

STAFF SUMMARY FOR DETERMINATION OF NEED BY THE PUBLIC HEALTH COUNCIL

APPLICANT: University of Massachusetts Memorial Medical Center, Inc.

PROJECT NUMBER: 2-3C60

LOCATION: 55 Lake Avenue
Worcester, MA 01655

DATE OF APPLICATION: December 22, 2016

PROJECT DESCRIPTION: Renovation affecting four floors at the UMass Memorial Medical Center's University Campus designed to address Medical/Surgical ("M/S") capacity, and emergency department ("ED") wait times by redistributing the existing licensed capacity to add more M/S beds on the University Campus and create a new 9-bed stepdown unit; and bring two M/S units into Americans with Disabilities Act (ADA) compliance. The project includes renovation of the Observation Unit, Bone Marrow Transplant Unit, Dialysis and Cardiac Catheterization services, and a decrease in psychiatry bed capacity.

ESTIMATED MAXIMUM CAPITAL EXPENDITURE:

Requested: \$30,400,243 (December 2016 dollars)

Recommended: \$30,400,243 (December 2016 dollars)

ESTIMATED FIRST YEAR INCREMENTAL OPERATING COST:

Requested: \$14,404,479 (December 2016 dollars)

Recommended: \$14,404,479 December 2016 dollars)

RECOMMENDATION: *Approval with conditions*

I. PROJECT DESCRIPTION AND BACKGROUND

UMass Memorial Medical Center, Inc. (“UMMMC” or “Applicant”) is a 779-bed nonprofit health system located at 55 Lake Avenue, Worcester, MA 01655. UMMC is a member of UMass Memorial Health Care, Inc. UMMC is comprised of three campuses: Memorial Campus, University Campus (the subject of this DoN) and the Psychiatric Treatment and Recovery Center (“PTRC”). All three campuses are located in the city of Worcester. The University Campus operates the only Level 1 Trauma Center for central Massachusetts and is the tertiary referral center treating acutely ill patients referred from other area hospitals. If a bed at the University Campus is not available, those patients are transferred outside of the region, mostly to Boston. The Memorial Campus does not treat patients with the same high acuity as those treated at the University Campus. As a result of patient acuity and/or patient and provider choice, patients presenting to the University Campus ED are generally not appropriate for admission to the Memorial Campus.

UMMMC’s Determination of Need (“DoN”) Application seeks to renovate select clinical care services on the University Campus for a total of 53,458 gross square feet (“GSF”). The requested maximum capital expenditure (“MCE”) is \$30,400,243 (December 2016 dollars). UMMC proposes to increase its M/S capacity at the University Campus by 16 beds¹. In addition, UMMC proposes renovations to improve throughput from the ED to a bed; as well as other components including: renovation of the Bone Marrow Transplant Unit; renovation to develop a new Step-down Unit; renovation of two M/S Units for ADA Compliance; relocation and expansion of the Observation Unit²; renovations to develop a dedicated Dialysis Unit for in- and out-patients; and renovation of the Cardiac Catheterization Unit and replacement of equipment in that unit.

The project is designed to address two problems defined by the Applicant: insufficient M/S capacity and ED boarding. UMMC presented inpatient, patient boarding, and patient transfer data which reflect consistent increases in the University Campus’ ED boarding hours and M/S admissions from the ED.

This Application was submitted under and is reviewed pursuant to the regulations in effect prior to January 27, 2017.

M/S Capacity

The Applicant reports its M/S capacity is in the range of 84%-90%³. The University Campus has experienced consistent increases in ED encounters as well as in admissions from the ED. M/S admission increased 6.5% from 2015-2016. Compounding capacity issues at the University Campus are inefficiencies in moving patients from the ED to an appropriate M/S bed due to the high complement of double bedded rooms⁴. The Applicant reports that in 2016, the University Campus was unable to admit 539 patients from hospitals across the region that wanted to transfer their patients there. Many of these patients were sent into Boston or

¹ The beds are out-of-service beds for which UMMC is already licensed. There will be no increase in licensed capacity.

² Construction and expansion of this unit occurred previously. The observation unit is fully operational – its costs are included in the DoN to avoid disaggregation.

³ At the same time, occupancy for its psychiatry beds at University Campus is approximately 93%

⁴ Inefficiencies include beds in double rooms might be blocked of due to issues of infection control or gender incompatibility. Further complicating space issues is the need for private rooms to accommodate safety and security concerns because the Applicant is the preferred provider to the state prison system and admits approximately 100 patients from that system over the course of a year. As well, the Applicant states that, given the age of its facilities, 3% of its rooms can/should be out of service for emergency and deferred maintenance.

otherwise outside of this region for care because there was insufficient clinically appropriate capacity available at the University Campus⁵.

By adding more beds and constructing more private rooms, UMMMC asserts it can address these issues and can save staff time currently lost to addressing patient moves. UMMMC also asserts that it will be better able to optimally place patients in appropriate M/S units.

Several elements of the project are designed to alleviate capacity and boarding. They include: the ED-adjacent Observation Unit; development of a M/S Step-down Unit to support optimal use of M/S beds and provide the most appropriate level of care; the undoubling of patient rooms also to afford optimal use of beds heretofore unavailable because of gender incompatibility, infection control or other reasons; and the renovation of a M/S unit including the addition of 16 M/S beds.

UMMMC Psychiatry Capacity

The UMMMC Psychiatric Service currently operates 53 adult psychiatric beds: 27 beds on 8 East at the University Campus⁶, and 26 beds at the PTRC⁷. The occupancy rate at 8 East is approximately 93%. Patients presenting to the University Campus with psychiatric indications are seen by the clinical staff in the Emergency Mental Health Service ("EMHS") where there are 5 evaluation rooms, 2 patient care rooms, 2 waiting rooms (adult and child) and a common nursing station. EMHS is staffed 24/7 by the Department of Psychiatry (on-site and on-call), licensed adult psychiatrists, child and adolescent psychiatrists, licensed nurses, licensed social workers, master's level clinicians and patient counselors. EMHS staff evaluates, and, as appropriate, admits patients presenting with psychiatric indications.

Impact of Proposed Project on Psychiatry Capacity

To make room for the additional M/S capacity in a cost effective manner, the Applicant intends to close 13 of the 27 operating psychiatric beds on unit 8 East at the University Campus.

The closure of the inpatient psychiatry beds triggered an essential services closure process, through which the Department of Public Health (the "Department") expressed its concern about the closure of these beds and required the Applicant to present a plan to address those concerns. This DoN Application is a separate matter, but because the Applicant proposes a DoN project that necessitates the closure of the inpatient psychiatry beds our review of the project requires an understanding of the impact of closing the beds. Neither the essential services closure process nor the DoN process gives the Department authority to prevent the closure of these beds. DoN's review of the project is limited to whether UMMMC has demonstrated that there is a need for their proposed project, based upon the regulatory factors for DoN. In this case we look at the loss of the psychiatry beds in the context of how the project can comply with Factor 2, Health Care Requirements, and Factor 7, Relative Merit. As discussed in the analysis below, we recommend that certain conditions to this DoN might mitigate the negative impact the project, including the closure of the inpatient psychiatry beds, may have. Thus, we recommend that the commitments made as part of the essential services closure process be incorporated as conditions of this DoN so as to ensure

⁵ The Applicant reports that as a result of its capacity issues, an additional 72 patients were transported by Life Flight to facilities other than the University Campus: of which 38 highly acute patients were transferred from the University Campus to Boston and another 34 patients were transported from a scene to other hospital facilities.

⁶ The inpatient adult psychiatric unit on floor 8 East does not operate as an inpatient substance use disorders (SUD) unit. Patients presenting to the ED with SUDs with no comorbid psychiatric indications are cared for in the Medical ED until they can be placed in an appropriate SUD facility off-site.

⁷ In addition the license reflects a significant number of out of service beds including 12 at the PTRC that closed in 2009 and 14 psychiatric beds were transferred from Hahnemann Hospital to UMMMC but which were never operated by the Applicant.

the proposed project meets the DoN factors, in particular Factor 2, which requires the proposed project has least adverse consequences on the patient panel as possible.

ED Boarding

University Campus boarding includes both M/S patients in the ED and psychiatry patients in the EMHS unit. The University Campus has experienced consistent increases in ED encounters. The Applicant states that when a patient presents at the University Campus with both psychiatric and M/S indications the patient is treated in the ED and, as appropriate, admitted to a University Campus M/S bed for care. A patient with psychiatric indications alone will be seen in the EMHS and if admission is necessary, admitted to an appropriate bed at the University Campus, at the PTRC, or to another non-acute care hospital bed.

In 2016, 21% of the M/S patients who presented in the ED were admitted. In the same year, 31% of those who presented in the EMHS were admitted. Of those EMHS patients who were admitted to a psychiatry bed, 32% of them were admitted to a bed outside of the UMMMC system. Further complicating the comparison between M/S and psychiatry, in admissions and capacity, is the Applicant's assertion that up to 70% of the patients admitted to 8 East do not have the co-existing medical acuity requiring admission to a psychiatry bed located in an acute care hospital but instead could be appropriately cared for in a free-standing psychiatry bed. Of the 2016 psychiatry admissions, 28% were admitted without boarding while 72% were boarded. That said, in terms of sheer numbers, for each psychiatric patient presenting at the ED and appropriate for admission to a psychiatry bed, there are 9.7 patients who require admission to a M/S bed⁸.

The Applicant reports that in 2016, 16,254 M/S patients boarded at the University Campus ED for a total of 79,196 boarder hours⁹. The Applicant estimates that the addition of 16 M/S beds at the University Campus, along with the re-configured rooms will create 192,720 new bed hours¹⁰ which will significantly reduce current boarder hours and provide additional capacity to accept those patients who are currently turned away from University Campus because of capacity constraints.

II. STAFF ANALYSIS

Factor 1 - Health Planning Process

DoN analysis of the Health Planning Process requires a review of a facility's annual planning process as well as the planning for the proposed project. UMMMC gathered input from a variety of sources during its planning process and contacted the appropriate regulatory bodies. According to its application, the Applicant consulted with clinical and administrative leadership; local, regional, community organizations; and representatives from state agencies and provided five letters of support. No ten taxpayer groups formed, and no opposition was submitted in response to the DoN application.

⁸ Under Factor 7, Relative Merit, Staff will address, in more detail, the impact of this proposal on psychiatry capacity at University Campus.

⁹ Staff notes that the Applicant uses a different definition of boarding than that set out in the DPH Circular Letter DHCQ 12-01-555. The Applicant defines M/S boarding as remaining in the ED for more than 2 hours past the time when the decision to admit is made. For EMHS patients, the Applicant's boarding numbers are presented using the DPH definition of 12 hours or longer after admission to the ED. We have used the Applicant's numbers because they are the ones on which they base their application, but note that they are not easily comparable to the data which some hospitals voluntarily provide to the Department using the Department's definition.

¹⁰ Estimate based upon an assumption of 4.3 day ALOS, resulting in 51,600 hours – a conservative estimate since patients admitted through the ED tend to be more critically ill and experience longer lengths of stay.

Finding - Factor 1

Staff finds that Applicant has made a clear and convincing showing with respect to the DoN regulation relative to health planning.

Factor 2 – Health Care Requirements

Staff review of the proposed project is geared to determine whether the project will satisfy the health care requirements of the projected population of the service area, without duplication of services or other adverse service consequences, or the least such adverse consequences as possible in the circumstances.

In connection with efforts to address M/S ED boarding, the Applicant describes having completed significant process improvement work designed to expedite discharges, reduce patient room turnover time and accelerate the transfer of patients to open rooms. Although this has helped stabilize M/S boarding in the University Campus ED, the opportunity to further reduce ED boarding through process improvement alone is limited. As a result, the Applicant asserts that the addition of M/S beds at the University Campus, along with other aspects of this proposed project will support its efforts to further address ED boarding.

Four aspects of this project have been developed to increase access to M/S inpatient capacity: expanding the number of operating beds at University Campus through bringing 16 out of service beds back into service at the University Campus; developing an observation unit adjacent to the ED; developing a step-down unit for M/S patients; and converting double bedded rooms to single bedded rooms to ensure more efficient use by negating issues that block beds in double rooms such as gender, age, and diagnosis. These are described in more detail below:

Observation Unit - The Applicant recently relocated and expanded its observation unit to an area contiguous to the ED in the Lakeside Building. This area includes 23 beds for observation. This was designed to create a more streamlined process to move patients and to help alleviate the ED wait-time and backlog. This project is complete and operational and has been included in this DoN for purposes of avoiding disaggregation.

Medical/Surgical Step-down Unit - The proposed project contemplates the development of a stepdown unit for those M/S patients who do not require ICU level of care but are of a higher acuity than appropriate for typical M/S units. The Applicant asserts that, as opposed to the current practice through which these higher acuity M/S patients are dispersed throughout a typical M/S unit, a dedicated unit will enable staff to develop and maintain proficiency and provide improved quality and efficiency. These patients may have comorbidities and require treatment for respiratory complications or need post-surgical care.

Inpatient Renovation Projects - The scope of the overall plan, including undoubling rooms and updating space, requires the Applicant to bring existing spaces into compliance with the ADA. Toward that end, the proposed project includes planned renovations on two floors to create five ADA compliant rooms on the 4th and on the 7th floors. Additionally, the proposed project includes renovations to the two nurse's stations on the 4th and 7th floors which the Applicant indicates will support a team-based approach to care that encourages a collaborative process.

On the 8th floor, the Applicant plans renovations which will create a unit of 24 private bed rooms. The existing M/S unit on the 8th Floor has 8 beds. The Applicant plans to bring 16 out-of-service beds

from the Memorial Campus into service at the University Campus where the staffing is such that patients of the highest acuity can be admitted¹¹. As noted below under Factor 7, Relative Merit, the high acuity patients presenting to the University ED cannot be admitted to M/S beds at the Memorial Campus.

Other aspects of this DoN include the following:

Bone Marrow Transplant Unit - The proposed project includes improvements to the Bone Marrow Transplant ("BMT") unit. BMT patients often require isolation rooms that are specially designed with dedicated exhaust to provide positive/negative air pressure adjustments between rooms and the hallway, and include an anteroom outside each room. In the absence of these dedicated rooms, patients are currently placed on other units. Staff is taken away from the BMT unit resulting in operational inefficiencies. The proposed project contemplates renovation and construction which will result in 2 isolation rooms dedicated to these patients on this specialized unit of 8 beds on the 8th floor.

Dialysis Unit and Cardiac Catheterization Lab - The renovation of 2 outpatient units is included in this DoN for the purpose of avoiding disaggregation although they are not, themselves, designed to address the through-put of patients from the ED and the need for additional M/S capacity. The Dialysis unit will be relocated from the 7th to the 4th floor increasing the number of beds from 8 to 13 in 9 new treatment rooms. This room configuration will allow for greater privacy for patients, more flexibility in the event that a patient needs isolation, and provide better access for the ambulatory population. The renovation includes a new nurse's station with improved lines of sight and convenient handwashing facilities.

The Cardiac Catheterization Lab will be renovated to accommodate upgraded equipment which is more cost effective and results in better patient outcomes and reduced lengths of stay. The upgraded equipment will have the capability to perform minimally invasive trans-femoral aortic valve replacement procedures. Renovations required to accommodate the new equipment include relocating walls, and upgrading the HVAC to meet licensure requirements. The renovated space will include 7 catheterization procedure rooms, a control room and a modified equipment room. This is not an expansion of services.

Compounding Pharmacy - As part of this project, UMMMC will construct a new compounding pharmacy on the 8th floor which will support expanded M/S capacity as well as the BMT unit. The new pharmacy is necessary as the main pharmacy on the University Campus is at capacity.

Finding Factor 2

The Applicant has demonstrated need, from the perspective of the Health Requirements in Factor 2, for the additional M/S capacity. As noted above, based upon the Applicant's numbers, the addition of 16 M/S beds at the University Campus, along with the re-configured rooms will create 192,720 new bed hours which will both reduce current boarder hours and provide additional capacity. However, the addition of the M/S capacity will result in a corresponding loss of some inpatient psychiatric capacity. The need to admit an increased number of psychiatric patients to other facilities may result in access issues for some patients. Specifically, patients may be at risk of transfer to a facility that does not contract with the patient's insurer,

¹¹ The overall licensed bed count of the UMMMC will not increase.

and patients may be admitted to a bed far enough away from his or her home to result in transportation challenges¹².

As a result, and as a condition of this DoN, to ensure that the project has the least such adverse consequences as possible in the circumstances, as required by this Factor 2, Staff recommends that the Applicant be required to make reasonable efforts to prioritize for admission to an inpatient psychiatric bed within the UMMMC system those patients covered by a payer with whom the potential off-site entity does not, at the time of proposed admission, have a contract for reimbursement. Staff recommends further that the transportation plan developed by UMMMC in the context of its essential services closure plan be made a condition of this DoN. Staff further recommends that the Applicant be required, as a condition of this DoN, to report back to the DoN program regarding: 1) the total number of adult psychiatric patients boarded for 12 or more hours at UMMMC; 2) the number of adult psychiatric patients admitted to beds other than at UMMMC ; 3) where those patients are placed; 4) the primary and secondary diagnoses for any psychiatric patients who are admitted to beds other than UMMMC; 4) the number of patients who present at UMMMC with psychiatric indications and leave against medical advice; and 5) an affirmation that holder has prioritized for placement within the UMMMC system those patients for whom insurance coverage may present an access issue at another facility.

With the addition of the recommended conditions, Staff finds that UMMMC has made a clear and convincing showing in relation to the standards for Health Care Requirements (Factor 2) in the DoN regulations.

Factor 3 – Operational Objectives

In the DoN analysis of Factor 3, health care quality assurance, operational efficiencies, community referral relationships, and health equity are considered. The Applicant detailed its quality improvement program and performance improvement process including the implementation of lean management principles in 2010 because of lean's proven ability to improve quality, productivity, and cost. In addition, the Applicant introduced Team STEPPS¹³ to improve care quality and safety through improved communication and teamwork among health care professionals. These methods have been used at all 3 of UMMMC's campuses to develop the Quality Assessment and Performance Improvement Plan (QA-PI) to ensure uniform and sustained oversight, evaluation and improvement upon goals. QA-PI focuses on indicators related to improving outcomes and reducing medical errors and is updated and reviewed annually by senior leadership and the Board of Trustee's Patient Care Assessment Committee (PCAC). PCAC reviews multiple clinical oversight committees to ensure continuous improvement.

There are a number of operational improvements anticipated from the proposed project that will improve quality of services including: creating 16 single bed rooms so that less nursing, housekeeping, transport and administrative staff time is used for moves that now occur due to risks of infection, gender or age issues¹⁴; creating private negative pressure rooms (to prevent infections) within the BMT unit; replacing cardiac catheterization equipment to allow for less invasive procedures; creating a more efficient dedicated observation unit; and developing a step-down unit to efficiently monitor and deliver care to more acutely ill patients.

¹² These issues are addressed more fully in the context of Factor 7, Relative Merit.

¹³ Team Strategies and Tools to Enhance Performance and Patient Safety is an evidence-based solution developed by the Agency for Healthcare Research and Quality and the Department of Defense.

¹⁴ This new capacity will also expedite admissions to inpatient units for prisoners admitted through the contract between UMMMC and the prison system

A component of quality improvement efforts includes ensuring effective communication between care providers and patients. The Office of Health Equity (“OHE”) recently conducted a review of the interpreter and outreach services available to limited and non-English proficient (“LEP”) patients at UMMMMC. After review of this program OHE commended the Medical Interpreter Services Program and its practice of using data in planning and service delivery, the use of different modalities, and its continued commitment to program assessment. OHE’s recommendations have been included as a condition of approval of this project and in Attachment 5. Specifically, OHE has determined that the Applicant shall:

1. Continue to enhance its capacity to provide quality and timely interpreter services.
2. Revise its policy to include grievances procedures with internal and external contact information, and language that ensures continued quality in health services upon the filing of a grievance.
3. Submit an implementation plan that addresses the conditions to OHE within 30 days of approval of the DoN.

Finding -Factor 3

Based upon the foregoing, Staff finds that with adherence to the OHE recommendations which are included as a condition to this DoN, the Applicant has made a clear and convincing showing with respect to the operational objectives requirements of the DoN regulations.

Factor 4 – Standards Compliance

DoN analysis of the Standards Compliance Factor requires that the Applicant provide assurances that the project will, upon completion, comply with all applicable standards of operation imposed by law. The Applicant states that all space involved in the proposed project will meet all Department construction and licensure requirements, in addition to all physical facility requirements set forth by the Medicare Program, including handicap access. These plans will be subject to approval during the Department’s plan review process subsequent to DoN approval and prior to construction.

Finding- Factor 4

Based upon the above analysis, Staff finds that the Applicant made a clear and convincing showing with respect to the standards compliance factor of the DoN Regulations.

Factor 5 - Reasonableness of Expenditures and Costs

The DoN analysis of this Factor requires a review to determine that the proposed capital expenditure and projected operating costs are reasonable, including: a comparison with expenditures and costs involved in similar projects; the likely effect of the capital expenditure and operating costs upon charges to the public and reimbursement by third party payers to the applicant and to other providers; and the availability of funds for capital and operating costs to support health care services in Massachusetts.

Capital Costs

The requested and recommended maximum capital expenditure is: \$30,400,243 (December 2016 dollars), itemized as follows:

	Total
Total Land	\$ -

Construction Costs:	
Construction Contract	24,475,045
Fixed Equipment NOT in Contract	1,219,900
Architectural Cost	2,578,819
Pre-filing Planning & Development	311,729
Post-filing Planning & Development	242,586
Other: Contingency	-
Net Interest Expense during Construction	1,000,000
Major Movable Equipment	-
Total Construction Costs	29,828,079
Financing Costs:	
Cost of Securing Financing	572,164
Bond	-
TOTAL FINANCING COSTS	<u>572,164</u>
Total	\$30,400,243

Staff compared UMMMC's construction costs to Marshall & Swift Valuation Service ("M&S"), Class A "Excellent" base cost of new construction for general hospitals.

Proposed GSF	53,458
Construction Contract	24,475,045
Site Survey & Soil Investigation	-
Architectural & Engineering Costs	2,578,819
Fixed Equipment not in Contract	<u>1,219,900</u>
Total Construction Costs	28,273,764
Cost per FT SQ	\$ 528.90

UMMMC's adjusted unit cost for renovation is \$528.90 per GSF which is approximately 35% higher than the M&S comparative standard. This can be attributed to the extra costs to bring areas into ADA compliance with the removal of walls, replacement of bathrooms, widening of doors, and related work. Additionally the costs involved with wall removal and construction of individual infection control anterooms and installing individual negative air pressure HVAC units for each room on the BMT unit add to the expense. Staff reviewed costs per GSF and found the Applicant's costs to be within the range of recently approved DoN projects.

Incremental Operating Costs

The requested and approved incremental operating costs of \$14,404,479 (December 2016 dollars) for the first full year of operation following project implementation are itemized below.

Incremental Operating Costs

Salaries, Wages & Fringe	\$7,244,702
Purchased Services	298,304
Supplies & Other Expenses:	3,133,898
Depreciation	2,283,478
Interest	1,001,286
Pension	<u>442,811</u>
Total	\$14,404,479

The operating costs reflect an increase in staffing of 85.2 FTE, which includes all associated clinical, support and administrative staff. The incremental personnel and supply and other expense categories costs are related to the increase in M/S capacity of the project.

Finding - Factor 5

Staff has reviewed the proposed maximum capital expenditure and incremental operating costs and finds the Applicant makes a clear and convincing demonstration as to Factor 5.

Factor 6 – Financial Feasibility

In looking at Financial Feasibility, Staff looks at the capacity of the applicant to finance and operate after project approval. The Applicant plans to finance \$28,608,179 of the proposed project with tax-exempt bonds issued through the Massachusetts Health and Educational Facilities Authority (“MHEFA”). The MHEFA bonds will have a 25-year term and an anticipated interest rate of 3.5%. The balance of the proposed project cost will be met through an equity contribution of \$8,248,487 from internal gains from operations as well as non-operating revenue. The equity contribution represents approximately 27% of the total MCE and is above the standard 20% equity contribution. Financial ratios were calculated from recent audited financial statements and other information submitted by the Applicant. The current ratio and debt-service coverage ratio (DSCR) are metrics that indicate the ability and entity to meet current debt obligations, with higher ratios indicating a stronger cash flow position. The Applicant’s calculated values are above the DoN minimum standard, as shown below which is an indicator of financial feasibility of the project.

	<u>FY 2014</u>	<u>DoN standard</u>
Current Ratio	1.52	1.5
Debt Service Coverage	3.95	1.4

Finding - Factor 6

Based upon the above analyses, Staff finds the Applicant has made a clear and convincing demonstration as to Factor 6.

Factor 7 – Relative Merit

In its DoN review of the Relative Merit factor, Staff must find that the Applicant has demonstrated that “the project as proposed is, on balance, superior to alternative and substitute methods for meeting the foreseen health care requirements reviewed under Factor 2, taking into account the quality, efficiency, and capital and operating costs of the project relative to potential alternatives or substitutes, including theoretical as well as existing models”.

The Applicant reports that it considered several alternatives including:

- Taking no action to meet the overcrowding of the ED and leaving the unmet need unaddressed. This option was rejected and considered inefficient, and potentially unsafe, patient care.
- Building a new addition to the University Campus so that patients could be moved expeditiously to the appropriate level of care. This option was rejected as an inefficient use of capital resources.
- Renovating and repurposing existing space within the existing facilities. This option was selected because it was considered more cost effective and a better use of resources and space.

As a result of the choices made to increase M/S capacity, UMMMC will be decreasing its psychiatry capacity at the University Campus by 13 of the 27 operating adult inpatient beds on its Unit 8 East. This decreased capacity at the University Campus means that there will be a number of patients who will be admitted to an inpatient bed elsewhere. In that regard, Staff is concerned that those patients could encounter access issues due to the type of insurance coverage they have. The decrease in operating adult inpatient beds on its Unit 8 East generated an essential services closure process. As noted above, this DoN Application is a separate matter review of the project requires an understanding of the impact of closing the beds, in the context of Factor 7, we consider whether the plan to close these inpatient psychiatric beds in order to open the M/S beds is, on balance, superior to potential, alternate methods for meeting the health care requirements of the Applicant's patients.

As an alternative to decreasing the psychiatry capacity on 8 East, Staff asked whether the Applicant could increase the UMMMC M/S capacity at its Memorial Campus. In response the Applicant stated that the Memorial Campus does not have the physical capacity for additional beds, nor does it have the staffing to care for the high acuity patients who present at the University ED needing admission. The Applicant asserted further that the best use of the out-of-service beds was to put them into service at the University Campus and in order to accommodate patient flow and throughput, and to ensure that the beds are configured to assure efficient use of staff and optimal care for patients, that the logical placement for the new capacity was an expansion of the existing M/S unit on the 8th floor. This results in the renovation of the 8 East Psychiatry Unit and the loss of operating inpatient psychiatric capacity from 27 beds to 14 beds. Further, the Applicant does not have the physical capacity to move the 13 inpatient psychiatry beds to the Memorial Campus without new construction at Memorial Campus. The costs associated with such construction would negate the savings efficiencies the Applicant gains in moving the M/S to existing space on 8 East.

The closure of the 13 inpatient psychiatric beds is estimated to displace a total of 431 inpatient psychiatric discharges annually. This averages to slightly more than one patient per day. The Applicant has noted that these patients can be referred to available beds within the UMMMC System¹⁵ and other referring facilities within Massachusetts as it does today. In addition, the Applicant has a formal affiliation agreement with the TaraVista Behavioral Center in Devens, Massachusetts that will reserve 14 beds at TaraVista to which the Applicant can refer psychiatric patients effective upon closure of the UMMMC psychiatric beds on 8 East¹⁶. The Applicant states that since March 17, 2017 TaraVista staff has joined the daily bed huddle at EMHS, the

¹⁵ Applicant refers patients to its own behavioral health services that are offered at the PTRC on Queen Street in Worcester (26 operating, inpatient psychiatric beds). Within the larger system controlled by the UMMMC parent, the psychiatric capacity includes: UMass Memorial-Marlborough Hospital (24 licensed, inpatient licensed beds), UMass Memorial-Clinton Hospital (20 licensed, inpatient psychiatric beds) and Community Health Link on City Hospital Campus which operates adolescent and adult detox beds, post-detox clinical stabilization services, transitional support services, as well as mental health crisis stabilization beds.

¹⁶ These 14 beds will be new to TaraVista and will not displace patient capacity in the currently operating 24 TaraVista beds.

purpose of which is to find the appropriate bed placement for each patient based on their psychiatric needs. In the longer term, UMMMC's parent, UMass Memorial Health Care, plans a joint venture arrangement the result of which will be the construction, ownership, and operation of a new, 120-bed inpatient, psychiatric hospital 2.7 miles from the University Campus, which will expand the system's overall psychiatric services.

Finding - Factor 7

Staff acknowledges both the higher acuity and significantly higher numbers of M/S patients presenting to the University Campus ED, as well as the Applicant's plans for transfer of those psychiatry patients appropriate for placement in a psychiatric bed in a non-acute-care hospital setting. The Applicant's agreement with TaraVista is a partial and an interim solution. The planned joint venture between UMass Memorial Health Care, and Team Behavioral Health, LLC to build, own, and operate a new 120-bed psychiatric hospital which will be located under 3 miles from the University Campus represents a longer term solution for psychiatric patients seeking care from UMMMC.

That said, continuing significant concerns regarding access, transportation, and the appropriate placement of patients with co-existing medical and psychiatric indications mitigate in favor of certain conditions, outlined in the context of Factor 2 and tied, as well to this Factor 7 finding. With the addition of the conditions referenced above, Staff can find that Applicant made a clear and convincing argument with respect to Factor 7.

Factor 8 – Environmental Impact

DoN Review of this factor requires that the Applicant provide assurances that all feasible measures will be taken in the execution of the project to avoid or minimize damage to the environment. DoN applications submitted by acute care hospitals for new construction or gut renovation are subject to the DoN Guidelines for Environmental and Human Health Impact ("Green Guidelines"). UMMMC indicated and Staff agrees that the proposed project is not a gut renovation and that therefore the green guidelines do not apply.

Finding- Factor 8

Staff finds that the project is not subject to compliance with Factor 8.

Factor 9 – Community Health Initiatives

To satisfy Factor 9, the Applicant must offer a plan for the provision of primary and preventive health care services and documentation of any such community services and contributions currently provided by the Applicant in its service area.

Consistent with the policies and procedures set forth in the Department of Public Health Bulletin ("Bulletin") of February 11, 2009 and amended August 2014, the Applicant has worked with representatives of the Department's Bureau of Community Health and Prevention (BCHAP) to identify community planning partners for the development of a specific funding plan for the Initiative(s) which includes at its core: the Coalition for a Healthy Greater Worcester (CHNA 8, the "Coalition") and the Worcester Division of Public Health/Central Massachusetts Regional Public Health Alliance, to ensure that the funds are directed to community health initiatives that will improve health for vulnerable populations, reduce health disparities, and create policy and system change. Specifically, \$1,520,012 will be distributed over 5 years at \$304,002 per year, to fund community health initiatives to be agreed upon with BCHAP's Office of Community Health Planning and Engagement ("OCHPE"). Funding of the initiatives will begin

within 45 days of the project implementation and notification to the OCHPE at least 3 weeks prior to implementation of the project. The Applicant will also file all reports as required by the Department.

Finding - Factor 9

Based upon the foregoing, and with conditions articulated in Attachment 6, Applicant has made a clear and convincing showing with respect to Factor 9.

IV. STAFF FINDINGS

Analysis of this DoN is based upon the aspects of the proposed project that are subject to regulation under DoN with the understanding that the proposed project and its various elements are happening in a larger context that includes the closure of psychiatry beds as described in the essential services closure process. While DoN review of the project requires an understanding of the impact of closing the beds it is limited to whether UMMMC has demonstrated that there is a need for its proposed project, based upon the regulatory factors for DoN.

Patients presenting in the University Campus ED with psychiatric indications, who would otherwise be served on-site by a facility with whom their payers maintain contracts may face access issues including insurance coverage and transportation. Patients presenting in the University Campus ED with psychiatric and concomitant medical issues may end up placed in a facility that is less-well-suited to address the medical acuity.

The relevant regulation requires that the project satisfy the health care requirements of the projected population of the service area and do so with the least adverse consequences as possible in the circumstances. UMMMC has available beds on its license and is accessing available space without having to incur the substantial capital costs of new construction. At the same time, they have made proposals to assure the continued appropriate care for any patients displaced by this plan.

In order to fulfill the requirement that there are the “least adverse consequences”, Staff has proposed a set of conditions the inclusion of which allow Staff to find that, along with the compelling case that the Applicant has made for the additional M/S capacity, the project as proposed and in its entirety will meet the healthcare requirements with the least adverse consequences.

Based upon the foregoing analysis, Staff finds the following:

1. UMMMC proposes to renovate portions of four floors at the University Campus to address the longer ED wait times by creating more M/S beds, creating a new nine-bed Step-down Unit, renovating the Bone Marrow Transplant Unit, Psychiatry, Dialysis and Cardiac Catheterization services, building out an Observation Unit and at the same time, bringing spaces into ADA and code compliance. The Maximum Capital Expenditure is \$30,400,243.
2. The health planning process was satisfactory and consistent with the DoN Regulations.
3. The project meets the health care requirements provision of Factor 2 of the DoN regulations with the appropriate utilization of alternative delivery sites as proposed; with adherence to conditions below.
4. The project, with adherence to the condition governing language access, meets the operational objectives of the DoN Regulations.
5. The project meets the compliance standards of the DoN Regulations.

6. The proposed and recommended maximum capital expenditure of \$30,400,243 (December 2016 dollars) meets the compliance standards of the DoN Regulations
7. The proposed and recommended incremental operating costs of \$14,404,479 (December 2016 dollars) meet the compliance standards of the DoN Regulations.
8. The project is meets the standards of the DoN Regulations with respect to financial feasibility.
9. The project meets the relative merit provisions of the DoN Regulation, with adherence to conditions incorporated in the recommendation.
10. The project is not subject to the DoN Green Guidelines.
11. The project with adherence Conditions set forth in Attachment 6 meets the community health service initiatives of the DoN Regulations.

IV. STAFF RECOMMENDATION

Based upon the foregoing analysis and findings, Staff recommends approval with conditions of Project Number 2-3C60 submitted by UMass Memorial Medical Center. Failure of the Applicant to comply with the conditions may result in Department sanctions.

1. UMMMC shall accept the maximum capital expenditure of \$30,400,243 (December 2016 dollars) as the final cost figure, except for those increases allowed pursuant to 105 CMR 100.751 and 100.752.
2. UMMMC shall contribute \$8,248,487 equity out of the total approved maximum capital expenditure.
3. The total approved gross square feet ("GSF") for this project shall be 53,458, GSF of renovation.
4. UMMMC shall adopt the recommendations of the Office of Health Equity for improvement of policies and procedures related to language access for non-English or limited English proficient patients as detailed in Attachment 5 of this Staff Summary.
5. UMMMC shall contribute a total of \$1,520,012 (December 2016 dollars), over a period of 5 years to fund the community health services initiatives referenced in the Staff Summary as detailed in Attachment 6 of this Staff Summary.
6. UMMMC shall maintain its same level of commitment to the underserved patients in its service area by continuing to provide access to all irrespective of payer.
7. UMMMC shall prioritize for admission to an inpatient psychiatric bed within the UMMMC system those patients covered by a payer with whom the potential off-site entity does not at the time of admission, have a contract for reimbursement.
8. UMMMC has agreed to the following plan to address transportation in connection with patients who will be admitted to a psychiatry bed off-site. In order to accommodate visitation for these patients, for a 6 month period, UMMMC will institute a daily shuttle from and to the University Campus that will round at Tara Vista, the Harrington Hospital sites and the Westboro facility. This shuttle will run twice per day and will available to those wishing to visit patients at the alternative facilities at no cost. During this 6 month period, UMMMC will assess the demand for such services and other options that may be available.
9. UMMMC shall, as a condition of this DoN, report back to the DoN program regarding: 1) the total number of adult psychiatric patients boarded for 12 or more hours at UMMMC; 2) the number of adult psychiatric patients admitted to beds other than at UMMMC and where those patients are placed; 3) the primary and secondary diagnoses for any psychiatric patients who are admitted to beds other than UMMMC; 4) the number of patients who present at UMMMC with psychiatric indications and leave against medical advice; and 5) an affirmation that holder has prioritized for placement within the UMMMC system those patients for whom insurance coverage may present an access issue at another facility.

These reports shall be quarterly, shall commence upon approval of the DoN and shall continue through the later of December 2020 or the year after the opening for operation of the new, UMMHC-affiliated inpatient psychiatry service in Worcester.

If the DoN program determines, based upon the reports submitted or otherwise, that the implementation of this DoN Project results in non-compliance with one or more of the conditions thereto: to wit, that patients shall not lose access to care because of insurance; that patients with co-occurring medical acuity and psychiatric indications will be admitted to UMMMC; and that psychiatric ED boarding does not precipitously increase, then Staff may refer this matter to the PHC for further consideration of whether the Holder may be in violation of one or more condition of its DoN. Upon referral to the PHC, the Applicant may include a presentation of evidence that the purported violation occurred as a result of factors beyond the control of UMMMC.

Appendix

Chart 1

Total Emergency Department Encounters

	ED Visits		Patient Mix		%
Inpatient & Outpatient:	FY15	FY16	FY15	FY16	Change
Psychiatry	5,396	5,778	6.3%	6.4%	7.1
<i>Requiring Admit*+</i>	<i>N/A</i>	<i>1,807</i>			
Substance Abuse	2,062	2,325	2.4%	2.6%	12.8
Poisoning/Overdose	665	370	0.8%	0.4%	-44.4
Subtotal Behavioral Health	8,123	8,473	9.4%	9.4%	4.3
Medical/Surgical Patients	78,203	81,892	90.6%	90.6%	4.7
<i>Requiring Admit+</i>	<i>16,362</i>	<i>17,441</i>			6.5
Grand Total	86,326	90,365	100.0%	100.0%	4.7

*Only those that could be eligible for 8E Psych unit counted

+Not double counted in the Grand Total since these numbers are a **subset of the category above**, either Psychiatry or Medical patients

Chart 2

Comparisons of M/S to Psychiatric Patient Boarding and Admissions

2016		ED/EMHS	%
	Boarding	Admissions	Boarding/ Admissions
Medical +	16,254	17,441	93%
Psychiatric*	2,488	1,807	72%
M/S : Psych	6.5	9.7	
+ 2Hrs post decision to admit			
* 12 + hrs			

Attachments

1. Hospital License
2. Essential Services Notification
3. Essential Services Plan (April 28, 2017)
4. Response to Essential Services Plan (May 18, 2017)
5. Health Equity
6. CHI