



# 319/Clean Water Partnership (CWP)/ Total Maximum Daily Loads Semi-Annual Report for Reporting Year 2011

Doc Type: Semi-Annual Report

Reporting Period:  January 1 through June 30 (Due August 1)  
 July 1 through December 31 (Due February 1)

All information is required by U.S. Environmental Protection Agency (EPA). Do not leave blanks. This report form can be typed using your computer. Use the "tab" key to move through the fields of this form. Enter responses using text and check boxes as indicated. Keep a copy for your records.

## I. General Report Information

1. Project title: Middle Fork Crow River Watershed Restoration and Enhancement Project Continuation
2. Project sponsor: Middle Fork Crow River Watershed District
3. Project representative: Chad Anderson
4. E-mail address: Chad@mfcrow.org
5. Funding:  319  CWP  Clean Water Legacy/Clean Water Fund  Other: \_\_\_\_\_
6. Contract number: B40796 PRJ number: 05768; SRF0213
7. MPCA Project Manager: Margaret Leach
8. Contract start date (mm/dd/yyyy): 3/9/2010 Contract end date (mm/dd/yyyy): 6/30/2013

The following six questions refer to the lists on the Minnesota Pollution Control Agency (MPCA) website following this report form:

9. Best Management Practices (BMPs): (357) Barnyard Run-Off Control, (393) Filter Strip, (410) Grade Stabilization Structure, (412) Grassed Waterway, (647) Habitat Development/Management, (643) Habitat Restoration, (472) Livestock Exclusion, (590) Nutrient Management, (329C) Residue Management, (570) Runoff Management System, (350) Sediment Basin, (580) Streambank and Shoreline Protection, (606) Subsurface Drain, (638) Water/Sediment Control Basin, (657) Wetland Restoration, (possible BMPs)

10. Primary and Secondary Categories of Pollution:

	Primary	Secondary	Others
Category (name only)	(1000) Agriculture	(7400) Flow Regulations/Modification	8592 (Other Historical Pollutants), 4000 (Urban Run-off Stormwater)

11. Nonpoint Source (NPS) Functional Category:

	Primary	Secondary	Others
Category (name only)	(11) BMP Design/Implementation	(101) Local (Specific Target) Education/Information Programs, (201) Nonpoint Source Program Overall Coordination	(510) Water Quality Trend Assessment, (600) BMP Effectiveness Monitoring, (620) Watershed Assessments

12. Waterbody type: LK, RI, RS, ST
13. Type of pollutant(s) (use name, not code #s): (2210) Algal Growth/Chlorophyll, (910) Phosphorus, (1100) Sedimentation-Siltation, (2100) Suspended solids, (2500) Turbidity (2200) Plants (Noxious Aquatic)
14. Ecoregion: 5100 (North Central Hardwood Forest)
15. Hydrologic unit code (12 digits): 07010204 Latitude-longitude: 45 7'38"N/94 31'40" W
16. Basin name (check all that apply): Statewide

- Lake Superior
- Lower Mississippi/Cedar
- Upper Mississippi
- Minnesota
- Rainy
- Red River
- Des Moines
- Missouri
- St. Croix

## II. Project Description

### 1. Project Description Summary (taken from work plan summary) – Include at least two paragraphs that briefly summarize the project scope, the processes and the events that occurred before this reporting period.

The Middle Fork Crow River watershed contains a number of economically and ecologically important lakes with increasing population and development pressures. The hydrology of the watershed has been highly altered with nine dams creating reservoirs rather than natural lake systems, 15 ditches totaling nearly 140 miles of open channels, and a significant number of drained or filled in wetlands. The land use pressures and hydraulic changes have led to the degraded water quality for many of the lakes, while others are in need of protection from non-point sources of pollution (Phase I CWP, Oct 2002; updated by Wilson et al, 2004). This project continues the efforts initiated under the previous Clean Water Partnership grant to protect high quality lakes and restore lakes with poor water quality by: working to restore the hydraulic regime by restoring wetlands, providing educational opportunities that link people to the resources, implementing best management projects in areas identified as ecologically sensitive to reduce non-point pollution sources, and targeting specific lake management projects identified in the diagnostic studies which will harness internal loading in lakes where this is a significant problem.

The scope of the project is to improve and preserve water quality throughout the watershed focusing on three major efforts. 1) Provide educational programs which engage citizens in active resource management. 2) Continue to examine the overall water quality of the watershed via permanent river and lake monitoring stations as well as seasonal (temporary) stations. 3) Improve water resources by assisting individuals, groups and units of government to implement best management practices. The fourth element of this grant allows for the overall administration of the grant project.

Activities carried out prior to the current reporting period:

March-June 2010: **Education and outreach:** The first 3 months of grant implementation were heavily focused on the education component. Several water quality lessons were planned with the teachers from the 4<sup>th</sup> grade class at ACGC elementary, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade classes in New London-Spicer, and 7<sup>th</sup> and 8<sup>th</sup> grade classes at BBE; in total, lessons were delivered on 10 occasions. An open house was held in honor of the 5<sup>th</sup> Anniversary of the establishment of the MFCRWD, in which approximately 50 people attended; displays of the CWP Continuation grant and other projects were on display. An Earth Day event sponsored in-part by the MFCRWD was attended by approximately 800 people; a display of MFCRWD activities was put together and presented by staff. An article outlining the District's education activities, the collaborative donation by the Diamond Lake Association and the availability of cost share funds under the grant was written by MFCRWD staff and published in the Association's newsletter. A presentation on shoreland restoration activities in the MFCRWD was put together and delivered to approximately 20 members of the public at the DNR's "Our Water, Our Choices" conference. One article about the District's education efforts with the BBE school was written for submittal to the Belgrade, MN newspaper (publishing pending). One article summarizing 2009 lake water quality results was written for the Green Lake Association (publishing pending). One water quality lesson was delivered to children at the Spicer Library hour. One staff member attended the Minnesota Erosion Control Association's annual conference. **Monitoring:** Preparatory work for the monitoring season was completed (ordering supplies, attending MPCA-required equipment training, arranging volunteers for the season, establishing monitoring plan, planning and delivery of training session for volunteers, etc.). Equipment was installed at permanent monitoring stations. Monitoring was conducted by MFCRWD staff and volunteers on area lakes on 35 occasions and on area streams/river on 70 occasions (including replicate and blank samples). Two MFCRWD staff members canoed the upper reaches of the watershed to examine springtime flow conditions. **BMPs:** A kickoff meeting for the Belgrade stormwater project was held with most potential partners present. Assistance was provided to the cities of Spicer and New London on their respective shoreland restoration projects. Additional stabilization on a private owner's shoreline was provided, and live stakes were installed at a shoreland restoration project. Site visits to property owner inquiries of 10 potential projects were conducted; cost share contracts for 4 BMP projects were signed, including three shoreland restoration projects on private property and one stormwater management project with the City of Belgrade. One site inspection for a septic upgrade was conducted. **Administration:** Regular grant administrative duties were carried out as required, including budget monitoring and project tracking. The CWP Continuation work plan was submitted to the MPCA project manager and approved.

July-December 2010: **Education and outreach:** Two water quality lessons were planned and delivered to the 4<sup>th</sup> grade class at ACGC elementary and two lessons to the 9<sup>th</sup>-11<sup>th</sup> grade classes at the New London-Spicer high school. Staff are working closely with the 5<sup>th</sup> grade teacher at New London-Spicer to develop the STREAMS water quality education pilot program that will be more formal and assist teachers in meeting state education standards while teaching students about water quality issues. An article summarizing Green Lake water quality results for 2010 was published in a lake association newsletter. One water quality lesson was delivered to children at the Spicer Library hour. One staff member attended an Applied FLUX

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workshop through the University of Minnesota. Two staff members attended the annual BWSR Academy. **Monitoring:** Monitoring was conducted by MFCRWD staff and volunteers on area lakes on 53 occasions and on area streams/river on 60 occasions (including replicate and blank samples). FLUX modeling was performed on chemistry and flow samples for four river sites to determine annual loading. Water quality data was submitted to STORET. **BMPs:** One shoreland restoration project (native buffer) and two shoreland stabilization/restoration projects were completed on area lakes. Site visits to property owners' inquiries of 10 potential projects were conducted; cost share contracts for two shoreland restoration projects on private property were signed. One septic system upgrade was completed, and one inspection for a possible septic system upgrade was conducted. Inspections on more than a dozen previously implemented BMPs were completed to ensure maintenance and upkeep per cost share contract requirements. Several iterations of plans have been revised for the Belgrade stormwater project to develop a project that will provide water quality benefits while mitigating flooding problems. Staff worked with the Spicer Design Team to create and implement a maintenance plan for the shoreland restoration project at a city park. Maintenance was performed by staff on the Park Lane channel development project as part of the Memorandum of Understanding between the MFCRWD and City of Spicer; this stormwater mitigation project was funded in part with the previous CWP grant. **Administration:** Regular grant administrative duties were carried out as required, including budget monitoring and project tracking.

January-June 2011: **Education and outreach:** The MFCRWD Student-Targeted Resource Education, Awareness and Management (STREAM) program was shifted from a pilot program to an active environmental/water quality education program. During the current reporting period, under the STREAM program, District staff carried out two water quality lessons with 4th graders, five lessons with 5th graders, and two lessons with 8th graders at New London-Spicer schools, along with three water quality lessons with Atwater-Cosmos-Grove City 4th graders, and one with the Belgrade-Brooten-Elrosa 6th graders. One shoreland restoration workshop was developed and presented to 15 interested participants, each paying \$5. MFCRWD staff was instrumental in the organization of the annual Earth Day Celebration at Prairie Woods Environmental Learning Center (PWELC), which was attended by approximately 600 people; the District had a display on CWP Continuation related water quality activities. CWP Continuation education, BMP and monitoring information was condensed and displayed at the District's 6th anniversary open house; similar information was displayed in the MFCRWD Annual Report, and data collected in 2010 was synthesized and displayed in the District's 2010 Monitoring Report. A display and staff was available to the public at the Willmar Agricultural show. Two newsletter articles were written, submitted, and published in the Diamond Lake Area Recreation Association newsletter, one in the Green Lake Property Owners (GLPOA) Association newsletter, and one article was published by the West Central Tribune following an interview by the author with District staff. Four lake association annual meetings (Long, George, Green, Diamond) were attended by staff to discuss watershed issues with local residents. Staff collaborated with a local angling club, the GLPOA, City of Spicer, Kandiyohi County and DNR on an effort to increase awareness of aquatic invasive species (with a focus on zebra mussels) prior to and during a walleye fishing tournament; a brochure was developed, and anglers were encouraged to use a rented decontamination unit. Outreach was also carried out through a presentation on CWP Continuation activities to the Darkhouse and Angling Association. Collaboration between the CROW, PWELC and MFCRWD led to the development and marketing of a water quality day camp for area youth; the program was eventually cancelled due to a lack of participants, but will be carried out in 2012. Staff also attended several conferences and workshops to better equip them for CWP Continuation Grant related activities, such as P8 Modeling, a wetland conference, a water education festival, and shoreland restoration conferences, among others. Planning for website redevelopment began. **Monitoring:** Training was provided to equip new volunteers with the necessary skills to conduct water quality monitoring for the District, and a refresher was provided to those volunteers who have collected data for some time. Time was invested into the 2011 monitoring plan, including the addition of one new site, the elimination of three sites, as well as all budgeting exercises. EQUIS data was QA/QC'd and subsequently used to model the 2010 data using FLUX, and ultimately to be presented in the 2010 Monitoring Report. Actual monitoring was conducted by MFCRWD staff and volunteers on area lakes on 27 occasions and on area streams/river on 41 occasions (including replicate and blank samples). Staff attended MPCA required YSI training, in addition to hydstra training. **BMPs:** Three projects that were initially planned to have been completed during the current reporting period have not been installed to date due to various reasons (see challenges faced section below). These include the Belgrade stormwater improvement/flood mitigation project, and two shoreland restoration projects on contiguous properties on Diamond Lake. A new Agricultural BMP financial incentive program was drafted in conjunction with SWCD and NRCS staff and adopted by the MFCRWD Board of Managers. Technical support was provided to the City of New London for the maintenance and improvement of their shoreland restoration project in Neer Park. Initial consultation meetings were conducted with USFWS and DNR officials on two potential lake and wetland restoration projects. MFCRWD staff teamed up with the DNR Area Hydrologist to canoe a section of the Middle Fork Crow River to identify areas potentially requiring BMPs in addition to possible locations for geomorphology study locations. Fourteen visits with property owners interested in BMP installation were conducted, including 4 visits on Diamond, 4 on George, 2 on Green, and 4 on Nest; these visits have resulted in 4 anticipated projects including shoreland restorations and a rain garden. Additional technical support has been provided for property owners who decided against cost sharing. **Administration:** A mechanism for the recovery of SRF loan funds from the City of Belgrade had to be developed, and was completed working with MFCRWD attorneys and Belgrade bond counsel. Regular grant administrative duties were carried out as required, including budget monitoring and project tracking.

**2. Specific Project Goals – Include numeric, quantifiable goals for environmental improvement, the number of Best Management Practices to be installed, pollutant reductions as well as programmatic and social goals.**

**Water Quality Goals:** This project aims to improve water quality by utilizing a comprehensive approach that involves citizens actively engaging in their local resources through monitoring, provides for educational opportunities in all age groups and interests, and implements BMP projects in areas with the greatest impact in improving water quality where needed and protecting those resources with good water quality. The goals for specific lake and stream areas are provided below. Lakes with non-degradation goals are currently well within ecoregion values. Stream and watershed loading reductions are aimed at preserving high quality waters and enhancing those in need of rehabilitation.

## Lake Water Quality Status and Goals

Lake	TP Status and goal	Secchi Status and Goal	Chlorophyll a Status and Goal	Overall Goal
Calhoun	↓ from 33 to 25 ppb	↑ from 5 to 8 feet	Remain at < 10 ppb	Improve
Diamond	↓ from 87 to <50 ppb	↑ from 5 to > 7 feet	↓ from 47 to <12 ppb	Improve
Elkhorn	Remain at 20 ppb	Remain at > 9 feet	Remain at < 10 ppb	Non-degradation
George	Remain at 28 ppb	Remain at >10 feet	Remain at < 10 ppb	Non-degradation
Green	Remain at < 20 ppb	Remain at 10 +/- 1.5 feet	Remain at 3-6 ppb range	Non-degradation
Long	Remain at 21 ppb	Remain at 9.5 feet	Remain at 6 ppb	Non-degradation
Monongalia	↓ from 38 to <35 ppb	↑ from 6 to 7 feet	Remain at < 10 ppb	Improve
Nest	↓ from 44 to <25 ppb	↑ from 7 to 8 feet	↓ from 13 to <12 ppb	Improve

## Stream Total Phosphorus Loading Reduction Goals by Watershed Area

Watershed area	Current TP Range	Goal TP Range	Percent Reduction
Upper Watershed	75-90	56-67	25%
Nest Lake Watershed	51-60	38-45	50%
Calhoun Watershed	193-219	96-109	50%
Alvig Slough Watershed	132	66	50%
Diamond Lake Watershed	>200	108	50%

**Education and Outreach Goals:** Nine visits to area elementary and high schools per school year to implement water quality classes into school curricula. Two educational wksp/year offered to area residents; one volunteer training wksp/year with 10-12 citizens collecting stream and lake data; continued maintenance, development and improvement of the District website; 8-10 newsletters and/or newspaper articles; annual report of results and progress.

**Monitoring and Evaluation:** Monitoring efforts will continue at 14 stream/river sites and at 7 lake sites (these numbers may change as needed); frequency will range from 7-17 times per year, while lake monitoring will be conducted from 7-12 times per year. To promote additional interest in lake water quality monitoring, some local lake associations are increasing the frequency of sampling on their lakes by contributing 50% of the laboratory costs. To encourage volunteerism and watershed activism, much of the water quality monitoring will be conducted by locally trained volunteers. All water quality samples will be analyzed at certified labs and results will be submitted to STORET.

**Best Management Practice Goals:** Various agricultural, rural, shoreline, riparian, urban, stormwater and residential best management practices will be considered. Between 10 and 20 projects installed each year, depending on complexity and costs. Focus will be on reducing sedimentation and non-point runoff to reach the overall project reduction and protection goals. Up to \$200,000 in low interest loans will be available to increase landowner participation.

### 3. Methods to achieve Goals:

**Education and Outreach Goals:** The MFCRWD is working closely with local elementary and secondary school teachers to incorporate water quality education directly into the teachers' curricula. These efforts are part of an education initiative that the MFCRWD is undertaking. The initiative will be titled "STREAMS: Student-Targeted Resource Education, Awareness and Management in Schools. When appropriate education topics are identified for watershed residents, appropriate steps will be made to advertise, and if necessary, contract with consultants to assist with the delivery of the education. Website will be updated regularly and likely overhauled. Newsletters and news articles will be written by MFCRWD staff and/or newspaper staff.

**Monitoring and Evaluation:** A previously instituted volunteer monitoring program will continue - including training sessions to ensure proper collection and processing methods - allowing a number of volunteers to monitor area lakes on a schedule basis and a schedule/event basis for river/stream monitoring.

**Best Management Practice Goals:** the District's availability to cost share on qualifying best management practices and septic upgrades will be advertised via press releases, word of mouth, presentations, newsletters and newspaper articles. Projects will be designed and implemented using qualified consultants/engineers when necessary, and funds from other organizations and grants will be leveraged to the extent possible.

## III. Semi-annual Report Information

### 1. Project activities completed during last six (6) months according to the program elements or tasks:

**Education and outreach:** The MFCRWD Student-Targeted Resource Education, Awareness and Management (STREAM) program is now in its third school year, and has proven to be a highly effective, successful program. The program now

consists of several different theme-based lesson plans including original lesson plans as well as those inspired by Project WET, and the Environmental Protection Agency. The program is designed to dovetail with the state mandated science standards while allowing for a fun, interesting, water-focused lesson that covers standards; feedback from teachers is overwhelmingly positive. During the current reporting period, under the STREAM program, District staff carried out three water quality lessons with 4th graders, four lessons with 5th graders, and three lessons with 10-12<sup>th</sup> graders at New London-Spicer schools, along with two water quality lessons with Atwater-Cosmos-Grove City 5th graders, two lessons with the Belgrade-Brooten-Elrosa 5<sup>th</sup> graders, and two with the 6th graders. A total of 556 students received water quality lessons. One newspaper article was written by a local journalist on a major shoreland restoration project (Dougherty). Planning for the 2012 Earth Day event was initiated; one staff member will be the point person on the planning committee. A company was contracted for the purposes of aiding the District in the development of a new website; mockups were developed and a format was selected, while new text for the website was initiated. Meanwhile, ongoing maintenance was conducted on the current website. A draft 2011 monitoring report was initiated. One presentation on shoreland restoration projects was prepared and delivered to the Minnesota Crow River Work Group; another presentation on CWP Continuation activities was prepared and delivered to the MFCRWD Citizens Advisory Committee.

**Monitoring:**

Monitoring was conducted by MFCRWD staff and volunteers on 8 area lakes on 43 occasions and on area streams/river on 44 occasions (plus 11 replicate samples and 7 blank samples). The volunteer monitoring program was coordinated by District staff. Activities for data management were carried out, including submittal of data on the volunteer monitoring website, downloading and reporting of hydrologic data for MPCA, submittal of data via STORET/eQUIS, and the development of flow duration curves for two sites (275<sup>th</sup> and MFC3). GIS software was purchased for the purpose of better targeting for BMP projects.

**BMPs:** The Belgrade stormwater project that had been planned for several years was finally installed; this is a result of years of collaboration between several entities, including the District, City of Belgrade, Crow River organization of Water, Stearns County SWCD, multiple county ditch authorities, and MNDOT. In addition to the Belgrade project, 6 shoreland restoration projects were implemented (3 on Diamond Lake, 1 on George Lake, 2 on Nest Lake) and a stream stabilization/restoration project was implemented on Diamond Lake – most projects were installed in close collaboration with local partners, including the DNR, Crow River Organization of Water, and the Kandiyohi County SWCD. Technical assistance was also provided to several property owners throughout the watershed with suggestions on ways to improve land management or projects to improve water quality in spite of a lack of interest in the District’s cost share program. Technical support was provided to the City of New London for the maintenance and improvement of their shoreland restoration project in Neer Park. More meetings with USFWS, DNR and Ducks Unlimited officials were held, with the intention of putting together a solid incentive package for the sole property owner holding out on the potential Fischer Lake restoration program (unfortunately, there was no swaying his opinion toward the project and it is not viable at this time). Inspection of previously installed projects was conducted.

**Administration:** Regular grant administrative duties were carried out as required, including budget monitoring and project tracking.

**2. Challenges faced (optional):**

**3. Summary of monitoring data collected:**

Lake data collected (excluding replicate/blank samples):

Lake	Site	TP (ppb) --- date	Secchi (ft)	Chl-a (ppb) --- date	TSS (ppm) --date
Calhoun	CL1	16 7/10/11	Between 5-8.5 ft	3 7/10/11	2 7/10/11
		31 7/24/11		8 7/24/11	3 7/24/11
		35 8/7/11		10 8/7/11	3 8/7/11
		19 8/21/11		6 8/21/11	3 8/21/11
		19 9/12/11		7 9/12/11	3 9/12/11
		23 9/25/11		12 9/25/11	3 9/25/11
Diamond	DL 3	26 7/11/11	Between 2.5-4.5 ft	5 7/11/11	4 7/11/11
		44 7/24/11		20 7/24/11	6 7/24/11
		58 8/7/11		36 8/7/11	7 8/7/11
		114 8/21/11		38 8/21/11	8 8/21/11
		86 9/12/11		55 9/12/11	10 9/12/11
		97 9/26/11		43 9/26/11	10 9/26/11
Elkhorn	EL 1	16 7/20/11	Between 10.5-14.5 ft	2 7/20/11	1 7/20/11
		16 8/23/11		3 8/23/11	3 8/23/11
		16 9/15/11		4 9/14/11	3 9/14/11
George	GeoL 1	13 7/10/11	Between 9.5-15.5 ft	2 7/10/11	3 5/8/11
		12 7/24/11		4 7/24/11	3 7/24/11
		12 8/7/11		2 8/7/11	1 8/7/11
		13 8/21/11		1 8/21/11	2 8/21/11
		17 9/15/11		4 9/15/11	2 9/15/11
		21 9/25/11		5 9/25/11	1 9/25/11

Green	GL 1	24	10/9/11	Between 9.5-12.5 ft	9	10/9/11	2	10/9/11
		12	7/12/11		4	7/12/11	3	7/12/11
		13	7/24/11		7	7/24/11	3	7/24/11
		16	8/7/11		4	8/7/11	2	8/7/11
		14	8/23/11		5	8/23/11	3	8/23/11
		16	9/8/11		10	9/8/11	2	9/8/11
Long	LL 1	21	9/28/11	Between 9-15.5 ft	9	9/28/11	2	9/28/11
		12	7/10/11		2	7/10/11	2	7/10/11
		16	7/24/11		4	7/24/11	1	7/24/11
		16	7/31/11		4	7/31/11	1	7/31/11
		15	8/21/11		4	8/21/11	2	8/21/11
		14	9/5/11		7	9/5/11	4	9/5/11
Monongalia	ML 1	21	9/18/11	Between 6.5-9 ft	15	9/18/11	22	9/18/11
		20	7/20/11		4	7/20/11	2	7/20/11
		19	8/23/11		6	8/23/11	2	8/23/11
Nest	NL 1	21	9/14/11	Between 5-7 ft	6	9/14/11	3	9/14/11
		23	7/11/11		8	7/11/11	4	7/11/11
		34	7/25/11		10	7/25/11	2	7/25/11
		47	8/8/11		27	8/8/11	6	8/8/11
		42	8/25/11		7	8/25/11	7	8/25/11
		49	9/6/11		35	9/6/11	7	9/6/11
		31	10/4/11	25	10/4/11	4	10/4/11	

River Site	TP (ppb)	Date	TKN (ppb)	Date	TSS (ppm)	Date	Transparency Tube (cm)
275 <sup>th</sup>	49	7/7/11	652	7/7/11	6	7/7/11	94.1 cm
	65	7/26/11	899	7/26/11	6	7/26/11	>100 cm
	45	8/16/11	631	8/16/11	5	8/16/11	>100 cm
	35	9/6/11	309	9/26/11	1	9/6/11	>100 cm
	26	9/27/11	484	9/27/11	3	9/27/11	>100 cm
	34	10/17/11	530	10/17/11	7	10/17/11	>100 cm
CL3	34	7/7/11	1100	7/7/11	5	7/7/11	>100 cm
	46	8/2/11	700	8/2/11	<2	8/2/11	>100 cm
	32	9/26/11	1200	9/26/11	<2	9/26/11	>100 cm
	48	10/11/11	800	10/11/11	4	10/11/11	>100 cm
	40	11/18/11	700	11/18/11	<2	10/18/11	>100 cm
DL1	190	7/7/11	1770	7/7/11	12	7/7/11	50.75 cm
	195	7/26/11	1380	7/26/11	6	7/26/11	78.2 cm
	202	8/16/11	1630	8/16/11	4	8/16/11	>100 cm
	161	9/6/11	1570	9/6/11	7	9/6/11	86.7 cm
GL5	64	7/24/11	1210	7/24/11	2	7/24/11	98.4 cm
	48	8/24/11	842	8/24/11	2	8/24/11	93.5 cm
	38	9/28/11	1090	9/28/11	5	9/28/11	94 cm
Manannah	115	7/6/11	997	7/6/11	15	7/6/11	68.5 cm
	116	7/28/11	985	7/28/11	17	7/28/11	85.7 cm
	86	8/18/11	1130	8/18/11	11	8/18/11	>100 cm
	53	9/8/11	494	9/8/11	13	9/8/11	>100 cm
	36	9/29/11	569	9/29/11	5	9/29/11	>100 cm
	36	10/18/11	575	10/18/11	2	10/18/11	>100 cm
MFC10	88	7/14/11	1290	7/14/11	16	5/25/11	52.5 cm
	58	7/27/11	1240	7/27/11	2	7/27/11	>100 cm
	38	8/17/11	1360	8/17/11	2	8/17/11	>100 cm
	28	9/7/11	375	9/7/11	3	9/7/11	>100 cm
	24	9/28/11	768	9/28/11	3	9/28/11	>100 cm
MFC3	75	7/14/11	839	7/14/11	19	7/14/11	35.5 cm
	54	7/27/11	721	7/27/11	4	7/27/11	91 cm
	30	8/17/11	733	8/17/11	4	8/17/11	>100 cm
	25	9/7/11	625	9/7/11	2	9/7/11	>100 cm
	25	9/28/11	856	9/28/11	2	9/28/11	>100 cm
MFC4	22	10/19/11	842	10/19/11	2	10/29/11	>100 cm
	55	7/15/11	981	7/15/11	10	7/15/11	>100 cm
	67	7/27/11	806	7/27/11	5	7/27/11	>100 cm
	64	8/17/11	750	8/17/11	3	8/17/11	>100 cm

	24	9/7/11	562	9/7/11	4	9/7/11	>100 cm
	20	9/28/11	763	9/28/11	3	9/27/11	>100 cm
	23	10/19/11	841	10/19/11	1	10/19/11	>100 cm
MFC5	179	8/1/11	1190	8/1/11	61	8/1/11	
	33	8/30/11	482	8/30/11	4	8/30/11	>100 cm
	28	9/28/11	476	9/28/11	4	9/28/11	>100 cm

Annual loading was calculated at four permanent sampling locations on the Middle Fork Crow River using the water quality model FLUX. The results for years 2007-2010 are shown in the table below. The Watershed District considers the results of the FLUX modeling as preliminary. Staff is still in the process of learning the model, there may be a distinct difference in readings due to an increased focus on event sampling in 2008-2009, and natural variations such as overall stream flow in each year.

Parameter	Site	2007	2008	2009	2010	2011
TSS	275 <sup>th</sup>	25.73 tons/yr	148.89 tons/yr	173.70 tons/yr	231.47 tons/yr	356.68 tons/yr
	MFC4	41.50 tons/yr	385.06 tons/yr	370.34 tons/yr	6669.93 tons/yr	962.96 tons/yr
	CL3	292.22 tons/yr	304.12. tons/yr	463.38 tons/yr	598.97 tons/yr	Not yet available
	Manannah	129.70 tons/yr	512.48 tons/yr	1281.37 tons/yr	2741.50 tons/yr	4810.41 tons/yr
TP	275 <sup>th</sup>	0.21 tons/yr	1.17 tons/yr	1.41 tons/yr	1.87 tons/yr	2.85 tons/yr
	MFC4	0.52 tons/yr	2.41 tons/yr	2.37 tons/yr	3.83 tons/yr	4.70 tons/yr
	CL3	2.18 tons/yr	2.28 tons/yr	2.89 tons/yr	3.43 tons/yr	Not yet available
	Manannah	1.56 tons/yr	5.18 tons/yr	11.08 tons/yr	22.04 tons/yr	34.14 tons/yr
TKN	275 <sup>th</sup>	2.76 tons/yr	15.63 tons/yr	18.90 tons/yr	25.25 tons/yr	39.19 tons/yr
	MFC4	10.74 tons/yr	49.71 tons/yr	48.84 tons/yr	78.86 tons/yr	96.82 tons/yr
	CL3	37.72 tons/ yr	39.34 tons/yr	51.03 tons/yr	75.69 tons/yr	Not yet available
	Manannah	17.97 tons/yr	60.40 tons/yr	130.87 tons/yr	262.22 tons/yr	410.67 tons/yr

Note: 2007-20011 FLUX results updated based on 2011 mean daily flow data. CL3 mean daily flow 2011 data not yet available. Data should be considered provisional.

4. **Have all monitoring stations been established in STORET?**  Yes  No  N/A  
5. **Is the data being routinely submitted for storage into STORET?**  Yes  No Last submittal date: 11/1/2011  
6. **Is the data being annually entered into E-Link?**  Yes  No  N/A Date last entered: 1/1/2012

7. **Identify any significant findings and results of the project to date, as well as any unanticipated findings:**

The lakes in the watershed met the goals of the grant in the current reporting period, with the exception of Diamond and Nest Lakes. These two lakes are showing improvements insofar as toward meeting TP goals, but more progress is needed. Concentrations of stream sites also seem to be heading towards meeting goals, but overall modeling results are showing what could be disturbing trends. While the high 2011 numbers are without a doubt due to extremely high flows until very late in the year, the consistently rising loads deserve some more analysis.

8. **Describe specific (quantifiable, if possible) results achieved during this period:**

Three water quality lessons with 4th graders, four lessons with 5th graders, and three lessons with 10-12<sup>th</sup> graders at New London-Spicer schools, along with two water quality lessons with Atwater-Cosmos-Grove City 5th graders, two lessons with the Belgrade-Brooten-Elrosa 5<sup>th</sup> graders, and two with the 6th graders. A total of 556 students received water quality lessons. One newspaper article was written by a local journalist on a major shoreland restoration project (Dougherty). A draft 2011 monitoring report was initiated. One presentation on shoreland restoration projects was prepared and delivered to the Minnesota Crow River Work Group; another presentation on CWP Continuation activities was prepared and delivered to the MFCRWD Citizens Advisory Committee. Monitoring was conducted by MFCRWD staff and volunteers on 8 area lakes on 43 occasions and on area streams/river on 44 occasions (plus 11 replicate samples and 7 blank samples). Flow duration curves were developed for two sites (275<sup>th</sup> and MFC3). One stormwater mitigation & water quality project was installed, 6 shoreland restoration projects were implemented (3 on Diamond Lake, 1 on George Lake, 2 on Nest Lake) and 1 stream stabilization/restoration project was implemented on Diamond Lake.

**Administration:** Regular grant administrative duties were carried out as required, including budget monitoring and project tracking.

Phosphorus Load Reduction: 27.09 lbs./year  
Nitrogen Load Reduction: Not Calculated lbs./year  
Sediment Load Reduction: 60,180 lbs./year

**9. Summarize any work plan changes:**

No additional changes to the work plan occurred during the current reporting period.

**10. List anticipated activities for next six (6) months:**

The MFCRWD will be losing a technician to another agency; the resulting transition is expected to be smooth but may reduce the number of activities that can be aggressively pursued. The STREAM program will continue educational activities with area schools. The MFCRWD will likely hire another Aquatic Invasive Species Intern to provide educational materials and outreach to the public at boat accesses throughout the watershed. The monitoring and volunteer monitoring efforts will consist of a refresher course for volunteers, a monitoring plan for 2012 activities will be developed, District technicians will attend a MPCA monitoring training course (YSI and Hydstra). BMP opportunities will be pursued to implement effective projects with the remaining BMP funds.

**11. List all products (documents, pamphlets, videos, maps, etc.) produced in this reporting period.**

A semi-annual report from the previous reporting period was completed and submitted to MPCA. One newspaper article was written by a local journalist on a major shoreland restoration project (Dougherty). A draft 2011 monitoring report was initiated. One presentation on shoreland restoration projects was prepared and delivered to the Minnesota Crow River Work Group; another presentation on CWP Continuation activities was prepared and delivered to the MFCRWD Citizens Advisory Committee. Flow duration curves were developed for two sites (275<sup>th</sup> and MFC3).

**IV. Expenditure Information for this Period**

Provide a copy of your work plan budget showing cumulative expenditures and budget balances by work plan objective and task.

Expenditure Report attached

<b>Complete the table below:</b>	<b>Amount</b>
Total Grant Amount:	350,000
Total Match Amount (if applicable)	574,300 (in-kind and loan)
<b>Total Project Amount:</b>	<b>924,300</b>
Cumulative Grant Expenditures through this period:	281,083
Cumulative Match Expenditures through this period:	375,892 *\$44,500 also spent on SRF loan granted in 2007
<b>Total Cumulative Expenditures through this period:</b>	<b>656,974</b>

Date form completed: 1/31/12

**Please submit to:** Your project manager