

Minnesota Stormwater Research Council

July 2019

2019 Applied stormwater research project funding request

The Minnesota Stormwater Research Council (Council) in partnership with the University of Minnesota Water Resources Center (WRC) is soliciting a request for funds to complete collaborative applied research to address priority stormwater management needs for Minnesota.

Over the years of 2017 and 2018, more than \$215K was contributed and pooled together from watershed organizations, cities and private businesses and organizations. These were then leveraged with Clean Water Legacy funds to support eleven projects to conduct research and technology transfer to prevent, minimize and mitigate the impacts of urban stormwater runoff.

A few examples of the work being funded include:

- Detecting phosphorus release from stormwater ponds to guide future management and design.
- Discovering what inspires community action for stormwater management.
- Determining which bioretention pre-treatment devices best capture sediment and nutrients.
- Developing a street sweeping credit for phosphorus reduction.

Descriptions of all the completed and active projects can be found online at

www.wrc.umn.edu/projects/stormwater. They are also listed in the **Highlights of the 2017-18 Program** that accompany this request.

Why contribute: These investments in research will lead to more innovative management techniques and increased effectiveness and efficiency in stormwater management, fulfilling critical needs for professionals and policy makers in cities, watersheds, agencies and organizations across Minnesota. Your organization's financial contribution to the Council directly supports research important to you. Pooling resources provides a mechanism for completing work together.

In 2019, the goal is to acquire \$150K or more in pooled funds. Your indication for contributing support is appreciated before October 31, 2019, but is welcome at any time. Use the online form ([HERE](#)) to indicate your organization's financial support.

Management and use of funds

- The use of pooled applied research funds will be managed by the Advisory Board of the Council in partnership with the WRC.
- Submissions and projects will be reviewed, ranked, and awarded as determined by the Advisory Board of the Council and by the WRC.

- All researchers, professionals, and experts from Minnesota will be invited to submit proposals. Organizations contributing funds and their staff are eligible to apply. The Council and Center has a process to manage conflicts of interest in its review, ranking, and awarding of projects.
- Acknowledgement of funding partners is required by the researchers for each project and on WRC and Council reports, website and other publications.
- Contributing organizations and businesses are invoiced for their amount of support; no contracting is executed between the organization and the Council and the WRC.
- Once chosen, funded researchers enter into a contract with the WRC with requirements for reporting, recognition of the funding sources, methods, data collection and sharing, quality assurance, and other standard University contracting requirements.

About the Minnesota Stormwater Research Council

Learn more about how cities, watersheds, consultants, state agencies, and research institutions are coming together to guide stormwater research in the [Minnesota Stormwater Research Council Framework](#) (also available at wrc.umn.edu/msrc).

Please contact one of the following representatives to provide input or for more information:

Ross Bintner, RBintner@edinamn.gov or 952-903-5713

Bob Fossum, bob@capitolregionwd.org or 651-644-8888

Cliff Aichinger, cliff6450@q.com or 651-238-4448

John Bilotta, jbilotta@umn.edu or 612-624-7708

This letter is distributed on behalf of the Minnesota Stormwater Research Council Advisory Board.

Minnesota Stormwater Research Council

Framework | April 2018

Executive Summary: About the Minnesota Stormwater Research Council (MSRC)

The Minnesota Stormwater Research Council is an organization established in 2016 to

- Facilitate the completion of needed applied research that enables more informed decisions about the use, management and protection of our water resources in urbanized areas.
- Periodically assess the status of research, identify consensus research priorities, and communicate these to Minnesota's public and private research agencies and organizations.
- Promote coordination of research goals, objectives and funding among the research agencies and organizations.
- Facilitate technology transfer of stormwater research to practitioners, agencies, organizations and others. For the Council, technology transfer includes support for and facilitation of education, outreach and training and translation of research results into related manuals and policies.

Statement of Need

Minnesota is the land of nearly 12,000 lakes and 63,000 miles of rivers and streams. Minnesota has more freshwater than any of the country's other contiguous 48 states. Water is part of Minnesota's identity and a defining force in our state's history, heritage, environment, and quality of life. At the headwaters of three of the largest river basins in North America, Minnesota receives 99% of its water from rain and snow—consequently, most of our water quality problems originate right here in our own state. While this means we are not forced to clean up water problems originating elsewhere, it also means we have a responsibility to take care of our waters for our sake and for all those downstream. (Minnesota Water Sustainability Framework, 2011).

The management of these resources is closely regulated by the Minnesota Pollution Control Agency and the U.S. Environmental Protection Agency. Current water quality standards demand a response by local governments to meet these standards through TMDL implementation plans, MS4 permits and individual permits and local water management plans. How to best respond to meet clean water goals in urbanized areas requires information on alternative Best Management Practices (BMPs), their potential clean water benefit, cost and maintenance requirements.

Major identified problems include:

- Local governments and watershed organizations spend significant funds on planning, design, and construction of stormwater BMPs to meet water quality standards and implement MS4 and TMDL requirements. Current implementation is resulting in significant expense without clear service expectations. Private construction is being required to comply with stringent permit requirements that may be inefficient and costly with unknown outcomes.
- Stormwater research funding is limited and not coordinated.
- There is a current lack of efficient information/technology transfer.
- Maintenance of BMPs is required and is often not provided efficiently by existing Public Works operations. New skills, personnel, equipment, and training are needed along with proven practices and procedures.
- Current Federal and State rules require maintenance of stormwater ponds to maintain BMP performance. However, disposal of the dredge material is cost prohibitive. The impact of nutrients, contaminants, and thermal pollution from ponds requires more study.
- Local governments, watershed districts, universities, and other US research organizations are completing research. However, these research reports, findings, and recommendations are not communicated efficiently to local implementing agencies that need the information.

Purpose of the Minnesota Stormwater Research Council:

The MSRC will facilitate relevant, applied stormwater research and support education and technology transfer to connect water managers, practitioners, and other professionals to actionable research that is responsive to their needs, to benefit Minnesota and its public waters through the following efforts:

- Coordinate and build partnerships at local, regional, state, and federal levels to leverage stormwater research resources (personnel and funding).
- Provide a clear process for identifying research needs, prioritizing, soliciting, submitting, approving and implementing stormwater-related research proposals.
- Find solutions that improve the design, constructability, maintainability, cost effectiveness, hydraulic performance, and treatment efficiency of stormwater facilities, as well as stormwater management operations and maintenance practices.
- Improve the compilation, tracking, and dissemination of stormwater research findings.
- Facilitate a collaborative approach that ensures the involvement of stakeholders in identification, prioritization, and implementation of stormwater research.
- Provide a sustainable source of funding and a process that insures independent, unbiased, and objective research.

Council Structure, Governance, and Process

The MSRC is an organization of stormwater professionals, practitioners, managers, engineers, researchers and others. Coordination of MSRC activities, including administration and fiscal management, is provided by University of Minnesota Extension and the Water Resources Center (WRC).

Council Membership

Participation and membership is free and open to anyone showing an interest in stormwater research and the technology transfer of stormwater related information and research results. Members may include but are not limited to stormwater practitioners, managers, consultants, builders, engineers and organizations including cities, watersheds, counties, state agencies, research institutions, NGOs, and vendors. Individuals can join by submitting their name, role, organization, and contact information to msrc@umn.edu

Governance

The MSRC Board is the decision-making body choosing research priorities, funding options, and guiding other Council activities. The Board will consist of a diverse set of twenty individuals from the following:

- Cities
- Watershed districts or organizations
- Consultants
- Research institutions
- State agencies
- NGOs
- Counties/SWCDs
- Builders
- Vendors
- Others at-large or tbd

Board 2016--18

Eventually the list of Board members will be removed from the framework document and kept separate so that we do not have to update it annually.

1. Cliff Aichinger (*watershed rep*)
2. Bob Fossum (*watershed rep*)
3. John Loomis (*watershed rep*)
4. Mike Isensee (*watershed rep*)

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|---|---|
| 5. Udai Singh (<i>watershed rep</i>) | 13. David Fairbairn (<i>agency rep</i>) |
| 6. Erik Anderson (<i>SWCD rep</i>) | 14. Joe Mulcahy (<i>agency rep</i>) |
| 7. Ross Bintner (<i>city rep</i>) | 15. Brad Wozney (<i>agency rep</i>) |
| 8. Steve Gurney (<i>city rep</i>) | 16. Greg Wilson (<i>private consultant rep</i>) |
| 9. Sharon Doucette (<i>city rep</i>) | 17. TBD (<i>city rep</i>)_____ |
| 10. Dr. Valerie Brady (<i>research institution rep</i>) | 18. TBD (<i>city rep</i>) |
| 11. Jeff Peterson (<i>research institution rep</i>) | 19. TBD_____ |
| 12. Richard Strong (<i>research institution rep</i>) | 20. TBD_____ |

Coordination, fiscal and administrative functions are performed by University of Minnesota Extension and the Water Resources Center.

Financial Structure

- An annual request for funding to a broad range of public agencies and organizations and private entities will be issued.
- Entities can support the MSRC by contributing through a process established by the WRC. The Board will oversee allocation of the funds annually.
- Funds acquired will be used to support applied research submitted through a request for proposal process established by the Board and administered by the WRC.
- A portion of the core funding (10%-15%) will be used to fund the coordination, administrative and financial roles of the WRC and Extension. A level of in-kind service will be provided by the WRC and University of Minnesota Extension.
- Additional financial support and grants will be pursued to fund priority research projects.

Responsibilities of the Board

- Identify stormwater research needs and contribute to and review the Stormwater Research Roadmap (SWRR) project led by the WRC in 2016-18.
- Identify and prioritize research needs including the following subtasks:
 - Soliciting input from a broad-base of stakeholders
 - Identify ranking criteria
 - Confirm priorities established
 - Prepare biennial reports of needs
 - Disseminate report of needs
- Develop, request, and solicit funding from MSRC members and organizations to support priority research needs including:
 - Increases to dedicated stormwater research funding
 - Funding for technology transfer
 - Identify leveraging opportunities
- Develop annual budget
- Develop and implement a MSRC RFP process for awarding research funds to needs including:
 - Review, submittal, ranking, and selection process
 - Contribute ideas to strengthen research proposals
- Develop a QA/QC process for both
 - The data collected during research projects
 - For centralized reporting of results
- Establish a not-for-profit organization (or other organizational structure as determined by the Board). Fulfill annual obligations as required.

- Serve in an advisory role for the WRC and Extension stormwater related efforts in research, education and technology transfer including but not limited to providing input, review, and ranking of proposals.

WRC and Extension Leadership and Administrative Roles and Responsibilities

- Coordinate the MSRC Board
- Serve as the liaison between the Board and Members, the University, and other stakeholders
- Identify additional funding opportunities and support grant writing
- Lead and coordinate the (annual/biennial) plan to identify stormwater research needs
- Develop processes and documents in coordination with the Board
- Manage the RFP process
- Financial management to facilitate
 - Applying for grants (as directed by Board)
 - Managing incoming sources of funds for stormwater research
 - Overseeing financial reporting of awarded projects
 - Developing an annual budget for the program housed within the WRC.
- Log stormwater research projects into Department of Ag research database (or equivalent – tbd)
- Disseminate and communicate research results
- Provide communication support
 - Updates on Board activities for Council Members, newsletters to stakeholders and others on a regular basis
 - Website

HIGHLIGHTS

Minnesota Stormwater Research Program and Minnesota Stormwater Research Council

2017-2018



Advancing science, technology and management of stormwater in Minnesota by investing in and facilitating research to prevent, minimize, and mitigate the impacts of runoff from the built environment.

wrc.umn.edu/projects/stormwater

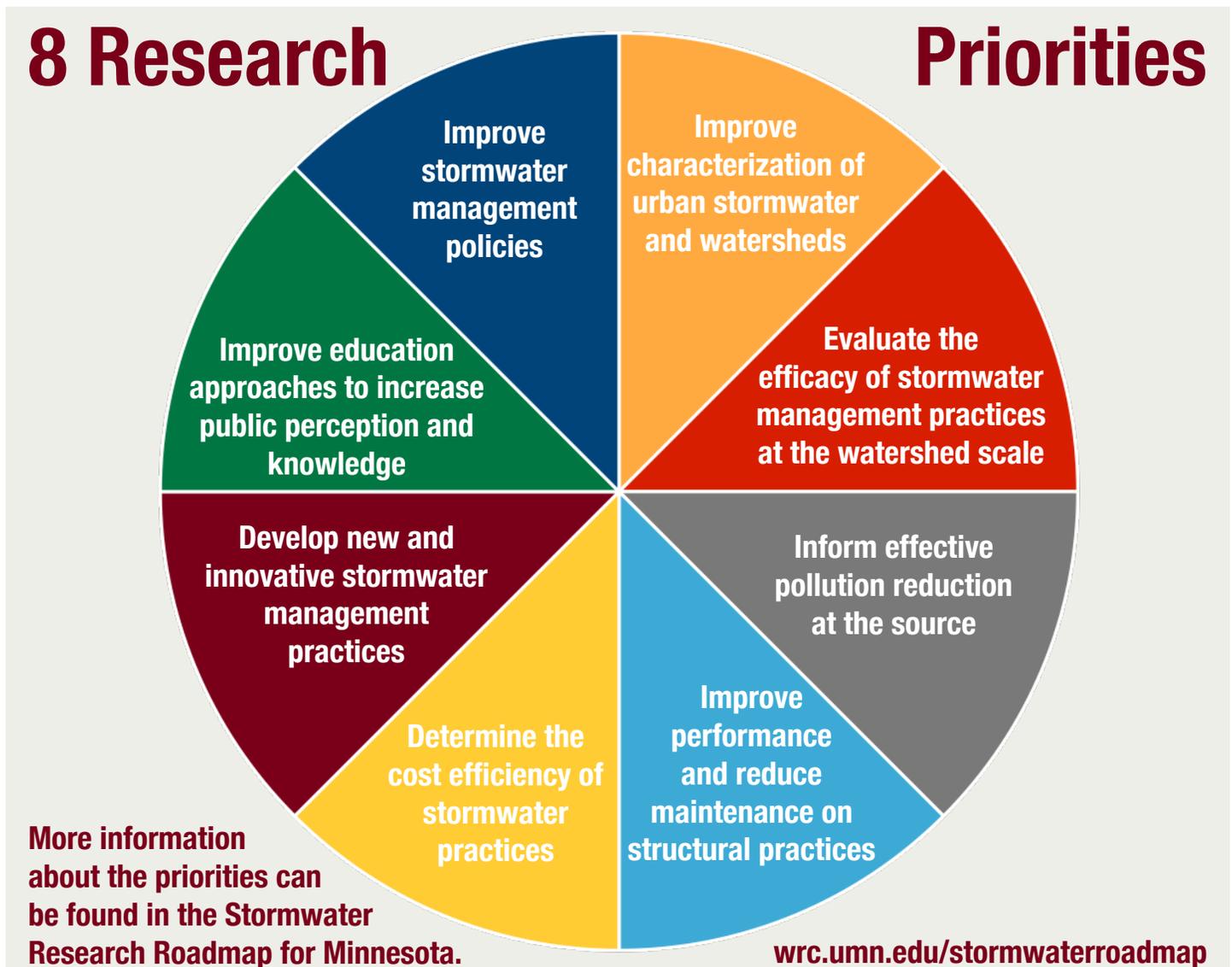
Stormwater Research Program (SWRP)

This program advances research that informs urban stormwater management to prevent, minimize, and mitigate the effects of runoff from the built environment. Through Extension education and technology transfer, the SWRP also disseminates information to professionals, policy leaders, managers in industry, and at all levels of government.

Minnesota Stormwater Research Council (MSRC)

The Council is composed of professionals, practitioners, managers, engineers, and researchers who advise and provide direction for urban stormwater research in Minnesota. The Council's Board assists the Water Resources Center (WRC) and all stakeholders by setting research priorities, acquiring funds to support research and choosing projects.

More about the Council on page 4.



Funding stormwater research 2017-2018

\$1.5M

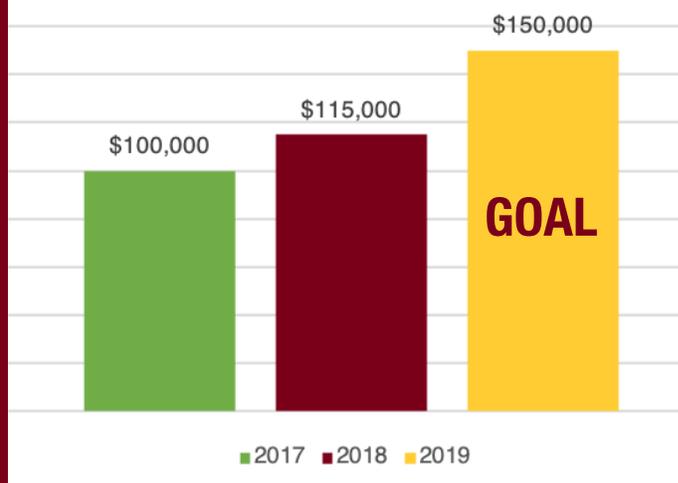


\$215K

Pooled fund sources

- Capitol Region Watershed District
- Comfort Lake-Forest Lake Watershed District
- Mississippi Watershed Management Organization
- Nine Mile Creek Watershed District
- Ramsey-Washington Metro Watershed District
- South Washington Watershed District
- Valley Branch Watershed District
- City of Edina
- City of Minnetonka
- City of Woodbury
- Wenck Associates
- Minnesota Cities Stormwater Coalition

Steady Increase in Funding

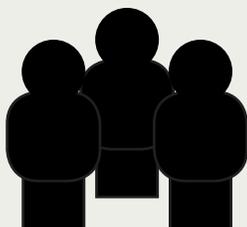


With additional support from Minnesota Sea Grant and Minnesota Extension



11

Projects



50+

Researchers

Current research 2019-2020

- Biofiltration media optimization
UMN St. Anthony Falls Laboratory
- Detecting phosphorus release from stormwater ponds to guide management and design
UMN St. Anthony Falls Laboratory
- Developing a street sweeping credit for stormwater phosphorus source reduction
UMN Ecology, Evolution and Behavior
- Draft stormwater geospatial data standard: pilot and proof-of-concept
Metropolitan Council
- Effectiveness of sump manholes for pretreatment particulate removal
UMN Bioproducts and Biosystems Engineering

Identifying sources of contaminants in urban stormwater and evaluation of their removal efficacy across a continuum of urban best management practices

St. Cloud State University

Inspiring community action for stormwater management

UMN Forest Resources

Pond treatment with spent lime to control phosphorus release from sediments

Barr Engineering

Temporal dynamics of pathogens and antibiotic resistance in raw and treated stormwater

UMN Soil, Water, and Climate

Determining which iron minerals in iron-enhanced sand filters remove phosphorus from stormwater runoff

UMN Earth Sciences

Minnesota Stormwater Seminar Series

UMN St. Anthony Falls Lab

Completed research (2017 and 2018)

Capture of gross solids and sediment by pretreatment practices for bioretention

UMN St. Anthony Falls Laboratory

Characterization of phosphorus release from ponds

UMN St. Anthony Falls Laboratory

Polycyclic aromatic hydrocarbons in stormwater detention ponds

UMN Civil Engineering

Stormwater research roadmap and framework for priority needs for the next decade

UMN Bioproducts and Biosystems Engineering

More about the Minnesota Stormwater Research Council

The Council facilitates relevant, applied stormwater research and supports education and technology transfer to connect water managers, practitioners, and other professionals to actionable research that is responsive to their needs, to benefit Minnesota and its public waters.

Council goals:

Facilitate the completion of needed applied research that enables more informed decisions about the use, management and protection of our water resources in urbanized areas.

Promote coordination of research goals, objectives and funding among the research agencies and organizations.

Periodically assess the status of research, identify consensus research priorities, and communicate these to Minnesota's public and private research agencies and organizations.

Facilitate technology transfer of stormwater research to practitioners, agencies, organizations and others.

2019 Program Goals

Secure funding for stormwater research including \$1.5M from the Clean Water Fund and \$150K from Council member organizations

Summer 2019
Host Minnesota SWRC
full member meeting

January 1, 2020
Issue request for
research proposals

April 2019
Launch Minnesota
Stormwater Seminar
Series

December 2019
Complete rapid
response projects

For more information about the program, Council and stormwater projects, please visit wrc.umn.edu/projects/stormwater

Contact:

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Water Resources Center

UNIVERSITY OF MINNESOTA

Driven to DiscoverSM