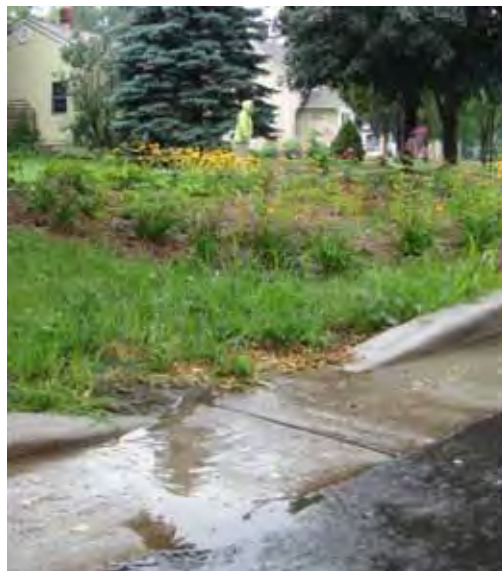


Minimal Impact Design Standards (MIDS) represent the next generation of stormwater management and contain three main elements that address current challenges.

1. A higher clean water performance goal for new development and redevelopment that will provide enhanced protection for Minnesota's water resources.
2. New modeling methods and credit calculations that will standardize the use of a range of innovative structural and nonstructural stormwater techniques.
3. A credits system and ordinance package that will allow for increased flexibility and a streamlined approach to regulatory programs for developers and communities.

The development of MIDS is based on **low impact development (LID)**—an approach to stormwater management that:

1. Mimics a site's natural hydrology as the landscape is developed.
2. Preserves and protects environmentally-sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, floodplains, woodlands and highly permeable soils.



Using the LID approach, stormwater is managed on-site, and the rate and volume of predevelopment stormwater reaching receiving waters is unchanged. The calculation of predevelopment hydrology is based on native soil and vegetation (Minn. Stat. 2009 § 115.03, subd. 5c).

## Background

Historically, urban runoff was managed to move water off the landscape quickly and reduce flooding. Now, the focus has shifted to keeping the raindrop where it falls by mimicking natural hydrology in order to minimize the amount of pollution reaching our lakes, rivers and streams, and to recharge our groundwaters.

Accordingly, there is a greater emphasis on increasing infiltration, biofiltration, abstraction and reuse, as well as implementing a variety of planning, engineering and operating methods such as LID. With this emphasis and change in how stormwater management will be designed and implemented on new development and redevelopment sites, it has become clear that compiling the latest information and guidance is needed to offer consistency in design and performance, as well as flexibility in meeting regulatory requirements.

In response to this need, a diverse group of partners successfully worked with the Legislature to allocate funds to “develop performance standards, design standards or other tools to enable and promote the implementation of LID and other stormwater management techniques.”

## Vision and Goals

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### Who will use MIDS?

Designers of new development and redevelopment projects will use the first MIDS products for state-of-the-art designs and calculation methodologies in everyday zoning, comprehensive planning and ordinance development. In the future, MIDS may also be used for measuring compliance and progress toward protection and restoration goals via a crediting system for pollutant removal.

MIDS methodologies will provide tools for developers and local program managers to quantify reductions in post-development runoff and pollutant loading from a wide variety of structural and nonstructural LID practices for new developments and redevelopments. These practices will enable stormwater management to mimic a site’s natural hydrology. Using MIDS, stormwater will be managed on-site, and the rate and volume will match predevelopment hydrology based on native soil, vegetation and ecoregion for up to medium-sized storm events.

### Will MIDS be mandatory?

No. MIDS will offer a package of options for local governments and developers to consider in design, based on local needs and community preferences. This will be similar to the way the Minnesota Stormwater Manual serves as a general reference for stormwater management. The standards will not be mandatory; however, future components will offer tangible measures of community management that could demonstrate compliance with Total Maximum Daily Loads, nondegradation and water quality/management goals. A particular design, methodology or pollution reduction goal could become mandatory only if state or local governments took action (outside the scope of this project) to put it into a permit, rule, ordinance or similar requirement.



Green roofs reduce the volume of stormwater runoff from buildings, and also help reduce cooling costs and urban heat island effects.



Pavers at the drain end of this alley provide significant infiltration. Alleys can be excellent low-traffic test plots for cities that want to improve stormwater practices.

### What will MIDS include?

MIDS will include a suite of practices that can be used on new and redevelopment sites to manage stormwater so that the rate and volume of runoff matches that of predevelopment levels (based on native soils and vegetation).

MIDS will include the following:

- ✓ research to determine up to what size storm events can realistically be managed using LID techniques in Minnesota’s eco-regions and seasons
- ✓ design details, figures and options; products for end users (perhaps spreadsheets, Hydrocad, P8 and/or GIS formats)
- ✓ runoff and pollutant removal credits
- ✓ translation of designs and credits into easy-to-use calculation methodologies

## How Will MIDS Help Guide Local Decisions?

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Currently, a pilot project is being conducted in the St. Croix Basin for education, outreach, ordinance and planning for communities in the basin. This project is paid for by federal 319 grant funds and is administered by the Washington Conservation District. Upon completion of the ordinance work, sample ordinances will be made available to other Minnesota communities.

### MIDS will be...

- ✓ a flexible approach to stormwater management that differs by ecoregion, based on specifics of native soils, vegetation, etc.
- ✓ the development of specific performance goals to be achieved through ordinances
- ✓ a package of options for achieving compliance with water quality goals and requirements for runoff volume, total phosphorus and total suspended solids
- ✓ practices to help communities meet water quality protection and restoration requirements

### MIDS will not be...

- ✓ a single stormwater management method applicable across the entire state
- ✓ a set of required ordinances that must be adopted
- ✓ a prescriptive planning approach
- ✓ a one-size-fits-all approach to compliance with water quality standards and regulations

## Next Steps

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In January 2010, a workgroup was formed under the auspices of the Minnesota Stormwater Steering Committee, with 24 organizations represented. Members of the MIDS workgroup provide guidance and recommendations to the Minnesota Pollution Control Agency (MPCA). Meetings are held every third Friday of the month from 9:00 a.m. to noon at the MPCA's St. Paul office. Co-chairs of the workgroup are Mr. Jay Riggs, Washington Conservation District; and Mr. Mark Doneux, Capitol Region Watershed District. Meeting notes and a list of workgroup members can be found on the MIDS Web page: [www.pca.state.mn.us/water/stormwater/stormwater-mids.html](http://www.pca.state.mn.us/water/stormwater/stormwater-mids.html).

In September 2010, consultants were selected to begin the technical details of MIDS. Consultants include Barr Engineering, Bonestroo, and Wenck and Associates. It is anticipated that the MIDS project will be developed in two phases through 2012, and will rely upon additional partner support at the local, state and federal levels in order to accomplish the overall intent of the legislation. As resources allow, assessment of LID stormwater practices, and outreach and training for designers and communities with help for implementing MIDS, will be developed. MIDS may also lead to updates to the Minnesota Stormwater Manual, which will include more design information specific to LID.

## For More Information

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[www.pca.state.mn.us/water/stormwater/stormwater-mids.html](http://www.pca.state.mn.us/water/stormwater/stormwater-mids.html)



The intersection of impervious (left) and pervious (right) asphalt shows the efficient infiltration ability of using pervious pavements.