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# 2009 Annual Report

## Park Lane Stormwater Mitigation



More than two years of meetings, monitoring, planning, and crunching numbers came to fruition in late 2009 when the Middle Fork Crow River Watershed District (MFCRWD), in cooperation with the City of Spicer and local property owners, implemented a major stormwater management and stream restoration project on an inlet to Green Lake.

Water quality samples collected during precipitation events from the ephemeral stream over the past couple years indicated that very high concentrations of sediment and nutrients were being washed into Green Lake. The District worked with an engineering company to design a series of riffles and pools within the channel to allow water velocities to slow, dropping sediment and reducing nutrient loading. Native vegetation planted in the channel will also slow water, stabilize the soil, and uptake nutrients. Local buy-in to this important project was made evident by the donation of perpetual easements by adjacent property owners to

the City of Spicer. A Memorandum of Understanding between the MFCRWD and the City will allow for the necessary maintenance to be conducted throughout the life of the project.

The improved channel is part of a larger project that involved the installation of two grit chambers under Lake Avenue South. These grit chambers will catch much of the sediment that will run down the newly paved road, prior to stormwater entering the new channel. Seventy-five percent of the cost of the grit chambers was covered by the 319 Stormwater Assessment grant (described below).



## 319 Stormwater Improvement Grant

The MFCRWD signed a federal 319 grant in November 2008 to improve stormwater management in ecologically sensitive watersheds, with a focus on New London and Spicer. The project focuses on stormwater monitoring, education with regards to stormwater improvement, and the implementation of Best Management Practices (BMPs) to address immediate stormwater issues.

Extensive stormwater runoff monitoring was conducted in both cities beginning with spring snowmelt and continuing with precipitation events throughout the summer and fall. Stormwater samples were collected from three stormwater inlets to Green Lake in Spicer and three inlets to the Mill Pond/Middle Fork Crow River in New London. Samples were analyzed for suspended sediment and phosphorus. This monitoring will help direct future stormwater mitigation projects in New London and Spicer. Stormwater quality monitoring will continue throughout 2010.

## Neer Park

The City of New London has practiced improved land stewardship in the past by implementing shoreland restorations at two of its parks on the Mill Pond. In 2009, the City continued its efforts with a major shoreland restoration at Neer Park.



The shoreline at Neer Park was experiencing intense undercutting and slumping, and the existing turf grass could not provide soil stabilization or protection from wave action. Erosion issues were severe enough that the park was selected to be a part of a research project on the limits of bio-engineering by Mary Blickenderfer, a shoreland specialist with the University of Minnesota Extension.



Bio-engineering uses native plants and other alternatives to rock armament to solve erosion issues; however, there are situations where the natural system has been altered to the extent in which bio-engineering is not capable of stabilizing the shoreline. Ms. Blickenderfer's research is designed to determine the point at which bio-engineering is no longer a viable solution and rock rip-rap is the only option for stabilization.

The design of the restoration project at Neer Park was a collaboration with Ms. Blickenderfer, the Watershed District, Minnesota Department of Natural Resources, the City of New London, and a contracted engineering company. More than 685 linear feet of shoreline were stabilized using a combination of Envirolok, Filtrexx Soxx, and coco logs, and 13,000 square feet of upland area were restored with more than 1800 plants in combination with native seeding. Rock rip-rap was used on a small section of the shoreline where it was determined that bio-engineering methods would not be sufficient. The project was implemented in August with the help of community volunteers, District staff and New London city employees.

A Clean Water Partnership grant from the Minnesota Pollution Control Agency (MPCA) funded 75% of the project with the remaining 25% being funded by the City of New London and the Little Crow Ski Team.



## Citizen's Advisory Committee

Under Minnesota Statutes, Chapter 103D, Watershed Districts are required to have a Citizen's Advisory Committee (CAC) that meets at least once a year to help direct the efforts of the District. The MFCRWD CAC was revitalized in 2009, with a kickoff meeting held in November and attended by 17 members. Members learned about District activities in 2009 and before, and discussed their potential role within the MFCRWD. Top on the list of activities for the CAC will be to publish a short newsletter three times a year highlighting projects and activities.





## Monitoring our Waters

Volunteers were a critical force for the monitoring efforts throughout the watershed again in 2009. Our volunteers collected water samples and secchi disk readings on Calhoun, Elkhorn, George, Green, Long, Monongalia, and Nest Lakes from April through October. Water samples and transparency tube readings were also collected on seven stream sites. The results of the volunteers' efforts at our area lakes are shown in the chart below. Precipitation data was also recorded by volunteers at various locations around the watershed.



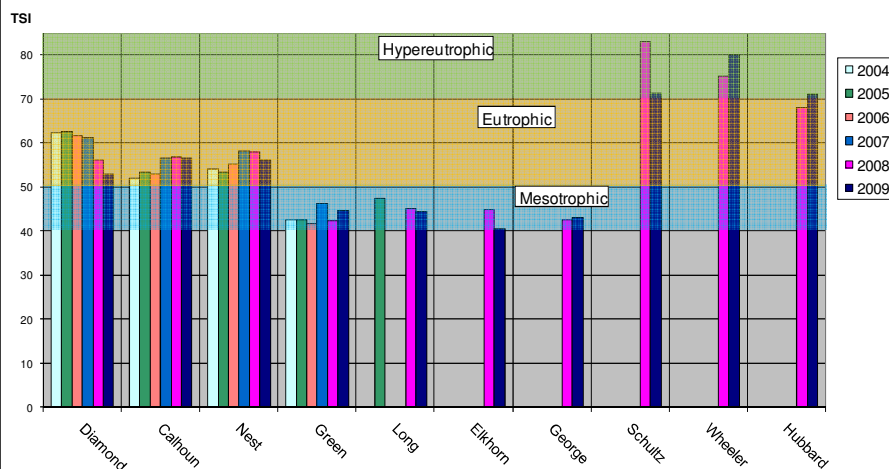
Funding for the volunteer monitoring program was provided through two grants from the MPCA: a Citizen Monitoring grant and a Clean Water Partnership grant.

Through analysis of the water quality data collected by our volunteers, we are able to develop a better understanding of the water quality throughout the watershed as well as evaluate trends over time. In addition, the information will help us to more accurately plan future water quality improvement projects.



The MFCRWD would like to thank the 2009 volunteers: Allan Gilbertson, LuAnn Glieden, Bill Gossman, Bob Hodapp, Ron Johnson, Ann and Bill Latham, Dean Lovold, Harlan and Sherrie Meints, Jill Nelson, Ruth Schaefer, Dave Schmidt, Mel Wensman, and Graden West.

Middle Fork Crow Lakes TSI values 2004-2009



### Trophic Status Index (TSI) What does it mean?

**Mesotrophic:** Water moderately clear; increasing probability of no oxygen in the lowest levels during summer.

**Eutrophic:** Decreased transparency, lack of oxygen in the lower levels during the summer, weed problems evident, warm-water fisheries only.

**Hypereutrophic:** Dominance of blue-green algae, algal scums probable, extensive weed problems. Heavy algal blooms possible throughout the summer.

## Rules & Permits

The MFCRWD Board of Managers adopted its Administrative Rules in December 2008. These Rules cover the three areas of concern that were identified by the Watershed District and its stakeholders in the design process: Stormwater, Erosion Control, and Drainage.

A Stormwater permit is required for (a) any land disturbing activity one acre or greater; (b) the development of any new resort or planned unit development; (c) the expansion or replacement of a structure at an existing resort; or (d) the redevelopment of a parcel that currently exceeds impervious surface limits.

An Erosion Control permit is required for a land disturbing activity that is (a) greater than 400 square feet within 100 feet of the ordinary high water mark; or (b) greater than

800 square feet within 300 feet of the ordinary high water mark. Ordinary agricultural practices are exempt.

A Drainage permit is required for: (a) any new or expanded open private ditch; (b) any new or expanded drain tile system with a diameter greater than 12 inches that drain agricultural land; or (c) any new or expanded drain tile system with a diameter greater than 6 inches that drains shoreland.

Please contact our office with questions or before beginning any project that may require a Watershed District permit. The complete Administrative Rules, permit application, appendices, and guidance documents are available at our office and on our website at [www.mfcrow.org](http://www.mfcrow.org).

## Education

The Watershed District continued its adult education efforts in 2009. In March, we teamed up with the Atwater-Cosmos-Grove City (ACGC) Community Education to present a Stormwater 101 workshop at the Grove City high school. Participants learned about the effects of stormwater on receiving water bodies, how they can help reduce those effects, and the theory of low impact development. They also had the chance to discuss local stormwater issues.



In August, the MFCRWD held the third installment of the shoreland restoration workshop that was initiated in 2008. The final installment looked at the maintenance of shoreland restoration projects.

Participants visited three restoration projects of various maturity levels and were encouraged to identify problematic weeds at each site. A discussion was then held at each site about specific maintenance concerns as well as methods to control nuisance weed species.

The District also continued its efforts on youth education in 2009. Due to the success experienced in a few environmental education sessions in 2008, a heavy emphasis was placed on the expansion of this program in local schools for the 2009-2010 school year. Two local elementary school teachers and one local high school teacher made time on several occasions for District staff to incorporate water quality lessons into their curricula.

In the New London-Spicer high school, students learned about watersheds and local water quality. High school students had the chance to monitor the water quality of the Mill Pond; they were taught the proper methods to collect water quality samples, conduct secchi disk and transparency tube readings, collect temperature, specific conductance, turbidity, and other useful data. Staff also visited their classroom to conduct interactive lessons on the water cycle and the

effects that plants can have on water quality improvement in various situations.

This past fall, fourth- and fifth-grade students at ACGC and NL-S learned about biodiversity and how a diverse population of macroinvertebrates indicates a healthy ecosystem. Students had a hands-on experience identifying macroinvertebrates from their watershed and discussed possible scenarios that would decrease biodiversity. They also learned about what happens to macroinvertebrates when a "stress" such as stormwater is added to their environment through an interactive game of Macro-invertebrate Mayhem tag.



The Watershed District will continue its education efforts in 2010. Adult education will continue through a raingarden workshop that will be held due to a high level of interest throughout the watershed in the use of raingardens to help water quality. Work in the area schools will continue in 2010, with more planned visits to the ACGC and NL-S classrooms to teach students about the effects of erosion on water quality and more; expansion into the Belgrade, Brooten, Elrosa district is planned for spring, 2010 to teach junior high students about watersheds and water quality.

## Eagle Scout Project

In August 2009, Chris Kent of Boy Scout Troop 66 completed a storm drain marking project in Belgrade as part of his Eagle Scout project. Chris worked with the MFCRWD to apply markers reading "No Dumping, Drains to River" adjacent to every storm drain throughout the streets of Belgrade. Volunteer Boy Scouts helped clean the curbs, applied the markers, and recorded the GPS location of each storm drain. Chris also wrote an article that was published in the Belgrade Observer explaining the pollutants that are carried by stormwater down storm drains and into local water bodies; the article also informed residents on ways to reduce the pollution that is washed off driveways, lawns, and city streets during rain events and snowmelt.





### Best Management Practices

Best management practices (BMPs) are land use changes or activities that improve water quality by reducing runoff and pollution. The MFCRWD helps fund BMPs with cost share funding and State Revolving Fund (SRF) low interest loans. These projects are often initiated by a landowner inquiry to the MFCRWD office or any of our Soil and Water Conservation District, Natural Resources Conservation Service, or County partners.



There are a number of different types of BMPs available to landowners, including wetland restorations, buffer strips, sediment blocks, manure management, animal exclusions, CRP, raingardens, and shoreland restorations. If a project meets funding criteria, a contract is drawn up and approved by the District Managers prior to project implementation.



Cost share funds may be approved for 50-75% of eligible project costs. These funds are grants and cannot be used for septic system upgrades. The District implemented 13 different BMPs in 2009 including a cattle exclusion, shoreland restorations, rain barrels and rain-gardens.

The District also has SRF loans that can be used for the homeowner's contribution for eligible BMPs or septic systems upgrades. The loans are disbursed with a 3.5% interest rate and are placed as a special assessment on the landowner's property taxes; loans are repaid when property taxes are paid, over a 7-10 year period. SRF loans were used to help seven homeowners with their contributions to their BMP projects and one septic system upgrade this year.



### Other MFCRWD outreach

The Watershed District had many opportunities to contribute to and support our local communities and water resources in 2009. Contributions were made to the Earth Day celebration at Prairie Woods Environmental Learning Center, the Westby internship for a senior from the New London-Spicer high school, the Green Lake Property Owners

Association to conduct a survey on Eurasian watermilfoil, and to the Diamond Lake Wastewater Committee to explore a community-based resolution for sewage treatment. The Watershed District is also supporting the Diamond Lake Area Recreation Association in their pursuit of a new carp barrier.

### Spicer City Park

A project initiated by the Spicer Design Team in 2008 was completed this past summer. More than 400 linear feet of shoreline along Green Lake were planted with native grasses and wildflowers. The site, at downtown Spicer's City Park, was experiencing some erosion and slumping from wave action and stormwater runoff. The deep roots of the native plants will work to stabilize the bank and infiltrate stormwater runoff, therefore improving water quality while the plants will provide habitat for various wildlife. A walking path through the area allows visitors to see the project up close and interpretive signs that will be installed in spring 2010 will highlight some of the plants used and explain the virtues of native shoreline restorations. Many community volunteers helped with the planting and watering. Funding for the restoration and public education project was provided by a grant from Minnesota Waters, the City of Spicer, Kandiyohi County, a Clean Water Partnership grant from the Minnesota Pollution Control Agency, and the MFCRWD.



### Clean Water Partnership Continuation Grant

The Middle Fork Crow River Watershed District received good news in August on the proposal that was submitted to the Minnesota Pollution Control Agency for the Clean Water Partnership Continuation Grant. Our project proposal was one of five projects approved for award around the state. This continuation grant will allow us to aggressively pursue the implementation of best management practices (BMPs) throughout the watershed, continue to expand our educational efforts in area schools, and implement a progressive stormwater treatment system while addressing flooding in Belgrade, among other exciting opportunities. The grant portion of the project is \$350,000, and \$150,000 in loans will be available to provide additional incentives for property owners to implement BMPs and upgrade individual septic systems. This grant commences in early 2010.

### Aquatic Invasive Species

Throughout 2009, invasive species received more attention and concern than they had for many years. From the discovery of zebra mussels in lakes near Alexandria to the threat of Asian carp in the Great Lakes, Minnesotans could not help but hear about these threats to our aquatic ecosystems. Two aquatic invasive plants have been identified in lakes in the Middle Fork Crow River Watershed District: curly-leaf pondweed and Eurasian watermilfoil.

Curly-leaf pondweed has been identified in Calhoun, Diamond, and Nest Lakes. Eurasian watermilfoil has been found in Green Lake. Both plants can outcompete



Curly-leaf pondweed. Photo credit MnDNR

native vegetation for space and food resources and may disrupt the native ecosystems. Boaters and lake users can help prevent the spread of these nonnative invasive plants to other water bodies by thoroughly checking their boats, trailers, and

other equipment for vegetation, removing it, and disposing of it properly.

Zebra mussels have been the target of awareness, education, and prevention in recent months. They were first found in the Duluth-Superior harbor in 1989 and have since



Zebra mussels. Photo credit www.geog.ubc.ca

spread to 37 water bodies in Minnesota. The mussels attach to boats, nets, docks, lifts, and swimming rafts and can be moved on any of these objects. They also attach to aquatic plants and microscopic larvae may be carried in contaminated water in bait buckets, bilges, or any other water moved from an infested lake or river. Zebra mussels attach to native mussels, killing them, and their filter feeding can greatly disrupt the food chain.

The District will be working with state and local governments and citizens to ensure that everything possible is done to prevent the arrival of zebra mussels, in addition to efforts to control the growth of curly leaf pondweed and Eurasian watermilfoil to the extent possible.



## Financial Report

District staff worked on closing four grants over the course of 2009, and managed to procure three new grant awards. A summary of our grant and contract agreements follows:

- 319 Stormwater Assessment Grant: \$140,000 in grant funds and \$100,000 for low interest loans. The overall goal of the grant is to reduce the impacts of stormwater runoff by implementing a variety of stormwater treatment options in the cities of New London and Spicer. The grant was signed in Nov, 2008, and runs through Aug, 2012.

- Diamond Lake Total Maximum Daily Load study (contract): \$176,215 for the completion of a TMDL study, which will lead to an implementation plan for the improvement of water quality in Diamond Lake. The contract runs through June, 2011.

- Clean Water Partnership Continuation Grant: This grant, unsigned as of the end of 2009, will provide \$350,000 in grant funds and \$150,000 for low interest loan funds. As with the previous grant, it will likely run for three years and will allow us to conduct education and outreach programs, water quality monitoring and evaluation, and the ability to implement BMP's throughout the entire Middle Fork Crow Watershed.

- Conservation Drainage in the Middle Fork Crow River Watershed: This grant, also unsigned as of the end of 2009, will provide \$15,600 to study the impacts of controlled drainage systems on nutrient exports.

- Clean Water Partnership Eurasian Watermilfoil/Stormwater Study: This grant, unsigned as of the end of 2009, will provide \$33,000 to study the hypothesized relationship between stormwater inlets and the establishment of Eurasian Watermilfoil stands in Green Lake.

<u>2009 AUDIT</u>	
<u>SUMMARY OF REVENUES, EXPENSES, AND CHANGES NET ASSETS</u>	
<b>Revenues</b>	
Grants	\$232,352
General fund	\$237,791
State aid	\$15,927
Interest Income	\$7,914
Miscellaneous	\$9,451
<b>Total Revenues</b>	<b>\$503,435</b>
<b>Expenditures</b>	
Meetings	\$20,797
Contract labor	\$46,225
Administrative	\$6,903
BMP implementation expense	\$159,468
Professional expenses	\$16,077
Employee benefits	\$19,719
Dues	\$3,562
Insurance	\$4,115
Payroll expenses	\$123,281
Payroll tax expense	\$9,217
Utilities	\$1,748
Monitoring	\$34,031
Leased equipment	\$895
Office expense	\$2,792
Public education	\$2,959
Miscellaneous	\$2,870
Depreciation	\$6,622
Rent	\$7,500
<b>Total Expenses</b>	<b>\$468,781</b>
<b>Change in Fund Balance</b>	<b>\$34,654</b>
Fund Balance January 1	\$316,886
Fund Balance December 31	\$351,540

The complete audit report is available at the Middle Fork Crow River Watershed District Office.

## 2009 Open House

In honor of our 4th anniversary, the Middle Fork Crow River Watershed District held an open house in April. District staff prepared informational displays covering the 319 Stormwater grant, Administrative Rules, the Belgrade Stormwater Investigation, Best Management Practices, County Road 10 reconstruction project, Diamond Lake Total Maximum Daily Load Study, Education, Green Lake Inlet Partnership, Invasive Species, the Minnesota Waters Shoreland Restoration and Public Education project, Monitoring, and Volunteer Program. The Open House was well attended by the public, and citizens had the opportunity learn about the Watershed District's activities over the previous four years, ask any questions they had, and discuss future activities as well. We plan to continue this event with another Open House in 2010.



## Middle Fork Crow River Watershed District

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## Diamond Lake TMDL

In 2006, Diamond Lake was added to the Minnesota Pollution Control Agency's (MPCA) impaired waters list for excess nutrients, specifically total phosphorus. This means that the amount of nutrients in the lake can cause nuisance algae blooms along with other problems which detract from the lake's designated use of recreation. In 2008, the Middle Fork Crow River Watershed District entered into a contract with the MPCA and retained a consulting firm to carry out a Total Maximum Daily Load (TMDL) study, the goal of which is to identify the sources of the excess nutrients.

As the lack of stream flow was a major impediment to our TMDL sampling efforts in 2008, we were out often as the five streams that flow into Diamond Lake began flowing in March. With stream sites that dried up in June and didn't begin flowing again until late autumn rains saturated soils again, it proved to be a wise decision to get out first thing in the spring. Chemistry samples and physical data were also collected on Diamond Lake and Schultz, Wheeler, and Hubbard lakes that comprise the chain of lakes that drain into Diamond Lake. A total of 35 samples were collected at inlet sites, 8 samples on Diamond Lake, and 6 samples on each of the three chain of lakes in 2009. In addition to collecting and analyzing water samples, secchi disk/transparency tube readings, temperature, pH, dissolved oxygen, specific conductance, and turbidity information was also collected. In 2010, District staff will work with the contracted engineering company on lake and watershed modeling, implementation plan development, and finalizing the TMDL report with state and federal officials.



## Coming up in 2010

Beginning with snowmelt this spring, we will continue monitoring stormwater runoff, and we will implement a Stormwater Education program for the 319 grant. Our youth education program will continue in the classrooms of our three school districts. We will scramble to get all three of our new grants off on the right foot; this will include the writing and execution of work plans, the beginning of

studies and the implementation of projects. One example of a project in the works is a stormwater project that will improve water quality in the headwaters of the watershed, while reducing the frequency and severity of flooding in the City of Belgrade. The District will continue extensively monitoring the watershed, working with volunteers, establish a newsletter, and working with citizen groups on AIS issues.

## Watershed Board Changes

We have experienced many changes in the 4 1/2 years since becoming a Watershed District: our comprehensive watershed management plan has been completed, we have adopted Administrative Rules, and we have expanded our staff from just one to three people. In 2009, we experienced more change with the resignation of Bob Zenner from the Board of Managers. Bob served on the Board of Managers since the District was established, and helped us accomplish many goals of the District. Bob will be greatly missed by the Board and the Staff!

The Stearns County commissioners appointed Bruce Wing to succeed Bob on the Board of Managers. Bruce is a retired school counselor with the BBE School District and lives south of Belgrade. The Staff and the other Managers welcome Bruce to the Board, and look forward to working with him for years to come!

