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LONG LAKE

NUTRIENT TOTAL MAXIMUM DAILY LOAD (TMDL)

ASSESSMENT AND IMPLEMENTATION PLAN DEVELOPMENT PROJECT

WORK PLAN

JUNE 2008 - JUNE 2011

SPONSOR: KANDIYOHI COUNTY
CONTACT: JEFF BREDBERG

FISCAL AGENT: PRAIRIE COUNTRY
RESOURCE CONSERVATION & DEVELOPMENT
COUNCIL
CONTACT: RANDY NELSON

COOPERATOR: HAWK CREEK WATERSHED PROJECT
CONTACT: DARRELL SCHINDLER, COORDINATOR

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LONG LAKE WATERSHED NUTRIENT TMDL WORK PLAN

I. Applicant Information:				
Name of Sponsor	Kandiyohi County			
Sponsor Information	Jeff Bredberg, Director Department of Environmental Services 400 S.W. Benson Avenue Willmar, MN 56201 Phone:(320) 231-6288; Fax: (320) 231-6564 Email: JEFF_B@CO.KANDIYOHI.MN.US			
Sponsor Organization	A local unit of government. The Environmental Services has oversight of all the water resource programs in the county.			
Name of Fiscal Agent	Prairie County Resource Conservation and Development Council			
Fiscal Agent Information	Randy Nelson 1005 High Ave., USDA Building Willmar, MN Phone: (320) 231-0008 ext.5; Fax: (320) 235-8751 Email: randy.nelson@mn.usda.gov			
Fiscal Agent Organization	The Prairie Country RC&D is recognized non-profit corporation under IRS Code 501C3. This is a federal local partnership.			
Name of Coordinator	Darrell Schindler Hawk Creek Watershed Project			
Coordinator Information	Darrell Schindler Renville County Courthouse, Lower Level 500 DePue Avenue Olivia, MN 56277 Phone: (320) 523-3666; Fax: (320) 523-3668 Email: hawkcreekdarrell@redred.com			
Coordinator Organization	Hawk Creek Watershed Project was organized by the designated "Hawk Creek" watershed area and supported by Renville, Chippewa and Kandiyohi Counties that are part of the watershed area.			
MPCA Project Manager Information	Mark T. Hanson, Impaired Waters Coordinator 1420 East College Drive, Suite 900 Marshall, MN 56258 Phone: (507) 537-6000; Fax: (507) 537-6001 Email: mark.hanson@pca.state.mn.us			
II. Project Information:				
Project Title: Long Lake Nutrient Total Maximum Daily Load (TMDL) Assessment and Implementation Plan Development Project				
Listed Reach Name	Lake ID #	Listed Pollutant	Impaired Use	303(d) List Scheduled Start//Completion Dates
Long Lake in Kandiyohi County	34-0192-00	Nutrient	Aquatic Recreation	2007 // 2011
Grant Amount Requested:	\$70,704.44			
Project Dates:	June 2008 through June 2011			

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III. **Background Information:** The following information for this section was taken from the Lake Assessment Report (LAP) completed by Minnesota Pollution Control Agency (MPCA) in 1997.

- *Description of the watershed:*

Long Lake is located in Kandiyohi County, north of the city of Willmar. Long Lake is in the upper 3 percent of lakes in the state in terms of size (1,612 acres) and has a maximum depth of 16 feet.

Long Lake was formed from ice-blocks in till deposits of the Des Moines Lobe, the most recent glacial lobe (Goebel and Walton, 1979 and Zumberge, 1952) in an area referred to as the Alexandria Moraine Area. Soils of the watershed consist primarily of Clarion-Storden loamy soils. Storden soils are characterized by excessive surface runoff and is found on the steeper slopes while the Clarion is on the lesser slopes (Arneman, 1963).

Long Lake has a watershed of approximately 7,300 acres including the lake. Long Lake has a small sized watershed-to-lake ratio of 4:1. The majority of the watershed is to the northeast of the lake. Long Lake outlets at the southwest corner of the lake draining south to Hawk Creek and on to the Minnesota River.

Much of the water entering Long Lake flows from Ringo Lake, a 774 acre lake to the north. As the water makes its way from Ringo to Long Lake, it flows through a wetland on the North East end of Long Lake.

Since land use affects water quality, it has proven helpful to divide the state into regions where land use and water resources are similar. Minnesota is divided into seven regions, referred to as ecoregions, as defined by soils, land surface form, natural vegetation and current land use. Data gathered from representative, minimally-impacted (reference) lakes within each ecoregion serve as a basis for comparing the water quality and characteristics of other lakes. Kandiyohi County is characterized by two rather distinct ecoregions--North Central Hardwoods Forest (NCHF) to the north and the Western Corn Belt Plains (WCBP) to the south. Long Lake is located in the North Central Hardwoods Forests ecoregion.

- *Land uses in the watershed:*

Long Lake's watershed is made up of a mix of land uses including cultivated, CRP, urban/residential, wooded areas, wetlands, and lakes. The land use is typical of watersheds in North Central Hardwoods Ecoregion. Long Lake, Ringo Lake, King Lake, East and West Twin Lakes, Henderson, and Carlson Lakes as well as several wetlands are located in the Long Lake Watershed.

Water and wetland uses account for 46 percent of the land use in this watershed. The percentage of forested land, 9 percent, is typical for the NCHF ecoregion. The Conservation Reserve Program (CRP) make up the other dominate land use in the Long Lake watershed with 24 percent (1400 acres). There is very little pasture in the watershed (1%).

Cultivated areas account for about 13 percent of the land use in this watershed which is a bit low due to the number of acres in the CRP program. The areas that are in production generally plant corn and beans. Urban lands including homes, lawns, roadways, etc., account for about 7 percent of the watershed, with most of the urban lands in the near-

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shore area of the lake. Also in this watershed there are a few gravel pits that make up about 1 percent of the land use in this area.

Long Lake is a recreational lake located in a once predominate agriculture watershed. Long Lake's watershed land use is based on 7,300 acres including 7 lakes within this watershed as summarized by the Kandiyohi SWCD.

LANDUSE TYPE:

CULTIVATED	WATER/WETLAND	FORESTED	CRP	URBAN/RESIDENTIAL
13%	46%	9%	24%	8%

For purposes of comparison the CRP lands include little alfalfa and pasture lands in this area and forest includes building site shelterbelts and any wooded riparian areas.

The watershed soils consist of the Wadenill-Sunburg-Delft 805B-C and Esterville-Hawick 875B-C soil association. The loam soils are well suited for cultivation where the coarse soils would be better used for pasturing and hay. The major management concerns on these soils are erosion control, improving fertility, and maintaining tilth. Interconnected shallow ditches and tile lines located throughout the watershed convey runoff from the watershed to the lake.

Based on state climatology records, precipitation averages 23-26 inches annually in this part of the state.

- *Potential pollutant sources in the watershed:*

According to the 1997 Lake Assessment Program report, there were eight (8) feedlots identified in the watershed. There were about 50 head of sheep, 15 horses, 25 beef cattle, and a turkey operation with 22,000 birds. At that time, these operations seem to be well managed and didn't seem to be adversely affecting the water quality in the watershed. However, a detailed inventory will be conducted to update this information.

The development in this watershed has increased tremendously the past few decades especially around Long Lake with year-round dwellings being built all around the lake. Also in this watershed are numerous other lakes that are starting to see more development around them. There are no urban sources of concern in the watershed.

A concern with increasing lakeshore development is the issue of septic system conformity. How well are existing systems operating, and will new systems be maintained properly to insure pollution will not be transmitted to the lake.

Numerous factors combine to determine whether the runoff from a watershed will be nutrient laden and subsequently detrimental to the receiving body of water or whether the runoff water entering the lake serves to maintain a quality recreational lake. These lakes and wetlands will allow pollutants in runoff to settle out and serve to slow the flows during periods of high precipitations and runoff.

IV. Problem Statement:

- *Use impairment and pollutant*

The designated beneficial use for Long Lake is aquatic recreation and the pollutant stressor is nutrient/eutrophication biological indicators. This impairment is based on data

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from the 1997 Lake Assessment Program report compared to the NCHF ecoregion criteria prior to the new proposed water quality rules for lakes. Ringo Lake flows into Long Lake and currently is not on the impaired waters list. However, the MPCA collected a few samples in 2003 and CLMP secchi readings in 2007. The data indicates that Ringo Lake is impaired, therefore, Ringo will be assessed. In addition, there is a culvert under highway 71 that connects East and West Twin Lakes through a wetland to Ringo Lake with some flow therefore, samples will be collected at this point as well.

- *Water quality standard*

These lakes are shallow lakes located in the NCHF ecoregion. The new proposed water quality standard thresholds for shallow lakes in this ecoregion are: 60 ug/l for Total Phosphorus, 20 ug/l for Chlorophyll-A, and 1.0 meter for Secchi readings as a summer average.

- *Project summary*

The goal is to develop a partnership between a local watershed group and MPCA to collect water quality and quantity data to be used in a TMDL assessment. The local watershed group would be responsible for collecting water samples and watershed information for the Long Lake basin in 2008 and 2009. The local sponsor will also be responsible for promoting the project and developing an implementation plan. The MPCA will be responsible for composing and editing the TMDL assessment with assistance from the HCWP staff. MPCA will provide technical expertise and management of the project.

There are three reasons why this project is a priority. First, this lake has a target completion date of 2011. Secondly, there is an established watershed project (Hawk Creek Watershed Project) with staff that are willing to collaborate on the project. Thirdly, there was a Lake Assessment Project completed on this waterbody in 1997 along with available data to use from Ringo Lake within the watershed.

V. Project Activities and Schedule:

Activities: Objectives 1-4.

Objective 1: Administration

Task 1: Reporting

- Semi Annual, Annual and Final Reports will be submitted by the HCWP coordinator. These reports will be due starting August 1, 2008, and February 1, 2009. The reports will be due the same dates of the following years that the project is active during the contract period. A final progress and financial report will be due 30 days after the completion of the project. The HCWP coordinator will be responsible to provide payment request vouchers and documentation to the MPCA for reimbursement of project expenses. (40 hrs. @ \$23.68 = \$947.20)
- Fiscal management of budget, payroll, documentation, and accounting will be provided by Prairie Country RC&D for a fee of 5 % of contract amount. Budget information will be available to the project partners and provided to the HCWP for payment request of project reimbursement expenses to the MPCA. (5% of total work plan expenditures = \$3,366.88)

Task 2: Local Assistance

- The HCWP staff will bring the much-needed dedication and coordinated effort to complete the TMDL assessment and development of the implementation plan. They will provide services such as liaison to the citizens, project participants through the Technical Advisory

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Committee (TAC), and the MPCA project manager during the Nutrient TMDL process. They will conduct or coordinate all data gathering and assessment, public outreach and work with the MPCA on needed reduction scenarios. The coordinator will also be responsible for working with stakeholders to develop an implementation plan. The expenses of the local assistance are covered in Objectives 2-4.

<u>Time Frame:</u>	June 2008 through June 2011
<u>Person(s) Responsible:</u>	HCWP Coordinator, Prairie Country RC&D
<u>Final Product:</u>	Semi-annual Reports, Annual Reports and Final Report. Fiscal accounting documentation. TMDL data and development of TMDL Assessment and Implementation Plan.
<u>Cost:</u>	\$4,314.08

Objective 2: Data Collection and Analysis

Task 1: Inventories and Water quality Data Information

Pollutant Source Inventories (110 hrs @ \$23.68 = \$2,604.80)

- Drainage inventory (tile intakes, open ditches)
- Residential development inventory/shoreline area
- Nutrient management and livestock waste inventory
- Land use (wetland, cropland, woodland, grassland (pasture, buffer areas, CRP), etc.)
- Feedlot compliance and livestock inventory
- Septic compliance inventory
- Residential fertilizer usage
- Fisheries (rough fish) survey (Minnesota Department of Natural Resources – MDNR)
- Aquatic plant survey (MDNR)

Water Quality Data Collection

- Labor for sample collection, lake level readings, flows of lakes and channels (1000 hrs @ \$23.68 = \$23,680.00)
- Sample 3 lake sites 2 years samples/shipment (50 samples @ \$123.25 = \$6,162.50)
- Sample 2 channel sites 2 years samples/shipment (46 samples @ \$123.25 = \$5,669.50)
- Miscellaneous monitoring equipment purchase expenses (\$4,300)

Task 2: Data Compilation

- HCWP staff will compile, organize and manage the data of the inventory information and water quality data for the use in the TMDL assessment and implementation plan. They will also compile existing watershed and water quality data. Microsoft Excel and ArcGIS are two tools that can be utilized for the assessment of the data. (60 hrs @ \$23.68 = \$1,420.80)
- The water quality data will be analyzed by the MPCA to develop the TMDL Assessment report utilizing various lake models to determine water and nutrient budgets. See Objective 4.

<u>Time Frame:</u>	June 2008 through June 2011
<u>Person(s) Responsible:</u>	HCWP staff and Coordinator; MPCA, MDNR
<u>Final Product:</u>	Completed and compiled watershed information and water quality data into databases and STORET submitted to MPCA
<u>Cost:</u>	\$43,837.60

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Objective 3: Public Participation and Education

Task 1: Public Events (Awareness)

- This task includes the staff time for the preparation, meeting time, and follow up for the TMDL Assessment Report and Implementation Plan development process. It is anticipated that there will be nine (11) public informational and stakeholder meetings/events to complete the project. (264 hrs @ \$23.68 = \$6,251.52)
- This task also includes the expenses for holding these meetings and events necessary for the completion of Objective 4. (11 meetings @ \$62/meeting = \$682.00)

Task 2: Media

- This task includes promotional items (but not limited to these) such as: newsletters, brochures, postage, meeting notices, newspaper advertisements, radio promotions and other supplies as needed. Newsletter articles will be produced for watershed residents in conjunction with regular newsletters. (Printing = \$575.00; meeting notices = \$1,980.00; promotion (newspaper/radio) = \$468.00)

Task 3: Training Expenses

- The coordinator (or HCWP staff) will attend TMDL workshops and educational training that will provide information for this project as needed. (\$750.00)

<u>Time Frame:</u>	June 2008 through June 2011
<u>Person(s) Responsible:</u>	HCWP Coordinator and staff
<u>Final product:</u>	Information and printed materials for display to promote the project and create public awareness. Increase awareness of the public and project participants.
<u>Cost:</u>	\$ 10,706.52

Objective 4: TMDL Assessment Report and Implementation Plan Development

Task 1: TMDL Assessment Report

- The HCWP staff will be responsible for providing the data and information for the development of the TMDL assessment report and implementation plan. HCWP will provide assistance for the data analysis of the water quality and inventory information to be used for the pollutant source assessment, allocations and reduction strategies to complete the TMDL assessment report. (80 hrs @ \$23.68 = \$1,894.40)
- The MPCA will utilize the data to complete the final TMDL assessment report with the assistance of the HCWP staff as needed. The MPCA will use various lake models for determining the TMDL(s) for Long Lake and Ringo Lake if needed.

Task 2: TMDL Implementation Plan

- The HCWP staff will utilize the data from the TMDL Assessment report and land use inventories to complete an implementation plan to meet the TMDL water quality goals. This will be accomplished with using statistical consultation/analysis with the project partners. (100 hrs @ \$55.00 = \$5,500)
- The HCWP will complete the implementation plan document with the assistance of project partners and participants through a technical committee and stakeholder meetings. The HCWP will submit a final implementation plan document to the MPCA for approval that meet the requirements of the Clean Water Legacy Act 114D. (188 hrs @ \$23.68 = \$4,451.84)

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<u>Time Frame:</u>	November 2009 through June 2011
<u>Person(s) Responsible:</u>	HCWP Coordinator and staff
<u>Final Product:</u>	EPA-approved TMDL Assessment Report, MPCA-approved Implementation Plan
<u>Cost:</u>	\$11,846.24

Schedule: See Appendix A – *Project Timeline – Long Lake Nutrient TMDL*

VI. Equipment:

In order to collect the water quality data for this project the following equipment will need to be purchased: boat with trailer and motor, staff gages, coolers, ice packs, lake sample collection equipment.

VII. Quality Requirement:

QA/QC is required and a QAPP will be developed by Roger Fisher, MPCA, prior to any monitoring being conducted.

VIII. Monitoring Plan and Data Management:

A monitoring plan is attached in Appendix D. All monitoring data for the Long Lake Nutrient TMDL Project will be submitted to the MPCA to be reviewed and entered into STORET by the Hawk Creek Watershed staff.

IX. Public Participation and Outreach:

- a. Public participation and outreach will be an integral component of this project. These activities will be reported in the TMDL Assessment. Darrell Schindler, Hawk Creek Watershed Coordinator, is currently participating and leading the Hawk Creek citizens advisory committee and will work closely to include the Long Lake Association. This group, along with the agriculture producers will be asked to participate in the TMDL process through attendance at committee meetings and through the coordinator's attendance and participation in the Association's meetings and events.
- b. Outreach will be attempted through public meetings and contacts with watershed residents as needed.
- c. Word of this project and requests for input will be circulated through newsletters, brochures and promotional items at public events, and the public media. The website will be advertised through these forums and will be kept up-to-date regarding the TMDL process.
- d. The Hawk Creek Watershed staff will coordinate with the MPCA in the formal public notice process for the draft TMDL, including:
 - i. Organize a public participation process for the draft TMDL and compile comments from the public.
 - ii. Help respond to comments, as needed, on the draft TMDL from technical staff, citizens and other interested parties, including the EPA.
 - iii. Submit public outreach materials if developed along with the draft TMDL or final report.
- e. Convene a group of stakeholders to develop the implementation plan. This will include hosting meetings, providing data and information and reporting updates to the county, project partners and participants.

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X. **Project Budget:**

See Appendix B – Itemized Program Objectives Budget –Long Lake Nutrient TMDL Project

XI. **Reporting: final report and semi-annual reports:**

- a. The Hawk Creek Watershed staff will prepare annual reports each year due February 1st and semi annual reports each year due August 1st that includes an update on the tasks and activities identified in the work plan along with an updated financial status budget report for the work completed.
- b. The Hawk Creek Watershed staff, along with the assistance of MPCA project manager, will submit a final progress report using the CWP/319/TMDL Final Report format that includes a final report, submitted electronically. The final report will also include the EPA-approved TMDL Assessment and MPCA-approved implementation plan.

XII. **Final Products:**

- a. The **Long Lake Nutrient TMDL Assessment and Implementation Plan** will be the final product developed cooperatively by the MPCA and the Hawk Creek Watershed staff with input from project stakeholders.
- b. A final progress report with a final financial report will be submitted electronically to the MPCA.

XIII. **Respond to comments if necessary and help to finalize the Draft TMDL for submittal to EPA:**

- a. The project sponsor, Kandiyohi County, along with the assistance of the Hawk Creek Watershed coordinator will coordinate with the MPCA on submission of a draft Long Lake Nutrient TMDL Report by summer of 2010 in order to allow for comments and the necessary time for revision prior to final submittal to the MPCA/EPA.
- b. Assistance in the revision process based on comments from technical staff, citizens and other interested parties will be conducted as requested by the MPCA. Meetings with the MPCA will be welcomed to provide input during the process of writing the TMDL Report and the public comment time.
- c. It is anticipated the draft TMDL will be submitted to the MPCA in the fall of 2010 for comment, then placed on public notice. Assistance with any materials required for this process, such as a fact sheet, press release, or other outreach materials will be provided by the Hawk Creek Watershed coordinator.

XIV. **Responsible Parties:**

The following parties will be responsible and participate in the Long Lake Nutrient TMDL Project.

Kandiyohi County:

Project sponsor and grant oversight.

Prairie Country RC&D:

Provide fiscal accountability.

Hawk Creek Watershed Project:

Provide day-to-day project coordination, facilitate and carry out task of data collection of monitoring activities and watershed assessment.

Other project partners and stakeholders such as (but not limited to) Kandiyohi SWCD, BWSR, NRCS, MDA, DNR will be involved and provide assistance as needed. The coordinator will also work with the partners and stakeholders to develop the implementation plan.

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XV. Appendices:

Appendix A: Project Timeline – Long Lake Nutrient TMDL

Appendix B: Itemized Program Objectives Budget –Long Lake Nutrient TMDL Project

Appendix C: Map of the Long Lake watershed area.

Appendix D: Monitoring Plan