UNIVERSITY of MARYLAND MEDICAL SYSTEM

Modernizing the State of Maryland's Premier Academic Medical Center

University of Maryland Medical Center

EXECUTIVE SUMMARY

March 17, 2015

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Proposal to the State of Maryland for Capital Support

Founded in 1823 as the Baltimore Infirmary, the University of Maryland Medical Center is one of the nation's oldest academic medical centers. Located on the West Side of Downtown Baltimore, the Medical Center is distinguished by discovery-driven tertiary and quaternary care for the entire state and region and innovative, highly specialized clinical programs. The Medical Center cares for more than 35,000 inpatients and 300,000 outpatients each year.

Each day, the University of Maryland Medical Center saves lives and restores health to the most critically ill Maryland residents. Critically ill patients arrive through our critical care transfer system from other community hospitals, through our emergency room and by air via the Maryland State Police. UMMCs' highly specialized medical personnel and dedicated resources are mobilized and are focused on a single mission: to providing ***high value and compassionate care, improving health in Maryland and beyond, educating future health care leaders and discovering innovative ways to advance medicine worldwide.***

Patients admitted to the University of Maryland Medical Center benefit from the talent and experience of the very finest physicians, nurses, researchers and other health care providers. Here, health care professionals from many disciplines work together as a team to cure illness, conquer disease, and assure the needed support for patient and family alike.

All of the Medical Center's physicians are faculty members at the University of Maryland School of Medicine, the nation's fifth oldest and first public medical school and a recognized leader in biomedical research and medical education.

Over the past 25 years, the State of Maryland has been a strong supporter of UMMC and has been the enabler to transforming the UMMC medical complex by replacing and constructing new health facilities which has transformed the delivery health care to be technically advanced, efficient and comforting settings to provide excellent, state-of-the-art patient care. To maintain and assure reliability of these facilities, UMMC needs to upgrade and replace critical infrastructure to improve its physical conditions and functional utility to ensure patient safety and efficient operations. State capital support is vital for the systematic renewal of building systems that wear out under normal use and require periodic replacement. These systems –

including mechanical systems for heating, ventilation, and air conditioning; plumbing; elevators; electrical/emergency power systems and air handling units that usually have useful lives of 20 to 40 years.

PROJECT RATIONALE

The University of Maryland Medical Center is in urgent need to address the current infrastructure of several hospital buildings to reliably and efficiently meet current life safety, environmental, and infection control standards. The requested capital investment is essential to provide the highest level of clinical quality and patient safety to our most vulnerable population.

The overarching goal of the project is to provide a reliable, efficient delivery of health care services to meet the needs of not only for today but over the next decade.

Modernization of UMMC building infrastructure is essential for providing safe facilities for our most critical ill patients undergoing life-saving treatments for cancer, heart failure, abdominal organ transplants, critical ill pediatric patients and patients recovering from stroke. This new infrastructure is also critical for us to support our ongoing readiness and fail-proof system as a regional Ebola treatment center, where reliable air handling and emergency power is crucial.

Delivering advanced medicine in aged building infrastructure generates daily waste and limits operational and clinical efficiencies. Reliable elevator systems to transport patients to time-sensitive diagnostic and therapeutic treatments and adequate air exchanges and cooling of patient rooms are vital operational functions that impact patient outcomes and recovery. In addition, meeting requirements of our emergency preparedness plan, require us to upgrade our emergency power systems. Reliable building infrastructure, expert physicians and staff surrounded by a culture of safety and compassion is the perfect formula to deliver the care Maryland residents expect from us every day, always. Please support us in continuing this important mission to heal, to teach, to discover and to care.

THE NEED AND SOLUTION

Elevator Replacements

- **South Hospital Elevator Replacement (6 elevators)**
  - Key Drivers & Current State: The South Hospital elevators were originally installed in 1937. Control modifications were completed in 1986, otherwise no major improvements or modernization has been done. The elevators need daily maintenance attention and deterioration continues.
  - Future State: New controls, hoist equipment, cab finishes and destination controls. The new controls facilitate fully coordinated operating system which will improve efficiency, traffic flow and wait times. The life expectancy of the new operation is expected to be 15-20 years.
  - Budget: $6,000,000
  - Schedule: Design can begin immediately and will take a few months. Construction will take approximately 18 months as one car is completed at a time.

- **North Hospital Elevator Replacement (7 elevators)**
  - Key Drivers & Current State: The North Hospital elevators were installed in 1968. Control modifications were completed in 2000, otherwise no major improvements or modernization has been done. The existing controllers are no longer manufactured therefore replacement parts are unavailable. The elevators no longer work in group mode (meaning all elevators respond to every call). They need daily maintenance and deterioration continues.
  - Future State: New controls, hoist equipment, cab finishes and destination controls. The new controls facilitate fully coordinated operating system which will improve efficiency, traffic flow and wait times. The life expectancy of the new operation is expected to be 15-20 years.
  - Budget: $7,000,000
  - Schedule: Design can begin immediately and will take a few months. Construction will take approximately 18 months as one car is completed at a time and can be executed concurrently with the South Hospital elevator work.

- **IPHB Elevator Replacements (3)**
  - Key Drivers & Current State: The OPHB elevators were originally installed in 1950. Minor control renovations were completed in 2000. The existing controllers are no longer manufactured and parts are unavailable.
  - Future State: New controls, hoist equipment, cab finishes and destination controls. The new controls facilitate fully coordinated operating system which will improve efficiency,

traffic flow and wait times. The life expectancy of the new operation is expected to be 15-20 years.

- Budget: $4,000,000
- Schedule: Design and construction will take approximately 12-14 months, working one cab at a time.
- Status: Not started

Ensuring Reliable Emergency Power

- **Establish Weinberg\Gudelsky Back-up Emergency Power**
  - Key Drivers & Current State: The systems date to the building construction, 2004 (2002 for age of machine) for the Weinberg Building and 1993 for the Gudelsky Building. Each plant provides independent emergency power for the respective buildings. If one of the two plants fail there is no back-up power for the parts of the hospital the plant serves.
  - Future State: This would provide life safety and critical power back-up for the campus.
  - Budget: $1,500,000
  - Schedule: Bidding and construction will take approximately 9 months.
  - Status: Design is underway

- **Establish North Hospital Emergency Power Basement Chillers**
  - Key Drivers & Current State: There is no emergency power provided for the chillers located in the North Hospital. They supply chilled water to cool the North Hospital , South Hospital, Gudelsky and IPHB buildings. If normal power is lost or interrupted, there is no cooling in these buildings. This is noted as a risk on the FM Global report that we have one transformer serving these chillers.
  - Future State: Providing emergency power service to these chillers creates a redundant power source that assures continuous cooling to North Hospital, South Hospital, Gudelskly and IPHB buildings.
  - Budget: $1,000,000
  - Schedule: Design and construction will take approximately 18 months.

Renew and Upgrade Building System Infrastructure

- Modernize electrical, heating, air conditioning and plumbing systems to meet today's standards for environmental control, clinical quality and patient safety. This will assure patient care is provided in state-of-the-art, safe, efficient and reliable facilities.

- **Replace South Plant Chillers**
  - Key Drivers & Current State: The South Plant back up chillers were originally installed in 1986. They are cooled by an R-12 refrigerant which, legal at the time, is now banned by the EPA. The expected lifespan is 25 years so they are beyond useful life. Only minor repairs have been completed since they were installed.
  - Future State: The replacement chillers will serve as the primary chillers for the Weinberg and Shock Trauma buildings, provide substantial efficiency improvements and back up capacity for the South Plant.
  - Budget: $2,000,000
  - Schedule: Design and construction will take approximately 20 months.
  - Status: Not started.

- **Replace South Hospital Air Handling Units (1,2,3)**
  - Key Drivers & Current State: The South Hospital air handling units were originally installed in 1985. No major upgrades nor improvements have been performed since they were installed. They are old galvanized steel units which are rusting and energy inefficient.
  - Future State: The new air handling units will increase energy efficiency, comfort and provide better environmental conditions through improved filtration.
  - Budget: $2,000,000
  - Schedule: Design and construction will take approximately 18 months.
  - Status: Not started.

- **Gudelsky Tower Air Handling Units**
  - Key Drivers & Current State: The Gudelsky air handling units were originally installed in 1993. The units do not meet current standards for air filtration. No major improvements have been completed since they were installed. They are old galvanized units which are rusting and inefficient. They are physically at end of life.
  - Future State: The new units will be hospital grade HEPA filtered units sized to provide sufficient cooling for the critical patient care units in Gudelsky.
  - Budget: $6,000,000
  - Schedule: Design and construction will take approximately 24 months.
  - Status: Not started.

- **High Pressure Steam Relocation**
  - Key Drivers & Current State: The high pressure steam line is the heating source for the South Hospital. It was originally installed in 1937. It is currently leaking. The line is located in an electric shaft which is no longer code compliant. It will be relocated to the basement adjacent to other similar utilities.
  - Future State: The new line will run into the basement, where the steam will be converted to heating water. The new installation will greatly improve efficiency.
  - Budget: $500,000
  - Schedule: Design and construction will take approximately 18-24 months.
  - Status: Not started.

THE PROPOSAL

Continue the partnership between the State of Maryland and the University of Maryland Medical System to invest in critical infrastructure capital needs of the University of Maryland Medical Center so that it remains capable to deliver outstanding and reliable value based patient care. A capital plan for 2016-2018 is depicted on the chart below:

FY2016 Proposed Capital Allocation	
South Hospital Elevator Replacements (6)	$6,000,000
North Hospital Elevator Replacements (4)	4,000,000
Subtotal	**$10,000,000**

FY2017 Proposed Capital Allocation	
North Hospital Elevator Replacements (3)	$3,000,000
Weinberg/Gudelsky Back-up Emergency Power	1,500,000
North Hospital Emergency Power Basement Chillers	1,000,000
South Hospital Chillers Replacements	2,000,000
South Hospital Air Handling Units (1,2,3)	2,000,000
High Pressure Steam Relocation	500,000
Subtotal	**$10,000,000**

FY2018 Proposed Capital Allocation	
IPHB Elevator Replacements (3)	$4,000,000
Gudelsky Tower Air Handling Unit	6,000,000
Subtotal	**$10,000,000**

UPDATE ON CURRENT PROJECTS: NICU AND LABOR AND DELIVERY PROJECTS

- **Neonatal Intensive Care Unit (NICU) Replacement Project Status**
  - Key Drivers & Current State: The current NICU, a Level IV, the highest possible level and only one of two in the state of Maryland, is at capacity every day with 40 beds. The sickest and smallest babies are sent to UMMC by hospitals all over the state. The current space configuration has up to ten babies and their families sharing one room. There is no privacy for families, no space for the care givers, technology is old, the space is dated and the airflow and lighting are inadequate.
  - Future State: The new 37,000 sq ft NICU allows for 52 private rooms. The proposed new space is LEED- certified and will create an environment appropriate for our most delicate patients as well as offering the privacy the parents deserve during this critical time. Special features of the space include increased security, HEPA filtered ventilation, LED lighting with automatic controls which replicate circadian rhythms, sound deadening drywall, new windows, rubber floors, dedicated areas for families and the patient care providers.
  - Budget: $40,000,000
  - Schedule: Design and construction took approximately 48 months.
  - Status: Construction is 95% complete and the unit is scheduled to open early July 2015.

Sample patient room w/parent space

Newly Renovated NICU Unit

- **Labor and Delivery (L&D) Suite Replacement Project Status**
  - Key Drivers & Current State: Improving L&D facilities is the next step in a major initiative to provide facilities that reflect the strengths of the women and infants clinical and teaching services at UMMC. Past upgrades have been unable to fully support movement from practices that are appropriate for undersized, older facilities to relevant industry "best practices"
  - Future State:
    - Replace outdated and undersized L&D facilities with appropriate size, mix and quality of highly functional, flexible rooms.
    - Support family centered care, staff friendly and teaching goals.
    - Cost effective, major renovation within existing hospital for long-term use.
    - Support safety and efficiency – lean approach.
    - Aesthetically appealing.
  - Budget: $30,000,000, including enabling projects.
  - Schedule: Design and construction will take approximately 48 months.
  - Status: Master plan and functional programming are complete as of December 2014. Final site selection for the L&D program will be completed by June 2015. The project will be completed in multiple phases.

Labor and Delivery Room

UMMS FY ’16 Capital Budget Testimony

Thank you for this opportunity

- Leonard Taylor, SVP for Operations and Support Services University of Maryland Medical Center

- Art Hilsenrad

Unique Mission of UMMS

- With your help both the Medical Center and School of Medicine have become national leaders

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Relationship with State of Maryland

- Base for conduct of clinical trials
- Advanced clinical care
- Accelerating trend – Provider of complex care
- Board Appointments
- Successful bipartisan relationships – 6 governors
- Train next generation
- Receive no general fund operating support

Importance of consistent capital support

Increasingly competitive environment demands first rate facilities

- Recruitment students/faculty
- Rising cost of nontraditional investments, particularly IT

How State support matters

- Bond Rating (JP Morgan perspective)
- Private Philanthropy (Donors very aware)
- Augments UMMS capacity to invest
- Especially essential in period of unprecedented change

The value of being able to rely on phases of UMMC development

I. Longstanding accepted practice of partnership
II. Shock Trauma Center
III. Gudelsky Building
IV. Weinberg Building
V. Second Shock Trauma Building

Phase V

- Description of original package
- Seeking conventional 5 year partnership
- State support more important than ever in the period of unprecedented change (waiver)
- Rationale for redefinition of Phase V
- Hoped for consistent $10 million annual support
- Recognize constraints – requesting FY ’16 appropriation moving as close to $10 million as is reasonable
- Will invest well, wisely and quickly
- Request adding “basic infrastructure investments” to project title