THE UNIVERSITY OF WISCONSIN SYSTEM

Request for

State Building Commission Action

June 2013

1. Institution: The University of Wisconsin System

2. Request: (a) Authority to construct various maintenance and repair projects for an estimated total cost of $10,023,900 ($2,833,100 GFSB – Facility Maintenance and Repair; $5,035,600 GFSB – Utility Repair and Renovation; $1,197,000 PRSB – Utility Repair and Renovation; and $958,200 Cash); (b) Authority to transfer all approved GFSB All Agency allocations to the UW Infrastructure Maintenance appropriation; and (c) Permit the Division of Facilities Development to adjust individual project budgets.



1. Description and Scope of Project: This request provides maintenance, repair, renovation, and upgrades through the All Agency Program.

#### Facility Maintenance and Repair

LAX – 13E1A – Center for the Arts Toland Theatre Sound System Replacement ($561,400): This project replaces the obsolete sound system in Toland Theatre with modern audio infrastructure to allow student instruction with equipment used in contemporary theaters. Project work includes completely replacing the 1970s audio system infrastructure (including microphones, speakers, audio electronic equipment, and associated wiring).

A recent study identified many deficiencies including obsolete equipment, improper choice of replacement equipment, and inadequate support infrastructure. The condition of the equipment has deteriorated to the point that much of the audio system is not reliable and equipment must be rented for productions. Student instruction is hampered by the failing equipment and typically limited to the occasions when rental equipment is available. Due to the number of deficiencies, the study recommended replacement of the entire system. This theater is used for instruction and associated performances by theatre arts, set design, sound design, lighting design and music students.

MIL – 13E3Q – Great Lakes Research Facility Area Switchgear Replacement ($828,400): This project replaces the obsolete 50-year-old electrical switchgear to provide a modern reliable power source for this critical research laboratory facility. Project work includes installing five new exterior pad-mounted air interrupter 15kV switchgear bays on the west side of the facility. Two of these switchgear units will be used to terminate two utility incoming feeders, one unit will be used for metering, and the remaining two units will be used to serve two medium voltage transformers located in an electrical room on the third level of the facility. We Energies will provide new incoming cable in conduit from their manhole located under the sidewalk along Greenfield Ave. to bays 1 and 2. New cable in conduit will be installed from bays 4 and 5 to the electrical room and then terminated on two new 15kV switchgear units that will serve as disconnects for the two existing 1500/2000kVA, 13.2kV-480V transformers.

The two existing 15kV incoming switchgear units, one 15kV circuit breaker, and two 15kV medium voltage transformer disconnect switches will be removed. The existing switchgear battery bank will be relocated to allow installation of the new switchgear. The existing utility-owned service cable that is routed from their manhole along Greenfield Ave. to the electrical room will be abandoned in place.

MSN – 12L1U – Medical Sciences Parapet Wall Repair ($702,000): This project repairs the east façade brick parapet wall to correct movement along the shelf angle. The project   
area is located above the entrance to Lot 116, inner courtyard, to the northeast corner of the building which is located at the intersection of Charter St. and Linden Dr. Project work includes removing and rebuilding the east facade brick wall (140 LF by 7 VF and 15 inches deep) from the sixth floor shelf angle to the wall cap on the roof. Brick units will be salvaged and reused as feasible. When the face brick is removed, the shelf angle will be assessed and replaced if necessary. The brick backup wall will be reconstructed and all capstones reset. New through wall flashing will be installed on the roof side where the roof and wall intersect.

The parapet wall has bowed significantly, opening masonry joints and posing a life safety hazard. The bow is approximately 4-1/2 inches out of plumb vertically. The archway to Lot 116 has been blocked to pedestrian and vehicular traffic. If left unattended, this portion of the wall has potential to collapse.

MSN – 13E3P – Nielsen Tennis Stadium Roof Replacement ($257,600): Project work includes removing approximately 16,665 SF existing PVC roofing and associated insulation and installing a new 60-mil Ethylene Propylene Diene Monomer (EPDM) membrane over new insulation to achieve a minimum average R-24 value. Roofing work must be coordinated around electrical conduits that run across the roofing surface, mechanical equipment curbs, and other roof penetrations. The lighting protection system will be modified as necessary. Roof counter flashings and metal roof edges will be replaced as required.

The roof sections are more than 24 years old. Recent site inspections by staff determined the roof sections require replacement to address current leaking, weathered, worn, and/or damaged sections. These repairs will extend the life of the roof sections and prevent moisture from penetrating the building envelope.

MSN – 13E1C – Social Science Roof Replacement ($612,500): Project work includes removing approximately 30,000 SF of built-up roofing to the concrete deck and installing a new fully adhered Ethylene Propylene Diene Monomer (EPDM) system   
over new polyisocyanurate insulation to achieve an R-value of R-24. Roofing work must be coordinated around electrical conduits run across the roofing surface, mechanical equipment curbs, and other roof penetrations. Metal flashing will be reused and caulking will be replaced. Roof Area 11 will receive new metal fascia. Roof counter flashings and metal roof edges will be replaced as required. Site conditions require roof hoists and other special materials handling provisions.

The roof sections are 25 years old. Recent site inspections by staff determined the roof sections require replacement to address current leaking, weathered, worn, and/or damaged sections. These repairs will extend the life of the roof sections and prevent moisture from penetrating the building envelope.

#### Utility Repair and Renovation

MSN – 13D2T – Dayton Street Central Utility Renovations, Phase II ($3,072,000): This project renovates central utilities infrastructure between Dayton St. and Capitol Ct. (just south of Johnson St.). The work includes the removal and replacement of steam/condensate and chilled water central utility underground infrastructure. Abandoned steam/condensate utilities will be removed, remaining steam/condensate utilities will be replaced, and chilled water south of the intersection will be upsized and extended further south.

Steam/condensate work includes replacing steam pit 16/11 and approximately 165 LF of concrete box conduit. The signal communication manhole 3S07 will be demolished and replaced. The steam/condensate box conduit systems previously abandoned in phase one of this project will now be removed. The section of steam/condensate box conduit system directly under the Wisconsin and Southern Railroad corridor will be permanently abandoned-in-place and filled with concrete.

Project work also includes upsizing and extending the 12-inch chilled water supply and return piping. Two or three segments of the existing main 48-inch piping may require replacement to facilitate new 20-inch tie-in work due to the present configuration and condition. The chilled water system will be extended south of the bike path to a termination point at the east end of Capitol Ct.

This project is phase two of three. Phase three will be constructed through a future project and will include installation of the second bore tunnel under Dayton St. and the Wisconsin and Southern Railroad corridor complete with a new concrete box conduit system and steam/condensate piping which will be connected to the existing systems routed east along Dayton St.

The steam distribution system in the scope of this project was installed 1958. This is the primary distribution artery to the campus. There have been several recent condensate leaks in this section of distribution system. While inspecting the distribution system during the latest repair work, it was determined that the entire piping system and a signal distribution pit is in poor condition. In the 2005 Master Plan, several additional facilities were planned in the Capitol Ct. area and the piping is not adequately sized to serve the projected loads.

SUP – 13D1S – Steam Distribution System Repair/Replacement, Phase III ($3,990,000): This project repairs or replaces approximately 2,316 LF of underground conduit containing high-pressure steam and pumped condensate piping. This project completes repairs of damage caused by the June 2012 flood, implements steam/condensate distribution system flood mitigation strategies, and replaces distribution components at or nearing the end of their service lives. Based on the pending inspection and testing results, the concrete conduit box, steam and condensate piping, and piping supports are to be fully replaced, partially replaced, or reused as dictated by their condition.

The direct-buried steel or cast-iron conduit sections will be removed and replaced with a new concrete box conduit system. The steam and condensate piping associated to the direct-buried systems between Steam Pit 5 and Steam Pit 10 and Steam Pit 10 and Steam Pit 11, will be upsized from 6-inch HPS/3-inch PCR to 8-inch HPS/4-inch PCR to increase steam flow capacity to the central campus.

The project scope also includes various repairs and renovations to steam pits and the associated equipment and installing bulkheads where existing box conduit systems penetrate building walls to prevent an uninhibited path of water entry into finished spaces if a flood event should occur. The bulkheads will be installed in the buildings impacted by the project scope: Barstow Hall, Erlanson Hall, Old Main, Curran-McNeill Ostrander Hall, Marcovich Wellness Center, and Wessman Arena.

Torrential rains in June 2012 flooded a significant portion of the campus, completely submersing most of the steam and condensate distribution system. The piping insulation was saturated or dislodged by water currents as the conduit systems quickly filled with water during the event.   
  
Some debris and silt was carried by floodwaters into the box conduit systems and remained after the waters receded. Most of the affected sections, dating to the 1960s and 1970s, contain aged insulation systems that are not well suited for heavy water exposure. The steam pits were also constructed in the 1960s and 1970s and repairs are required due to age, moisture, and salt exposure. The salt-laden moisture originates from winter applications of de-icing agents on adjacent sidewalks and roadways. Due to repeated exposure, certain sections of the concrete reinforcement steel have rusted and caused concrete spalling.   
  
There is not a cost effective or practical means to remove the conduit, preserve existing piping, replace piping insulation and install a new steel conduit. Therefore, the direct-buried conduit systems will be replaced with concrete box conduit systems.

The Federal Emergency Management Agency (FEMA) and Wisconsin Emergency Management (WEM) will be reviewing claim applications for this work. Preliminary discussions with both organizations have indicated that a substantial portion of the costs associated to flood restoration work may be covered and reimbursed after construction is completed.

1. Justification of the Request: UWS and DFD continue to work with each institution to develop a comprehensive campus physical development plan, including infrastructure maintenance planning. After a thorough review and consideration of approximately 450 All Agency requests and over 4,500 infrastructure planning issues submitted, and the UW All Agency funding targets set by DFD, this request represents high priority UWS infrastructure maintenance, repair, renovation, and upgrade needs. This request focuses on existing facilities and utilities, targets the known maintenance needs, and addresses outstanding health and safety issues. Where possible, similar work throughout a single facility or across multiple facilities has been combined into a single request to provide more efficient project management and project execution.
2. Budget:
3. GFSB – Facility Maintenance and Repair $2,833,100
4. GFSB – Utility Repair and Renovation $5,035,600
5. PRSB – Utility Repair and Renovation $1,197,000
6. Cash…………….. ……………………………………………………… $958,200

## *Total Requested Budget $10,023,900*

6. Previous Action: None.

7. Agency Contact:

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