

# All Agency Project Request

2013 - 2015 Biennium

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<b><u>Agency</u></b>	<b><u>Institution</u></b>	<b><u>Building No.</u></b>	<b><u>Building Name</u></b>
University of Wisconsin	Whitewater	285-0N-9933	Utility - Site Telecommunications

<b><u>Project No.</u></b>	14C1D	<b><u>Project Title</u></b>	Fiber Optic Cable Backbone Upgrade
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## **Project Intent**

This project upgrades the campus fiber optic backbone to meet both current and future requirements for the university's data, voice, video, building HVAC control, and building fire alarm reporting systems.

## **Project Description**

Project work includes upgrading the campus fiber optic cable backbone, including both outside plant and inside plant fiber. Single mode (SM) fiber will be installed in a radial fashion from the campus node in McGraw Hall to 16 buildings on the south portion of campus and from the campus node in Goodhue Hall to 20 buildings on the north portion of campus. A typical SM fiber cable will contain 48 strands. Single mode fiber (144 strands) will also be installed between the McGraw Hall node and the Goodhue Hall node. All fiber will be installed in existing concrete encased signal ductbanks. Readily identifiable abandoned low voltage cable will be removed from the signal ductbank system. Telecommunication risers in 18 buildings will be upgraded with the installation of one new SM fiber and one new multimode (MM) fiber in existing raceway. New SM and MM fiber termination shelves will be installed in existing equipment racks in each building for termination of outside and inside plant fiber. This project will also replace the energy management system (EMS) panel network interfaces in all buildings and fire alarm panel interfaces in all buildings with new SM fiber interface modules to allow communication of both systems with existing head-end equipment over the new SM fiber.

## **Project Justification**

A campus fiber optic cable replacement study is in progress as part of the Campus Master Plan (12I1D). The pre-design report cited a need to replace the fiber optic cable plant for ongoing maintenance and capacity issues. The existing cable plant is comprised of both MM and SM fiber that was manufactured approximately 20 years ago. An early 1990s project installed 16 or 32 strands of MM fiber from one of two campus nodes to each building and between 4 to 10 strands of SM fiber from one of two campus nodes to each building. This fiber is obsolete and the MM fiber does not have the capacity to serve increasing academic, administrative, and student use. The number of fiber strands is not adequate to accommodate many IT applications including voice over IP, video over IP, fire alarm reporting and EMS networking. The fiber has become brittle due to the methods used in the original manufacturing process and it is very difficult to repair using current termination equipment and techniques. Recent breaks in the MM fiber have caused failure of the fire alarm central reporting function from various buildings to the campus security office. Fiber manufacturing processes have improved since the original cable plant was installed and new fiber is tested to higher standards to achieve higher bandwidth capacities. New fiber is more flexible making it easier to pull and terminate which tends to minimize future service issues.

## **A/E Consultant Requirements**

A/E Selection Required?

Consultants should have specific expertise and experience in the design and coordination of fiber optic systems serving multiple buildings in a campus setting. 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.

## **Commissioning**

- Level 1  
 Level 2

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## Project Budget

Construction Cost:	\$	
Haz Mats:		\$0
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Construction Total:	\$	
Contingency: 15%	\$	
A/E Design Fees: 8%	\$	
DFD Mgmt Fees: 4%	\$	
Equipment/Other:		\$0
		<b>\$4,924,000</b>

## Funding Source(s)

	<u>Total</u>
GFSB - Utilities Repair & Renovation [Z080]	\$2,806,700
PRSB - Utilities Repair & Renovation [T570]	\$2,117,300
Agency/Institution Cash []	\$0
Gifts	\$0
Grants	\$0
Building Trust Funds [BTF]	\$0
Other Funding Source	\$0
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	<b>\$4,924,000</b>

## Project Schedule

SBC Approval: 06/2014  
 A/E Selection: 07/2014  
 Bid Opening: 04/2015  
 Construction Start: 06/2015  
 Substantial Completion: 09/2015  
 Project Close Out: 12/2015

## Project Contact

Contact Name: Tami McCullough  
 Email: <mccullot@uww.edu>  
 Telephone: (262) 472-6704 x

## Project Scope Consideration Checklist

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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.    
*All project work will be coordinated through campus physical plant staff to minimize disruptions to daily operations and activities.*
2. Is the project an extension of another authorized project? If so, provide the project #...
3. Are hazardous materials involved? If yes, what materials are involved and how will they be handled?    
*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/>>.*
4. Will the project impact the utility systems in the building and cause disruptions? If yes, to what extent?    
*All project work will be coordinated through campus physical plant staff to minimize disruptions to daily operations and activities.*
5. Will the project impact the heating plant, primary electrical system, or utility capacities supplying the building? If yes, to what extent?
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.
7. Have you identified the WEPA designation of the project...Type I, Type II, or Type III?    
*Type III.*

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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.
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.