PARTNERS HEALTHCARE SYSTEM, INC.
DON APPLICATION # PHS-18090711-HS
ATTACHMENTS

SUBSTANTIAL CHANGE IN SERVICE
DON-REQUIRED EQUIPMENT
MASSACHUSETTS GENERAL PHYSICIANS ORGANIZATION

SEPTEMBER 11, 2018

BY

PARTNERS HEALTHCARE SYSTEM, INC.
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BOSTON, MA 02199

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APPLICATION # PHS-18090711-HS

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2. Project Description

Partners HealthCare System, Inc. ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199 is filing a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health ("Department") for a change in service by the Massachusetts General Physicians Organization, Inc. ("MGPO"). MGPO is a multi-specialty medical group and the affiliated physician organization of The General Hospital Corporation d/b/a The Massachusetts General Hospital ("MGH"). As such, MGPO physicians provide various services at MGH licensed facilities as well as at its own physician practice locations. With respect to radiology services, MGPO staffs and manages the radiology department at MGH's main hospital campus located at 55 Fruit Street, Boston, MA 02114, and additionally MGPO operates as a licensed clinic providing freestanding imaging services in Waltham ("MGPO Waltham") and Chelsea ("MGPO Chelsea"). MGPO Waltham is co-located with MGH's licensed hospital satellite at 40 Second Avenue, Waltham, MA 02451 ("MG Waltham") and MGPO Chelsea is adjacent to MGH's licensed hospital satellites at 100 and 151 Everett Avenue, Chelsea, MA (collectively "MG Chelsea"). The proposed project is for the expansion of imaging services at MGPO Waltham through the addition of two 3T magnetic resonance imaging ("MRI") units and one 384-slice computed tomography ("CT") unit and includes construction of shell space for potential future build-out to accommodate an additional MRI unit as demand warrants ("Proposed Project").

The need for the Proposed Project is based on existing and future needs of the Applicant's patient panel. Currently, MGPO physicians provide MR and CT imaging services to patients at MGH via ten MRI units (five 1.5T units and five 3T units) and thirteen CT units. Additionally, MGPO Waltham offers patients in Waltham access to two 1.5T MRI units and one CT unit, and MGPO Chelsea offers MR and CT imaging services to patients in Chelsea via two 1.5T MRI units and one CT unit. All of these units are operating at/near capacity, as evidenced by historical patient and scan volume trends and long wait times for services despite extended operating hours. Moreover, population statistics project that the need for imaging services will increase through 2035 as the 65+ patient cohort grows and requires MRI and CT services to diagnose and treat age-related conditions. The addition of two 3T MRIs and one 384-slice CT scanner at MGPO Waltham will allow the Applicant to meet the growing demand for MRI and CT services, accommodate more patients in Waltham while alleviating some of the volume at MGH's main hospital campus and freeing up resources for patients that require care in the hospital setting, and ensure that patients have timely access to imaging services that are necessary to detecting and treating a variety of conditions.

Additionally, the Proposed Project will satisfy existing and future needs of the Applicant's patient panel by providing increased access to high-quality imaging services in an integrated, community-based ambulatory care setting that is more convenient for many patients. Aggregated zip code data for the last three fiscal years demonstrates that MGH/MGPO's MRI/CT patient panel has a similar geographic composition to the larger Partners HealthCare and MGH/MGPO patient panel, with greater than 15% of patients originating within eight miles of Waltham. With more than 15% of the growing demand for MRI and CT services originating close to Waltham, the Applicant determined that siting the proposed new imaging units at MGPO Waltham will facilitate increased access to high-quality imaging services in a community-based setting that will allow patients the convenience of receiving care closer to their homes without the added stress of commuting into Boston (e.g., decreased travel time, availability of free parking, and reduction in anxiety symptoms that often accompany a trip to larger hospitals). Moreover, siting of the additional units in Waltham will enable patients to benefit from the co-location of MGPO Waltham's advanced imaging technology with MG Waltham's various outpatient hospital satellite services, including but not limited to, oncology/infusion and soon-to-be expanded ambulatory surgery services. Co-location

of these services will afford patients the opportunity to receive a full complement of integrated surgical, oncology, and imaging care in one convenient location close to home.

In terms of quality, high-quality imaging services are currently available at MGPO Waltham and the proposed expanded MRI and CT units at MGPO Waltham will be operated under this model. MGPO participates in various quality initiatives in collaboration with the Applicant and MGH and employs quality assurance mechanisms to ensure that patients at its Waltham location receive high-quality, patient-focused imaging services that are commensurate with the care offered at MGH. Moreover, MGPO Waltham's expanded imaging services will be identical to those available at MGH's main campus, will have the same advanced MRI and CT technologies as the main campus location, and, as the affiliated physician organization of MGH, MGPO Waltham patients will have access to highly specialized, focused, and trained physicians and staff at MGPO Waltham.

Finally, the Proposed Project will meaningfully contribute to Massachusetts' goals for cost containment by providing high-quality imaging services in a more cost-effective setting. As the imaging services offered by MGPO Waltham's clinic are freestanding imaging center services, they are reimbursed under the Medicare Physician Fee Schedule ("MPFS"), which rates are lower than hospital-based rates. The expanded 3T MRI and CT services at MGPO Waltham will also be reimbursed at MPFS rates and will allow patients additional access to imaging services in the lower-cost community setting. Accordingly, the Proposed Project will contribute positively to the Commonwealth's goals of containing the rate of growth of total medical expenses and total healthcare expenditures.

In sum, the proposed expansion of imaging services at MGPO Waltham through implementation of two 3T MRI units and one 384-slice CT unit along with construction of shell space for potential future build-out to accommodate an additional MRI unit will allow patients in need of imaging services to receive timely care in an integrated community setting. This expanded capacity will provide patients with an alternative convenient point of access with equally high-quality at a lower-cost, and thus will improve public health outcomes and patient experience. Accordingly, the Applicant believes the Proposed Project meets 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. Partners HealthCare Patient Panel

Partners HealthCare is a not-for-profit, integrated health care system that was formed in 1994 by an affiliation between The Brigham Medical Center, Inc. (now known as Brigham Health) and The Massachusetts General Hospital. Partners HealthCare currently operates two tertiary hospitals, six community acute care hospitals, and one acute care specialty hospital in Massachusetts; one community acute care hospital in Southern New Hampshire; one facility providing inpatient and outpatient mental health services; and three facilities providing inpatient and outpatient services

in rehabilitation medicine and long-term care. Partners HealthCare also operates physician organizations and practices, a home health agency, nursing homes and a graduate level program for health professionals. Partners HealthCare is a non-university-based nonprofit private medical research enterprise and its academic medical centers are principal teaching affiliates of the medical and dental schools of Harvard University. Partners HealthCare provides its services to patients primarily from the Greater Boston area and eastern Massachusetts, as well as New England and beyond. Additionally, Partners HealthCare operates a licensed, not-for-profit managed care organization that provides health insurance products to the MassHealth Program (Medicaid), Commonwealth Care (a series of health insurance plans for adults who meet income and other eligibility requirements) and commercial populations.

Partners HealthCare serves a large and diverse patient panel as demonstrated by the utilization data for the 36-month period covering Fiscal Year ("FY") 15-17 and the first three quarters of FY18.[1] Appendix 2 provides this demographic profile for Partners HealthCare in table form. The number of patients utilizing Partners HealthCare's services has increased since FY15, with 1,411,639 unique patients in FY15, 1,410,972 unique patients in FY16 and 1,413,928 unique patients in FY17.[2] In the first three quarters of FY18, Partners HealthCare had 1,220,844 unique patients. Partners HealthCare's patient mix consists of approximately 41.2% males and 57.7% females based on FY17 data, with gender unknown for 1.1% of the patient population. The Massachusetts Center for Health Information and Analysis ("CHIA") reports that Partners HealthCare's patient panel represents 19% of all discharges in the Commonwealth.[3] The system's case mix adjusted discharge rate is 22%.[4]

Partners HealthCare has seen an increase in the number of patients it serves across all age cohorts between FY15 and FY17. Current age demographics show that the majority of the patients within Partners HealthCare's patient population are between the ages of 18-64 years of age (57.1-61.4% of total patient population). Patients that are 65 and older also make up a significant portion of the total patient population (25.6-26.7% of total patient population). Only 9.5-11.5% of Partners HealthCare's patients are between 0-17 years of age.

Partners HealthCare's patient panel reflects a mix of races. Data based on patient self-reporting demonstrates that in FY17, 70.7% of the total patient population identified as White; 5.6% identified as African American or Black; 4.0% identified as Asian; 1.7% identified as Hispanic/Latino; 0.1% identified as American Indian or Alaska Native; and 0.1% identified as Native Hawaiian or Other Pacific Islander. Since patients were grouped into these categories based on how they self-identified,[5] there is a portion of the patient population (17.7% in FY17)

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[1] Fiscal year October 1 – September 30. While data is available for the first three quarters of FY18, annual comparisons are calculated using data for FY15-17 as the FY18 is preliminary and subject to change based on fourth quarter patient statistics.

[2] Entities include: Brigham and Women's Hospital, Brigham and Women's Faulkner Hospital, Massachusetts General Hospital, Newton-Wellesley Hospital, and North Shore Medical Center; Cooley Dickinson Hospital, Martha's Vineyard Hospital, McLean Hospital, and Nantucket Cottage Hospital (post-Epic data only); Massachusetts Eye and Ear Infirmary (outpatient post-Epic data only); Spaulding Rehabilitation Hospital (Telehealth, Partners Mobile Observation Unit, Home Hospital programs for GH and BWH, Stay Connected with GH, Lifeline, and CareSage programs are not included); Brigham and Women's Physicians Organization, Massachusetts General Physicians Organization, Newton-Wellesley Medical Group, and North Shore Physicians Group; Cooley Dickinson PHO (post-Epic data only); and Partners Community Physicians Organization (pre-Epic non-risk patients not included).

[3] *Fiscal Year 2015: Partners HealthCare System*, MASSACHUSETTS CTR. FOR HEALTH INFORMATION ANALYSIS, http://www.chiamass.gov/assets/docs/r/hospital-profiles/2015/Partners-HealthCare-System.pdf (last visited Jun. 29, 2018).

[4] *Id.*

[5] With the exception of the category "Hispanic/Latino," the race categories shown above are based on the 1997 Office of Management and Budget standards on race and ethnicity. Patients were grouped into these categories based on

that either chose not to report their race or identified as a race that did not align with the above categories. Therefore, it is important to note that the racial composition of Partners HealthCare patient panel may be understated.

Partners HealthCare provides care to patients from a broad range of geographies including all fifty states. While Partners HealthCare's patient panel resides mainly in Eastern Massachusetts, there is a sizeable portion of the patient panel that resides outside of Massachusetts (10.2%, or 144,453 patients, in FY17). By applying the Department of Public Health's ("DPH") Health Service Area ("HSA") categories to FY17 data, 45.2% of Partners HealthCare's patients reside in HSA 4 (638,682 patients); 17.5% reside in HSA 6 (247,783 patients); 14.8% reside in HSA 5 (209,669 patients); 6.5% reside in HSA 3 (91,305 patients); 3.3% reside in HSA 2 (47,230 patients); 1.0% reside in HSA 1 (13,447 patients); 0.01% reside in MA but outside of HSAs 1-6 (78 patients); and the origin of 21,281 patients or 1.5% of the panel is unknown.

B. MGH and MGPO Patient Panel

MGH is one of the founding members of Partners HealthCare and the original teaching hospital of Harvard Medical School. With 1,035 licensed beds at its main hospital campus in Boston, MGH is the largest hospital in the state. In addition to its main hospital campus in Boston, MGH offers services to patients through various hospital satellite and clinic locations across Eastern Massachusetts. MGPO, also a member of Partners HealthCare and a teaching affiliate of Harvard Medical School, is a multi-specialty medical group dedicated to excellence and innovation in patient care, teaching, and research. Consisting of 2,700 physicians, MGPO is the largest multi-specialty group in New England and one of the largest in the United States. In addition to operating multiple physician practices throughout Eastern Massachusetts, MGPO is the affiliated physician organization of MGH, and, as such, MGPO physicians provide physician services – such as primary care, specialty physician services, and advanced imaging – at MGH licensed facilities. As discussed in further detail throughout this narrative, in addition to physician practices, MGPO operates a licensed freestanding imaging clinic with locations in Waltham and Chelsea.

Overall Patient Panel

Appendix 2 provides the combined demographic profile for MGH and MGPO in table form. Similar to Partners HealthCare, the number of patients utilizing MGH and MGPO increased from FY15-17, with 547,746 unique patients in FY15, 563,497 unique patients in FY16, and 563,998 unique patients in FY17.[6] In the first three quarters of FY18, MGH and MGPO had a combined 459,504 unique patients. Of these patients, approximately 44.6% are male and 55.4% are female.

In regard to age, the majority of the patients within MGH/MGPO's combined patient population are between the ages of 18-64 (59.6%, or 336,328 patients in FY17). The next largest age cohort is patients that are 65 years and older (26.4%, or 148,815 patients, in FY17). Subsequently, 14.0% of MGH/MGPO's patients are between ages 0-17 (78,844 patients in FY17).

Moreover, MGH/MGPO's patients reflect a diversity of races. Data based on patient self-reporting demonstrate that in FY17, 74.1% of MGH/MGPO's patients identified as White; 5.3% identified

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their responses as follows – White: "White"; African American or Black: "African American", "Black", "Black or African American"; American Indian or Alaska Native: "American Indian", "American Indian or Alaska Native"; Asian: "Asian"; Native Hawaiian or Other Pacific Islander: "Native Hawaiian or Other Pacific Islander", "Native Hawaiian/Other Pacific Islander", "Pacific Islander"; Hispanic/Latino: "Hispanic"," Hispanic or Latino"," Latino"; Other/Unknown: All other responses.

[6] Only includes post-Epic data (practices have varying go-live dates).

as African American or Black; 5.0% identified as Asian; 0.9% identified as Hispanic/Latino; 0.1% identified as American Indian or Alaska Native; and 0.1% identified as Native Hawaiian or Other Pacific Islander. Since patients were grouped into these categories based on how they self-identified,[7] there is a portion of the patient population (14.6% in FY17) that either chose to not report their race or identified as a race that did not align with the above categories. Therefore, it is important to note that the racial composition of MGH/MGPO's patients may be understated.

Finally, aggregated zip code data by HSA for FY17 demonstrates that MGH/MGPO's patient population has a similar geographic composition to the larger Partners HealthCare patient panel. This data indicates that 48.6% of MGH/MGPO's patients reside in HSA 4 (274,363 patients); 17.8% reside in HSA 6 (100,281 patients); 9.9% reside in HSA 5 (55,833 patients); 5.7% reside in HSA 3 (32,233 patients); 3.2% reside in HSA 2 (17,922 patients); 1.2% reside in HSA 1 (6,599 patients).[8] Over 73,000 patients or 13.0% of the panel is from outside of Massachusetts, and the origin of 0.6% of the panel is unknown.

MRI/CT Patient Panel

As noted above, MGPO physicians provide a variety of services at MGH licensed facilities. With regard to radiology services, MGPO radiologists staff and manage the radiology department of MGH. Moreover, MGPO provides an array of imaging services, including MRI and CT, at licensed clinics. One such clinic, MGPO Waltham, is operated as a freestanding imaging center at 40 Second Avenue in Waltham, which is also the location MGH's licensed hospital satellite known as MG Waltham. Given that the Applicant seeks to expand MRI and CT services at MGPO Waltham, in addition to reviewing the demographic data for all MGH/MGPO patients, the Applicant also conducted a focused review of the MGH/MGPO MRI/CT patient panel to determine the need for the Proposed Project. This demographic profile for MGPO/MGH's MRI/CT services is provided at Appendix 2.

As indicated in Appendix 2, the volume of patients utilizing MGH's and MGPO's MRI and CT services increased by 9.3% over the last three fiscal years, with 96,351 unique patients in FY15 and 105,299 unique patients in FY17. A breakdown by service type indicates that MRI patient volume increased by 10.0% during this period, while CT patient volume increased by 8.7%. In the first quarter of FY18, MGH and MGPO had a combined MRI/CT patient volume of 34,478 unique patients.

This data also demonstrates that MGH/MGPO's MRI/CT patient population composition is analogous to the larger MGH/MGPO patient panel in terms of gender, age, and race. Like the overall MGPO/MGH patient panel, the focused MRI/CT patient panel for MGPO/MGH is predominantly female (54.1%), with 57,015 women receiving MRI/CT scans in FY17 compared to 48,284 men. In regard to age, the majority of the MRI/CT patients within MGH/MGPO's combined patient population are between the ages of 18-64 (59.6% in FY17), followed by patients ages 65+ (37.3% in FY17), and subsequently patients ages 0-17 (2.8% in FY17).[9] Moreover, race

[7] With the exception of the category "Hispanic/Latino", the race categories shown above are based on the 1997 Office of Management and Budget standards on race and ethnicity. Patients were grouped into these categories based on their responses as follows – White: "White"; African American or Black: "African American", "Black", "Black or African American"; American Indian or Alaska Native: "American Indian", "American Indian or Alaska Native"; Asian: "Asian"; Native Hawaiian or Other Pacific Islander: "Native Hawaiian or Other Pacific Islander", "Native Hawaiian/Other Pacific Islander", "Pacific Islander"; Hispanic/Latino: "Hispanic"," Hispanic or Latino"," Latino"; Other/Unknown: All other responses.

[8] 0.004% of MGH/MGPO's patients reside in MA but outside of HSAs 1-6 (22 patients).

[9] There is a portion of the patient population (0.3% in FY17) for whom age is unknown.

data collected in FY17 based on patient self-reporting demonstrates that 56.3% of the combined MGH/MGPO MRI/CT patient panel identified as White; 3.5% identified as African American or Black; 2.4% identified as Asian; 0.8% identified as Hispanic/Latino; 0.05% identified as American Indian or Alaska Native; and 0.03% identified as Native Hawaiian or Other Pacific Islander.[10]

Finally, aggregated zip code data for FY17 demonstrates that MGH/MGPO's MRI/CT patient population is similar to the larger Partners HealthCare patient panel, as well as the overall MGH/MGPO patient panel, in terms of geographic origin. Zip code data is important when considering who utilizes MGH/MGPO's imaging services. Specifically, this data indicates that greater than 15% of MGH/MGPO's MRI/CT patients live within eight miles of Waltham (02451). Accordingly, for many patients, MGPO Waltham is the most convenient option for receiving MRI/CT services.

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

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

Through the Proposed Project, the Applicant will satisfy existing and future patient panel needs by providing increased access to timely MR and CT imaging services for MGH/MGPO patients. As detailed in Factor F1.a.i, aggregated zip code data for the last three fiscal years demonstrates that more than 15% of MGH/MGPO's MRI/CT patients live within eight miles of Waltham. Historical patient and scan volume trends for these MRI and CT services indicate high utilization rates and extended wait times across MGH and MGPO's locations. Moreover, projections forecast that the need for MRI and CT services will increase into the future, particularly as the 65+ patient population increases and requires MRI and CT to diagnose and treat age-related conditions. With more than 15% of the growing demand for these imaging services originating close to Waltham, the Applicant determined that all patients within the Applicant's panel residing in the service area of the MGPO Waltham freestanding imaging center, including existing MGH and MGPO Waltham patients, will benefit from the expansion of MRI and CT services within an integrated ambulatory care community setting. Accordingly, the Applicant proposes to acquire and implement two 3T MRI units and one 384-slice CT unit at MGPO Waltham.

A. Growing Demand for Imaging Technology

[10] With the exception of the category "Hispanic/Latino", the race categories shown above are based on the 1997 Office of Management and Budget standards on race and ethnicity. Patients were grouped into these categories based on their responses as follows – White: "White"; African American or Black: "African American", "Black", "Black or African American"; American Indian or Alaska Native: "American Indian", "American Indian or Alaska Native"; Asian: "Asian"; Native Hawaiian or Other Pacific Islander: "Native Hawaiian or Other Pacific Islander", "Native Hawaiian/Other Pacific Islander", "Pacific Islander"; Hispanic/Latino: "Hispanic"," Hispanic or Latino"," Latino"; Other/Unknown: All other responses. Since patients were grouped into these categories based on how they self-identified, there is a portion of the patient population (36.9% in FY17) that either chose to not report their race or identified as a race that did not align with the above categories. Therefore, it is important to note that the racial composition of the combined MGH/MGPO MRI/CT patient panel may be understated.

The use of diagnostic imaging in the United States, including imaging with MRI and imaging with CT, has increased significantly over the last two decades.[11] Several factors have contributed to this increase, including advancements in technology (e.g., improvements in techniques, resolution, and acquisition time), expansion of clinical applications (particularly to diagnose and treat age-related conditions), and patient- and physician-generated demand.[12] The development and improvement in these advanced diagnostic imaging technologies is widely credited with leading to improved patient outcomes – through earlier and more accurate diagnoses of disease using noninvasive techniques – as well as improved patient care processes.[13]

The Applicant has been no exception to this upward trend. As set forth in Factor F.1.a.i, across MGH and MGPO there has been growth in the number of patients receiving imaging services over the last three fiscal years. From FY15-17, the number of MGH/MGPO patients receiving MRI scans increased by 10.0% (from 41,400 patients in FY15 to 45,554 patients in FY17), and the number of MGH/MGPO patients receiving CT scans increased by 8.7% (from 54,951 patients in FY15 to 59,745 patients in FY17). Preliminary figures for FY18 suggest that these numbers will continue to grow into the future – in the first quarter of FY18, MGH/MGPO reported 14,111 patients who received MRI scans and 20,367 patients who received CT scans.

In addition to patient counts, scan volumes have also grown. From FY15-17, across all MGH/MGPO locations, MRI scan volume increased by 8.7% and CT scan volume increased by 12.4%. Significantly, some locations experienced these increases at rates higher than others. For instance, from FY15-17, MRI scan volume at MGH's main hospital campus increased by 4.7% (from 37,804 MRI scans in FY15 to 39,577 MRI scans in FY17) and CT scan volume increased by 12.4% (from 78,181 CT scans in FY15 to 87,910 CT scans in FY17). In comparison, during this same period, MRI scan volume at MGPO Waltham increased by 19.6% (from 11,967 MRI scans in FY15 to 14,308 MRI scans in FY17) and CT scan volume increased by 17.0% (from 11,030 CT scans in FY15 to 12,900 CT scans in FY17). These figures demonstrate that MGPO Waltham has experienced percentage increases in imaging volume that are greater than those experienced by MGH's main hospital campus over the last three fiscal years. Moreover, in FY17, MGPO Waltham's MRI volume was 36% of that seen at MGH's main campus with only 20% of the same technology (two MRI units versus ten MRI units), and MGPO Waltham's CT volume was 15% of that seen at MGH's main campus with less than 8% of the same technology (one CT unit versus thirteen CT units).

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[11] Rebecca Smith-Bindman et al., *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, 27 HEALTH AFFAIRS 1491 (2008), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2765780/pdf/nihms-137739.pdf; Rebecca Smith-Bindman et al., *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems, 1996–2010*, 307 JAMA 2400 (2012), *available at* https://jamanetwork.com/journals/jama/fullarticle/1182858; Robert J. McDonald et al., *The Effects of Changes in Utilization and Technological Advancements of Cross-Sectional Imaging on Radiologist Workload*, 22 ACADEMIC RADIOLOGY 1191 (2015); Michael Walter, *Feeling overworked? Rise in CT, MRI images adds to radiologist workload*, RADIOLOGY BUSINESS (Jul. 31, 2015), http://www.radiologybusiness.com/topics/quality/feeling-overworked-rise-ct-mri-images-adds-radiologist-workload; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging Informatics Market*, IMAGING TECHNOLOGY NEWS (Oct. 28, 2016), https://www.itnonline.com/content/increases-imaging-procedures-chronic-diseases-spur-growth-medical-imaging-informatics-market.

[12] *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, *supra* note 11; *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems, 1996–2010*, *supra* note 11; McDonald et al., *supra* note 11; Walter et al., *supra* note 11; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging Informatics Market, supra* note 11.

[13] *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, *supra* note 11; *Use of Diagnostic Imaging Studies and Associated Radiation Exposure For Patients Enrolled in Large Integrated Healthcare Systems, 1996–2010*, *supra* note 11; McDonald et al., *supra* note 11; Walter et al., *supra* note 11; *Increases in Imaging Procedures, Chronic Diseases Spur Growth of Medical Imaging Informatics Market, supra* note 11.

This increased demand for imaging services has impacted the Applicant's existing MRI and CT machines across its MGH and MGPO locations. Specifically, the increased utilization has resulted in capacity constraints and extended wait times. For instance, patients seeking outpatient imaging services at MGH's main campus face average wait times of twenty-three days for an MRI and seventeen days for a CT, and patients seeking imaging services at MGPO Waltham must wait, on average, seven days for an MRI and two days for a CT.[14]

To address the high demand for MRI and CT services across MGH and MGPO sites and ensure that patients have timely access to imaging services, the Applicant proposes to expand its imaging capacity by implementing two 3T MRI units and one additional CT unit at MGPO Waltham. These additions will result in total MRI and CT unit quantities at MGPO Waltham as follows: two 1.5T MRI units, two 3T MRI units, and three CT units. The proposed new technology at MGPO Waltham will operate Monday-Friday from 7:00am-11:30pm and Saturday-Sunday from 7:00am-7:30pm. As described in greater detail in Factor F1.b.i, recent advances in 3T MRI and 384-slice CT technology which facilitate faster scans will result in shorter exam slots and allow for more exams to be performed during normal operating hours. In total, implementation of the new MRI and CT units will produce a net decrease in MRI and CT scan times, allowing an additional one hundred hours of scans per week per MRI resource and eighty-five hours per week for CT scans. These newly-available scan hours made possible by the implementation of additional MRI and CT technology at MGPO Waltham will not only benefit MGPO Waltham patients – who will enjoy increased access to timely MRI and CT services – but will also benefit patients that are currently seen at MGH. Specifically, the Proposed Project will provide all MGH/MGPO patients with additional access to expedited imaging services in a convenient community-based ambulatory care setting, allowing them to determine where they will receive their MRI and CT scans. The anticipated transfer of utilization to the proposed new MGPO Waltham MRI and CT units will relieve some of the capacity constraints and wait times currently experienced at MGH's main campus, thereby freeing up hospital resources for more critical patients that require immediate attention and access to imaging technology. In turn, this will result in shorter wait times to the next available appointments across MGH's and MGPO's imaging locations as demand continues to grow into the future and will ensure that patients receive care at the location best-suited to meet their specific medical needs.

B. An Aging Patient Population Needs Access to Local Imaging Services

The Proposed Project also will allow the Applicant, and specifically MGPO, to address the needs of an aging patient panel and the need for improved access to MR and CT imaging services. According to the University of Massachusetts' Donahue Institute's ("UMDI") *Long-Term Population Projections for Massachusetts Regions and Municipalities*, the statewide population is projected to grow a total of 11.8% from 2010 through 2035.[15] An analysis of UMDI's projections shows that the growth of the Commonwealth's population is segmented by age sector, and that within the next 20 years, the bulk of the state's population growth will cluster around residents

[14] Wait times were calculated based on a Monday – Friday schedule between 8am – 5pm. The third available appointment time was utilized as the trigger.

[15] 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. *Id.* at 7. Within the past five years, Massachusetts has been experiencing an increase in the population growth rate per year due to high immigration and low domestic outflow, which is expected to slow down in 2030. *Id.* at 12.

that are age 50 and older.[16] Moreover, between 2015 and 2035, the Commonwealth's 65+ population is expected to increase at a higher rate compared to all other age cohorts.[17] By 2035, the 65+ age cohort will represent approximately a quarter of the Massachusetts population.[18]

The general trend of growth appears consistent across the counties where Partners HealthCare's affiliates are located. Moreover, MGH/MGPO's patient panel data indicates an 11.5% increase in MRI/CT patients 65+ from FY15-17. This compares to an 8.1% increase in MGH/MGPO MRI/CT patients ages 18-64 and a 3.9% decrease in patients ages 0-17 during the same period. As the number of patients that fall into the 65+ age cohort for MGPO, MGH, and Partners HealthCare continues to grow, the demand for MRI and CT services is expected to increase as well.

Literature on patterns of MRI and CT use indicate that imaging rates tend to be higher among older adults.[19] According to a study published in 2013, average MRI/CT utilization rates were approximately 24, 72, 159, and 240 per 1,000 persons for ages <18, 18-44, 45-54 and 65+ years, respectively.[20] The high MR and CT imaging rates among older adults are likely related to the modalities' abilities to diagnose and treat age-related conditions. Specifically, MR and CT have proven effectiveness in the fields of oncology, cardiology, neurology, and orthopedics among others.[21] Analysis of MGH/MGPO patient panel data from FY17 indicates that the top diagnoses for patients seeking MRI and CT services include oncologic, cardiovascular, and neurologic conditions, as well as conditions affecting the musculoskeletal system. The capability of MRI and CT in these fields is particularly important for older adults as research studies and their findings demonstrate that the prevalence of cancer increases with age, and that age is also a leading risk factor for cardiovascular disease and certain neurological and musculoskeletal disorders.[22]

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[16] *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. This data has been extracted for counties where current Partners HealthCare's hospitals and affiliates are located. *Id.*

[17] UNIVERSITY OF MASSACHUSETTS DONAHUE INSTITUTE, *supra* note 15, at 14. The report uses the cohorts as defined by the U.S. Census Bureau 2010 Census Summary, which are 0-19, 20-39, 40-64, and 65+. *Id.* Figure 2.5 in the report demonstrates that where the 65+ cohort increases from 2015 to 2035, all other cohorts are predicted to decrease. *Id.*

[18] *Id.*

[19] *Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System*, *supra* note 11; Kathleen Lang et al., *National trends in advanced outpatient diagnostic imaging utilization: an analysis of the medical expenditure panel survey, 2000-2009*, 13 BMC MED. IMAGING 40 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4222739/.

[20] Lang et al., *supra* note 19.

[21] Lawrence N. Tanenbaum, *3T MRI in clinical practice*, 34 APPLIED RADIOLOGY 8 (2005), *available at* https://appliedradiology.com/articles/3t-mri-in-clinical-practice; *Magnetic Resonance Imaging (MRI)*, RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/submenu.cfm?pg=mri (last visited Jun. 29, 2018) [hereinafter *MRI*]; Carlo Liguori et al., *Emerging clinical applications of computed tomography*, 8 MED. DEVICES 265 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4467659/; *Computed Tomography*, RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/submenu.cfm?pg=ctscan (last visited Jun. 29, 2018); *Applications and Clinical Benefits of CT Imaging*, IMAGINIS, http://www.imaginis.com/ct-scan/applications-and-clinical-benefits-of-ct-imaging (last visited Jun. 29, 2018).

[22] WORLD HEALTH ORGANIZATION, WORLD REPORT ON AGEING AND HEALTH (2015), *available at* http://apps.who.int/iris/bitstream/10665/186463/1/9789240694811_eng.pdf; Nathan A. Berger et al., *Cancer in the Elderly*, 117 TRANSACTIONS OF THE AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION 147 (2006), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1500929/pdf/tacca117000147.pdf; *Coronary Heart Disease: Risk Factors*, NATIONAL HEART, LUNG & BLOOD INSTITUTE, https://www.nhlbi.nih.gov/health/health-topics/topics/cad/atrisk (last visited Jun. 29, 2018); *Atherosclerosis: Risk Factors*, NATIONAL HEART, LUNG & BLOOD INSTITUTE, https://www.nhlbi.nih.gov/health-topics/atherosclerosis (last visited Jun. 29, 2018); MARTA KOWALSKA ET AL., *Chapter 5: Aging and Neurological Diseases, in* SENESCENCE: PHYSIOLOGY OR PATHOLOGY (Jolanta Dorszewska & Wojciech Kozubski eds., 2017), *available at* https://www.intechopen.com/books/senescence-physiology-or-pathology/aging-and-neurological-diseases; Ramon Gheno et al., *Musculoskeletal Disorders in the Elderly*, 2 J. CLINICAL IMAGING SCI. 1 (2012), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3424705/.

The projected increase in the older adult population in tandem with the volume of older adults seeking MRI and CT scans necessitates the need for additional imaging capacity for MGH/MGPO patients. Accordingly, to ensure that MGH/MGPO's aging patient panel has timely access to high-quality MRI and CT services with proven effectiveness in the fields of oncology, cardiology, neurology and orthopedics, the Applicant seeks to expand MRI and CT capacity in the community through the addition of two 3T MRI units and one additional CT unit at MGPO Waltham.

C. Providing Imaging Services in an Integrated Community Setting

Finally, the Proposed Project will allow more patients the convenience of receiving services in an integrated ambulatory care setting closer to home. As discussed in Factor F1.a.i, zip code data demonstrates that more than 15% of MGH/MGPO's MRI/CT patients live within eight miles of Waltham. With greater than 15% of the growing demand for MR and CT imaging services originating close to Waltham, the Applicant determined that siting the proposed new MRI and CT units at MGPO Waltham would allow patients improved access to high-quality imaging services in a cost-effective and convenient community setting. Specifically, siting the proposed additional MRI and CT units at MGPO Waltham rather than expanding capacity at MGH's main campus in Boston will provide appropriate patients with increased access to an alternative community-based point of care, allow patients to avoid unnecessary travel barriers to obtaining care (e.g., driving to Boston, expensive parking, etc.), and offer the opportunity for a greater number of patients to receive care close to home at MGPO Waltham's convenient, easily navigable location off of Route 128 in Waltham. By expanding capacity at MGPO Waltham and allowing for a greater number of appropriate patients to receive imaging services in the community, the Applicant will also be able to free up resources at MGH's main campus for acute patients that require fast access to MRI and CT technology.

Moreover, because MGPO Waltham is co-located with MG Waltham (a licensed hospital satellite of MGH), MGPO Waltham's radiology services offer on-site imaging for various outpatient hospital satellite services, including but not limited to, ambulatory surgery and oncology/infusion services. While existing surgical services at MG Waltham are limited to orthopedics, plastic surgery, and pain management, MG Waltham is in the process of expanding its surgical services with the addition of an additional ambulatory surgery suite, which will include six new operating rooms ("ORs"). This expansion will allow patients to benefit from access to 750 specific types of lower-acuity procedures across gynecology, urology, general surgery, orthopedics, surgical oncology, and interventional radiology at MG Waltham. Additionally, the cancer center at MG Waltham offers fully integrated oncology care to patients who live north and west of Boston. Both surgery and oncology patients at MG Waltham experience the same level of care they would receive at MGH's main campus without having to travel to Boston, and benefit from all the services located at MG Waltham, including access to imaging services through MGPO. Co-location of these services affords patients the opportunity to receive a continuum of integrated surgical, oncology, and imaging services in one location. Expanded imaging services at the Waltham location will further enable patients who live outside of Boston to receive timely access to a full complement surgical, oncology, and imaging care in an integrated ambulatory care community setting closer to their homes without the added stress of travel. Additionally, the implementation of additional imaging technology will ease capacity on MGPO's Waltham's overutilized MRI and CT units and allow for MGPO Waltham to take on the additional patients who will visit MG Waltham to receive expanded surgical services.

F1.a.iii **Competition:**
Provide evidence that the Proposed Project will compete on the basis of price, total medical expenses, provider costs, and other recognized

measures of health care spending. When responding to this question, please consider Factor 4, Financial Feasibility and Reasonableness of Costs.

The Proposed Project will not have an adverse effect on competition in the Massachusetts health care market based on price, total medical expenses ("TME"), provider costs or other recognized measures of health care spending as the Applicant is seeking to implement additional imaging modalities to meet the current and projected demand for imaging services at MGPO Waltham. As discussed in Factors F1.a.i and F1.a.ii, data from FY15-17 indicate a 9.3% increase in MRI/CT patient volume (10.0% increase in MRI patients and 8.7% increase in CT patients) and a 11.0% increase in MRI/CT scan volume (8.7% increase in MRI scans and 12.4% in CT scans) across all MGH/MGPO locations. The volume increases at MGPO Waltham have been particularly high – 19.6% growth in MRI scan volume and 17.0% growth in CT scan volume over the last three fiscal years. Notwithstanding efforts to address this increased demand, including offering extended imaging hours (MRI: Monday-Sunday 6:15am-11:00pm; CT: Monday-Friday 7:30am-7:30pm, Saturday 8:00am-4:00pm, and Sunday 8:00am-3:30pm), the existing machines at MGPO Waltham are operating at capacity. Moreover, figures for the first quarter of FY18, as well as the projected increase in older adults requiring imaging services for age-related conditions and surgical patients at MG Waltham requiring imaging for pre-operative planning and image-guided interventions, suggest that demand for MGPO Waltham's MRI and CT services will continue to increase into the future. The Proposed Project will allow the Applicant to meet demand for imaging services, relieve capacity constraints on the existing units at MGPO Waltham and ensure that the Applicant's patients have timely access to MRI and CT imaging services in the community.

By increasing access to both MRI and CT services at MGPO Waltham, the Applicant will be able to shift appropriate patients out of the hospital setting to the lower-cost community-based ambulatory care setting and create reductions in overall cost of care and TME. While MGPO Waltham is co-located with MGH's licensed hospital satellite facility, the imaging services provided by MGPO Waltham are freestanding clinic services, as opposed to hospital-based services, and are reimbursed at MPFS rates.[23] As asserted by the Health Policy Commission ("HPC") in issue seven of its DataPoints series entitled *Variation in Imaging Spending*, imaging spending in Massachusetts is driven in large part by the setting of care for services, with imaging tests performed in hospital outpatient departments ("HOPDs") or other facilities costing more than the same tests performed in office settings or non-facility settings, such as freestanding imaging centers. Consequently, in 2015, if Massachusetts Medicare beneficiaries had received specific high-cost imaging procedures in non-facility settings, Medicare spending would have been reduced by $27 million (6%) for these imaging procedures.[24] Given that the imaging services at MGPO Waltham's freestanding imaging center are reimbursed at substantially lower MPFS rates, the proposed increase of MRI and CT capacity at MGPO Waltham's more cost-effective setting will have a negligible to positive impact on the overall health care market. Specifically, by shifting appropriate MRI and CT imaging patients to a lower-cost setting in the community, the Applicant will be able to free up imaging resources at MGH for critical patients that require quick access to care in a hospital setting, more effectively manage utilization and resources across its MGH and MGPO imaging locations, and thereby affect cost reductions in overall care and ultimately TME. These cost efficiencies will be created without sacrificing quality.

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[23] *Your top 10 site-neutral payment questions for imaging, answered*, ADVISORY BOARD (Dec. 4, 2017), https://www.advisory.com/research/imaging-performance-partnership/the-reading-room/2017/12/site-neutral.
[24] *HPC Data Points, Issue 7: Variation in Imaging Spending*, MASSACHUSETTS HEALTH POLICY COMMISSION, https://www.mass.gov/service-details/hpc-datapoints-issue-7-variation-in-imaging-spending (last visited Jun. 29, 2018).

Finally, regarding the competitiveness of the overall capital expenditure, the Applicant received quotes for the MRI and CT equipment, the renovation to accommodate implementation of this new equipment, and the construction of shell space for potential future build-out to accommodate an additional MRI unit as demand warrants. Based on these quotes, the Applicant determined that it is more cost-efficient to construct shell space for potential future use as part of this Proposed Project. Consequently, the capital expenditure competes on the basis of provider cost.

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.

Factor F1.a.ii describes how the addition of two 3T MRI units and one 384-slice CT unit at MGPO Waltham will meet the Applicant's patient panel need. As provided in greater detail below, the Proposed Project is further supported by extensive evidence-based literature related to the efficacy of MRI and CT technology and the benefits associated with receiving imaging care at integrated ambulatory care community-based locations. As an overview, this review focuses on clinical applicability, quality of care, comprehensive access, efficiency and convenience. Cost-savings are also associated with imaging care in ambulatory care community settings; however, these points are addressed in Factors F1.a.iii and F2.a.

A. Clinical Applications of MRI and CT

3T MRI

MRI is well-established non-invasive imaging system that has gained widespread acceptance in several fields of medicine.[25] MRI is a technology that uses a powerful magnetic field and pulses of radio waves to create detailed images of the body's internal organs, tissues, and structures.[26] During an MRI, a patient is placed at the center of an extremely strong magnetic field and bodily tissue information is obtained by measuring how atoms respond to pulses of radiofrequency energy sent from a scanner.[27] MRI images provide anatomical information, as well as functional information, that can be used to help diagnose a variety of conditions, as well as plan for, guide, and monitor treatment.[28] As MRI relies on a magnetic field and radio frequencies and does not use ionizing radiation, there are no known health hazards, making MRI a safe alternative to many other imaging methods.[29]

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[25] *Magnetic Resonance Imaging (MRI)*, NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING, https://www.nibib.nih.gov/science-education/science-topics/magnetic-resonance-imaging-mri (last visited Jun. 29, 2018); *MRI*, *supra* note 21.

[26] NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING, *supra* note 25; *MRI*, *supra* note 21; Tanya Lewis, *What is MRI (Magnetic Resonance Imaging)?*, LIVE SCIENCE (Aug. 11, 2017), https://www.livescience.com/39074-what-is-an-mri.html.

[27] NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING, *supra* note 25; Lewis, *supra* note 26.

[28] NAT'L INST. OF BIOMEDICAL IMAGING & BIOENGINEERING, *supra* note 25; Lewis, *supra* note 26.

[29] Chris Weller, *Cancer Detection With MRI As Effective as PET-CT Scan, But With Zero Radiation Risks,* MED. DAILY (Feb. 18, 2014), http://www.medicaldaily.com/cancer-detection-mri-effective-pet-ct-scan-zero-radiation-risks-269528; *Radiation-Emitting Products – MRI (Magnetic Resonance Imaging): Benefits and Risks,* U.S. FOOD & DRUG ADMIN., https://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/MedicalImaging/MRI/ucm482765.htm (last updated Dec. 9, 2017); *MRI*, *supra* note 21.

Over the last four decades, technical and engineering advances have yielded MRI systems with higher field strengths, and today most clinical MRIs operate at field strengths of 1.5T or 3T.[30] Clinical application of higher magnetic field strengths, such as 3T, has several advantages. Most notably, increased magnetic field strength is associated with better diagnostic image quality (i.e. higher resolution images, better contrast between different tissues, and increased ability to image smaller structures with improved resolution).[31] Additionally, as compared to 1.5T MRI, 3T allows for faster scan times, which provides convenience for both physicians and patients and increases availability of the resource.[32]

Research into the various uses and benefits of 3T MRI is extensive, with studies focusing on specific diseases, as well as parts of the body that may benefit from this higher-strength imaging modality. As discussed in Factor F1.a.ii and shown in Appendix 2, some of the most prevalent conditions for which MGH/MGPO patients seek MRI services include conditions involving the brain, spine, and musculoskeletal system. The higher resolution of the 3T MRI produces more detailed images, which are beneficial when diagnosing oncological, neurological, and musculoskeletal conditions affecting these areas of the body.[33]

As it relates to brain imaging, MRI is the modality of choice as it provides the most sensitive imaging of the head and can help diagnose brain tumors, stroke, and infections, among a number of other conditions.[34] Specifically, MRI offers exceptional anatomical and functional detail that can be used to describe the shape, size, and integrity of gray and white matter structures in the brain and detect pathological changes.[35] For instance, MRI is used to determine the exact location of a lesion to establish a plan for treatment/biopsy planning; evaluate mass effect on the brain, ventricular system, and vasculature; and suggest a possible diagnosis.[36] In addition to conditions affecting the brain, MRI also demonstrates clinical utility in diagnosing a wide spectrum of spinal and musculoskeletal conditions due to its ability to noninvasively display high definition images of the bones, cartilage, muscles, tendons, ligaments, and joints.[37] MRI is often used to obtain better images of a bone mass first seen on an x-ray, can show if the mass is a tumor, an infection, or

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[30] Beth W. Orenstein, *4T, 7T, 8T, and Beyond — High-Field MR Research Seeks a Closer Look Inside the Human Body*, 10 RADIOLOGY TODAY 16 (2009), *available at* http://www.radiologytoday.net/archive/050409p16.shtml.
[31] Tanenbaum, *supra* note 21; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, RADIOLOGY AFFILIATES IMAGING (Sep. 12, 2016), https://4rai.com/blog/why-the-3-tesla-mri-is-the-best-scanner-for-diagnostic-imaging.
[32] Tanenbaum, *supra* note 21; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, *supra* note 31.
[33] Tanenbaum, *supra* note 21; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging*, *supra* note 31.
[34] *Magnetic Resonance Imaging (MRI) – Head,* RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/info.cfm?pg=headmr (last updated Feb. 8, 2017); M. Symms et al., *A review of structural magnetic resonance neuroimaging*, 75 J. NEUROLOGY, NEUROSURGERY & PSYCHIATRY 1235 (2004), *available at* http://jnnp.bmj.com/content/jnnp/75/9/1235.full.pdf; *What is fMRI?*, UC SAN DIEGO CTR. FOR FUNCTIONAL MRI, http://fmri.ucsd.edu/Research/whatisfmri.html (last visited Jun. 29, 2018); Marc C. Mabray et al., *Modern Brain Tumor Imaging,* 3 BRAIN TUMOR RESEARCH & TREATMENT 8 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4426283/.
[35] Symms et al., *supra* note 34; *What is fMRI?*, *supra* note 34.
[36] Mabray et al, *supra* note 34.
[37] Gail Dean Deyle, *The role of MRI in musculoskeletal practice: a clinical perspective*, 19 J. MANUAL & MANIPULATIVE THERAPY 152 (2011), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143009/; Maravi et al., *Role of MRI in Orthopaedics*, 21 ORTHOPAEDIC J. M.P. CHAPTER 74 (2015), *available at* https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=2ahUKEwiS093T19PaAhWEiOAKHcguA_UQFjABegQIABA8&url=http%3A%2F%2Fwww.ojmpc.com%2Findex.php%2FOJMPC%2Farticle%2Fdownload%2F31%2F25&usg=AOvVaw3hriKb3xbWliXUT_yczE1K; Apostolos H. Karantanas, *What's new in the use of MRI in the orthopaedic trauma patient?*, 45 INT'L J. CARE INJURED 923 (2014), *available at* https://www.injuryjournal.com/article/S0020-1383(14)00023-0/pdf; Filippo Del Grande, *Getting the Most Out of 3 Tesla MRI of the Spine*, 29 RHEUMATOLOGY NETWORK (Mar. 3, 2012), *available at* http://www.rheumatologynetwork.com/articles/getting-most-out-3-tesla-mri-spine.

some other damage, and can also help make a specific diagnosis when a lesion is indeterminate or shows signs of aggressiveness.[38] MRI scans have the ability to show the extent of a tumor, the marrow inside the bone, and the soft tissue around a tumor, and is the preferred modality to determine if a tumor has grown.[39] In all of these areas of the body, the improved resolution and clarity of the 3T MRI has the added benefit of allowing radiologists to identify smaller lesions and anatomical structures that cannot be seen with less powerful machines, such as a 1.5T MRI.[40]

Additionally, 3T MRI creates detailed images that can show the difference between normal and abnormal tissue, and therefore, is the preferred imaging modality for the prostate and breast.[41] Prostate MRI at 3T has advantages including increases in spatial resolution and high local staging accuracy, is considered to be superior to 1.5T MRI in detecting and locating lesions, and has the potential to improve the prostate cancer detection rate on first biopsy.[42] Moreover, because the magnet is so powerful, prostate cancer screening on the 3T MRI does not require use of the invasive endorectal coil that scans on the 1.5T MRI machines often involve, and therefore provides greater patient comfort.[43] In the breast, multiple studies have shown that MRI is the most sensitive means of assessing the extent of malignancy in women diagnosed with breast cancer.[44] The higher magnetic field strength allows for improvements in spatial and temporal resolution and the greater spectral separation of fat and water at 3T imaging enables superior fat suppression, further aiding in the visualization of enhancing lesions.[45] These studies suggest that 3T MRI is more accurate for pre-operative assessment of breast cancer extent, and therefore, that 3T MRI can be a valuable guide to surgical planning and a valuable tool in improving treatment outcomes.[46]

384-Slice CT

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[38] *Tests for Bone Cancer,* AM. CANCER SOC'Y, https://www.cancer.org/cancer/bone-cancer/detection-diagnosis-staging/how-diagnosed.html (last updated Feb. 5, 2018); *Tests for Osteosarcoma,* AM. CANCER SOC'Y, https://www.cancer.org/cancer/osteosarcoma/detection-diagnosis-staging/how-diagnosed.html (last updated Jan. 30, 2018); Duarte Nascimento et al, *The role of magnetic resonance imaging in the evaluation of bone tumours and tumour-like lesions,* 5 INSIGHTS IMAGING 419 (2014), *available at* https://link.springer.com/content/pdf/10.1007%2Fs13244-014-0339-z.pdf.

[39] *Tests for Osteosarcoma, supra* note 38; Nascimento et al, *supra* note 38; *MRI for Cancer*, AM. CANCER SOC'Y, https://www.cancer.org/treatment/understanding-your-diagnosis/tests/mri-for-cancer.html (last updated Nov. 30, 2015).

[40] Tanenbaum, *supra* note 21; *Why the 3 Tesla MRI is the Best Scanner for Diagnostic Imaging, supra* note 31.

[41] William A. Faulkner, *1.5T Versus 3T,* MEDTRONIC (Nov. 2015), http://www.medtronic.com/mrisurescan-us/pdf/UC201405147a_EN_1_5T_Versus_3T_MRI.pdf; Reni S. Butler et al., *3.0 Tesla vs 1.5 Tesla breast magnetic resonance imaging in newly diagnosed breast cancer patients*, 5 WORLD J. RADIOLOGY 285 (2013), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3758496.

[42] Faulkner, *supra* note 41; Jurgen J. Futterer & Jelle O. Barentsz, *3T MRI of prostate cancer*, APPLIED RADIOLOGY (Feb. 12, 2009), https://www.appliedradiology.com/articles/3t-mri-of-prostate-cancer; Jie Chen et al., *3-Tesla magnetic resonance imaging improves the prostate cancer detection rate in transrectral ultrasound-guided biopsy*, 9 EXPERIMENTAL & THERAPEUTIC MED. 207 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4247284/.

[43] *Magnetic Resonance Imaging (MRI) – Prostate*, RADIOLOGYINFO.ORG, https://www.radiologyinfo.org/en/info.cfm?pg=mr_prostate (last updated Mar. 17, 2016); *Non-Invasive 3T MRI Scan Could Be a Game-Changer in Prostate Health*, SOUTH JERSEY RADIOLOGY ASSOCIATES (Jun. 9, 2016), https://www.mdtmag.com/article/2016/06/non-invasive-3t-mri-scan-could-be-game-changer-prostate-health; Sangeet Ghai & Masoom A. Haider, *Multiparametric-MRI in diagnosis of prostate cancer*, 31 INDIAN J. UROLOGY 194 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4495493/; Faulkner, *supra* note 41.

[44] Butler et al., *supra* note 41; Habib Rahbar et al., *Accuracy of 3T versus 1.5T breast MRI for pre-operative assessment of extent of disease in newly diagnosed DCIS*, 84 EUROPEAN J. RADIOLOGY 611 (2015), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4348176/.

[45] Butler et al., *supra* note 41; Rahbar, *supra* note 44.

[46] Rahbar et al., supra note 44.

Like MRI, CT has been available for clinical use for several decades and is highly utilized in a variety of clinical disciplines.[47] CT is a diagnostic imaging test that combines the use of sophisticated x-ray technology and computer processing to provide detailed anatomical and structural information.[48] Specifically, during a CT scan, a series of x-ray images taken from different angles around the body are generated into cross-sectional images (i.e. slices) and then combined using a computer to create a three-dimensional picture of the inside of the body.[49] CT scanning can be performed on every region of the body and provides more detailed images of internal organs, bones, soft tissues, and blood vessels when compared to conventional x-ray images.[50] CT scans are performed for various reasons, and are useful in diagnosing disease, trauma, and abnormality; planning and guiding procedures; and monitoring the effectiveness of therapy.[51]

While CT scanners expose patients to small amounts of radiation, the latest generation scanners are equipped with new and improved hardware and software to lower doses of radiation.[52] Additionally, with more rows imaging at the same time, the proposed 384-slice unit allows for shorter scanning times compared to standard 64- or 128-slice CT scanners.[53] Other benefits of MGPO Waltham's proposed 384-slice modality include higher capacity x-ray tubes for scanning obese patients, and dual energy capacity which reduces metal artifacts that can obscure imaging of critical structures and allows for a substantial reduction in contrast media injection volume for diagnostic CT exams and CT angiograms to benefit patients with fragile kidneys, older and sicker patients, and patients with other risk factors.[54]

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[47] Liguori et al., *supra at* note 21; *Computed Tomography*, *supra* note 21; *Computed Tomography in Clinical Use*, 12 J. INT'L COMMISSION ON RADIATION UNITS & MEASUREMENTS 25 (2012).

[48] Liguori et al., *supra* note 21; *Computed Tomography*, *supra* note 21; *Computed Tomography (CT)*, U.S. FOOD & DRUG ADMINISTRATION, https://www.fda.gov/radiation-emittingproducts/radiationemittingproductsandprocedures/medicalimaging/medicalx-rays/ucm115317.htm (last updated Mar. 7, 2018); *Computed Tomography (CT or CAT) Scan of the Brain*, JOHNS HOPKINS MEDICINE, https://www.hopkinsmedicine.org/healthlibrary/test_procedures/neurological/computed_tomography_ct_or_cat_scan_of_the_brain_92,P07650 (last visited Jun. 29, 2018).

[49] Liguori et al., *supra* note 21; *Computed Tomography*, *supra* note 21; *Computed Tomography (CT)*, *supra* note 48; *Computed Tomography (CT or CAT) Scan of the Brain*, *supra* note 48.

[50] *Computed Tomography (CT)*, *supra* note 48; *Computed Tomography (CT or CAT) Scan of the Brain*, *supra* note 48.

[51] Liguori et al., *supra* note 21; *Computed Tomography*, *supra* note 21; *Computed Tomography (CT)*, *supra* note 48.

[52] Liguori et al., *supra* note 21; Gina Shaw, *Next-Generation CT Scanner Slashes Radiation Exposure*, 35 EMERGENCY MED. NEWS 27 (May 2013), https://journals.lww.com/em-news/Fulltext/2013/05000/Breaking_News__Next_Generation_CT_Scanner_Slashes.3.aspx; Krystyna Barnard, *Radiology Installs Next Generation CT Scanners for Improved Patient Care*, VANDERBILT UNIVERSITY MED. CTR. (April 18, 2017), https://www.vumc.org/radiology/news-announcements/radiology-installs-next-generation-ct-scanners-improved-patient-care; *Get two steps ahead with Dual Source CT SOMATOM Force*, SIEMENS HEALTHCARE (2017), https://static.healthcare.siemens.com/siemens_hwem-hwem_ssxa_websites-context-root/wcm/idc/groups/public/@global/@imaging/@ct/documents/download/mda3/mzgz/~edisp/di_ct_somatom-force_brochure-04401633.pdf.

[53] Liguori et al., *supra* note 21; Shaw, *supra* note 52; Barnard, *supra* note 52; *Get two steps ahead with Dual Source CT SOMATOM Force*, *supra* note 52; Paul Pierce, *Comparing CT Manufacturers and Models: Choosing the Best CT for Your Needs*, PROVIDIAN MED. EQUIPMENT (May 31, 2017), https://www.providianmedical.com/blog/choose-the-best-ct-scanner-for-your-needs/; *What are the risks associated with Cardiac CT?*, SYDNEY ADVENTIST HOSPITAL, http://www.sah.org.au/risks-of-cardiac-ct (last visited Jun. 29, 2018).

[54] Michael J. Modica et al., *The Obese Emergency Patient: Imaging Challenges and Solutions*, 31 RADIOGRAPHICS 811 (2011), *available at* https://pubs.rsna.org/doi/pdf/10.1148/rg.313105138; Deborah Abrams Kaplan, *Challenges in Imaging Obese Patients*, DIAGNOSTIC IMAGING (Mar, 26, 2014), http://www.diagnosticimaging.com/practice-management/challenges-imaging-obese-patients; *What are the risks associated with Cardiac CT?*, *supra* note 53; Joseph R. Grajo et al, *Dual energy CT in practice: Basic principles and applications*, 45 APPLIED RADIOLOGY 6 (2016), *available at* http://appliedradiology.com/articles/dual-energy-ct-in-practice-basic-principles-and-applications; Barnard, *supra* note 52; *Get two steps ahead with Dual Source CT SOMATOM Force*, *supra* note 52.

The widespread use of CT has mainly been related to its ability to create detailed three-dimensional pictures of the inside the body and to differentiate soft tissues with good contrast and spatial resolution.[55] These features make the use of CT crucial in many branches of medicine, including, but not limited to, oncology, cardiovascular medicine, lung disorders, and orthopedics.[56] CT scans are also valuable in emergency and surgical settings as they can assess strokes, brain injuries, heart disease, and internal injury by producing scans in very short periods of time.[57] As discussed in Factor F1.a.ii and detailed in Appendix 2, MGH/MGPO patients often seek CT services in connection with conditions that fall within these categories of medicine (e.g., secondary malignant neoplasm of bone, abnormal finding of lung field, solitary pulmonary nodule, chest pain, aortic aneurysm, shortness of breath, pleural effusion, etc.).

As a result of improved imaging characteristics, the current landscape of CT applications in medicine is improving and growing rapidly.[58] Advanced clinical opportunities for the 384-slice CT modality that is proposed for implementation at MGPO Waltham are largely attributable to its dual energy capacity and ability to scan with two energies at the same time, freeze motion, and capture more volume per rotation.[59] CT is especially useful in revealing the presence, size, spatial location and extent of lesions, tumors and metastasis, and these improvements allow for more precise tissue characterization and improved diagnostic yield for patients with known or suspected cancer diagnoses.[60] The specificity of a CT scan is often preferred for anatomically complex areas, such as the thoracic spine.[61] With regard to cardiovascular medicine, the improved temporal resolution that can be achieved with the 384-slice dual energy CT modality enables clinicians to freeze heart motion, scan patients at any heart rate (which is usually not achievable with most single source CT machines), and image the whole heart volume in a single rotation, which together enables extremely high-quality diagnostic images of the heart and its blood supply that are independent of heart rate and phase of the cardiac cycle, and greater detection of blood clots, blood vessel defects, and enlarged ventricles.[62] Similarly, due to its fast scan time and ability to freeze motion, the 384-slice dual energy CT can overcome issues with movement caused by patient breathing and provide exquisite images of the lungs, including improved visualization of nodular structures, detection of pulmonary embolisms, and evaluation of lung perfusion.[63]

B. Value of Imaging in Integrated Ambulatory Care Community Setting

With the current outpatient hospital satellite services offered at MG Waltham (including, but not limited to, ambulatory surgery and oncology/infusion services) and the expansion of surgical services, MGPO Waltham's proposed addition of two 3T MRIs and one 384-slice CT scanner at the Waltham ambulatory care site will translate into increased productivity and more patients

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[55] Liguori et al., *supra* note 21.
[56] *Id.*; *Applications and Clinical Benefits of CT Imaging*, *supra* note 21; *Computed Tomography*, *supra* note 21.
[57] *Computed Tomography (CT)*, UNDERSTANDING MEDICAL RADIATION, https://www.medicalradiation.com/types-of-medical-imaging/imaging-using-x-rays/computed-tomography-ct/ (last updated Oct. 5, 2016).
[58] Liguori et al., *supra* note 21; *Computed Tomography*, *supra* note 21; *Computed Tomography (CT)*, *supra* note 48; *Applications and Clinical Benefits of CT Imaging*, *supra* note 21.
[59] Liguori et al., *supra* note 21; Grajo et al, *supra* note 54; *What are the risks associated with Cardiac CT?*, *supra* note 53; Barnard, *supra* note 52; *Get two steps ahead with Dual Source CT SOMATOM Force*, *supra* note 52.
[60] Liguori et al., *supra* note 21; Grajo et al, *supra* note 54; *Applications and Clinical Benefits of CT Imaging*, *supra* note 21; *Get two steps ahead with Dual Source CT SOMATOM Force*, *supra* note 52.
[61] Walter Heindel et al., *The Diagnostic Imaging of Bone Metastases*, 44 DEUTSCHES ÄRZTEBLATT INT'L 741 (2014), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4239579/.
[62] Liguori et al., *supra* note 21; Grajo et al, *supra* note 54; *Applications and Clinical Benefits of CT Imaging*, *supra* note 21; Barnard, *supra* note 52; *What are the risks associated with Cardiac CT?*, *supra* note 53; *Get two steps ahead with Dual Source CT SOMATOM Force*, *supra* note 52.
[63] Liguori et al., *supra* note 21; Barnard, *supra* note 52; *Get two steps ahead with Dual Source CT SOMATOM Force*, *supra* note 52.

receiving timely access to quality care at a convenient and integrated location close to home. Further details on these benefits, which are supported by evidence-based literature, are provided below.

High-Quality Care

Ambulatory care – i.e. personal health care consultation, treatment, surgery, or other health care services provided by health care professionals in outpatient settings – is quickly emerging as one of the fastest growing segments of the U.S. health care market.[64] An important reason for the expansion of ambulatory care lies in the fact that compared with the traditional hospital care settings, ambulatory care settings – including medical offices and clinics, diagnostic imaging centers, ambulatory surgery centers, and hospital outpatient departments – provide similar quality services.[65] While some ambulatory care settings are general practice, others have evolved to meet the needs of patients with specialized medical requirements.[66] Lending to advances in technology that have made it more possible to perform diagnostic and interventional tests and procedures in the outpatient setting, many – like MGPO Waltham and MG Waltham – have expanded to offer a range of services such as diagnostic imaging, outpatient same-day surgery, outpatient oncology services, etc.[67] Moreover, physicians in these settings have the opportunity to advance knowledge and care in their specialty areas, and their patients benefit from having excellent access to highly trained professionals who have researched and developed innovative ways to diagnose and care for the patients' conditions.[68]

The expanded MRI and CT services that the Applicant proposes to provide at the MGPO Waltham location are identical to those a patient can access at the main campus and must adhere to strict quality standards. Specifically, MGPO follows a robust Clinical Quality Assurance Program at MGPO Waltham that has MGH oversight. This Program utilizes input from the Applicant, MGH, and the Department of Imaging in order to develop efficient and effective procedures that ensure patients receive high-quality, patient-focused imaging and related diagnostic and support care. MGPO also utilizes the Clinical Quality Assurance Program to provide necessary oversight to its imaging services at MGPO Waltham, including supervising clinical service provision and conducting any necessary quality reviews, and all staff members are informed of quality assurance protocols and procedures as well as acceptable practice standards. Combined with the fact that the expanded imaging services will have the same advanced technologies as the main campus location, as well as highly specialized, focused, and trained physicians and staff, these quality assurance mechanisms ensure that imaging patients receive excellent medical care at MGPO Waltham's outpatient imaging setting.

Convenience for Patients and Families

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[64] BERNARD J. HEALEY & TINA MARIE EVANS, *Chapter 5: Ambulatory Care Services, in* INTRODUCTION TO HEALTH CARE SERVICES: FOUNDATIONS AND CHALLENGES (Jossey-Bass 1st ed. 2014); HARRY A. SULTZ & KRISTINA M. YOUNG, *Chapter 4: Ambulatory Care, in* HEALTH CARE USA (Jones and Bartlett Publishers 6th ed. 2009); *Helping you choose: Quality ambulatory care*, THE JOINT COMMISSION, https://www.jointcommission.org/assets/1/6/HYC_ahc.pdf (last visited Jun. 29, 2018); *Ambulatory Care*, AGENCY FOR HEALTHCARE RESEARCH & QUALITY, https://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/ambulatory-care/index.html (last updated Feb. 2018).

[65] HEALEY & EVANS, *supra* note 64; SULTZ & YOUNG, *supra* note 64; *Helping you choose: Quality ambulatory care*, *supra* note 64; *Ambulatory Care*, *supra* note 64.

[66] HEALEY & EVANS, *supra* note 64.

[67] *Id.*

[68] *Id.*

Another important reason for the expansion of ambulatory care lies in the fact that ambulatory care locations provide enhanced convenience for patients and their families.[69] Two factors frequently lacking on hospital campuses and the large building complexes associated with them are convenient location and easily accessible facilities and services.[70] This is of particular concern in large urban settings, such as Boston, where inner-city congestion, traffic, and parking play a role in reducing accessibility.[71] Ambulatory care locations, such as MGPO Waltham, are preferred by patients and families as they are more accessible and offer an opportunity to bypass the hassles of dealing with a large, complex hospital campus.[72] Generally, and as is the case at MGPO Waltham, patients enter the easily navigable facility directly from the free parking lot/garage, which eliminates the need for the ill, injured, or elderly patient to walk through a maze of hallways to reach the correct hospital department.[73] Moreover, patients and their families benefit from the accessibility of these services within the community; MGPO Waltham is conveniently located off Route 128 in Waltham and brings accessible, world-class care to communities west and north of Boston.[74] From MGH's point of view, the availability of outpatient ambulatory care at the Waltham site also serves to alleviate some of the volume at the main Boston campus and free up hospital resources for the more critical cases that require the immediate attention of medical personnel and quick access to diagnostic MRI and CT technology.[75]

Comprehensive Access and Efficiency

Finally, the expanded MRI and CT services that the Applicant proposes to provide at the MGPO Waltham location will enhance access to integrated care and efficiency. MGPO Waltham's co-location with MGH's licensed hospital satellite, MG Waltham, means that radiology services are co-located with various outpatient hospital satellite services, including but not limited to, oncology/infusion services and soon-to-be expanded ambulatory surgery. A variety of benefits of co-location are identified in the literature, including but not limited to, improved access for patients, more patient/family satisfaction because services are provided in a setting familiar to patients, greater opportunities for providers to collaborate and improve their skills and service to patients, improved referrals (appropriate, timely, and with higher completion rates), increased efficiency, and improved health outcomes.[76] These benefits are applicable across various fields of medicine, and given the necessity of imaging as a standard evidence-based component of both cancer and surgical care, it is critical to have advanced 3T MRI and 384-slice CT services integrated and co-located with oncology and surgery services in order to improve access and efficiency.[77]

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[69] *Id.*; SULTZ & YOUNG, *supra* note 64.
[70] HEALEY & EVANS, *supra* note 64; SULTZ & YOUNG, *supra* note 64.
[71] HEALEY & EVANS, *supra* note 64; SULTZ & YOUNG, *supra* note 64.
[72] HEALEY & EVANS, *supra* note 64; SULTZ & YOUNG, *supra* note 64.
[73] HEALEY & EVANS, *supra* note 64; SULTZ & YOUNG, *supra* note 64; *Mass General Imaging – Waltham*, MASSACHUSETTS GENERAL HOSPITAL, https://www.massgeneral.org/imaging/visit/location_waltham.aspx?display=overview (last visited Jun. 29, 2018).
[74] HEALEY & EVANS, *supra* note 64; SULTZ & YOUNG, *supra* note 64; *Mass General Imaging – Waltham*, *supra* note 73.
[75] HEALEY & EVANS, *supra* note 64.
[76] SUSANNA GINSBURG, ISSUE BRIEF: COLOCATING HEALTH SERVICES: A WAY TO IMPROVE COORDINATION OF CHILDREN'S HEALTH CARE? (The Commonwealth Fund 2008), *available at* https://www.commonwealthfund.org/sites/default/files/documents/___media_files_publications_issue_brief_2008_jul_colocating_health_services__a_way_to_improve_coordination_of_childrens_health_care_ginsburg_colocation_issue_brief_pdf.pdf; Dennis L. Kodner & Corinne Kay Kyriacou, *Fully integrated care for frail elderly: two American models*, 1 INT'L J. INTEGRATED CARE (2000), *available at* https://ijic.ubiquitypress.com/articles/10.5334/ijic.11/.
[77] GINSBURG, *supra* note 76; Kodner & Kyriacou, *supra* note 76; K. Haire et al., *Integrated Cancer System: a perspective on developing an integrated system for cancer services in London*, 5 LONDON J. PRIMARY CARE (ABINGTON) 29 (2012), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4413698/.

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. Expansion of Imaging Capacity in the Community Setting: Improving Health Outcomes and Quality of Life

The Applicant anticipates that the Proposed Project will provide patients with improved access to high-quality MRI and CT services, which in turn will improve health outcomes and quality of life. Research indicates that delayed access to quality health care negatively affects patient satisfaction as well as health outcomes due to delays in diagnosis and treatment.[78] Given that quality of life is a multidimensional concept that includes aspects of physical health, delayed access to care also results in decreased quality of life.[79] Through the addition of 3T MRI and 384-slice CT capacity at MGPO Waltham, the Applicant endeavors to improve access to time-effective high-quality imaging services, and thereby enhance patient satisfaction, health outcomes, and quality of life for MGPO and MGH patients alike.

With respect to MGPO Waltham patients, by expanding MRI and CT capacity at MGPO Waltham, the Applicant will address the patient panel need by providing increased access to conveniently located high-quality imaging services that are necessary for diagnosing and treating a variety of conditions. It is often difficult for patients to travel to Boston for imaging services. Time spent on travel, as well as monies spent on costly parking, may add unnecessary stress to a patient. Accordingly, through the expansion of imaging capacity in Waltham, appropriate patients will be able to receive imaging services close to home without the challenges associated with traveling to Boston. Moreover, by co-locating this technology with MG Waltham's hospital outpatient services, the Applicant endeavors to combat care fragmentation and improve service coordination, quality outcomes, and efficiency. These benefits are particularly important with regard to the older adult patient population, which is projected to grow into the future. As the 65+ patient population continues to increase, so too will the demand for advanced MRI and CT services to detect and treat age-related conditions. Ultimately, convenient and ready access to comprehensive care, particularly for elderly patients, is critical to facilitate timely initiation of treatment that will impact overall health outcomes and quality of life.

The proposed expansion of MRI and CT services will also benefit patients that seek imaging care at MGH's main campus in Boston. By shifting appropriate patients to MGPO Waltham, the Applicant will be able to increase availability for MRI and CT services at MGH. Being that timely access to high-quality care directly impacts quality outcomes, by improving wait times associated with MRI and CT services at MGH, the Applicant will be able to ensure improved care outcomes and likewise improved quality of life.

In addition to improving access, the Proposed Project will also ensure continued provision of high-quality care. High-quality services are currently available at MGPO Waltham and the expanded MRI and CT services will follow similar care models. Presently, high-quality patient outcomes are achieved through utilization of multi-focused quality assurance programs and mechanisms that

[78] Julia C. Prentice & Steven D. Pizer, *Delayed Access to Health Care and Mortality*, 42 HEALTH SERVICES RESEARCH 644 (2007), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955366/.
[79] *Health-Related Quality of Life & Well-Being*, HEALTHYPEOPLE.GOV, https://www.healthypeople.gov/2020/topics-objectives/topic/health-related-quality-of-life-well-being (last visited Jun 29, 2018).

assess the clinical appropriateness, safety, and quality of all services offered to the Applicant's patients. These programs and mechanisms, which MGPO Waltham participates in, address a range of clinical and operational aspects to ensure achievement of high-quality clinical outcomes.

First, MGPO Waltham participates in the MGH Clinical Quality Assurance Program, which utilizes a multi-faceted approach to develop efficient and effective procedures and deliver quality outcomes. Through Partners, the MGH Imaging Department receives quality improvement tools and goals that are leveraged at MGPO Waltham. Additionally, MGH provides a Safety Officer for MGPO Waltham who works to incorporate qualitative patient care improvements. MGPO also has a physician Quality Director who is responsible for oversight of improvement efforts. The Quality Director receives support from a physician Quality Liaison within each imaging division who disseminates key strategies and improvement techniques to staff, and is also assisted by MGH's Quality, Management, and Education Department which has a safety office responsible for radiology-specific improvements. These individuals work together across the system to ensure that all services provided meet the standards for the delivery of quality care.

The Clinical Quality Assurance Program is also charged with supervising the clinical provision of MGPO's imaging services and conducting quality reviews to achieve such ends. As part of this responsibility, Program committee members: (1) review operational issues related to scanning; (2) review appropriateness and quality of scans; (3) review clinical protocols; (4) develop educational programs for staff; and (5) supervise data collection and evaluation. MGPO utilizes the expertise of its MRI and CT physicians through the Program committee to provide oversight to the MRI and CT services. The Program committee also consults with specialty physicians practicing at MG Waltham who frequently refer patients for imaging exams. These non-committee physicians offer expertise and practical knowledge within their specialty fields. Furthermore, the Program committee seeks input from non-radiology physicians to inform on quality, access, and other issues as needed.

Third, MGPO Waltham utilizes an integrated electronic health record ("EHR") system that has embedded in it a picture archiving and communication system ("PACS") – a technology for storing, retrieving, and sharing images produced by medical imaging technologies, such as MRI and CT. Because MGPO is the affiliated physician organization of MGH and a member of Applicant, each patient presenting at MGPO Waltham has a unique Partners HealthCare EHR number, allowing integration of medical information, including imaging results, to the EHR. Research indicates that access to integrated health information technology systems, including PACS information, directly effects health outcomes as access to a single, fully integrated health record improves care coordination by care teams across the primary and specialty fields. [80] Thus, continued availability of these integrated EHR services for MGPO Waltham patients following implementation of the Proposed Project will lead to improved health outcomes and better quality of life.

MGPO Waltham also follows quality assurance mechanisms made capable through the EHR to ensure proper utilization of MRI and CT exams. Physician orders for MRI and CT tests are placed through electronic Radiology Order Entry forms in EPIC, which use a programmed clinical decision support mechanism to guide physicians in determining the most appropriate exam based on a patient's medical history and indication. The decision support system utilized by MGPO Waltham, ACR Select, delivers Appropriate Use Criteria authored by leading medical specialty societies directly into the EHR workflow at the point of care. This capability improves performance

[80] Isla M. Hains et al., *The impact of PACS on clinician work practices in the intensive care unit: a systematic review of the literature*, 19 J. AMERICAN MED. INFORMATION ASS'N 506 (2012), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3384105/.

and efficiency by guiding clinicians to the right exam and reducing the number of exams needed to reach a diagnosis, and ultimately empowers quality improvement efforts through improved patient care and population health. Physicians also have access to the Queriable Patient Inference Dossier ("QPID"), which can search and retrieve data based on clinical concepts. QPID aggregates EHR data across health care networks, prepares the information for rapid searching, and integrates search tools into a web-accessible search system that can be used to extract detailed information from a single patient's record or be run against an entire care unit census. In the realm of radiology, QPID searches have been developed to pre-screen patients scheduled for imaging for possible contraindications and the system also has the ability to alert physicians if duplicated imaging studies exist as new orders are submitted.

Finally, MGPO employs various quality assurance mechanisms at its Waltham location that are aimed at peer review and monitoring. One example of a quality improvement mechanism utilized by MGPO Waltham is "Grapevine," an online forum for consensus-based peer review of physician work output that allows radiologists to meet online or in person to review randomly selected cases. Grapevine facilitates improved clinical outcomes by enhancing the opportunity to engage in thoughtful and accurate review of cases that may not otherwise be possible due to scheduling and other conflicts. MGPO Waltham also utilizes a system called CQI to perform quality assurance checks of MRI and CT scans in real-time. CQI sends instant quality assurance information to the specific imaging area's managers, which enables managers to address quality concerns and provide immediate feedback to scanning technologists. As a result of these processes, MGPO Waltham assures its continued ability to provide high-quality, patient-focused imaging and related diagnostic and support care to patients.

B. Assessing the Impact of the Proposed Project

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

1. **Patient Satisfaction:** Patients that are satisfied with care are more likely to seek additional treatment when necessary. MGPO staff will review overall ratings of care with imaging services via Press Ganey Survey scores.

   Measure: Overall rating of Care – Response Options, include: Very Good, Good, Fair, Poor and Very Poor.

   Projections: Baseline: 87% Year 1: 87% Year 2: 89% Year 3: 90%

   Monitoring: Any category receiving a less than "Good" rating will be evaluated and policy changes instituted as deemed appropriate.

2. **Access – Wait Times:** The Proposed Project seeks to ensure access to MRI and CT services. Accordingly, MGPO will track the time to appointment. This information will be obtained via the EHR system, EPIC.

   Measure: Time interval (in days) from when the case was initiated for scheduling in EPIC to the next available appointment.

   MRI Projections: Baseline: 7 days Year 1: 6 days Year 2: 4 days Year 3: 3.5 days

CT Projections: Baseline: 2 days Year 1: 2 days Year 2: 1 day Year 3: 1 day

Monitoring: This data will be reviewed quarterly by clinical staff.

3. **Quality of Care – Reporting of Critical Value Results:** MGPO adheres to MGH's Communication of Critical Results Policy, which defines the requirement and process for verifiable and timely communication of critical test results to the responsible physician. To facilitate timely reporting and communication of critical test results, radiologists currently use a home-grown system called Important Findings Alert ("IFA"). IFA works in combination with PowerScribe 360, which is a widely used real-time radiology reporting and communication platform that enables quick, efficient generation of high-quality reports and delivery of communications concerning critical test results. Specifically, radiologists use PowerScribe 360 to embed specific text in their reports, and IFA analyzes all reports and, if it detects the specific text indicating critical tests results, triggers an alert to the responsible physician. Pursuant to MGH's Communication of Critical Results Policy, when an alert regarding a critical test results is triggered, the responsible physician is notified via "verifiable and timely communication." Examples of verifiable communication are by telephone or in person. Subsequently, this communication is documented.

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

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

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

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.

To ensure health equity to all populations, including those deemed underserved, the Proposed Project will not affect accessibility of MGPO Waltham's services for poor, medically indigent, and/or Medicaid eligible individuals. MGPO does not discriminate based on ability to pay or payer source and this practice will continue following implementation of the Proposed Project. As further detailed throughout this narrative, the Proposed Project will increase access to high-quality MRI and CT services for all of the Applicant's, MGH's and MGPO's patients in a number of ways.

The Applicant has also adopted the Culturally and Linguistically Appropriate Service ("CLAS") standards set forth by the U.S. Department of Health and Human Services Office of Minority Health for all practice sites, including MGPO Waltham. MGPO provides effective, understandable, and respectful care with an understanding of patients' cultural health beliefs and practices and preferred languages. Additionally, MGPO has arrangements to offer ongoing education and

training in culturally and linguistically appropriate areas for staff at all levels and across all disciplines.

In regard to interpreter services, MGPO Waltham offers telephonic interpreting, video remote interpreting, and onsite interpreting to patients through Pacific Interpreters. The telephonic interpreting service option provides patients with access to qualified interpreters in just seconds and support for more than 200 languages (99.85% language availability). Video interpreting is available to the Limited English Proficient ("LEP") and the Deaf and Hard-of-Hearing. One-touch access to trained professional video interpreters facilitates full understanding through spoken and visual communication that delivers real-time, full-motion, high-quality video images and audible transmission of voices. Finally, onsite interpreting services, including in American Sign Language and spoken languages, can be scheduled by appointment and in emergency same-day situations. These services, which are currently available at MGPO Waltham and will continue to be in place following implementation of the Proposed Project, further health equity by ensuring that all patients have meaningful access to robust health services regardless of any language limitations.

Finally, all patients presenting at MGPO Waltham have access to various social services programs. Clinical social workers, who are licensed mental health professionals, offer a combination of private and confidential counseling and direct connection with the network of community resources. Specifically, these social workers assess patients with social, emotional, interpersonal and socioeconomic issues and subsequently work with patients and their families to: deal with crisis; cope with illness and other life stressors; identify and solve problems with relationships; enhance communication with the medical treatment team to enable patients and families to be active partners in their own health care; and access hospital and community services. To assure delivery of comprehensive patient/family focused care, the social workers collaborate with and share information, as appropriate, with providers and staff across the Applicant's system as well as with programs in the larger community. These services help to eliminate health care disparities that exist for individuals with social, emotional, interpersonal and socioeconomic issues by ensuring that patients have access to resources around social determinant of health ("SDoH") issues and allow MGPO Waltham staff to guarantee equal access to the benefits created by the Proposed Project.

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

The Proposed Project will facilitate improved health outcomes and quality of life indicators for the Applicant's patient panel by allowing patients in need of 3T MRI and 384-slice CT services to receive care in an integrated community setting. These expanded imaging services provide an alternative point of access with equally high-quality at a lower-cost. Moreover, services provided in this setting are more convenient for patients and clinicians, allowing for improved access to timely imaging care. Finally, the Proposed Project will ensure that patients visiting the Waltham site for cancer and surgery services have access to co-located 3T MRI and 384-slice CT services. Combined with the fact that MGPO Waltham does not discriminate and offers a variety of services to address SDoH and health care disparities (e.g., CLAS standards, interpreting services, and social services), the Applicant anticipates that the Proposed Project will result in improved patient care experiences and quality outcomes while assuring health equity.

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.

The Proposed Project will ensure continuity of care, improved health outcomes, and enhanced quality of life by providing case management/social work support as well as integration and coordination of care for the Applicant's patients. First, MGPO Waltham staff will continue existing processes for linking imaging patients with case management/social work support to ensure patients have access to resources around SDoH issues. MGPO Waltham social workers collaborate, as appropriate, with providers and staff across the Partners HealthCare system and with programs in the community. Providing patients with linkages to these necessary contacts and services ensure appropriate care management and provides the patient with the resources for leading a better life.

In addition, patients at MGPO Waltham benefit from integrated medical records. As discussed in Factor F1.b.ii, because MGPO is the affiliated physician organization of MGH and a member of Applicant, all MRI and CT results for tests performed at MGPO Waltham are integrated into the Partners HealthCare EHR. Studies show that integrated health information technology systems directly effect health outcomes as access to a single, fully integrated health record improves care coordination. This is true of the system used by the Applicant, which not only enables imaging results to be available to primary care and specialty physicians across the system, but also includes capabilities that facilitate clinical decision support, peer review, and monitoring. In sum, the availability of these integrated record services ensure that patients at MGPO Waltham benefit from appropriate care coordination, better outcomes, and improved quality of life.

Finally, continuity and coordination of care will be achieved through co-location of MGPO Waltham's advanced imaging technology with MG Waltham's various outpatient hospital satellite services, including oncology/infusion services and soon-to-be expanded ambulatory surgery services. Evidence indicates that care fragmentation is an important source of inefficiency in the US healthcare system, that health care delivery spread out across a number of separately located providers leads to care fragmentation, and that co-location is one way to address fragmented care and promote efficiency.[81] Co-location of MGPO Waltham's 3T MRI and 384-slice CT services with MG Waltham's cancer and surgery services will afford patients the opportunity to receive a full complement of integrated surgical, oncology, and imaging care in one location and, therefore, will facilitate greater continuity and coordination of care, ensure appropriate linkages, enhance efficiency, and promote better quality of life for the Applicant's patients.

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

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

- Nora Mann, Esq., Director, Determination of Need Program, Department of Public Health
- Rebecca Rodman, Esq., Deputy General Counsel, Department of Public Health
- Ben Wood, Director, Office of Community Health Planning and Engagement, Department of Public Health

[81] Kurt C. Stange, *The Problem of Fragmentation and the Need for Integrative Solutions*, 7 ANNALS FAMILY MED. 100 (2009), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653966/; GINSBURG, *supra* note 76.

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.

Based upon the need for patients to receive timely imaging services, the Applicant, MGH, and MGPO staff developed a plan to provide expanded MRI and CT services at MGPO Waltham. In contemplation of this expansion and given that the Proposed Project will impact patients currently seen at MGH by allowing the Applicant to shift appropriate patients out of the hospital setting to MGPO Waltham's community-based ambulatory care setting for imaging services, leadership sought feedback from an MGH service-line Patient Family Advisory Council ("PFAC") known as the Cancer Center PFAC ("CC PFAC"). Leadership determined it was appropriate to engage this targeted PFAC as the proposed additional imaging units at MGPO Waltham will benefit patients visiting MG Waltham's Cancer Center by providing increased access to co-located and integrated imaging and oncology services.

All of MGH's PFACs bring together patients, family members, staff and clinicians in an ongoing effort to improve care and the patient and family experience. Consistent with this mission, the CC PFAC was formed in 2001 to advance patient experience and promote patient and family involvement. The CC PFAC has an enterprise-wide focus, including operations and services across MGH's main campus and Waltham locations. It is dedicated to fostering a partnership between patients, families, and staff to support the Applicant, MGH and MGPO in meeting their strategic goals and initiatives. The CC PFAC is comprised of a dedicated group of patient and family members who have experienced many different aspects of care and who volunteer their time, with their expertise and input, to make care better. Additionally, other key stakeholders from the hospital staff sit on the CC PFAC. The Council meets monthly throughout the year with agenda items prioritized by staff members based on topics discussed at CC PFAC meetings and requests from Cancer Center and MGH-wide staff that wish to consult the Council.

On June 13, 2018, Jeremy Herrington, Director of Clinical Operations for MRI & Off-Campus Imaging at MGH, met with the CC PFAC to discuss the need for expanded MRI and CT services at MGPO Waltham and the community benefit associated with this expansion. Overall feedback from the meeting was very positive and supportive of the plan. There were no concerns expressed by this group. Please see Appendix 3 to review the PFAC meeting materials.

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 in conjunction with MGPO took the following action:

- Presentation to CC PFAC on June 13, 2018. For detailed information on this meeting, see Appendix 3.

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 the Commonwealth center around providing low-cost care alternatives without sacrificing high-quality. In fact, the HPC, Massachusetts' independent state agency that develops policy to reduce health care cost growth and improve the quality of patient care, has a stated goal of bettering health and care at a lower cost across the Commonwealth. The Proposed Project seeks to align with these goals and meaningfully contribute to cost containment in Massachusetts by providing high-quality imaging services for patients in a cost-effective community-based setting.

As previously discussed, the 3T MRI and 384-slice CT services offered at MGPO Waltham's freestanding imaging center will be provided at MPFS rates rather than hospital-based rates. Because MPFS rates are substantially lower than hospital-based rates, the proposed increase of MRI and CT capacity at MGPO Waltham will have a negligible to positive impact on the Massachusetts health care market. Specifically, by shifting appropriate MRI and CT patients from MGH to MGPO Waltham's lower-cost setting, the Applicant will achieve cost reductions in care. Accordingly, the Proposed Project will lower costs, as well as overall TME and total health care expenditures, and will meaningfully contribute to the Commonwealth's goals for cost containment.

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

The need to develop additional MRI and CT services at MGPO Waltham to improve public health outcomes is demonstrated by historical volume trends which indicate high utilization rates for imaging services, and by population projections which suggest that imaging demand will grow into the future particularly as the 65+ patient population increases and requires MRI and CT to diagnose and treat age-related conditions. To address the projected demand in MRI and CT services in the state, increased capacity is required. The expansion of imaging services at MGPO Waltham will improve public health outcomes as patients will have access to high-quality 3T MRI and 384-slice CT services in the community. This convenient access to imaging services will allow patients to schedule imaging appointments in a timely manner and avoid unnecessary travel barriers to obtaining care (driving to Boston, expensive parking, etc.), and will promote creation of better patient care experiences. Moreover, the increased availability of MRI and CT services in Waltham will alleviate some of the volume currently experienced at MGH's main Boston campus and free up hospital resources for critical patients that need fast access to imaging technology. This will result in shorter wait times across MGH's and MGPO's imaging locations and will ensure that each patient receives care at the location best-suited to meet his/her individual medical needs.

Finally, as discussed, studies have documented the benefits that patients receive from co-located services. Through the Proposed Project, patients will have increased access to integrated imaging, oncology, and surgery services at MGPO Waltham. These co-located services will afford patients the opportunity to receive a continuum of care in one location and will result in improved access, increased collaboration among providers, better coordination of care, increased efficiency, and overall improved health outcomes. In total, by providing improved access to timely services in the appropriate integrated care setting, the Proposed Project will improve health outcomes for Massachusetts patients and the Massachusetts health care market overall.

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.

As outlined in Factor F.1.b.iii, the Applicant, MGH and MGPO have numerous programs in place to ensure linkages to social service organizations. For instance, all patients visiting MGPO Waltham for care have access to clinical social workers. These clinical social workers assess patients with SDoH issues (i.e., patients with social, emotional, interpersonal and socioeconomic issues) in areas such as: adjustment to chronic and catastrophic illness; adjustment to procedures and treatment; ability to follow medical regimen; family functioning and communication; social and/or financial concerns; personal safety including abuse, neglect, violence; mental illness/emotional distress; substance abuse; adjustment to loss/bereavement; cultural, religious, and language needs; and occupation and/or school performance. Following assessment, social workers work with patients and their families to implement interventions to help deal with crisis; cope with illness and other life stressors; identify and solve problems with relationships; enhance communication with the medical treatment team to enable patients and families to be active partners in their own healthcare; and access hospital and community services. Interventions may include, as appropriate: psychotherapy; psychosocial counseling (e.g., adjustment to illness, bereavement); crisis intervention; care coordination; brief therapy; relaxation/guided imagery; cognitive/behavioral therapy; personal safety planning; information and referral; psychoeducation; stress management; advocacy; programs (e.g., Violence Intervention Advocacy Program, Network for Patients and Families, etc.); and consultation. Social workers collaborate and share information, as appropriate, with providers and staff across the Applicant's system as well as community programs to assure delivery of comprehensive patient/family focused care.

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: The Proposed Project is for the expansion of imaging capacity at MGPO Waltham through the addition of two 3T MRI units and one 384-slice CT unit and construction of shell space for potential future build-out to accommodate an additional MRI unit as demand warrants.

Quality: Studies have shown that patients receiving care in ambulatory care settings – including medical offices and clinics, diagnostics imaging centers, ambulatory surgery centers, and hospital outpatient departments –have high-quality outcomes, similar to patients who obtain these services in the inpatient setting. Given specialization by clinicians and their level of experience in specific fields, care is effective, timely and seamless in these ambulatory care settings. Moreover, MGPO Waltham follows various quality assurance programs and utilizes various quality assurance mechanisms to ensure patients receive high-quality, patient-focused imaging and related diagnostic and support care.

Efficiency: Both care and operating efficiencies may be created through the shift of appropriate patients to MGPO Waltham. This shift allows a greater number of appropriate patients to receive imaging services in a more cost-effective community setting and also allows MGH to free up hospital resources for critical patients that require immediate attention of medical personnel and quick access to MRI and CT technology. In turn, this will allow for effective management of utilization and resources, lower costs, and higher-quality outcomes. Moreover, the co-location of services leads to more efficient care as patients may receive all of their necessary oncology, surgery, and imaging services at one location, rather than traveling to different sites for the full complement of care.

Capital Expense: There are capital expenses associated with the implementation of two 3T MRIs and one 384-slice CT and the construction of shell space. The total capital expenditure cost for this model is $15,702,815.

Operating Costs: The first-year incremental operating expense of the Proposed Project is $4,836,588. By Year 5, after full "ramp-up" of the expanded imaging capacity, operating costs are estimated at $7,233,807.

List alternative options for the Proposed Project:

Option 1

Alternative Proposal: The first alternative for the Proposed Project would be to forego any expansion of 3T MRI and 384-slice CT technology and sustain the current fleet of MRI and CT units across MGPO and MGH's locations.

Alternative Quality: This is not a feasible solution, as demand for services, wait times, patient experience, and convenience would not be addressed and would have a negative impact on MGPO and MGH patients alike. Moreover, the benefits of co-located oncology, surgery, and 3T MRI and 384-slice CT services at MGPO Waltham would not be realized. The benefits of having co-located services are outlined in various sections throughout this narrative.

Alternative Efficiency: This alternative would be inefficient because it would not provide additional access to services, nor would it create operating efficiencies that may be achieved through co-location of 3T MRI and 384-slice CT services with oncology and surgery care.

Alternative Capital Expenses: Although this alternative will allow the Applicant to forego construction costs, it will have an overall negative impact on access, efficiency, quality of care, and patient and provider satisfaction. Moreover, the expense of not expanding 3T MRI and 384-slice CT capacity may impact many local Waltham-based residents who receive imaging care at MGPO Waltham because the cost of care may be increased through the need for trial and error of treatment plans developed without the benefit of the detailed imaging the 3T MRI and 384-slice CT can offer.

Alternative Operating Costs: There would be no operating costs associated with sustaining the current fleet of MRI and CT units and foregoing any expansion. However, this alternative will not afford the Applicant with any operational efficiencies as the current MGH and MGPO machine will continue to operate near-capacity thereby leading to inefficient and ineffective patient access. Moreover, oncology and surgery patients at MGPO Waltham will suffer from care fragmentation (i.e. will have to travel to geographically separate locations for the full continuum of imaging, oncology, and surgery care), which is an important source of inefficiency in the US healthcare system.

Option 2

Alternative Proposal: The other alternative for the Proposed Project would be to implement the two 3T MRI units and one 384-slice CT unit at MGH's main campus in Boston to meet demand for imaging patients.

Alternative Quality: MGH has excellent quality scores associated with imaging services, and as a result, quality outcomes would be the same. However, patient experience and convenience would not be addressed as the new capacity would be on MGH's main campus in Boston, thereby requiring patients to travel into the city and deal with traffic, inner-city congestion, and expensive parking in order to receive care. Moreover, the benefits of co-located oncology, surgery, and 3T MRI and 384-slice CT services at MGPO Waltham would not be realized. The benefits of having co-located services are outlined in various sections throughout this narrative.

Alternative Efficiency: Building out these services on MGH's main campus would be inefficient, as it would not create operating or cost efficiencies. Moreover, this alternative would not create operating efficiencies that may be achieved through co-location of 3T MRI and 384-slice CT services with oncology and surgery care at MGPO Waltham.

Alternative Capital Expenses: The capital costs associated with expanding these services at MGH is approximately 20% more than expanding imaging services at MGPO Waltham. These increased costs are due to construction costs associated with infrastructure upgrades and renovations that would be required at MGH to accommodate the additional units.

Alternative Operating Costs: The operating costs associated with expanded imaging services at MGH's main campus would be greater than at MGPO Waltham given overhead would be higher at MGH's main campus (e.g., staffing costs and the difference in MPFS and hospital fees).

Attachment/Exhibit

2

Total PHS Patient Panel

	FY15		FY16		FY17		FY18 YTD	
	Count	%	Count	%	Count	%	Count	%
PHS Total	1,411,639		1,410,972		1,413,928		1,220,844	
Gender								
Female	764,690	54.2%	809,419	57.4%	816,490	57.7%	718,477	58.9%
Male	536,921	38.0%	572,036	40.5%	582,584	41.2%	502,233	41.1%
Other/Unknown	110,028	7.8%	29,517	2.1%	14,854	1.1%	134	0.0%
Age								
0-17	133,969	9.5%	150,598	10.7%	162,979	11.5%	142,786	11.7%
18-64	805,791	57.1%	854,380	60.6%	868,434	614.0%	755,182	61.9%
65+	361,956	25.6%	376,565	26.7%	367,746	26.0%	322,811	26.4%
Unknown	109,923	7.8%	29,429	2.1%	14,769	1.0%	65	0.0%
Race								
American Indian or Alaska Native	1,442	0.1%	1,475	0.1%	1,560	0.1%	1,480	0.1%
Asian	52,090	3.7%	54,281	3.8%	57,148	4.0%	48,659	4.0%
Black or African American	74,811	5.3%	77,816	5.5%	79,159	5.6%	66,277	5.4%
Hispanic/Latino	31,067	2.2%	25,545	1.8%	24,111	1.7%	20,320	1.7%
Native Hawaiian or Other Pacific Islander	989	0.1%	1,059	0.1%	1,174	0.1%	940	0.1%
Other/Unknown	301,393	21.4%	262,994	18.6%	250,738	17.7%	212,080	17.4%
White	949,847	67.3%	987,802	70.0%	1,000,038	70.7%	871,088	71.4%
Patient Origin								
HSA_1	11,359	0.8%	12,449	0.9%	13,447	1.0%	73,271	6.0%
HSA_2	45,244	3.2%	47,080	3.3%	47,230	3.3%	39,038	3.2%
HSA_3	80,430	5.7%	88,535	6.3%	91,305	6.5%	73,379	6.0%
HSA_4	613,414	43.5%	626,999	44.4%	638,682	45.2%	543,890	44.6%
HSA_5	163,488	11.6%	203,130	14.4%	209,669	14.8%	168,008	13.8%
HSA_6	241,562	17.1%	248,031	17.6%	247,783	17.5%	209,094	17.1%
In MA but not in HSA 1-6	183	0.0%	103	0.0%	78	0.0%	28	0.0%
Outside of MA	127,607	9.0%	139,778	9.9%	144,453	10.2%	109,952	9.0%
Unknown	128,352	9.1%	44,867	3.2%	21,281	1.5%	4,184	0.3%

*YTD: Pulled 6/21/2018

Total MGH/MGPO Patient Panel

	FY15		FY16		FY17		FY18 YTD	
	Count	%	Count	%	Count	%	Count	%
MGH Total	547,746		563,497		563,998		459,504	
Gender								
Female	303,858	55.5%	312,839	55.5%	312,539	55.4%	255,015	55.5%
Male	243,788	44.5%	250,582	44.5%	251,412	44.6%	204,461	44.5%
Other/Unknown	100	0.0%	76	0.0%	47	0.0%	28	0.0%
Age								
0-17	64,744	11.8%	72,950	12.9%	78,844	14.0%	66,066	14.4%
18-64	328,917	60.0%	336,816	59.8%	336,328	59.6%	272,133	59.2%
65+	154,029	28.1%	153,686	27.3%	148,815	26.4%	121,297	26.4%
Unknown	56	0.0%	45	0.0%	11	0.0%	8	0.0%
Race								
American Indian or Alaska Native	523	0.1%	545	0.1%	514	0.1%	463	0.1%
Asian	26,161	4.8%	27,349	4.9%	28,234	5.0%	23,467	5.1%
Black or African American	29,731	5.4%	30,528	5.4%	30,033	5.3%	23,889	5.2%
Hispanic/Latino	5,347	1.0%	5,167	0.9%	5,076	0.9%	4,178	0.9%
Native Hawaiian or Other Pacific Islander	249	0.0%	273	0.0%	299	0.1%	238	0.1%
Other/Unknown	74,089	13.5%	77,683	13.8%	82,155	14.6%	70,215	15.3%
White	411,646	75.2%	421,952	74.9%	417,687	74.1%	337,054	73.4%
Patient Origin								
HSA_1	5,871	1.1%	6,345	1.1%	6,599	1.2%	5,527	1.2%
HSA_2	16,588	3.0%	17,701	3.1%	17,922	3.2%	14,189	3.1%
HSA_3	31,131	5.7%	31,933	5.7%	32,233	5.7%	26,327	5.7%
HSA_4	264,302	48.3%	270,401	48.0%	274,363	48.6%	233,664	50.9%
HSA_5	55,151	10.1%	57,502	10.2%	55,833	9.9%	39,550	8.6%
HSA_6	102,727	18.8%	104,320	18.5%	100,281	17.8%	80,463	17.5%
In MA but not in HSA 1-6	52	0.0%	33	0.0%	22	0.0%	9	0.0%
Outside of MA	68,419	12.5%	71,676	12.7%	73,565	13.0%	57,843	12.6%
Unknown	3,505	0.6%	3,586	0.6%	3,180	0.6%	1,932	0.4%

* YTD: Pulled 6/21/2018

MGH/MGPO (MRI) Patient Panel

	FY15		FY16		FY17		FY18Q1	
	Count	%	Count	%	Count	%	Count	%
MGH/MGPO (MRI) Total	41,400		47,807		45,554		14,111	
Gender								
Male	18,647	45.0%	20,996	43.9%	19,600	43.0%	5,928	42.0%
Female	22,751	55.0%	26,811	56.1%	25,954	57.0%	8,183	58.0%
Other/Unknown	2	0.0%	0	0.0%	0	0.0%	0	0.0%
Age								
0-17	2,208	5.3%	2,472	5.2%	2,319	5.1%	781	5.5%
18-64	27,402	66.2%	31,881	66.7%	30,273	66.5%	9,312	66.0%
65+	11,784	28.5%	13,454	28.1%	12,962	28.5%	4,016	28.5%
Unknown	10	0.0%	6	0.0%	0	0.0%	0	0.0%
Race								
White	26,968	65.1%	29,101	60.9%	25,997	57.1%	7,773	55.1%
Black or African American	1,631	3.9%	1,724	3.6%	1,603	3.5%	455	3.2%
American Indian or Alaska Native	23	0.1%	30	0.1%	28	0.1%	10	0.1%
Asian	1,334	3.2%	1,439	3.0%	1,256	2.8%	394	2.8%
Native Hawaiian or Other Pacific Islander	10	0.0%	8	0.0%	10	0.0%	5	0.0%
Hispanic/Latino	432	1.0%	437	0.9%	352	0.8%	87	0.6%
Other/Unknown	11,002	26.6%	15,068	31.5%	16,308	35.8%	5,386	38.2%
Patient Origin								
Zip codes w/in 8 miles of Waltham (02451)	7,415	17.9%	23,341	17.2%	7,887	17.3%	2,456	17.4%
Zip codes outside 8 miles of Waltham (02451)	33,985	82.1%	24,466	82.8%	37,667	82.7%	11,655	82.6%

*In FY16, there was an EHR conversion and a technology overhaul. This resulted in a change in how data is collected. The FY16 data reported here was obtained by merging Legacy and Epic data. Accordingly, there may be a slight overcounting in FY16.

MGH/MGPO (CT) Patient Panel

	FY15		FY16		FY17		FY18Q1	
	Count	%	Count	%	Count	%	Count	%
MGH/MGPO (CT) Total	54,951		65,767		59,745		20,367	
Gender								
Male	27,321	49.7%	31,853	48.4%	28,684	48.0%	9,772	48.0%
Female	27,624	50.3%	33,910	51.6%	31,061	52.0%	10,593	52.0%
Other/Unknown	6	0.0%	4	0.0%	0	0.0%	2	0.0%
Age								
0-17	824	1.5%	664	1.0%	594	1.0%	183	0.9%
18-64	30,678	55.8%	35,634	54.2%	32,517	54.4%	10,648	52.3%
65+	23,449	42.7%	29,328	44.6%	26,338	44.1%	9,471	46.5%
Unknown	0	0.0%	141	0.2%	296	0.5%	65	0.3%
Race								
White	32,868	59.8%	38,623	58.7%	33,333	55.8%	11,271	55.3%
Black or African American	2,086	3.8%	2,353	3.6%	2,107	3.5%	672	3.3%
American Indian or Alaska Native	29	0.1%	37	0.1%	29	0.0%	14	0.1%
Asian	1,345	2.4%	1,492	2.3%	1,264	2.1%	421	2.1%
Native Hawaiian or Other Pacific Islander	13	0.0%	13	0.0%	14	0.0%	5	0.0%
Hispanic/Latino	509	0.9%	520	0.8%	440	0.7%	127	0.6%
Other/Unknown	18,100	32.9%	22,729	34.6%	22,554	37.8%	7,857	38.6%
Patient Origin								
Zip codes w/in 8 miles of Waltham (02451)	8,145	14.8%	32,455	14.4%	8,816	14.8%	2,959	14.5%
Zip codes outside 8 miles of Waltham (02451)	46,806	85.2%	33,312	85.6%	50,929	85.2%	17,408	85.5%

*In FY16, there was an EHR conversion and a technology overhaul. This resulted in a change in how data is collected. The FY16 data reported here was obtained by merging Legacy and Epic data. Accordingly, there may be a slight overcounting in FY16.

MGH/MGPO MRI/CT Prevalence

Most Prevalent (Top 10) ICD 9/10 Codes for Patients Seeking MRI Services					
FY15		FY16		FY17	
DX Code	Count	DX Code	Count	DX Code	Count
348.89	53	C79.51	246	C79.51	280
780.4	50	M89.8X8	184	R51	182
784.0	49	R51	169	M54.9	161
C79.51	46	R42	152	R42	147
R51	45	R60.0	150	I63.9	143
784.2	44	G93.89	150	R60.0	142
733.90	44	I63.9	145	C71.9	129
434.91	43	M54.9	143	Z01.818	128
M89.9	42	Z01.818	140	G95.9	123
336.9	42	R53.1	136	R93.0	121

*ICD9 converted to ICD10 in October 2015, resulting in a mix of both data sets.

Most Prevalent ICD 9/10 Codes for Patients Seeking CT Services					
FY15		FY16		FY17	
DX Code	Count	DX Code	Count	DX Code	Count
793.11	86	Z01.818	291	C79.51	302
793.19	84	R59.0	279	R59.0	283
784.2	83	C79.51	268	Z01.818	264
784.0	76	T14.90	258	R91.8	255
786.50	68	R91.8	244	R10.9	237
785.6	67	R91.1	220	M54.9	221
V71.4	61	R10.9	209	C34.90	207
723.1	60	C34.90	191	R50.9	194
R91.8	59	I71.4	184	R51	191
511.9	58	R50.9	179	R91.1	187

*ICD9 converted to ICD10 in October 2015, resulting in a mix of both data sets.

Attachment/Exhibit

3

MASSACHUSETTS GENERAL HOSPITAL

CANCER CENTER

Patient & Family Advisory Council
Wednesday, June 13, 2018
5:30pm
Proton Center, Goitein Conference room

5 PM: **Dinner**

5:30pm: Meeting begins

5:40pm: Waltham Radiology expansion project, Jeremy Herrington MHA, RT; Director of Clinical Operations, MRI & Off-Campus Imaging; Department of Radiology

6:00pm Cancer Center Updates with Mara Bloom

6:45pm: 2018 Goals

Announcements:

Survivorship Conference: June 16, 2018 at 9am to 1pm at the Simches Research Center, Charles River Plaza, 185 Cambridge St, 3rd Floor.

Attachment/Exhibit

4

Attachment/Exhibit

A

MGPO Waltham – MRI and CT Expansion Determination of Need
Community Health Initiative Narrative

A. Community Health Initiative Monies

The breakdown of Community Health Initiative ("CHI") monies for the proposed Project is as follows:

- Maximum Capital Expenditure: $15,702,815.00
- Community Health Initiative: $785,140.75 (5% of Maximum Capital Expenditure)
- CHI Administrative Fee to be retained: $23,554.22 (3% of the CHI monies)
- CHI Money – less the Administrative Fee: $761,586.53

- CHI Funding for Statewide Initiative: $190,396.63 (25% of CHI monies – less the administrative fee)
- Initial CHI Local Funding: $571,189.90 (75% of CHI monies – less the administrative fee))
- Evaluation Costs for the CHI: $57,118.99 (10% of Initial CHI Local Funding)
- Final CHI Local Funding to be Distributed via a Request for Proposal Process: $514,070.91 (Initial CHI Local Funding – less the evaluation costs)

B. Background Information

The Community Health Initiative ("CHI") processes and community engagement for the proposed Determination of Need ("DoN") Project will be conducted by Newton-Wellesley Hospital ("NWH") through its approved CHI process for the Mass General Waltham DoN (see attached Staff Report to the Public Health Council). Based on discussions with staff from the Department of Public Health ("Department"), specifically, Ben Wood, Director of the Office of Community Health Planning and Engagement, NWH will add these CHI Local Funding monies to the established Mass General Waltham Tier 2 CHI process, so that additional dollars may be distributed through a request for proposal ("RFP") process based on the health priorities and strategies selected by the Advisory and Allocation Committees. The timeline below revises the schedule of CHI activities submitted with and approved Mass General Waltham DoN by one month to account for the addition of more CHI Local Funding monies.

C. Timeline for CHI Activities

Upon a Notice of Determination of Need being issued by the Department of Public Health for the Proposed Project, additional monies will be added to the CHI Local Funding for the Mass General Waltham DoN. The revised timeline for CHI activities is as follows, please note this timeline accounts for all CHI activities for both the Mass General Waltham DoN and the MGPO Waltham – MRI and CT Expansion DoN:

- Ten – Twelve weeks post-approval[1] (end of August/beginning of September 2018): MGPO will submit its MGPO Waltham – MRI and CT Expansion DoN.
- Ten – Twelve weeks post-approval (end of August/beginning of September 2018): NWH will submit an updated Community Engagement Plan Form to the Department of Public Health outlining CHI engagement activities for the "Choose Effective Policies and Procedures," "Act on What's Important" and "Evaluate Actions" phases. To ensure

[1] Post-approval refers to the approval of the Mass General Waltham DoN.

appropriate engagement, it is critical that the NWH 2018 community health needs assessment ("CHNA") be finalized and approved by NWH's Community Benefits Committee ("CBC") and reviewed by the Advisory Committee.

- Ten – Twelve weeks post-approval (end of August/beginning of September 2018): The NWH 2018 community health needs assessment ("CHNA") will be finalized with Health Resources in Action ("HRiA") reporting to the CBC on the key findings from the CHNA and overall recommendations for focus areas. Additionally, NWH will direct HRiA to conduct a Dissemination of Results meeting with the Advisory Committee and the community at large to receive feedback on the findings.
- Three months post-approval (mid-September 2018): The CHI Advisory Committee (as constituted and described in the Applicant's Self-Assessment Form (Attachment 2 of the Mass General Waltham DoN) will begin meeting and reviewing the 2018 CHNA to commence the process of selecting Health Priorities.
- Four to Five months post-approval (mid-October/mid-November 2018): NWH will seek to work with an evaluator that will serve as a technical resource to applicants and grantees during the solicitation process, as well as evaluate planning processes.
- Four to Five months post-approval (mid-October/mid-November 2018): The Advisory Committee will meet at least three times to discuss health priorities. After these meetings, the Advisory Committee will select the final health priorities for funding.
- Five to Six months post approval (mid-November/mid-December 2018): The Advisory Committee will complete a conflict of interest process to determine which members are eligible to participate in the Allocation Committee. The Allocation Committee will review the health priorities and select strategies for CHI funding. The Health Priorities and Strategies Form will be returned to the Department of Public Health for review and approval.
- Seven to Eight months post-approval (mid-January to mid-February 2019): a decision will be made by the Department of Public Health on the MGPO Waltham – MRI and CT Expansion DoN; if approved the CHI monies will be added to NWH's existing Tier 2 CHI processes and activities.
- Eight to Nine months post-approval (mid-February/mid-March 2019): Upon approval of the Health Priorities and Strategies Form by the Department of Public Health, the Allocation Committee will begin developing the request for proposal ("RFP") process and determining how this process will work in tandem with NWH's current grant efforts.
- Nine to Eleven months post-approval (mid-March to mid-May 2019): The RFP for funding will be released.
- Twelve months post-approval (mid-June 2019): Bidders conferences will be held on the RFP with technical assistance resources present.
- Thirteen months post-approval (mid-July 2019): Responses will be due for the RFP.
- Fourteen months post-approval (with allowance for an additional two months if Committee Members are not available in summer months post-approval (mid-August 2019): Funding decisions will be made, and the disbursement of funds begins.
- Ongoing: Evaluation of CHI and Reporting to the Department on an annual basis.

The aforementioned process is longer than the process outlined in the DoN Guidelines for Tier 2 projects and extends the Mass General Waltham CHI Timeline by one month. However, given NWH's previous experience with RFP processes, staff feel strongly that it will take nine to eleven months to develop a RFP process that is transparent, fair and appropriate.

D. Request for Additional Years of Funding

NWH is seeking additional time to carry out the disbursement of funds for CHI. Based on NWH's 2018 CHNA, as well as previous experience with providing grant funding, NWH will offer larger, potentially multi-year grants with CHI funding. Consequently, NWH is seeking to disburse these monies over a 3-5-year period to ensure the greatest impact for the largest number of individuals.

E. Evaluation Overview

NWH is seeking to use up to 10% of Local CHI Funding (up to $57,118.99) for evaluation efforts. These monies will allow NWH to engage a third-party evaluator to carry out technical assistance and ensure appropriate evaluation of the CHI-funded projects.

Attachment/Exhibit

B

STAFF REPORT TO THE PUBLIC HEALTH COUNCIL FOR A DETERMINATION OF NEED	
Applicant Name	Partners HealthCare System, Inc.
Applicant Address	800 Boylston Street, Suite 1150 Boston, MA 02199
Date Received	February 22, 2018
Type of DoN Application	Substantial Capital Expenditure
Total Value	$30,504,587
Ten Taxpayer Group (TTG)	None
Community Health Initiative (CHI)	Total CHI: $1,525,229 Statewide Contribution: $369,868 Administrative/CommunityEngagement Allowance: $45,756 CHI Local Health Priority Strategy Funding: $1,109,604
Staff Recommendation	Approval
Public Health Council (PHC) Meeting Date	June 13, 2018

Project Summary and Regulatory Review

Partners HealthCare System, Inc. (Partners or the Applicant) submitted a Determination of Need (DoN) application for a substantial capital expenditure to expand ambulatory surgical services at Mass General Waltham (MG Waltham), which is located at 40 Second Avenue in Waltham. MG Waltham is a licensed satellite of Mass. General Hospital. Partners intends to buildout, within the existing building, six additional ambulatory surgery operating rooms, 21 perioperative bays with support space, and 9,881 gross square feet (GSF) of additional shell space for future build-out as demand warrants. The capital expenditure for the Proposed Project is $30,504,587.

Applications for substantial capital expenditures are reviewed under the DoN regulation 105 CMR 100.000. Under the regulation, the Department must determine that need exists for a Proposed Project, on the basis of material in the record, where the Applicant makes a clear and convincing demonstration that the Proposed Project meets each Determination of Need factor set forth within 105 CMR 100.210. This staff report addresses each of the six factors set forth in the regulation.

The Department received no public comment on the application.

Background

MG Waltham is a licensed satellite of Massachusetts General Hospital (MGH) which is, in turn, an affiliate of Partners HealthCare System, Inc. (Partners). Partners is the Applicant for this DoN. The MG Waltham site currently houses physician services that include: advanced imaging, primary care, and specialty physician services as well as hospital satellite-based services: including oncology/infusion, blood laboratory, pharmacy, rheumatology, vascular, physical and occupational therapies, and ambulatory surgery services for orthopedics, plastic surgery and pain management. There are four operating rooms on the second floor where these surgeries are performed. If approved, the Applicant proposes to build-out six additional ambulatory surgery operating rooms, and 21 perioperative bays with support space along with 9,881 gross square feet (GSF) of additional shell space for future build-out as demand warrants (together, the "Proposed Project").

The Proposed Project will add capacity to enable MG Waltham to offer 750 additional types of lower-acuity outpatient-appropriate procedures across gynecology, urology, general surgery, orthopedics, surgical oncology, and interventional radiology. These are all procedures that are currently performed at MGH's main campus but not currently offered at MG Waltham's Ambulatory Surgery Center (ASC) location and which Partners proposes to shift to MG Waltham. The Applicant asserts that approval of the Proposed Project will allow it to meet the increased demand from its patient panel for a broad range of approved outpatient surgical procedures in a setting that is more efficient, convenient and lower cost than at the hospital outpatient department (HOPD) at the MGH main campus.[1]

Analysis

This analysis and recommendation reflect the purpose and objective of DoN which is "to encourage competition and the development of innovative health delivery methods and population health strategies within the health care delivery system to ensure that resources will be made reasonably and equitably available to every person within the Commonwealth at the lowest reasonable aggregate cost advancing the Commonwealth's goals for cost containment, improved public health outcomes, and delivery system transformation" 105 CMR 100.001.

All DoN factors are applicable in reviewing a capital expenditure Proposed Project. This Staff Report addresses each of these factors in turn.

Factors 1 and 2

Factor 1 of the DoN regulation asks that the Applicant address patient panel need, public health value, and operational objectives of the Proposed Project, while Factor 2 focuses on health priorities. Under factor 1, the Applicant must provide evidence of consultation with government agencies who have licensure, certification or other regulatory oversight which, in this case, has been done and so will not be addressed further in this staff report. This analysis will approach the remaining requirements of factors 1 and 2 by describing each element of the Proposed Project and how each element complies with those parts of the regulation.

Patient Panel, Need, and Projected Growth

In 2016, Partners' patient panel consisted of approximately 1.3 million patients, which represented 19% of all discharges in Massachusetts that year. Most of Partners patients (77%) reside in the eastern part of the

[1] Partners operates another outpatient satellite nearby. That facility, a licensed satellite of the Newton-Wellesley Hospital, is located in a leased building. Partners states that it does not have the ability to expand at that site because of lease terms as well as parking capacity.

state. Partners' patient mix is approximately 41% male and 58% female; based upon self-reporting, the racial mix is largely Caucasian, with 4% identifying as African American-Black and 17% not reporting at all. Sixty-one percent of the patient panel is between ages 18 and 64, and 26% is 65 years or older.

Partners maintains that the growing demand for outpatient procedures is driven, in part, by improvements in the administration of anesthesia and analgesics and the development and expansion of many minimally invasive or non-invasive procedures across many specialties.[2] [3] Partners argues that providing access to a broader range of high-quality surgical services in an ASC, rather than at the MGH main campus, will be more efficient, cost-effective and convenient and will result in higher patient and provider satisfaction. Partners looked at types of surgeries performed at MGH and determined which of those would have been clinically appropriate for an ASC. This analysis indicated that annually, over 11,000 patients who received outpatient surgery in oncology, gynecology, orthopedics, urology, and general surgery could have been treated in an ASC.[4]

Partners also argues that its patient panel need for outpatient surgery will increase as a result of population forecasts; that by 2035, approximately a quarter of the population will be age 65 and older; and that approximately half of the population over the age of 65 will require surgery at least once in their lifetime.[5] [6] Approximately 53% of all surgical procedures are performed on patients age 65 or older.[7] Partners asserts that this cohort of older patients is likely to experience a higher incidence of a broad range of lower acuity conditions for which treatment in an ambulatory surgery setting is beneficial to patients, and generally at a lower cost.

Partners states that the projected increased need by its patient panel has driven its efforts to expand access for outpatient-appropriate services at an ASC, and for that ASC to serve as a community-based alternative to the existing HOPDs located at MGH and system-wide. Since the existing ambulatory surgical capacity at MG Waltham was not sufficient to accommodate the projected increase in demand and types of procedures, Partners determined that shell space at the MG Waltham site could be effectively and efficiently built-out to accommodate that projected increase and that doing so met other quality and cost goals.

Public Health Value

The DoN regulation requires the Applicant to demonstrate that the Proposed Project will add measurable public health value in terms of improved health outcomes and quality of life for the existing patient panel, while providing reasonable assurances of health equity.

Partners maintains that by having sufficient capacity to meet the outpatient surgery needs of their patient panel in a lower cost ASC rather than a hospital-based setting, it will increase access, maintain high quality,

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[2] At the same time, the Centers for Medicare and Medicaid Services (CMS) approved Medicare reimbursement for ambulatory surgery performed both at Hospital Outpatient Departments (HOPDs) and ambulatory surgery centers (ASCs).

[3] Margaret J. Hall et al., *Ambulatory Surgery Data From Hospitals and Ambulatory Surgery Centers: United States, 2010,* 102 NATL HEALTH STATISTICS REPORTS 1 (2017), at https://www.cdc.gov/nchs/data/nhsr/nhsr102.pdf

[4] Of the identified surgeries performed that could have been shifted to an outpatient setting nearly 30% of were for the 65+ age cohort. Partners expects this percentage to increase as the range of lower acuity procedures offered in the ASC setting expands.

[5] University of Massachusetts Donahue Institute http://www.donahue.umassp.edu/business-groups/economic-public-policy-research/massachusetts-population-estimates-program/population-projections

[6] Relin Yang et al., *Unique Aspects of the Elderly Surgical Population: An Anesthesiologist's Perspective*, 2 GERIATRIC ORTHOPAEDIC SURGERY & REHABILITATION 56 (2011), at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3597305/

[7] Judith S. L. Partridge et al., *Frailty in the older surgical patient: a review*, 41 AGE AND AGEING 142 (2012), available at https://academ ic.oup.com/ageing/article/41/2/142/47699

offer continued care coordination, including connection with primary care, and improve efficiency for patients and providers.

The ASC model is centered on uniformity of procedures performed within a scheduled block of time. Generally, one surgeon works with the same clinical team for the entire block of time performing multiple, very similar types of procedures. The team develops a specialized skill-set and works in a facility designed and equipped to meet the specific needs of ambulatory surgical patients, which, Partners says, generates efficiencies and cost-savings due to reduced procedure times as compared to a similar procedure performed in a HOPD.[8]

Partners asserts that mixing the lower acuity surgeries with higher acuity procedures at the MGH campus can result in delays when acute cases take precedence over elective procedures for operating room time. These delays can lead to unnecessary expenses; anxiety and inconvenience for patients and their families; compromise plans for the care of patients upon discharge; and result in inefficiencies in the use of resources. Partners argues that having the majority of the lower acuity, outpatient appropriate procedures located at MG Waltham will remove barriers to access related to scheduling and transportation, save money, improve efficiencies and result in improved outcomes and greater patient and family satisfaction.[9]

Competitiveness and Cost Containment

Partners asserts that the expansion of surgical services at MG Waltham and shifting lower acuity patients from the HOPD at MGH will reduce health care spending. Patients at an ASC spend most of the time preparing for and recovering from surgery (rather than having surgery) and thus, the organization, staffing and specialization at an ASC can result in cost differences between ASCs and HOPDs. [10]

Partners asserts that reducing the time per procedure will generate cost savings as well as more effectively manage utilization of system-wide resources. Partners states that on average, procedures performed in ASCs take 25% less time relative to the mean procedure time at a HOPD. Citing a 2014 study published in *Health Affairs* that suggests that ASCs are a lower-cost alternative to hospitals for outpatient surgical procedures,[11] Partners asserts that shifting outpatient appropriate surgery from the HOPD to an ASC will reduce delays, reduce costs, and increase capacity.

Community Engagement

Prior to submitting a DoN application, the DoN Regulation requires applicants to have engaged and consulted with the community. The Community Engagement Guide describes community engagement processes on a continuum from "Inform" and "Consult" through "Community driven-led."[12] For the purposes of factor 1, engagement defines "community" as the Patient Panel, and requires that the minimum level of engagement for this step is "Consult."[13] During the planning phase of the Proposed Project, MGH engaged patients, local residents, and resident groups affected by the Proposed Project by hosting a community forum and through presenting the Proposed Project at the Patient Perspective on

[8] AMBULATORY SURGERY CENTERS: A POSITIVE TREND IN HEALTH CARE (Ambulatory Surgery Center Ass'n), available at http://www.ascassociation.org/advancingsurgicalcare/aboutascs/industryoverview/apositivetrendinhealthcare
[9] While the goal is to shift most of the patients to Waltham, some will continue to be served at the main campus.
[10] Elizabeth L. Munnich & Stephen T. Parente, *Procedures Take Less Time At Ambulatory Surgery Centers, Keeping Costs Down And Ability To Meet Demond Up*, 33 HEALTH AFFAIRS 764 (2014), available athttps://doi.org/10.1377/hlthaff.2013.1281.
[11] Id.
[12] https://www.mass.gov/files/documents/2017/01/vr/guidelines-community-engagement.pdf
[13] Id at Page 13

Perioperative Care Committee at MGH.[14] Partners reports that feedback was positive and supportive of the plan, and the group expressed no concerns. DoN staff reviewed the slides and minutes of these meetings and found that in the context of factor 1 the Applicant met the community engagement standards in the planning phase of the Proposed Project.

Factor 3

Partners has certified that it is in compliance and in 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.

Factor 4

Under factor 4, the Applicant must demonstrate that it has sufficient funds available for capital and operating costs necessary to support the Proposed Project without negative effects or consequences to the existing patient panel. Documentation sufficient to make such finding must be supported by an analysis by an independent CPA. The Applicant submitted such an analysis performed by Bernard L. Donohue, III, CPA, (Donohue) dated January 4, 2018 (CPA Report).

In order to assess the reasonableness of assumptions used, and the feasibility of the projections for the construction and build-out, the CPA Report reflects a review and analysis of the Applicant's draft audited financial statements, current financial position, and other public information about the organization. Five-year *pro forma* financial projections were reviewed in relation to the most current two-year financial performance of Partners and MG Waltham and were determined by Donohue to be based on reasonable assumptions. In review of the net patient service revenue (NPSR), Donohue reports that the Proposed Project would represent approximately 0.073% and 0.166% in 2020 and 2022 respectively, of Partners' NPSR. Donohue also analyzed each category of operating expenses for reasonableness and feasibility and concluded that the operating expenses from the Proposed Project represent approximately 0.109% and 0.171% respectively in 2020 and 2022.

Donohue found both the revenue and operating expense projections to be reasonable. The impact of adding six additional operating rooms and 21 perioperative bays are projected to increase total operating margins for Partners' overall by 0.1% in 2022. Donohue also analyzed the capital expenditures and cash flows to determine whether Partners would have sufficient funds and cash flow for the Proposed Project, in light of its other financial obligations. Based on that review, Donohue stated that the capital obligations, expenditures, and resulting impact on cash flows are reasonable.

The CPA Report found that because the impact of the proposed capital project represents a relatively insignificant portion of the operations and financial position of Partners, it determined that the projections are not likely to result in insufficient funds available for any capital and ongoing operating costs necessary

[14] The Perspective on Perioperative Care Committee is comprised of patients and members from MGH's General Patient Family Advisory Council ("G-PFAC"), and is dedicated to fostering a partnership among patients, families, and staff to support the strategic goals and initiatives of MGH. The MGH G-PFAC was formed in 2011 to advance patient experience and promote patient and family involvement in all aspects of hospital operations. It has an enterprise-wide focus, including in and outpatient operations, across the continuum of care, and is comprised of a dedicated group of patient and family members who have experienced many different aspects of care and services at MGH and who volunteer their time, expertise and input, to make care even better. Meeting monthly throughout the year, the Council is co-chaired by a patient member and staff, and as part of its oversight, G-PFAC members participate in committees and task forces at MGH.

to support the Proposed Project. Therefore, it determined that the Proposed Project is financially feasible, within the financial capability of Partners and based upon feasible financial assumptions.

Factor 5

Factor 5 requires the Applicant to "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 and addressing, at a minimum, the quality, efficiency, and capital and operating costs of the Proposed Project relative to potential alternatives or substitutes."

The Proposed Project is a build-out within an existing multi-use clinical structure at MG Waltham. The Applicant looked at the relative merit of building the additional ORs and perioperative space at each of MGH main campus and Charles River plaza as well as expanding the hours of operation at the main campus site. Expansion at the main campus or at the Charles River plaza site were dismissed as capital and operating costs would have been significantly higher at either site; accessibility to the sites would be difficult; and the reduced costs, and added convenience and efficiencies of a free-standing site would not be achieved. The Applicant asserts that the Proposed Project is the superior option because it meets anticipated increased demand, and it will continue to provide efficient, high quality services in a site specifically designed and equipped for the surgeries to be provided with a specialized team. With more capacity, Partners argues, more patients will gain greater access to the multi-specialty services that the site offers such as onsite free parking, pharmacy and cost effective care with efficient patient flow.[15]

Factor 6

The Community Health Initiative (CHI) component of the DoN regulation requires approval of the Applicant's plans for fulfilling its responsibilities set out in the Department's Community-based Health Initiatives Guideline (Guideline). This is a Tier 2 project in which the Applicant is required to and did submit documentation showing that the existing community health needs assessment (CHNA) and community health improvement planning (CHIP) processes both evidence a sound community engagement process and demonstrate an understanding of the DoN Health Priorities.

After approval by the Department of the DoN, the Applicant (then Holder of a DoN) will work with its Community Health Initiatives Advisory Board to select Health Priority strategies and funding. These processes, selection of the Health Priorities and funding decisions are conditions of the DoN and enforceable as such. Partners HealthCare, after consultation with DPH, is using the CHNA/CHIP processes from Newton-Wellesley Hospital (NWH) as the basis for planning and decision-making.[16]

In compliance with the requirements of the Guideline, and based on their own analysis, Partners Health Care submitted the following: a completed Community Engagement (CE) Self-Assessment form; four completed Stakeholder Assessment forms; a completed Community Engagement Plan (CEP); and NWH's 2015 CHNA/CHIP. At the time of this Application, NWH had recently begun a new CHNA/CHIP (to be published in 2018), and it is that 2018 CHNA/CHIP that will serve as the basis for Health Priority Strategy Selection and implementation. Upon review of the CEP submitted at the time of Application, DPH

[15] See, FN[1], supra for an explanation of why expansion at this site was the superior alternative to expanding the existing ambulatory surgery capacity at the nearby Newton-Wellesley Hospital satellite.

[16] MG Waltham is a satellite of an acute care hospital and therefore is not required to comply with community benefits related CHNA/CHIP processes as determined by the IRS or the Massachusetts Attorney General's Office. Newton-Wellesley Hospital (NWH) has overlapping service areas with MG Waltham and is the most relevant hospital within the Partners system for any community health planning activity. DPH has agreed that this and future Community Health Initiatives arising from MG Waltham will use the CHNA/CHIP processes of NWH.

determined that the Applicant needed to and did complete a new CEP which would focus on the first two stages of the CHNA/CHIP process: "Assess Needs and Resources"; and "Focus on What's Important". By doing this, the Applicant is describing the CE process they will undergo for the completion of the 2018 CHNA. The Applicant will then (as a Holder of a DoN) submit revised CEP detailing community engagement activities for the latter stages of the CHNA/CHIP process.

DPH staff found that the revised CEP (Attachment 1) meets minimum standards and will be used as the basis for actions and reporting post-PHC approval of the DoN project. Compliance with the CEP is a condition to this DoN.

CHI Conditions to the DoN

1. Of the total CHI contribution of $1,525,229 an Administrative Allowance of $45,756 (for community engagement activities and management of RFP related processes) will be taken by the Applicant. An additional $369,868 will be directed to the CHI Statewide Initiative and $1,109,604 will be dedicated to local approaches to the DoN Health Priorities. To comply with the Holder's obligation to contribute to the Statewide CHI Initiative, the Holder must submit a check for $369,868 to Health Resources in Action (the fiscal agent for the CHI Statewide Initiative). The Holder must submit the funds within one month from the date of this Notice of Approval. The Holder must promptly notify DPH (CHI contact staff) when the payment has been made.

2. For this DoN CHI, the Applicant and the Department have agreed to certain post PHC approval steps and a timeline (Attachment 2). The timeline is based upon certain assumptions:
    a. The timeline assumes NWH completes its' CHNA in mid-2018 and,
    b. Reflects discussions with the Applicant of plans for another and forthcoming DoN Application that will be based at Mass General Waltham and for which the Applicant/Holder will engage in a combined CHI planning process for both projects.

    If that Application is not received or it is not approved, the timeline will be revised to be in line with the timelines described in the CHI Planning Guideline. Compliance with the timeline agreed to with DPH staff is a condition of this DoN.

3. The Applicant will implement the Community Engagement Plan attached hereto as Attachment 1.

Findings and Recommendations

The Applicant has provided evidence that the Proposed Project is likely to improve patient access to care in a lower cost setting by accommodating both the current demand for a broad range of lower acuity procedures that are now performed at MGH's main campus, and anticipated demands of the aging patient panel for the surgical procedures offered. The Applicant complies with factor 3; based upon the CPA analysis, the Proposed Project is financially feasible in the context of factor 4; expansion within an existing facility is, on balance, the superior alternative for meeting the existing Patient Panel needs from the perspective of quality, efficiency, and capital and operating costs as required by factor 5; and the Applicant is in compliance with the requirements of the CHI planning process for the purposes of factor 6 subject to the CHI Conditions and Timeline and the Community Engagement Plan pursuant to 105 CMR 100.310(J).

Based upon a review of the materials submitted, Staff finds that the Applicant has met each DoN factor and recommends that the Department approve this Determination of Need application for an operating room expansion including pre and post-operative care rooms and shell space subject to all standard conditions (105 CMR 100.310). In compliance with the provisions of 105 CMR 100.310(L) and (Q), which require a

report to the Department, at a minimum on an annual basis, including the measures related to achievement of the DoN factors for a period of five years from completion of the Proposed Project, the Holder shall address its assertions with respect to the cost and quality and access benefits of outpatient surgery, as well as the shift of lower acuity procedures from MGH main campus to MG Waltham, with specificity and with associated metrics.

ATTACHMENT 1

Community Engagement Plan

ATTACHMENT 2

CHI Timeline

- Four weeks post-approval or sooner (July): NWH will submit an updated Community Engagement Plan Form to the Department of Public Health outlining CHI engagement activities for the "Choose Effective Policies and Procedures", "Act on What's Important" and "Evaluate Actions" phases. At that time, Newton-Wellesley Hospital will report on the community engagement activities described in the Community Engagement Plan.
- Six weeks post-approval (late July): The NWH 2018 community health needs assessment ("CHNA") will be finalized with Health Resources in Action ("HRiA") reporting to the Community Benefits Committee ("CBC") on the key findings from the assessment and overall recommendations for focus areas. Additionally, NWH will direct HRiA to conduct a Dissemination of Results meeting with the Advisory Committee and the community at large to receive feedback on the findings.
- Two months post-approval (mid-August): The CHI Advisory Committee (as constituted and described in the Applicant's Self-Assessment Form (Attachment 2) will begin meeting and reviewing the 2018 CHNA to commence the process of selecting Health Priorities.
- Three to four months post-approval (mid-September to mid-October): NWH will seek to work with an evaluator that will serve as a technical resource to applicants and grantees during the solicitation process, as well as evaluate planning processes.
- Three to four months post-approval (mid-September to mid-October): The Advisory Committee will meet at least three times to discuss health priorities. After these meetings, the Advisory Committee will select the final health priorities for funding.
- Four to five months post approval (mid-October to mid-November): The Advisory Committee completes a conflict of interest process to determine which members are eligible to participate in the Allocation Committee. The Allocation Committee reviews the health priorities and selects strategies for CHI funding. The Health Priorities and Strategies Form is returned to the Department of Public Health for review and approval.
- Six to seven months post-approval (mid-December to mid-January): Upon approval of the Health Priorities and Strategies Form from the Department of Public Health, the Allocation Committee begins developing the request for proposal ("RFP") process and determining how this process will work in tandem with NWH's current grant efforts.
- Eight to ten months post-approval (mid-February to mid-April): The RFP for funding is released.
- Eleven months post-approval (mid-May): Bidders conferences are held on the RFP with technical assistance resources present.
- Twelve months post-approval (mid-June): Responses are due for the RFP.
- Thirteen months post-approval (with allowance for an additional two months if Committee Members are not available in summer months post-approval (mid-July): Funding decisions are made, and the disbursement of funds begins.
- Ongoing: Evaluation of CHI and Reporting to the Department on an annual basis.

Attachment/Exhibit

5

RETURN OF PUBLICATION

I, the undersigned, hereby certify under the pains and penalties of perjury, that I am employed by the publishers of the *Boston Herald* and the following Public/Legal announcement was published in two sections of the newspaper on August 3, 2018 accordingly:

1) "Public Announcement Concerning a Proposed Health Care Project" page 40, Legal Notice Section.

(check one) ✓ Size at least two inches high by three columns wide
_____ Size at least three inches high by two columns wide

2) "Public Announcement Concerning a Proposed Health Care Project" page 14, Main News Section.

(check one) _____ Size at least two inches high by three columns wide
✓ Size at least three inches high by two columns wide

PUBLIC ANNOUNCEMENT CONCERNING A PROPOSED HEALTH CARE PROJECT

Partners HealthCare System, Inc. ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a change in service by the Massachusetts General Physicians Organization, Inc. ("MGPO") for its licensed clinic located at 40 Second Avenue, Waltham, MA 02451 ("MGPO Waltham"). The project is for the expansion of existing imaging services at MGPO Waltham through the acquisition of two additional MRI units and one additional CT unit ("Project"). The total value of the Project based on the maximum capital expenditure is $15,702,815. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application no later than 30 days of the filing of the Notice of Determination of Need by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6th Floor, Boston, MA 02108.

This public announcement concerning the Project supersedes the public announcement published in this newspaper on May 30, 2018.

Signature

Laurie Kluse
Name

Legal Advertising Rep
Title

PUBLIC ANNOUNCEMENT CONCERNING A PROPOSED HEALTH CARE PROJECT

Partners HealthCare System, Inc. ("Applicant") located at 800 Boylston Street, Suite 1150, Boston, MA 02199 intends to file a Notice of Determination of Need ("Application") with the Massachusetts Department of Public Health for a change in service by the Massachusetts General Physicians Organization, Inc. ("MGPO") for its licensed clinic located at 40 Second Avenue, Waltham, MA 02451 ("MGPO Waltham"). The project is for the expansion of existing imaging services at MGPO Waltham through the acquisition of two additional MRI units and one additional CT unit ("Project"). The total value of the Project based on the maximum capital expenditure is $15,702,815. The Applicant does not anticipate any price or service impacts on the Applicant's existing Patient Panel as a result of the Project. Any ten Taxpayers of Massachusetts may register in connection with the intended Application no later than 30 days of the filing of the Notice of Determination of Need by contacting the Department of Public Health, Determination of Need Program, 250 Washington Street, 6th Floor, Boston, MA 02108.

This public announcement concerning the Project supersedes the public announcement published in this newspaper on May 30, 2018.

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Notice of Sale and Disposal of Property-Notice is hereby given that Simply Self Storage located at 145 North Beacon St., Brighton, MA 02135 intends to sell or otherwise dispose of personal property consisting of household and personal effects, office and other equipment in compliance with Mass state law VIA AN ON-LINE AUCTION AT WWW.STORAGETREASURES.COM ON August 18th BEGINNING AT APPROXIMATELY 10:00 AM AND CONCLUDING ON August 23rd AT APPROXIMATELY 12:00 PM. THIS PUBLIC SALE WILL RESULT IN THE GOODS BEING SOLD TO THE HIGHEST BIDDER. CERTAIN TERMS AND CONDITIONS APPL. All units are sold as whole. The following units are for sale: 2642A June Codman; 2221B June Codman; 2629 June Codman; 2625 June Codman; 2637 June Codman; 2639 June Codman; 270 Kara Hughes; 2[illegible] Alleyne; 2659 Jocelynn Yelverton; 2966 Evan Goldstein; 2863 Jan[illegible] 21F Terrell Lowry.

Aug 3, 10

BOSTON HERALD FRIDAY, AUGUST 3, 2018

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Attachment/Exhibit

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Partners HealthCare System, Inc.

Analysis of the Reasonableness of Assumptions Used For and Feasibility of Projected Financials of Partners HealthCare System, Inc. For the Years Ending September 30, 2018 Through September 30, 2022

TABLE OF CONTENTS

BERNARD L. DONOHUE, III, CPA

Chestnut Green
8 Cedar Street, Suite 62
Woburn, MA 01801

(781) 569-0070
Fax (781) 569-0460

July 19, 2018

Mr. Brian Huggins
Partners HealthCare System, Inc.
399 Revolution Drive STE 645
Somerville, MA 02145

RE: Analysis of the Reasonableness of Assumptions and Projections Used to Support the Financial Feasibility and Sustainability of the Proposed Expansion of Imaging Services at MGPO Waltham

Dear Mr. Huggins:

I have performed an analysis of the financial projections prepared by Partners HealthCare System, Inc. ("Partners") detailing the projected operations of Partners including the projected operations of Massachusetts General Physicians Organization, Inc. in Waltham, MA ("MGPO Waltham"). This report details my analysis and findings with regards to the reasonableness of assumptions used in the preparation and feasibility of the projected financial information of Partners as prepared by the management of Partners ("Management"). This report is to be included by Partners in its Determination of Need ("DoN") Application – Factor 4(a) and should not be distributed or relied upon for any other purpose.

I. EXECUTIVE SUMMARY

The scope of my analysis was limited to the five year consolidated financial projections (the "Projections") prepared by Partners as well as the actual operating results for Partners for the fiscal years ended 2016 and 2017 ("Base Budget"), and the supporting documentation in order to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Projections with regards to the impact of capital projects involving and ancillary to the Massachusetts General Physicians Organization, Inc. imaging clinic in Waltham, MA.

The impact of the proposed capital projects at MGPO Waltham, which are the subject of this DoN application, represent a relatively insignificant component of the projected operating results and financial position of Partners. As such, I determined that the Projections are not likely to result in a scenario where there are insufficient funds available for capital and ongoing operating costs necessary to support the ongoing operations of Partners. Therefore, it is my opinion that the Projections are financially feasible for Partners as detailed below.

II. RELEVANT BACKGROUND INFORMATION

Refer to Factor 1 of the application for description of proposed capital projects at MGPO Waltham and the rationale for the expenditures.

III. SCOPE OF REPORT

The scope of this report is limited to an analysis of the Projections, Base Budget and the supporting documentation in order to render an opinion as to the reasonableness of assumptions used in the preparation and feasibility of the Projections with regards to the impact of certain capital projects involving and ancillary to MGPO Waltham. My analysis of the Projections and conclusions contained within this report are based upon my detailed review of all relevant information (see Section IV which references the sources of information). I have gained an understanding of Partners and MGPO Waltham through my review of the information provided as well as a review of Partners website, annual reports, and the DoN application.

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, the plan is not likely to result in insufficient "funds available for capital and ongoing operating costs necessary to support the proposed project without negative impacts or consequences to [Partners] existing patient panel" (per Determination of Need, Factor 4(a)).

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

IV. PRIMARY SOURCES OF INFORMATION UTILIZED

In formulating my opinions and conclusions contained in this report, I reviewed documents produced by Management. The documents and information upon which I relied are identified below or are otherwise referenced in this report:

1. Five-Year Pro-Forma Statements for the fiscal years ending 2018 through 2022, provided March 16, 2018, and updated on June 28, 2018;

2. Multi-Year Financial Framework of Partners Healthcare System, Inc. for the fiscal years ending 2018 through 2022 prepared as of December 7, 2017;

3. Audited Financial Statements of Partners HealthCare System, Inc. and Affiliates as of and for the years ended September 30, 2017 and 2016;

4. Company website – www.partners.org;

5. Various news publications and other public information about the Company;

6. Determination of Need Application Instructions dated March 2017; and

7. Draft Determination of Need Factor 1, provided July 17, 2018.

V. REVIEW OF THE PROJECTIONS

This section of my report summarizes my review of the reasonableness of the assumptions used and feasibility of the Projections. The Projections are delineated between five categories of revenue and six general categories of operating expenses of Partners as well as other non-operating gains and losses for the Organization. The following table presents the Key Metrics, as defined below, of Partners which compares the results of the Projections for the fiscal years ending 2018 through 2022 to Partners historical results for the fiscal year ended 2017.

	Partners, as reported	Change in Key Metric of pro forma results compared to prior year				
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
EBIDA ($)	861,301	190,199	191,400	62,762	60,662	59,363
EBIDA Margin (%)	6.4%	1.5%	1.5%	0.0%	0.0%	0.0%
Operating Margin (%)	0.4%	1.1%	0.9%	0.0%	0.1%	0.1%
Total Margin (%)	4.9%	-1.7%	1.1%	0.1%	0.1%	0.1%
Total Assets ($)	16,871,758	659,564	702,781	739,524	773,021	566,765
Total Net Assets ($)	7,464,109	483,200	603,019	642,462	681,224	722,387
Unrestricted Cash Days on Hand (days)	187.3	18.1	28.3	16.9	18.9	13.0
Unrestricted Cash to Debt (%)	128.8%	4.5%	12.7%	15.0%	16.2%	21.2%
Debt Service Coverage (ratio)	5.9	(1.0)	(0.0)	(0.1)	(0.0)	(1.9)
Debt to Capitalization (%)	46.2%	-1.1%	-1.8%	-1.7%	-1.7%	-2.7%

The Key Metrics fall into three primary categories: profitability, liquidity, and solvency. Profitability metrics, such as EBIDA, EBIDA Margin, Operating Margin, Total Margin, and Debt Service Coverage Ratio are used to assist in the evaluation of management performance in how efficiently resources are utilized. Liquidity metrics, such as Unrestricted Days Cash on Hand, and Unrestricted Cash-to-Debt measure the quality and adequacy of assets to meet current obligations as they come due. Solvency metrics, such as Debt to Capitalization, and Total Net Assets, measure the company's ability to service debt obligations. Additionally, certain metrics can be applicable in multiple categories.

The following table shows how each of the Key Metrics are calculated.

Key Metric	Definition
EBIDA ($)	(Earnings before interest, depreciation and amortization expenses) - Operating gain (loss) + interest expense + depreciation expense + amortization expense
EBIDA Margin (%)	EBIDA expressed as a % of total operating revenue. EBIDA / total operating revenue
Operating Margin (%)	Income (loss) from operations / total operating revenue
Total Margin (%)	Excess (deficit) of revenue over expenses / total operating revenue
Total Assets ($)	Total assets of the organization
Total Net Assets ($)	Total net assets of the organization (includes unrestricted net assets, temporarily restricted net asset and permanently restricted net assets)
Unrestricted Cash Days on Hand (days)	(Cash & cash equivalents + investments + current portion investments limited as to use + investments limited as to use - externally limited funds) / ((Total operating expenses - non recurring charges - depreciation & amortization) / YTD days)
Unrestricted Cash to Debt (%)	Unrestricted Cash-to-Debt (%) - (Cash & cash equivalents + investments + current portion investments limited as to use + investments limited as to use - externally limited funds) / (Current portion of long-term obligations + long-term obligations)
Debt Service Coverage (ratio)	Debt service coverage ratio (ratio) - (Excess (deficit) of revenue over expenses + depreciation expense + amortization expense + interest expense) / (Principal payments + interest expense)
Debt to Capitalization (%)	Debt to Capitalization (%) - (Current portion of long-term obligation + long-term obligations) / (Current portion of long-term obligations + long-term obligations + unrestricted net assets)

In preparing the Key Metrics, Management noted the following:

- Massachusetts Eye and Ear Infirmary, Inc. ("MEEI") joined Partners effective April 1, 2018. MEEI was excluded from the projections for fiscal years ending 2018 through 2022, as it was not part of Partners when the Multi-Year Financial Framework referred to above was initially prepared in December 2017 and Management concluded its impact would be immaterial.
- Based on our review of the available information and discussions with Management, we noted that MEEI has generally operated with positive operating margins. Management expects MEEI's positive operating margins to improve during the projection period. As such, with respect to the reasonableness and feasibility of the Projections, it is conservative not to include MEEI in the Projections.
- Partners has a balloon payment on long-term debt maturing in fiscal year ending 2022 and prepared the Projections to include the balloon payment.

1. Revenues

The only revenue category on which the proposed capital projects would have an impact is net patient service revenue. Therefore, I have analyzed net patient service revenue identified by Partners in both their historical and projected financial information. Based upon my analysis of the projected results from Fiscal Year 2018 through Fiscal Year 2022, the proposed capital projects would represent approximately

0.086% (about 9 one-hundredths of 1%) of Partners operating revenue beginning in FY 2020 to 0.105% (about one-tenth of 1%) in FY 2022. The first year in which revenue is present for the proposed capital projects is FY 2020.

It is my opinion that the revenue growth projected by Management reflects a reasonable estimation based primarily upon the organization's historical operations.

2. Operating Expenses

I analyzed each of the categorized operating expenses for reasonableness and feasibility as it relates to the projected revenue items. I reviewed the actual operating results for Partners for the years ended 2016 and 2017 in order to determine the impact of the proposed capital projects at MGPO Waltham on the consolidated entity and in order to determine the reasonableness of the Projections for the fiscal years 2018 through 2022. Based upon my analysis of the projected results from Fiscal Year 2018 through Fiscal Year 2022, the proposed capital projects would represent approximately 0.002% (about 2 one-thousandths of 1%) of Partners operating expenses beginning in FY 2019 to 0.044% (about 4 one-hundredths of 1%) in FY 2022. Operating expenses for the proposed projects in FY 2019 consist only of interest expense incurred during construction as the expanded imaging services are not expected to come online until FY 2020.

It is my opinion that the growth in operating expenses projected by Management reflects a reasonable estimation based primarily upon the organization's historical operations.

3. Non-Operating Gains/Expenses and Other Changes in Net Assets

The final categories of Partners Projections are various non-operating gains/expenses and other changes in net assets. The items in these categories relate to investment account activity (realized and unrealized), philanthropic and academic gifts, benefit plan funded status, fair value adjustments and other items. Because many of these items are unpredictable, nonrecurring, or dependent upon market fluctuations, I analyzed the non-operating activity in aggregate. Based upon my analysis, there were no non-operating expenses projected for the proposed capital projects at MGPO Waltham. Accordingly, it is my opinion that the pro-forma non-operating gains/expenses and other changes in net assets are reasonable.

4. Capital Expenditures and Cash Flows

I reviewed Partners capital expenditures and cash flows in order to determine whether Partners anticipated reinvesting sufficient funds for technological upgrades and property, plant and equipment and whether the cash flow would be able to support that reinvestment.

Based upon my discussions with Management and my review of the information provided, I considered the current and projected capital projects and loan financing obligations included within the Projections and the impact of those projected expenditures on Partners cash flow. Based upon my analysis, it is my opinion that the pro-forma capital expenditures and resulting impact on Partners cash flows are reasonable.

VI. FEASIBILITY

I analyzed the projected operations for Partners and the changes in Key Metrics prepared by Management as well as the impact of the proposed capital projects at MGPO Waltham upon the Projections and Key

Metrics. In performing my analysis, I considered multiple sources of information including historical and projected financial information for Partners. It is important to note that the Projections 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 aggregate Projections.

Because the impact of the proposed capital projects at MGPO Waltham represents a relatively insignificant portion of the operations and financial position of Partners, I determined that the Projections are not likely to result in insufficient funds available for capital and ongoing operating costs necessary to support the proposed projects. Based upon my review of the Projections and relevant supporting documentation, I determined the projects and continued operating surplus are reasonable and based upon feasible financial assumptions. Therefore, the proposed capital projects at MGPO Waltham are financially feasible and within the financial capability of Partners.

Respectively submitted,

Bernard L Donohue, III, CPA

Bernard L. Donohue, III, CPA

Attachment/Exhibit

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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 Projects 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
	Level P-G: Public Lobby					500	500	500	500		$517,000.00		$1,034.00
	Level P-G: MEP Support					870	920	870	920		$951,280.00		$1,034.00
	Level 1: Diagnostic Imaging Support					4,086	4,540	4,086	4,540		$4,698,900.00		$1,035.00
	Level 1: MRI (2) and (1) Shell Space					1,514	1,696	1,514	1,696		$1,757,056.00		$1,036.00
	Level 1: CT					478	535	478	535		$553,537.75		$1,034.65
	Level 1: MEP Support					9	14	9	14		$14,485.00		$1,035.00
	Total:					7,457	8,205	7,457	8,205		$8,492,258.75		$1,035.01

* Please note that the Applicant submits the F4.a.i Capital Costs Chart in Excel format to address the calculation related to Total Cost/Square Footage. The Department of Public Health's ("Department") Capital Costs Chart included in the Determination of Need ("DoN") Application auto-calculates Total Cost/Square Footage using a summation formula, such that the total is a sum of the cost/square footage for the various functional areas. For example, using the Department's Capital Costs Chart included in the DoN Application, the auto-calculated Total Cost/Square Footage for Renovation for the Proposed Project is a sum of the renovation cost/square footage for the Level P-G: Public Lobby ($1,034.00) + Level P-G: MEP Support ($1,034.00) + Level 1: Diagnostic Imaging Support ($1,035.00) + Level 1: MRI (2) and (1) Shell Space ($1,036.00) + Level 1: CT ($1,034.65) + Level 1: MEP Support ($1,035.00) = $6,208.65. A more accurate Total Cost/Square Footage is reached using the following calculation: Total Cost / Total Resulting Gross Square Footage. In the case of Total Cost/Square Footage for Renovation, this calculation is as follows: $8,492,258.75 / 8,205 = $1,035.01. This total is reflected in the Capital Costs Chart above.

Attachment/Exhibit

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

STUART H. ALTMAN
CHAIR

DAVID M. SELTZ
EXECUTIVE DIRECTOR

December 29, 2017

Sree Chaguturu
Partners HealthCare System, Inc.
800 Boylston Street, 11th Floor
Boston, MA 02199

RE: ACO Certification

Dear Dr. Chaguturu:

Congratulations! The Health Policy Commission (HPC) is pleased to inform you that Partners HealthCare System, Inc. meets the requirements for ACO Certification. This certification is effective from the date of this letter through December 31, 2019.

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

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

The HPC looks forward to your continued engagement in the ACO Certification program over the next two years. In early 2018, HPC staff will contact you to discuss any updates to your submission and to plan a site visit for later in the year.

Thank you for your dedication to providing accountable, coordinated health care to your patients. If you have any questions about this letter or the ACO Certification program, please do not hesitate to contact Catherine Harrison, Deputy Policy Director, at HPC-Certification@state.ma.us or (617) 757-1606.

Best wishes,

David Seltz
Executive Director

Attachment/Exhibit

9

Examiner

Name Approved

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. 180)

ARTICLE I

The name of the corporation is:

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

ARTICLE II

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

(i) To organize, operate and support a comprehensive health care system, including without limitation hospital and other health care services for all persons, and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness; (ii) to improve the health and welfare of all persons; (iii) to operate for the benefit of and to support The Massachusetts General Hospital, The Brigham Medical Center, Inc., their respective affiliated corporations and such other charitable, scientific or educational organizations which are or are affiliated with teaching hospitals in the Greater Boston Area; and (iv) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under section 501(c)(3) of the Internal Revenue Code.

93-349060

C ☐
P ☑
M ☐
R.A. ☐

10

P.C.

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

If the corporation has one or more classes of members, the designation of such classes, the manner of election or appointments, the duration of membership and the qualification and rights, including voting rights, of the members of each class, may be set forth in the by-laws of the corporation or may be set forth below:

The designation of classes of members, if any, the manner of election or appointment, the term of office, and the qualifications and rights of members are set forth in the by-laws of the Corporation.

ARTICLE IV

* Other lawful provisions, if any, for the conduct and regulation of the 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 members, or of any class of members, are as follows:

See Continuation Sheets IV-A through IV-D attached hereto and incorporated herein by reference.

* If there are no provisions, state "None".

Note: The preceding four (4) articles are considered to be permanent and may ONLY be changed by filing appropriate Articles of Amendment.

IV. Other Lawful Provisions for Conduct and Regulation of the Business and Affairs of the Corporation, for its Voluntary Dissolution, and for Limiting, Defining and Regulating the Powers of the Corporation and of its Trustees and Members.

4.1. The corporation shall have in furtherance of its corporate purposes all of the powers specified in Section 6 of Chapter 180 and in Sections 9 and 9A of Chapter 156B of the Massachusetts General Laws (except those provided in paragraph (m) of said Section 9) as now in force or as hereafter amended, and may carry on any operation or activity referred to in Article 2 to the same extent as might an individual, either alone or in a joint venture or other arrangement with others, or through a wholly or partly owned or controlled corporation; provided, however, that no such power shall be exercised in a manner inconsistent with said Chapter 180 or any other chapter of the Massachusetts General Laws or which would deprive it of exemption from federal income tax as an organization described in Section 501(c)(3) of the Internal Revenue Code.

4.2. The by-laws may authorize the trustees to make, amend or repeal the by-laws in whole or in part, except with respect to any provision thereof which by law, the articles of organization or the by-laws requires action by the members.

4.3. Meetings of the members may be held anywhere in the United States.

4.4. No trustee or officer of the corporation shall be personally liable to the corporation or its members for monetary damages for breach of fiduciary duty as such trustee or officer notwithstanding any provision of law imposing such liability, except to the extent that such exemption from liability is not permitted under Chapter 180 of the Massachusetts General Laws.

4.5.(a) The corporation shall, to the extent legally permissible, indemnify each person who serves as one of its members, trustees or officers, or who serves at its request as a member, trustee or officer of another organization or in a capacity with respect to any employee benefit plan (each such person being called in this Section 4.5 a "Person") against all liabilities and expenses, including amounts paid in satisfaction of judgments, in compromise or as fines and penalties, and

counsel fees, reasonably incurred by such Person in connection with the defense or disposition of any action, suit or other proceeding, whether civil or criminal, in which such Person may be involved or with which such Person may be threatened, while in office or thereafter, by reason of being or having been such a Person, except with respect to any matter as to which such Person shall have been adjudicated in any proceeding not to have acted in good faith in the reasonable belief that his or her action was in the best interests of the corporation or, to the extent that such matter relates to service at the request of the corporation for another organization or an employee benefit plan, in the best interests of such organization or of the participants or beneficiaries of such employee benefit plan. Such best interests shall be deemed to be the best interests of the corporation for the purposes of this Section 4.5.

(b) Notwithstanding the foregoing, as to any matter disposed of by a compromise payment by any Person, pursuant to a consent decree or otherwise, no indemnification either for said payment or for any other expenses shall be provided unless such compromise shall be approved as in the best interests of the corporation, after notice that it involves such indemnification, (a) by a disinterested majority of the trustees then in office; or (b) by a majority of the disinterested trustees then in office, provided that there has been obtained an opinion in writing of independent legal counsel to the effect that such Person appears to have acted in good faith in the reasonable belief that his or her action was in the best interests of the corporation; or (c) by a majority of the disinterested members entitled to vote, voting as a single class.

(c) Expenses, including counsel fees, reasonably incurred by any Person in connection with the defense or disposition of any such action, suit or other proceeding may be paid from time to time by the corporation in advance of the final disposition thereof upon receipt of an undertaking by such Person to repay the amounts so paid if such Person ultimately shall be adjudicated to be not entitled to indemnification under this Section 4.5. Such an undertaking may be accepted without reference to the financial ability of such Person to make repayment.

(d) The right of indemnification hereby provided shall not be exclusive. Nothing contained in this Section shall affect any other rights to indemnification to which any Person or other corporate personnel may be entitled by contract or otherwise under law.

(e) As used in this Section 4.5, the term "Person" includes such Person's respective heirs, executors and administrators, and

a "disinterested" member, trustee or officer is one against whom in such capacity the proceeding in question, or another proceeding on the same or similar grounds, is not then pending.

4.6.(a) No person shall be disqualified from holding any office by reason of any interest. In the absence of fraud, any trustee, officer or member of this corporation, or any concern in which any such trustee, officer or member has any interest, may be a party to, or may be pecuniarily or otherwise interested in, any contract, act or other transaction (collectively called a "transaction") of this corporation, and

(1) such transaction shall not be in any way invalidated or otherwise affected by that fact; and

(2) no such trustee, officer, member or concern shall be liable to account to this corporation for any profit or benefit realized through any such transaction;

provided, however, that such transaction either was fair at the time it was entered into or is authorized or ratified either (i) by a majority of the trustees who are not so interested and to whom the nature of such interest has been disclosed, or (ii) by vote of a majority of each class of members of the corporation entitled to vote for trustees, at any meeting of members the notice of which, or an accompanying statement, summarizes the nature of such transaction and such interest. No interested trustee or member of this corporation may vote or may be counted in determining the existence of a quorum at any meeting at which such transaction shall be authorized, but may participate in discussion thereof.

(b) For purposes of this Section 4.6, the term "interest" shall include personal interest and also interest as a trustee, officer, stockholder, shareholder, director, member or beneficiary of any concern; and the term "concern" shall mean any corporation, association, trust, partnership, firm, person or other entity other than this corporation.

(c) No transaction shall be avoided by reason of any provisions of this paragraph 4.6 which would be valid but for such provisions.

4.7. No part of the assets or net earnings of the corporation shall inure to the benefit of any member, officer or trustee of the corporation or any individual; no substantial part of the activities of the corporation shall be the carrying on of propaganda, or otherwise attempting, to influence legislation except to the extent permitted by Section 501(h) of the Internal Revenue Code; and the corporation shall not participate in, or

intervene in (including the publishing or distributing of statements), any political campaign on behalf of (or in opposition to) any candidate for public office. It is intended that the corporation shall be entitled to exemption from federal income tax as an organization described in Section 501(c)(3) of the Internal Revenue Code and shall not be a private foundation under Section 509(a) of the Internal Revenue Code.

4.8. If and so long as the corporation is a private foundation (as that term is defined in Section 509 of the Internal Revenue Code), then notwithstanding any other provisions of the articles of organization or the by-laws of the corporation, the following provisions shall apply:

A) the income of the corporation for each taxable year shall be distributed at such time and in such manner as not to subject the corporation to the tax on undistributed income imposed by Section 4942 of the Internal Revenue Code, and

B) the corporation shall not engage in any act of self dealing (as defined in Section 4941(d) of the Internal Revenue Code), nor retain any excess business holdings (as defined in Section 4943(c) of the Internal Revenue Code), nor make any investments in such manner as to subject the corporation to tax under Section 4944 of the Internal Revenue Code, nor make any taxable expenditures (as defined in Section 4945(d) of the Internal Revenue Code).

4.9. Upon the liquidation or dissolution of the corporation, after payment of all of the liabilities of the corporation or due provision therefor, all of the assets of the corporation shall be disposed of pursuant to Massachusetts General Laws, Chapter 180, Section 11A, to The Massachusetts General Hospital and The Brigham Medical Center, Inc. if exempt from taxation as organizations described in Section 501(c)(3) of the Internal Revenue Code or, if both are not, to one or more organizations with similar purposes and similar tax exemption.

4.10. All references herein: (i) to the Internal Revenue Code shall be deemed to refer to the Internal Revenue Code of 1986, as now in force or hereafter amended; (ii) to the General Laws of The Commonwealth of Massachusetts, or any chapter thereof, shall be deemed to refer to said General Laws or chapter as now in force or hereafter amended; and (iii) to particular sections of the Internal Revenue Code or said General Laws shall be deemed to refer to similar or successor provisions hereafter adopted.

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

Continuation Sheet VII(b)

	Name	Residence or Post Office Address
Officers		
Vice-President	J. Robert Buchanan, M.D.	25 Commonwealth Avenue Boston, MA 02116
President	H. Richard Nesson, M.D.	565 Boylston Street Brookline, MA 02146
Treasurer	Richard A. Spindler	210 Schoolmaster Lane Dedham, MA 02026
Clerk	David M. Donaldson	22 Weston Road Lincoln Center, MA 01773
Trustees	W. Gerald Austen, M.D.	163 Wellesley Street Weston, MA 02193
	Eugene Braunwald, M.D.	75 Scotch Pine Road Weston, MA 02193
	J. Robert Buchanan, M.D.	25 Commonealth Avenue Boston, MA 02116
	Francis H. Burr	44 Prince Street Beverly, MA 01915
	Ferdinand Colloredo-Mansfeld	Winthrop Street Hamilton, MA 01982

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

Continuation Sheet VII(b)

Name	Residence or Post Office Address
John H. McArthur	Fowler 10 Soldiers Field Boston, MA 02134
H. Richard Nesson, M.D.	565 Boylston Street Brookline, MA 02146
Richard A. Spindler	210 Schoolmaster Lane Dedham, MA 02026

ARTICLE V

By-laws of the corporation have been duly adopted and the initial directors, president, treasurer and clerk or other presiding, financial or recording officers, whose names are set out below, have been duly elected.

ARTICLE VI

The effective date of organization of the corporation shall be the date of filing with the Secretary of the Commonwealth or if a later date is desired, specify date, (not more than 30 days after date of filing).

The information contained in ARTICLE VII is NOT a PERMANENT part of the Articles of Organization and may be changed ONLY by filing the appropriate form provided therefor.

ARTICLE VII

a. The post office address of the initial principal office of the corporation IN MASSACHUSETTS is:

c/o Ropes & Gray, One International Place, Boston, MA 02110

b. The name, residence and post office address of each of the initial directors and following officers of the corporation are as follows:

	NAME	RESIDENCE	POST OFFICE ADDRESS
President:	See Continuation Sheet VII(b) attached hereto and incorporated herein by reference.		
Treasurer:			
Clerk:			

Directors: (or officers having the powers of directors).

NAME	RESIDENCE	POST OFFICE ADDRESS
See Continuation Sheet VII(b) attached hereto and incorporated herein by reference.		

c. The fiscal year of the corporation shall end on the last day of the month of: September

d. The name and BUSINESS address of the RESIDENT AGENT of the corporation, if any, is:

I/We the below-signed INCORPORATORS do hereby certify under the pains and penalties of perjury that I/We have not been convicted of any crimes relating to alcohol or gaming within the past ten years. I/We do hereby further certify that to the best of my/our knowledge the above-named principal officers have not been similarly convicted. If so convicted, explain.

IN WITNESS WHEREOF and under the pains and penalties of perjury, I/WE, whose signature(s) appear below as incorporator(s) and whose names and business or residential address(es) ARE CLEARLY TYPED OR PRINTED beneath each signature do hereby associate with the intention of forming this corporation under the provisions of General Laws Chapter 180 and do hereby sign these Articles of Organization as incorporator(s) this 9th day of December, 19 93

David M. Donaldson

David M. Donaldson

Ropes & Gray
One International Place
Boston, MA 02110

NOTE: If an already-existing corporation is acting as incorporator, type in the exact name of the corporation, the state or other jurisdiction where it was incorporated, the name of the person signing on behalf of said corporation and the title he/she holds or other authority by which such action is taken.

SECRETARY OF STATE
RECEIVED
1993 DEC 15 PM 1:39
CORPORATION DIVISION

449104

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF ORGANIZATION

GENERAL LAWS, CHAPTER 180

I hereby certify that, upon an examination of the within-written articles of organization, duly submitted to me, it appears that the provisions of the General Laws relative to the organization of corporations have been complied with, and I hereby approve said articles; and the filing fee in the amount of $35.00 having been paid, said articles are deemed to have been filed with me this 15TH day of December 1993.

Effective date

Michael Joseph Connolly

MICHAEL J. CONNOLLY
Secretary of State

A PHOTOCOPY OF THESE ARTICLES OF ORGANIZATION SHALL BE RETURNED

TO: David M. Donaldson, Esq.
Ropes & Gray
One International Place, Boston, MA 02110

Telephone: (617) 951-7250

FEE: $15.00

The Commonwealth of Massachusetts

MICHAEL J. CONNOLLY

Secretary of State

ONE ASHBURTON PLACE, BOSTON, MASS. 02108

FEDERAL IDENTIFICATION NO. 000449104

ARTICLES OF AMENDMENT

General Laws, Chapter 180, Section 7

This certificate must be submitted to the Secretary of the Commonwealth within sixty days after the date of the vote of members or stockholders adopting the amendment. The fee for filing this certificate is $15.00 as prescribed by General Laws, Chapter 180, Section 11C(b). Make check payable to the Commonwealth of Massachusetts.

We, H. Richard Nesson, President/~~Vice President~~ and David M. Donaldson, Clerk/~~Assistant Clerk~~ of

MGH/BRIGHAM HEALTH CARE SYSTEM, INC.

(Name of Corporation)

located at One International Place, Boston, MA 02110

do hereby certify that the following amendment to the articles of organization of the corporation was duly adopted at a meeting held on March 14, 19 94, by vote of all members/

~~stockholders being at least two-thirds of its members legally qualified to vote in meetings of the corporation (or, in the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock having the right to vote therein):~~

That the Articles of Organization of this corporation be and they hereby are amended to change the name of the corporation to "Partners HealthCare System, Inc."

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 for binding. 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.

Examined

Name Approved

C ☐

P.C.

The foregoing amendment will become effective when these articles of amendment are filed in accordance with Chapter 180, Section 7 of the General Laws unless these articles specify, in accordance with the vote adopting the amendment, a later effective date not more than thirty days after such filing, in which event the amendment will become effective on such later date.

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, we have hereto signed our names this 18th day of March, in the year 1994

H. Richard Nesson ..... President/~~Vice President~~

..... Clerk/~~Assistant Clerk~~

459052

SECRETARY OF STATE
RECEIVED

1994 MAR 18 PM 4:10

CORPORATION DIVISION

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

I hereby approve the within articles of amendment and, the filing fee in the amount of $ 15 having been paid, said articles are deemed to have been filed with me this 18th day of March, 1994

Michael Joseph Connolly

MICHAEL J. CONNOLLY

Secretary of State

TO BE FILLED IN BY CORPORATION

PHOTO COPY OF AMENDMENT TO BE SENT

TO: John E. Beard

Ropes & Gray

One International Place, Boston 02110

Telephone 617-951-7411

Copy Mailed

FEDERAL IDENTIFICATION
NO. 042 2035
Fee: $15.00

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Boston, Massachusetts 02108-1512

042
041

Examiner

Name
Approved

ARTICLES OF AMENDMENT
(General Laws, Chapter 180, Section 7)

We, Samuel O. Thier, M.D., *President / [illegible],

and Ernest M. Haddad, Secretary [illegible],

of Partners HealthCare System, Inc.,
(Exact name of corporation)

located at 800 Boylston Street, Suite 1150, Boston, MA 02199,
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:

II and IV
(Number those articles 1, 2, 3, and/or 4 being amended)

of the Articles of Organization were duly adopted at a meeting held on May 4 1998, by vote of:

277 members, [illegible]

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation [illegible]

I. Delete Article II and insert in place thereof the following:

Article II

(i) To organize, operate and support a comprehensive health care system, including without limitation hospital and other health care services for all persons, and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness: (ii) to improve the health and welfare of all persons: (iii) to operate for the benefit of and to support The Massachusetts General Hospital, The Brigham Medical Center, Inc., The North Shore Medical Center, Inc., their respective affiliated corporations, such other hospitals, charitable, scientific or educational organizations, and their affiliated corporations that become affiliated with Partners HealthCare System, Inc.

C ☐
P ☐
M ☐
R.A. ☐

*Delete the inapplicable words.
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

3
P.C.

(collectively, the "Partners Affiliated Corporations") and such other charitable, scientific or educational organizations which are or are affiliated with teaching hospitals in the Greater Boston Area; and (iv) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under Section 501(c)(3) of the Internal Revenue Code; and in furtherance of the foregoing purposes to:

(a) Serve as the controlling and coordinating organization for the Partners Affiliated Corporations in order to assure the consistency and appropriateness of their respective missions, activities, governance and administration;

(b) Solicit and receive devises of real property and grants, donations and bequests of money and other property to be used to further the foregoing purposes and those of the Partners Affiliated Corporations; and

(c) Support the Partners Affiliated Corporations by loan, lease or donation of funds or other assets, by guaranty of obligations or by other action.

2. Delete Section 4.5. of Article IV.

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

[redacted] _____.

SIGNED UNDER THE PENALTIES OF PERJURY, this 29TH day of May, 1998,

_____, *President [redacted]

_____, Secretary
*[redacted]

*Delete the inapplicable words.

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

S29710

SECRETARY OF THE COMMONWEALTH
98 JUN -2 AM 9:52

I hereby approve the within Articles of Amendment and, the filing fee in the amount of $ 15.00 having been paid, said articles are deemed to have been filed with me this 2ND day of JUNE 19 98.

Effective date: _____

William Francis Galvin

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

TO BE FILLED IN BY CORPORATION
Photocopy of document to be sent to:

Ernest M. Haddad, Esq.
Partners HealthCare System, Inc.
800 Boylston Street, Ste. 1150
Boston, MA 02199

Telephone: (617) 278-1065

AACR.6

FEDERAL IDENTIFICATION NO. 043230035
Fee: $15.00

The Commonwealth of Massachusetts

William Francis Galvin
Secretary of the Commonwealth
One Ashburton Place, Boston, Massachusetts 02108-1512

Examiner HG

042

ARTICLES OF AMENDMENT
(General Laws, Chapter 180, Section 7)

N/A
Name Approved

We, Samuel O. Thier, M.D. , *President / ~~Vice President~~,

and Ernest M. Haddad , Secretary ~~Clerk/Assistant Clerk~~,

of Partners HealthCare System, Inc. ,
(Exact name of corporation)

located at 800 Boylston Street, Suite 1150, Boston, MA 02199 ,
(Address of corporation in Massachusetts)

do hereby certify that these Articles of Amendment affecting articles numbered:

II
(Number those articles 1, 2, 3, and/or 4 being amended)

of the Articles of Organization were duly adopted at a meeting held on May 3 19 99 , by vote of:

293 members, ~~xxxxxxxxxxxxxxx directors, or xxxxxxxxxxxxxxxx shareholders,~~

being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation ~~(or in the case of a corporation having capital stock, by the holders of at least two-thirds of the capital stock having the right to vote therein)~~:

Delete Article II and insert in place thereof the following:

Article II

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

C ☐
P ☐
M ☐
R.A. ☐

(i) To organize, operate, coordinate and support a comprehensive integrated health care delivery system (the "System") that provides, without limitation, hospital, physician and other health care services for all persons and education and research for the prevention, diagnosis, treatment and cure of all forms of human illness; (ii) to improve the health and welfare of all persons; (iii) to serve as the controlling and coordinating organization for the System and its member institutions and entities including Brigham and Women's/Faulkner Hospitals, Inc., The Massachusetts General Hospital, The North Shore Medical Center, Inc., Newton-Wellesley Health Care System, Inc., and such other hospital, physician, charitable, scientific, educational,

3

**Delete the inapplicable words.*
Note: If the space provided under any article or item on this form is insufficient, additions shall be set forth on one side only of separate 8 1/2 x 11 sheets of paper with a left margin of at least 1 inch. Additions to more than one article may be made on a single sheet so long as each article requiring each addition is clearly indicated.

research and other institutions and entities that are controlled, directly or indirectly, through sole corporate membership, stock ownership or otherwise, by the Corporation (collectively, the "Affiliated Organizations"); (iv) to assist and support the Affiliated Organizations in fulfilling their respective purposes, missions and objectives in a manner consistent with the purposes, missions and objectives of the Corporation and the System; and (v) to carry on any other activity that may lawfully be carried on by a corporation formed under Chapter 180 of the Massachusetts General Laws which is exempt under Section 501(c)(3) of the Internal Revenue Code; and in furtherance of the foregoing purposes to:

(a) Solicit and receive devises of real property and grants, donations and bequests of money and other property to be used to further the foregoing purposes; and

(b) Support the Affiliated Organizations by loan; lease or donation of funds or other assets; and

(c) Support the Affiliated Organizations by guaranty of the obligations of the Affiliated Organizations or by other action.

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

~~Later effective date:~~ xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

SIGNED UNDER THE PENALTIES OF PERJURY, this 24th day of May, 19 99,

______________________________, *President/~~Vice President~~,

______________________________, Secretary ~~*Clerk/Assistant Clerk~~

**Delete the inapplicable words.*

660922

THE COMMONWEALTH OF MASSACHUSETTS

ARTICLES OF AMENDMENT

(General Laws, Chapter 180, Section 7)

I hereby approve the within Articles of Amendment and, the filing fee in the amount of $ 15.00 having been paid, said articles are deemed to have been filed with me this 24th day of May 19 99.

99 MAY 26 AM 9:24

Effective date: _____

William Francis Galvin

WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

TO BE FILLED IN BY CORPORATION
Photocopy of document to be sent to:

Mary LaLonde

Partners HealthCare System

Office of the General Counsel
50 Staniford St., 10th floor
Boston, MA 02114

Telephone:
617-726-5315

The Commonwealth of Massachusetts
William Francis Galvin

Minimum Fee: $15.00

Secretary of the Commonwealth, Corporations Division
One Ashburton Place, 17th floor
Boston, MA 02108-1512
Telephone: (617) 727-9640

Articles of Amendment

(General Laws, Chapter 180, Section 7)

Identification Number: 043230035

We, BRENT L. HENRY __ **President** X **Vice President,**

and MARY C. LALONDE __ **Clerk** X **Assistant Clerk ,**

of PARTNERS HEALTHCARE SYSTEM, INC.
located at: 800 BOYLSTON ST., SUITE 1150 BOSTON , MA 02199 USA

do hereby certify that these Articles of Amendment affecting articles numbered:

__ Article 1 X Article 2 __ Article 3 __ Article 4

(Select those articles 1, 2, 3, and/or 4 that are being amended)

of the Articles of Organization were duly adopted at a meeting held on 4/19/2016 , by vote of: 197 members, 0 directors, or 0 shareholders,
being at least two-thirds of its members/directors legally qualified to vote in meetings of the corporation (or, in the case of a corporation having capital stock, by the holders of at least two thirds of the capital stock having the right to vote therein):

ARTICLE I

The exact name of the corporation, ***as amended***, is:
(Do not state Article I if it has not been amended.)

ARTICLE II

The purpose of the corporation, ***as amended***, is to engage in the following business activities:
(Do not state Article II if it has not been amended.)

THE PURPOSE OF THE CORPORATION IS TO ENGAGE IN THE FOLLOWING ACTIVITIES: (I) TO ORGANIZE, OPERATE, COORDINATE AND SUPPORT A COMPREHENSIVE INTEGRATED HEALTH CARE DELIVERY SYSTEM (THE "SYSTEM") THAT PROVIDES, WITHOUT LIMITATION, HOSPITAL, PHYSICIAN AND OTHER HEALTH CARE SERVICES FOR ALL PERSONS AND EDUCATION AND RESEARCH FOR THE PREVENTION, DIAGNOSIS, TREATMENT AND CURE OF ALL FORMS OF HUMAN ILLNESS; (II) TO IMPROVE THE HEALTH AND WELFARE OF ALL PERSONS AND TO CONDUCT AND SUPPORT EDUCATION, RESEARCH AND OTHER ACTIVITIES RELATING THERE TO, (III) TO SERVE AS THE CONTROLLING AND COORDINATING ORGANIZATION FOR THE SYSTEM AND ITS MEMBER INSTITUTIONS AND ENTITIES INCLUDING BRIGHAM AND WOMEN'S HEALTH CARE, INC., THE MASSACHUSETTS GENERAL HOSPITAL, NSMC HEALTHCARE, INC., NEWTON WELLESLEY HEALTH CARE SYSTEM, INC., PARTNERS COMMUNITY PHYSICIANS ORGANIZATION, INC., PARTNERS CONTINUING CARE, INC., NEIGHBORHOOD HEALTH PLAN, INC. AND SUCH OTHER HOSPITAL, PHYSICIAN, CHARITABLE, SCIENTIFIC, E

DUCATIONAL, RESEARCH AND OTHER INSTITUTIONS AND ENTITIES THAT ARE CONTROLLED, DIRECTLY OR INDIRECTLY, THROUGH SOLE CORPORATE MEMBERSHIP, STOCK OWNERSHIP OR OTHERWISE, BY THE CORPORATION (COLLECTIVELY, THE "AFFILIATED ORGANIZATIONS"); (IV) TO ASSIST AND SUPPORT THE AFFILIATED ORGANIZATIONS IN FULFILLING THEIR RESPECTIVE PURPOSES, MISSIONS AND OBJECTIVES IN A MANNER CONSISTENT WITH THE PURPOSES, MISSIONS AND OBJECTIVES OF THE CORPORATION AND THE SYSTEM; AND (V) TO CARRY ON ANY OTHER ACTIVITY THAT MAY LAWFULLY BE CARRIED ON BY A CORPORATION FORMED UNDER CHAPTER 180 OF THE MASSACHUSETTS GENERAL LAWS WHICH IS EXEMPT UNDER SECTION 501(C)(3) OF THE INTERNAL REVENUE CODE; AND IN FURTHERANCE OF THE FOREGOING PURPOSES TO: (A) SOLICIT AND RECEIVE DEVISES OF REAL PROPERTY AND GRANTS, DONATIONS AND BEQUESTS OF MONEY AND OTHER PROPERTY TO BE USED TO FURTHER THE FOREGOING PURPOSES; AND (B) SUPPORT THE AFFILIATED ORGANIZATIONS BY LOAN, LEASE OR DONATION OF FUNDS OR OTHER ASSETS; AND (C) SUPPORT THE AFFILIATED ORGANIZATIONS BY GUARANTY OF THE OBLIGATIONS OF THE AFFILIATED ORGANIZATIONS OR BY OTHER ACTION.

ARTICLE III

A corporation may have one or more classes of members. ***As amended,*** the designation of such classes, the manner of election or appointments, the duration of membership and the qualifications and rights, including voting rights, of the members of each class, may be set forth in the by-laws of the corporation or may be set forth below:

ARTICLE IV

As amended, other lawful provisions, if any, for the conduct and regulation of the business and affairs of the corporation, for its voluntary dissolution, or for limiting, defining, or regulating the powers of the business entity, or of its directors or members, or of any class of members, are as follows:
(If there are no provisions state "NONE")

The foregoing amendment(s) will become effective when these Articles of Amendment are filed in accordance with General Laws, Chapter 180, Section 7 unless these articles specify, in accordance with the vote adopting the amendment, a *later* effective date not more than *thirty days* after such filing, in which event the amendment will become effective on such later date.

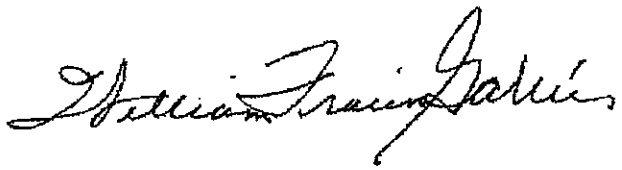
Later Effective Date:

Signed under the penalties of perjury, this 20 Day of April, 2016, BRENT L. HENRY , its , President / Vice President,
MARY C. LALONDE , Clerk / Assistant Clerk.

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 20, 2016 04:09 PM



WILLIAM FRANCIS GALVIN

Secretary of the Commonwealth

Attachment/Exhibit

10

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: PHS-18090711-HS

Original Application Date: 09/11/2018

Applicant Name: Partners HealthCare System, Inc.

Application Type: Hospital/Clinic Substantial Change in Service

Applicant's Business Type: (•) Corporation ( ) Limited Partnership ( ) Partnership ( ) Trust ( ) LLC ( ) Other

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

The undersigned certifies under the pains and penalties of perjury:

1. The Applicant is the sole corporate member or sole shareholder of the Health Facility[ies] that are the subject of this Application;
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; will be made if applicable
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.

Corporation:

Attach a copy of Articles of Organization/Incorporation, as amended

David F. Torchiana, M.D.	David Torchiana	9/5/18
CEO for Corporation Name:	Signature:	Date
Scott M. Sperling	Scott Sperling	8/30/18
Board Chair for Corporation Name:	Signature:	Date

*been informed of the contents of
**have been informed that
***issued in compliance with 105 CMR 100.00, the Massachusetts Determination of Need Regulation effective January 27, 2017

Attachment/Exhibit

11

DATE					CHECK NO
09/11/2018					0005917266
VOUCHER INVOICE NUMBER	INVOICE DATE	PO NUMBER	GROSS AMOUNT	DISCOUNT	NET AMOUNT
26716595 DON-WALTHAM MGPO Waltham MRI/CT DoN filling fee.	09/10/2018		31,405.63	0.00	31,405.63

MM Client Services (617) 726-2142	AP 1300 MGB512	TOTAL AMOUNT	DISCOUNT	NET AMOUNT
		31,405.63	0.00	31,405.63

To Remove Document Fold and Tear Along This Perforation

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

PARTNERS. HealthCare

Bank of America, N.A.
South Portland, ME

52-153
112ME

DATE
09/11/2018

0005917266

AMOUNT
$31,405.63

PAY **Thirty-One Thousand Four Hundred Five and 63/100 Dollars**

TO THE ORDER OF **COMMONWEALTH OF MASSACHUSETTS**
DETERMINATION OF NEED PROGRAM
DEPT OF PUBLIC HLTH - 99 CHAUNCY ST-2ND FL
BOSTON MA

AUTHORIZED SIGNATURE

VOID IF NOT CASHED WITHIN 90 DAYS

⑈0005917266⑈ ⑆011201539⑆ 000080056978⑈