

Minnesota Stormwater Research Council & Minnesota Stormwater Research Program

2021

HIGHLIGHTS



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/stormwater

The Stormwater Research Program in partnership with the Minnesota Stormwater Research Council

This collaboration pools financial resources to support research, shares research outcomes and engages stakeholders to determine research needs.

Visit wrc.umn.edu/msrc to learn more, view the Advisory Board members, and subscribe to our mailing list.



CURRENT STORMWATER RESEARCH PROJECTS

Can spent lime from water treatment facilities be used to control phosphorus release from urban stormwater ponds?

How can soil mixes in biofiltration practices impact phosphorus capture and release and plant growth?

How prevalent are pathogens, viruses and bacteria in stormwater reuse systems?

Will city-specific climate change reports provide more precise information for future stormwater infrastructure planning and management?

Are underground sand filters performing as designed and what type of future maintenance is needed?

Will the addition of biochar help filter practices remove bacteria and dissolved contaminants?

How can we improve monitoring of the first flush and concentrations of pollutants?

At what level are gross organic solids contributing to stormwater pollutant loading?

Can we combine stormwater monitoring data from various cities, watersheds and agencies to more specifically characterize urban runoff quantity and quality?

COMPLETED RESEARCH PROJECTS

Final reports and additional project information can be found on our website.

Example discoveries...

- Detecting phosphorus release from urban stormwater ponds**
 Discovered that many urban stormwater ponds are stratified, with low dissolved oxygen that may result in phosphorus release rather than phosphorus capture. The project also revealed that duckweed and wind sheltering by trees and vegetation are important pond characteristics that need to be considered for a complete picture of what is happening with phosphorus in stormwater ponds.

- Developing a street sweeping credit for stormwater phosphorus source reduction**
 Discovered that higher tree canopies can be an indicator of mass and nutrient pollution loads on streets. The research was used by the team and the Minnesota Pollution Control Agency to develop a street sweeping credit calculator cities and other MS4s can use to determine phosphorus removal for their unique street sweeping practices.



- Pathogens and antibiotic resistant genes in urban stormwater reuse systems**
 Discovered that some antibiotic resistant genes, virus, E.coli and other bacteria are making their way into stormwater reuse systems. Levels of detection occurred both before and after treatment. No seasonal dynamics were detected. More importantly this study revealed we need more data. Therefore phase II of this project is currently underway.
- Inspiring Community Action for Stormwater Management**
 Discovered Minnesota water scientists, policymakers and managers can accelerate progress towards clean water by listening to new and diverse audiences and changing the way we discuss water with citizens.



The value for urban stormwater research discoveries

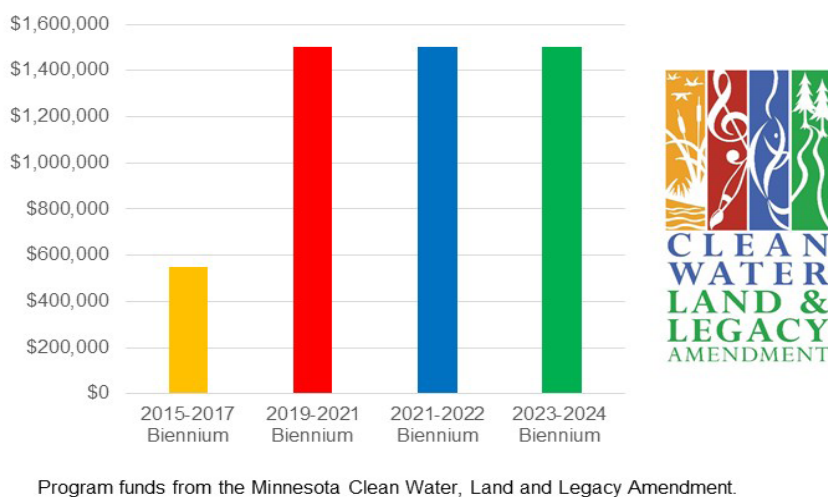
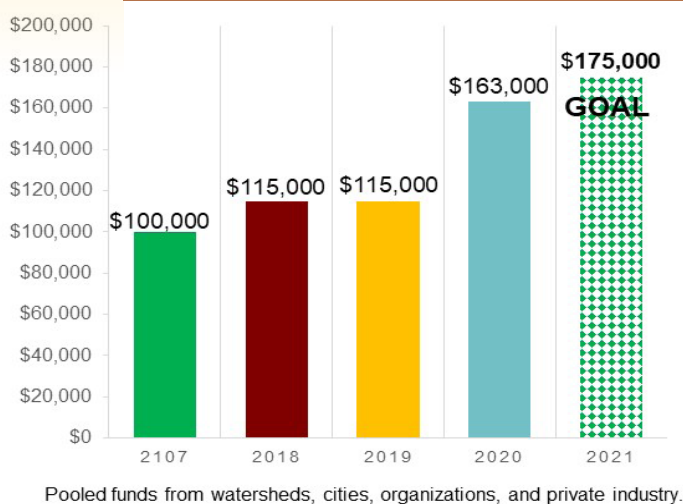
Discoveries from research help Minnesota professionals, practitioners and policymakers:

- Evaluate and design more effective stormwater practices
- Manage runoff to prevent or reduce impacts to lakes, rivers, streams and groundwater
- Maintain investments in stormwater infrastructure for continued operation

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JOIN US as a financial partner to achieve or surpass this year's goal:

2021 GOAL
\$175K



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- Barr Engineering Company
- Capitol Region Watershed District
- City of Bloomington
- City of Edina
- City of Minnetonka
- City of Woodbury
- Comfort Lake-Forest Lake Watershed District
- Minnesota Cities Stormwater Coalition
- Mississippi Watershed Management Organization
- Nine Mile Creek Watershed District
- Ramsey-Washington Metro Watershed District
- South Washington Watershed District
- Upper Mississippi River Source Water Protection Project
- Valley Branch Watershed District
- Wenck Associates

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