



**Minnesota Pollution  
Control Agency**

520 Lafayette Road North  
St. Paul, MN 55155-4194

# Final Report Format

## Section 319 and Clean Water Partnership Projects or Final Progress Report for TMDL Development and TMDL Implementation Projects

### Body of Main Report

#### Section I – Work Plan Review

##### Approved changes to the original work plan.

The Benton SWCD was successful in obtaining a grant from the Minnesota Board of Water and Soil Resources (BWSR) during the time period of this 319 grant. The BWSR grant paid for staff time to promote, design and install many of the BMPs that were planned for with this 319 grant. The Benton SWCD received two additional allocations from BWSR as well. This provided a great opportunity for the ERWA to utilize funds originally planned for staff time for other purposes. The majority of the funds for staff time to promote, design and install agricultural BMPs were moved to financial assistance for agricultural BMPs. This increased the number of BMPs completed. One project in particular, a large wetland creation and adjacent filter strips, would not have been possible without these financial assistance dollars. Several other initiatives, including additional monitoring and promotion of BMPs, were completed with these funds. A breakdown of the approved changes is listed below.

##### Approved Budget changes:

Objective 2 – Implementation of Agricultural Best Management Practices (BMPs): Benton SWCD staff grant - \$38,266.25

Objective 2 – Implementation of Agricultural BMPs: Sherburne SWCD staff grant +\$2,372.35

Objective 2 – Implementation of Agricultural BMPs: Financial assistance +\$24,362.68

Objective 3 – Implementation of Residential and Urban Runoff BMPs: Benton SWCD staff grant +\$438.75

Objective 3 – Implementation of Residential and Urban Runoff BMPs: Sherburne SWCD staff grant +\$4,192.50

Objective 3 – Implementation of Residential and Urban Runoff BMPs: Financial assistance -\$2,529.55

Objective 4 – Monitoring: Benton SWCD staff grant -\$1,365.00

Objective 4 – Monitoring: Sherburne SWCD staff grant +\$3,300.00

Objective 4 – Monitoring: Supplies, mileage -\$587.62

Objective 4 – Monitoring: Equipment -\$600.00

Objective 4 – Monitoring: Lab analysis +\$72.50

Objective 5 – Education and Information: SWCD staff grant +\$1,643.28

Objective 5 – Education and Information: Literature, mailings, meetings, etc. grant \$6,966.36

##### Approved schedule change:

The Gantt chart was revised to extend the project through August 31, 2010

#### **Brief report on each activity/task identified in your work plan (Attachment A of the 319 Grant Agreement):**

##### Objective 1: Fiscal management, grant administration and reporting

Task A: Track project grant, matching funds, expenditures and projects

The Sherburne SWCD took primary responsibility for tracking grant expenditures, revenues, requests to the MPCA for reimbursement and matching cash and in-kind. Eight semi-annual reports and a final report were completed.

#### Objective 2: Implementation of Agricultural BMPs

Task A: Provide technical assistance to landowners.

SWCD staff conducted meetings with individual cooperators identified through project promotion efforts. Designs and surveys were completed by SWCD staff and by the Central Minnesota Joint Powers Association engineer. SWCD staff and the project engineer provided oversight for installation and evaluated results.

Task B: Provide financial assistance to install practices.

The following practices were funded:

32 AgBMP nutrient management test plots: problems: drought conditions in 2007 made it difficult to interpret results for several sites.

1 wetland restoration and 1 wetland creation; problems and delays: wet weather delayed construction on one site and caused one project to be postponed beyond the 319 grant deadline. The restored and created wetlands total 13.9 acres in size.

2 filter strips around both wetland projects. The filter strips total 23.7 acres in size and filter pollutants from adjacent cropland.

5 riparian pasture buffers were installed and excluded livestock from 95.5 acres of riparian land.

#### Objective 3: Implementation of Residential and Urban Runoff BMPs

Task A: Provide technical assistance to landowners.

SWCD staff conducted meetings with individual cooperators identified through project promotion efforts. Designs and surveys were completed by SWCD staff and by the Central Minnesota Joint Powers Association engineer. SWCD staff and the project engineer provided oversight for installation and evaluated results.

Task B: Provide financial assistance to install practices. The following practices were funded:

6 stormwater BMP projects were installed. Some sites had multiple BMPs. Practices included 5 rain gardens, a vegetated swale, a filter strip and an infiltration trench. One project is a very visible site on a property owned by the City of Becker.

12 shoreland revegetation (shoreland buffers) projects were installed; problems: in 2010 low water levels on Big and Mitchell Lakes required modification of planting plans for the transition planting zones (water's edge). Dry weather in 2009 resulted in the loss of some plants.

#### Objective 4: Monitoring

Task A: Collection of monitoring data.

##### Stream monitoring:

2009: 2 stream sites monitored for E. coli bacteria; 33 sampling events.

2008: 6 stream sites monitored for fecal coliform bacteria, temperature, dissolved oxygen, pH and turbidity; 23 sampling events.

2007: 7 sites in the Briggs Lake Chain watershed were monitored for stage and total phosphorus (April through October), daily stage monitoring and 9 total phosphorus sampling events.

2007: 7 sites were monitored for fecal coliform, 9 sampling events.

##### Lake monitoring:

2010: lake association volunteers monitored 7 lakes for total phosphorus, chlorophyll-a and secchi disc transparency at least once per month.

2009: lake association volunteers monitored 7 lakes for total phosphorus, chlorophyll-a and secchi disc transparency at least once per month.

2008: lake association volunteers monitored 6 lakes for total phosphorus, chlorophyll-a and secchi disc transparency at least once per month.

2007: lake association volunteers monitored 6 lakes for total phosphorus, chlorophyll-a and secchi disc transparency at least once per month.

2007: temperature and dissolved oxygen profiles were done for 4 lakes (Briggs Lake Chain and Big Elk Lake) to be used with a mass balance study.

2007 A phosphorus mass balance report was done for the Briggs Lake Chain and Big Elk Lake using stream and in-lake data collected in 2006 and 2007.

2007 through August, 2010: CLMP volunteers monitored 13 lakes; CSMP volunteers monitored 9 stream sites.

Task B: Analysis of monitoring data: Section 319 Grant funds paid for lab analysis for fecal coliform, E. coli, and stream total phosphorus samples. Palmer Township, the City of Big Lake and the City of Elk River paid for In-lake water chemistry lab analysis.

#### Objective 5: Education and Information

##### Task A: Promote programs to landowners:

Signs were installed at 12 Residential and Urban runoff BMP sites.

Signs and literature boxes were installed at 17 Agricultural BMP Test Plot sites.

2 Interpretive signs were installed at the Fitzpatrick wetland creation site.

Presentations made to promote Residential and Urban runoff BMPs: 11 presentations, attendance 363 (all workshops combined).

Presentation on monitoring results at the Palmer Township Data Summit workshop: 1 presentation; attendance 46.

Presentations on AgBMP manure management test plot results: 2 presentations; attendance 40.

Elk River Watershed Currents, 4 page tabloid, promoting project BMPs and results – direct mailing to households:

2007 – 17,716 mailed in the Sherburne County watershed area (primary focus residential and urban BMPs).

2008 – 11,000 mailed in the Benton County watershed area (primary focus Agricultural BMPs).

2009 – 23,000 mailed to watershed households in Sherburne and Benton Counties.

Benton SWCD newsletter – promoting project BMPs – 3,591 mailed to agricultural producers.

Published Common Lake Shore Weeds, A Guide for Identification and Control in Lake Shore Buffers and Raingardens, 67 pages– 389 copies printed; 293 distributed.

Produced Planting a Shoreland buffer of Native Plant communities, Basic Information and Fact Sheets, 33 pages.

Shoreland buffer maintenance workshop – attendance 13.

Elk River Clean Up Days – 2 events that are utilized as in kind activity to remove trash from the river banks, 2008, 2009. Purpose: promote the Elk River Watershed water quality program and to involve more citizens in river stewardship – attendance 55 volunteers.

Environmental Education Days for 5th and 6th graders; watershed station, groundwater station/surface water station, wetland station, water quality/quantity station. Held in 2007, 2008 and 2009. Attendance 993 for all 3 years combined.

## Section II – Grant Results

### Measurements: Please describe your evaluation plan and its results.

#### Evaluation parameters:

*Agricultural BMP test plots:* Number of BMP test plots; number of landowners adopting the BMPs; Reduction in pounds of phosphorus and nitrogen per acre.

*Wetland restorations, enhancements and creations:* The number of wetland restorations, enhancements and creations; the acres of pool created; the acres of watershed treated by the project.

*Buffers installed along pastured ditches:* The number of buffer acres established; The reduction in pounds of phosphorus and nitrogen reaching ditches from the buffer area.

*Lakeshore buffer demonstrations:* The number of square feet of shoreline treated; The number of landowners participating in demonstration activities; Calculated phosphorus loading reduction.

*Residential/urban storm water runoff treatment projects:* Number of sites treated; Calculation of reduction in phosphorus loading.

#### What tools did you use, what methods did you use to gather information?

*Agricultural BMP test plots:* Reductions in nitrogen and phosphorus were based on manure nutrient tests and calibration of the spreading equipment. When crop yields were checked the cooperator was asked if they plan on applying the BMP on additional acres the following year and if so how many acres.

*Wetland restorations, enhancements and creations:* Effectiveness was evaluated based on the acres of pool created and the acres of watershed treated by the project.

*Buffers installed along pastured ditches:* Nutrient reduction was calculated based on the livestock that were present prior to installing the buffer.

*Lakeshore buffer demonstrations:* Effectiveness was evaluated based on size of the contributing watershed, slopes and the width of the installed buffer. Phosphorus and sediment loading reductions were determined using the Minnesota Board of Water and Soil Resources Water Erosion Pollution Reduction Estimator and/or the method described in Appendix L of the Minnesota Stormwater Manual.

*Residential/urban stormwater runoff treatment projects:* Projects were sized based on contribution watersheds and the target storm events. Phosphorus loading reductions were determined using the method described in Appendix L of the Minnesota Stormwater Manual.

#### Measurable environmental results:

Project Description	Type	Amount	units	Nitrogen reduction	Phosphorus reduction	Sediment reduction
				lbs/year	lbs/year	tons/year
2007 AgBMP test plots (12 plots)	Test Plot	100.6	acres	2,824	3,804	
2008 AgBMP test plots (14 plots)	Test Plot	120.2	acres	3,572	2,310	
2009 AgBMP test plots (6 plots)	Test Plot	62.1	acres	1,414	454	
Houdek wetland restoration	Wetland	3.5	acres		500	
Fitzpatrick wetland creation	Wetland	10.4	acres		10.7	5.53
Houdek	Filter strip	4.9	acres		included with wetland restoration	

Fitzpatrick	Filter strip	18.8	acres		included with wetland restoration	
Bromenschenkel Bros.	Riparian pasture buffer	13.9	acres		643.3	
Bromenschenkel Bros.	Riparian pasture buffer	27.7	acres		852.7	
Molitor	Riparian pasture buffer	15	acres		609.9	
Schyma	Riparian pasture buffer	18.4	acres		2,199	
Skroch	Riparian pasture buffer	20.5	acres		637	
Berg Rain garden and vegetated swale	Stormwater BMP	1	each		0.3	0.2
Rossow rain garden	Stormwater BMP	1	each		0.8	0.6
Rossow filter strip	Stormwater BMP	1	each		0.1	0.1
Nierman rain garden	Stormwater BMP	1	each		0.83	0.48
City of Becker rain garden and infiltration trench	Stormwater BMP	2	each		4	
Graff	Shoreland buffer	1,500	ft <sup>2</sup>		0.34	0.18
Godlewski	Shoreland buffer	6,534	ft <sup>2</sup>		0.58	0.52
Meyer	Shoreland buffer	837	ft <sup>2</sup>		0.1	0.1
Chounard	Shoreland buffer	2,925	ft <sup>2</sup>		0.34	0.35
Welsh	Shoreland buffer	1,170	ft <sup>2</sup>		1.03	1.21
Otten	Shoreland buffer	480	ft <sup>2</sup>		1.27	1.5
Knaeble	Shoreland buffer	3,400	ft <sup>2</sup>		12.43	14.64
City of Big Lake	Shoreland buffer	1,630	ft <sup>2</sup>		4.36	4.48
Eddy	Shoreland buffer	2,050	ft <sup>2</sup>		0.44	
Steuck	Shoreland buffer	2,900	ft <sup>2</sup>		4.44	5.23

Erickson	Shoreland buffer	1,706	ft <sup>2</sup>		0.36	0.42
City of Big Lake	Shoreland buffer	854	ft <sup>2</sup>		0.75	0.88
2008 Elk River Cleanup Day	Solid waste removal	300	lbs			
2009 Elk River Cleanup Day	Solid waste removal	830	lbs			
<b>Total Pollution Reduction</b>				<b>7,810</b>	<b>12,053</b>	<b>36</b>
<b>Total Number AgBMP Test Plots</b>		<b>32</b>	<b>each</b>			
<b>Total Acres AgBMP Test Plots</b>		<b>282.9</b>	<b>acres</b>			
<b>Total Wetlands (Creation/Restoration)</b>		<b>13.9</b>	<b>acres</b>			
<b>Total Filter Strips</b>		<b>23.7</b>	<b>acres</b>			
<b>Total riparian pasture buffers</b>		<b>95.5</b>	<b>acres</b>			
<b>Total stormwater BMPs</b>		<b>6</b>	<b>each</b>			
<b>Total shoreland buffers</b>		<b>25,986</b>	<b>ft<sup>2</sup></b>			

**Products:** Please list, and attach copies of any documents or products that have been produced during the reporting period, including monitoring data (if applicable, including the electronic summary of all data for the STORET data base), brochures, articles, special reports, tapes, CDs, etc. Provide relevant project photographs.

**Products List:**

Publications (see appendix 1):

Elk River Watershed Currents Fall 2007

Elk River Watershed Currents Fall 2008

Elk River Watershed Currents Spring 2009

Common Lake Shore Weeds, a Guide for Identification and Control in Shoreland Buffers, Wetlands and Raingardens

Planting a Shoreland Buffer of Native Plant Communities, Basic Information and Fact Sheets

Phosphorus Mass Balance for the Briggs Lake Chain and Big Elk Lake Sherburne County Minnesota, Data Collected in 2006 and 2007

Monitoring Data (see appendix 2):

Elk River Watershed 2007 STORET Data

Elk River Watershed 2008 STORET Data

Elk River Watershed 2009 STORET Data

Photos (see appendix 3):

- 1) Schustak Ag BMP test plot results
- 2) AgBMP test plot sign and literature box

- 3) Bromenschenkel riparian pasture buffer
- 4) Fitzpatrick wetland creation – immediately after construction
- 5) Fitzpatrick wetland creation – full
- 6) Fitzpatrick wetland creation sign
- 7) Houdek wetland restoration – before restoration
- 8) Houdek wetland restoration – after restoration
- 9) Berg stormwater BMP – vegetated swale
- 10) Berg rain garden – basin installed, before planting
- 11) Berg rain garden – after planting
- 12) Minnesota Conservation Corps installing shoreland buffer
- 13) Becker High School students planting rain garden at Fairway Circle, Becker
- 14) Crescent Street shoreland before planting (Big Lake)
- 15) Crescent Street shoreland after planting buffer of native vegetation
- 16) Meyer shoreland before planting (Big Elk Lake)
- 17) Meyer shoreland after planting buffer of native vegetation
- 18) Shoreland maintenance workshop, 2008
- 19) Rain garden sign
- 20) Shoreland buffer sign

**Public outreach and education: If part of your work plan, please evaluate the effectiveness of public participation and education plans for the project. Also include the total numbers from project outreach and education activities, such as number of people reached, educational materials distributed, workshop participants, etc.**

Educational and outreach methods included informational mailers to watershed residents, workshops, press releases, signs and literature boxes placed at demonstration sites. 3 mailings of the four page tabloid "Elk River Watershed Currents" were done during the project. In addition, a special mailing was done in Benton County to agricultural producers. These mailings reached approximately 28,700 property owners in the watershed. Articles on the BMPs promoted through the program were highlighted in these mailings. During the project, seventeen informational meetings and workshops were held to promote both agricultural and urban/residential BMPs. The total attendance at these workshops was 475. Local newspaper reporters attended many of the workshops and articles in local newspapers covered the events. Special articles on the urban/residential BMPs in progress were printed in local newspapers on two occasions. Most of the contacts with cooperators who installed BMPs through this program resulted from workshop attendance. These contacts are continuing. From this perspective, workshops and informational meetings were the most effective means of public outreach.

In addition, the annual Elk River clean up day was initiated and utilized as an in kind activity for educational outreach and promotion. While the program does not directly promote the BMPs of the program, it does bring about public awareness about efforts to improve water quality and involves the public in improving water quality.

A number of watershed educational programs are directed at schools. These efforts provided basic information on types of water pollution, pollution sources and alternative land uses. These contacts with students, teachers and parents have the potential to result in implementation of BMPs such as proper yard waste and fertilizer management. In one case, students and teachers have discussed installation of a rain garden on school property. Watershed assessments have identified sites on other school property where stormwater BMPs could be installed.

**Long-term results:****Do the results of this project build capacity that can increase the likelihood of long-term outcomes, such as: environmental problems identified or understood**

From attending meetings, and through personal contacts with public officials in the watershed, it is evident that city and township elected officials and staff have an increased awareness that residential and urban runoff is impacting their lakes. It is also evident that they understand that establishing buffers of native vegetation on shorelands and stormwater BMPs such as rain gardens are important for water quality improvement.

The phosphorus mass balance study and report for the Briggs Lake Chain and Big Elk Lake provides data on the relative amount of phosphorus loading from different watershed sources. This information provides local staff and lake association members with data that is useful for making decisions on where to target BMPs in the watershed.

**land use changes in the watershed**

The BMPs implemented represent changes in land use where they were implemented. It is the intention of the Elk River Watershed Association that more landowners will adopt these practices over time resulting in significant reductions in nutrient loading to surface waters. During the 6½ years of this program and the previous Elk River Watershed Section 319 grant, it is evident that there is an increase in public awareness about specific BMPs and their benefits. It is expected that further change in land use will occur.

**recommendations created**

No new recommendations were created.

**consensus for action created**

Generally, there is agreement among many lakeshore property owners and local government officials that BMPs are needed to reduce nutrient loading to surface waters. Experience during this project indicates that local government in the watershed will support installation of shoreland and stormwater BMPs where feasible and when funding is available.

**increased ability to solve similar problems in the future, etc.? Yes****if so, how?:**

Three lake associations in the watershed have become active in promoting shoreland BMPs demonstrated through the Residential/Urban Objective of this project. Activities include providing educational workshops, recruiting cooperators and recruiting volunteers to work on installation and maintenance. The most successful example is the Briggs Lake Chain Association. This association has independently initiated the Shoreland Education and Revegetation Program (SERP) to educate landowners on their lakes about shoreland BMPs. They have obtained funding from the Minnesota DNR to provide cost share to landowners for installing shoreland revegetation/buffer projects. They also have funding to help pay for runoff reduction BMPs. Several shoreland projects were completed in 2009 and 2010 through SERP. This program was a direct result of shoreland demonstration sites installed on the Briggs Lake Chain through this Section 319 Grant. Association members who received education and assistance through this Section 319 Grant in past years are providing assistance to property owners installing projects through SERP.

**Did you form new partnerships or alliances as a result of the project? If so,****What longer-term impact will this have on the project?**

Several new partnerships were formed through the project.

With the City of Becker, one stormwater treatment project was completed. Results of the Becker stormwater treatment project were positive in that it solved a significant runoff problem. It is anticipated that there will be future stormwater treatment projects in the City.

A partnership was also formed with the City of Big Lake and the Big Lake Community Lakes Association. Big Lake owns 22 lots on Big and Mitchell Lakes. Through this project shoreland buffers of native vegetation were installed on 2 of them. Shoreland buffers were also installed on 6 private lots. The response from lakeshore property owners and the City has been positive and there are opportunities to install buffers on many of the other City owned lots.



A partnership has been formed with the Little Elk Lake Association to establish stormwater treatment and shoreland buffers on both Township owned land and private lots.

**What future efforts are anticipated as a result of the partnership(s)?**

City of Big Lake: one shoreland buffer is being planned on City property and on 3 privately owned lots for 2011.

Little Elk Lake: 8 projects are planned for 2011 and 2012.

**Describe any activities you are aware of by others that benefited from the results of your project and/or resulted in implementation of similar projects in other locations.**

We are not aware of activities by others that benefited from the results of our project.

**Is there a plan to continue the project beyond the end date of the grant agreement or contract? If so, explain.**

The agricultural and urban/residential BMPs promoted through this program will be continued through a number of State grant programs. Grant funds have been obtained for FY 2010 from the MN BWSR to retrofit stormwater treatment in the City of Elk River. The Elk River Watershed Association has applied for FY 2011 MN BWSR grant funding to continue the urban and residential BMPs, wetland projects and pasture management BMPs. In the long term, a TMDL implementation plan is being developed for several watershed surface water resources. We anticipate that the BMPs demonstrated and implemented through the Section 319 Grant will be incorporated into the plan.

**Describe how you shared the results of your project. List any information or technology transfer and dissemination (newsletters, web sites, training, reports, disseminated project activities, accomplishments, and lessons to the general public). Where and to what audiences have you made presentations?**

Three editions of the Elk River Watershed Currents have been printed and mailed to watershed households. The Currents summarizes the project and BMPs implemented through the project.

Results of our shoreland revegetation projects were shared at a workshop sponsored by the Mn Department of Natural Resources in February of 2010. The workshop was attended by individuals from counties, SWCDs and cities from throughout Minnesota.

Common Lake Shore Weeds, A Guide for Identification and Control in Lake Shore Buffers and Raingardens was published through this project. 150 copies have been purchased by Minnesota Extension for use with shoreland buffer and rain garden workshops throughout Minnesota.

Shoreland buffers of Native Plant communities, Basic Information and Fact Sheets was produced through this project. A CD was given to the Briggs Lake Chain Association to be copied and distributed through their Shoreland Education and Restoration Program (SERP)

Presentations made on project activities:

Lake association workshops: Audience: shoreland property owners; 7 presentations at meetings and workshops.

Palmer Township water data summit: Audience: Township Supervisors, citizen monitoring volunteers, lake association board members.

Manure management test plot presentations: Audience: livestock producers; 2 presentations.

Spectrum High School: Audience: high school students and teachers.

Minnesota Horticultural Society Meeting: Audience: society members.

Elk River Energy Expo (2007): Audience: residents of the City of Elk River.

**What other audiences (media, businesses, other agencies, etc.) would be most interested in the results of this project?**

Local government: counties, cities, townships.

**Please describe any lessons learned during this project that would be valuable for future projects, even if the project didn't succeed as expected. What other recommendations or advice would you make for future activities related to this priority project area?**

Residential and Urban BMPs: maintenance has been an issue. Cooperators must learn to identify native, non-native and undesirable plants in order to maintain shoreland buffers and rain gardens. They must also be educated on methods of control of unwanted vegetation. Toward resolving this issue several steps were taken. A guide to common lake shore weeds was published and copies are given to each cooperator. A hands-on shoreland maintenance workshop was held for individuals who have established shoreland buffers and rain gardens. For publicly owned sites, it has been necessary to organize volunteers to water and weed newly established shoreland buffers and rain gardens. This is necessary when the cities do not have sufficient staff to adequately maintain sites. Site maintenance must be discussed in the early stages of planning a BMP so that the cooperator understands the needed maintenance and plans can be made for how the maintenance will be done.

### **Section III – Final Expenditures**

Projects should use the format they used in their work plan for the budget to report on the final expenditures. This should list the tasks or activities outlined in their original (or amended) work plan.

**See attached expenditures spread sheet.**

## Grant Project Summary

Project title: Elk River Watershed Priority Lakes II

Organization (Grantee): Elk River Watershed Association

Project start date: October 18, 2006 Project end date: August 31, 2010 Report submittal date: September 27, 2010

Grantee contact name: Mark Basiletti Title: Water Resources Specialist

Address: 14855 Hwy 10

City: Elk River State: MN Zip: 55330

Phone number: 763-241-1170 Ext. 3 Fax: 763-241-1161 E-mail: Mark.basiletti@mn.nacdn.net

Basin (Red, Minnesota, St. Croix, etc.): Upper Mississippi County: Sherburne

**Project type** (check one):

- ☐ Clean Water Partnership (CWP) Diagnostic
- ☐ CWP Implementation
- ☐ Total Maximum Daily Load (TMDL) Development
- ☒ 319 Implementation
- ☐ 319 Demonstration, Education, Research
- ☐ TMDL Implementation

## Grant Funding

Final grant amount: \$182,034.65 Final total project costs: \$371,416.94

Matching funds: Final cash: \$13,965.00 Final in-kind: \$175,417.29 Final Loan: \$0.00

Contract number: A98593 MPCA project manager: Phil Votruba

## For TMDL Development or TMDL Implementation Projects only

Impaired reach name(s):

AUID or DNR Lake ID(s):

Listed pollutant(s): \_\_\_\_\_

303(d) List scheduled start date: \_\_\_\_\_

Scheduled completion date: \_\_\_\_\_

*AUID = Assessment Unit ID*

*DNR = Minnesota Department of Natural Resources*

### **Executive Summary of Project** (300 words or less)

This summary will help us prepare the Watershed Achievements Report to the Environmental Protection Agency. (Include any specific project history, purpose, and timeline.)

Surface waters within the watershed have documented water quality problems. Our focus was on the installation of BMP's and promotion of these practices to achieve long term adoption. Thirty-two BMP test plots were established on agricultural fields. These plots demonstrated that reduced nutrient application rates protect water quality and are economically feasible. These plots achieved a 6,568 pound phosphorus reduction and a 7,810 pound nitrogen reduction. In addition to improving water quality, these reductions saved the farmers money, which ensures adoption of the BMP in future years. We restored, and created 2 wetlands. Both wetland projects are located in riparian areas that were formerly pastured. Wetland projects will reduce stream peak flows and subsequently soil erosion, sedimentation and nutrient loads. We worked with agricultural producers to install buffer strips along pastured ditches. The buffer strips totaled 95.5 acres and required the farmer to install additional fences in most cases.

Due to the fact that most lakes in the watershed are located in urban settings, most lakeshores are 80 to 90% developed . Subsequently, most natural vegetation has been removed from the shorelines. In these areas we demonstrated projects that reduce runoff using shoreland buffers and stormwater BMPs. BMP sites were promoted and selected to maximize coverage and accessibility to the public. Interpretive signs were installed at these sites to inform the public of the projects. Twelve shoreland buffers were installed as a result of this project. In addition, this project motivated the Briggs Lake Chain Association to create its own shoreland buffer program and currently promotes and provides financial assistance to property owners on the chain of lakes. Furthermore, 6 stormwater BMP sites were installed and provide long term sites for property owners to view and learn about stormwater BMP's including rain gardens, filter strips, vegetated swales and infiltration trenches.

**Goals** (Include three primary goals for this project.)

1st	Goal:	Install Agricultural nutrient management BMP demonstration plots
2nd	Goal:	Agricultural BMPs: Install riparian pasture buffer strips, filter strips and wetland restoration, enhancement or creation projects.
3 <sup>rd</sup>	Goal:	Residential and Urban BMPs: Install shoreland revegetation projects and stormwater runoff treatment projects.

**Results that count** (Include the results from your established goals.)

1st	Result:	32 nutrient management BMP demonstration plots were established for a total of 282.9 acres.
2nd	Result:	5 (95.5 acres) riparian buffers were established on pasture land; 2 filter strips (23.7 acres) were established; 2 (13.9 acres) wetland restoration, enhancement and creation projects were completed
3 <sup>rd</sup>	Result:	12 shoreland revegetation projects were completed; 6 stormwater BMPs were installed

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**Picture** (Attach at least one picture, do not imbed into this document.)

Description/location:

Two Photos are attached:

- 1) Fitzpatrick wetland creation – full; Location: Benton County, SW¼, Section 14, Township 37N, Range 29W
- 2) Berg rain garden – after planting; Location: Sherburne County, SE¼, Section 27, Township 35N, Range 29W

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**Acronyms** (Name all project acronyms and their meanings.)

ERWA: Elk River Watershed Association Joint Powers Board

BMP: Best Management Practice

USDA – NRCS: United States Department of Agriculture, Natural Resources Conservation Service

MN BWSR: Minnesota Board of Water and Soil Resources

CLMP: Citizen Lake Monitoring Program

CSMP: Citizen Stream Monitoring Program

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**Partnerships** (Name all partners and indicate relationship to project)

Elk River Watershed Association Joint Powers Board: Lead agency

Sherburne Soil and Water Conservation District: ERWA member; Provided project implementation staff

Benton Soil and Water Conservation District: ERWA member; Provided project implementation staff

Sherburne County: Fiscal agent; ERWA member

Benton County: ERWA member

USDA – NRCS: Assistance with BMP design and practice standards

Central Minnesota Joint Powers Association: provided engineering for BMPs

Briggs Lake Chain Association: BMP promotion and education; recruiting cooperators to install BMPs; Lake and tributary monitoring

Big Lake Area Lakes Association: BMP promotion and education; recruiting cooperators to install BMPs; Lake monitoring

Little Elk Lake Improvement Association: BMP promotion and education

Lake Orono Improvement Association: Lake monitoring

City of Becker: implementation of stormwater BMPs

City of Big Lake: implementation of shoreland BMPs

CLMP: Monitoring lakes in the project area

CSMP: Monitoring streams in the project area

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