

# Middle St. Croix Watershed Management Organization Inspection and Maintenance Program

*Case Study Contact: Mike Isensee, Administrator of the Middle St. Croix Watershed Management Organization*

The [Middle St. Croix Watershed Management Organization](#) (MSCWMO) is a watershed group tasked with cooperatively managing water resources in a 19.8 square mile watershed located along the pristine St. Croix River in Minnesota. There are ten member communities that have signed a joint powers agreement and have contracted staff from the Washington Conservation District to conduct watershed planning and implementation. The MSCWMO is overseen by a board made up of locally elected or appointed representatives from each member community.

The MSCWMO conducts a comprehensive inspection and maintenance program for the many best management practices (BMPs) in the watershed. As of 2015, there were over 200 BMPs installed in the watershed, most of the BMPs are bioretention areas that receive runoff from streets via curb cuts and range in size from 200-300 square feet. These BMPs include four types of projects with varying maintenance strategies:

## Residential Raingardens and Native Shoreline Restoration Projects

90 small scale residential raingardens and shoreline restoration projects located on private property.

*Maintenance Strategy:* Send annual maintenance post card reminder with MSCWMO contact information to provide assistance if requested.

## Retrofit Projects Installed and Maintained by MSCWMO and/or Member Communities

Since 2007 the watershed and cities have installed 88 BMPs, primarily bioretention basins, on public property or within right-of-ways.

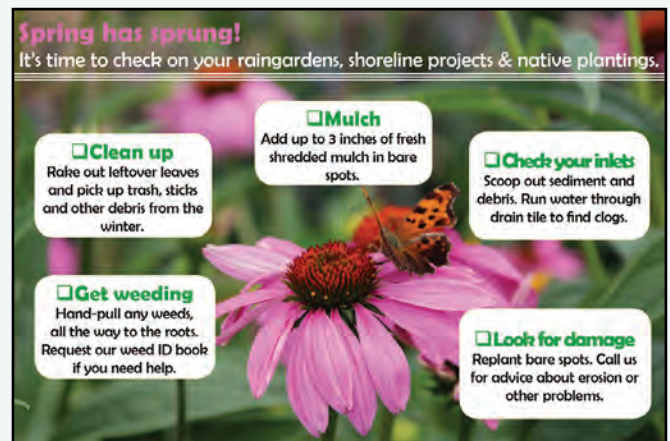
*Maintenance Strategy:* Annual inspections and maintenance. Maintenance has been provided by the Minnesota Conservation Corps through an annual grant program since 2012. The MSCWMO directs the crews and the member communities provide funding for materials such as mulch and plant replacement.

## Retrofit Projects Installed by MSCWMO and Maintained by Landowners

Beginning in 2012, the MSCWMO required landowner maintenance agreements prior to the installation of voluntary projects. The MSCWMO provides maintenance for the first two years, then in the third year provides onsite maintenance consultation to landowners. The watershed then conducts annual inspections of these 23 projects.



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MSCWMO

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Inspection letters are sent to landowners and they are encouraged to contact the MSCWMO for further on site consultation if they have any questions.

*Maintenance Strategy:* For new voluntary projects, the MSCWMO provides maintenance for the first two years, after which the private landowner is responsible for maintenance.

### New and Redevelopment Stormwater Projects

During the review process project applicants are required to submit a [legal agreement](#) with the City identifying maintenance items and responsibilities. Currently, there are 16 permitted permanent stormwater volume control facilities in the MSCWMO.

*Maintenance Strategy:* These BMPs are not part of the annual inspections program at this time.

MSCWMO inspections identify three types of potential maintenance activities needed:

1. Aesthetics (weeding, inlet clean-out, invasive plant management)
2. Restore partially functioning BMP (replacing plants, mulching, minor grading)
3. Restore non-functioning BMP (full restoration)

For those practices requiring aesthetic maintenance, the MSCWMO currently contracts with the Minnesota Conservation Corps. Aesthetic maintenance typically includes inlet clean-out and weeding. Other maintenance needs include mulching every three years or plant replacement are conducted on an as needed basis. Projects requiring repairs such as excavation or larger scale fixes are prioritized and addressed sequentially as part of the annual capital improvements projects.

Most practices identified as partially or non-functioning are due to sod or rock inlets that have filled with sediment and cause stormwater to bypass the bioretention basin. Because of this issue, the watershed requires the use of pretreatment devices that have capacity to remove at least 50 percent of the annual sediment load (Figure 1). This has increased function and decreased maintenance of practices installed since 2014. The other primary cause of failure in this watershed is due to the presence of marginal soils. The MSCWMO now requires at least one soil boring at the location of each proposal BMP. Underdrains suspended in engineered soil media with a gate valve are required for all BMPs constructed in soils that are not hydrologic soil group A (i.e., sandy or sandy loam).



Figure 1. Two types of street raingarden inlets: Left – Rock inlet; Right – Pretreatment inlet. The pretreatment inlet is now required for all new street raingardens to aid in collection of gross solids (sediment, leaves, trash, etc.) and maintenance. Rock inlets are no longer allowed due to difficulty maintaining the effectiveness of the inlet for pretreatment.

The MSCWMO also provides technical review for new and redevelopment projects in the watershed and in particular reviews proposed stormwater management for adherence with MSCWMO-specific watershed standards and other regulations. Per state statute and a joint powers agreement, the member communities must implement the MSCWMO

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standards. As part of the review process, the MSCWMO now requires pretreatment on all infiltration BMPs and a signed legal maintenance agreement with the community.

The MSCWMO funds the majority of inspection and maintenance through member fees provided by cities and townships within the watershed. Member fees are typically allocated from general funds. Member communities also pay directly for any needed materials (e.g., plants, mulch, etc.). A grant from Minnesota’s Clean Water Fund was obtained by the MSCWMO to fund in part of the maintenance work conducted by the Minnesota Conservation Corps.

The MSCWMO estimates that typical maintenance costs which reflect two visits per year are between \$200–\$300 per BMP, resulting in an annual cost of \$16,000–\$24,000 per year for the practices they are currently maintaining. These costs do not take into consideration repairs needed for partially or non-functioning BMPs.

In 2014, the MSCWMO partnered with the Washington Conservation District and other nearby watershed organizations to develop an interactive [Conservation Project Map](#) to track the pollutant load reduction, location, condition, and maintenance needs for the growing number of practices within the watershed. The Map is updated annually with new BMP information. The geospatial maps and inspection forms are accessible on mobile devices and streamline the inspection process and annual maintenance and repair prioritization projects.

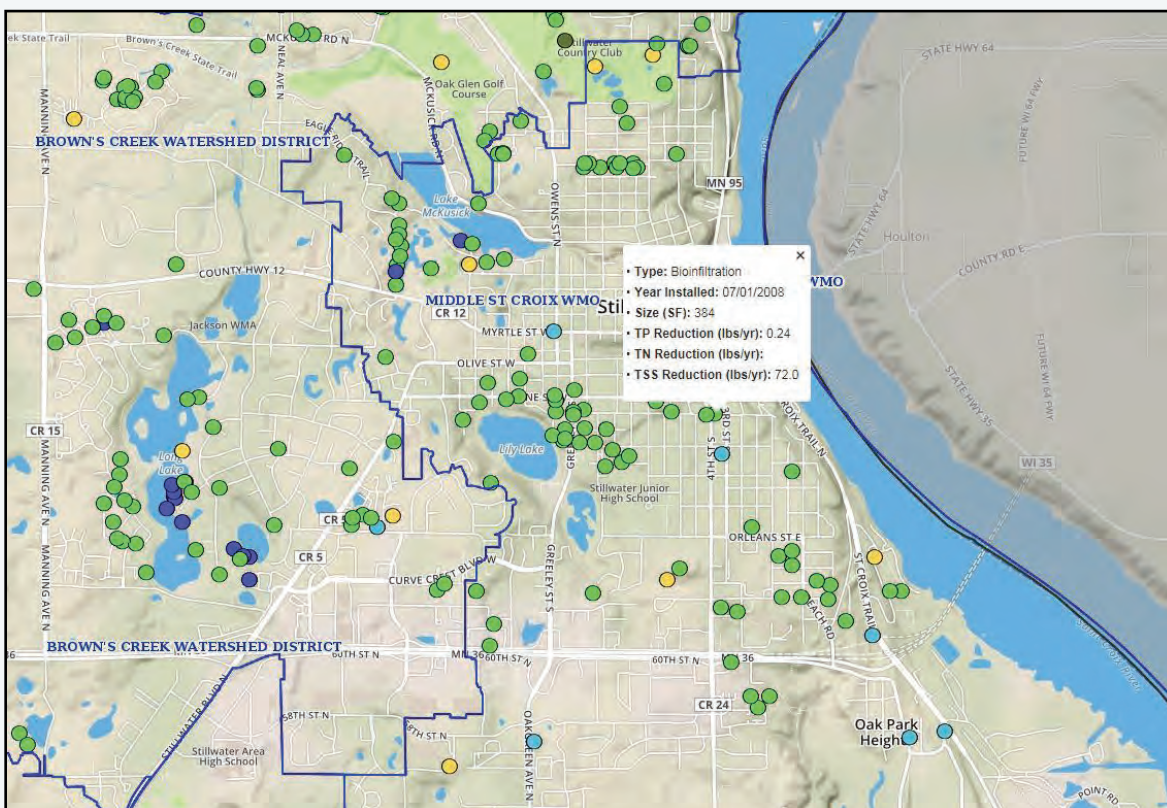


Figure 2. Screen shot from Conservation Practice Map webpage

The inspection and maintenance program has adapted as the number of BMPs has increased in the watershed. Initially, inspection and maintenance activities were conducted by MSCWMO staff; as the number of BMPs increased the MSCWMO contracted with the Minnesota Conservation Corps for aesthetic maintenance. Now, as the number of BMPs has reached a critical number, the MSCWMO is partnering with other government entities to either hire dedicated seasonal staff or use a contractor to carry out maintenance activities.


*“Maintenance Begins with Design”*

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2013 Landowner Agreement Template

**MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION**

455 Hayward Avenue N. Oakdale, MN 55128  
 Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



**RAINGARDEN INSTALLATION AND MAINTENANCE AGREEMENT  
 BETWEEN LANDOWNER AND THE MIDDLE ST. CROIX WATERSHED  
 MANAGEMENT ORGANIZATION**

The following agreement has been prepared for the proposed raingarden project in the catchment discharging urban stormwater directly to Lily Lake.

The raingarden located at this property will infiltrate or filtrate urban stormwater that is currently discharging into Lily Lake. The owner agrees to the following guidelines/statements in regards to the raingarden/stormwater treatment facility to be installed in the right-of-way adjacent to their property.

1. The landowner has agreed to have a raingarden installed in the City right-of-way adjacent to their property.
2. The landowner agrees to keep the raingarden in place for period of (10) years for the date of installation.
3. The landowner understands that some land area may be disturbed outside of the City right-of-way as part of this project and that the contractor installing the raingardens will restore these areas.
4. After the two-year maintenance period provided by the Middle St. Croix Watershed Management Organizations, the landowner agrees to maintain the raingarden in the City right-of-way adjacent to their property. Raingarden maintenance activities for the homeowner to perform include:
  - a. Remove litter, debris, and accumulated sediment from the raingarden area, including the entrance to the raingarden off of the roadway.
  - b. Watering of perennial vegetation when needed.
  - c. Maintain the integrity and viability of the raingarden, including all planted perennial vegetation in the raingarden in a manner that does not compromise the effectiveness of the design. All established vegetation should be checked for survival and replaced as quickly as possible.
5. The Middle St. Croix Watershed Management Organization (MSCWMO) will provide periodic inspection to ensure the raingarden is being properly maintained. If an issue is observed, the MSCWMO will assist the landowner in addressing the problem.

By signing this agreement the landowner agrees to the statements above.

	Address	Date
Landowner		

	Date
MSCWMO Representative	

Middle St. Croix Watershed Management Organization Member Communities  
 Afton, Bayport, Baytown, Lakeland, Lakeland Shores, Lake St. Croix Beach, Oak Park Heights, St. Mary's Point, Stillwater, & West Lakeland



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