



# 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: Fulda Phosphorus Reduction Initiative
2. Project sponsor: Heron Lake Watershed District
3. Project representative: Jan Voit, District Administrator
4. E-mail address: hlwd@roundlk.net
5. Funding:  319  CWP  Clean Water Legacy/Clean Water Fund  Other: \_\_\_\_\_
6. Contract number: 36250 PRJ number: PRJ07838
7. MPCA Project Manager: Katherine Pekarek-Scott
8. Contract start date (mm/dd/yyyy): 1/1/2011 Contract end date (mm/dd/yyyy): 8/30/2015

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): Raingarden/bioretention basin
10. Primary and Secondary Categories of Pollution:

	Primary	Secondary	Others
Category (name only)	Urban Runoff/Stormwater	Residential	NA

11. Nonpoint Source (NPS) Functional Category:
- |                      | Primary                   | Secondary                            | Others |
|----------------------|---------------------------|--------------------------------------|--------|
| Category (name only) | BMP Design/Implementation | Local Education/Information Programs | NA     |

12. Waterbody type: Lakes

13. Type of pollutant(s) (use name, not code #s): Phosphorus

14. Ecoregion: Western Corn Belt Plains

15. Hydrologic unit code (12 digits): 071000010604 Latitude-longitude: 43°46'39"N, 95°27'44"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

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**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 City of Fulda is located at the north end of the Heron Lake Watershed District (HLWD) and includes two lakes, First Fulda Lake and Second Fulda Lake. Land use within the Fulda Lakes subwatershed is primarily agricultural in nature. In addition, the majority of the City of Fulda contains impervious surfaces such as streets, parking lots, roof tops, and compacted lawns, which contribute to stormwater runoff. The water from Fulda Lakes outlets to a major tributary and eventually drains to Heron Lake.

Through this effort, project sponsors will conduct a rain garden demonstration project to work with the community to address pollution concerns. This will be done by providing educational opportunities for students and the community to learn about native vegetation, water quality improvement, pollution reduction, and environmentally-friendly landscaping. This project will provide opportunities for students to learn about the importance of water quality improvement and how they can play a part in pollution reduction efforts. There are several reasons why this project is occurring and will be successful.

First, the community is concerned about their lake system and has requested assistance from the HLWD. One successful effort that was implemented involved high school students taking soil samples and providing the landowners with nutrient information.

Secondly, the majority of landowners and operators in this subwatershed are concerned about soil health and water quality. These residents have been involved in a redetermination of benefits for Murray County Judicial Ditch #13, filter strip installation, and other conservation efforts. Landowners were receptive to conservation practices along the ditch system. The success of this effort led the HLWD apply for 319 funding to provide landowners within this subwatershed with funding for conservation tillage incentives and shoreline restoration demonstration projects. That grant project complements Department of Natural Resources (DNR) efforts for in-lake management (replace fixed-crest dam with a variable-crest structure, manipulate water levels, fish eradication, and fish stocking).

Thirdly, Fulda Lakes 1 and 2 were placed on the Total Maximum Daily Load (TMDL) list in 2008 for nutrient and eutrophication biological indicators. Stormwater runoff contributes to these impairments. Water quality data shows that small rain gardens save one pound of phosphorus per one-inch rain event or 50 to 80 percent and 90 to 100 percent of the heavy metals, petroleum, and bacteria found in stormwater. Rain gardens also have been found to reduce stormwater flows by 80 to 90 percent.

Lastly, City of Fulda residents were invited to participate in a Social Indicators Pilot Project in 2009 by completing a survey. This was an effort to gage public opinion regarding water quality efforts conducted in the Fulda Lakes' project area. Rain gardens were identified as something about which the landowners wanted to learn.

Not unlike other rural watersheds, there are several pollution issues that have been well documented in various reports. In 1992, a diagnostic study reported that in-lake loading of nutrients is a problem in the Heron Lake watershed. The report stated the major problems in this watershed:

- Drainage and the speed of water as it travels through the watershed. Flooding causes erosion, dramatically impacting water quality.
- Urban sources of pollution from point sources and stormwater runoff are a major problem in this system, particularly in the Okabena subwatershed.
- Tillage practices and lack of vegetative cover, riparian and field buffer strips, and windbreaks is another concern for the watershed.
- Compliance with feedlot rules (MN Rules 7020), ordinances and nutrient management requirements (including manure spreading), and septic waste rules (MN Rules 7080).

The Heron Lake watershed, of which the Fulda Lakes are a subwatershed, drains to the West Fork Des Moines River (WFDNR) in Cottonwood County. The results of a WFDNR Clean Water Partnership diagnostic study, funded by the Minnesota Pollution Control Agency (MPCA), showed that approximately 58,000 tons of total suspended solids, 10 million pounds of nitrogen, and 485,000 pounds of phosphorus passed through Jackson, Minnesota in 2001.

**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.**

*Overall Goal:* Instill a sense of personal responsibility for the two lakes in the Fulda area by engaging students, 4-H members, Master Gardeners, landscapers, and the general public in the awareness of effect of water pollution to the Fulda Lakes through unique educational displays, hands-on opportunities, and various printed media.

*Project Goal 1:* Provide educational materials and information to approximately 25 students and two teachers from St. Paul Lutheran School, 20 members and five adult leaders from Bondin-Belfast 4-H Club, and 20

members and five adult leaders from Seward Trail Blazers 4-H Club.

*Project Goal 2:* Hire landscaper(s) to design five rain gardens within the City of Fulda.

*Project Goal 3:* Coordinate the installation of five rain gardens within the City of Fulda.

*Project Goal 4:* Increase community awareness through an open house, newsletter, and by other news media.

### 3. Methods to achieve Goals:

#### Objective 1: Classroom teaching

*Task A: Develop educational materials and presentations*

- HLWD staff will develop educational materials, fact sheets, and presentations based on publications by the University of Wisconsin Extension and by the Capitol Region Watershed District. HLWD staff will be responsible for conducting presentations and distributing educational materials to St. Paul's Lutheran School educators and students, Bondin-Belfast 4-H Club adult leaders and club members, and Seward Trail Blazers 4-H Club adult leaders and club members.
- Pre- and post-tests will be taken by the students, educators, 4-H members and leaders involved in the rain garden installation projects to determine if the project resulted in increased awareness of water pollution, rain gardens, and Fulda Lake.

#### Objective 2: Rain Garden Demonstration Sites

*Task A: Design and development of five rain gardens*

- HLWD staff will contact landowners within the City of Fulda and locate sites for rain garden installation. Landowners would be required to sign a cooperator agreement that would provide detailed information about project maintenance, length, and funding, as well as sign installation.
- Local landscapers will be contacted and hired to design the rain gardens. The primary obstacle in rain garden installation is lack of aesthetic appeal. Employing the landscapers and providing them with guidelines for installation offers an opportunity for them to learn about the benefits and practicality of rain gardens.
- At the end of the grant, landscapers will complete a questionnaire regarding the effectiveness of the partnership and whether this project increased interest and rain garden installations.
- A contact list will also be developed for landowners who are interested in experienced rain garden installers.

*Task B: Install five rain gardens*

- HLWD staff will be responsible for working with St. Paul's Lutheran School educators and students, as well as 4-H Club Adult leaders and members to install five rain gardens in highly visible locations within the City of Fulda. The rain gardens will be installed during four sessions approximately one hour in length. It is anticipated that one would be installed in 2012, two would be installed in 2013, and two would be installed in 2014.
- HLWD soils are composed of too much clay to allow for adequate filtration. Landscapers would excavate the rain garden area and replace the dirt with a mixture of 70 percent sand and 30 percent organic compost.
- Master Gardeners will assist with installation and provide some maintenance by weeding the gardens during the first year.
- Through photos and a spreadsheet, those involved with the rain garden installation will be documented.

#### Objective 3: Increase community awareness

*Task A: Organize and host open house*

- HLWD staff will organize and host a rain garden open house. An advertisement for the open house will be published in the *Fulda Free Press*. The Murray County Transit bus will be rented to transport attendees to each site. Cookies, water, and lemonade will be served.
- A sign in sheet and photos will be used to document attendees.

*Task B: Newsletter*

- The open house will be advertised through a newsletter. This newsletter would be distributed to 3,400 Heron Lake watershed residents, agency personnel, and legislators.

*Task C: Promotion*

- The open house will be promoted through an advertisement in the *Fulda Free Press* news releases submitted to local media outlets, other organization's newsletters, flyers in local governmental offices, businesses, and the HLWD website.
- HLWD staff will assure that project results are available through newspaper columns, fact sheets, research reports, newsletters, websites, and speaking engagements.

*Task D: Signs*

- Signs identifying the types of plants will be installed at each of the sites to increase community awareness.

*Task E: Website*

- Photos and video footage from classroom presentations, rain garden installation, and the rain garden open house will be posted on the HLWD website.

**Objective 4: Administration**

*Task A: Complete reporting requirements*

- The District Administrator will be responsible for grant administration according to grant agreement guidelines. All aspects of the rain garden installation and community awareness would be completed by HLWD staff and project partners. Research results will be made available through the reporting process. The District Administrator will ensure that a Quality Assurance Project Plan (QAPP), semi-annual, annual, and final reports are submitted in a timely manner.

**III. Semi-annual Report Information**

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

Objective 1. Task A. Margaret Peeters began developing classroom education materials in November of 2011.

Objective 2. Task A. HLWD staff met on November 9, 2011 to discuss the grant work plan and project promotion.

Objective 2. Task A. Margaret Peeters drafted a letter and brochure regarding rain gardens and the rain garden project to distribute to Fulda residents. She also drafted a landowner agreement form.

Objective 2. Task A. Margaret Peeters and Lauren Michelsen distributed brochures to residents within the City of Fulda on December 1, 6, and 8, 2011.

Objective 2. Task A. On December 14, 2011, Ross Behrends and Margaret Peeters met with landowners interested in installing rain gardens. Three landowners have committed to participating in the project.

Objective 2. Task A. After meeting with landowners, Margaret Peeters began designing rain gardens using SmartDraw 2012.

Objective 3. Task E. Margaret Peeters began construction of a web page on the HLWD website for the rain garden grant.

Objective 4. Task A. The annual report was submitted on December 30, 2011.

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

n/a

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

n/a

**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: \_\_\_\_\_

**6. Is the data being annually entered into E-Link?**  Yes  No  N/A Date last entered: \_\_\_\_\_

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

n/a

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

n/a

Phosphorus Load Reduction:	<u>          n/a          </u>	lbs./year
Nitrogen Load Reduction:	<u>          n/a          </u>	lbs./year
Sediment Load Reduction:	<u>          n/a          </u>	lbs./year

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

None.

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

Objective 1: Task A: Finalize classroom education materials  
Objective 1: Task A: Conduct classroom presentations

Objective 2: Task A: Secure landowners for rain garden project installation  
Objective 2: Task A: Create rain garden designs  
Objective 2: Task A: Contact landscapers regarding project  
Objective 2: Task B: Communicate with master gardeners regarding rain garden installation  
Objective 2: Task B: Install two rain gardens  
Objective 2: Task B: Take photos and video footage of rain garden installation

Objective 3: Task E: Take photos and video footage of classroom presentations  
Objective 3: Task E: Upload photo and video documentation to HLWD website

Objective 4: Task A: Compile data for annual report  
Objective 4: Task A: Complete and submit annual report

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

- Rain Gardens 101 brochure
- Rain Gardens fact sheet
- Letter to willing landowners
- Landowner agreement
- Project design – Dale and Liz
- Project design – Jack and Carol
- Project design - Ronna

**IV. Expenditure Information for this Period**

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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:	\$12,600.00
Total Match Amount (if applicable)	\$14,973.00
<b>Total Project Amount:</b>	<b>\$27,573.00</b>
Cumulative Grant Expenditures through this period:	\$0.00
Cumulative Match Expenditures through this period:	\$1,609.90
<b>Total Cumulative Expenditures through this period:</b>	<b>\$1,609.90</b>

Date form completed: December 30, 2011

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**Please submit to:** Your project manager