Environment and Natural Resources Trust Fund
2009 Phase 2 Request for Proposals (RFP)

LCCMR ID: 056-B2

Project Title: Minimal Impact Design Standards for Urban Stormwater Runoff

Total Project Budget: $ $500,000

Proposed Project Time Period for the Funding Requested: Three Years – July 2009 to June 2012

Other Non-State Funds: $ $0.00

Priority: B2. Reduce Peak Water Flows

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Sponsoring Organization: MPCA

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Region:	County Name:	City / Township:
Statewide		minimum of all cities & townships permitted under

Summary: Develop a quantitative methodology to support the implementation of the full range of stormwater management techniques, to be used for site design and review by LGUs and State agencies.

Main Proposal: 1008-2-005-proposal-2009 MIDS Main Proposal formated.doc

Project Budget: 1008-2-005-budget-MIDS project budget summary.xls

Qualifications: 1008-2-005-qualifications-Wilson Bio Revised.doc

Map:

Letter of Resolution:

MAIN PROPOSAL

PROJECT TITLE: Minimal Impact Design Standards (MIDS) for Urban Stormwater Runoff

I. PROJECT STATEMENT

This proposal addresses a leading stormwater management request of Minnesota's Cities: development of a comprehensive package of urban watershed runoff quantification tools that includes state-of-the art Best Management Practices (BMPs) and design standards for reducing post-development stormwater runoff peak flows; increasing infiltration/storage, and minimizing city flooding; and Conservation and Low Impact Development designs and associated ordinances. This package will have wide applicability throughout Minnesota and its aquatic ecoregions, and will advance local stormwater management efforts to address impaired waters and nondegradation goals through a system of qualitative resources and quantitative credits based on current scientific understanding of stormwater management techniques. Such a comprehensive methodology does not currently exist anywhere in the United States and will be used for project design (by engineers and architects) and project review (by cities, townships, other LGUs, and State agencies).

This project will build on and extend existing guidance materials and projects (e.g.: MN Stormwater Manual and Assessment & Maintenance of Stormwater BMPs):

a. Planning measures (conservation design, cluster development, natural resource inventories, etc.)
b. Zoning and city ordinance measures and revisions (narrow streets, alternative cul-de-sac design, etc.)
c. Site BMPs with Conservation Designs – preserving stream corridors, green corridors, as well as Low Impact Designs emphasizing infiltration practices such as rain gardens, etc.
d. City-scale BMPs (structural & non-structural – regional ponds, street sweeping, public education, etc.)

The methodology will be based on a performance concept – post-development runoff hydrology (quantity & quantity) shall not exceed the pre-development site runoff hydrology based on typical native vegetation (for ~5-10 year storm event). This methodology will quantify the benefits of all the full range of techniques and provide a menu or toolbox of techniques for project designers to select and implement depending on their projects' location, aquatic ecoregion, operation and maintenance requirements, geology, site conditions, and other factors. Project designers will use the methodology to assemble of a set of appropriate measures for their site to meet performance standard(s).

The MIDS products will define appropriate submittal calculations, protocols and formats. This quantitative framework will be appropriate, with some refinement, for use in the TMDL and impaired waters response and review processes and include:

- quantitative MIDS methodology for designing and reviewing project implementation; and
- local zoning code and ordinance revisions that will promote and enable the implementation of the full range of desired stormwater management techniques.

The full set of MIDS products could be adopted, on a voluntary basis, by cities, townships, and other LGUs as a path towards compliance with nondegradation demonstrated on a project by project basis, thus resolving a significant legal challenge at the State level. The final MIDS products will address four categories of construction and development:

1. Low and medium-density residential
2. High-density residential, commercial, and industrial; and then
3. Linear (roads and utility projects)
4. Redevelopment

The initial phase of this work will address the first one or two of these categories, depending on resources. The goal will be to demonstrate success before moving on to the more difficult and challenging categories of development and rely upon partnerships to leverage resources. Developing the MIDS products is outside of the core regulatory functions of the MPCA. This project will not offset or replace agency funding.

II. DESCRIPTION OF PROJECT RESULTS (Total Cost = $500,000)

Activity #1: Develop comprehensive list of desired stormwater management techniques *Budget:* $40,000
Deliverable #1: Comprehensive list of desired stormwater management techniques *Completion Date:* Oct 2009

Activity #2: Review of other efforts around the U.S. to quantify the benefits of the full range of desired stormwater management techniques *Budget:* $70,000
Deliverable #2: Review report *Completion Date:* Dec 2009

Activity #3: Develop package of zoning code and ordinance revisions appropriate to support and enable the implementation of the full range of desired /stormwater management techniques *Budget:* $50,000
Deliverable #3: Package of zoning code and ordinance revisions appropriate to support and enable the implementation of the full range of desired /stormwater management techniques *Completion Date:* Dec 2009

Activity #4: Develop MIDS and methodology for full range of techniques *Budget:*: $200,000
Deliverable #4: Design standards and methodology. *Completion Date:* Sept 2009

Activity #5: Pilot MIDS and methodology in a limited number of LGUs *Budget:* $40,000
Deliverable #5: Pilot report *Completion Date:* May 2010

Activity #6: Monitor representative project sites to validate MIDS performance *Budget:* $30,000
Deliverable #6: Monitoring report *Completion Date:* May 2010

Activity #7: Complete MIDS and methodology for adoption by LGUs *Budget:* $70,000
Deliverable #7: MIDS and methodology for adoption by LGUs *Completion Date:* June 2010

III. PROJECT STRATEGY AND TIMELINE

A. Project Partners MPCA – lead

other State agencies & organizations –MN Stormwater Steering Committee
cities – Minnesota Cities Stormwater Coalition, League of Minnesota Cities
builders organizations – Builders Association of the Minnesota, Builders Association of the Twin Cities
environmental groups – Minnesota Center for Environmental Advocacy
The partners will be involved as active stakeholders in the project.

B. Project Impact

1. Water quality improvements, restoration, and preservation in receiving waters throughout the State
2. Reduce soil erosion and reduce peak water flows in cities throughout the State
3. Adoption of the MIDS products by a city or township will be a path towards compliance with nondegradation.
4. Meaningful promotion and implementation of the broad range of desired stormwater management techniques, such as Low impact Development, Conservation Design, preservation of natural resources, etc.
5. Credits and a set of design tools that can be used by project designers to meet rigorous performance standard(s)
6. The MIDS products will guide project submittal review by cities, townships, and State agencies
7. The MIDS products could be incorporated into TMDL implementation plans.
8. The MIDS products leading to statewide set of design standards
9. The MIDS products will address the cities' request for more comprehensive management tools.
10. The MIDS products should serve as a national model to address nondegradation

The MIDS products could have a role in every MS4-permitted city and township, most urban - TMDL drainage areas, and most new development and redevelopment projects throughout the State of Minnesota. This project matches with Community Land Use Recommendation #3 of the LCCMR Statewide Conservation & Preservation Plan: Ensure protection of water resources in urban areas by evaluating and improving current programs.

C. Time

See Section II above

D. Long-Term Strategy

Continue the development of the MIDS products to address all four construction categories listed in Section A above.

IV. TOTAL PROJECT REQUEST BUDGET

BUDGET ITEM	AMOUNT	% FTE
Personnel: NA	$ -	%
Contracts:	$ -	
Profesional services for national stormwater BMP, credit, assessment expertise	$ 250,000	
Profesional services for Minnesota expertise in muncipal stormwater management, MN ordinances, water plans, stakeholder process	$ 225,000	
Equipment/Tools: *Monitoring equipment(dataloggers, water level sensors, phone modem) laboratory analytical expenses*	$ 25,000	
Acquisition (Including Easements): *NA*	$ -	
Restoration: NA	$ -	
Other: *NA*	$ -	
	$ -	
TOTAL PROJECT BUDGET REQUEST TO LCCMR	$ 500,000	

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Remaining $ From Previous Trust Fund Appropriation (if applicable): NA	$ -	
Other Non-State $ Being Leveraged During Project Period: NA	$ -	
Other State $ Being Spent During Project Period: NA	$ -	
In-kind Services During Project Period: MPCA Project Management Inkind, 0.25 FTE = $72,000; Cities Inkind = $50,00	$ 122,000	
Past Spending: *NA*	$ -	

PROJECT MANAGER QUALIFICATIONS

Present Position

Bruce Wilson is the Research Scientist for the Minnesota Pollution Control Agency's Stormwater Program. The Stormwater Program protects the states waters from rate, volume, and contaminates in runoff from construction, industrial, municipal and other sources in cooperation with federal, state, and local partners. Mr. Wilson has been with the Minnesota Pollution Control Agency for about 30 years, in various positions and projects ranging from watershed management, lake management, and remote sensing (satellite and plane based). Mr. Wilson was a LCCMR State Conservation Plan Project contributor. Mr. Wilson has developed an extensive network of scientists around the country and internationally and recently was asked by the Environmental Protection Agency to peer review the National Academy of Sciences recommendations for the nation's stormwater program to be published this fall.

Recent Publications

- **Maintenance of Stormwater BMPs: Frequency, Effort and Cost** By Joo-Hyon Kang, Peter T. Weiss, C. Bruce Wilson and John Gulliver.
- **The Four Levels: Improved Assessment of Infiltration/Filtration Capacity** (John S. Gulliver, Brooke C. Asleson, Rebecca S. Nestingen, Raymond M. Hozalski, John L. Nieber, and C. Bruce Wilson)
- Heiskary, S.A. and C. B. Wilson. 2007. **Minnesota's Approach to Lake Nutrient Criteria Development**. *Lake and Reserv. Manage*. Vol. x(x): 00-00

Education

Bachelor of Science degree in Biology from the Kent State University, Kent Ohio 1975.
Master of Science degree in Aquatic Ecology from Kent State University, Kent Ohio 1979

MOST RECENT LCCMR PROJECT

Mr. Wilson helped coordinate eight regional states to pool funding and developed the LCCMR proposal for updating Technical Paper – 40 (rainfall intensity) through the National Oceanic and Atmospheric Administration (NOAA).

ORGANIZATION DESCRIPTION

The Minnesota Pollution Control Agency (MPCA) was established as a state agency in 1967 to protect the air, waters and land of Minnesota. The mission of the MPCA is to work with Minnesotans to protect, conserve and improve our environment and enhance our quality of life. To continue moving Minnesota toward environmental excellence, the MPCA monitors environmental quality, offers technical and financial assistance, and enforces environmental regulations.