Environment and Natural Resources Trust Fund
2010 Request for Proposals (RFP)

LCCMR ID: 198-F

Project Title:

Educational and Hands-on Demonstration Sites of Green Infrastructure

LCCMR 2010 Funding Priority:

F. Environmental Education

Total Project Budget: $ $368,197

Proposed Project Time Period for the Funding Requested: 3 years, 2010 - 2013

Other Non-State Funds: $ $0

Summary:

Highlights economic and natural value of urban green space vegetation through sustainable, hands-on green infrastructure demonstration sites incorporating long-term public and student education and participation from site development and beyond

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Sponsoring Organization: Rochester Community and Technical College

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Location:

Region: SE

County Name: Olmsted

City / Township:

_____ Knowledge Base _____ Broad App. _____ Innovation

_____ Leverage _____ Outcomes

_____ Partnerships _____ Urgency _____ TOTAL

PROJECT TITLE:
Educational and Hands-on Demonstration Sites of Green Infrastructure

I. PROJECT STATEMENT

We will develop sustainable, educational, and hands-on demonstration sites to highlight the need, economic and natural value, and methods of establishment of a natural infrastructure system consisting of urban green space vegetation. Goals include promoting (1) student and public involvement in environmental science, (2) innovative and student-driven biological-based approaches to utilizing urban green spaces for the free ecological services that they provide, (3) sustainable, biological, and cost-effective management methods for urban environments, and (4) an appreciation and awareness of the value of the natural environment.

Goals will be achieved by engaging the public and students through the development of hands-on demonstration sites on the 518-acre University Center Rochester campus, which includes Rochester Community and Technical College and Winona State University-Rochester. Using the existing campus landscape, which includes a 90-acre forest, an 8-acre series of interconnected wetlands, a 5-acre agriculture field, and smaller bioswales (< 0.25 acres), student interns and public volunteers will be directly involved in the establishment and subsequent long-term monitoring, research, and maintenance of the green infrastructure demonstration sites. These sites will be both biologically and aesthetically relevant to educate about the value of ecological services, including clean air and water, flood mitigation, carbon sequestration, recreation, food and fiber, and wildlife habitat. Through the integration of Environmental Science and Horticulture Programs at Rochester Community and Technical College and possible collaboration with the Ecology and Environmental Science programs at Winona State University, students will be encouraged to develop innovative ideas to managing and maintaining urban environments using a sustainable, biological approach.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Provide opportunities for students and the public to experience and learn about environmental science and ecological services first-hand with the development, maintenance, and long-term monitoring and management of natural green space vegetation in an urban setting. **Budget:** $368,197

Development of the proposed green infrastructure demonstration sites will provide outdoor learning opportunities for students and the public to experience their environment and learn about and assist with sustainable methods of managing natural areas. Following initial development of the sites, students and the public will have opportunities to participate in long-term monitoring and management techniques to maintain green space vegetation. There will be free workshops available, as well as field-work days on campus for restoration and maintenance projects, which will be incorporated into a service-learning component of various courses. These demonstration sites will also provide numerous diverse projects for student research on campus. The accessibility of these outdoor learning environments to students (100-200/year), campus personnel, and the public will provide additional outlets for people to experience their environment, while helping to show them how the environment is intimately linked to the local economy and relevant to their daily lives. Educational literature and signage, as well as hands-on workshop and field-work training, will provide information about ecological services.

The importance and value of green spaces in an urban landscape through the establishment of a green infrastructure on campus will be used to promote the idea of free ecological services provided by the environment, such as flood prevention, control of sedimentation in river and lakes, detoxification of storm water, and food and fiber. A major theme throughout the demonstration sites will be the interconnectedness of our environment and economy.

Deliverables **Completion Date:** June 30, 2013

1. Regular field-work days for students and the public to participate in developing and maintaining educational demonstration sites.
2. Student-driven long-term monitoring program of green infrastructure demonstration sites.
3. Educational materials (website, brochures, signage) and workshops developed and maintained with students in the Environmental Science and Horticulture Programs. These will inform about the importance of green infrastructure within an urban setting, including stormwater runoff, invasive species, carbon sequestration, and the economic value of nature, promoting awareness of the interconnection between environmental and human health.
4. A series of native plant landscaped stormwater mitigation demonstration sites ranging in size from 2 small native plant bioswales and 1 rain garden to a large 8-acre wetland shoreline restoration with ADA compliant, permeable overlook.
5. A 5-acre forest restoration demonstration site focusing on the removal of invasive species, especially buckthorn (*Rhamnus cathartica)*, exotic honeysuckles, (*Lonicera tartarica, L. morowii, L. x bella*), and garlic mustard (*Alliaria petiolata*).
6. A 5-acre native prairie plot and nursery to promote sustainable maintenance efforts and hands-on experiences.

III. PROJECT STRATEGY

A. Project Team/Partners

Our project team consists of faculty, staff, and a student representative from the University Center Rochester community, as well as local experts in native plant ecology, urban forestry, and environmental education.

Project Manager: Dr. Cory Rubin, Ph.D., Ecologist. RCTC Biology Dept.
Assistant Manager: Robin Fruth-Dugstad, M.S., Horticulturist. RCTC Horticulture Dept.
Native Plant Consultant: Dr. Jennifer Rubin, Ph.D., Plant Ecologist. RCTC Biology Dept.
Forestry Consultant: Jacob Ryg, M.S., Urban Forester. City of Rochester.
Environmental Education Consultant: Roberta Tolan, M.S., MBA. Executive Director. Quarry Hill Nature Center
Student Representative: Matthew Pahl, B.S., RCTC Environmental Science Major.
Institutional Support: RCTC and WSU; **Fiscal Agent:** RCTC

B. Timeline Requirements

We are seeking funds for a 36-month period to achieve project goals, considering invasive forest species will be removed manually and up to three growing seasons are generally required for successful establishment of native plants for the proposed restoration projects.

C. Long-Term Strategy

A primary motivation for proposing this project is to educate on the long-term sustainability and economic value of restored green spaces in an urban setting. Thus, it is our intent that once this project becomes established that it will be self-sustaining and may only require minimal extramural funds to maintain and build upon educational opportunities. As part of program requirements, students majoring in Environmental Science and Horticulture at Rochester Community and Technical College will help maintain and monitor the biological components of the proposed project. Additionally, we anticipate that there will be multiple volunteer opportunities available for public participation in the maintenance and monitoring of the restoration sites. We will also encourage participation from faculty and students in the Winona State University Ecology and Environmental Science program options as well as possibly area K-12 schools and appropriate non-profit organizations in the area.

Project Budget

INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)

Attach budget, in MS-EXCEL format, to your "2010 LCCMR Proposal Submit Form".

(1-page limit, single-sided, 11 pt. font minimum. Retain bold text and delete all instructions typed in italics. ***Add or delete rows as necessary.*** *If a category is not applicable you may write "N/A" , leave it blank, or delete the row.)*

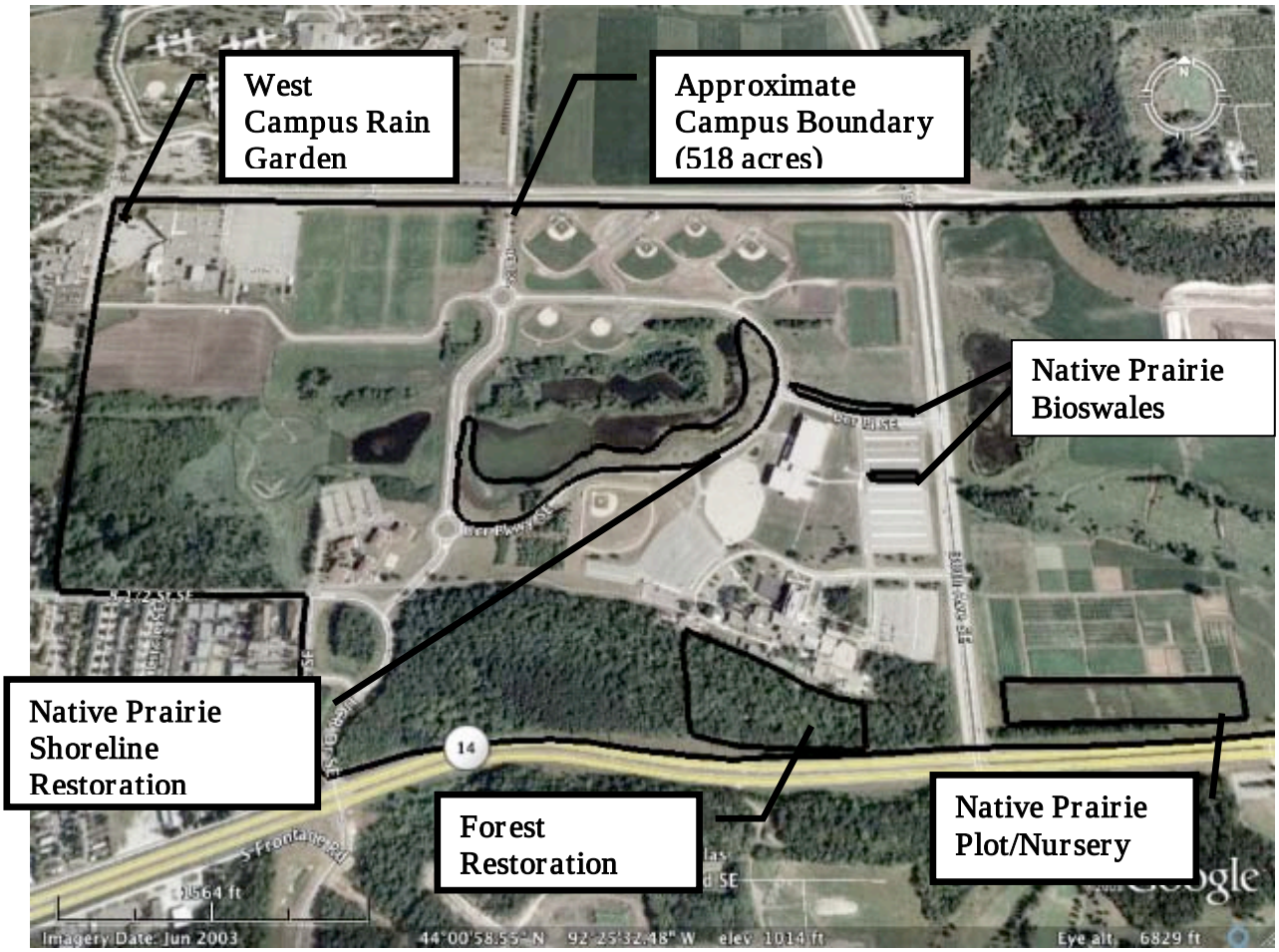
IV. TOTAL PROJECT REQUEST BUDGET (3 years)

BUDGET ITEM	AMOUNT
Personnel: 1 Project Manager and lead Environmental Science Coordinator: 33% FTE, $19,800 salary plus 25% ($4950) benefits (36 mos) = $74,250 1 Lead Horticulture Coordinator: 25% FTE, $15,000 salary plus 25% ($3750) benefits (36 mos) = $56,250 1 Lead intern: 50% FTE, $10 / hour for 26 weeks / year * 3 years = $15,600 6 Student interns: 50%FTE, $8.50 / hour for 16 weeks (year 1) = $16,320 6 Student interns: 50% FTE, $8.50 / hour for 16 weeks (year 2) = $16,320 4 Student interns: 50% FTE, $8.50 / hour for 16 weeks (year 3) = $10,880 3 Environmental consultants: $40 / hour for 200 hours = $24,000	$ 213,620
Contracts: Native plant landscaping: Prairie Restorations, Inc. ($95,852) Rain garden: Contractor type - Landscape Architect ($16,000) Brush hauling: Contractor type -Tree Removal Co. ($3,000) ADA compliant overlook: Contractor type - Pervious Concrete Co. ($15,000) Kiosks and signage: Contractor type - Sign Co. ($8000)	$ 137,852
Equipment/Tools/Supplies: Burning equipment for prairie maintenance (e.g., protective equipment, drip torch, fire rakes, swatters, camel back water bladders): $3060 Forest restoration and maintenance supplies (e.g., chain saw, hand saws, protective equipment, hand pruners, large brush and tree removal tools (root talon and weed wrench), stump treatment): $2975 Prairie restoration and mainatenance supplies (e.g., rakes, shovels): $500 Biological monitoring supplies (e.g., water testing kits, dip nets, bug nets,waders, water sampler, seine, herbarium): $8190 Educational materials (e.g., brochures, datasheets, clipboards, mounted plant specimens): $2000	$ 16,725
TOTAL PROJECT BUDGET REQUEST TO LCCMR	$ 368,197

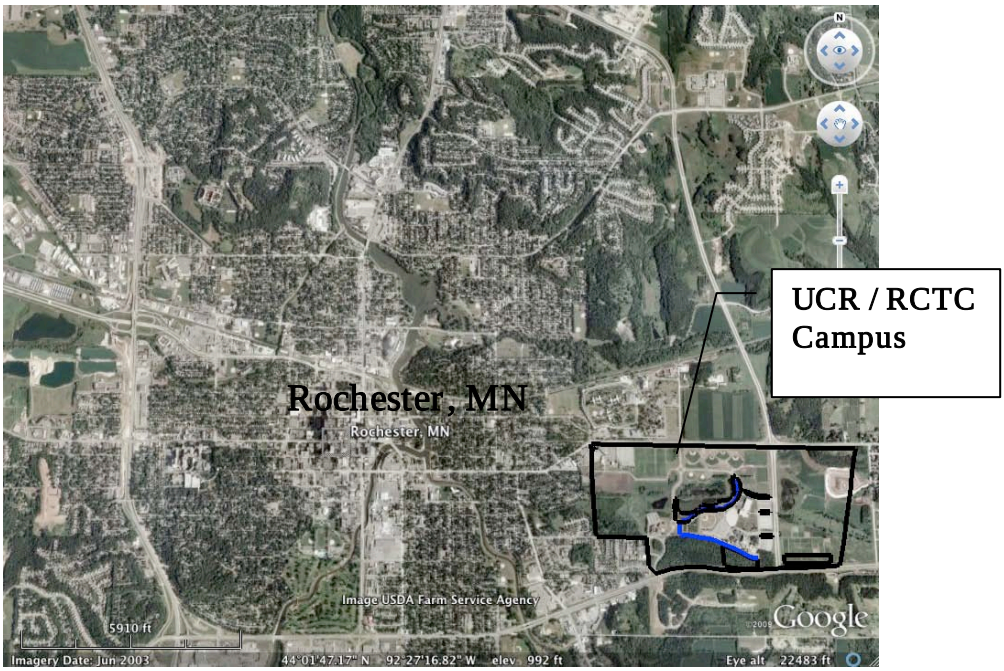
V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period: Land @ $10,000 / acre * 26 acres = $260,000 2 Office space @ $15,000 / office *2 = $30,000 Computers for interns @ $1500 / computer * 5 = $7500 Greenhouse space and supplies = $1000	$ 298,500	

RCTC campus showing locations of restoration sites.



Site location within the City of Rochester, MN



Project Manager: Dr. Cory Rubin, Ph.D.

Qualifications:

- Ph.D. (2000), M.S. (1994), Natural Resources and Environmental Sciences. University of Illinois at Urbana-Champaign.
- U.S. Fish and Wildlife Biologist (2000 – 2004).
- Biology Instructor, Rochester Community and Technical College (2004-present).

Responsibilities: Prepare reports and educational materials • Develop and coordinate outreach and student curriculum • Develop and oversee monitoring program • Supervise and advise interns • Oversee restoration efforts • Coordinate and work with contractors and consultants

Organization: University Center Rochester

Mission: To provide access to quality higher education in an environment of integrated academic partnerships

Description: University Center Rochester partners include Rochester Community and Technical College and Winona State University, which offer more than 150 credentialed educational options. The institutions focus on offering programs along the spectrum from certificate through graduate level studies in business, education, health sciences, technology, and liberal arts programs.

Rochester Community and Technical College offers the latest technology, great facilities, innovative courses, and technical and transfer programs in nursing and allied health, sciences, technology and business. Rochester Community and Technical College is the oldest community college in Minnesota with roots dating back to 1915, with the mission to provide accessible, affordable educational opportunities to meet the needs of a diverse community. The college enrolls approximately 6,000 students annually in credit-based programs. Another 10,000 are served in noncredit and credit-based workforce initiatives.

Winona State University-Rochester Center is a dynamic learning community that provides rigorous, high quality baccalaureate and graduate education opportunities to students. The presence of Winona State University-Rochester Center's thirty-eight residential faculty located in Rochester is evidence of its strong commitment to serving the community and region. Winona State University, founded in 1860, is the oldest State University west of the Mississippi. For more than 80 years WSU has delivered quality higher education in Rochester and the surrounding area. Winona State University-Rochester Center serves over 1,500 students annually in undergraduate and graduate education.