

All Agency Project Request

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<u>Agency</u>	<u>Institution</u>	<u>Building No.</u>	<u>Building Name</u>
University of Wisconsin	Madison	285-0A-9912	Utility - Campus Parking Lots

<u>Project No.</u>	12A1E	<u>Project Title</u>	Lot 76 Lift Station Renv
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Project Intent

This project provides pre-design and design services to renovate Lot 76 parking ramp lift station to ensure uninterrupted sanitary sewer services to UW Hospital, Eagle Heights, and west campus facilities.

Project Description

Project work includes upgrading and modernizing the entire station, including the pumps, valves, and other electrical and mechanical components. The renovated station will be sized to accommodate the existing design flow and additional capacity if necessary, as determined by the pre-design efforts. The renovation will also correct the rainwater infiltration in to the lift station through the various sidewall conduit penetrations.

BACKGROUND: The lift station serves buildings on the west side of campus including the UW Hospital, UW Medical Foundation Centennial Building, American Family Children's Hospital (AFCH), the Health Learning Sciences Center, Wisconsin Institutes for Medical Research (WIMR), Waisman Center, Pharmacy Building, Eagle Heights apartments, and University Houses. The lift station also serves a small number of residential properties in the Village of Shorewood Hills. The lift station is a three-pump wet well/dry well station. The dry side of the station has two below grade levels. All the controls and pump motors are located on the upper level below grade and the pumps are on the lower level. The motors are mounted on an operating floor above the pumps and drive shafts connect the motor to the pumps below. There are currently three (3) 30 HP variable speed shaft drive pumps in the station. Due to the limitations of the electrical control system, only two pumps can be powered at any one time. The original switches that allowed the pumps to operate at variable speeds became inoperable many years ago and float switches were then installed to allow the pumps to operate at a fixed speed. The original construction plans for the station show a comminutor and by-pass bar screen were installed in the wet well but these components are no longer in the station.

The lift station discharges into an 18-inch force main that discharges into the public gravity sewer located at the south end of Walnut Street. Results of flow metering in 2005 indicate the peak flow into the station is approximately 520 GPM, however, this was prior to the opening of WIMR, AFCH, and the Centennial Building. The station has an approximate pumping capacity of 1,800 GPM with a single pump and 2,300 GPM with two pumps operating. The station is served by a single electrical source and is connected to a backup generator located in, and shared with, the Pharmacy Building.

Project Justification

This lift station has not been significantly renovated since its construction in 1966, and most of its major components are beyond their designed service life. The lift station is unreliable and the required level of maintenance and repairs to this station to keep it operational is excessive. The condition of the lift station does not provide a safe work environment for operations and maintenance. Continuous and reliable operation is critical due to the medical buildings served by this lift station and the potential environmental damage that could be caused by a system failure.

The electrical control system is outdated and significant portions of it are inoperable. The electrical system cannot power all three pumps at the same time and require maintenance personnel to physically plug and unplug the pumps on a rotating basis.

Due to the age of the station and its components, current DNR codes for ventilation are not being met. Upgraded ventilation is needed to ensure an acceptable environment for equipment and personnel. The high humidity levels in the current station are not conducive to good long-term operation of electrical components within the station. The pumps have clogged several times by disposable medical wipes, which could have been prevented by having the comminutor and by-pass bar screen in place. Valves in the station are either difficult to operate or are inoperable.

Rust and corrosion are prevalent on piping, pumps, and electrical cabinets. Stairways and hatchway doors are worn and

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rusted and should be replaced for worker safety.

Storm and ground water regularly leak into the structure through conduit penetrations. These leaks have allowed the entire structure to become flooded during large rain events. The leaking water runs onto and over the electrical control boxes. This situation could cause electrical system failures and/or potentially unsafe working conditions for maintenance personnel. Stormwater flooding the station can cause a mixture of stormwater and sewage to overflow into the neighboring streets, ponds, and lake.

A/E Consultant Requirements

A/E Selection Required?

Consultants should have specific expertise and experience in the design and coordination of sanitary sewer lift stations and related electrical and mechanical control systems as part of a design team. Work includes site surveys, acquiring field data, and verifying as-built conditions to assure accurate development of design and bidding documents, and production of necessary design and bidding documents. Consultants should indicate specific projects from past experience (including size, cost, and completion date) in their letter of interest and when known, include proposed consulting partners and specialty consultants.

The consultant will verify project scope and budget estimates, and recommend modifications as required to complete the specified project intent. The consultant will prepare a pre-design document to establish an appropriate project scope, budget, and schedule prior to the university seeking authority to construct from the Board of Regents and State Building Commission. The pre-design services will include the technical and cost evaluation of the following items:

- address employee safety, interior lighting, exterior aesthetics, and landscaping
- analyze various design solution alternatives, including complete replacement of the entire station vs. reuse of the concrete structure and replacement of all equipment and components.
- assess the integrity of the existing structure
- coordinate the design and obtain all approvals with City of Madison, Madison Metropolitan Sewer District (MMSD), State of Wisconsin, UW-Madison, Wisconsin Department of Natural Resources (WDNR)
- design to meet current codes and regulatory guidelines
- determine the existing peak flow and the projected lift station flow demand and capacity using the campus master plan
- determine the need for air ventilation to meet current codes
- develop measures to prevent storm water infiltration
- develop measures to phase construction and provide continuous sanitary sewer service to the campus
- evaluate the benefit and feasibility of adding an above grade control building
- evaluate the need and method(s) to accomplish the following items:
 - (a) connect alarms to the campus DDC system
 - (b) include a comminutor or bar screen
 - (c) replace pumps, valves, mechanical and electrical equipment and components, doors, and stairs
 - (d) waterproof the underground concrete structure

Commissioning

- Level 1
- Level 2

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<u>Project Budget</u>	<u>Funding Source</u>	<u>Total</u>
Construction Cost: \$780,000	GFSB - <input type="checkbox"/>	\$0
Haz Mats: \$0	PRSB - <input type="checkbox"/>	\$0
Construction Total: \$780,000	Agency/Institution Cash [AGF0]	\$16,800
Contingency: 15% \$117,000	Gifts	\$0
A/E Design Fees: 8% \$62,400	Grants	\$0
DFD Mgmt Fees: 4% \$35,900	Building Trust Funds [BTF]	\$45,600
Equipment/Other: \$15,700	Other Funding Source	\$0
\$1,011,000		\$62,400

Project Schedule

SBC Approval: 09/2012
 A/E Selection: 03/2012
 Bid Opening: 03/2013
 Construction Start: 05/2013
 Substantial Completion: 09/2013
 Project Close Out: 12/2013

Project Contact

Contact Name: Matt M. Collins
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 Telephone No.: (608) 263-3031 x

Project Scope Consideration Checklist

- | | <u>Y</u> | <u>N</u> |
|--|-------------------------------------|-------------------------------------|
| 1. Will the building or area impacted by the project be occupied during construction? If yes, explain how the occupants will be accommodated during construction.

<i>All project work will be coordinated through campus physical plant staff to minimize disruptions to daily operations and activities.</i> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Is the project an extension of another authorized project? If so, provide the project #... | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Are hazardous materials involved? If yes, what materials are involved and how will they be handled?

<i>Hazardous materials abatement is not anticipated on this project. Comprehensive building survey inventory data is not available on Wisconsin's Asbestos & Lead Management System (WALMS) <http://walms.doa.state.wi.us/>.</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Will the project impact the utility systems in the building and cause disruptions? If yes, to what extent? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Will the project impact the heating plant, primary electrical system, or utility capacities supplying the building? If yes, to what extent? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Are other projects or work occurring within this project's work area? If yes, provide the project # and/or description of the other work in the project scope. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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7. Have you identified the WEPA designation of the project...Type I, Type II, or Type III?
Type III.
8. Is the facility listed on a historic register (federal or state), or is the facility listed by the Wisconsin Historical Society as a building of potential historic significance? If yes, describe here.
9. Are there any other issues affecting the cost or status of this project?
10. Will the construction work be limited to a particular season or window of opportunity? If yes, explain the limitations and provide proposed solution.
Project work is seasonal. Preferred project work schedule should be limited to late spring, summer, and/or early fall months if possible.
11. Will the project improve, decrease, or increase the function and costs of facilities operational and maintenance budget and the work load? If yes, to what extent?
Completion of this project will decrease operational maintenance costs.
12. Are there known code or health and safety concerns? If yes, identify and indicate if the correction or compliance measure was included in the budget estimate, or indicate plans for correcting the issue(s).
13. Are there potential energy or water usages reduction grants, rebates, or incentives for which the project may qualify (i.e. Focus on Energy <<http://www.focusonenergy.com>> or the local utility provider)? If yes, describe here.
14. If this is an energy project, indicate and describe the simple payback on state funding sources in years and the expected energy reduction here.