illiquidity and similar discounts) as such Party Appraiser deems appropriate under the circumstances (each of the Values as so determined, a "Party Value", and the date of the later report setting forth a Party Value, the "Submission Date"), to each of the Valuation Parties. If the two Party Values vary by not more than 20% of the lower Party Value, the final Value (the "Final Value") shall be the average of the two Party Values. If, however, the two Party Values vary by more than 20% of the lower Party Value, then within 30 days following the Submission Date, the Valuation Parties shall jointly select a third Appraiser (the "Third Appraiser") to make an independent determination of Value as of the Valuation Date, made using such assumptions and methodologies (including, without limitation, application of minority interest, lack of control, illiquidity and similar discounts) as such Third Appraiser deems appropriate under the circumstances (the "Independent Value"); provided that if there is no agreement on the Third Appraiser within such 30-day period, then the two Party Appraisers shall be instructed to jointly select the Third Appraiser within 15 days following their notification of such request. The Third Appraiser shall, within 30 days following its engagement, make its determination of Independent Value as described above and provide a written report of such determination to each of the Valuation Parties. If one of the Party Values is closer to the Independent Value than the other Party Value, then the Party Value that is farthest away from the Independent Value shall be discarded, and the "Final Value" shall be the average

of the remaining Party Value and the Independent Value (and if the Party Values are equally different from the Independent Value, then the "Final Value" shall be equal to the Independent Value). The Final Value as determined pursuant to this Section 2.2.3 shall be final and binding on all parties absent manifest error.

3.3 Section 3 Closing. Unless the corporation has withdrawn its exercise of the Call Option after determination of the Final Value as described in Section 3.1, the purchase and sale of the Shares pursuant to the Call Option shall take place at a closing (the "Section 3 Closing") to be held at the principal office of the corporation at 10:00 a.m. local time on the thirtieth day (or, if such day is not a business day, then on the next succeeding business day) after the Final Value has been finally determined as set forth in Section 3.2. At the Section 3 Closing, the Legal Representative will deliver to the corporation (or its assignee, as applicable) the certificates evidencing the Shares (or an appropriate instrument of transfer if the subject shares are uncertificated), endorsed (or accompanied by a duly executed stock power) and otherwise in proper form for transfer, free and clear of all restrictions, liens, encumbrances, and adverse rights. Payment for the Shares purchased by the corporation (or its assignee, as applicable) pursuant to this Section 3 shall be made in accordance with the provisions of Section 3.4.

3.4 Section 3 Purchase Price Payment. Payment for the Shares purchased by the corporation pursuant to this Section 3 shall be made at the Section 3 Closing, as follows: (a) in cash in full, or (b) at the option of the purchaser, by delivery of an unsecured, non-negotiable promissory note of the purchaser (i) the principal of which shall be payable in three (or fewer at the option of the purchaser) equal consecutive annual installments beginning with the first anniversary of the Section 3 Closing, (ii) bearing interest from the date of such note, payable with each installment of principal, at a rate per annum equal to the prime rate published from time to time in *The Wall Street Journal* (Eastern edition), (iii) providing that the maker of such note shall have the right to prepay the same, in whole or in part, at any time without premium or penalty and (iv) containing such other commercially reasonable terms proposed by the maker of the note as are reasonably acceptable to the Legal Representative.

4. Restriction When S Corporation. During any period that the corporation is an electing small business corporation under Subchapter S of the Internal Revenue Code of 1986, as amended, or any successor statute, no shares may be sold or transferred (by gift, bequest or otherwise) so as to terminate such election.

5. Assignment by Corporation. The corporation may assign any or all of its rights under this Article V to such other person or persons (whether one or more) as may be designated by the Board of Directors.

6. Breach of Restrictions on Transfer. The corporation shall not register on its books the transfer of any shares of its stock subject to this Article V unless the provisions of this Article V have been fully complied with. The foregoing shall not be deemed to limit any other remedy the corporation might have at law or in equity.

7. Waiver of Restrictions. The restrictions on transfer set forth in this Article V may be waived or modified with respect to any specific transfer or transaction by the written consent

of the holders of a majority of the total number of issued and outstanding shares of the corporation (including shares of the Non-Voting Common Stock).

8. Certain Definitions. Certain capitalized terms used in this Article V shall have the following meanings:

"Legal Representative" means, with respect to any individual, a duly appointed executor, administrator, guardian, conservator, personal representative, trustee or other legal representative appointed as a result of the death or incompetency of such individual.

"Valuation Date" means the most recent quarter-end occurring prior to the date of death of the Decedent.

ARTICLE VI. Other lawful provisions:

1. Minimum Number of Directors. The board of directors may consist of one or more individuals, notwithstanding the number of shareholders.

2. Personal Liability of Directors to Corporation. No director shall have personal liability to the corporation for monetary damages for breach of his or her fiduciary duty as a director notwithstanding any provision of law imposing such liability, provided that this provision shall not eliminate or limit the liability of a director (a) for any breach of the director's duty of loyalty to the corporation or its shareholders, (b) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (c) for improper distributions under Section 6.40 of Chapter 156D of the General Laws of Massachusetts, as amended from time to time ("Chapter 156D"), or any successor provision to such Section, or (d) for any transaction from which the director derived an improper personal benefit. No amendment or repeal of this provision shall have any effect on the liability of any director with respect to any acts or omissions of such director occurring prior to such amendment or repeal.

3. Shareholder Vote Required to Approve Matters Acted on by Shareholders. The affirmative vote of a majority of all the shares in a voting group eligible to vote on a matter shall be sufficient for the approval of the matter, notwithstanding (to the extent not prohibited by Chapter 156D) any greater vote on the matter otherwise required by any provision of Chapter 156D.

4. Shareholder Action Without a Meeting by Less Than Unanimous Consent; Action at Annual Meeting. Action required or permitted by Chapter 156D to be taken at a shareholders' meeting may be taken without a meeting by shareholders having not less than the minimum number of votes necessary to take the action at a meeting at which all shareholders entitled to vote on the action are present and voting. Any business of the corporation may be conducted at the annual meeting of the shareholders, regardless of whether such business was within the purposes of the annual meeting as specified in the notice of such annual meeting.

5. Authorization of Directors to Make, Amend or Repeal Bylaws. The board of directors may make, amend or repeal the bylaws in whole or in part, except with respect to any provision thereof which by virtue of an express provision in Chapter 156D, the Articles of Organization or the bylaws requires action by the shareholders.

6. Related Party Transactions. To the maximum extent not prohibited by law, the corporation may enter into contracts or transact business with one or more of its directors, officers or stockholders or with any corporation, entity, organization or other concern in which any one or more of its directors, officers or stockholders are directors, officers, stockholders or have similar capacities or are otherwise interested, and may enter into other contracts or transactions in which any one or more of its directors, officers or stockholders is in any way interested; and, in the absence of fraud, no such contract or transaction shall be invalidated or in any way affected by the fact that such directors, officers or stockholders of the corporation have or may have interests which are or might be adverse to the interest of the corporation even though the vote or action of directors, officers or stockholders having such adverse interests may have been necessary to obligate the corporation upon such contract or transaction.

7. Corporation May Be a Partner. The corporation may be a partner in any business enterprise which the corporation would have the power to conduct by itself.

8. Not a Close Corporation. The corporation shall not be deemed a close corporation, and its affairs shall not be governed by principles of partnership law or fiduciary obligations between and among stockholders of close corporations, except as they are applicable generally to all corporations organized under Chapter 156D. The corporation may purchase or otherwise acquire shares of its capital stock from one or more stockholders and may issue, sell or otherwise transfer shares to one or more persons without purchasing or otherwise acquiring shares from, or issuing, selling, or otherwise transferring shares to any other persons.

ARTICLE VII. The effective date of the restatement of the Articles of Organization is the date and time these Restated Articles were received for filing.

THIRD, these Restated Articles consolidate all amendments into a single document.

FOURTH, Articles II, III, IV, V and VI of the Articles of Organization of the corporation are being amended by these Restated Articles.

Signed by _____

(signature of authorized individual)

- ☐ Chairman of the board of directors,
- ☒ President,
- ☐ Other officer,
- ☐ Court-appointed fiduciary,

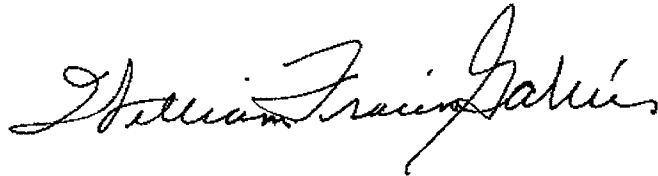
on this 26 day of April, 2017.

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:

April 26, 2017 03:52 PM

A handwritten signature in black ink, reading "William Francis Galvin". The signature is written in a cursive style with a large, prominent "G" at the end.

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

Exhibit B.i

Evidence of Community Engagement for Factor 1:
Information Session Presentation



The Future of High-Value Imaging Services

FREE-STANDING MRI SERVICES IN BRIGHTON, MASSACHUSETTS

Our vision:

Welcome and thank you for your interest in this project

We are excited to share our plans to add an additional MRI machine in Brighton, Massachusetts

This project seeks to add a 1.5T Siemens Espree 1.5T MRI machine to this center

The 1.5T is the “gold standard” for MRIs in a clinical setting

This equipment will compliment the only open-sided free-standing MRI in the Boston market

The MRI will operate on a freestanding fee schedule which is up to 40% less expensive than hospital outpatient department services

This is an opportunity to introduce you to some of the individuals involved, solicit your feedback & any answer questions

What is a free-standing MRI center?

Medical facility that offers outpatient MRI procedures

Patients arrive, undergo a procedure and go home

Provides patients with the convenience of having non-complex imaging, where they live and work

Free-standing MRI centers have an excellent record of safety and quality and provide patient outcomes equal to or exceeding the results provided in other settings

Patients report a 96% satisfaction rate at Shields MRI's

Benefits of a free-standing MRI

01

Lower costs

- Procedures are up to 40% less compared to inpatient or hospital outpatient settings

02

Provides greater patient experience

- greater scheduling flexibility
- more personal attention
- lower cost option for patients

03

Keeps care to the community

- easy, convenient location

04

Increases accessibility of care

- specialization in outpatient MRIs allows for greater efficiencies
- shifts appropriate care from inpatient to outpatient

Next Steps

WE WANT YOUR INPUT
on the concept of an additional MRI

WE WILL KEEP YOU INFORMED
as project progresses with DPH

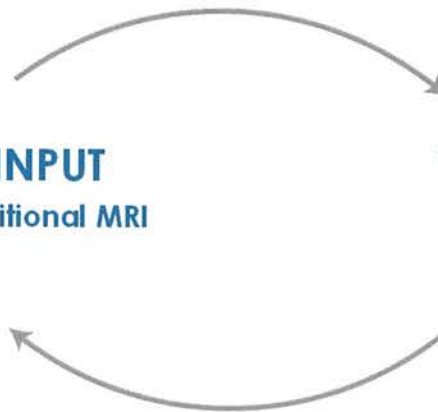


Exhibit B.j

Evidence of Community Engagement for Factor 1:
Invitation to the Information Session

Shields Health Care

Invites you to a

VIRTUAL CONVERSATION

**FUTURE OF FREE-STANDING MRI
SERVICES**

*Please join us to learn more about the high-quality
affordable imaging services we hope to bring to Brighton and
the surrounding community*

Dec | 10 | 2:30 PM

Copy Zoom Address Below in Web Browser:

<https://us02web.zoom.us/j/89554672484?pwd=TjA2OUk4U>