Appendix 1
Heron Lake Watershed District

West Fork Des Moines River
Major Watershed Project—Phase II
Local Work Group Meeting
Thursday, November 5, 2015 at 10:30AM

AGENDA

Introduction to New Watershed Coordinator

Project Update
- Project Overview
- Community Outreach
- Information Analysis
- Project Coordination

Citizen Council Decisions
- Incentives
- Name
- Group design

Future Meetings
- Questions or concerns

Your assistance in phase I of the Major Watershed Project was vital in deciding the course of phase II. Your participation will continue to be vital throughout the process of phase II and will be greatly appreciated.

A new full-time Watershed Coordinator has been hired to assist with project management for this phase.

You are invited to attend a Local Work Group meeting with the purpose of getting partners reacquainted with the Major Watershed Project, as well as creating a plan for the future of the group. This meeting will be held on Thursday, November 5, 2015 at 10:30AM in the Senior Citizens’ Center at the Heron Lake Community Center: 1008 3rd Avenue, Heron Lake, MN 56137

Phone: 507-793-2462
Fax: 507-793-2253
E-mail: erin.nordquist@mysmbs.com
West Fork Des Moines River
Major Watershed Project
Local Work Group Meeting
Thursday, November 5, 2015
10:30 AM – Heron Lake Community Center

Agenda

Introduction to New Watershed Coordinator

Project Update
• Project Overview
• Community Outreach
• Information Analysis
• Project Coordination

Group Discussion
• Citizen Council
• Data collection

Future Meetings
• Questions or concerns that we can work on before next meeting
Ground Rules

- Please turn cell phones to vibrate or silent and put them away for the duration of the meeting. If you have an important call, please step outside the meeting room to take it.
- Give everyone the chance to participate; no one person should dominate the conversation.
- Let people finish speaking before you begin; no one deserves to be interrupted or cut off.
- This is a safe space, everyone’s ideas deserve to be respected and taken into account. Please listen and comment respectfully.
- Be as objective and open-minded as possible.
- Any other ground rules that may be necessary?
Local Work Group Meeting

Thursday, November 5, 2015
10:30 AM
Heron Lake Community Center
New Watershed Coordinator

- Erin Nordquist
- Fun fact: Have been involved in the circus arts since the age of 11
- Graduated May 2015 from St. Cloud State University
- BS in Ecology/Field Biology (Natural Resources)
- Interned for 1.5 years for the City of St. Cloud in Stormwater Utility
Project Refresher and Update

- Project Overview
- Community Outreach
- Information Analysis
- Project Coordination
- Brainstorming session
Project Overview

- The goal of this phase (WFDMR Major Watershed Project – Phase II) is to collect the rest of the data needed to complete the WRAPS Report
- WC will coordinate project
  - assist with data collection, analyze data, and develop priority areas and restoration/protection strategies
Community Outreach

- Reconvening Local Work Group today
- Met with UM Extension to develop Civic Engagement plan
- Attended Civic Engagement Summit
- WC will use CE techniques to get stakeholders involved in developing strategies for the watershed
Information Analysis

- Looking to identify inventories and data collection needed by Local Work Group to make decisions about priority areas.
- Data collection and inventories will be conducted by WC with help from local agencies as needed.
Project Coordination

- WC will be assisting MPCA with Stressor Identification data collection
- Will attend meetings to coordinate project with the MPCA and begin assembling necessary components for the WRAPS report
Group Discussion

- Time to **BRAINSTORM**!
- Break into groups of 4-5
  - Each group will have a facilitator to ask questions and record answers
WFDMR Major Watershed Project - Phase II

Local Work Group meeting

**Brainstorming Questions**

- How many people do you think should represent the watershed as a citizen council and how will that group be formulated? Should it be one large group that meets in a central location, or several smaller groups in different locations throughout the watershed?
- Do you have any ideas in regards to available funding to provide the citizen council with monetary incentives (i.e. travel reimbursement, gift cards, etc.) for participating in meetings?
- Here is a list of some ideas for inventory data that we would like to collect for the WRAPS report: **LIST**. Do you have anything to add to this list, or anything that you think we do not need?
- Of these inventories, what do you already have data on that can be gathered and reformatted to fit the WRAPS report?
West Fork Des Moines River
Major Watershed Project – Phase II
Local Work Group Meeting
Thursday, November 12, 2015 at 10:30AM
Heron Lake Community Center

In Attendance: Jared Morrill, Cottonwood County; Dave Bucklin, Cottonwood SWCD; Wayne Smith, Nobles County; Brooke Burmeister, Jackson County; Chris Bauer, Jackson SWCD; Andy Geiger, Jackson County; Katherine Pekarek-Scott, Minnesota Pollution Control Agency (MPCA); Jan Voit and Erin Nordquist, Heron Lake Watershed District (HLWD).

Minutes

1. Erin Nordquist called the meeting to order at 10:35AM.

2. Meeting agenda with attached meeting ground rules were distributed.

3. The group introduced themselves to Erin. She spoke about herself briefly as an introduction to the group.

4. Erin reviewed the meeting ground rules and asked if there were any others that needed to be added to the list. There were none added at this time.

5. An overview of the project and updates on each part of the work plan were presented to the group.

6. It was decided that for the brainstorm activity, there would be only one group instead of small group discussions due to the lack of attendees.

7. The first set of discussion questions were distributed. These questions were regarding decisions that needed to be made about the citizen council. Discussion was held about how many people the group would like to see representing the watershed as a citizen council. The focus of the citizen council group is to have them convene three public information meetings and help with the development of the restoration and protection strategies report. The timeline of this group will be carried out between January 2017 and June 2018. It was noted that the number of groups may depend on the number of people we can get involved. It was decided that ideally we would like to have several smaller groups that would all meet as one larger group at least once. It would be good for the small groups to be comprised of at least seven people. It was noted that there would be at least two core individuals in each small group that are respected in their area. The group asked that the project coordinator decide how many meetings we will be asking citizens to commit to. People may be more likely to agree to participate if they know exactly what kind of time commitment they are signing on for.

8. Discussion was held about available funding for providing incentives for citizen council members. There was concern that we may not get enough people to participate to have small groups, and if we have one large group it would be good to have an incentive for people to drive to a central location.
Some examples were mileage reimbursement or a meal during an evening meeting. Accelerated
Clean Water Fund grants were brought up, as well as water plan money per the involved counties.
Nobles County has some water plan money that they would be willing to put forward as part of their
involvement in this project. Organizations such as Ducks Unlimited were also discussed as a
possibility for funding.

9. The second set of questions were distributed along with a source assessment list from the TMDL
report. These questions were regarding data collection and inventories that need to be conducted in
order to complete the WRAPS report. These questions asked what kind of data we need to collect in
order to tell the story we want to tell about the watershed. Discussion was held about how the
watershed has changed. It was noted that no one who is alive now has ever seen the Des Moines
River very clean, so it would be hard for people to take ownership of the water quality issues. It was
suggested that Michael Kirchmeier from the Jackson County Historical Society could talk to citizen
groups about what the watershed used to be. It was decided that there needs to be a clear
understanding of what exactly we are expecting in terms of water quality. Citizens may feel as
though we want them to go backwards in productivity in order to protect the watershed. The
changes from small family farms to large corporate farms was discussed, it may be a valuable story
to tell how much farmland was owned by the people who lived and farmed on that land versus how
it is now. Wildlife that used to be in this watershed, such as ducks, were discussed. Without proper
habitat, the wildlife is decreasing. We should look into the current habitat restoration efforts. It was
also noted that we may need to look at the riparian land that is being bought for hunting and
recreation and look to those landowners for citizen support. It was also discussed that instead of
looking at drainage and tiling, we could focus on the land cover. The land use map may not have
changed much from the past, the area has always been primarily agricultural, but there has been a
shift in what is planted. Small grains were more common (oats, flax, etc.), whereas now it’s only corn
and soybeans. It was also noted that we need to keep in mind the potential backlash from the buffer
initiative as well as next year’s crop yields, these may have an effect on the amount of participation
we will get and how many people will be willing to implement projects. Discussion was held about
specific inventories that we may need. We would like to have a map of estimated tile in the fields, an
inventory of what cities are doing and what their rules and regulations are, and construction
standards, such as requiring silt fences to show all in the watershed have to take responsibility. We
also want to show what demographics have changed throughout the watershed, such as how much
land is owned per landowner and what crops are being planted. Erin will begin working on these
projects, starting with looking in to the Department to Ag census data to see how far that will get us.

10. It was expressed that the group would like to meet again in February. Erin will send out a doodle
poll to all Local Work Group Members in order to decide on an exact date for the next meeting.

11. Meeting adjourned at 12:00PM.
Water Quality Standards
West Fork Des Moines River Watershed

An Olympic-size swimming pool has 660,430 gallons of water.

So what do Water Quality Standards for the West Fork Des Moines River Watershed mean in terms of swimming pools?

- **E. coli**: 126 cfu/100 mL
- **Turbidity**: 25 NTU
- **TSS**: 65 mg/L
- **TP**: 90 ug/L
- **Chlorophyll-a**: 30 ug/L
- **pH**: 6.5 to 8.5

- **4 cow pies** per Olympic-size swimming pool
- **Can't see your feet at 11 inches or deeper**
- **1 large wheelbarrow of sediment** per Olympic-size swimming pool
- **20 lbs of leaves** per Olympic-size swimming pool
- **8 lbs of algae** per Olympic-size swimming pool

To put it into perspective:

146,613 Olympic-size swimming pools flow through Jackson, MN per year.
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<th>Allies</th>
<th>Indifferent</th>
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Murray County Crop Distribution Over Time

ACRES


- Acres in reserve programs
- Acres of corn
- Acres of soybeans
- Acres of wheat
- Acres of oats
- Acres of barley
- Acres of flax
- Acres of rye
- Acres of hay
<table>
<thead>
<tr>
<th>Finished Data Collection</th>
<th>Data Collection In Progress</th>
<th>Future Data Collection</th>
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<tr>
<td>- <strong>Land use</strong>—Data available through Minnesota Geospatial database, origin of data: US Geological Survey National Land Cover Database</td>
<td>- <strong>Feedlots</strong>—All feedlots within the WFDMR will be inspected, compliance determined through MinnFARM modeling, spreadsheet/database compiled (994 feedlots total—approx. 100 left to inspect as of 9/15/2016)</td>
<td>- <strong>Tillage transects</strong>—To be done by BWSR via satellite imaging in all counties with greater than 30% of land in row crop production, it is not clear when this data will be available</td>
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<td>- <strong>LiDAR</strong>—Data available through Minnesota Geospatial database, origin of data: AeroMetric, Inc (collected 2010)</td>
<td>- <strong>PTMAp</strong>—Currently being developed for the WFDMR by Houston Engineering through the WFDMR Targeting and Prioritizing Endeavour for use by HLWD staff</td>
<td>- <strong>Field verification of eLink generated BMP list</strong></td>
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<td>- <strong>Best Management Practices currently in place</strong>—A list of all BMPs within the WFDMR can be pulled from eLink at any time</td>
<td>- <strong>Urban practices</strong>—Current BMPs, stormwater infrastructure, impervious surfaces, potential placement of practices, potential organizations for educational opportunities</td>
<td>- <strong>Federally funded conservation practices currently in place</strong>—This data exists, there is a question of whether or not LGUs may have access to this information</td>
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<td>- <strong>DNR buffer viewer</strong>—Data collected by and available through DNR</td>
<td>- <strong>Septic systems</strong>—Currently have number of non-compliant systems and systems that are imminent threats to human health and safety within the watershed calculated, collection of rural low income household inventory in progress to assist with access to funding for those within the WFDMR</td>
<td>- <strong>Benefitted drainage areas</strong>—Accurate maps of ditches within the WFDMR need to be created so that more accurate ditch watersheds may be generated, a complete inventory of ditches and drain tile may be completed through a Phase 3 project</td>
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<td>- <strong>Land potentially tiled</strong>—A map of the percentage of land within the WFDMR that is potentially tiled is currently completed, map created by MPCA staff based on slope and soils</td>
<td>- <strong>Altered watercourses</strong>—Data available through Minnesota Geospatial database, origin of data: MPCA and MnGeo Statewide Altered Watercourse Project (collected 2014)</td>
<td>- <strong>Stream Power Index</strong>—To be done by MPCA, measures erosive power of overland flow, high SPI and proximity to water puts water quality at risk</td>
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<td>- <strong>Drained lakes/basins</strong>—GIS layer of drained lakes and basins has been created based on current intermittent waters data and historical land survey maps</td>
<td>- <strong>HSPF model</strong>—Developed by TetraTech to fulfill WRAPS project requirements</td>
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<td>- <strong>Altered watercourses</strong>—Data available through Minnesota Geospatial database, origin of data: MPCA and MnGeo Statewide Altered Watercourse Project (collected 2014)</td>
<td>- <strong>USDA Census</strong>—Agricultural data relevant to the watershed was compiled for the four main counties within the WFDMR watershed, data was used to draw parallels between changes in Ag practices and water quality</td>
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<td>- <strong>HSPF model</strong>—Developed by TetraTech to fulfill WRAPS project requirements</td>
<td>- <strong>Current wildlife population estimates</strong>—The most recent surveys from the DNR and USFWS for ducks, geese, pheasants, and deer were used to calculate an estimate of populations within the watershed</td>
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<td>- <strong>USDA Census</strong>—Agricultural data relevant to the watershed was compiled for the four main counties within the WFDMR watershed, data was used to draw parallels between changes in Ag practices and water quality</td>
<td>- <strong>Pet population estimates</strong>—Estimates of the pet populations within the WFDMR watershed’s urban areas were calculated</td>
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Data collection funded through the WRAPS project in blue.
West Fork Des Moines River  
Major Watershed Project – Phase II  
Local Work Group Meeting  
Thursday, February 25, 2016 at 10:00AM  
Heron Lake Community Center

In Attendance: Chris Bauer, Jackson SWCD; Brooke Burmeister, Jackson County; John Shea, Nobles SWCD; Craig Christensen, Murray SWCD; Chris Hansen, Murray County; Jon Bloemendaal, Murray County; Jared Morrill, Cottonwood County; Ashley Brenke, Martin SWCD; Katherine Pekarek-Scott, Minnesota Pollution Control Agency; Erin Nordquist, Heron Lake Watershed District.

Minutes

1. Erin Nordquist called the meeting to order at 10:00 AM and provided an update of her activities since the last meeting. She asked if anyone had any additional ideas on inventories or data needs since the last meeting, there were none.

2. Katherine Pekarek-Scott gave an update on the MPCA side of the project: MPCA staff are starting the assessment process. There will be a Profession Judgement Group (PJG) meeting in late May for local partners to provide input on the assessments. It was requested to see if this meeting can take place in June due to possible scheduling issues for SWCD staff in May. The HSPF model is almost complete. The consulting firm would like to hold a meeting in April to go over the model and receive stakeholder input before it is finalized. Katherine or Erin will be sending out invites in March with more information.

3. Group discussion was held about the Predicted Percent Tiled map. The question was raised as to what 100% tile means. It was agreed that it is hard to tell how accurate the map is without knowing exactly what the percentages mean. Katherine will check into these questions. Uses for the map were discussed, the group agreed that the map may be able to show why river systems are degraded, but not necessarily help with targeting BMPs.

4. Group discussion was held about the agricultural census data graphs. Some observations that the group members made in regards to the data include:

   - Cattle numbers in Nobles County have stayed very stable, but the number of farms has decreased.
   - A lot more manure is hauled from hog buildings and applied to more acres.
   - Most of the manure is applied at the same time in the fall.
   - Hog numbers are increasing to reduce the amount of commercial fertilizer use.
   - Hay acres are decreasing – producers are using more cornstalks as feed.
   - Hog numbers went down in the last 10 years. Some of this may be attributed to the loss of the last of the small farms. The 2002 market had low prices and the swine flu may also have contributed to the loss in numbers. The next graph to include more recent years may show numbers increasing again.
• Manure management will change for the better because manure is valued more.
• There is less hay which means it is no longer in the crop rotation. This results in possible loss of buffer.
• The change in corn acres follows market trends.
• There is most likely less pasture.
• Beans may be taking over pasture/hay ground.
• The group would like to know the number of acres that are DNR/wildlife group owned to show the land that is in permanent reserve.
• The market pushed agricultural production changes by prices, the way food is processed, and the production of ethanol.
• The size of the farm pushed change as it is getting harder to make a living with a small farm with livestock. A producer can make more money with corn and beans.
• Water quality will be dependent on the management of the corn and bean acres.

5. Group discussion was held about the infographic on water quality standards. The group agreed that there was a lot of information included, but it was good information and easy to understand and read. It was suggested to turn the algae information into a volume instead of a weight (i.e. how much is 8 lbs of algae, how many 5 gallon pails or other recognizable volume?). It was also suggested to include the dimensions of an Olympic-size swimming pool, as it may be more difficult for people to visualize in gallons. Per other suggestions, Erin will double check calculations for Total Suspended Solids and turbidity. It was agreed that overall it is a good visualization to help the general public understand water quality standards.

6. Group discussion was held about Story Maps. Many group members had not heard of Story Maps before. Katherine explained that Story Maps is a webapp made by ESRI that allows you to tell a story through the use of interactive maps, photographs, and words. Erin will send out a link to ESRI’s Story Maps database so group members can see some examples. It was requested that group members send any interesting photographs that they may have of the watershed to Erin for use in the Story Map. Erin suggested the theme for a Story Map that shows how the watershed has changed over time. Some ideas of watershed changes to include were changes in agricultural practices, changes in drainage, urban and lakeshore development which will tie to changes in septic systems, changes in manure application, and changes in septic systems such as number of straight pipes and lakeshore development with community systems. The annual reports from county offices should have information on septic numbers.

7. Erin will continue to use doodle polls to decide meeting dates and times. When a county fills out a doodle poll for the whole office, they should let her know so she can plan the meeting accordingly. It was suggested that Erin provide food/snacks for the meeting and a handout or slide of what has been accomplished since the previous meeting. It was decided that the next meeting would be in late June or early July.

8. A question was asked about whether the water quality in the Des Moines River is increasing or decreasing. Katherine has not worked up the data recently to provide a trend analysis. The group felt that the uplands were less of a problem and that altered hydrology is more of an issue in the watershed.
As LGUs, what projects or programs would you like to seek funding for?

Erosion Control Practices, Feedlots, Septics, Reduced Tillage/No till

More urban education and practices. Also the re-establishment of the tillage transect. A lot of our focus right now will be buffers...also permanent easements.

I would like to start to see what percentage of our land has some type of drainage on it, I am sure there is a way that we could find that out, and with that information. I would like to know what the potential for more to go in is (ex. how many landowners are thinking of putting it in.)

ground water protection/ Tile treatment

Projects that mitigate altered hydrology

It would be awesome if there would be a way to get homeowners money for septic up grades. They are not cheap to put in and it would help if more people had an intensive to upgrade instead of enforcement. Also, for feedlot fixes it would be nice to have money to put towards feedlot improvements.
Aside from quantifiable load reduction numbers, what questions need to be answered in order for your organization to seek funding for those projects?

How long can we get the funding for the project? If we lump another $ amount to the project grant application for implementation of future projects to incorporate "retention" practices into their design.

size and slopes of watersheds to be treated accurately / sufficiently

Locate and target restoration of the historical non-contributing drained basins
<table>
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<th>Projects</th>
<th>Maps</th>
<th>Data Needs</th>
<th>Who is completing</th>
<th>Actions/Steps</th>
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<td>Erosion Control Practices</td>
<td>Erosion Problems</td>
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<td>PTMAp</td>
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<td>- Compare list of needed practices to impaired reaches</td>
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<td>Houston?/MPCA after deliver hydrocondition raster</td>
<td>- Prioritize list of potential sites</td>
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<td>Current erosion control practices in place</td>
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<td>Verification of eLink features and undocumented features</td>
<td>Local Partners</td>
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<td>Inventory BMP features</td>
<td>Local Partners</td>
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<tr>
<td>Feedlots and feedlot fixes</td>
<td>Feedlots with compliance</td>
<td>Feedlot inventory</td>
<td>In progress by local partners</td>
<td>- Compare to impaired reaches</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>- Prioritize list</td>
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<tr>
<td>Reduced tillage/No till/Tillage Transects</td>
<td>Areas of reduced/no tillage</td>
<td>Tillage transects</td>
<td>BWSR in 2017 via satellite</td>
<td>- Define what an area is that would benefit from reduced tillage</td>
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<tr>
<td></td>
<td></td>
<td>Land cover/Land use</td>
<td>Exists</td>
<td>- Identify areas that could benefit from reduced tillage</td>
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<td></td>
<td></td>
<td>- Prioritize areas that could benefit from reduced tillage</td>
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<tr>
<td>Urban ed/practices</td>
<td>Communities implementing necessary practices?</td>
<td>- Practices that best suite each community</td>
<td>Local partners</td>
<td>- Define communities – towns, lake associations</td>
</tr>
<tr>
<td></td>
<td>Communities not implementing necessary practices?</td>
<td>- Regulated communities</td>
<td>City officials</td>
<td>- Identify areas that could benefit from practices and/or education</td>
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<tr>
<td></td>
<td></td>
<td>- Impervious surfaces</td>
<td>Local tourism</td>
<td>- Prioritize which communities are ready to implement or education</td>
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<td></td>
<td></td>
<td>- Current BMPs</td>
<td>City consultants</td>
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<td></td>
<td>- Digitize storm water infrastructure</td>
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<td>- Identify environmental opportunities at the community level – ie low flow shower head, adopt sewer drain, irrigation back flow preventers, BMPs for house, etc.</td>
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<tr>
<td></td>
<td></td>
<td>- Potential locations/organizations for educational opportunities</td>
<td></td>
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<tr>
<td>Current drainage</td>
<td>Land areas benefited from drainage</td>
<td>Inventory of drain tile and ditches – need to complete steps 1a &amp; 1b first</td>
<td>-Determine which areas of land will most likely be tiled based on slope and soils – potentially a phase 3 project -Currently have % land potentially tiled</td>
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<td></td>
<td></td>
<td>More accurate ditch watersheds</td>
<td>-Need correct line work first</td>
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<td></td>
<td></td>
<td>Accurate and matched (names match) ditch maps – step 1a</td>
<td>Erin</td>
<td>Send changes to MPCA to correct MPCA line work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accurate DNR buffer viewer public/private definition – step 1b</td>
<td>Erin/local partners</td>
<td>Send changes to DNR for corrections</td>
</tr>
<tr>
<td>Ground water protection/tile treatment</td>
<td></td>
<td>Size and slop of watershed to be treated accurately/sufficiently</td>
<td>Not sure what respondent is looking for</td>
<td></td>
</tr>
<tr>
<td>Mitigate altered hydrology (very similar to current drainage)</td>
<td>Areas where hydrology has been altered</td>
<td>Inventory of ditches</td>
<td>-Determine which practices are needed at which locations</td>
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<td></td>
<td></td>
<td>Inventory of drain tile</td>
<td>-Compare list of needed practices to impaired reaches</td>
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<td></td>
<td>Inventory of drained basins</td>
<td>-Prioritize list of potential sites</td>
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<tr>
<td></td>
<td></td>
<td>Altered watercourse layer – verify for needed changes</td>
<td>-Exits -Erin</td>
<td></td>
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<tr>
<td></td>
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<td>Dams/poorly placed culverts</td>
<td>DOT/county hwy exists</td>
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<td></td>
<td>Historical non-contributing drained basins</td>
<td>Inventory of drained basins</td>
<td>Erin</td>
<td></td>
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<tr>
<td></td>
<td>Current practices that mitigate hydrology</td>
<td>eLink and federally funded projects</td>
<td></td>
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<tr>
<td>Septic systems/$ for septic system upgrades</td>
<td>Potentially non-compliant systems</td>
<td>Inventory of septic systems with potentially non-compliant systems identified</td>
<td>Erin/local partners</td>
<td>-Compare potentially non-compliant systems to impaired reaches -Prioritize subwatersheds to check for compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inventory of systems of low income households</td>
<td>Erin/local partners</td>
<td></td>
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</tbody>
</table>
West Fork Des Moines River
Major Watershed Project
Local Work Group Meeting
Thursday, February 25, 2016
10:00 AM – Heron Lake Community Center

Agenda

Project Update
• Community Outreach
• Information Analysis
• Project Coordination

Group Discussion
• Reviewed materials
• Story map

Ground Rules
• Please turn cell phones to vibrate or silent and put them away for the duration of the meeting. If you have an important call, please step outside the meeting room to take it.
• Give everyone the chance to participate; no one person should dominate the conversation.
• Let people finish speaking before you begin; no one deserves to be interrupted or cut off.
• This is a safe space, everyone’s ideas deserve to be respected and taken into account. Please listen and comment respectfully.
• Be as objective and open-minded as possible.
West Fork Des Moines River Watershed

Why
- Similar Projects or problems
  - Geographically same
- Regions of watershed vs political boundaries
Citizen Council

- In an initial meeting regarding the contract with UM Extension, it was decided that work on the
citizen council and other contracted activities would begin early 2017. A planning meeting has been
set up for November 10, 2016 with Toby Spanier. Toby will be partnering with the watershed district
to assist with the creation of a citizen council, team building and leadership training for council
members, and the evaluation of measurable program goals. This work will be the primary focus of the Major

Public Participation and Education

- UM Extension will be assisting with the facilitation of two shared leadership sessions with local
leaders and two educational workshops or tours for the general public. Planning for these activities
will also start at the November 10, 2016 meeting.
- An infographic was created to assist with explaining the water quality standards to the citizen council
members in more familiar context. Helping council members to understand these standards better
will allow them to explain them to the public more easily. The infographic can also be used in other
community outreach efforts.
- A GIS Story Map is currently being developed to guide the public through an explanation of how the
WFDMR watershed has changed over time, illustrated by photos and maps. The intention is to get
stakeholders thinking about how changes within the watershed have affected water quality and how
water quality has affected changes within the watershed.

Stressor Identification

- Eight Stressor ID sampling runs have been conducted. Each run consists of 22 sites that are sampled
over two days. For each site, field parameters are measured including temperature, pH, dissolved
oxygen (DO), conductivity, and a Secchi tube reading. Photos are taken of the site and surrounding
areas, and all observations are noted. Samples are then collected and sent for lab analysis of total
suspended solids, total volatile solids, ammonia nitrogen, nitrate-nitrite, and phosphorus.
- A couple more partial runs need to be done to finish the Stressor ID field work, as several sites were
added after sampling had begun.

Project Management

- Presented at the Southwest Region MWOA meeting – February 17, 2016
- Trainings attended:
  - Civic Engagement Summit on Water Quality – October 15, 2015
  - BWSR Academy – October 27-29, 2015
  - Watershed Specialist Training – January through April, 2016
  - Webinar on new requirements for 319 and CWP funding through the MPCA – January 29, 2016
  - Stressor ID project training – March 23, 2016
  - MinnFARM webinar – May 10, 2016
  - Civic Engagement Work Session – May 19, 2016
West Fork Des Moines River
Major Watershed Project – Phase II
Local Work Group Meeting
Thursday, September 15, 2016 at 10:00AM
Heron Lake Watershed District Office

In Attendance: Jon Bloemendaal, Murray County; Wayne Smith, Nobles County; Adam Ossefoort, Pipestone SWCD; Brooke Burmeister, Jackson County; Aaron Crowley, Jackson Soil and Water Conservation District (SWCD); Jared Morrill, Cottonwood County; Erin Nordquist, Heron Lake Watershed District.

Minutes

1. Erin Nordquist called the meeting to order at 10:02AM.

2. Meeting agenda, project update handouts, and some map documents were distributed.

3. Erin gave an update on all of the activities that have been completed during Phase 2 of the Major Watershed Project (MWP) for the West Fork Des Moines River (WFDMR) watershed on the local level. All projects mentioned are outlined in the General Project Update handout that was distributed to meeting participants. Erin asked if there were any questions about the General Project Update. A question was asked about whether Erin will be sampling for the Stressor Identification project next summer or if that project is over. Erin stated that the data collection portion of that project is over and no more sampling will be done after this summer.

4. Due to the absence of Katherine Pekarek-Scott, Minnesota Pollution Control Agency no update could be given to members about the activities that have been done for this project at the State level. Erin mentioned that the Hydrological Simulation Program – FORTRAN (HSPF) model is finished, but that is the only information that she can speak to at this time.

4. Erin gave an update on the data collection activities that are done, are in progress, or will be completed in conjunction with the WFDMR MWP. All projects mentioned are outlined in the Data Collection Update handout that was distributed to meeting participants. It was explained that all projects that were or are funded through this project are in blue on the handout. Erin mentioned that group members have copies of some of the data that has been collected because of discussions held during previous Local Work Group (LWG) meetings. Maps of the longitudinal Secchi tube survey data and the drained basins in the WFDMR watershed were distributed with the other handouts. A question was asked about why pet population estimates were necessary. Erin explained that improperly disposed pet waste in urban areas that contain a storm drain system can contribute bacteria and nutrients to waterways during a rain event. Estimations were calculated for cats and dogs for the number of households in each city within the WFDMR watershed. These numbers were calculated based on US Pet Ownership Statistics from the American Veterinary Medical Association.

5. Erin gave an explanation of the citizen council as it is outlined in the project work plan. Once a citizen council is formed, they will be convening three public meetings to assist with Watershed Restoration and Protection Strategies development. At a previous LWG meeting, the group had
discussed having several smaller citizen groups instead of one large citizen group for the whole watershed. The reasons behind this were to cut down on travel and time commitment for the council members and to help members focus on issues that may be specific to their area. Erin asked if the members still agreed with this. The group concurred. A question was asked about whether or not we could use pre-existing boards and councils such as SWCD boards to advise the MWP instead of creating another new advisory group. It was discussed that the purpose of this particular citizen group is to help sell the project to the rest of the public. Involving individuals that are already involved with units of government in other ways is not only “preaching to the choir,” but it may also be viewed by the public as people that are already part of the watershed world telling them what to do. To effectively gain grassroots support, the project needs to involve some people that are not already invested in what the watershed is doing. These are the citizens that will convince others to be on board.

6. Erin introduced the idea of having three citizen groups so that each group may do one public meeting in their area. A large map of the watershed was distributed. Meeting participants were asked to divide the watershed into three sections for citizen groups to represent. Some things they were asked to consider during this activity included watershed problems that may be common to a certain area, distance to a meeting location, and social networks that may already exist within certain areas. Meeting participants drew their divisions on the watershed map. The group believed that the chosen areas have similar problems and there are similar conservation projects being done. For this reason, the group used sub-watershed boundaries to help divide the watershed instead of political boundaries. It was also stated that following sub-watershed boundaries for these groups may be helpful in educating citizens on how watersheds work and why certain areas may have similar water related issues. Participants also identified potential meeting locations for each identified section.

7. Group discussion was held about what the LWG would like to get from the public meetings that will be convened by the citizen council. The group stated that they would like to know the watershed related concerns of the landowners in the WFDMR watershed and their ideas about how they would solve those problems. The group discussed taking advantage of having separate citizen groups to get more diverse ideas and greater insight into issues. This may also help mitigate conflict if a group’s idea is not used as part of the final report. It was also agreed that the public meetings will be a good way to gain an understanding of the obstacles that may prevent people from implementing restoration and protection strategies, not including financial obstacles. It was noted that we should not be promising landowners that these strategies will be implemented, should funds become available. It is dangerous to promise things that cannot be guaranteed, so the way the report and project are explained to the public should be carefully prepared.

8. Group discussion was held about other activities that the citizen council could do. Erin explained that although the work plan requires that the citizen council convenes three public meetings, they are not bound to only that activity. In order to help the group achieve a sense of ownership, it may be beneficial to have the citizen council do more. The group suggested that the first couple of meetings with the citizen groups should be informative. They should know how the watershed has changed, why problems exist, and how those problems affect their area. An example of this would be to show them photos of Lake Shetek before and after development. These meetings will help them understand their purpose and the purpose of the project. After these informational meetings,
there should be a tour of their area of the watershed, showing examples of the problems that were previously discussed.

9. Erin explained that it would be most valuable to create a citizen group that involves a diverse selection of people so that it can be representative of the people that live and work within the watershed. Group discussion was held about the people that are most often involved in meetings or events. It was stated that Local Government Units (LGUs) generally have representatives from the Farm Bureau, Farmers Union, Pheasants Forever, Ducks Unlimited, Pork Producers Association, Corn and Soybean Growers Associations, etc. LGUs appreciate when elected officials are present at their meetings or events because they can often influence citizens to get involved. It was also stated that although dissenters can make work more difficult, it can be beneficial to have them at meetings to hear their opinions, since they may present one obstacle to a project.

10. Erin asked what minority groups, if any, were represented at LGU meetings and events. It was stated that for the Missouri River Basin project, they involved the Native American community. It was also mentioned that there are several minority groups in the Worthington area. Meeting participants asked why we are making an effort to involve those groups because they are not going to care. Erin explained that it is possible that people in those groups are not currently involved because they are not getting the information about what is happening within the watershed. Even if they do not end up getting involved, we would like to at least provide an opportunity to get involved. It was mentioned that we should use the large area of the watershed as a selling point when inviting people to be a part of the citizen group. Such a large area makes the citizen group more essential and the members, therefore, may think of it as a higher honor to be selected.

11. Group discussion was held about possible names for the citizen council. Meeting participants were asked to make a list of names while keeping in mind that it needs to accurately represent the purpose of the group as well as get people interested in being involved. It was agreed that they should be called a “group” or a “committee” instead of a “council”. The generated list is as follows:

- Land and Water Preservation Group
- West Fork Des Moines River (WFDMR) Watershed Preservation Project Group
- Prairie Water Restoration Committee
- Prairie Waters Restoration Idea Group
- Prairie Land and Water Preservation Committee

12. Group discussion was held about the involvement of the LWG with the citizen group. Meeting participants agreed that it would be best for the LWG not to be involved with the citizen group. If agency staff are present at a meeting, it will become less about the landowners. The meetings need to remain in the hands of the citizens. It will be best for the watershed coordinator to relay the information collected from the citizen group to the LWG during their semi-annual meetings.

13. Meeting participants provided some updates on projects they are involved in within their agencies.

14. The meeting adjourned at 11:30 a.m.
West Fork of the Des Moines River

LWG Planning Meeting Agenda

10 February 2017

1pm – 2pm

1. Discuss roles and responsibilities (document will be available Friday)

2. Review list of participants for March 23 meeting

3. Discuss agenda for March 23 meeting (document will be available Friday)
**Meeting Purpose:** Recognize the purpose and goals of a watershed citizens group in the development and completion of the WRAPS report. Identification and analysis of potential watershed stakeholders to serve on the citizen group.

<table>
<thead>
<tr>
<th>Time</th>
<th>Focus</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1:30 – 1:45 p.m.</td>
<td>Welcome, Meeting Overview &amp; Introductions</td>
<td><strong>Ross</strong> – does welcome and covers the meeting purpose and overview. Then turns it over to <strong>Karen and Toby</strong></td>
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<tr>
<td></td>
<td>Why is it important to involve the public in the WRAPS process?</td>
<td><strong>Karen and Toby</strong> will pose the two questions below as part of the introductions to each other. Participants will have an opportunity to respond to one of the two questions. <strong>Karen and Toby</strong> will record on flipcharts. Toby has printed copies of agenda for facilitators and participants. Karen has watershed map on wall using projector.</td>
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<tr>
<td>1:45 – 2:00 p.m.</td>
<td>WRAPS Process Updates and Questions</td>
<td><strong>Katherine</strong> leads discussion and questions</td>
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<td>2:00 – 2:10 p.m.</td>
<td>Why are we asking them to be involved in this? What are their opportunities and responsibilities? Negotiables and Non-Negotiables with Phase II</td>
<td><strong>Ross</strong> leads discussion and questions with assistance from <strong>Katherine and Jan</strong>. Karen has document on ppt. Toby has printed copies of handout for all</td>
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<tr>
<td>2:10 – 2:40 p.m.</td>
<td>Visions for Civic Engagement in the Watershed for the WRAPS and Beyond.</td>
<td><strong>Toby</strong> leads using Vision Worksheet - first individually write and then share with a partner. Then using ½ sheets place vision statement themes on blue sticky wall. Use ORID process to reflect on vision statements.</td>
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<tr>
<td>Time</td>
<td>Activity</td>
<td>Lead and Notes</td>
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<td>2:40 – 3:00 p.m.</td>
<td><strong>Stakeholder Identification (Brainstorming)</strong></td>
<td>Karen leads using sticky notes and wall to identify stakeholders in the watershed or sub-watersheds. If large enough number, we will use the power and interest analysis on the wall.</td>
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<td>Toby has printed copies of one-pager on Power/Interest Grid</td>
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<tr>
<td>3:10 – 3:40 p.m.</td>
<td><strong>Analysis and Selection of Stakeholders for the Citizen Group</strong></td>
<td>Toby leads and provides the stakeholder analysis grid for further reflection and preparation for selection and invitation.</td>
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<td>3:40 – 3:50 p.m.</td>
<td><strong>Next Steps and Remaining Questions</strong></td>
<td>Ross clarifies any remaining questions, i.e. who does the invitation? And next steps</td>
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<td>3:50 – 4:00 p.m.</td>
<td><strong>Closing and Evaluation of Meeting/Process</strong></td>
<td>Karen leads the fist to five on consensus on whether or not we accomplished our meeting purpose.</td>
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<td>Toby leads a non-formal meeting evaluation using sticky notes and flipchart. (Loved, Liked, Didn’t like, Really Didn’t like)</td>
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West Fork Des Moines River
Major Watershed Project – Phase II
Local Work Group Meeting
Thursday, February 23, 2017
Heron Lake Watershed District Office
1008 3rd Ave.
Heron Lake, MN
1:30 – 4:00 p.m.

Meeting Purpose: Recognize the purpose and goals of a watershed citizens group in the development and completion of the WRAPS report. Identification and analysis of potential watershed stakeholders to serve on the citizen group.

Agenda:
1:30 – 1:45 p.m.   Welcome, Meeting Overview & Introductions
1:45 – 2:00 p.m.   WRAPS Process Updates and Questions
2:00 – 2:10 p.m.   Purpose of the Citizen Groups
                   • Why are we asking them (citizens) to be involved in this?
                   • What are their opportunities and responsibilities?
                   • What are the Negotiables & Non-Negotiables with Phase II?
2:10 – 2:40 p.m.   Visions for Civic Engagement in the Watershed for the WRAPS and Beyond
                   • Citizen Group
                   • Elected Leaders
                   • Public Education
                   • LWG
2:40 – 3:00 p.m.   Stakeholder Identification (Brainstorming)
3:00 – 3:10 p.m.   Break
3:10 – 3:40 p.m.   Analysis and Selection of Stakeholders for the Citizen Group
3:40 – 3:50 p.m.   Next Steps and Remaining Questions
3:50 – 4:00 p.m.   Closing and Evaluation of Meeting/Process
Local Work Group Meeting Notes
West Fork Des Moines River
Major Watershed Project - Phase II
Thursday, February 23, 2017
Heron Lake Watershed District Office
1008 3rd Ave.
Heron Lake, MN
1:30 – 4:00 p.m.

Meeting Purpose: Recognize the purpose and goals of a watershed citizens group in the development and completion of the WRAPS report. Identification and analysis of potential watershed stakeholders to serve on the citizen group.

Ross opened the meeting by welcoming the group and stating the purpose.

Toby and Karen introduced themselves and then ask that each person introduce themselves and respond to one of two questions:
- Why is it important to involve the public in the WRAPS process
- Why is important that you are involved and what particular expertise or skill do you bring to the table?

Responses included: Why it is important to involve the public
- Get buy-in from producers who will be the ones who will implement the changes
- The public will be better informed and the WRAPS report will be a better product
- They will be called upon to implement the practices
- We can’t execute the plan without the public’s involvement
- People trust their neighbors more than agencies
- Find key leaders to help complete the work
- Hear more than one perspective
- Scientific data is known and they know why changes are needed

Responses included: Why is important that you are involved
- Have opinions to share
- Build trust
- Hydrologic expertise
- Strong historical knowledge in the watershed
- Need the partnerships with each other

Catherine led the WRAPS Process Updates and Questions
Ross led the discussion on formation of the Citizen groups including negotiable and non-negotiable items. Participants received a handout with these items listed.

Toby led the group in a visioning activity which asked participants to image they were a year or two into the future. They were reviewing a local newspaper article about the work of the Citizen Group in the watershed. What would be happening or had happened as a result of this Citizen Group’s work? Participants were asked to spend a few minutes individually answering these vision questions before sharing at their tables.

**Vision themes that emerged were:**
- National shortage of cover crop seen because WFD application
- Awareness of impacts would be known
- Positive solutions, changes and citizens would be seen in the watershed
- Group is ready for 1W1P
- Citizens continue to collaborate through and after the WRAPS project
- Everyone is educated and informed of “better” practices
- Being positive about environmental protection
- Recreation is up due to increased water quality

Toby asked the group to indicate their confidence in these visions becoming a reality. (Fist to Five, fist being low confidence and five being high confidence) A measurable number of 1, 2 and 3 fingers were seen across the group. Toby asked what implications are for the group given this rather negative assessment of the confidence in the success of the Citizen Group. The group and the guiding agencies are aware that this is a difficult assignment and may or may not be successful.

Karen shared a definition of a stakeholder and asked the group to identify some criteria for membership in the Citizen Council. Items included:
- Non-agency staff
- Live in the watershed
- At least some of the group is well-respected in the ag environment
- Spread across watershed

Karen then asked individuals to identify potential stakeholders. She posed some questions to keep in mind as they thought about who they might want to be represented in this group. Potential stakeholder names were placed on pieces of paper and then placed on the wall. Additional analysis of the stakeholders was conducted.
Additional discussion occurred around the importance of clarity on the purpose and promise we are making to these potential Citizen Council members.

Next Steps:

1. Ross will provide the LWG with a message on the purpose and promise for the Citizen Council (Toby will write a first draft and share to the leadership group). This message will go out to the LWG in early March.

2. Jan will type up the list of stakeholders and then the LWG will take responsibility for making the invite to stakeholders.

3. The first date for the Citizen Council will be set for July, 2017 preferably in Fulda.

Karen concluded the meeting by asking participants to indicate whether or not we met our meeting purpose today. (Fist to Five was again used) A majority of 3 and 4 fingers were present.
Interest

Nick Eink
Agriculture
Young Exurgence

Paul Henning
Farmer/AgSource Rep.

MnSP or HLBE representative

Dominic Jones
RRKW

Jim Becker
Agronomist

JBS
Peezy Place
Washington
C-B-2
Best Products

Eco-Bus

County Commissioner

Brent Rossow
P.F.

Jack Beardsley

Local Extension

Lake Association

Tabor Hook
Water shed resident business owner
West Fork Des Moines River Watershed
Civic Engagement and Education Project
Lead Roles and Responsibilities

University of Minnesota Extension (Karen & Toby)
✓ Lead the development of agenda planning for Local Work Group meeting to identify and analyze stakeholders for the development of a Citizen Council
✓ Facilitate the meeting of the LWG for the purpose of stakeholder identification and analysis for the formation of Citizen Council(s), including the development and purpose of the CC
✓ Assist HLWD with the coordination of the formation of the CC(s)
✓ Lead on the team building of CC(s)
✓ Lead on the Civic Engagement Capacity Building of CC(s)
✓ Coaching of HLWD and CC(s) in their civic engagement public meeting planning in their sub-watersheds
✓ Lead on delivery of two shared leadership educational sessions for watershed elected officials
✓ Lead on delivery of two educational sessions, workshops or tours based on needs identified by LWG
✓ Lead on the evaluation of the CC’s team building, civic engagement capacity building, shared leadership sessions, and additional educational sessions

Heron Lake Watershed District (Ross & Jan)
✓ Lead LWG on WRAPS technical information and data
✓ Lead on WRAPS technical information and data for the CC(s)
✓ Lead on providing information about existing tools such as Zonation, HSPF, GIS maps, or others identified by the LWG
✓ Lead on coordination and formation of the CC(s)
✓ Lead on coordinating and assisting CC in their civic engagement public meetings in the sub-watersheds
✓ Lead on coordination of two shared leadership educational sessions for watershed elected officials
✓ Lead on coordination of two educational sessions, workshops or tours based on needs identified by LWG
✓ Lead on development of priority areas and restoration/protection strategies in cooperation with LWG
✓ Lead on tracking and evaluating for MPCA
Local Work Group

Non-negotiables
- Budget
- Citizen Council identification will take place
- Agency staff cannot serve on Citizen Council
- First point of contact with citizen be made by LWG member
- Topics for Shared Leadership sessions will not be determined by LWG
- LWG is expected to participate in strategy development

Negotiables
- Number of meetings held by LWG above 2/yr
- Citizen Council membership identification – the people that will be asked to be on the group
- The number of Citizen Council groups
- The number of members in each Citizen Council group
- Criteria for who will be asked to participate in the Citizen Council group, other than agency staff
- Education session topics

Citizen Council

Non-negotiables
- Budget
- Participation in team building and capacity building trainings
- Need to capture what citizens in watershed are willing to implement and what the values are in the watershed

Negotiables
- Education session topics
- The number of meetings for team building as long as within budget
- Topics/format of public meetings as long as water quality/WRAPS is addressed
- Type of update session (i.e. public meeting) in which to provide information and capture input
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<th>What are the stakeholder’s expectations for WRAPS Process?</th>
<th>How invested are they in water planning – rate high, medium or low</th>
<th>What will they contribute to the process?</th>
<th>With whom does the stakeholder have strong working relationships that are important to the WRAPS Process?</th>
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Vision Worksheet

Instructions: Picture yourself and the watershed a year or two in the future. The public’s participation and involvement in the watershed is going well. What would you hope to see reported in the newspaper about the work of the citizen group, elected and appointed leaders and general public in the watershed?

What are they saying about them and you?

What specific improvements have been made in how the public groups are involved?

What problems have the public groups solved?

What specific outcomes have been achieved?

How are people behaving differently?

What would be the headline on this article for the newspaper?
STAKEHOLDER IDENTIFICATION AND ANALYSIS

Power/Interest Grid Worksheet

INSTRUCTIONS:

1. Individually (or in small groups) brainstorm the names of stakeholders, writing the names of the different stakeholders on cards, using one stakeholder per card.

2. Post the labels (with a stakeholder named on each) into the quadrant where the group believes is the best description of their connection to the watershed planning process.

Once you have moved the labels around until your group is satisfied with the relative location of each stakeholder on the grid, it can be helpful to take time to analyze their location on the grid. One way to analyze this is to consider these “descriptors” for each quadrant of the grid.

**Crowd.** These stakeholders have low interest and low power relative to the issue. Although it is good to get them involved and keep them informed, you most likely won’t put a great deal of your focus on them.

**Subjects.** These stakeholders have high interest and low power. They will most likely want to be involved and/or informed of the work/issue.

**Context Setters.** These stakeholders have low interest and high power which suggests that although they may not want to be directly involved in your coalition, you will want to make sure you keep them informed of your work as they will greatly influence your success or failure.

**Players.** These stakeholders are those whom you will want to assure are involved in the work because of their influence (high interest and high power) in your work.

FOR THOUGHT. Consider the stakeholders you identified and their power and interest relative to the issue. How will you invite and involve them in the One Watershed One Plan effort?

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WFDMR Major Watershed Project Check-in notes
6/15/2017
Jan, Ross, and Katherine

1. MPCA project update
   a. TMDL work will be consulted out and we will not have funds available to us to do so until after July.
   b. The final stressor ID report will not be completed until late 2018. Katherine is working with new SID staff to get draft stressors by fall so that work can continue with citizen council.

2. Citizen Council
   a. Update on members
      i. 3 members
      ii. Great people to have on the group
   b. Next Steps
      i. Jan send U of M email about dates for July meeting, figure out will work for us and then send out email to citizens. Check to see if 11, 13, or 18 will work.
      ii. Best location would be Heron Lake WD office

3. Develop an estimated time line for remainder of the project
   a. Citizen group will be setting up time lines for their work
   b. Local work group meeting in fall
   c. Education events will be fall/winter/spring – citizen group help determine what the events need to be
   d. Feedlot – start last week in June and finish in July
   e. Semi-annual report – Jan needs Ross’s time at the end of June
   f. Shared leadership still needs to take place. Will check in with Toby and Karen about these
   g. Need a check-in with Toby and Karen about timing, about shared leadership

4. Review budget
   a. There is a year left for the project and since the last reimbursement, there is $104,113.23 left in the budget. U of M Extension will take $16,042.00 of that. This will leave $88,071.23, less expenses from April to present, for the remainder of the project to be split between Ross’s time, Jan’s time and mileage. Most of this funding is for the citizen council and public participation and education work. Ross and Jan need to make sure they are tracking time correctly and to keep an eye on the ending balances. No more change orders can be utilized so any moving of funds between tasks will require an amendment.
Stakeholder Identification, Mapping and Analysis

What and Who are Stakeholders?

“What and Who are Stakeholders?”

“Stakeholders are people who can affect or will be affected by a group’s work.” (Bryson, 2004, p 21)

“The term stakeholder refers to everyone who has a vested interest in your project and its outcome. This includes people who stand to gain if your group’s goal is successfully achieved—\textit{and} those who believe that they’ll lose something as a result.” (Krile, Curphy and Lund, 2006, p. 133)

Identification—Is a process by which a group gives thought to how others could be involved in, and impacted by your work. If the work being conducted by the group is public, it will be necessary to involve those who are affected by the work or who need to have input to make sure the work can be accomplished.

Why do Stakeholder Analysis?

Stakeholder analysis and mapping can help frame issues in ways that:

- Assist in recognizing what is technically and practically feasible
- Build an awareness of where support/opposition is found, and levels of political acceptability
- Provide opportunities to advance the common good

\textit{Many strategic decisions have failed or produced poor results because decision makers failed to pay attention to the interests and information held by key stakeholders.}


Summarized by K. Boyce, University of Minnesota Extension Service, 2005.)
Stakeholder Identification, Mapping & Analysis

Finding the Right Stakeholders

A basic stakeholder identification, mapping and analysis helps identify the relevant stakeholders, their expectations, and how well those expectations are being met at present.

1. Brainstorm a list of stakeholders. Questions that may help include:
   - Who has something to gain related to the issue?
   - Who has something to lose related to the issue?
   - Who has influence in the community?
   - Who has credible knowledge about the issue?
   - Who has expressed interest in the issue?
   - Who is impacted by the issue? And why?
   - Are there regional, state and/or national partners related to the identified issue?

2. Use one of the stakeholder analysis tools to help you understand how to be more strategic in the ways you interact with the stakeholder.
   - Stakeholder Analysis Grid
   - Commitment Analysis Grid
   - Power and Interest Map
   - Problem-Framing Map
   - Agreement and Trust Map

“Overlooking the interests of key stakeholders has doomed many well-intentioned efforts and plans.”

- John Bryson
  University of Minnesota
The Stakeholder Context Grid is a tool to identify stakeholders and reflect on aspects of the stakeholders identified. By answering the questions in this tool, it provides for developing a contextual understanding of the stakeholders. This includes both short and long term challenges and opportunities with the stakeholders identified.
Commitment Analysis Grid

1. Summarize the Goal/Plan/Project:

2. Identify Stakeholders

3. Assess both Current and Required Commitment (X = current position; O = required position)

<table>
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<tr>
<th>List</th>
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<th>Let Happen</th>
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Stakeholder | 4. Action Required


Objective: Commitment Analysis provides a process for planners to assess the level of existing and needed stakeholder support for an initiative, and a framework for addressing the issues related to stakeholder support.

Process Steps:

1. Identify the Project
Summarize the desired outcome of the initiative

2. Identify Stakeholders
List all those who have an interest in, or will be affected in some way by any actions taken in pursuit of the project. This could include individuals or groups, internal or external to the organization, customers or suppliers.

3. Assess both CURRENT and REQUIRED Commitment
For each stakeholder, assess their current position with regard to your project, using the following as a key:

- Do they currently OPPOSE your plans or project?
- Will they not oppose, but LET IT HAPPEN?
- Do they currently SUPPORT your plans and project?
- Are they FULLY COMMITTED & INVOLVED to your plans or project?

Repeat the assessment from the perspective of required position.

4. Develop commitment plan
Where the commitment or position required of a stakeholder is less than the current status, identify the actions required to overcome the gap.

---

Power and Interest Map

A Power and Interest Map is a simple map of where the stakeholders are in relationship to the issue and to each other. Stakeholders generally fall into one of four broad groups:

**Players**: Stakeholders who have both an interest in the issue and who have significant power

**Subjects**: Stakeholders who have an interest in the issue, but they have little power

**Context Setters**: Stakeholders who have power, but little interest in the issue

**Crowd**: Stakeholders who have little interest in the issue and little power

Mapping Instructions:
1. Brainstorm the names of the stakeholder groups and write the names on “sticky” notes.
2. Place the group names in the areas on map (created on a wall or flip chart) where they best fit. Discuss the stakeholder groups and keep moving the group names until the members of your group are satisfied with the relative location of each stakeholder group on the map.
3. Discuss implications of the patterns and relationships created by the stakeholder groups.

Additional (Optional) Steps
4. Discuss lines of influence between the various stakeholder groups.

---

5. Use lines to indicate the types of relationships (either one-way or two-way) between stakeholders. Bold lines are used for strong relationships, thin line for weaker relationships.
6. Use the lines to help identify the most influential and central stakeholders, then focus to strengthen the relationship and build support with these key stakeholder groups.

Once interests and power have been mapped, your group can strategize ways to work with each stakeholder. Use of the outline of options for each below as a guideline.

Map stakeholder interests and power to determine which player’s interests must be taken into account. The map can also highlight coalitions to be encouraged or discouraged, whose ‘buy in’ should be sought or who should be co-opted.
Problem-Framing Stakeholder Map\textsuperscript{3}

To build a strong coalition and increase the probability of success on an issue, it can be helpful to map out where stakeholders are in relationship to the issue.

Using “sticky” notes and a map created on wall or large flip chart sheet, identify various stakeholder groups and place them in the appropriate section of the map, creating a picture of the degree of stakeholder support and opposition.

Depending on the outcome of the initial map, the issue may need to be re-stated or re-framed in order to build or increase the number of stakeholders who will support the issue.

\textbf{STAKEHOLDER POWER}

\begin{figure}[h]
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\includegraphics[width=\textwidth]{stakeholder_map}
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Once the map is completed, strategies can be developed to increase the number of strong supporters – or to decrease the numbers of strong opponents. Typically the greatest attention is give to the stakeholders in the right-hand quadrants of the grid, since these have been identified as the most powerful stakeholders.

Stakeholder Agreement and Trust Map

Mapping the degree of trust related to stakeholders can yield interesting perspectives. The nature of the support you receive from stakeholders with whom you have a high degree of trust is often different than the type of support you will likely receive from stakeholders with whom you have a low level of trust (even if they agree with you on the particular issue in question).

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**Allies**: Stakeholders who share a high level of agreement on the issue and with whom you have a high level of trust

**Opponents**: Stakeholders who disagree with you on the issue and with whom you share a high level of trust

**Bedfellows**: Stakeholders who agree with you on the issue and with whom you have a low level of trust

**Fence Sitters**: Stakeholders who have not yet shown their level of agreement on the issue and with whom you have a low level of trust

**Adversaries**: Stakeholders who disagree with you on the issue and with whom you have a low level of trust

---

As you strategize ways to work with each kind of stakeholder, see the next page for more specific conversation strategies.

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Stakeholder Conversation Strategies

Allies: High Agreement/High Trust

1. Affirm agreement on the project or the vision.
2. Reaffirm the quality of the relationship.
3. Acknowledge the doubts and vulnerability that you have with respect to your vision and your projects.
4. Ask for advice and support.

Opponents: High Trust/Low Agreement

1. Reaffirm the relationship and the fact that it is one based on trust.
2. State your position.
3. State, in a neutral way, what you think their position is.
4. Engage in some sort of problem solving.

Bedfellows: High Agreement/Low Trust

1. Reaffirm the agreement.
2. Acknowledge the caution that exists.
3. Be clear about what you want in terms of working together.
4. Ask them to do the same.
5. Try to reach some agreement with them as to how you will work together.

Fence Sitters

1. Low Trust/Unknown Agreement
2. State your position on the project.
3. Ask where the fence sitters stand.
4. Apply gentle pressure.
5. Encourage them to think about the issue and let you know what it would take for them to give their support.

Adversaries: Low Agreement/Low Trust

1. State your vision for the project.
2. State, in a neutral way, your best understanding of your adversary’s position.
3. Identify your own contribution to the problem.
4. End the meeting with a statement of your plans and no demands of the adversary.

---

Good afternoon LWG,

Hard to believe it’s been nearly ten months since the Local Work Group (LWG) has had a chance to meet. In order to continue progress towards the successful completion of the West Fork Des Moines River WRAPS, the LWG needs to convene for a WRAPS update. Also, according to our work plan, we need to conduct two educational sessions, workshops, or tours based upon needs identified by the LWG. These sessions will be facilitated by UM Extension, but in order for planning to begin we need your knowledge, guidance, and expertise to get the ball rolling. Please let me know if you are able to make our upcoming meeting listed below. Your help is greatly appreciated! Thanks!

West Fork Des Moines River Local Work Group Meeting

January 3, 2018
1:00 – 3:00 pm
Heron Lake Watershed District Office
1008 3rd Ave. Heron Lake, MN 56137

1:00 – 1:30 WRAPS Update and Discussion
1:30 – 2:30 Educational Sessions Planning
2:30 – 3:00 Final Comments and Questions

Ross Behrends
507-220-5331
WFDMR WRAPS Update
LWG 1/3/18

2018 IWLO
- Public comment period open until January 26.
- Public meetings are over, but recordings and presentations can be found on the web.
- MPCA will respond to comments and all comments and responses will be submitted with the draft list to EPA for approval.
- We are still waiting on the approval of the 2014 and 2016 lists, but the holdup has been wild rice standards.

Results of Assessments
- Streams
  - 57 reaches impaired
  - 55 for AQL
  - 19 for AQR
  - TMDLs needed
    - 9 reaches that need conventional TMDLs
    - 5 bacteria
    - 2 turbidity
    - 1 DO
    - 2 phosphorus
    - 1 chloride
    - 1 ammonia
- Lakes
  - 21 impaired
  - 10 fish
  - 20 Nutrients
  - TMDLs needed
    - 18 nutrients
  - Delisting — First Fulda
- For the reaches with an existing TMDL (NTU, bacteria, pH, Heron Lakes), TMDLs for those parameters will not be redone. Bacteria (15) Turbidity (15)

Monitoring and Assessment Report
- The report is complete and available on the web.

Stressor ID
- All monitoring work has been completed.
- Report will be completed towards the end of this year.
Holdup has been a lack of resources in staff time. There are many bio impairments in southern MN and that is taking staff longer to complete the reports.

In the meantime, we should have draft stressors/generalizations this spring.

TMDL

- The TMDL Report will be written by Houston Engineering in phases.
- Phase 1 will be a subcontract through HLWD to develop equations only. The amendment for this subcontract work is currently in the contracting process.
- Phase 2 will finish out the report through public commenting. This phase will be a contract directly between MPCA and Houston, but will keep local partners updated.

WRAPS

- The WRAPS report will still be written in house by myself and Spindler.
- Goal is to start writing the report this spring and get as far as I can and add in the missing components as they become available.
- A final draft will be completed later than originally plan.
- New goal is to have it ready for public notice in late 2019/early 2020. Timing will depend on review time, both internally and with EPA. EPA has had long turnaround times for their reviews recently.

Next Steps

Will need to start thinking about priorities
Use survey results for scenarios
Will need to figure out how to have LWG involved in WRAPS development
West Fork Des Moines River Watershed
Citizen Council's Civic Engagement Plans

**Purpose:** The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water quality values held by those who live and work in the watershed. These values will be essential for guiding strategy development.

These public meetings are being held to meet the requirements of the State of Minnesota's Clean Water Legacy Act. The data gathered will be included in the civic engagement portion of the WRAPS report that this process requires.

Citizen Council members will be provided with pertinent data about the watershed, as well as training and assistance for public meeting organization.

*Civic Engagement Actions: Developed on 11/28/17*

Goal #1: Develop Survey to Gather Public Input

Goal #2: Develop a Watershed Facebook Page

Goal #3: Connect with Other Civic Organizations and Events to Distribute Surveys and Discuss Watershed Issues

*Educational Activities Planned:*

#1: Prairie Ecology Bus for Watershed Experiences

#2: Improving Our Water and Watershed (Public Officials Summit – City of Currie)

#3:

#4:

*Local Work Group:* Nobles, Jackson, Murray, Cottonwood, Lyon, Pipestone, and Martin Counties and Soil and Water Conservation Districts, and the Heron Lake Watershed District
Water Resources Educational Workshops

The following education topics are available through the University of Minnesota Extension's Water Resources Program.

**Watershed Education Basics**
This workshop is designed to broaden the understanding of what watersheds are, how they work and how decisions made on land and water use affect watershed health. This workshop includes basic hydrology, geomorphology and concepts of a watershed system. Optional: discussion on a specific watershed features and issues. This workshop is one to three hours, depending on topics covered and depth of discussion. Intended audiences: Urban and rural residents, local leaders, elected/appointed officials, local government staff, and natural resources agency staff.

**Essentials of Lakes**
This workshop covers how lakes work, including basic limnology, water quality and chemistry. Discussion includes how human activities affect lake systems. Workshops are tailored to address specific lake or river issues. This workshop is one to three hours. Intended audiences: Lakeshore residents, local leaders, and elected/appointed officials.

**Essentials of Rivers**
This workshop helps attendees better understand and discuss the processes that occur in natural and impacted stream systems. These include processes such as sediment movement, erosion, channel shaping, nutrient cycling, flooding, and groundwater interactions. The relationships between these processes and land use and the aquatic life in the streams are also covered. This workshop is a combination of lecture, hands-on exploration with a model stream, site tours, and on-the-water tours, depending on the needs of the group and amount of time available. Intended audiences: Local leaders, elected/appointed officials, and natural resource professionals.

**River Erosion Challenges**
This workshop helps attendees more thoroughly understand erosion in their watershed. The causes, sources, impacts, tools to measure, prioritizing areas for management, and management options will be covered. It offers a combination of lecture, hands-on practice with a model stream, site tours, and on-the-water tours, depending on the needs of the group and amount of time available. Intended audiences: Local leaders and natural resource professionals.

**Rain Gardens**
Rain gardens help keep our lakes and rivers clean by capturing rain and snow melt. Two workshop options are available: Rain garden design and hands-on rain garden planting. Each workshop is one to three hours. Intended audiences: General public, Master Gardeners, Master Naturalists, local government staff, and elected/appointed officials.

**Shoreland Landscaping**
This one-day workshop explores the design, site preparation, plant and material selection and maintenance of a shoreland buffer. A hands-on shoreland planting may be added to this workshop. Intended audiences: Shoreland property owners, Master Gardeners, Master Naturalists and natural resource professionals.
Shoreland Maintenance/Weed Identification
This one-day workshop covers the maintenance and monitoring of existing shoreland landscaping projects. Strategies for weed and pest control, traffic management, erosion control, and replanting will be covered. Learn from the successes and challenges of other projects. Intended audiences: Shoreland property owners, Master Gardeners, Master Naturalists, and natural resource professionals.

NEMO (Non-point Education for Municipal Officials) 101 Linking Land Use to Water Quality
An introduction to how land use and local decisions impact water quality and the 3P’s as solutions: Plans, practices, and policies including concepts in Low Impact Development (LID). Intended audience: Elected/appointed officials, and other local leaders.

NEMO On-the-Water
An interactive, hands-on workshop for appointed and elected officials is held on the water, the resource that they play a role in managing. Effective and popular NEMO components and materials include the Guided View, demonstration and activity, quizzes, established learning objectives, and take home points including their roles as decision makers. Intended audiences: Appointed/elected officials.

NEMO Lessons-Across-the-Landscape
This NEMO workshop brings local decision makers out on the landscape, into the watershed, to observe, discuss, and see how land use and land management impacts water and natural resources. Components include the Guided View, demonstration and activity, quizzes, established learning objectives, and take home points including their roles as decision makers. Intended audiences: Appointed/elected officials.

NERO (Non-point Education for Rural Officials): Benefits of a Healthy Watershed
Modeled after the successful NEMO program, NERO is an introduction to how land use and local decisions impact water quality and the plans, practices, and policies that rural officials have at their disposal to support and realize the benefits of low impact development (LID). Intended audiences: Rural elected/appointed officials and other local leaders.

The Watershed Game
The Watershed Game is an interactive educational tool to help individuals understand the connection and impact that land use decisions have on water and natural resources, increase the knowledge of best management practices, and increase participant familiarity with methods to achieve better water quality. The Watershed Game includes three versions: Lake Model, River Model, and Stream Model. Intended audiences: Urban and rural residents, local leaders, elected/appointed officials, local government staff, and natural resources agency staff.

Stormwater U Series. This locally tailored series of workshops focuses on providing research based education for stormwater professionals and communities. Workshops cover topics from the basic function of stormwater best management practices (BMP) to more in-depth study of specific BMPs. Personal development hours (PDHs) are available. Intended audiences: Stormwater professionals in local governments, private companies, and related industries who work with MS4 communities. Visit (http://www.extension.umn.edu/stormwater/) for a fuller description of the following classes.
   A. Lessons Learned: Repeating Successes in Stormwater BMPs
   B. What is in Your Stormwater BMP Tool Box?
   C. Underground Stormwater Storage and Treatment Devices
   D. An Introduction to Stormwater BMPs
   E. Advanced Stormwater BMP Maintenance
Turfgrass Maintenance
This 6.5 hour workshop provides attendees with the tools for good turf grass maintenance while reducing environmental impacts and saving money and time. Intended audiences: Private and public turf grass management professionals.

Basic Stormwater Best Management Practices
This 3.5 hour workshop begins by giving attendees a primer on the connection between land use and water and why clean water is important. Then the presentation is offered in four small conversations: The big picture; what does stormwater have to do with it; the feature, function, and benefits of stormwater Best Management Practices; and how a series of solutions to improve water quality may be necessary. Intended audiences: Local educators and staff responsible for stormwater management or engineers, architects and other professionals new to the stormwater field.

Winter Salt Management
The purpose of this five hour workshop is to provide contractors with education and information to become certified Winter Salt Managers. The class provides education in winter road salt management through discussion and exercises in application rates; equipment calibration; material storage; environmental effects; new maintenance methods; de-icing and anti-icing; and how to transition into liquid de-icers. Intended audience: Private and public winter (salt) road management professionals.

Environmental Modeling
This three hour class begins with a primer on the basics of using models in environmental and ecological arenas, along with a brief history of modeling in these fields. A full life cycle of a model, from concept, programing, configuration, operation, output, visualization, and model confidence, is discussed so participants can feel confident in selecting and reviewing appropriate models according to their needs. The workshop also explores the new and growing concept of participatory modeling where all stakeholders are involved in the process. Intended audiences: Local government staff, local citizen groups, lake associations, watershed organizations, and any group of people involved in investigating, selecting, or implementing environmental modeling.

What’s Up in the Watershed
These events provide valuable information to help local leaders and stakeholders prepare for the WRAPS process, working with people in the watershed to ensure that they know what is about to happen, why, and how. Intended audience: local and elected officials and decision makers.

Water infrastructure tours
This is a series of four separate tours: wastewater treatment plant, drinking water plant, community stormwater issues, and rural issues (agricultural and rural residential), including facilitated discussions about peoples’ roles in managing water in their watershed. Intended audience: local and elected officials and decision makers.
Presentations to local groups
Using a train-the-trainer model, we will coordinate and train volunteers to go to local civic groups, lake associations/COLAs, city councils, county commissioners, environmental groups, agricultural producers, township boards, etc. to talk with them about their watershed and specifically about the WRAPS. These presentations could be done face to face or via live or recorded webinars.

Aqua Chautauqua
Aqua Chautauquas are festivals that blend art, history, and science to promote interest and awareness of watershed issues. The festivals could include children’s activities, music, local foods, hands-on demonstrations (such as a stream model), educational booths (such as aquatic invasive species in the watershed), a Flowing Art Gallery, a video booth to capture attendees’ thoughts on specific questions, a graffiti wall for attendees’ to write/draw on, and expert speakers on watershed issues. Intended Audience: general citizens of all ages and local and elected officials and decision makers.

Community discussion forums
We can organize and lead community discussion forums in which participants are encouraged and guided in sharing their concerns and opinions in a safe and welcoming setting. One potential outcome could be formation of a farmer-led council to address water quality issues.

FOR MORE INFORMATION ABOUT WATER RESOURCES WORKSHOPS CONTACT:

Karen Terry
Extension Associate Professor, Water Resources
Extension Regional Office, Morris
kterry@umn.edu
218-770-9301
Leadership and Civic Engagement Educational Workshops

The following leadership education topics are available through the University of Minnesota Extension Center for Community Vitality. Please check our website for more information and for topics on community economics and tourism at www.extension.umn.edu/community.

Understanding Your Personal Leadership Style
Participants identify their own personal preferences and behaviors using the Myers-Briggs Type Indicator®. Widely used and based on Carl Jung's ideas, the MBTI® helps participants identify their basic preferences regarding perception and judgment and build an understanding of others’ preferences. Discussion and activities help participants improve communication, teamwork, and leading in organizations and communities. (additional cost for each online instrument)

Put Your Strengths to Work / Leading with Your Strengths
Want to discover and grow talents so that they become strengths that help individuals and communities thrive? Using the StrengthsFinder 2.0® book and assessment, participants will identify ways to develop effective teams and encourage member motivation and satisfaction. Participants also explore the science and research behind positive emotions and how to cultivate healthy environments at home, work, and everywhere in between. (additional cost for each book and online instrument)

Navigating Conflict
Participants learn about typical patterns and dynamics related to conflict and ways to resolve it. Using the Thomas-Kilmann Conflict Mode Instrument® participants are able to understand their preferred conflict style and recognize the conflict styles of others. Specific techniques are shared and practiced to be more effective in situations where conflict is present. (additional cost for each instrument)

Conflict and Culture
The ability to recognize and respond appropriately to cultural differences in conflict style is critically important to managing and resolving disagreements. In this workshop, culture includes a broad range from heritage to ethnicity to gender and more. Using the Intercultural Conflict Style (ICS) Inventory to assess their own approach for resolving conflict across cultural differences, participants learn about the strengths and weaknesses of each of four styles and refresh communication skills to add to their tools for handling conflict. (additional cost for each instrument)

Building Your Cultural Competency
Effective leadership in today's complex world requires awareness, understanding and capacity for working in and communicating across cultures. During this workshop, participants will have the opportunity to review and consider their own cultural backgrounds and influences; understand different cultural styles of communication; how these styles affect their preferred approaches to decision-making and communication; and devise a personal plan using tools and techniques to increase intercultural competency. Optional online assessment, the Intercultural Development Inventory (IDI), can be administered to increase participants’ knowledge of their own cultural competency. (additional cost for each assessment)

The Dynamics of Change
Change and adaptability in our fast-paced world is an important issue today. This workshop is designed to help individuals better understand their own preference for change, how people make choices and respond to change, along with practical tips for managing the stress of transition. Participants also learn key factors and strategies for successfully leading change in groups, organizations or communities.
Bridging Generations
For the first time in history, four and even five generations are shoulder to shoulder in the workplace. This workshop provides a clearer understanding of who these generations are, how they differ in their values, and their distinct views of the work world. Key principles for leading a multi-generational workforce are shared to help you make plans for ways you can improve your workplace and citizen service. Understanding generational differences and how they can play into work and community are important for future organizational success.

Succession Planning for Community Leaders
Community groups get good at planning...they focus on marketing and promoting events, coordinating fundraising activities, and getting the word out about their projects. Those same groups, regardless of how successful they are at planning, often overlook the importance of succession planning. Many never think about this type of planning until they realize that the person(s) holding specific leadership roles or those who have the working knowledge of the organization are ready to leave. Succession planning is one thing leaders can do to focus on an important piece for the overall success of organizations.

Group Dynamics – Building and Sustaining Effective Teams
This workshop is designed to provide an overview of effective teams and being a team player. Participants learn about their personal style and preferences when working in a team and how different team styles interact and support the roles of both task accomplishment and team maintenance. Based on research by Bruce Tuckman, participants learn the typical stages in group development and strategies to facilitate members through these stages.

Leading with Emotional Intelligence
As technological and other factors increase the pace of change in today’s world, there is a greater need than ever for leaders to develop “emotional intelligence.” Emotional intelligence is a set of emotional and social skills that influence the way we perceive and express ourselves, develop and maintain social relationships, cope with challenges and use emotional information in an effective and meaningful way. How well we develop and use these abilities greatly affects how well we live our lives. Prior to the workshop, participants will take an online assessment called the Bar-On Emotional Quotient Inventory (EQ-i ®). Participants will have a deeper understanding of core emotional intelligence skills and create a self-development plan to enhance their EQ skills. (additional cost for the on-line inventory)

Committees that Work: Common Traps, Creative Solutions
This workshop is designed for anyone who serves on a committee, with attention given to working on public or community committees. The purpose of this workshop is to help participants learn key functions of a productive committee, practical strategies for providing effective committee leadership and management, and roles and responsibilities members play to help committees be productive. A participant workbook with helpful tools and information on each concept is included. (additional cost for each participant book)

Enhancing Ethical Leadership
This workshop explores what ethics mean for individuals and leaders in organizations in a world with many values and morals. Tools for ethical decision-making are shared, including frameworks for deciding on “the right thing to do” when facing ethical dilemmas with no clear “right” action.
Stimulating Visionary Leadership
Understanding the purpose and power of vision – a desired future - for yourself and organizations or communities, is the focus of this workshop. Participants are asked to reflect on their personal visions as a leader, and to consider the value of shared vision for their organization or community. Particular attention is given to tools and techniques to help name and frame visions – and to translate visions into actions and reality.

Improving Your Critical Thinking
Decision making processes are essential in leadership. As today’s issues are becoming more complex and challenging, making good decisions relies on good critical thinking skills. Critical thinking allows us to make connections between information and ideas, identify barriers, articulate values, and solve problems systematically. This workshop will introduce participants to the core concepts of critical thinking and some questioning tools and a process to practice successful critical thinking.

The Art of Hosting
Problems are today are increasingly complex and there are not simple answers. The Art of Hosting (AoH) is based on the principle that meaningful conversations can lead to wise action. This workshop introduces participants to an emerging group of methodologies for facilitating conversation in groups of all sizes to find workable solutions to the most complex problems. Practices include: Appreciative Inquiry, World Café, Pro Action Café, and Open Space Technology.

Facilitative Leadership: Effective Group Processes
This workshop introduces participants to the practice of effective facilitative leadership and using group decision-making processes to help define direction. Leadership in practice is an important aspect of this workshop so sufficient time is needed for application of the process tools. It is recommended that six hours be scheduled for this workshop or be divided into two consecutive 3 hour workshops.

Courageous Followership
Historically, most leadership programs devote their focus on tenets of leadership. However, with the increase in collaborative and global perspectives in communities and organizations, the need to explore and develop followers is essential. This workshop introduces participants to the practice of effective followership as well as its importance. It is based on the latest research of Chaleff (1998, 2008) with the purpose to change perspective, build knowledge, and develop new skills in this area of followership effectiveness.

Demystifying Trust
Research shows that trust is closely correlated to positive benefits, including increased efficiency and effectiveness, while lack of trust results in redundancy, disengagement and less creativity. It begs the question – what can leaders do to build trust? This workshop demystifies trust through an examination of three kinds of trust and the three most common places where trust is built or lost. Participant add their experiences and insights to the learning so that, as leaders, they are able to implement strategies to build trust as part of modeling good group relationship behaviors.
Public Participation
The goal of this workshop is to introduce participants to meaningful involvement of community members to address public issues through the lens of “public participation.” Using a framework by the International Association for Public Participation (IAP2), the workshop presents key principles and values underlying effective public participation. It provides an important foundation from which to begin thinking seriously about public participation: what it is, why it is important, what difference it can make, and your responsibilities when you engage the public in decision making.

The Power of Positive Psychology
This workshop introduces the key tenets of Positive Psychology and the power behind positive emotions. Research has shown that overall well-being permeates all aspects of leadership. People who experience positive emotional states receive benefits helpful to being an effective leader. These individuals are more creative, able to show improved negotiation skills and outcomes, able to display more flexible thinking and problem-solving, able to think more clearly, and are able to handle more complex information. This workshop takes a holistic approach to help participants create strategies to increase their feelings of gratitude as leaders and to practice mindfulness.

Brain Gain: Trends in Rural Migration
People often lament a brain drain in rural Minnesota – the loss of those 18-25 year-olds who leave their small home towns after high school. But there is also an in-migration to these towns of 30-49 year-old adults and their young children. In many cases, those moving into rural communities offset, or surpass, the numbers of those moving away. This, says Extension research fellow Ben Winchester, is the brain gain. In this workshop, learn more about it and what is can mean for community leaders

Social Capital: The Glue that Holds Communities Together
Who do you know? What are you willing to do for them? When you combine the connections among family, friends and neighbors with the democratic structures in our communities we have something called “social capital.” Social capital takes many different forms. It can be the neighbor down the street who knows all the children and is willing to help out in an emergency. It can be the local police officer who coaches Little League, or volunteers who come together each year to organize a Relay for Life event. Wherever you find people coming together, building relationships, or networking to get things done, you will see social capital at work improving your community. In this program, learn more about what social capital is and how building it in your community can make it a better place to live.

Influence: Power and Persuasion
How do you move people to action if you don’t have direct authority – or even if you do have direct authority but don’t care to exert it? How do you get results from others without destroying relationships? These are questions that are addressed in this workshop on effective influence skills. The research around power and persuasion are explored to better analysis future influence situations.

The Art of Listening
Have you ever wondered why some leaders and managers have a pull energy that brings out the best in us and our skills, while other leaders and managers tend to create push energy? Being an effective listener is often the key between the two types of energy. Effective listening is a skill that can be learned and practiced. In this workshop you will experience the power that a listen has in a conversation and how to make use of the listening techniques to become the best communicator possible.
Questioning
Effective leaders are skilled at asking good questions. They employ purposeful, thought-provoking questions in skillful and timely ways. In this workshop several different questioning models are shared and practiced so one can become comfortable creating questions during any situation.

Framing and Reframing
In this workshop participants will identify and use a point of reference for gathering information to create an understandable meaning, then stepping back to examine the lens through which the reality is being created in order to determine other possible viewpoints.

Introduction to Feedback
The benefits of providing effective feedback are well known. However, what are the keys tips to keep in mind to capture the many benefits? In this workshop, participants learn the keys to effectively give and receive feedback. A tested feedback process will be shared and practiced bringing the benefits of feedback to life.

CONTRACTING AND FEES
A Program Fee Agreement will be issued from University of Minnesota Extension to be signed by the client prior to the program date. Invoicing will occur following delivery of the program.

The standard professional education fee is $150 per hour of instruction. Workshops are typically one-half day (3-4 hours). One-day seminars can be customized to the unique needs of the contracting organization (6-8 hours)

Additional (per person) fees are charged for curriculum materials, participant handouts, and professional inventories. Inventories vary in cost from $20 to $65 per person.

Transportation and/or lodging costs for the instructor are also the responsibility of the contracting organization.

FOR MORE INFORMATION CONTACT:

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507-372-3900
West Fork Des Moines River (WFDMR)

Major Watershed Project – Phase II

Local Work Group Meeting

Wednesday, January 3, 2018 @ 1:00 pm

In Attendance: Sarah Soderholm, Murray County; Brian Nyborg, Department of Natural Resources (DNR); Brady Swanson, DNR; Jan Voit, Heron Lake Watershed District (HLWD); Ross Behrends, HLWD; Katherine Pekarek-Scott, Minnesota Pollution Control Agency; Mark Koster, Nobles County; Karen Pressley, Jackson County; Mark Hiles, Board of Soil and Water Resources (BWSR); John Shea, Nobles County Soil and Water Conservation District (SWCD); Ed Lenz, BWSR; Doug Goodrich, BWSR; Jesse Walters, Martin County SWCD; Hannah Herzfeld, Cottonwood County SWCD; Karen Terry, University of Minnesota Extension (U of MN); Toby Spanier, U of MN.

Minutes

Ross Behrends introduced himself as the West Fork Des Moines River Coordinator and asked the attendees to give a brief introduction. Following introductions Ross gave an update on the progress being made on Level III Feedlot Inspections, the development of the Citizen Council, and other Major Watershed Project progress.

Katherine Pekarek-Scott gave an update on the Watershed Restoration and Protection Strategies (WRAPS) progress and timelines. She commented there are 57 impaired reaches throughout the WFDMR watershed. 55 for aquatic life, 19 for aquatic recreation, five for bacteria, two for turbidity, one for dissolved oxygen, two for phosphorus, one for chloride, and one for ammonia. There are 21 lakes impaired in the WFDMR watershed. Katherine mentioned that Fulda Lakes 1 and 2 are being considered for delisting because their water quality is meeting or exceeding long range standards.

Katherine talked about the progress of the Total Maximum Daily Load report for the WFDMR watershed. The report will be completed by consultant Houston Engineering Incorporated (HEI). The report will be completed in two phases. One report for streams and a second report for lakes. The expected completion dates for these reports are expected early 2020. Load allocations can be expected by the end of June 2018.

Discussion was held regarding the two Shared Leadership sessions to be held as required by the work plan. Toby Spanier and Karen Terry provided a document outlining different educational sessions available through the University of Minnesota Extension. Mark Hiles commented that the WRAPS report is the first step in identifying the goals needed for the One Watershed One Plan (1W1P) process. The local work group agreed the two shared leadership sessions should
be developed to introduce 1W1P to our elected officials. Two meetings will be held, one in the upper part of the WFDMR watershed and one in the lower reaches of the watershed.

Ross Behrends explained the WFDMR watershed Citizen Assessment and Values Survey. The survey was identified by the Citizen Council as the best avenue for gathering water quality values from residents of the watershed. The local work group completed the survey and discussion was held. Several changes were made to the survey to address comments from the LWG.
Hello all,

I have attached the educational menu that was shared with the LWG at our last meeting. To follow-up with your question Jan about the shared leadership sessions, below is what I thought I heard at our last meeting. Please, if any of you heard things differently, share with all.

**Civic Engagement Activities Planned:**
1. Develop and distribute survey
2. Develop Facebook page
3. Connect and attend other civic and community events to distribute surveys and share watershed information (poster needed)

**Educational Sessions Planned:**
1. Prairie Ecology Bus
2. Water Tour with Karen (This would include a Watershed Education Basics presentation)

**Shared Leadership Session Planned:**
1. Public Officials Summit with the City of Currie on Feb 12th (Education would include Stormwater BMPs with Karen and a presentation by the engineer working on the Currie project and Toby providing an opportunity for participant conversations)
2. Meeting with Watershed Elected Leaders or their representatives to receive an overview of WRAPS project (Katherine) and with BWSR staff to receive an overview of 1W1P and sharing on current watersheds in 1W1P policy and governing boards to learn best practices for collaboration. (I believe Jan was going to connect with BWSR to see if they could do this?)

I am more than happy to facilitate any additional shared leadership sessions that would provide for relationships to be developed and strengthened for shared leadership and networking building to move the WRAPS project forward and consider 1W1P. However, I didn't hear from the LWG that anything was needed at this time. If you (Jan, Katherine and Ross) would like to see something happen I can create a workshop/session but I can't get people to attend. That would depend on you all.

Looking at the dates that were shared, I think January 25th at 2:30 p.m. would work for the Band of 5. I haven't heard from Karen, but when I checked her calendar it looked okay for this date and time. Katherine, if you want to set up a conference call that would be great.

Thanks,

Toby

On Tue, Jan 9, 2018 at 10:37 AM, Jan Voit <jan.voit@mysmbs.com> wrote:
Good morning Local Work Group,

Please save the date for the Des Moines Local Work Group meeting.

Date: June 14, 2018  
Time: 1:00 pm to 4:00 pm  
Location: Heron Lake Senior Center

This meeting will provide each of you with the opportunity to determine what your involvement will be in developing the WRAPS report. Your attendance and input are vital to the success of this effort!

An agenda will be provided closer to the meeting.

Thank you.

Ross Behrends  
WFDMR Coordinator  
507.220.5331  
Ross.Behrends@noblesswcd.org
Jan Voit

From: Jan Voit
Wed, June 05, 2018 5:51 AM
To: Ross Behrends; kyle.krier@co.pipestone.mn.us; adam.ossefoort@co.pipestone.mn.us; Goodrich, Douglas (BWSR); Hiles, Mark (BWSR); Andy Geiger; Ashley Brenke; Brian Nyborg; Brooke Burmeister; Chris Bauer; Dave Bucklin; John Biren; John Shea; Jon Bloemendaal; Katherine Pekarek-Scott; Kay Gross; Pam Flitter; slewis@co.murray.mn.us; jchristoffels@co.murray.mn.us; laura.debeer@co.pipestone.mn.us; Mark Koster; Craig Christensen; Lenz, Ed (BWSR); Spindler, Bryan (MPCA); kimberly.musser@mnsu.edu; ssoderholm@co.murray.mn.us; Joanne.Boettcher@state.mn.us

Subject: LOCAL WORK GROUP MEETING - SAVE THE DATE!

Good morning,

A tentative agenda for the upcoming Local Work Group meeting is included below. There are also links provided for completed WRAPS reports. Please review those prior to our meeting.

Looking forward to seeing you on Thursday, June 14 at 1:00 p.m. at the Heron Lake Community Center.

Introductions – Ross
Project updates – Jan/Ross/Katherine
Story Map – Jan
Overview of WRAPS Report Development – Joanne
Local decision making on WRAPS feedback – Joanne

Completed WRAPS Reports
Missouri WRAPS: https://www.pca.state.mn.us/sites/default/files/wq-ws4-40a.pdf
Hawk Creek WRAPS: https://www.pca.state.mn.us/sites/default/files/wq-ws4-29a.pdf
Yellow Medicine WRAPS: https://www.pca.state.mn.us/sites/default/files/wq-ws4-13a.pdf

Jan Voit
Heron Lake Watershed District
PO Box 345
Heron Lake, MN 56137
Phone: 507-793-2462
Email: jvoit@hlwdonline.org
Website: www.hlwdonline.org
Office hours: Monday – Thursday
Appendix 2
West Fork Des Moines River Watershed
Citizen Council Purpose and Promise

Purpose: The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water quality values held by those who live and work in the watershed. These values will be essential for guiding strategy development.

These public meetings are being held to meet the requirements of the State of Minnesota's Clean Water Legacy Act. The data gathered will be included in the civic engagement portion of the report that this process requires.

Citizen Council members will be provided with pertinent data about the watershed, as well as training and assistance for public meeting organization.

Promise: The information gathered about watershed residents' values, as well as conservation practices they may be willing to implement, will assist in developing key milestones and strategies for the implementation table in the report.

Expected Outputs: The Citizen Council members, with assistance from the Local Work Group*, Minnesota Pollution Control Agency (MPCA), and the University of Minnesota Extension (Extension) will be responsible for the following:

1. Attend and receive training about the watershed, team building, network mapping, civic engagement techniques, and evaluation strategies.
2. Convene at least three watershed update sessions and/or citizen input conversations in the watershed.
3. Provide consultation to MPCA, HLWD, and Extension on future education and civic engagement programming necessary in the watershed.

*Local Work Group: Nobles, Jackson, Murray, Cottonwood, Lyon, Pipestone, and Martin Counties and Soil and Water Conservation Districts, and the Heron Lake Watershed District
Band of 5: Katherine, Ross, Jan, Karen and Toby  
June 30th (1 - 2 p.m.) 888-742-5095 Code 7877948104

Agenda for Band of 5:

- Check-in on the status of Citizen Council Membership
  - Mona Henkels
  - Paul Henning
  - Ron Tibodeau
- Developing the CC meeting agenda and logistics for July 18th, 1:30pm
- Review our roles and responsibilities with the CC  
  https://docs.google.com/document/d/18XpledusXaKcpZjUqm2p99hUSDohCFf5L8Cb7yK Eus4/edit
- Create a time frame for the CC capacity building, civic engagement public meetings, Past Mid November - April 1st. Shared leadership and educational sessions (County Commissioners) Deadline: June 30, 2018.

For the 7/18 meeting: 1:30 p.m. - 4:40 p.m. HLWD Office (arrive at 1 p.m.)
1. Introductions & Warm-up Activity (Toby - 20 minutes)
2. Purpose and Objectives of CC (Ross and All - 10 minutes)
3. Watershed Processes and Functions (Karen - 30 minutes)
4. Overview of the watershed approach and WRAPS update (Katherine and Ross, 30 minutes)
5. Civic Engagement 101 (Toby - 30 minutes)
6. Shared Vision for the Watershed (Karen - 30 minutes)
7. Closure and Next Steps (Ross - 15 minutes)

Materials needed:
- Tables and chairs -- Jan
- Flipcharts - Toby
- Markers and post-it notes - Jan
- Screen & projector - Jan
- Laptop - Jan
- Refreshments
- CC Booklet - Jan
- Strengths Finder Books - Toby
- Evaluation - Toby

Save Strengths Finder for next meeting
West Fork Des Moines River Watershed

Citizen Council Session #1

Tuesday, July 18, 2017

1:30 p.m. – 4:15 p.m.

Heron Lake Watershed District Office
1008 3rd Ave. Heron Lake, MN
507-793-2462

Purpose: The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water quality values held by those who live and work in the watershed. These values will be essential for guiding strategy development.

FACILITATORS Agenda:

1. Introductions & Icebreaker (Toby – 20 min.)
   Sharing of “Fostering Citizen Leadership power point.

   Icebreaker: When you think of water, what’s one word you think of – write it down. Get to know each other a little.

2. Purpose and Objectives of the Citizen Council (Ross – 10 min.)

3. Watershed Processes and Functions (Karen – 30 min.)

4. Overview of the One Watershed Approach and WRAPS (Katherine and Ross – 30 min.)

5. Fostering Citizen Leadership and Engagement in the Watershed (Toby – 30 min.)

   Fostering Citizen Leadership, Who, What, Why, When and Where of Civic Engagement, Community Capitals. What do we see in the watershed related to civic engagement efforts?

6. Creating a Shared Vision for the West Fork Des Moines River Watershed (Karen – 30 min.)

7. Closure and Next Steps (Ross – 15 min.) Toby Evaluation
West Fork Des Moines River Watershed
Citizen Council Session #1
Tuesday, July 18, 2017
1:30 p.m. – 4:15 p.m.
Heron Lake Watershed District Office
1008 3rd Ave. Heron Lake, MN
507-793-2462

Purpose: The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water quality values held by those who live and work in the watershed. These values will be essential for guiding strategy development.

Agenda:

1. Introductions & Icebreaker

2. Purpose and Objectives of the Citizen Council

3. Watershed Processes and Functions

4. Overview of the One Watershed Approach and WRAPS

5. Fostering Citizen Leadership and Engagement in the Watershed

6. Creating a Shared Vision for the West Fork Des Moines River Watershed

7. Closure and Next Steps
Watershed Approach Overview

July 18, 2017
How did we get here?

- Federal Clean Water Act ‘72
- Clean Water Legacy Act ‘06
- Clean Water, Land and Legacy Amendment ‘08
- Clean Water Accountability Act ‘13
Watershed Approach

Determine overall health of major watersheds

Increase efficiency in dealing with impairments

Integrate watershed protection and restoration strategies into a single watershed management plan

Improved collaboration with local government and stakeholders

10 Year Cycle

Connecting state programs with local leadership

Comprehensive Watershed Management Plan

Ongoing Local Implementation

Monitoring and Assessment

Strategy Development (WRAPS)

Water Resource Characterization & Problem Investigation
Monitoring and Assessment

Water Resource Characterization & Problem Investigation

Strategy Development (WRAPS)

Comprehensive Watershed Management Plan

Ongoing Local Implementation

TMDLs

Source ID

Goals

Targets (or milestones)

Monitoring and Assessment

Stressor ID

TMDLs

Source ID

Goals

Targets (or milestones)
Primary Responsibility

PCA/State Agency Led

- Monitoring & Assessment
- Stressor ID
- TMDLs
- Source ID
- Goals
- Targets (or milestones)

Locally Led

- Implementations Plans
- Securing Funding
- Action
West Fork Des Moines River Watershed Timeline

Connecting state programs with local leadership

10 Year Cycle

- Ongoing Local Implementation
- Monitoring and Assessment
- Strategy Development (WRAPS)
- Water Resource Characterization & Problem Investigation
- Comprehensive Watershed Management Plan

2014
- ✓ Biological monitoring &
- ✓ Water chemistry monitoring

2015
- ✓ Biological monitoring
- ✓ Water chemistry monitoring

2016
- ✓ Assessments
- Ø Stressor identification

2017
- Ø Stressor identification

2018
- ✓ TMDL Development
- Ø WRAPS development

2019
- ✓ TMDL Development
- Ø WRAPS development
What you can add to the puzzle!
What you can add to the puzzle!

- Connecting state programs with local leadership
- Comprehensive Watershed Management Plan
- Ongoing Local Implementation
- Monitoring and Assessment
- 10 Year Cycle
- Strategy Development (WRAPS)
- Water Resource Characterization & Problem Investigation
What you can add to the puzzle!

Acceptable BMPS

Values towards water

Education needs

Help figure out how to get the info
How we will use your input

- Develop Scenarios
- Develop Educational Events
- Develop Strategies
Questions

Katherine Pekarek-Scott
MPCA - Willmar
320-441-6973
katherine.pekarek-scott@state.mn.us
Number of Participants: 8  
Length of Workshop: 3 hours  

Section 1: Pre and Post Questions  
The following table contains the mean before (pre-workshop) scores and the mean after (post-workshop) scores. The responses range from 1 (Weak) to 6 (Strong).

Table 1: Learning Objectives Score Change

<table>
<thead>
<tr>
<th>Code</th>
<th>Individual Learning Objectives</th>
<th>Objective pre-score mean</th>
<th>Objective post-score mean</th>
<th>Difference in means</th>
<th>% Improvement in mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Explain the purpose and objectives of the citizen council</td>
<td>3.29</td>
<td>5.00</td>
<td>1.71</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>Recognize watershed processes and function</td>
<td>4.14</td>
<td>5.29</td>
<td>1.14</td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>Identify key elements of the watershed approach and WRAPS</td>
<td>4.14</td>
<td>4.86</td>
<td>0.71</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>Recognize the role and guiding principles of civic engagement</td>
<td>3.00</td>
<td>5.00</td>
<td>2.00</td>
<td>67%</td>
</tr>
<tr>
<td></td>
<td>Name and identify key assets and a vision for the watershed</td>
<td>3.00</td>
<td>3.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 2: Total Knowledge, Attitude, Skills and Aspirations Change

<table>
<thead>
<tr>
<th>Number of Participants</th>
<th>Knowledge pre-score mean</th>
<th>Knowledge post-score mean</th>
<th>Difference in means</th>
<th>% Improvement in mean</th>
<th>% Participants Increasing Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>3.51</td>
<td>4.63</td>
<td>1.11</td>
<td>32%</td>
<td>86%</td>
</tr>
</tbody>
</table>
Section 2: Satisfaction and Learning Experience

Table 3
Satisfaction and Learning Experience

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>To a great extent</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent are you satisfied with the session overall?</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>To what extent do you feel you can use the ideas or skills you learned?</td>
<td>0%</td>
<td>0%</td>
<td>43%</td>
</tr>
<tr>
<td>To what extent were you satisfied with the facilities?</td>
<td>0%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Given the Council and planned outcomes we are moving in the right direction to meet these goals and outcomes</td>
<td>0%</td>
<td>29%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Section 3: Open Response

What worked well?
- Relaxed, comfortable atmosphere
- Good dialogue, good hands on
- Live demo
- The informed atmosphere, comfortable. The small group size helped/contributed to that
- Small group atmosphere led to good ideas
- Keeping it more informal to allow the discussion to flow where it needed to go
- Getting to know each other. Water simulator to help guide discussion

What did not work well?
- Not starting on time, not having all participants
- More citizens would have been good
- Maybe not enough time committed to question/discussion
- Small group atmosphere tough on following time constraints
- We did not cover all topics
- Not enough time

What additional information, knowledge, and skills do you need to be successful in your goals and tasks?
- More hands on civic engagement training
- More info on approaches to target audience, how to motivate
- Everything
- More on how to get people involved
What will you take away from this session?
- The great choices in the citizen volunteers, great insights and willingness to share
- Reading materials, points to ponder
- Working together
- We will only be successful if the citizens’ council is successful. It is a big job
- How values play a key role
- That we have 2 citizens on the group who have passion and a willingness to speak up
- People care deeply about the watershed and keeping the environment healthy

Other comments
- The small group setting worked well
- Good presenters
- Good people
- Knowledgeable group, look forward to hearing more ideas
West Fork Des Moines River Watershed
Citizen Council Session #2
Wednesday, September 6, 2017
1:00 p.m. - 4:00 p.m.
Heron Lake Watershed District Office
1008 3rd Ave. Heron Lake, MN
507-793-2462

**Purpose:** The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water values held by those who live and work in the watershed. These values will be essential for guiding strategic development.

**Agenda:**

1:00 – 1:20 p.m. **Introductions & Warm-up**
1. When you think of civic engagement what comes to mind?

1:20 – 2:45 p.m. **Fostering Citizen Leadership and Engagement in the Watershed**
2. Civic Engagement 101
3. Brainstorm Ideas of Active vs. Passive Civic Engagement

2:45 – 3:15 p.m. **Identifying Water Values in the Watershed**

3:15 – 3:45 p.m. **Recognizing our Strengths in Preparation for Civic Engagement Planning in the Watershed**

3:45 – 4:00 p.m. **Closure and Evaluating our Time Together**
Civic Engagement Examples:

1. In the Northeast Region several watershed project managers have held Community Conversations revolving around “products” that have come from our watershed work. These products are Monitoring and Assessment Reports, Stressor ID Reports, Modeling Reports, WRAPs Reports, TMDLs. It was successful because we took time to educate our local SWCD partners as to what WRAPs is, their role in WRAPS, our role in WRAPS, and the other agencies. We went out of our way to ensure that all partners looked at this work as “our” work, not MPCA’s WRAPS work. We specifically told citizens in our advertising of the events along with the first part of the meeting where we reviewed goals and outcomes of the meeting the purpose of the meeting, and we were very specific such as: Today we are here to inform you as to the findings of the monitoring and assessment of the Little Fork River and get your ideas as to why these waters are not impaired or impaired. We delivered on that, nothing more, nothing less.

2. Secchi Disc Demo. Several meetings where we talk about our field work we have two tubs. One tub with “clean water” and one tub with “sediment water”. The public can drop the disc, or use the Secchi Tube to try to see the difference in water sediment. We explain how we do this in the field, how many times one needs to do it to get a trend etc.

3. Citizen conversations were held in the Root River. They were led by citizen leaders that had gone through UM Extension training over 12 months. Each leader hosted in a city close to where they lived. There were two rounds. The first round in March of 2013 drew almost 150 people. The second round in June of 2014 drew only 50, but we believe that was due to timing.

4. Fostering Citizen Leaders is a 5 session workshop (three in-person sessions and 2 webinars) to help train emerging leaders in 5 watersheds. The leadership workshop series provided the participants (citizen leaders) with knowledge, skills, processes and tools that helped them to strengthen their current efforts and nurture new ones. This was seen as a great need in order to advance the Watershed Restoration and Protection efforts in the Crow Wing, Long Prairie, Red Eye, Leech Lake and Pine River Watersheds.

5. An open house format for our public meetings seems to work well. We typically do a short overview of the topic and then have different “stations” for people to visit and rotate until they go to all of the “stations”. The smaller groups allow better conversations and information sharing.

6. Harvest Dinners were held where watershed leaders and local farmers were invited for an evening of dinner prepared by a local farm/caterer and discussions & presentations. Some of these were better attended than others.

7. Le Sueur River Watershed Citizen Network: PCA contracted MSU Water Resource Center staff, Patrick Moore, and Anne McQueenan to establish and facilitate a network of citizens and stakeholders. The intent of this network was to build relationships and facilitate discussion amongst diverse stakeholders to ultimately develop strategies that would be supported and carried forward by members of the network. The network met every two months at locations around the watershed. Meetings were advertised in several local media to attract a wide audience. After several months of meetings, attendees with constant attendance were invited to be part of an advisory group. Amidst other relationship-building dinners, farm and river field-events, education posters and materials,
consensus building, and sometimes heated discussions, the advisory group was able to recommend “Seven Steps Towards Cleaner Water”. As part of this contract, a high-quality public education booklet and several informational videos were made (all available on network website). While the PCA contract ended, MSU was able to secure a grant to continue this work with the goals of: continuing momentum, helping the group become self-running, possibly establish farm demonstration sites, encourage local leaders, and figure out ways to merge the citizen and scientific work happening in the watershed. While there certainly were several successes regarding flushing out ideas, values, assumptions, understanding, etc... and building relationships amongst diverse audiences, there is still a serious level of mistrust between farmers and state agency staff and little change on the landscape has happened to date.

8. Le Sueur River Watershed Lakes Focus Group - When compiling citizen recommendations from the Citizen Network (see above), there was little input regarding lakes. Resulting from the realization, PCA staff sponsored a Lakes Focus Group, where some education material was provided and then several strategic conversations were facilitated. The outcome of this day was a weighted list of preferred strategies to restore and protect lakes.

9. In the Northwest, project managers have held Community Conversations in the Buffalo, Red Lake River, Bois de Sioux, Mustinka, Clearwater, and Thief River Watersheds. These have been casual, after hours’ affairs at local eating establishments where residents have been able to mingle with resource professionals and local politicians. In one case, U.S. Representative Colin Peterson was in attendance. There have been mixed results with these conversations and turnout has generally been low.

10. In the Northwest several Community Picnics were held and organized with the assistance of Watershed Districts, Communities and Community booster organizations. Turnout was low, as there are competing interests, populations are low and distances to events are problematic.

11. For each WRAP in the Northwest there has been a Kickoff Meeting held at the time when the Watershed Assessment Reports are completed. These meetings have been an opportunity for all residents of the watershed to network with local resource professional, politicians, and State Agency and Department staff. Turnout for these events has generally been good, but few citizens have become further involved in fostering or embracing any of the aspects of the WRAP process. The Watershed Districts and local officials, however, are very involved in the WRAP process.

12. Annually, the Buffalo Watershed hosts a chartered bus tour which displays and highlights new and on-going project that relate primarily to drainage and flood damage reduction. MPCA has partnered with the District to include projects that relate to Water Quality Best Management Practices for restoration and protection. This has been a good opportunity for citizens, resource managers, and local officials to see, first hand, on the ground BMPs. The tour and its various stops allow for networking and dialogue between a diverse group of people, bound by similar interests.

13. At all events in the WRAP process, large poster sized, subwatershed maps are placed around the room, and if possible someone is assigned to each map. During the course of the meeting or event, or its attendant social time, participants are encouraged to find their homes/farms/lands on the map and discuss with their neighbors any issues that are important to them. This gathering of people around a localized view of the landscape becomes the Map Party. The assigned person will
record the parts of the discussion that may be useful for restoration and protection strategies. That information is fed back to the Project Managers, modelers and decision makers, as potentially useful information relating to implementation activities, conflict resolution, and the like. The map party has been a valuable ice breaker and social lubricant.

Tools:
Virtual watershed tour (showing others good and bad areas of your watershed via google maps).

**Watershed Placemat**- The original was created for the Root River as part of the Citizen Conversations conducted by citizen leaders. It was used as a talking piece when I talked about the WRAPS process. Went over very well. I had a request to send a stack of them to the National Trout Center and other groups since.

A Web Site was found, A to Z Teachers <http://tools.atozteacherstuff.com/word-search-maker/wordsearch.php> a very easy way to create a fun puzzle to engage folks in watershed terms, lake names, or names of flowing waters in a watershed. This works as a great ice breaker before the meeting starts, or as a take home. It takes longer to copy the puzzle to hand out to people than it does to make it!!!

**Watershed Word Search**-This was created and used with the placemat, but could be used separately. People seemed to like it. Not everyone completed it, but those that did used it as a talking piece. –SK Trying to explain the Fish and Invert IBI to non-scientific literate folks is a tough job. These short videos explain it very well and are a nice break from listening to more Power Point. I made copies for all my local SWCD partners of the 12 videos we have and burned them on disc so they can be shown without and internet interface. All have used them, all seem to think that is great stuff.

**Bio-Indicator Display**. This goes well with videos explained in number 3 above. It is a small taxidermy display of aquatic insects that live in very clean water, moderately clean water, and dirty water framed in a 8 1/2 X 11 display box. The public can easily connect dots that what we find in the aquatic bug world may indicate how clean, or not, the water is.

**Poster size maps** showing impairments in each 10 HUC of the Root watershed were created and color coded by impairment. People really seemed to gravitate to these, pour over them and spark up conversation.
West Fork Des Moines River Watershed
Citizen Council

Expected Outcomes from the Citizen Council's Civic Engagement Efforts

The CC is trying to answer the following questions to provide information into the WRAPS report.

1. What are the public views of water in the watershed? (What are the water quality values? What should they be?)
2. What does the public think about the Best Management Practices BMP (Existing list) in the watershed?
3. What are the primary obstacles to BMP implementation in the watershed?

In addition:
4. What additional education or civic engagement efforts are needed in the watershed?

Public = people with whom the problem being solved or the decision being made have interest or affects them. These essential stakeholders reside in the watershed.
Fostering Citizen Leadership in our watershed

Toby Spanier
July 18, 2017
Offer you **skills**, processes, knowledge, tools and **connections** that can help to strengthen your **leadership** in current and new water quality efforts.
By any other name...

Citizen Involvement

Community-based decision making

...and others

PUBLIC PARTICIPATION
Public Participation
WHAT is Public Participation?
Public participation is involving people in a problem-solving or decision-making process that may interest or affect them.
WHO is the Public?
Stakeholders
WHY Public Participation?
Regulations & Requirements

Democratic Principles

Substantive Outcomes

Improves the Process

Problem-solving capacity
When?

How?
INTENTIONAL DESIGN

IAP2 Spectrum of Public Participation

Inform Consult Involve Collaborate Empower

Increasing Level of Public Impact
IAP2 Public Participation Spectrum
Developed by the International Association for Public Participation

Increasing Level of Public Impact

**Inform**
- **P2 Goal:** To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or decisions.
- **Promise to the Public:** We will keep you informed.
- **Example Tools:** Fact sheets, Web sites, Open houses

**Consult**
- **P2 Goal:** To obtain public feedback on analysis, alternatives and/or decisions.
- **Promise to the Public:** We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.
- **Example Tools:** Public comment, Focus groups, Surveys, Public meetings

**Involve**
- **P2 Goal:** To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.
- **Promise to the Public:** We will work with you to ensure that your concerns and issues are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.
- **Example Tools:** Workshops, Deliberative polling

**Collaborate**
- **P2 Goal:** To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.
- **Promise to the Public:** We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.
- **Example Tools:** Citizen Advisory Committees, Consensus-building, Participatory decision-making

**Empower**
- **P2 Goal:** To place final decision-making in the hands of the public.
- **Promise to the Public:** We will implement what you decide.
- **Example Tools:** Citizen Juries, Ballots, Delegated decisions

©2000, International Association for Public Participation

visit www.iap2.org
Core Values for the Practice of Public Participation

1. Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.

2. Public participation includes the promise that the public's contribution will influence the decision.

3. Public participation promotes sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.

4. Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.

5. Public participation seeks input from participants in designing how they participate.

6. Public participation provides participants with the information they need to participate in a meaningful way.

7. Public participation communicates to participants how their input affected the decision.
<table>
<thead>
<tr>
<th>Civic Engagement</th>
<th>Partners in civic engagement</th>
<th>Come together to build</th>
<th>Through processes that support</th>
<th>Key elements of collaboration</th>
<th>Which result in</th>
</tr>
</thead>
<tbody>
<tr>
<td>engages community</td>
<td>conveners</td>
<td>trust</td>
<td>discussion (dialogue &amp; deliberation)</td>
<td>credible data</td>
<td>resource-FULL™ decisions</td>
</tr>
<tr>
<td>in a public issue</td>
<td>community members</td>
<td>relationships</td>
<td>reflection</td>
<td>appropriate people</td>
<td>collective action</td>
</tr>
<tr>
<td>stages: prepare, inquire, analyze, synthesize, act together</td>
<td>collaboration</td>
<td>constructive processes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Come in, we’re OPEN
What opportunities do you see?
Hundreds of **Talents**

Grouped into 34 **Signature Themes**

Grown into **Strengths**

Clustered into **Domains**
Practice Makes ___________

**Talent** (a natural way of thinking, feeling or behaving)

X

**Investment** (time spent practicing, developing your skills, and building your knowledge base)

----------

= **Strength** (the ability to consistently provide near-perfect performance)

Four Domains of Leadership

- Executing
- Influencing
- Relationship Building
- Strategic Thinking
Leaders with Influencing themes:
- Help reach a broader audience
- Sell the team’s ideas
- Speak up, take charge, make sure ideas are heard

INFLUENCING
- Activator
- Command
- Communication
- Competition
- Maximizer
- Self-Assurance
- Significance
- Woo
Leaders with Relationship Building themes:

- The glue that holds the team together
- Create strong groups and organizations
  - Cultivate a positive culture

RELATIONSHIP BUILDING

- Adaptability
- Developer
- Connectedness
- Empathy
- Harmony
- Includer
- Individualization
- Positivity
- Relator
Leaders with Strategic Thinking themes:
  • Focused on what could be
  • Absorb and analyze information
  • Stretch our thinking for the future
Leaders with Executing themes:
- Know how to make things happen
- Good at implementing solutions
- Work tirelessly to get things done

EXECUTING
- Achiever
- Arranger
- Belief
- Consistency
- Deliberative
- Discipline
- Focus
- Responsibility
- Restorative
In your groups:

1. Which Domains of Leadership are represented in our group?
2. Are we balanced as a group?
3. Looking at the work, which roles and responsibilities would we each be well-suited for?
4. If we were to recruit more team members, what Domains or Strengths would we look for?
Thank you and journey safely
Number of Participants: 8  
Length of Workshop: 3 hours

Section 1: Pre and Post Questions
The following table contains the mean before (pre-workshop) scores and the mean after (post-workshop) scores. The responses range from 1 (Weak) to 6 (Strong).

Table 1:  
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<th>Difference in means</th>
<th>% Improvement in mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Explain the what, who, why, when and how of civic engagement</td>
<td>3.57</td>
<td>5.14</td>
<td>1.57</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>Recognize the different ways to engage the public for meaningful participation</td>
<td>3.29</td>
<td>4.57</td>
<td>1.29</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>Identify the core values of the practice of public participation</td>
<td>3.29</td>
<td>4.71</td>
<td>1.43</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>Identify mine and what other's water values in the watershed</td>
<td>3.14</td>
<td>5.29</td>
<td>2.14</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>Name my strengths and other's when working in a group</td>
<td>3.00</td>
<td>3.67</td>
<td>0.67</td>
<td>22%</td>
</tr>
</tbody>
</table>

Table 2:  
Total Knowledge, Attitude, Skills and Aspirations Change

<table>
<thead>
<tr>
<th>Number of Participants</th>
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<tr>
<td>7</td>
<td>3.26</td>
<td>4.68</td>
<td>1.42</td>
<td>44%</td>
<td>100%</td>
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</tbody>
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Section 2: Satisfaction and Learning Experience

Table 3

<table>
<thead>
<tr>
<th>Satisfaction and Learning Experience</th>
<th>Not at all</th>
<th>To a great extent</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent are you satisfied with the meeting overall?</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent do you feel you can use the ideas or skills you learned?</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>To what extent were you satisfied with your contributions during the meeting?</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Section 3: Open Response

What worked well during the meeting?
- Presentation and handouts
- Moved along fast
- Small group discussions
- Discussion
- Brainstorming

What did not work as well?
- Speaker system
- A couple participants do not speak up much, hopefully we are giving them an opportunity to speak
- Computer and speaker hookup
- Identifying ways to create meaningful involvement

What additional information, knowledge, and skills do you still need to be successful in your goals and tasks?
- Need to focus more on the event
- Need to know what others need to know
- Budget amounts, actual events then build programs

What will you take away from this session?
- Good civic engagement background
- Water
- Ideas of what others think we should do
- Need to think on obstacles to BMPs and ways to hook and engage citizens
- Great involvement from cc members

Other comments
- Interesting
- Planning and preparation are super important!
West Fork Des Moines River Watershed
Citizen Council Session #3
Tuesday, November 28, 2017
1:00 p.m. - 4:00 p.m.
Heron Lake Watershed District Office
1008 3rd Ave. Heron Lake, MN
507-793-2462

Purpose: The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water values held by those who live and work in the watershed. These values will be essential for guiding strategic development.

Agenda:
1:00 – 1:10 p.m. Welcome & Review of Purpose and Agenda

1:10 – 1:20 p.m. What are the “Must Haves” with our Watershed Public Gatherings?
▪ Want to get ideas of how people value the water resources
▪ Get input on what are acceptable BMPs
▪ What are obstacles to installing those BMPs?

1:20 – 1:30 p.m. What could MPCA/HLWD bring to the Watershed Public Gatherings?
▪ Could share early survey results, what a WRAPs is.
▪ Provide some background about water quality itself -- need to tell them what is happening in the watershed so they can base their decisions on that.
▪ Budget: roughly $16,000
▪ Clarity on the goal and promise with the public attending
▪ What else?

1:30 – 2:15 p.m. Identifying and Prioritizing the Watershed Public Gatherings Ideas
▪ Snow Carding

2:15 – 3:50 p.m. Action Planning on the Priority Ideas
▪ What? When? Where? Who?

3:50 – 4:00 p.m. Wrap-up and Evaluation
Please list three groups or audiences that you believe we should be targeting for our civic engagement efforts.
1) Ag producers
2) Town folks
3) Lakes communities/recreational water users
   - Think of civic orgs as possible partners/sponsors of events–sportsmen’s, scouts, 4-H, chambers, Legion, etc.
4) Farmers/landowners
5) City dwellers
6) Lake shore residents
   - I am not sure if the lakes in the watershed are very developed for this to even apply. If it does not apply, I would break up my first one between farmers/renters and landowners that rent out the land.
7) County soil & water offices
8) Lions clubs
9) Sportsmen’s clubs have programs or forms.
10) Agricultural and residential community – farmers, cooperatives, consultants, homeowners, and businesses
11) Young farmers and families that use social media as their means to get information
12) Sportsmen’s clubs
13) FFA Chapters
14) Duck’s Unlimited
15) Ecology Bus
   - I feel we could train the Ecology bus staff and they could put on programs all over the area.
16) Agricultural producers
17) Sportsmen’s clubs
18) Township officials
19) Farmers/landowners
20) Lake communities
21) Youth
22) Elected officials

Please give three ideas on what type of civic engagement event(s) we should hold.
1) Interactive, various stations, some hands on educational, post-it comment board, maybe floating surveyors (us and maybe some from advisory board or reg board), open house style with food–doesn’t have to be full meal
2) Would be useful if we can contribute to another org’s event.
3) If Shetek still has a cruise boat that might be a good venue for a tour.
   - Still like the idea of a drone video being a useful tool but I don’t know if it is feasible.
4) Host individual meetings with each stakeholder group. For example, one meeting with people from towns, one meeting with lake people and one meeting with farmers.
5) Open house type event. Have activities for kids, information for adults. It could be just one in the middle of the watershed or at two different locations.
6) Can do community conversations with the information that we currently have. We could use something like a world café to help focus the discussions and to make sure we get the information we need.
7) Control the flow of water from the streams and creeks.
8) Add more and keep the wetland in the watershed.
9) Have a channel stability plan for the streams & creek to keep erosion & sedimentation problems under control.
10) Educational event outlining the positive and negative impacts of agricultural drainage. Also, it would be a great opportunity to highlight drainage projects and available products that benefit water quality.
11) Facebook page
12) Develop a survey that we distribute at the NHLGPA, Pheasants Forever, Ducks Unlimited and any other banquets throughout the watershed. Everyone that fills out the survey gets entered into a drawing for a chance at a $500 Cabela’s gift card (Or 5 - $100 gift cards). If they have already had their banquet, we could mail out the survey. After the surveys are completed we enter them into survey monkey to analyze results.
13) Use testimonials from target audiences to gather info through
   o Neighborhood meeting
   o Online survey
14) Facebook page
15) Be a part of different banquets and explain water quality
16) Team up with willing lake associations, sportsmen’s groups, etc. and help each group plan and host their own local event.
17) Aqua Chautauqua
18) Tour of water quality best management practices
19) Rotating Watershed Map – this would be a large portable watershed map which would encourage participants to find their homes/farms/lands on the map and discuss issues important to them and suggested strategies to deal with problem areas.
Purpose: The purpose of the Citizen Council is to convene public meetings to gather information from watershed residents about the water quality values held by those who live and work in the watershed. These values will be essential for guiding strategy development.

These public meetings are being held to meet the requirements of the State of Minnesota's Clean Water Legacy Act. The data gathered will be included in the civic engagement portion of the WRAPS report that this process requires.

Citizen Council members will be provided with pertinent data about the watershed, as well as training and assistance for public meeting organization.

Civic Engagement Actions: Developed on 11/28/17

Goal #1: Develop Survey to Gather Public Input

Goal #2: Develop a Watershed Facebook Page

Goal #3: Connect with Other Civic Organizations and Events to Distribute Surveys and Discuss Watershed Issues

Educational Activities Planned:

#1: Prairie Ecology Bus for Watershed Experiences

#2: Improving Our Water and Watershed (Public Officials Summit – City of Currie)

#3:

#4:

*Local Work Group: Nobles, Jackson, Murray, Cottonwood, Lyon, Pipestone, and Martin Counties and Soil and Water Conservation Districts, and the Heron Lake Watershed District
## Lake association leaders

<table>
<thead>
<tr>
<th>Name</th>
<th>Email address</th>
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<th>Street address</th>
<th>City, State, Zip</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Heron Lake Game Producers Association director</td>
<td>nhlgpa.org</td>
<td>(507) 360-7200</td>
<td>PO Box 43</td>
<td>Windom, MN 56101</td>
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## Heron Lake Watershed District Board of Managers

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
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<th>Phone #</th>
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</thead>
<tbody>
<tr>
<td>Treasurer</td>
<td>Gary Ewert</td>
<td><a href="mailto:garyevert@gmail.com">garyevert@gmail.com</a></td>
<td>507-425-2649</td>
<td>2140 41st Street</td>
<td>Fulda, MN 56111</td>
</tr>
<tr>
<td>Vice President</td>
<td>Jim Buschena</td>
<td><a href="mailto:buschena@heronlake.com">buschena@heronlake.com</a></td>
<td>507-842-5460</td>
<td>35974 160th St.</td>
<td>Brewster, MN 56119</td>
</tr>
<tr>
<td>President</td>
<td>Mike McFarvel</td>
<td><a href="mailto:mike.mcfarvel@heronlake.com">mike.mcfarvel@heronlake.com</a></td>
<td>507-853-4644</td>
<td>87122 380th Avenue</td>
<td>Okabena, MN 56161</td>
</tr>
<tr>
<td>Manager</td>
<td>Roger Hartman</td>
<td><a href="mailto:rongie225@msn.com">rongie225@msn.com</a></td>
<td>507-793-2682</td>
<td>3349 880th</td>
<td>Heron Lake, MN 56137</td>
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## Murray County

<table>
<thead>
<tr>
<th>Position</th>
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<th>Phone #</th>
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</tr>
</thead>
<tbody>
<tr>
<td>County Coordinator</td>
<td>Aurora Heard</td>
<td><a href="mailto:aheard@co.murray.mn.us">aheard@co.murray.mn.us</a></td>
<td>507-836-1148</td>
<td></td>
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</tr>
<tr>
<td>Commissioners</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>James Jens</td>
<td><a href="mailto:jens@co.murray.mn.us">jens@co.murray.mn.us</a></td>
<td>507-829-6485</td>
<td>1010 1st Street</td>
<td>Currie, MN 56123</td>
</tr>
<tr>
<td>2</td>
<td>Robert Moline</td>
<td><a href="mailto:rmoine@co.murray.mn.us">rmoine@co.murray.mn.us</a></td>
<td>507-828-0690</td>
<td>2107 US Highway 59</td>
<td>Garvin, MN 56132</td>
</tr>
<tr>
<td>3</td>
<td>Gerald Magnus</td>
<td><a href="mailto:gmagnus@co.murray.mn.us">gmagnus@co.murray.mn.us</a></td>
<td>507-760-0507</td>
<td>1636 101st Street</td>
<td>Slayton, MN 56172</td>
</tr>
<tr>
<td>4</td>
<td>Glenn Kluis</td>
<td><a href="mailto:gkluis@co.murray.mn.us">gkluis@co.murray.mn.us</a></td>
<td>507-425-3137</td>
<td>302 Front Street West</td>
<td>Fulda, MN 56131</td>
</tr>
<tr>
<td>5</td>
<td>Dave Thiner</td>
<td><a href="mailto:dthiner@co.murray.mn.us">dthiner@co.murray.mn.us</a></td>
<td>507-360-1199</td>
<td>410 SE Davis, PO Box 401</td>
<td>Fulda, MN 56131</td>
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## Murray SWCD Board

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<tr>
<td>Howard Konkol District Manager</td>
<td><a href="mailto:hkonkol@co.murray.mn.us">hkonkol@co.murray.mn.us</a></td>
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## Board of Adjustment

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<tr>
<td>1</td>
<td>Bob Ossefoort</td>
<td><a href="mailto:bobossefoort@heronlake.com">bobossefoort@heronlake.com</a></td>
<td>507-879-3572</td>
<td>822 10th Avenue</td>
<td>Woodstock, MN 56186</td>
</tr>
<tr>
<td>2</td>
<td>Darwin Patzliaff</td>
<td><a href="mailto:npatzliaff@heronlake.com">npatzliaff@heronlake.com</a></td>
<td>507-836-3880</td>
<td>62 Pleasant View Road</td>
<td>Slayton, MN 56172</td>
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<tr>
<td>3</td>
<td>Dave Wagner</td>
<td><a href="mailto:dwagner@heronlake.com">dwagner@heronlake.com</a></td>
<td>507-425-3252</td>
<td>302 Front Street West</td>
<td>Fulda, MN 56131</td>
</tr>
<tr>
<td>4</td>
<td>Eugene Winter</td>
<td><a href="mailto:ewinter@heronlake.com">ewinter@heronlake.com</a></td>
<td>507-829-6485</td>
<td>1010 1st Street</td>
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## Murray County Planning Commission

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>1</td>
<td>Bob Ossefoort</td>
<td><a href="mailto:bobossefoort@heronlake.com">bobossefoort@heronlake.com</a></td>
<td>507-879-3572</td>
<td>822 10th Avenue</td>
</tr>
<tr>
<td>2</td>
<td>Gerald DeKruijff</td>
<td><a href="mailto:gerd@heronlake.com">gerd@heronlake.com</a></td>
<td>507-425-3137</td>
<td>302 Front Street West</td>
</tr>
<tr>
<td>3</td>
<td>Kevin Vickerman</td>
<td><a href="mailto:kvickerman@heronlake.com">kvickerman@heronlake.com</a></td>
<td>507-760-0507</td>
<td>1636 101st Street</td>
</tr>
<tr>
<td>4</td>
<td>Lyndon Funk</td>
<td><a href="mailto:lyndon@heronlake.com">lyndon@heronlake.com</a></td>
<td>507-425-3252</td>
<td>302 Front Street West</td>
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## P&Z/Environmental Services

<table>
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<tbody>
<tr>
<td>Jean Christoffers, Zoning Administrator</td>
<td><a href="mailto:jchristoffers@co.murray.mn.us">jchristoffers@co.murray.mn.us</a></td>
<td>(507) 836-1166</td>
<td>2500 28th Street, P.O. Box 57</td>
<td>Slayton, MN 56172</td>
</tr>
<tr>
<td>Position</td>
<td>Name</td>
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<tr>
<td>Highway Engineer</td>
<td>Randy Groves</td>
<td><a href="mailto:rgroves@co.murray.mn.us">rgroves@co.murray.mn.us</a></td>
<td>(507) 836-1165</td>
<td>W. 20th Street, P.O. Box 57</td>
</tr>
<tr>
<td>Water Resources Administrator</td>
<td>Chris Hansen</td>
<td><a href="mailto:chansen@co.murray.mn.us">chansen@co.murray.mn.us</a></td>
<td></td>
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</tr>
<tr>
<td>Shetek Area Water and Sewer Commission</td>
<td>1 Jon Hoyme, Secretary</td>
<td><a href="mailto:hoymejon@gmail.com">hoymejon@gmail.com</a></td>
<td>507-763-1568</td>
<td>W. South Drive</td>
</tr>
<tr>
<td></td>
<td>2 Jamie Thomazin, Chairman</td>
<td><a href="mailto:fishnshetek@hotmail.com">fishnshetek@hotmail.com</a></td>
<td>507-763-1583</td>
<td>W. South Drive</td>
</tr>
<tr>
<td></td>
<td>3 Donna Kor, Vice Chairman</td>
<td><a href="mailto:shektor@frontiernet.net">shektor@frontiernet.net</a></td>
<td>507-763-3133</td>
<td>W. South Drive</td>
</tr>
<tr>
<td></td>
<td>4 Darwin Patzlaff</td>
<td><a href="mailto:darwinpatz@frontiernet.net">darwinpatz@frontiernet.net</a></td>
<td>507-763-3880</td>
<td>Pleasant View Drive</td>
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<tr>
<td></td>
<td>5 Steve Zens</td>
<td><a href="mailto:kathyzen@frontiernet.net">kathyzen@frontiernet.net</a></td>
<td>507-763-3225</td>
<td>North Forman Road</td>
</tr>
<tr>
<td>Ag &amp; Solid Waste Administrator</td>
<td>Jon Bloemendaal</td>
<td><a href="mailto:jbloemendaal@co.murray.mn.us">jbloemendaal@co.murray.mn.us</a></td>
<td>(507) 836-1164</td>
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<tr>
<td>County Coordinator/Human Resources</td>
<td>Kelly Thongvivong</td>
<td><a href="mailto:kelly.thongvivong@co.cottonwood.mn.us">kelly.thongvivong@co.cottonwood.mn.us</a></td>
<td>507-831-5669</td>
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<tr>
<td>Commissioners</td>
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<td></td>
<td>1 Jim Schmidt 14</td>
<td><a href="mailto:jim.schmidt@higleyford.com">jim.schmidt@higleyford.com</a></td>
<td>507-274-6568</td>
<td>530 Edison Avenue</td>
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<tr>
<td></td>
<td>2 Kevin Stevens 14</td>
<td><a href="mailto:kevin.stevens1973@yahoo.com">kevin.stevens1973@yahoo.com</a></td>
<td>507-831-4969</td>
<td>680 Plum Avenue</td>
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<tr>
<td></td>
<td>3 Donna Gravely</td>
<td><a href="mailto:dgravley@windomnet.com">dgravley@windomnet.com</a></td>
<td>507-822-0403</td>
<td>1158 Prospect Avenue</td>
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<tr>
<td></td>
<td>4 Norm Holmen 14</td>
<td><a href="mailto:holmen@frontiernet.net">holmen@frontiernet.net</a></td>
<td>507-877-3243</td>
<td>Country Road 1</td>
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<tr>
<td></td>
<td>5 Tom Appel</td>
<td><a href="mailto:jappel@mountainlake.k12.mn.us">jappel@mountainlake.k12.mn.us</a></td>
<td>507-220-2928</td>
<td>County Road 8</td>
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<tr>
<td>Cottonwood SWCD Board</td>
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<td>Mountain Lake</td>
</tr>
<tr>
<td></td>
<td>1 Clark Lingbeek</td>
<td></td>
<td>507-877-2753</td>
<td>26992 570th Avenue</td>
</tr>
<tr>
<td></td>
<td>2 Cody Duroe</td>
<td></td>
<td>507-628-4320</td>
<td>28687 500th Avenue</td>
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<tr>
<td></td>
<td>3 Daryl Tasler</td>
<td></td>
<td>507-831-5147</td>
<td>1240 20th Street</td>
</tr>
<tr>
<td></td>
<td>4 Tom Muller</td>
<td></td>
<td>507-831-2031</td>
<td>412238 Country Road 13</td>
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<tr>
<td></td>
<td>5 Jeremy Nerem</td>
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<td>507-822-2946</td>
<td>33500 280th Street</td>
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<tr>
<td>Board of Adjustment</td>
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<td>507-445-3219</td>
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<tr>
<td>P&amp;Z/Environmental Services</td>
<td>Jared Morrill</td>
<td><a href="mailto:jared.morrill@co.cottonwood.mn.us">jared.morrill@co.cottonwood.mn.us</a></td>
<td>507-831-1153</td>
<td>339 9th Street</td>
</tr>
<tr>
<td>Water Planners</td>
<td>Kay Clark</td>
<td><a href="mailto:kay.clark@windomnet.com">kay.clark@windomnet.com</a></td>
<td>507-831-1153</td>
<td>339 9th Street</td>
</tr>
<tr>
<td>Landfill Supervisors</td>
<td>Kyle Pillatzki</td>
<td><a href="mailto:kyle.pillatzki@co.cottonwood.mn.us">kyle.pillatzki@co.cottonwood.mn.us</a></td>
<td>507-831-1389</td>
<td>1355 9th Avenue</td>
</tr>
<tr>
<td>Feedlot Officers</td>
<td>Becky Alexander</td>
<td><a href="mailto:becky.alexander@windomnet.com">becky.alexander@windomnet.com</a></td>
<td>507-831-1153</td>
<td>339 9th Street</td>
</tr>
<tr>
<td>Water Resources Staff</td>
<td>Dustin Anderson</td>
<td><a href="mailto:dustin.anderson@windomnet.com">dustin.anderson@windomnet.com</a></td>
<td>507-831-1153</td>
<td>339 9th Street</td>
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<tr>
<td></td>
<td>David Bucklin</td>
<td><a href="mailto:david.bucklin@windomnet.com">david.bucklin@windomnet.com</a></td>
<td>507-831-1153</td>
<td>339 9th Street</td>
</tr>
<tr>
<td>Nobles County</td>
<td>Tom Johnson</td>
<td><a href="mailto:johnson@co.nobles.mn.us">johnson@co.nobles.mn.us</a></td>
<td>507-295-5201</td>
<td>15 Tenth St./PO Box 757</td>
</tr>
<tr>
<td>County Administrative Asst Commissioners</td>
<td>Cathy Roos</td>
<td><a href="mailto:croos@co.nobles.mn.us">croos@co.nobles.mn.us</a></td>
<td>tel:507-295-5205</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Worthington, MN 56187</td>
</tr>
<tr>
<td></td>
<td>1 Marvin Zystra 14</td>
<td><a href="mailto:mzylstra@co.nobles.mn.us">mzylstra@co.nobles.mn.us</a></td>
<td>tel:507-376-6727</td>
<td>18364 Read Avenue</td>
</tr>
<tr>
<td></td>
<td>2 Gene Metz 14</td>
<td><a href="mailto:gmetz@co.nobles.mn.us">gmetz@co.nobles.mn.us</a></td>
<td>tel:507-472-8757</td>
<td>17190 180th St</td>
</tr>
<tr>
<td></td>
<td>3 Matt Widboom 14</td>
<td><a href="mailto:mwidboom@co.nobles.mn.us">mwidboom@co.nobles.mn.us</a></td>
<td>tel:507-360-6632</td>
<td>2126 230th St</td>
</tr>
<tr>
<td></td>
<td>4 Robert S. Demuth, Jr. 14</td>
<td><a href="mailto:rdemuth@co.nobles.mn.us">rdemuth@co.nobles.mn.us</a></td>
<td>tel:507-376-6470</td>
<td>1404 Indian Hill Rd</td>
</tr>
<tr>
<td></td>
<td>5 Donald Linsen 14</td>
<td><a href="mailto:dlinsen@co.nobles.mn.us">dlinsen@co.nobles.mn.us</a></td>
<td>tel:507-376-6747</td>
<td>1233 Maplewood Dr</td>
</tr>
<tr>
<td>Nobles SWCD Board</td>
<td>Nobles Soil &amp; Water Conservation District Manager</td>
<td><a href="mailto:Edward.lenz@nobleswcd.org">Edward.lenz@nobleswcd.org</a></td>
<td>tel:507-376-9150</td>
<td>1567 McMillan Street, Suite 3</td>
</tr>
<tr>
<td></td>
<td>Lynn Darling</td>
<td></td>
<td>507-478-4185</td>
<td>26197 260th St</td>
</tr>
<tr>
<td></td>
<td>First Name</td>
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<tr>
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<td>----------------------------</td>
</tr>
<tr>
<td>Jim Knips</td>
<td>Jim</td>
<td>Knips</td>
<td><a href="mailto:jdknips@gmail.com">jdknips@gmail.com</a></td>
<td>507-472-8231</td>
</tr>
<tr>
<td>Paul Langseth</td>
<td>Paul</td>
<td>Langseth</td>
<td><a href="mailto:paul.langseth@gmail.com">paul.langseth@gmail.com</a></td>
<td>507-376-5866</td>
</tr>
<tr>
<td>Rick Nelsen</td>
<td>Rick</td>
<td>Nelsen</td>
<td><a href="mailto:rickdeb@wildblue.com">rickdeb@wildblue.com</a></td>
<td>507-425-3193</td>
</tr>
<tr>
<td>Ken Wolf</td>
<td>Ken</td>
<td>Wolf</td>
<td><a href="mailto:ken@wolfpork.com">ken@wolfpork.com</a></td>
<td>507-483-2179</td>
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**Board of Adjustment**

<table>
<thead>
<tr>
<th></th>
<th>First Name</th>
<th>Last Name</th>
<th>Email</th>
<th>Phone</th>
<th>Address</th>
<th>City, State, Zip</th>
<th>County</th>
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</thead>
<tbody>
<tr>
<td>Byron Swart</td>
<td>Byron</td>
<td>Swart</td>
<td><a href="mailto:bycin@swwnet.com">bycin@swwnet.com</a></td>
<td>507-372-2465</td>
<td>35417 290th Street</td>
<td>Worthington MN 56187</td>
<td>Jackson</td>
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**Environmental Services Director**

<table>
<thead>
<tr>
<th></th>
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<th>Phone</th>
<th>Address</th>
<th>City, State, Zip</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wayne Smith</td>
<td>Wayne</td>
<td>Smith</td>
<td><a href="mailto:wsmith@co.nobles.mn.us">wsmith@co.nobles.mn.us</a></td>
<td>tel:507-295-5322</td>
<td>PO Box 187</td>
<td>Worthington, MN 56187</td>
<td>Jackson</td>
</tr>
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</table>

**Public Works Director**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Stephen Schnieder</td>
<td>Stephen</td>
<td>Schnieder</td>
<td><a href="mailto:sschneider@co.nobles.mn.us">sschneider@co.nobles.mn.us</a></td>
<td>tel:507-295-5322</td>
<td>PO Box 187</td>
<td>Worthington, MN 56187</td>
<td>Jackson</td>
</tr>
</tbody>
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**Jackson County**

<table>
<thead>
<tr>
<th></th>
<th>First Name</th>
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<th>Address</th>
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<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Coordinator</td>
<td>Janice</td>
<td>Fransen</td>
<td><a href="mailto:janice.fransen@co.jackson.mn.us">janice.fransen@co.jackson.mn.us</a></td>
<td>507-847-4182</td>
<td>405 Fourth Street</td>
<td>Jackson, MN 56143</td>
<td>Jackson</td>
</tr>
<tr>
<td>Human Resources Technician Commissioners</td>
<td>Trish</td>
<td>Schulz</td>
<td><a href="mailto:Trish.Schulz@co.jackson.mn.us">Trish.Schulz@co.jackson.mn.us</a></td>
<td><a href="mailto:Trish.Schulz@co.jackson.mn.us">Trish.Schulz@co.jackson.mn.us</a></td>
<td>405 Fourth Street</td>
<td>Jackson, MN 56143</td>
<td>Jackson</td>
</tr>
<tr>
<td>Kim Hummel</td>
<td>Kim</td>
<td>Hummel</td>
<td><a href="mailto:kim.hummel@co.jackson.mn.us">kim.hummel@co.jackson.mn.us</a></td>
<td>507-847-5631</td>
<td>235 County Road 51</td>
<td>Jackson, MN 56143</td>
<td>Jackson</td>
</tr>
<tr>
<td>Rosemary Schultz</td>
<td>Rosemary</td>
<td>Schultz</td>
<td><a href="mailto:rosemary.schultz@co.jackson.mn.us">rosemary.schultz@co.jackson.mn.us</a></td>
<td>507-662-6213</td>
<td>PO Box 426/417 Chicago St.</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>William (Bill) Tusa</td>
<td>William</td>
<td>Tusa</td>
<td><a href="mailto:william.tusa@co.jackson.mn.us">william.tusa@co.jackson.mn.us</a></td>
<td>507-847-3746</td>
<td>74628 500th Ave.</td>
<td>Jackson, MN 56143</td>
<td>Jackson</td>
</tr>
<tr>
<td>David Henkels</td>
<td>David</td>
<td>Henkels</td>
<td><a href="mailto:david.henkels@co.jackson.mn.us">david.henkels@co.jackson.mn.us</a></td>
<td>507-793-2204</td>
<td>13866 930th St.</td>
<td>Heron Lake, MN 56137</td>
<td>Jackson</td>
</tr>
<tr>
<td>Don Wachal</td>
<td>Don</td>
<td>Wachal</td>
<td><a href="mailto:Don.Wachal@co.jackson.mn.us">Don.Wachal@co.jackson.mn.us</a></td>
<td>507-847-2036</td>
<td>134 Pond Drive</td>
<td>Jackson, MN 56143</td>
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**Jackson SWCD Board**

<table>
<thead>
<tr>
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<th>First Name</th>
<th>Last Name</th>
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<th>Phone</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Sonja Koch</td>
<td>Sonja</td>
<td>Koch</td>
<td><a href="mailto:Sonja.koch@mn.nacdnet.net">Sonja.koch@mn.nacdnet.net</a></td>
<td>507-662-6682 #3</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>Larry G Hansen</td>
<td>Larry</td>
<td>Hansen</td>
<td><a href="mailto:driled92@gmail.com">driled92@gmail.com</a></td>
<td>507-945-8910</td>
<td>33762 760th St.</td>
<td>Round Lake, MN 56167</td>
<td>Jackson</td>
</tr>
<tr>
<td>Dan Riley</td>
<td>Dan</td>
<td>Riley</td>
<td><a href="mailto:driled92@gmail.com">driled92@gmail.com</a></td>
<td></td>
<td>71202 Peters Rd.</td>
<td>Jackson, MN 56143</td>
<td>Jackson</td>
</tr>
<tr>
<td>Paul E Nelson</td>
<td>Paul</td>
<td>E Nelson</td>
<td><a href="mailto:driled92@gmail.com">driled92@gmail.com</a></td>
<td></td>
<td>44331 860th St.</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>Dennis Daberko</td>
<td>Dennis</td>
<td>Daberko</td>
<td></td>
<td></td>
<td>84926 380th Ave.</td>
<td>Okabena, MN 56161</td>
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**P&Z/Environmental Services**

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Karen Pressley</td>
<td>Karen</td>
<td>Pressley</td>
<td><a href="mailto:karen.pressley@co.jackson.mn.us">karen.pressley@co.jackson.mn.us</a></td>
<td>507-662-6682 #3</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>Chris Bauer</td>
<td>Chris</td>
<td>Bauer</td>
<td><a href="mailto:chris.bauer@mn.nacdnet.net">chris.bauer@mn.nacdnet.net</a></td>
<td>507-662-6682 #3</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
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<tr>
<td>LMD</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Jake Grages</td>
<td>Jake</td>
<td>Grages</td>
<td><a href="mailto:jake.grages@co.jackson.mn.us">jake.grages@co.jackson.mn.us</a></td>
<td>507-662-6682 #4</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>Andy Geiger</td>
<td>Andy</td>
<td>Geiger</td>
<td><a href="mailto:Andy.geiger@co.jackson.mn.us">Andy.geiger@co.jackson.mn.us</a></td>
<td>507-662-6682 #4</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
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**Board of Adjustment**

<table>
<thead>
<tr>
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<th>First Name</th>
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<th>Phone</th>
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<tbody>
<tr>
<td>Drew Wiedebrand</td>
<td>Drew</td>
<td>Wiedebrand</td>
<td></td>
<td>(Andy Geiger, Land Mgmt Director, will distribute invitation to these folks.)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Tom Salzwedel</td>
<td>Tom</td>
<td>Salzwedel</td>
<td></td>
<td>(Andy Geiger, Land Mgmt Director, will distribute invitation to these folks.)</td>
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<tr>
<td>Chuck Lucht</td>
<td>Chuck</td>
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<td>(Andy Geiger, Land Mgmt Director, will distribute invitation to these folks.)</td>
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<tr>
<td>Phil Nasby</td>
<td>Phil</td>
<td>Nasby</td>
<td></td>
<td>(Andy Geiger, Land Mgmt Director, will distribute invitation to these folks.)</td>
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<tr>
<td>John Hay</td>
<td>John</td>
<td>Hay</td>
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<td>(Andy Geiger, Land Mgmt Director, will distribute invitation to these folks.)</td>
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**P&Z/Environmental Services**

<table>
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<tbody>
<tr>
<td>Karen Pressley</td>
<td>Karen</td>
<td>Pressley</td>
<td><a href="mailto:karen.pressley@co.jackson.mn.us">karen.pressley@co.jackson.mn.us</a></td>
<td>507-662-6682 #3</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>Chris Bauer</td>
<td>Chris</td>
<td>Bauer</td>
<td><a href="mailto:chris.bauer@mn.nacdnet.net">chris.bauer@mn.nacdnet.net</a></td>
<td>507-662-6682 #3</td>
<td>603 South Highway 86</td>
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<tr>
<td>Jake Grages</td>
<td>Jake</td>
<td>Grages</td>
<td><a href="mailto:jake.grages@co.jackson.mn.us">jake.grages@co.jackson.mn.us</a></td>
<td>507-662-6682 #4</td>
<td>603 South Highway 86</td>
<td>Lakefield, MN 56150</td>
<td>Jackson</td>
</tr>
<tr>
<td>Andy Geiger</td>
<td>Andy</td>
<td>Geiger</td>
<td><a href="mailto:Andy.geiger@co.jackson.mn.us">Andy.geiger@co.jackson.mn.us</a></td>
<td>507-662-6682 #4</td>
<td>603 South Highway 86</td>
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**Pipette County**

<table>
<thead>
<tr>
<th></th>
<th>First Name</th>
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<tbody>
<tr>
<td>Sharon Hanson</td>
<td>Sharon</td>
<td>Hanson</td>
<td><a href="mailto:sharon.hanson@co.pipestone.mn.us">sharon.hanson@co.pipestone.mn.us</a></td>
<td>507-825-6742</td>
<td>416 Hiawatha Ave. S</td>
<td>Pipestone, MN 56164</td>
<td>Pipestone</td>
</tr>
</tbody>
</table>
| Luke Johnson  
: 1st District | Luke      | Johnson   | mtokenman@yahoo.com       |                            |                                  |                   |         |
| Les Nath      | Les        | Nath      | lesnath@co.pipestone.mn.us | (507) 220-9040             | 217 10th St. E                  | Jasper, MN 56144  | Jasper |
| Bruce Koolman | Bruce      | Koolman   | bko@aiw.net               |                            |                                  |                   |         |
| Dan Wildernuth | Dan       | Wildernuth | dan.wildernuth@co.pipestone.mn.us |                                  |                                  |                   |         |
| Jerry Remund  
: 5th District | Jerry     | Remund    | stargency@aiw.net         |                            |                                  |                   |         |
<table>
<thead>
<tr>
<th>Pipestone SWCD Board</th>
<th>1 Ian Cunningham</th>
<th><a href="mailto:ipcunningham@live.com">ipcunningham@live.com</a></th>
<th>565 81st St.</th>
<th>Pipestone, MN 56164</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 Calvin Sproul</td>
<td><a href="mailto:cspronk@frontiernet.net">cspronk@frontiernet.net</a></td>
<td>84 130th Ave.</td>
<td>Edgerton, MN 56128</td>
</tr>
<tr>
<td></td>
<td>3 Arvin Pater</td>
<td><a href="mailto:agp@woodstocktel.net">agp@woodstocktel.net</a></td>
<td>1624 171st St.</td>
<td>Holland, MN 56139</td>
</tr>
<tr>
<td></td>
<td>4 Anna Mae Fritz</td>
<td></td>
<td>1310 141st St.</td>
<td>Holland, MN 56139</td>
</tr>
<tr>
<td></td>
<td>5 Bill Folger</td>
<td></td>
<td>1355 20th Ave.</td>
<td>Pipestone, MN 56164</td>
</tr>
<tr>
<td>Board of Adjustment</td>
<td>1 Curt Johnson -- Board Chair</td>
<td>507-348-4831</td>
<td>309 50th Ave.</td>
<td>Jasper, MN 56144</td>
</tr>
<tr>
<td></td>
<td>2 Ryan Wienkauf</td>
<td></td>
<td>1025 60th Ave.</td>
<td>Pipestone, MN 56164</td>
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<tr>
<td></td>
<td>3 Lyle Wassink</td>
<td></td>
<td>313 Rock River Dr.</td>
<td>Edgerton, MN 56128</td>
</tr>
<tr>
<td></td>
<td>4 Marv Tinklenberg</td>
<td></td>
<td>202 Elizabeth St. E.</td>
<td>Edgerton, MN 56128</td>
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<tr>
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</tr>
<tr>
<td>Pipestone Co. Planning Commission</td>
<td>Bradley Kruisselbrink -- Board Chair</td>
<td>507-215-2208</td>
<td>1153 180th Ave.</td>
<td>Woodstock, MN 56186</td>
</tr>
<tr>
<td></td>
<td>Rodney Altena</td>
<td></td>
<td>495 111th St.</td>
<td>Pipestone, MN 56164</td>
</tr>
<tr>
<td></td>
<td>Bruce Novak</td>
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<td>1026 111th St</td>
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<td></td>
<td>Leon Mortland</td>
<td></td>
<td>1626 211th St.</td>
<td>Ruthven, MN 56170</td>
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<td>Wally Slinger</td>
<td></td>
<td>796 121st St.</td>
<td>Pipestone, MN 56164</td>
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<td>Dan Miller</td>
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<td>1258 131st St.</td>
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<td></td>
<td>Dave Hulstein</td>
<td></td>
<td>200 Trosky Rd W</td>
<td>Edgerton, MN 56128</td>
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<tr>
<td></td>
<td>Bruce Kooiman</td>
<td></td>
<td>615 W MAPLE ST.</td>
<td>Edgerton, MN 56128</td>
</tr>
<tr>
<td>Lyon County</td>
<td>County Administrator</td>
<td>Loren Stomberg</td>
<td>507-537-6249</td>
<td>607 West Main Street</td>
</tr>
<tr>
<td></td>
<td>Commissioners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Charlie Sanow</td>
<td><a href="mailto:c_sanow@yahoo.com">c_sanow@yahoo.com</a></td>
<td>507-530-4806</td>
<td>1109 Birch St #4</td>
</tr>
<tr>
<td></td>
<td>2 Stephen Ritter</td>
<td><a href="mailto:swriter1@gmail.com">swriter1@gmail.com</a></td>
<td>507-532-2383</td>
<td>100 Elaine Ave.</td>
</tr>
<tr>
<td></td>
<td>3 Paul Graumann</td>
<td><a href="mailto:Graupmann.Paul@gmail.com">Graupmann.Paul@gmail.com</a></td>
<td>507-532-5182</td>
<td>901 N. 4th St</td>
</tr>
<tr>
<td></td>
<td>4 Rodney Stensrud</td>
<td><a href="mailto:stensrud63321@gmail.com">stensrud63321@gmail.com</a></td>
<td>507-829-529</td>
<td>3040 - 380th St</td>
</tr>
<tr>
<td></td>
<td>5 Rick Anderson</td>
<td><a href="mailto:rickanderson@co.lyon.mn.us">rickanderson@co.lyon.mn.us</a></td>
<td>507-734-5194</td>
<td>2332 - 140th Avenue</td>
</tr>
<tr>
<td></td>
<td>Lyon SWCD: (507) 537-0396</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Allen Deutz</td>
<td></td>
<td>2866 Co Rd 35</td>
<td>Marshall, MN 56258</td>
</tr>
<tr>
<td></td>
<td>2 Gary Crowley</td>
<td></td>
<td>2994 210th Avenue</td>
<td>Marshall, MN 56258</td>
</tr>
<tr>
<td></td>
<td>3 Mark Meulebroeck</td>
<td></td>
<td>1767 230th Avenue</td>
<td>Balaton, MN 56115</td>
</tr>
<tr>
<td></td>
<td>4 Steve Prairie</td>
<td></td>
<td>1062 200th Avenue</td>
<td>Balaton, MN 56115</td>
</tr>
<tr>
<td></td>
<td>5 Gary Lavoy</td>
<td></td>
<td>1776 US Hwy 59</td>
<td>Tracy, MN 56175</td>
</tr>
<tr>
<td>Board of Adjustment</td>
<td>1 Sandy Ludeman</td>
<td><a href="mailto:splvde@lhb.coop">splvde@lhb.coop</a></td>
<td>1616 310 Avenue</td>
<td>Marshall, MN 56258</td>
</tr>
<tr>
<td></td>
<td>2 Laurel Steen</td>
<td><a href="mailto:lsteen@fibmn.com">lsteen@fibmn.com</a></td>
<td>1108 Bruce Circle</td>
<td>Marshall, MN 56258</td>
</tr>
<tr>
<td></td>
<td>3 Jon Chalmers</td>
<td><a href="mailto:jon.Chalmers@schwan.com">jon.Chalmers@schwan.com</a></td>
<td>620 1st St. East</td>
<td>Tracy, MN 56175</td>
</tr>
<tr>
<td></td>
<td>4 Bernie Decock</td>
<td><a href="mailto:berniedecock@hotmail.com">berniedecock@hotmail.com</a></td>
<td>3364 State Hwy 68</td>
<td>Ghent, MN 56239</td>
</tr>
<tr>
<td></td>
<td>5</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>P&amp;Z/Environmental Services</td>
<td>John Biren</td>
<td><a href="mailto:johnbiren@co.lyon.mn.us">johnbiren@co.lyon.mn.us</a></td>
<td>507-532-8207</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Landfill Supervisors</td>
<td>Paul Henriksen</td>
<td>507-532-210</td>
<td>504 Fairgrounds Rd</td>
</tr>
<tr>
<td></td>
<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Martin County</td>
<td>County Coordinator</td>
<td>Scott Higgins</td>
<td>507-238-3126</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Julie Walters</td>
<td><a href="mailto:juliewalters@co.martin.mn.us">juliewalters@co.martin.mn.us</a></td>
<td>507-238-3124</td>
<td></td>
</tr>
<tr>
<td>Commissioners</td>
<td>Phone</td>
<td>Address</td>
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<td></td>
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<tr>
<td>---------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>1 Elliot Belgard, Vice Chair</td>
<td>507-236-1173</td>
<td>201 Lake Avenue, Room 100</td>
<td>Fairmont, MN</td>
<td></td>
</tr>
<tr>
<td>2 Tom Mahoney</td>
<td>507-236-5375</td>
<td>201 Lake Avenue, Room 100</td>
<td>Fairmont, MN</td>
<td></td>
</tr>
<tr>
<td>3 Steve Donnelly</td>
<td>507-235-5721</td>
<td>201 Lake Avenue, Room 100</td>
<td>Fairmont, MN</td>
<td></td>
</tr>
<tr>
<td>4 Dan Schmidtke</td>
<td>507-236-4121</td>
<td>201 Lake Avenue, Room 100</td>
<td>Fairmont, MN</td>
<td></td>
</tr>
<tr>
<td>5 Steve Flohrs, Chair</td>
<td>507-236-5995</td>
<td>201 Lake Avenue, Room 100</td>
<td>Fairmont, MN</td>
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<table>
<thead>
<tr>
<th>Martin SWCD Board</th>
<th></th>
<th>923 No. State Street, Suite 110</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 Kathy Smith, Director (will provide info to Board)</td>
<td></td>
<td></td>
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<td>2</td>
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<table>
<thead>
<tr>
<th>PR&amp;Z/Environmental Services</th>
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<th>201 Lake Avenue, Room 104</th>
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<tbody>
<tr>
<td>1 Pam Flitter, Zoning Official (will provide info to)</td>
<td></td>
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</tr>
<tr>
<td>2 Wendy Chirpich, Planning &amp; Zoning Technician</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3 Enid Bloedel, Office Manager/U of M Extension</td>
<td></td>
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<table>
<thead>
<tr>
<th>Martin Co. Drainage Administration</th>
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<th>201 Lake Avenue, Room 104</th>
<th>Fairmont, MN</th>
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</thead>
<tbody>
<tr>
<td>1 Deb Mosloski, Drainage Administrator</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2 Mike Forstner, Ditch Inspector</td>
<td></td>
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<table>
<thead>
<tr>
<th>Rural Advantage</th>
<th></th>
<th>1243 Lake Avenue, Suite 222</th>
<th>Fairmont, MN</th>
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</thead>
<tbody>
<tr>
<td>1 Linda Meschele, President &amp; Founder</td>
<td></td>
<td></td>
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</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Windom</th>
<th>Phone</th>
<th>Address</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayor</td>
<td><a href="mailto:cmaricle@windomnet.com">cmaricle@windomnet.com</a></td>
<td>507-831-5630</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>City Council</td>
<td></td>
<td>775 20th Street</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>1 Dominic Jones</td>
<td>507-831-5122</td>
<td>1575 17th Street</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>2 JoAnn Ray</td>
<td>507-831-3595</td>
<td>1217 Lakeview Avenue</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>3 Brian Cooley</td>
<td>507-822-6504</td>
<td>828 17th Street</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>4 Paul A. Johnson</td>
<td>507-822-2976</td>
<td>375 1st Street</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>5 Bryan Joyce</td>
<td>507-380-3981</td>
<td>899 Verona Avenue</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>City Planning and Zoning Staff</td>
<td><a href="mailto:jkartes@windom-mn.com">jkartes@windom-mn.com</a></td>
<td>507-831-6125</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>City Administrator</td>
<td><a href="mailto:snasby@windomnet.com">snasby@windomnet.com</a></td>
<td>507-831-6129</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>Recreation Director</td>
<td><a href="mailto:winarena@windomnet.com">winarena@windomnet.com</a></td>
<td>507-831-6122</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>Streets &amp; Parks Superintendent</td>
<td><a href="mailto:winot@windomnet.com">winot@windomnet.com</a></td>
<td>507-831-6137</td>
<td>Windom, MN</td>
</tr>
<tr>
<td>Water &amp; Wastewater Supt.</td>
<td><a href="mailto:winwater@windomnet.com">winwater@windomnet.com</a></td>
<td>507-831-6138</td>
<td>Windom, MN</td>
</tr>
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<tr>
<th>Slayton</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Mayor</td>
<td><a href="mailto:cityadmin@slayton.govoffice.com">cityadmin@slayton.govoffice.com</a></td>
<td>507-836-8534</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>City Council</td>
<td><a href="mailto:slaytonmayer@gmail.com">slaytonmayer@gmail.com</a></td>
<td>507-836-8534</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>1 Jason Kirchner</td>
<td>507-836-8535</td>
<td>2424 26th Street</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>2 Mark Boerboom</td>
<td>507-836-8535</td>
<td>2424 26th Street</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>3 Chris Jacobson</td>
<td>507-836-8535</td>
<td>2425 26th Street</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>4 Kristie Blankenship</td>
<td>507-836-8535</td>
<td>2425 26th Street</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>5 City Planning and Zoning Staff</td>
<td><a href="mailto:cityhall@slayton.govoffice.com">cityhall@slayton.govoffice.com</a></td>
<td>507-836-8534</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>City Administrator</td>
<td><a href="mailto:cityadmin@slayton.govoffice.com">cityadmin@slayton.govoffice.com</a></td>
<td>507-836-8535</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>City Planner</td>
<td><a href="mailto:cityadmin@slayton.govoffice.com">cityadmin@slayton.govoffice.com</a></td>
<td>507-836-8535</td>
<td>Slayton, MN</td>
</tr>
<tr>
<td>Other?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Fulda

**Mayor**
- Chad Ouellette  
  - Email: couellette@centurytel.net  
  - Phone: 507-425-2893  
  - Address: 306 N Baltimore Ave  
  - Fulda, MN 56131

**City Council**
- 1 Ron Kellen  
  - Email: ron.kellen@state.mn.us  
  - Phone: 507-425-3208  
  - Address: 208 4th St NW  
  - Fulda, MN 56131
- 2 Tim Roberts  
  - Email: troberts55@outlook.com  
  - Phone: 507-425-0060  
  - Address: 306 N Delaware  
  - Fulda, MN 56131
- 3 Jim Troje  
  - Email: puttd132@gmail.com  
  - Phone: 507-425-0046  
  - Address: 506 N Maryland  
  - Fulda, MN 56131
- 4 vacant until Jan. 15
- 5

**City Planning and Zoning Staff**

**City Clerk**
- Julie Burchill  
  - Email: cityoffulda@swwnet.com  
  - Phone: 507-425-2504  
  - Address: 102 3rd St NE  
  - Fulda, MN 56131

**City Planner**
- Ron Kellen  
  - Email: ron.kellen@state.mn.us  
  - Phone: 507-425-3208  
  - Address: 208 4th St NW  
  - Fulda, MN 56131

**Other?**
- Tim Roberts  
  - Email: troberts55@outlook.com  
  - Phone: 507-425-0060  
  - Address: 306 N Delaware  
  - Fulda, MN 56131

### Jackson

**Mayor**
- Wayne Walter  
  - Email: wmr1819@msn.com  
  - Phone: 507-847-4477  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

**City Council**
- 1 Fred Bern  
  - Email: fdbernhmsn.com  
  - Phone: 507-847-3497  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143
- 2 Dave Cushman  
  - Email: ward2-2@cityofjacksonmn.com  
  - Phone: 507-847-4628  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143
- 3 Ken Temple  
  - Email: ward2-3@cityofjacksonmn.com  
  - Phone: 507-847-4628  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143
- 4 Donnie Schoenrock  
  - Email: ward4-1@cityofjacksonmn.com  
  - Phone: 507-849-7020  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143
- 5 Brandon Finck  
  - Email: bfinck@bankmidwest.com  
  - Phone: 507-849-7383  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

**City Planning and Zoning Staff**

**City Administrator**
- Jennifer Bromeland  
  - Email: jbromeland@cityofjacksonmn.com  
  - Phone: 507-847-4410  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

**Water Department Superintendent**
- Steve Beckel  
  - Email: sbeckel@cityofjacksonmn.com  
  - Phone: 507-841-2199  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

### Heron Lake

**Mayor**
- Brenda Martin-Granstra  
  - Email: heronlakecity@mysmb.com  
  - Phone: 507-793-2826  
  - Address: PO Box 315  
  - Heron Lake, MN 56137

**City Council**
- 1 John Hay  
  - (Brenda Martin-Granstra asked that all correspondence be sent to her and she will distribute it. Their next council meeting is 2/4.)

**City Planning and Zoning Staff**

**City Administrator**
- Jennifer Bromeland  
  - Email: jbromeland@cityofjacksonmn.com  
  - Phone: 507-847-4410  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

**Water Department Superintendent**
- Steve Beckel  
  - Email: sbeckel@cityofjacksonmn.com  
  - Phone: 507-841-2199  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

### Balaton

**Mayor**
- Del Rutz  
  - Email: balaton@frontiernet.net  
  - Phone: 507-734-4711  
  - Address: PO Box 388  
  - Balaton, MN 56115-0388

**City Council**
- 1

**City Planning and Zoning Staff**

**City Administrator**
- Jennifer Bromeland  
  - Email: jbromeland@cityofjacksonmn.com  
  - Phone: 507-847-4410  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143

**Water Department Superintendent**
- Steve Beckel  
  - Email: sbeckel@cityofjacksonmn.com  
  - Phone: 507-841-2199  
  - Address: 80 West Ashley Street  
  - Jackson, MN 56143
<table>
<thead>
<tr>
<th>Town</th>
<th>Mayor</th>
<th>Email</th>
<th>Phone</th>
<th>Address</th>
<th>City, MN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Wilson</td>
<td>Neal Gilbertson</td>
<td><a href="mailto:lakewisconclerk@knology.net">lakewisconclerk@knology.net</a></td>
<td>507-879-3130</td>
<td>PO Box 128</td>
<td>Lake Wilson, MN 56151-0128</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Currie</td>
<td>Jeb Malone</td>
<td><a href="mailto:currie@lw.net">currie@lw.net</a></td>
<td>507-763-1540</td>
<td>801 Third Street</td>
<td>Currie, MN 56123</td>
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<tr>
<td></td>
<td></td>
<td><a href="mailto:jebmalone@hotmail.com">jebmalone@hotmail.com</a></td>
<td>507-382-4217</td>
<td>230 Main Street</td>
<td>Currie, MN 56123</td>
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<tr>
<td></td>
<td>Jamie Danneman</td>
<td></td>
<td>507-220-1626</td>
<td>430 Main Street</td>
<td>Currie, MN 56123</td>
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<tr>
<td></td>
<td>William Olivier, Jr.</td>
<td><a href="mailto:willamaolivier@gmail.com">willamaolivier@gmail.com</a></td>
<td>507-626-0655</td>
<td>PO Box 85</td>
<td>Currie, MN 56123</td>
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<tr>
<td></td>
<td>Gary Nelson</td>
<td><a href="mailto:gnelsion0608@gmail.com">gnelsion0608@gmail.com</a></td>
<td>507-329-2322</td>
<td>PO Box 169</td>
<td>Currie, MN 56123</td>
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<tr>
<td>Lakefield</td>
<td>Darrell Nissen</td>
<td><a href="mailto:clerk@lakefieldmn.com">clerk@lakefieldmn.com</a></td>
<td>507-662-5457</td>
<td>PO Box 900</td>
<td>Lakefield, MN 56150-0900</td>
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<tr>
<td>Okabena</td>
<td>Brent Groen</td>
<td><a href="mailto:okab@mysmbs.com">okab@mysmbs.com</a></td>
<td>507-853-4500</td>
<td>PO Box 8</td>
<td>Okabena, MN 56161-0008</td>
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<tr>
<td>Dundee</td>
<td>Wayne Paplow</td>
<td></td>
<td><a href="mailto:city.of.dundee@centurylink.net">city.of.dundee@centurylink.net</a></td>
<td>507-468-2415</td>
<td>111 N. Main St.</td>
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<tr>
<td>Brewster</td>
<td>Randy Schmitz</td>
<td></td>
<td><a href="mailto:brewster@centurylink.net">brewster@centurylink.net</a></td>
<td>507-842-5936</td>
<td>PO Box 55</td>
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<tr>
<td>Wilder</td>
<td>Tom Myrvold</td>
<td></td>
<td><a href="mailto:lou.masters2012@gmail.com">lou.masters2012@gmail.com</a></td>
<td>507-831-2032</td>
<td>20 Timber Lake Rd.</td>
</tr>
<tr>
<td>Hadley</td>
<td>Richard Like</td>
<td></td>
<td><a href="mailto:city.of.hadley@gmail.com">city.of.hadley@gmail.com</a></td>
<td>507-836-8256</td>
<td>220 Main St. S.</td>
</tr>
<tr>
<td>City</td>
<td>Mayor</td>
<td>City Council</td>
<td>Contact Information</td>
<td>Phone</td>
<td>Address</td>
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<td>-------</td>
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<td>--------------------------------------</td>
</tr>
<tr>
<td>Worthington</td>
<td>new mayor, not sure who</td>
<td><a href="mailto:joberlohi@ci.worthington.mn.us">joberlohi@ci.worthington.mn.us</a></td>
<td>507-372-8600</td>
<td>PO Box 279</td>
<td>Worthington, MN 56187-0279</td>
</tr>
<tr>
<td>Iona</td>
<td>Peter Ford</td>
<td><a href="mailto:cityofiona@frontier.com">cityofiona@frontier.com</a></td>
<td>507-264-3804</td>
<td>PO Box 36</td>
<td>Iona, MN 56141-0036</td>
</tr>
<tr>
<td>Avoca</td>
<td>Roger Lindmeier</td>
<td><a href="mailto:avocacity@frontiernet.net">avocacity@frontiernet.net</a></td>
<td>507-335-7807</td>
<td>PO Box 156</td>
<td>Avoca, MN 56114-0156</td>
</tr>
<tr>
<td>Kinbrae</td>
<td>Glen Grunewald</td>
<td>none</td>
<td>507-468-2212</td>
<td>38433 120th St.</td>
<td>Dundee, MN 56131-1375</td>
</tr>
</tbody>
</table>
Ag representatives

Doug will check with Brad Carlson for input

Extended Ag Consulting Firm
DES MOINES RIVER WATERSHED
Linking Land Use and Water Quality
An interactive workshop designed for local community leaders

DATE: THURSDAY, MARCH 26, 2015 (2 SESSIONS)
TIMES: 12-4 PM OR 5-9 PM

- AFTERNOON SESSION: REGISTRATION BEGINS AT 11:30AM, A LIGHT LUNCH WILL BEGIN AT 12PM, PROGRAM BEGINS AT 12:30PM
- EVENING SESSION: REGISTRATION BEGINS AT 4:30PM, A LIGHT DINNER WILL BEGIN AT 5PM, PROGRAM BEGINS AT 5:30PM

LOCATION:
FULDA LEGION HALL/COMMUNITY CENTER, 106 FRONT STREET W, FULDA, MN

COME TO PARTICIPATE, VISIT WITH YOUR NEIGHBORS, AND LEARN TOGETHER ABOUT YOUR WATERSHED

- How does what we do on the land affect the quality of our lakes and rivers?
- What are the benefits of clean water for you and your community?
- What is your role in protecting and improving water quality?
- What resources are available to help?

WHO SHOULD ATTEND? YOU!
- Local community leaders from the Des Moines River Watershed including Murray, Cottonwood, Nobles, Jackson, Pipestone, Lyon, and Martin counties.
- City council, planning commission, county board, park commission and SWCD board members.
- Township supervisors.

There is no charge for this workshop for leaders from the Des Moines River Watershed. Registration is required by March 18, 2015. Participation is by invitation only.

How to Register:
- online: http://windomchamber.com/event/watershed-march-26/ or
- call the Windom Area Chamber of Commerce at 507-831-2752.
ABOUT THIS WORKSHOP

This workshop will provide an opportunity to strengthen your knowledge about the impacts of land use practices on water and natural resources. The workshop will provide a variety of tools including plans, practices, and policies to protect and improve clean water resources. Tailored to the issues and resources in the Des Moines River Watershed area, it will also enhance a dialogue between local leaders, residents, and water resource professionals about the value and challenges of clean water in our communities. The workshop will consist of presentations, interactive activities, and group discussion.

WORKSHOP PARTNERS:

This workshop is provided through the University of Minnesota Extension’s Watershed Education Program and sponsored by the Windom Education and Collaborative Center and Heron Lake Watershed District. It is funded through a generous grant from the Toro Corporation’s Centennial Legacy Grant Program and the Minnesota Pollution Control Agency.

FOR MORE INFORMATION, CONTACT:

Karen Terry
Extension Educator, Water Resources
University of Minnesota Extension
Phone: 218-770-9301
Email: kterry@umn.edu
Media Release
Jan Voit
Heron Lake Watershed District
PO Box 345
Heron Lake, MN  56137
507-793-2462
jan.voit@mysmbs.com

Water Workshop Offered in Fulda

Water is an important part of our lives in Minnesota, and we trust our local leaders to make sound decisions to protect and improve our water resources for drinking, recreation, agriculture, and wildlife. An interactive workshop has been developed to help local leaders better understand the science behind the water in our lakes, rivers, wetlands, and groundwater and why the decisions they make matter. The workshop will be held March 26, from noon-4pm and repeated at 5-9 pm, at the Fulda Community Center. This opportunity, presented by the University of Minnesota Extension Water Resources Team, is sponsored by the Windom Education and Collaborative Center with a grant from Toro and the Heron Lake Watershed District with a grant from the Minnesota Pollution Control Agency.

There is no cost to attend and a meal will be provided. To register, call 507-831-2752 or go online at http://windomchamber.com/event/watershed-march-26. Registration deadline is March 18.
LINKING LAND USE & WATER QUALITY

AN INTERACTIVE WORKSHOP DESIGNED FOR LOCAL COMMUNITY LEADERS

March 26, 2015
Fulda, MN

Karen Terry
Extension Educator
Objectives
< 1% of the world's freshwater that is accessible for direct human uses

Only 2.5% is freshwater
A watershed contains all the land and water features that drain excess surface water to a specific location on the landscape.

Any land within the watershed may contribute runoff and associated pollutants to that lake, river, stream, or wetland.
Minnesota’s waters flow outward in three directions; north to Hudson Bay in Canada; east to the Atlantic Ocean; and south to the Gulf of Mexico.
10 Major Basins

81 Major Watersheds
Des Moines River -- Headwaters

Lower Des Moines River

East Fork Des Moines River

Des Moines River -- Headwaters + Lower Des Moines River = West Fork Des Moines River
DES MOINES RIVER - HEADWATERS MAJOR WATERSHED - LAND USE
ABOUT THE DES MOINES RIVER WATERSHED

- 1,334 sq. miles (apprx. 850,000 acres)
- Counties: Murray, Cottonwood, Jackson, Nobles, Pipestone, Lyon, Martin
ABOUT THE DES MOINES RIVER WATERSHED

- **River miles**: 1,336
  - Joins the East Fork Des Moines in Iowa and then the Mississippi River at Keokuk, Iowa
- **Major lakes**: Heron, Shetek, Great Oasis
- **Major streams**: Des Moines River, Okabena Creek, and Jack Creek
ABOUT THE DES MOINES RIVER WATERSHED

- Land ownership
  - 96% private
- Watershed population: 27,590
ABOUT THE DES MOINES RIVER WATERSHED

- Land distribution
  - Row crops: 81%
  - Residential/Commercial: 6%
  - Grasses: 6%
  - Open water: 3%
  - Wetlands: 3%
RESOURCE CONCERNS

* Sediment and erosion control
* Drinking water and source water protection
* Excessive wind erosion
* Excessive sheet and rill erosion
* Feedlot and animal waste management
* Nutrient management
* Wetland management
Benefits of a healthy watershed

• Recreational opportunities
• Strong agriculture systems
• Drinking water protection
• Protect property values
• Flood minimization
• Provide valuable fish and wildlife habitat
• Sense of place
Recreational opportunities

• People are willing to pay more for recreation as the quality of environmental amenities increases

• Willingness to pay is shown via both hypothetical and actual measurement methods
Strong agricultural systems

• In healthy watersheds, soil, water, and nutrients are available when they are needed, where they are needed

• Soil erosion, excessive runoff, too much or too little precipitation or soil moisture .... All affect the bottom line for farmers
Drinking water protection

In Minnesota:
• 961 community systems (2010)

• Some contaminated with:
  • Pesticides
  • Fecal coliform bacteria
  • Nitrates

• 1M Minnesotans use private drinking water wells

• Nitrate contamination is first sign of reduced groundwater quality
Property values

- People prefer to live near positive environmental amenities (clean water, recreation, natural spaces)
- Buyers are willing to pay more for property with desirable amenities and devalue those with environmental “degradation”
Flood minimization

• Healthy watersheds can handle floods with no or little damage

• Floods are the #1 hazard in Minnesota in terms of frequency of occurrence and total damages

• 36 Presidential Disaster Declarations 1965-2010 due to flooding
  • 10 of these were 2001-2010
Fish and wildlife habitat

Healthy watersheds provide:

- Consistent, diverse habitat
- Resilient ecosystems
- Stable physical parameters such as temperature and $O_2$
- Intact food web (invertebrates, small fish, bigger fish, small mammals, large mammals, etc.)
- Adequate shelter for all life stages
Sense of place

"A sense of place is the sixth sense, an internal compass and map made by memory and spatial perception together."

—Rebecca Solnit, Orion magazine, August 25, 2011
So What???

WATER QUALITY

LAND USE

QUALITY of LIFE

LOCAL OFFICIALS

Carrol Henderson
38% evapotranspiration

20% runoff

21% shallow infiltration

21% deep infiltration

10%–20% Impervious Surface


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3 X the runoff of natural ground cover

35% evapotranspiration

30% runoff

20% shallow infiltration

15% deep infiltration

35%-50% Impervious Surface
Altered runoff patterns
Traditional Stormwater Runoff Management

- Convey
- Concentrate
- Centralize
- Collect
Nonpoint Source Pollution

Polluted runoff is the #1 water quality problem in the U.S.
Remove Forest Cover

Remove Storage

Add Impervious Surfaces
What is the big deal with forest cover removal?

Depending on size and species, a tree’s leaves and bark may store 100 gallons or more until it reaches saturation (one to two inches of rainfall).

Litter adds even more to storage capacity.
What’s the big deal with impervious surfaces?

- inhibits groundwater recharge
- provides a surface for accumulation of pollutants
- prevents natural processing of pollutants in soil, plants
- provides an express route for pollutants to waterways
- changes runoff characteristics and stream dynamics
Done work on SW PONDS: EXCESSIVE STORMWATER RUNOFF

Rainfall event over time

Streams of “impacted” landscapes

Streams of “natural” landscapes

Time (hr)
Problems of excessive runoff:

**Quantity**
(too much)

**Quality (degradation)**

**Rate**
(too fast)

http://minnesota.publicradio.org/display/web/2012/06/20/disaster/duluth-photos#4
Impacts of altered hydrology on water *quantity*

- Habitat Loss
- Erosion
- Nutrient & Contaminant Loading
- High Turbidity & Sedimentation
Impacts of altered hydrology on water quality

Quantity = Quality
Polluted runoff is possible from:
Polluted runoff from Natural areas

Nutrients: Animal waste
Pathogens: Animal waste
Sediment: Natural stream bank and shoreland erosion
Toxic: 
Debris: 
Thermal: Loss of streamside vegetation (fire, windstorm, etc.)
Polluted runoff from Residential areas

Nutrients: lawn fertilizers & septic system effluent
Pathogens: septic systems, pet waste
Sediment: construction, road sand, erosion from lawns & gardens
Toxic: household products, pesticides
Debris: litter & illegal dumping
Thermal: heated runoff, removal of streamside vegetation
Polluted runoff from Commercial and Industrial areas

Nutrients: acid rain and car exhaust
Pathogens: malfunctioning or overloaded septic systems & lagoons
Sediment: construction, road sand, roadside erosion
Toxic: auto emissions, industrial pollutants
Debris: litter & illegal dumping
Thermal: heated runoff, removal of streamside vegetation, impoundments
Polluted runoff from Rural areas

Nutrients: septic system effluent, farm field fertilizer, animal waste
Pathogens: animal and human waste
Sediment: farm fields, construction, road sand, gravel roads
Toxic: pesticides, herbicides, household products
Debris: litter and illegal dumping, farm fields
Thermal: removal of streamside vegetation
Impacts of development on lakes
Impacts of development on streams
INTENSITY OF LAND USE

AMOUNT OF IMPERVIOUS SURFACE OR ARTIFICIAL DRAINAGE

POTENTIAL WATER QUANTITY & QUALITY PROBLEMS
Can we make this ... 

... function hydrologically more like this?
What can we do?

Plans

Policies

Practices
PLANS

• Plans are blueprints
• Establish vision
• Set broad goals and priorities
• Provide you direction
What are examples of PLANS?

- Comprehensive Plan
- Land Use Plan
- County Water Plan
- Stormwater Plan
- Watershed Plan
- TMDL Plans
What can we do?

Plans

Policies

Practices
POLICIES

- **Ordinances**
  
a piece of legislation (law) enacted by a LUG (county, municipality, township)

- **Regulations**
  
a rule or directive made and maintained by a executive authority (e.g., planning dept.) to meet requirements of ordinances
Clear Policies, Ordinances, and REGULATIONS

Policies balance interests of the community versus individuals

Ordinances treat everyone the same

Regulations clearly tell people what is expected of them

If followed, these should help meet clean water goals
What types of ‘clean water’ provisions are covered in a local ordinances?

- **Zoning** (Floodplain, subdivision, building codes, soils protection, impervious surface standards)

- **Vegetation** (Trees, landscaping, street-scaping, critical areas preservation, buffers, riparian management)

- **Design** (Site planning, dimensional standards, clearing & grading, engineering, hard-scaping, stormwater)
Goals of Tree Ordinances

- Protect & preserve
- Replace and add plantings
- Maintain
Best Management Practices (BMPs) for Healthy Watersheds
What are Best Management Practices (BMPs) for Healthy Watersheds?
Best Management Practices

“Creative Techniques to Treat, Use, Store, Retain, Detain, and Recharge”

- Bio-retention/rain gardens
- Strategic grading
- Site finger printing
- Resource conservation
- Flatter, wider swales
- Conservation tillage
- Long flow paths
- Tree/shrub depression
- Turf depression
- Landscape island storage
- Rooftop detention/retention
- Roof leader disconnection
- Parking lot/street storage
- Smaller culverts, pipes & inlets

- Conservation drainage
- Perennial cover crops
- Smart irrigation systems
- Grassed waterways
- Minimize application of herbicides and pesticides
- Vegetative swales, buffers & strips
- Infiltration swales & trenches
- Eliminate curb and gutter
- Shoulder vegetation
- Maximize sheet flow
- Maintain drainage patterns
- Reforestation
- Pollution prevention .............
Non-structural Practices

Education & Outreach

Audience segmentation

- Citizen & general homeowners
- Local elected & appointed officials and community leaders
- Businesses & industry
• **Clean water** is important
• **Having enough water** is important
• **Thinking long-term** is important

• **Make the water** ‘walk’
• **Keep pollutants out of the water**
Discover more at extension.umn.edu/water

Questions?

Karen Terry
Extension Educator
218-770-9301
kterry@umn.edu
WFDMR Watershed Project - TMDLS and WRAPS

Jan Voit, Heron Lake Watershed District Administrator

Linking Land Use and Water Quality Workshop

March 26, 2015
Outline

- Impaired Waters Overview
- TMDL Study
- Challenges
- Watershed Approach
- WRAPS
- Implementation Strategies and Challenges
Impaired Waters

When a waterbody exceeds standards set by MPCA, it is listed as an *impaired water*.

This leads to the requirement of a *Total Maximum Daily Load (TMDL) Assessment*. A TMDL report allocates loads for each impaired water.
32 listings: Fecal coliform, Turbidity, Excess nutrients, pH
What made this TMDL project unique?

- First project in Minnesota to address multiple impairments from a basin approach
- First test of shallow lake nutrient standard in a TMDL
  - In the Western Corn Belt Plains/Northern Glaciated Plains ecoregions
- 95% Agricultural
- Wastewater Treatment Facility Discharge
- Heron Lake
  - Nationally recognized migratory waterfowl habitat
Fecal Coliform Bacteria

- Fecal coliform bacteria live in the digestive tract of warm-blood animals and are excreted in the feces.
  - Humans, pets, farm animals, and wildlife
- Fecal coliform bacteria are usually not harmful, but they can indicate the presence of waterborne pathogens.
- E. coli is a type of fecal coliform bacteria.
Where are the Fecal Coliform impairments?
What levels of fecal coliform are found in the watershed?

Bacteria is 5 – 10 times higher in wet conditions.

Summer-fall bacteria levels are about 3 – 10 times higher than spring.

- 21 sites of 27 sites exceeded the monthly standard.
- 513 samples collected, 17% exceeded 2,000 cfu/100 mL.
Sources of Fecal Coliform Bacteria

- Humans
  - Approximately 66% of the individual septic systems are out of compliance
  - Wastewater Treatment Plants bypasses and violations
  - Stormwater runoff

- Pets and Wildlife
  - Runoff

- Livestock
  - There are an estimated 742 livestock facilities in the watershed.
    - Improper manure application
    - Open feedlot runoff
    - Overgrazed pasture
### Estimated relative contribution of fecal bacteria delivered to streams

<table>
<thead>
<tr>
<th>Jackson County</th>
<th>Spring wet</th>
<th>Spring dry</th>
<th>Summer wet</th>
<th>Summer dry</th>
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<tr>
<td>Source</td>
<td></td>
<td></td>
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<tr>
<td>Feedlots/stockpiles—inadequate controls</td>
<td>[ ]</td>
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</tr>
<tr>
<td>Overgrazed pasture near streams</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Other pasture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface-applied manure</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Incorporated / injected manure</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Failing / inadequate septic systems</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Wildlife</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogs and cats in city</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogs and cats outside city</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Turbidity

- Turbidity is the measurement of water clarity.
- Limits light penetration and creates difficult living conditions for aquatic organisms.
- Turbidity is closely associated with two other stream measurements:
  - Total suspended solids (TSS)
  - Transparency
Where are the Turbidity impairments?
What are the levels of turbidity?

- There were 421 samples collected in the watershed that exceeded the turbidity standard. That is 52% of all the samples collected!

- Need 50-80% reductions in solids loadings to meet standard throughout the flow regime.

- Heron Lake, Lake Shetek, Windom reservoir
  - Worse under dry conditions due to algae
  - Carp may also be cause in Heron Lake
Sources of turbidity

- Runoff:
  - Fields
  - Construction sites
  - Highly Erodible Lands

- Erosion:
  - Wind
  - Gully
  - Streambank
  - Overgrazed pasture

- Suspended organic matter:
  - Algae

- Carp and other rough fish
What is Excess Nutrients?

Excessive nutrient concentrations in the water column can fuel undesirable growths of algae. Such conditions interfere with recreational and aquatic life uses and reduce the aesthetic quality of these waters.

Algal blooms reduce transparency causing:
- Decreased recreation
- Fish species have difficulty finding food
- Decreased submergent vegetation
This study only focused on Heron Lake.

First and Second Fulda, East and West Graham, Sarah and Shetek were added to the Impaired Waters List after the TMDL contract began.
pH

- pH is measure of water’s acid/alkaline reaction
- pH Standard is 6.5 to 8.5 units
  - Higher or lower is harmful to aquatic life
- Heron Lake outlet is impaired for high pH
- Controlling eutrophication in Heron Lake will lower pH in the outlet by limiting algal production
Sources of excess nutrients

- Wastewater Treatment Facilities
- Runoff of:
  - Fertilizers
  - Soil
  - Manure
- Erosion
- Noncompliant septic systems
- Feedlots
- Internal load
  - Sediments/rough fish
Target Phosphorus Loading Allocations (%)

- Lakefield (1%)
- Brewster (<1%)
- Worthington Industrial (4%)
- Worthington Municipal (8%)
- Okabena (<1%)
- Worthington Stormwater Runoff (1%)
- Nonpoint Source Runoff (81%)
- Margin of Safety (5%)
Watershed Challenges

- Changing hydrology
- Standards require significant load reductions
- Equitable allocations for point/nonpoint sources
- Balance implementation measures & land production
The Watershed Approach

• Watershed approach => managing the system
• Physical /Chemical/ Biological => comprehensive
• Restoration and Protection
• Tools and Procedures => to define problems and solutions

  • Water quality assessments for lakes and streams
  • Process to identify biological impairment stressors
  • Pollutant load and wastewater discharge limit modeling
  • Develop impaired water TMDL studies for EPA approval
  • Develop focused and targeted implementation strategies
  • Adaptive Management

• Data and information to tell the story
• Accountability => Data and measures to track
The 10 Year Cycle

Monitoring and Assessment
Condition monitoring
Effectiveness monitoring

Every 10 Years

Implementation Activities
BMPs
Permits
Etc.

Watershed Restoration and Protection Strategy
TMDL
Protection Strategy
Implementation Plans

Every 10 Years
## Then and Now

<table>
<thead>
<tr>
<th></th>
<th>Pre 2008</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus</strong></td>
<td>Federal TMDL requirements</td>
<td>Clean Water for MN</td>
</tr>
<tr>
<td><strong>Scope</strong></td>
<td>Single parameter impairments</td>
<td>Impairments and Protection for Watershed</td>
</tr>
<tr>
<td><strong>Scale</strong></td>
<td>Variable: tiny to huge</td>
<td>8 digit HUC ~(81)</td>
</tr>
<tr>
<td><strong>Data</strong></td>
<td>Chemistry</td>
<td>Chemistry + Biology + Physical</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>More than 4 years</td>
<td>4 years</td>
</tr>
<tr>
<td><strong>Use</strong></td>
<td>Permit Decisions</td>
<td>Permit + Local Plans + Action Decisions</td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td>TMDL = WLA + LA + MOS + RA</td>
<td>Condition assessment + Stressor Id. + HSPF Modeling and Spatial analysis + TMDL + Locally adopted and State Approved local water/shed plan</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td>High - $100k – $1m / TMDL</td>
<td>Coming down ~ $400-500k / Watershed</td>
</tr>
</tbody>
</table>
2013 Clean Water Accountability Act

- Purpose - to ensure effectiveness and accountability
- Defines WRAPS – Watershed Restoration and Protection Strategy requirements
- Defines Implementation Table requirements
- Tracking and reporting progress - July 2016
- Prioritized/targeted/measurable
It’s a WRAP

The goal is clean water. To get there we are:

• Monitoring all 81 watersheds by 2017
• Monitoring not just chemical, physical and biological
• Protection as well as restoration of impaired waters
• Taking a comprehensive, focused and targeted approach
• Integrating point and non point
• Adapting – revisit and build off what’s been done and see if it’s working
• Reduced costs of doing assessments and TMDLs
What will a WRAP look like?

Pomme de Terre River Watershed Report

- Summary document for local planners
- Feedback from stakeholders
- 2013 Legislation
- Template finalized
# Water Quality Targeting

<table>
<thead>
<tr>
<th>Water Quality Parameter</th>
<th>Current Conditions</th>
<th>Water Quality Targets by Parameter.</th>
<th>Strategies</th>
<th>Required Adoption Rate</th>
<th>Measures</th>
<th>Who</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Suspended Solids</td>
<td>Current Loading by Flow Zone all sources. Very High – 29 T/day High 4.9 T/day Mid - 1.6 T/day Low – 0.49 T/day Very low – 0.027 T/day</td>
<td>TSS levels reduced by _% by flow zones, to achieve WQ standards. Moving the 90% to 52mg/l TSS. Loading Capacity by Flow Zone all sources. Very High – 15 T/day High – 3.1 T/day Mid - 1.2 T/day Low – 0.40 T/day Very low – 0.027 T/day</td>
<td>Source Prevention: All cropland continuously protected by 30% residue or equivalent. Interception &amp; Treatment: 100 year flood plan in permanent vegetation. *</td>
<td>Percent of TSS reduced by flow zone per year to meet TMDL reduction targets</td>
<td></td>
<td>Land-owners</td>
<td>100% in 10 years. 10% or more protected during each year.</td>
</tr>
<tr>
<td>Watershed Derived Sediment: approx. 35% Pervious Areas by land-use category</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>NA this watershed</td>
<td>TSS levels reduced by _% to achieve WQ standards. BMPs designed to achieve target levels.</td>
<td>Source Prevention: Compliance with SWPPP</td>
<td></td>
<td></td>
<td></td>
<td>Schedule of Compliance if needed.</td>
</tr>
<tr>
<td>Watershed Derived Sediment: Impervious Areas. - MS4</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td></td>
<td>TSS levels reduced by _% to achieve WQ standards. Moving the 90% to 52mg/l TSS. Channel embeddedness.</td>
<td>Source Prevention:</td>
<td></td>
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</tr>
<tr>
<td>Near-Channel Derived Sediment. Approx. 65%</td>
<td></td>
<td></td>
<td>Interception &amp; Treatment: 100 year flood plan in permanent vegetation. *</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>In-Channel Work: Top 5% of EBI areas protected. *</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Phosphorus Nonpoint</td>
<td>Current Loading by Flow Zone all sources. Very High – 82 lbs./day High – 8.4 lbs. /day Mid - 2.4 lbs./day Low – 0.90 lbs./day Very low – 0.15 lbs./day</td>
<td>Reduce phosphorus levels to FWM 18.4 lbs. /day or less. This level set to achieve compliance with D.O. WQ standard during 7Q10 flows. WLA – 0.02 lbs./day MOS 1.84 lbs./day LA: Very High –27 lbs./day High – 4.7 lbs. /day Mid - 1.6 lbs./day Low – 0.69 lbs./day Very low – 0.13 lbs./day</td>
<td>Source Prevention: All manure applied at agronomic rates for phosphorus. 25 foot permanent vegetation buffers around all pasture lands.*</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td></td>
<td></td>
<td>Interception &amp; Treatment:</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Nonpoint</td>
<td></td>
<td>In-Channel Work:</td>
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<td></td>
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<tr>
<td>Phosphorus – by land-use category</td>
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</tr>
</tbody>
</table>
Implementation Challenges

- 50-80% reductions needed in most watersheds throughout flow regime
- Common contributing sources of fecal coliform, turbidity, and phosphorus requiring point and nonpoint source controls
- Turbidity affects Heron Lake transparency
- Heron Lake Excess Nutrients
  - 60% reduction needed in phosphorus loadings from WWTFs
  - 50% reduction from stormwater/nonpoint sources
  - Control internal loading
Implementation Strategies

- Focus on likely high contributors, hot spots
- Continued efforts on agricultural best management practices, failing septic tanks, and feedlots
- Stream restoration/bank erosion controls
- Wastewater treatment facility upgrades to control phosphorus
- Control rough fish
- Adaptive management
DES MOINES RIVER WATERSHED: DNR-EWR INVOLVEMENT

Jon Lore
Watershed Specialist
MNDNR – Ecological and Water Resources
DNR – EWR Involvement

• Coordination/Collaboration
  • Other DNR Divisions (e.g., Wildlife, Fisheries, Parks & Trails)
  • Minnesota Pollution Control Agency
  • Board of Water and Soil Resources
  • Local Government Units
  • Land Owners

• Complement Stressor Identification Process
  • Hydrology, Connectivity, Geomorphology

• Watershed Characterization
  • Geology, aquatic invasive species, rare/natural features

• Technical Support for Channel Restoration Practices
• Identify Restoration/Protection Areas and Strategies
Region 4 Watershed Schedule

Des Moines (2014)

Legend

- Region 4
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
The red arrow emphasizes the important connection between state water programs and local water management. Local partners are involved—and often lead—in each stage in this framework.
Purpose of Our Work

• Many studies showing near channel sediment contribution acceleration
  • What are the causes?
  • What are the processes?
  • Is this natural? Or accelerated?
  • How much bank erosion is too much?
  • Why are biological communities (fish, invertebrates) lacking?
    • Is it habitat (lack of)?
That's a LOT of sediment!
A stream that is stable can transport the flows and sediments of its watershed while maintaining the dimension, pattern, and profile without aggrading or degrading (Rosgen 1996, 2009).
Hydrology

- Gage analysis where good datasets are available
- Trend analysis
  - Precipitation
  - Discharge
  - Well levels
  - Water appropriation
  - Other
Hydrologic Changes Since Settlement

- **Land use changes**
  - Perennial vegetation conversion
  - Wetland drainage
  - Ditching/channelization of natural rivers
  - Tiling
  - Urbanization (impervious surfaces)

- **Climate**
  - Increased precipitation
  - Change in timing, magnitude, and duration

- **Runoff**
  - Record peak discharges
  - Stressful low flows
05476000 DES MOINES RIVER AT JACKSON, MN

Discharge, cfs

<table>
<thead>
<tr>
<th>Date</th>
<th>Discharge</th>
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<tr>
<td>2015-03-23</td>
<td>141</td>
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<tr>
<td>2014-06-23</td>
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<td>1969-04-11</td>
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</tr>
<tr>
<td>1965-04-09</td>
<td>9530</td>
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<tr>
<td>2010-09-25</td>
<td>8570</td>
</tr>
<tr>
<td>1953-06-08</td>
<td>8360</td>
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</tbody>
</table>

- Current Discharge 141 cfs on 2015-03-23 12:00:00 (provisional)
- Recent Maximum Discharge (previous 365 days) 5960 cfs on 2014-06-23 (provisional)
- Highest Recorded Peak Discharges
- Estimated Discharge 3540 cfs from NWS Flood Stage of 12 feet and USGS Rating Curve

USGS WaterWatch
Connectivity

• Longitudinal
  • Dams, Perched Culverts, Waterfalls, etc.
  • Riparian vegetation
  • Bridges/Culverts

• Lateral
  • Floodplain connectivity

• Vertical
  • Groundwater inputs, baseflows
Connectivity Changes

- Dams
  - Disrupt migration of native stream fishes
  - Sediment accumulation upstream
- Complex road network
  - Bridges and Culverts
    - Flood flow restrictions – increased velocities
    - Potential for perched culverts
- Loss of floodplain connectivity
  - Ditching/channelization
  - Channel succession
- Buffer strips
  - Change in natural vegetation communities
  - Loss of buffers due to agricultural production
Before/After on Specific Sites (1990-1994)

Photos Courtesy of ISU - NREM
Stable Channel

Unstable (entrenched) Channel

At bankfull flow

Lateral Connectivity

At flood flow
Geomorphology

- Dimension, pattern, and profile of the stream
- Classification of stream type and valley type
- Characterize stream stability
- Estimate bankfull (~1-2 year RI flow)
- Estimate and validate local bank erosion
- Regional curve development
<table>
<thead>
<tr>
<th>Entrench.</th>
<th>Dimension</th>
<th>W/d Ratio</th>
<th>Sinuosity</th>
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<td>1.0 - 1.4</td>
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<td>&gt; 1.2</td>
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<tr>
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<td>1.0 - 1.4</td>
<td>&lt; 12</td>
<td>&gt; 1.2</td>
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<td>1.0 - 1.4</td>
<td>&lt; 12</td>
<td>&gt; 1.2</td>
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<td>&gt; 12</td>
<td>&gt; 1.2</td>
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<td>&gt; 22</td>
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<td>&gt; 1.2</td>
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<tr>
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<td>&lt; 1.2</td>
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<td>Mult.Chnls</td>
<td>Mult.Chnls</td>
<td>&lt; 40</td>
<td>&lt; 1.2</td>
<td>D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slope (%)</th>
<th>StreamType</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 4</td>
<td>A</td>
</tr>
<tr>
<td>4 - 2</td>
<td>G</td>
</tr>
<tr>
<td>4 - &lt; 2</td>
<td>F</td>
</tr>
<tr>
<td>4 - &lt; 2</td>
<td>B</td>
</tr>
<tr>
<td>2 - &lt; 2</td>
<td>E</td>
</tr>
<tr>
<td>2 - &lt; .1</td>
<td>C</td>
</tr>
<tr>
<td>2 - &lt; .1</td>
<td>D</td>
</tr>
<tr>
<td>&lt; .5</td>
<td>DA</td>
</tr>
</tbody>
</table>
Predicted Erosion = 0.38'
Measured Erosion = 2.38'
Watershed Health Component Changes

- Geomorphology Changes
  - Channel incision
    - Apparent in ravines, lower reaches of Des Moines River tributaries
    - Lose connection with floodplain
  - Channel widening
    - Many local rivers widening
    - Stream loses competence to move bedload
  - Loss of habitat
    - Pools fill in
    - Riffles inundated with fine sediments
  - Accelerated bank erosion
    - Symptom of processes taking place within the channel due to hydrological changes
    - Leading to turbidity impairments and habitat degradation
Stage I
Stable channel
Initial incision
\( h < h_{\text{crit}} \)

Stage II
Bed degrading
Banks stable
\( h > h_{\text{crit}} \)

Stage III
Bed aggrading
Banks unstable
\( h > h_{\text{crit}} \)

Stage IV
Bed aggrading
Banks unstable
\( h < h_{\text{crit}} \)

Stage V
Slow aggradation
Banks stable
\( h < h_{\text{crit}} \)
~2.5’ deep

~1.5’ deep
## Symptoms of Increased Diet

<table>
<thead>
<tr>
<th>Humans (Food)</th>
<th>Streams (Hydrology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>Incision</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>Loss of floodplain connectivity</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>Widening</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>Increased Sediment Supply</td>
</tr>
<tr>
<td></td>
<td>Pool filling</td>
</tr>
<tr>
<td></td>
<td>Fine particles in riffles</td>
</tr>
</tbody>
</table>
River photos courtesy of WRC - Mankato
Stream Stability

- A stream that is stable can transport the flows and sediments of its watershed while maintaining the dimension, pattern, and profile without aggrading or degrading (Rosgen 1996, 2009).
Why should you care?

- Turbidity impairments
- Loss of fish habitat
  - Last year’s “honey hole” is gone now...
- Accelerated loss of property
- Infrastructure
  - $$$$$$$
How Do We Restore Watershed Health?

• Use $$ to address causes (hydrology), not symptoms (bank erosion)
• Stabilize Hydrology
  • Can’t stop the rain, must retain
• Restore Connectivity
  • Longitudinal
  • Floodplain
• Restore Riparian Zone
  • One size does not fit all
• Restore Pattern in Channelized Reaches
• All of these practices needed to restore watershed health!
• Everyone has a role!!!
Road Blocks

- Economy
  - Agriculture major driver of economy in southern MN
- “Status quo”
  - “This is the way we’ve always done it…”
- Misconception of Ag vs. Water Quality
  - Need to find ways to have the best of both worlds
- Partial-truth “scientific” data relayed to public...
12. Most of the Minnesota River basin including the Greater Blue Earth River is relatively flat and thus the capacity of depressions to hold water is limited.
Other work

• Watershed Characterization
  • Geology
  • Aquatic invasive species

• Complete watershed report
  • Should be done around Spring 2016
Known aquatic invasive species in the DesMoines Watershed

Legend

Invasive species observations

- Bighead or Silver Carp
- Zebra Mussels
- curly-leaf pondweed
- grass carp
- purple loosestrife

DesMoines Watershed
Iowa
Stream Routes - Major River Centerlines

Map created by Allison Gamble, March 2015
### West Des Moines River Watershed Workshop Evaluation

**Linking Land Use and Water Quality**  
**March 26, 2015   12 pm – 4 pm   Fulda Community Center**

Circle the number that best represents how you would rate these questions or statements:

<table>
<thead>
<tr>
<th>1. The educational value of the following:</th>
<th>Very Poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The Linking Land Use &amp; Water Quality presentation</td>
<td>8%</td>
<td>57%</td>
<td>35%</td>
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</tr>
<tr>
<td>b. Learning about the TMDL and WRAPs processes</td>
<td>17%</td>
<td>61%</td>
<td>22%</td>
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</tr>
<tr>
<td>c. Learning about the watershed health assessment</td>
<td>13%</td>
<td>39%</td>
<td>48%</td>
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</tr>
<tr>
<td>d. The Watershed Game activity</td>
<td>9%</td>
<td>30%</td>
<td>61%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2. How much did the Watershed Game activity increase your knowledge of the following:</th>
<th>Very Little</th>
<th>Little</th>
<th>Some</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Targeting practices in your watershed</td>
<td>35%</td>
<td>35%</td>
<td>30%</td>
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</tr>
<tr>
<td>b. Collaborating with officials across the watershed</td>
<td>17%</td>
<td>48%</td>
<td>35%</td>
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<td></td>
</tr>
<tr>
<td>c. The importance of looking at clean water goals at a watershed level</td>
<td>4%</td>
<td>9%</td>
<td>43.5%</td>
<td>43.5%</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Overall, how much did the program increase your knowledge of the following:</th>
<th>Very Little</th>
<th>Little</th>
<th>Some</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. How good policies support practices that positively affect clean water</td>
<td>4%</td>
<td>17%</td>
<td>39%</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>b. How what we do on the land impacts lakes &amp; rivers</td>
<td>4%</td>
<td>22%</td>
<td>30.5%</td>
<td>43.5%</td>
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</tr>
<tr>
<td>c. How you can make a difference in keeping your water clean</td>
<td>4%</td>
<td>17%</td>
<td>39%</td>
<td>39%</td>
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</tbody>
</table>

4. Give an example of how you will use information from this workshop to take action in your community.
   - Keeping records of how % of contaminations change in our creek
   - Live stream of council meetings to the community explaining the good use practice of water quality
   - This workshop gave me ideas & info to use when talking to people about the importance of watershed health. I learned many interesting facts & real life cases that highlight the importance of watershed health, gave me great discussion points
   - Will take info to other soil & water supervisors
   - coordinate planning with other departments
   - I am a commissioner, I may question some of our discussions differently now
   - This workshop was great for exposing board members to the effects of watershed practices, or lack thereof, on water quality & hydrology

5. Is there a specific practice or policy or other topics about which you would like additional training?
   - I would like to attend the shoreline clean water & the rain garden
   - What specific things can we do in our watershed to improve water quality? How do we make these a reality?
   - Implementation policies encouraging chronological applications of plan
   - Would be interesting to see the same people in an event like this 4 years after our WRAPS civic engagement & education has been done
West Des Moines River Watershed  
Linking Land Use and Water Quality  
March 26, 2015  5 pm – 9 pm  Fulda Community Center  

Circle the number that best represents how you would rate these questions or statements:

<table>
<thead>
<tr>
<th>1. The <strong>educational value</strong> of the following:</th>
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<td></td>
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<tr>
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<td></td>
<td></td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>c. Learning about the watershed health assessment</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. The Watershed Game activity</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
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<tr>
<th>2. How much did the <strong>Watershed Game activity increase your knowledge</strong> of the following:</th>
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<th>Some</th>
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<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Targeting practices in your watershed</td>
<td>50%</td>
<td>33%</td>
<td></td>
<td></td>
<td>17%</td>
</tr>
<tr>
<td>b. Collaborating with officials across the watershed</td>
<td></td>
<td>67%</td>
<td>33%</td>
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<td></td>
</tr>
<tr>
<td>c. The importance of looking at clean water goals at a watershed level</td>
<td></td>
<td></td>
<td>17%</td>
<td>33%</td>
<td>33%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Overall, how much did the program <strong>increase your knowledge</strong> of the following:</th>
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<tbody>
<tr>
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<td>50%</td>
<td>17%</td>
<td></td>
<td></td>
<td>33%</td>
</tr>
<tr>
<td>b. How what we do on the land impacts lakes and rivers</td>
<td>50%</td>
<td>33%</td>
<td></td>
<td></td>
<td>17%</td>
</tr>
<tr>
<td>c. How you can make a difference in keeping your water clean</td>
<td>50%</td>
<td>33%</td>
<td></td>
<td></td>
<td>17%</td>
</tr>
</tbody>
</table>

4. Give an example of how you will use information from this workshop to take action in your community.
   - Review Plans

5. Is there a specific practice or policy or other topics about which you would like additional training?
   - Shoreline Buffers, especially those on farmland (streams, creeks, ditches)
Summary of the Linking Land Use and Water Quality Workshops  
Thursday, March 26, 2015

Registration, Welcome, and Introductions
The workshops were held at the Community Center in Fulda. Two sessions were held; one from 12:00-4:00 pm and one from 5:00-9:00 pm. There were 35 participants for the afternoon session and 8 participants for the evening session. Presenters and coordination staff were also present.

The workshops began with a check in and a meal catered by Brian’s Supper Club was provided. Introductions then took place. The workshop sponsors were recognized and thanked. Everyone was asked to state their name and who they represent.

Linking Land Use and Water Quality
Karen Terry, University of Minnesota Extension Educator, began the workshop with a presentation entitled “Linking Land Use and Water Quality”. Karen began her presentation by showing that the amount of available freshwater is a very small portion of the planet. Minnesota is unique in that it is the source of many major bodies of water in North America. Any problems that we create in our water bodies are transported downstream for other states to deal with. Karen then reviewed the extent of the West Fork Des Moines River (WFDMR) and provided information about land use and land cover in the watershed. Problems within the watershed include bacteria, nutrients, sedimentation, and streambank erosion.

The benefits a watershed provides were addressed. These benefits include: recreational opportunities, strong agricultural systems, drinking water protection, property values, flood minimization, habitat, and sense of place. Karen then discussed how adding impervious surfaces can affect a watershed. This causes altered runoff patterns, increases flooding, and creates water quality and quantity issues. Shoreland development around lakes also causes runoff problems. Although our watershed is currently altered, there are steps we can all take to improve the quality of our land and water resources. These steps include creating plans, policies, and practices. Plans are the goals we set fourth for the watershed. Policies are the rules and regulations we put in place and the practices include the actions we physically undertake to help achieve our goals. Everyone has an idea of how we can achieve a healthy watershed, and conversations need to be held between all stakeholders to ensure we are all working together towards the same, unified goals.

In the afternoon session, a question was asked regarding the aesthetics of a developed shoreline. Discussion was held and it was explained that science should be considered when making water quality decisions, not aesthetics.

West Fork Des Moines River Watershed Project: TMDLs and WRAPS
Jan Voit, Heron Lake Watershed District (HLWD), gave a presentation titled “West Fork Des Moines River Watershed Project: TMDLs and WRAPS”. In her presentation, Jan reviewed the WFDMR Total Maximum Daily Load (TMDL) and the impairments listed in the TMDL. There are a
total of 33 impairments including: 5 for fecal coliform, 10 for turbidity, 15 for excess nutrients, and one for pH. Minnesota legislature is changing the way waters are managed. They are progressing towards a watershed approach and the Watershed Restoration and Protection Strategies (WRAPS) process. The process is a 10-year cycle that involves assessing the health of the watershed and formulating strategies to improve the health of the watershed. The TMDL and WRAPS were compared. The WFDMR faces some great challenges and needs to see reductions of 86%. The WFDMR started the WRAPS process in 2014.

In the evening session, discussion was held regarding the dam at the outlet to Heron Lake and the politics involved in water planning.

**Des Moines River Watershed Health Assessment**

Jon Lore, Minnesota Department of Natural Resources (DNR), gave a presentation titled “Des Moines River Watershed Health Assessment”. During his presentation, Jon described the role that the Ecological & Water Resources Division will have in the WRAPS process. We have altered the hydrology of the area and this is having devastating effects on geomorphology and stream stability. It now takes less rain to create more runoff because the longitudinal, lateral, and vertical connectivity of streams has been altered. In this area of the state, streams are rarely allowed access to their floodplains. This increases the flow of streams and their ability to move vast amounts of sediment. Erosion and sedimentation in our streams are serious problems. Valuable land is disappearing due to streambank erosion and fish habitat is being eliminated due to sedimentation. Many banks are monitored in this area for erosion; in some cases over 20 feet of a bank was lost in a one year time period. Our watershed is suffering because water is not allowed to stay on the landscape long enough. In order to restore watershed health, we need to address the causes of the problems and not the symptoms. The economy and “this is the way it has always been done” mentality are roadblocks to achieving better water quality. Everyone has a role in restoring our watershed health.

**The Watershed Game**

After the presentations, the Watershed Game was played. There are two versions of the game: the lake and the stream model. The game is used to teach players how land use decisions can affect water quality. Each watershed has various land uses and players must implement Best Management Practices (BMPs) to reduce the amount of sediment in the water. The goal is to work together to significantly improve the water quality in the watershed. In the process, players learn of the different BMPs that can be implemented in their area. The process of having a plan, creating policies, and implementing practices to reach a goal is simulated. Sometimes the goals are met, while other times they are not. Discussion is then held after the game was played to reflect on the processes that took place.

Doug Malchow and Karen Terry, University of Minnesota Extension, led the Watershed Games during the workshop. Afterwards, discussions were held. It was noted that not every land use within a watershed cannot reduce their runoff by the same amount. Varying land uses have different impacts on the water quality. BMPs that are implemented in an urban area tend to be more costly due to the large amount of infrastructure and the high concentration of people. Having a plan and educating the population is important. Although they can be costly we will see great benefits from both.

It was observed that players became so invested in the game and worked hard to reduce their runoff, while this same amount of enthusiasm towards watershed work is usually not seen in real life. It was
also noted that point source pollution is easier to manage because can easily be identified and numbers can be assigned for reduction. Although the same reductions can be assigned to nonpoint source pollution, the causes and groups responsible for the reductions are much more difficult to identify.

There were difficulties in playing this game. One difficulty is that the standards can change. Money also plays a large role in what work can be done in a watershed. Natural disasters happen and we have no control over them. Oftentimes we have to deal with runoff and pollution problems that are created upstream. We have no control over what happens upstream, yet we have to deal with the consequences of having poor water quality. Watershed plans are important. However, the plans need to be created with sound science and we have to actually use them in order for them to be beneficial.
Appendix 4
Clean Water in Southwest Minnesota for Future Generations: It Affects You!

West Fork Des Moines River Watershed

More information on the web at www.hlwdonline.org

Please complete the survey to help plan responsible actions for water pollution control, nature protection, and wildlife conservation!

Like us on Facebook at: https://www.facebook.com/WFDMR/

Funding received through the Minnesota Pollution Control Agency.
Clean Water in Southwest Minnesota for Future Generations: It Affects You!

West Fork Des Moines River Watershed

Funded by the State of Minnesota

More information on the web at www.hlwdonline.org

Like us on Facebook at: https://www.facebook.com/WFDMR/

Funding received through the Minnesota Pollution Control Agency.
West Fork Des Moines River Watershed - 2018
Citizen Assessment and Values Survey

This survey can also be completed online @ https://www.surveymonkey.com/r/WFDMR1

1. Please indicate on the map below where you live.
2. Please check which one(s) represent you the best:

- [ ] SWCD/NRCS
- [ ] Elected Official
- [ ] Ag Business
- [ ] Production Ag.
- [ ] Civic Organization
- [ ] Business Owner
- [ ] Sportsman Association
- [ ] Lake Association
- [ ] City Resident
- [ ] Rural Resident
- [ ] Student
- [ ] Other _______________

3. Which of the following describes your age?

- [ ] 18 – 30
- [ ] 31 – 50
- [ ] 51 – 70
- [ ] 70 or older

4. How important are each of the following to your quality of life?

   - **Lakes**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] do not impact me
   - **Streams**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] do not impact me
   - **Wetlands**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] do not impact me
   - **Groundwater**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] do not impact me

5. In your opinion, what is the quality of surface water in your area?

- [ ] Excellent
- [ ] Good
- [ ] Fair
- [ ] Poor
- [ ] Very poor

6. In your opinion, what is the quality of groundwater in your area?

- [ ] Excellent
- [ ] Good
- [ ] Fair
- [ ] Poor
- [ ] Very poor

7. How important are the following uses for the lakes, creeks, ponds, and wetlands in your area? (choose all that apply)

   - **Motor boating**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
   - **Swimming**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
   - **Fishing**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
   - **Hunting**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
   - **Wildlife watching**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
   - **Outlet for drainage**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
   - **Livestock water**
     - [ ] very
     - [ ] somewhat
     - [ ] not important
     - [ ] does not impact me
8. Who is responsible for water quality? Please rank the options below in order of responsibility. **ONE** being the most responsible for water quality to **FOUR** being the least responsible.

☐ Landowners ☐ Federal Government ☐ Local Government ☐ State Government

9. Please prioritize each of the Best Management Practices (BMPs) listed below by indicating whether you believe the BMP is High, Medium, or Low Priority for improving water quality. Also, indicate Yes, No, or Not Applicable as to whether or not you would be willing to implement the BMP on your property. If you do not know what the BMP is, only select the box “Do not know what the BMP is”.

<table>
<thead>
<tr>
<th>Best Management Practices (BMPs)</th>
<th>High Priority</th>
<th>Medium Priority</th>
<th>Low Priority</th>
<th>Would you implement on your property? (Yes, No, N/A)</th>
<th>Do not know what the BMP is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer/Filter Strips</td>
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<tr>
<td>Feedlot Compliance</td>
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<tr>
<td>Grazing Management</td>
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<tr>
<td>Nutrient Management</td>
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<tr>
<td>Wetland Restoration</td>
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<td>Septic System Compliance</td>
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<tr>
<td>Controlled/Reduced Drainage</td>
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<tr>
<td>Streambank/Shoreline Protection</td>
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<tr>
<td>Alternative Tile Intakes (Rock, Blind, French, etc)</td>
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<tr>
<td>Surface Erosion Practices (Terraces, Grassed Waterways, etc.)</td>
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<tr>
<td>Fertilizer Education – Residential Lawn Care</td>
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<tr>
<td>Groundwater Protection</td>
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<tr>
<td>Conservation Tillage (No-till, Strip-till, etc.)</td>
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<tr>
<td>Cover Crops</td>
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<tr>
<td>Urban Waste and Storm Water Management</td>
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<tr>
<td>Lake Management</td>
<td></td>
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<tr>
<td>Flood Control Structures</td>
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<tr>
<td>Urban BMPs (Rain Gardens, Rain Barrels, Increased Green Space, etc.)</td>
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</tr>
</tbody>
</table>

10. List in order (1 thru 5) what you believe are the biggest obstacles that keep people from implementing BMPs on their property? **ONE** being the biggest obstacle to **Five** being the least obstacle.

☐ Cost ☐ Lack of information ☐ Distrust of government agencies ☐ Loss of ag production acres ☐ Do not believe there is a problem

11. Have you been impacted by flooding? ☐ Yes ☐ No
12. List in order (1 thru 4) what you believe is the biggest contributor towards flooding issues in your area? ONE being the biggest contributor to FOUR being the least contributor.

- Run off from impervious surfaces
- Increased precipitation
- Agricultural Drainage (ditching, tiling, etc)
- Wetland draining

13. What concerns you about the condition of the lakes, creeks, ponds, and wetlands in your area? (choose all that apply)

- Clarity of water
- Stability of water levels
- Flooding
- Abundance and diversity of wildlife
- Erosion along stream banks or shorelines
- Sediment filling in the water body
- Pollutants like road-salt, fertilizer and heavy metals entering water bodies
- Health of the fishery
- Amount of aquatic plants
- Variety of aquatic plants
- Aquatic invasive species
- Amount of trash in or around the water body
- Impacts of climate change
- Inability to use the water body for recreation
- Other __________________________

14. What is the best way for you to get information about water quality projects and programs?

- Newspaper
- Television
- Radio
- Farm Journals
- Social Media
- Other __________________________

15. Are you willing to pay for projects to improve water quality?  

- Yes
- No

16. As a thank you, we are offering a prize drawing of a $100 gift card. To be entered in the drawing you must submit this completed survey along with your contact information below. Your name and contact information will only be used for the drawing. Any other use will remain confidential and not attached to your survey answers. If you have further questions please contact the Heron Lake Watershed District Office at 507-793-2462 or email Ross Behrends at ross.behrends@noblesswcd.org. Thank you!

Name: ___________________________________________________________________
Email address: ___________________________________________________________________
Telephone number: ___________________________________________________________________

West Fork Des Moines River Watershed
https://fb.me/WFDMR
Q1 Please list your ZIP CODE.
Q2 Please check which one(s) represent you the best:

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWCD/NRCS</td>
<td>11.11%</td>
</tr>
<tr>
<td>Production Ag.</td>
<td>22.22%</td>
</tr>
<tr>
<td>Sportsman Association</td>
<td>2.78%</td>
</tr>
<tr>
<td>Rural Resident</td>
<td>8.33%</td>
</tr>
<tr>
<td>Elected Official</td>
<td>33.33%</td>
</tr>
<tr>
<td>Civic Organization</td>
<td>11.11%</td>
</tr>
<tr>
<td>Lake Association</td>
<td>0.00%</td>
</tr>
<tr>
<td>Student</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ag. Business</td>
<td>0.00%</td>
</tr>
<tr>
<td>Business Owner</td>
<td>8.33%</td>
</tr>
<tr>
<td>City Resident</td>
<td>0.00%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

SWCD/NRCS: 4
Production Ag.: 8
Sportsman Association: 1
Rural Resident: 3
Elected Official: 12
Civic Organization: 4
Lake Association: 0
Student: 0
Ag. Business: 0
Business Owner: 3
<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Resident</td>
<td>33.33%</td>
<td>12</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>16.67%</td>
<td>6</td>
</tr>
<tr>
<td>Total Respondents: 36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q3 Which of the following describes your age?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 30</td>
<td>5.56%</td>
</tr>
<tr>
<td>31 - 50</td>
<td>25.00%</td>
</tr>
<tr>
<td>51 - 70</td>
<td>55.56%</td>
</tr>
<tr>
<td>71 or older</td>
<td>13.89%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36</td>
</tr>
</tbody>
</table>
Q4 How important are each of the following to your quality of life?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Somewhat</th>
<th>Not important</th>
<th>Do not impact me</th>
<th>Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakes</td>
<td>72.22%</td>
<td>27.78%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
</tr>
<tr>
<td>Steams</td>
<td>72.22%</td>
<td>27.78%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
</tr>
<tr>
<td>Wetlands</td>
<td>72.22%</td>
<td>27.78%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
</tr>
<tr>
<td>Groundwater</td>
<td>72.22%</td>
<td>27.78%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
</tr>
<tr>
<td>Category</td>
<td>%</td>
<td>#</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steams</td>
<td>63.89%</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td>55.56%</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>100.00%</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q5 In your opinion, what is the quality of surface water in your area?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0.00%</td>
</tr>
<tr>
<td>Good</td>
<td>30.56%</td>
</tr>
<tr>
<td>Fair</td>
<td>47.22%</td>
</tr>
<tr>
<td>Poor</td>
<td>19.44%</td>
</tr>
<tr>
<td>Very Poor</td>
<td>2.78%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q6 In your opinion, what is the quality of groundwater in your area?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>5.56%</td>
</tr>
<tr>
<td>Good</td>
<td>41.67%</td>
</tr>
<tr>
<td>Fair</td>
<td>44.44%</td>
</tr>
<tr>
<td>Poor</td>
<td>8.33%</td>
</tr>
<tr>
<td>Very poor</td>
<td>0.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q7 How important are the following uses for the lakes, creeks, ponds, and wetlands in your area?

<table>
<thead>
<tr>
<th>Activity</th>
<th>VERY</th>
<th>SOMEWHAT</th>
<th>NOT IMPORTANT</th>
<th>DOES NOT IMPACT ME</th>
<th>TOTAL</th>
<th>WEIGHTED AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor boating</td>
<td>38.89%</td>
<td>38.89%</td>
<td>11.11%</td>
<td>11.11%</td>
<td>36</td>
<td>1.94</td>
</tr>
<tr>
<td>Swimming</td>
<td>36.11%</td>
<td>47.22%</td>
<td>8.33%</td>
<td>8.33%</td>
<td>36</td>
<td>1.89</td>
</tr>
<tr>
<td>Canoe/Kayaking</td>
<td>42.86%</td>
<td>42.86%</td>
<td>0.00%</td>
<td>14.29%</td>
<td>3</td>
<td>1.86</td>
</tr>
<tr>
<td>Fishing</td>
<td>72.22%</td>
<td>27.78%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>7</td>
<td>1.28</td>
</tr>
<tr>
<td>Hunting</td>
<td>44.44%</td>
<td>55.56%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
<td>1.56</td>
</tr>
<tr>
<td>Wildlife watching</td>
<td>33.33%</td>
<td>52.78%</td>
<td>8.33%</td>
<td>5.56%</td>
<td>36</td>
<td>1.86</td>
</tr>
<tr>
<td>Outlet for drainage</td>
<td>68.57%</td>
<td>20.00%</td>
<td>5.71%</td>
<td>5.71%</td>
<td>35</td>
<td>1.49</td>
</tr>
<tr>
<td>Livestock water source</td>
<td>37.14%</td>
<td>42.86%</td>
<td>5.71%</td>
<td>14.29%</td>
<td>35</td>
<td>1.97</td>
</tr>
</tbody>
</table>
Q8 Who is responsible for water quality? Please rank the options below in order of responsibility. ONE being the most responsible for water quality to FOUR being the least responsible.

Answered: 34  Skipped: 2

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal government</strong></td>
<td>12.90%</td>
<td>3.23%</td>
<td>0.00%</td>
<td>83.87%</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>State government</td>
<td>3.33%</td>
<td>16.67%</td>
<td>80.00%</td>
<td>0.00%</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Local government</td>
<td>12.90%</td>
<td>67.74%</td>
<td>16.13%</td>
<td>3.23%</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Landowners</td>
<td>72.73%</td>
<td>12.12%</td>
<td>3.03%</td>
<td>12.12%</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>
Q9 Please prioritize each of the Best Management Practices (BMPs) listed below by indicating whether you believe the BMP is High, Medium, or Low Priority for improving water quality. Also, indicate Yes or No as to whether or not you would be willing to implement the BMP on your property.

Answered: 36  Skipped: 0
Management
Nutrient Management
Wetland Restoration
Septic System Compliance
Controlled/Reduced Drainage
Streambank/Shoreline...
Alternative Tile Intakes...
Surface Erosion...
Fertilizer Education...
Groundwater Protection
<table>
<thead>
<tr>
<th>BMP Description</th>
<th>HIGH PRIORITY</th>
<th>MEDIUM PRIORITY</th>
<th>LOW PRIORITY</th>
<th>WOULD YOU IMPLEMENT ON YOUR PROPERTY? YES</th>
<th>WOULD YOU IMPLEMENT ON YOUR PROPERTY? NO</th>
<th>WOULD YOU IMPLEMENT ON YOUR PROPERTY? N/A</th>
<th>DO NOT KNOW WHAT THE BMP IS</th>
<th>TOTAL RESPONDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer/Filter Strips</td>
<td>38.89%</td>
<td>38.89%</td>
<td>16.67%</td>
<td>38.89%</td>
<td>5.56%</td>
<td>2</td>
<td>16.67%</td>
<td>6</td>
</tr>
<tr>
<td>Feedlot Compliance</td>
<td>62.86%</td>
<td>20.00%</td>
<td>11.43%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>0</td>
<td>34.29%</td>
<td>12</td>
</tr>
<tr>
<td>Grazing Management</td>
<td>11.43%</td>
<td>48.57%</td>
<td>31.43%</td>
<td>20.00%</td>
<td>2.86%</td>
<td>1</td>
<td>31.43%</td>
<td>11</td>
</tr>
<tr>
<td>Nutrient Management</td>
<td>37.14%</td>
<td>51.43%</td>
<td>5.71%</td>
<td>40.00%</td>
<td>0.00%</td>
<td>0</td>
<td>14.29%</td>
<td>5</td>
</tr>
<tr>
<td>Wetland Restoration</td>
<td>37.14%</td>
<td>34.29%</td>
<td>25.71%</td>
<td>14.29%</td>
<td>14.29%</td>
<td>5</td>
<td>25.71%</td>
<td>9</td>
</tr>
<tr>
<td>Septic System Compliance</td>
<td>52.78%</td>
<td>30.56%</td>
<td>16.67%</td>
<td>38.89%</td>
<td>2.78%</td>
<td>1</td>
<td>19.44%</td>
<td>7</td>
</tr>
<tr>
<td>Controlled/Reduced Drainage</td>
<td>41.67%</td>
<td>33.33%</td>
<td>22.22%</td>
<td>44.44%</td>
<td>5.56%</td>
<td>2</td>
<td>11.11%</td>
<td>4</td>
</tr>
<tr>
<td>Streambank/Shoreline Protection</td>
<td>55.56%</td>
<td>38.89%</td>
<td>5.56%</td>
<td>38.89%</td>
<td>0.00%</td>
<td>0</td>
<td>22.22%</td>
<td>8</td>
</tr>
<tr>
<td>Alternative Tile Intakes (Rock, Blind, French, etc.)</td>
<td>36.11%</td>
<td>47.22%</td>
<td>13.89%</td>
<td>38.89%</td>
<td>5.56%</td>
<td>2</td>
<td>16.67%</td>
<td>6</td>
</tr>
<tr>
<td>Surface Erosion Practices (Terraces, Grassed Waterways, etc.)</td>
<td>50.00%</td>
<td>38.89%</td>
<td>2.78%</td>
<td>47.22%</td>
<td>0.00%</td>
<td>0</td>
<td>16.67%</td>
<td>6</td>
</tr>
<tr>
<td>Fertilizer Education - Residential Lawn Care</td>
<td>52.78%</td>
<td>41.67%</td>
<td>5.56%</td>
<td>52.78%</td>
<td>0.00%</td>
<td>0</td>
<td>8.33%</td>
<td>3</td>
</tr>
<tr>
<td>Groundwater Protection</td>
<td>66.67%</td>
<td>30.56%</td>
<td>2.78%</td>
<td>61.11%</td>
<td>0.00%</td>
<td>0</td>
<td>2.78%</td>
<td>1</td>
</tr>
<tr>
<td>Conservation Tillage (No-till, Strip-till, ect.)</td>
<td>38.89%</td>
<td>50.00%</td>
<td>11.11%</td>
<td>36.11%</td>
<td>5.56%</td>
<td>2</td>
<td>19.44%</td>
<td>7</td>
</tr>
<tr>
<td>Cover Crops</td>
<td>41.67%</td>
<td>44.44%</td>
<td>11.11%</td>
<td>33.33%</td>
<td>11.11%</td>
<td>4</td>
<td>19.44%</td>
<td>7</td>
</tr>
<tr>
<td>Urban Waste and Storm Water Management</td>
<td>68.57%</td>
<td>28.57%</td>
<td>2.86%</td>
<td>34.29%</td>
<td>0.00%</td>
<td>0</td>
<td>25.71%</td>
<td>9</td>
</tr>
<tr>
<td>Lake Management</td>
<td>44.44%</td>
<td>41.67%</td>
<td>8.33%</td>
<td>25.00%</td>
<td>5.56%</td>
<td>2</td>
<td>25.00%</td>
<td>9</td>
</tr>
<tr>
<td>Flood Control Structures</td>
<td>30.56%</td>
<td>47.22%</td>
<td>19.44%</td>
<td>30.56%</td>
<td>5.56%</td>
<td>2</td>
<td>22.22%</td>
<td>8</td>
</tr>
<tr>
<td>Urban BMPs (Rain Gardens, Rain Barrels, ect.)</td>
<td>33.33%</td>
<td>38.89%</td>
<td>25.00%</td>
<td>30.56%</td>
<td>11.11%</td>
<td>4</td>
<td>16.67%</td>
<td>6</td>
</tr>
</tbody>
</table>
Q10 List in order (1 thru 5) what you believe are the biggest obstacles that keep people from implementing BMPs on their property? ONE being the biggest obstacle to Five being the least obstacle.

Answered: 35  Skipped: 1

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>58.82%</td>
<td>14.71%</td>
<td>17.66%</td>
<td>5.88%</td>
<td>2.94%</td>
<td>34</td>
<td>4.21</td>
</tr>
<tr>
<td>Lack of information</td>
<td>7%</td>
<td>8%</td>
<td>7%</td>
<td>34.29%</td>
<td>2.86%</td>
<td>35</td>
<td>3.23</td>
</tr>
<tr>
<td>Distrust of government agencies</td>
<td>5.88%</td>
<td>14.71%</td>
<td>29.41%</td>
<td>17.65%</td>
<td>32.35%</td>
<td>34</td>
<td>2.44</td>
</tr>
<tr>
<td>Do not believe there is a problem</td>
<td>11.76%</td>
<td>17.65%</td>
<td>26.47%</td>
<td>20.59%</td>
<td>23.53%</td>
<td>34</td>
<td>2.74</td>
</tr>
<tr>
<td>Loss of agricultural production acres</td>
<td>5.88%</td>
<td>29.41%</td>
<td>5.88%</td>
<td>20.59%</td>
<td>38.24%</td>
<td>34</td>
<td>2.44</td>
</tr>
</tbody>
</table>
Q11 Have you been impacted by flooding?

Answered: 35  Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>57.14%</td>
</tr>
<tr>
<td>No</td>
<td>42.86%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q12 List in order (1 thru 4) what you believe is the biggest contributor towards flooding issues in your area? ONE being the biggest contributor to FOUR being the least contributor.

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run off from impervious surfaces</td>
<td>25.71%</td>
<td>31.43%</td>
<td>28.57%</td>
<td>14.29%</td>
<td>35</td>
<td>2.69</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased precipitation</td>
<td>42.86%</td>
<td>17.14%</td>
<td>20.00%</td>
<td>20.00%</td>
<td>35</td>
<td>2.83</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural drainage (ditching, tiling, ect)</td>
<td>30.30%</td>
<td>27.27%</td>
<td>15.15%</td>
<td>27.27%</td>
<td>33</td>
<td>2.61</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>9</td>
<td>5</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland draining</td>
<td>2.94%</td>
<td>23.53%</td>
<td>35.29%</td>
<td>38.24%</td>
<td>34</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>8</td>
<td>12</td>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Run off from impervious surfaces:
- 1: 25.71%, 2: 31.43%, 3: 28.57%, 4: 14.29%
- Total: 35, Score: 2.69

Increased precipitation:
- 1: 42.86%, 2: 17.14%, 3: 20.00%, 4: 20.00%
- Total: 35, Score: 2.83

Agricultural drainage (ditching, tiling, ect):
- 1: 30.30%, 2: 27.27%, 3: 15.15%, 4: 27.27%
- Total: 33, Score: 2.61

Wetland draining:
- 1: 2.94%, 2: 23.53%, 3: 35.29%, 4: 38.24%
- Total: 34, Score: 1.91
Q13 What concerns you about the condition of the lakes, creeks, ponds, and wetlands in your area? (choose all that apply)

**Answered: 36  Skipped: 0**

<table>
<thead>
<tr>
<th>Concern</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of water</td>
<td>75.00%</td>
</tr>
<tr>
<td>Stability of water levels</td>
<td>25.00%</td>
</tr>
<tr>
<td>Flooding</td>
<td>25.00%</td>
</tr>
<tr>
<td>Abundance and diversity of...</td>
<td>100%</td>
</tr>
<tr>
<td>Erosion along stream banks...</td>
<td>90.00%</td>
</tr>
<tr>
<td>Sediment filling in t...</td>
<td>50.00%</td>
</tr>
<tr>
<td>Pollutants like road-sa...</td>
<td>50.00%</td>
</tr>
<tr>
<td>Health of the fishery</td>
<td>50.00%</td>
</tr>
<tr>
<td>Amount of aquatic...</td>
<td>40.00%</td>
</tr>
<tr>
<td>Variety of aquatic...</td>
<td>20.00%</td>
</tr>
<tr>
<td>Aquatic invasive...</td>
<td>50.00%</td>
</tr>
<tr>
<td>Amount of trash in or...</td>
<td>30.00%</td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td>20.00%</td>
</tr>
<tr>
<td>Inability to use the water...</td>
<td>10.00%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>0.00%</td>
</tr>
<tr>
<td>Problem</td>
<td>Percentage</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Erosion along stream banks or shorelines</td>
<td>75.00%</td>
</tr>
<tr>
<td>Sediment filling in the water body</td>
<td>66.67%</td>
</tr>
<tr>
<td>Pollutants like road-salt, fertilizer and heavy metals entering water bodies</td>
<td>61.11%</td>
</tr>
<tr>
<td>Health of the fishery</td>
<td>50.00%</td>
</tr>
<tr>
<td>Amount of aquatic vegetation</td>
<td>36.11%</td>
</tr>
<tr>
<td>Variety of aquatic vegetation</td>
<td>22.22%</td>
</tr>
<tr>
<td>Aquatic invasive species</td>
<td>41.67%</td>
</tr>
<tr>
<td>Amount of trash in or around the water body</td>
<td>38.89%</td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td>30.56%</td>
</tr>
<tr>
<td>Inability to use the water body for recreation</td>
<td>25.00%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>2.78%</td>
</tr>
</tbody>
</table>

Total Respondents: 36
Q14 What is the best way for you to get information about water quality projects and programs?

**Answered: 36**  **Skipped: 0**

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>38.89%</td>
</tr>
<tr>
<td>Television</td>
<td>8.33%</td>
</tr>
<tr>
<td>Radio</td>
<td>5.56%</td>
</tr>
<tr>
<td>Farm Journals</td>
<td>2.78%</td>
</tr>
<tr>
<td>Social Media</td>
<td>33.33%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>11.11%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>
Q15 As a thank you, we are offering a prize drawing of a $100 gift card. To be entered in the drawing you must submit this completed survey along with your contact information below. Your name and contact information will only be used for the drawing. Any other use will remain confidential and not attached to your survey answers. If you have further questions please contact the Heron Lake Watershed District Office at 507-793-2462 or email Ross Behrends at ross.behrends@noblesswcd.org. Thank you!

Answered: 30 Skipped: 6

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>100.00%</td>
</tr>
<tr>
<td>Company</td>
<td>0.00%</td>
</tr>
<tr>
<td>Address</td>
<td>10.00%</td>
</tr>
<tr>
<td>Address 2</td>
<td>0.00%</td>
</tr>
<tr>
<td>City/Town</td>
<td>90.00%</td>
</tr>
<tr>
<td>State/Province</td>
<td>93.33%</td>
</tr>
<tr>
<td>ZIP/Postal Code</td>
<td>93.33%</td>
</tr>
<tr>
<td>Country</td>
<td>0.00%</td>
</tr>
<tr>
<td>Email Address</td>
<td>93.33%</td>
</tr>
<tr>
<td>Phone Number</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Q1 Please list your ZIP CODE.

Answered: 125   Skipped: 14
Q2 Please check which one(s) represent you the best:

Answered: 137  Skipped: 2

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWCD/NRCS</td>
<td>24.82%</td>
</tr>
<tr>
<td>Production Ag.</td>
<td>13.14%</td>
</tr>
<tr>
<td>Sportsman Association</td>
<td>6.57%</td>
</tr>
<tr>
<td>Rural Resident</td>
<td>18.98%</td>
</tr>
<tr>
<td>Elected Official</td>
<td>18.98%</td>
</tr>
<tr>
<td>Civic Organization</td>
<td>2.92%</td>
</tr>
<tr>
<td>Lake Association</td>
<td>1.46%</td>
</tr>
<tr>
<td>Student</td>
<td>2.19%</td>
</tr>
<tr>
<td>Ag. Business</td>
<td>1.46%</td>
</tr>
<tr>
<td>Business Owner</td>
<td>8.03%</td>
</tr>
</tbody>
</table>

| Other (please specify)  | 0%        |

West Fork Des Moines River Watershed Survey
<table>
<thead>
<tr>
<th>Location Type</th>
<th>Percentage</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Resident</td>
<td>33.58%</td>
<td>46</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>6.57%</td>
<td>9</td>
</tr>
<tr>
<td>Total Respondents:</td>
<td>137</td>
<td></td>
</tr>
</tbody>
</table>
Q3 Which of the following describes your age?

Answered: 138  Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 30</td>
<td>13.04%</td>
</tr>
<tr>
<td>31 - 50</td>
<td>28.99%</td>
</tr>
<tr>
<td>51 - 70</td>
<td>46.38%</td>
</tr>
<tr>
<td>71 or older</td>
<td>11.59%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q4 How important are each of the following to your quality of life?

Answered: 138  Skipped: 1

- **Lakes**:
  - Very: 79.56% (109)
  - Somewhat: 20.44% (28)
  - Not important: 0.00% (0)
  - Do not impact me: 0.00% (0)

- **Steams**:
  - Very: 79.56% (109)
  - Somewhat: 20.44% (28)
  - Not important: 0.00% (0)
  - Do not impact me: 0.00% (0)

- **Wetlands**:
  - Very: 79.56% (109)
  - Somewhat: 20.44% (28)
  - Not important: 0.00% (0)
  - Do not impact me: 0.00% (0)

- **Groundwater**:
  - Very: 79.56% (109)
  - Somewhat: 20.44% (28)
  - Not important: 0.00% (0)
  - Do not impact me: 0.00% (0)

**TOTAL RESPONDENTS**: 137
<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam</td>
<td>69.12%</td>
<td>94</td>
</tr>
<tr>
<td>Wetland</td>
<td>67.88%</td>
<td>93</td>
</tr>
<tr>
<td>Groundwater</td>
<td>89.78%</td>
<td>123</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam</td>
<td>29.41%</td>
<td>40</td>
</tr>
<tr>
<td>Wetland</td>
<td>30.66%</td>
<td>42</td>
</tr>
<tr>
<td>Groundwater</td>
<td>10.22%</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td>Wetland</td>
<td>0.73%</td>
<td>1</td>
</tr>
<tr>
<td>Groundwater</td>
<td>0.00%</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam</td>
<td>1.47%</td>
<td>2</td>
</tr>
<tr>
<td>Wetland</td>
<td>0.73%</td>
<td>1</td>
</tr>
<tr>
<td>Groundwater</td>
<td>0.00%</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Number of Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q5 In your opinion, what is the quality of surface water in your area?

![Graph showing the distribution of responses to the question about the quality of surface water.]

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0.72%</td>
</tr>
<tr>
<td>Good</td>
<td>31.88%</td>
</tr>
<tr>
<td>Fair</td>
<td>41.30%</td>
</tr>
<tr>
<td>Poor</td>
<td>23.91%</td>
</tr>
<tr>
<td>Very Poor</td>
<td>2.17%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>138</td>
</tr>
</tbody>
</table>
Q6 In your opinion, what is the quality of groundwater in your area?

Answered: 138  Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>3.62%</td>
</tr>
<tr>
<td>Good</td>
<td>46.38%</td>
</tr>
<tr>
<td>Fair</td>
<td>35.51%</td>
</tr>
<tr>
<td>Poor</td>
<td>13.04%</td>
</tr>
<tr>
<td>Very poor</td>
<td>1.45%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
**Q7 How important are the following uses for the lakes, creeks, ponds, and wetlands in your area?**

Answered: 138  Skipped: 1

<table>
<thead>
<tr>
<th>Use</th>
<th>VERY (%)</th>
<th>SOMEWHAT (%)</th>
<th>NOT IMPORTANT (%)</th>
<th>DOES NOT IMPACT ME (%)</th>
<th>TOTAL</th>
<th>WEIGHTED AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing</td>
<td>74.64%</td>
<td>18.12%</td>
<td>3.62%</td>
<td>3.62%</td>
<td>138</td>
<td>1.36</td>
</tr>
<tr>
<td>Hunting</td>
<td>63.77%</td>
<td>31.16%</td>
<td>1.45%</td>
<td>3.62%</td>
<td>138</td>
<td>1.45</td>
</tr>
<tr>
<td>Outlet for drainage</td>
<td>48.15%</td>
<td>36.30%</td>
<td>8.89%</td>
<td>6.67%</td>
<td>135</td>
<td>1.74</td>
</tr>
<tr>
<td>Swimming</td>
<td>46.27%</td>
<td>38.81%</td>
<td>7.46%</td>
<td>7.46%</td>
<td>134</td>
<td>1.76</td>
</tr>
<tr>
<td>Wildlife watching</td>
<td>43.07%</td>
<td>45.99%</td>
<td>6.57%</td>
<td>4.38%</td>
<td>137</td>
<td>1.72</td>
</tr>
<tr>
<td>Motor boating</td>
<td>41.18%</td>
<td>34.56%</td>
<td>11.03%</td>
<td>13.24%</td>
<td>136</td>
<td>1.96</td>
</tr>
<tr>
<td>Livestock water source</td>
<td>34.07%</td>
<td>40.74%</td>
<td>11.11%</td>
<td>14.07%</td>
<td>135</td>
<td>2.05</td>
</tr>
<tr>
<td>Canoe/Kayaking</td>
<td>54.55%</td>
<td>36.36%</td>
<td>0.00%</td>
<td>9.09%</td>
<td>11</td>
<td>1.64</td>
</tr>
</tbody>
</table>
Q8 Who is responsible for water quality? Please rank the options below in order of responsibility. ONE being the most responsible for water quality to FOUR being the least responsible.

Answered: 134   Skipped: 5

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal government</td>
<td>8.13%</td>
<td>7.32%</td>
<td>6.50%</td>
<td>78.05%</td>
<td>123</td>
<td>1.46</td>
</tr>
<tr>
<td>State government</td>
<td>4.92%</td>
<td>16.39%</td>
<td>75.41%</td>
<td>3.28%</td>
<td>122</td>
<td>2.23</td>
</tr>
<tr>
<td>Local government</td>
<td>13.71%</td>
<td>66.13%</td>
<td>12.10%</td>
<td>8.06%</td>
<td>124</td>
<td>2.85</td>
</tr>
<tr>
<td>Landowners</td>
<td>77.52%</td>
<td>9.30%</td>
<td>3.88%</td>
<td>9.30%</td>
<td>129</td>
<td>3.55</td>
</tr>
</tbody>
</table>
Q9 Please prioritize each of the Best Management Practices (BMPs) listed below by indicating whether you believe the BMP is High, Medium, or Low Priority for improving water quality. Also, indicate Yes or No as to whether or not you would be willing to implement the BMP on your property.

Answered: 128  Skipped: 11
<table>
<thead>
<tr>
<th>BMP Category</th>
<th>High Priority (%)</th>
<th>Medium Priority (%)</th>
<th>Low Priority (%)</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>N/A (%)</th>
<th>Do Not Know (%)</th>
<th>Total Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer/Filter Strips</td>
<td>53.54%</td>
<td>29.13%</td>
<td>10.24%</td>
<td>30.71%</td>
<td>3.15%</td>
<td>18.11%</td>
<td>23</td>
<td>7.09%</td>
</tr>
<tr>
<td>Feedlot Compliance</td>
<td>67.20%</td>
<td>20.80%</td>
<td>2.80%</td>
<td>18.70%</td>
<td>0.81%</td>
<td>18.11%</td>
<td>23</td>
<td>7.20%</td>
</tr>
<tr>
<td>Grazing Management</td>
<td>22.76%</td>
<td>48.78%</td>
<td>20.33%</td>
<td>18.70%</td>
<td>0.81%</td>
<td>28.46%</td>
<td>35</td>
<td>9</td>
</tr>
<tr>
<td>Nutrient Management</td>
<td>45.60%</td>
<td>41.60%</td>
<td>6.40%</td>
<td>25.60%</td>
<td>0.80%</td>
<td>20.80%</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td>Wetland Restoration</td>
<td>49.60%</td>
<td>36.80%</td>
<td>8.80%</td>
<td>14.40%</td>
<td>5.60%</td>
<td>24.80%</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>Septic System Compliance</td>
<td>52.38%</td>
<td>31.75%</td>
<td>11.90%</td>
<td>32.54%</td>
<td>1.59%</td>
<td>15.08%</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Controlled/Reduced Drainage</td>
<td>42.06%</td>
<td>38.10%</td>
<td>15.08%</td>
<td>29.37%</td>
<td>3.97%</td>
<td>15.08%</td>
<td>19</td>
<td>7</td>
</tr>
<tr>
<td>Streambank/Shoreline Protection</td>
<td>56.00%</td>
<td>33.60%</td>
<td>5.60%</td>
<td>24.00%</td>
<td>1.60%</td>
<td>22.40%</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>Alternative Tile Intakes (Rock, Blind, French, etc.)</td>
<td>34.92%</td>
<td>44.44%</td>
<td>12.70%</td>
<td>24.60%</td>
<td>3.17%</td>
<td>19.84%</td>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>Surface Erosion Practices (Terraces, Grassed Waterways, etc.)</td>
<td>54.84%</td>
<td>35.48%</td>
<td>3.23%</td>
<td>29.84%</td>
<td>0.00%</td>
<td>18.55%</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td>Fertilizer Education - Residential Lawn Care</td>
<td>49.61%</td>
<td>37.01%</td>
<td>8.66%</td>
<td>36.22%</td>
<td>1.57%</td>
<td>11.81%</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Groundwater Protection</td>
<td>68.75%</td>
<td>25.78%</td>
<td>1.56%</td>
<td>39.06%</td>
<td>1.56%</td>
<td>6.25%</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Conservation Tillage (No-till, Strip-till, etc.)</td>
<td>38.58%</td>
<td>45.67%</td>
<td>11.02%</td>
<td>22.83%</td>
<td>4.72%</td>
<td>20.47%</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>Cover Crops</td>
<td>39.84%</td>
<td>41.41%</td>
<td>13.28%</td>
<td>21.88%</td>
<td>6.25%</td>
<td>20.31%</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>Urban Waste and Storm Water Management</td>
<td>60.32%</td>
<td>30.16%</td>
<td>5.56%</td>
<td>24.60%</td>
<td>1.59%</td>
<td>19.05%</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>Lake Management</td>
<td>51.97%</td>
<td>37.80%</td>
<td>4.72%</td>
<td>14.96%</td>
<td>2.36%</td>
<td>26.77%</td>
<td>34</td>
<td>9</td>
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<tr>
<td>Flood Control Structures</td>
<td>31.75%</td>
<td>48.41%</td>
<td>14.29%</td>
<td>19.05%</td>
<td>2.38%</td>
<td>23.02%</td>
<td>29</td>
<td>8</td>
</tr>
<tr>
<td>Urban BMPs (Rain Gardens, Rain Barrels, etc.)</td>
<td>32.54%</td>
<td>33.33%</td>
<td>30.16%</td>
<td>20.63%</td>
<td>8.73%</td>
<td>15.87%</td>
<td>20</td>
<td>7</td>
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</tbody>
</table>

*Buffer/Filter Strips, Feedlot Compliance, Grazing Management, Nutrient Management, Wetland Restoration, Septic System Compliance, Controlled/Reduced Drainage, Streambank/Shoreline Protection, Alternative Tile Intakes (Rock, Blind, French, etc.), Surface Erosion Practices (Terraces, Grassed Waterways, etc.), Fertilizer Education - Residential Lawn Care, Groundwater Protection, Conservation Tillage (No-till, Strip-till, etc.), Cover Crops, Urban Waste and Storm Water Management, Lake Management, Flood Control Structures, Urban BMPs (Rain Gardens, Rain Barrels, etc.)*
Q10 List in order (1 thru 5) what you believe are the biggest obstacles that keep people from implementing BMPs on their property? ONE being the biggest obstacle to Five being the least obstacle.

Answered: 128  Skipped: 11

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>4</th>
<th>5</th>
<th>TOTAL</th>
<th>SCORE</th>
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<tbody>
<tr>
<td>Cost</td>
<td>50.40%</td>
<td>20.00%</td>
<td>17.60%</td>
<td>8.80%</td>
<td>3.20%</td>
<td>125</td>
<td>4.06</td>
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<tr>
<td>Lack of information</td>
<td>13.71%</td>
<td>28.23%</td>
<td>21.77%</td>
<td>28.23%</td>
<td>8.06%</td>
<td>124</td>
<td>3.11</td>
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<tr>
<td>Distrust of government agencies</td>
<td>8.13%</td>
<td>13.01%</td>
<td>19.51%</td>
<td>26.83%</td>
<td>32.52%</td>
<td>123</td>
<td>2.37</td>
</tr>
<tr>
<td>Do not believe there is a problem</td>
<td>17.89%</td>
<td>13.01%</td>
<td>18.70%</td>
<td>16.26%</td>
<td>34.15%</td>
<td>123</td>
<td>2.64</td>
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<tr>
<td>Loss of agricultural production acres</td>
<td>13.11%</td>
<td>27.05%</td>
<td>21.31%</td>
<td>18.03%</td>
<td>20.49%</td>
<td>122</td>
<td>2.94</td>
</tr>
</tbody>
</table>
### Q11 Have you been impacted by flooding?

Answered: 130  
Skipped: 9

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>40.77%</td>
</tr>
<tr>
<td>No</td>
<td>59.23%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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</tbody>
</table>

West Fork Des Moines River Watershed Survey

SurveyMonkey
Q12 List in order (1 thru 4) what you believe is the biggest contributor towards flooding issues in your area? ONE being the biggest contributor to FOUR being the least contributor.

Answered: 129  Skipped: 10

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<thead>
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<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run off from impervious...</td>
<td>30.58%</td>
<td>20.66%</td>
<td>27.27%</td>
<td>21.49%</td>
<td>121</td>
<td>2.60</td>
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<tr>
<td></td>
<td>37</td>
<td>25</td>
<td>33</td>
<td>26</td>
<td></td>
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<tr>
<td>Increased precipitation</td>
<td>30.89%</td>
<td>19.51%</td>
<td>21.95%</td>
<td>27.64%</td>
<td>123</td>
<td>2.54</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>24</td>
<td>27</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural drainage...</td>
<td>32.54%</td>
<td>31.75%</td>
<td>20.63%</td>
<td>15.08%</td>
<td>126</td>
<td>2.82</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>40</td>
<td>26</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland draining</td>
<td>9.09%</td>
<td>28.10%</td>
<td>28.10%</td>
<td>34.71%</td>
<td>121</td>
<td>2.12</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>34</td>
<td>34</td>
<td>42</td>
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</tbody>
</table>
Q13 What concerns you about the condition of the lakes, creeks, ponds, and wetlands in your area? (choose all that apply)

Answered: 131  Skipped: 8

<table>
<thead>
<tr>
<th>Concern</th>
<th>Responses</th>
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<tr>
<td>Clarity of water</td>
<td>83.97%</td>
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<tr>
<td>Erosion along stream banks or shorelines</td>
<td>70.23%</td>
</tr>
<tr>
<td>Sediment filling in the water body</td>
<td>67.18%</td>
</tr>
<tr>
<td>Pollutants like road-salt, fertilizer and heavy metals entering water bodies</td>
<td>65.65%</td>
</tr>
<tr>
<td>Health of the fishery</td>
<td>65.65%</td>
</tr>
<tr>
<td>Aquatic invasive species</td>
<td>67.18%</td>
</tr>
<tr>
<td>Amount of trash in or on the shoreline</td>
<td>65.65%</td>
</tr>
<tr>
<td>Stability of water levels</td>
<td>57.18%</td>
</tr>
<tr>
<td>Abundance and diversity of...</td>
<td>57.18%</td>
</tr>
<tr>
<td>Amount of aquatic plants</td>
<td>57.18%</td>
</tr>
<tr>
<td>Inability to use the water</td>
<td>57.18%</td>
</tr>
<tr>
<td>Flooding</td>
<td>57.18%</td>
</tr>
<tr>
<td>Variety of aquatic plants</td>
<td>57.18%</td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td>57.18%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>5.31%</td>
</tr>
</tbody>
</table>

ANSWER CHOICES RESPONSES

<p>| Clarity of water | 110   |
| Erosion along stream banks or shorelines | 92    |
| Sediment filling in the water body       | 88    |
| Pollutants like road-salt, fertilizer and heavy metals entering water bodies | 86    |</p>
<table>
<thead>
<tr>
<th>Environmental Impact</th>
<th>Percentage</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health of the fishery</td>
<td>55.73%</td>
<td>73</td>
</tr>
<tr>
<td>Aquatic invasive species</td>
<td>49.62%</td>
<td>65</td>
</tr>
<tr>
<td>Amount of trash in or around the water body</td>
<td>46.56%</td>
<td>61</td>
</tr>
<tr>
<td>Stability of water levels</td>
<td>41.22%</td>
<td>54</td>
</tr>
<tr>
<td>Abundance and diversity of wildlife</td>
<td>38.93%</td>
<td>51</td>
</tr>
<tr>
<td>Amount of aquatic vegetation</td>
<td>36.64%</td>
<td>48</td>
</tr>
<tr>
<td>Inability to use the water body for recreation</td>
<td>36.64%</td>
<td>48</td>
</tr>
<tr>
<td>Flooding</td>
<td>33.59%</td>
<td>44</td>
</tr>
<tr>
<td>Variety of aquatic vegetation</td>
<td>27.48%</td>
<td>36</td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td>22.90%</td>
<td>30</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>1.53%</td>
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</table>

Total Respondents: 131
Q14 What is the best way for you to get information about water quality projects and programs?

Answered: 129  Skipped: 10

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>34.88%</td>
</tr>
<tr>
<td>Television</td>
<td>5.43%</td>
</tr>
<tr>
<td>Radio</td>
<td>5.43%</td>
</tr>
<tr>
<td>Farm Journals</td>
<td>5.43%</td>
</tr>
<tr>
<td>Social Media</td>
<td>31.78%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>17.05%</td>
</tr>
<tr>
<td>TOTAL</td>
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</tr>
</tbody>
</table>
Q15 Are you willing to pay for projects to improve water quality?

Answered: 83  Skipped: 56

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>78.31%</td>
</tr>
<tr>
<td></td>
<td>65</td>
</tr>
<tr>
<td>No</td>
<td>21.69%</td>
</tr>
<tr>
<td></td>
<td>18</td>
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</tbody>
</table>

Total Respondents: 83
Q16 As a thank you, we are offering a prize drawing of a $100 gift card. To be entered in the drawing you must submit this completed survey along with your contact information below. Your name and contact information will only be used for the drawing. Any other use will remain confidential and not attached to your survey answers. If you have further questions please contact the Heron Lake Watershed District Office at 507-793-2462 or email Ross Behrends at ross.behrends@noblesswcd.org. Thank you!

Answered: 90   Skipped: 49

<table>
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<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
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<tr>
<td>Company</td>
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<td>Address</td>
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<tr>
<td>Address 2</td>
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<tr>
<td>City/Town</td>
<td>38.89%</td>
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<tr>
<td>State/Province</td>
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</tr>
<tr>
<td>ZIP/Postal Code</td>
<td>43.33%</td>
</tr>
<tr>
<td>Country</td>
<td>0.00%</td>
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<tr>
<td>Email Address</td>
<td>78.89%</td>
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<tr>
<td>Phone Number</td>
<td>95.56%</td>
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<td>Dale Pavlis</td>
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<td>90</td>
<td>Martin Mollenhauer</td>
</tr>
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</table>
Random Name Picker:

Dennis Daberkerow

Edit Settings

Names
- Weston Mahon
- Mike Haugen
- Ron Tibodeau
- Rick Andersen
- Jim Buschen
- Bob Demuth
- Lori Gunnink
- Dale Pavlis
- Ken Christensen
- David Kanten
- Greg Kiley
- Martin Mollenhauer

Name Randomizer

No spinning wheel... no hat... just quickly pick one or more names from a list.

Add prize entries into the list for a drawing and generate a random winner. Add your kids and dole out a chore. In school, teachers can fairly pick students for an assignment. Open the page on your phone, paste in your student list, and tap to pick a new name each time its time to answer a question.

Similar Naming Picking Tools:

To pick multiple names, use the list randomizer and specify the amount you want.

To split everyone into pairs or teams, use the team generator.
Appendix 5
Hello folks,

I just finished up meeting with Gene Short (Currie City Council) and Jeb Malone (Currie Mayor). I thought we had a successful meeting and wanted let the group in on our conversations ASAP.

Background: I think Toby did a nice job of detailing the background in the Action Plans.

The City of Currie would like to have us facilitate an WFDMR educational meeting. They were very excited and open to ideas. The items we discussed are below:

- Host an educational meeting highlighting the current water quality issues throughout the WFDMR watershed. An event that highlights the importance of water quality, what issues/impairments there are throughout the watershed, and what can be done to address them. Also, team that up with a presentation highlighting the challenges that small towns face with their storm water and sewer infrastructure and how that relates to the overall water quality in the WFDMR. We thought education focusing on urban BMPs would tie in nicely.
- It was discussed that because Currie/Lake Shetek is called “The Headwaters of the Des Moines”, it would be a great place to host one of our two educational meetings.
- Gene has put a lot of ground work talking with our local and state legislatures and would like to see a good turn out from them, along with elected city and county officials, and the general public. He was very open to the attendees as long as we tried hard to get our state decision makers involved.
- They thought Keylargo on Lake Shetek would be a good venue or possibly the new restaurant in Garvin, MN. It sounds like both of those are free of charge if a meal will be served through them.
- We discussed speakers for the city water/sewer discussion and they would be willing to talk to their engineering firm who is working with them on their project to outline the issues facing our small town water infrastructure.
- They would like to plan the session for February 6 or a date near to that.
- Late morning meeting with a meal provided afterwards (a completed WFDMR Survey would be their meal ticket)
- Gene would like to see 100 people at this meeting. I stated that was an optimistic number but he commented that with both them and us working on it, it is possible.

I hope this helps get the Band of Five’s wheels turning. Like I mentioned before, there was a lot of excitement and willingness to be open to ideas. I let Jeb and Gene know that I would be running this by all of you today and we would let him know our thoughts in the near future.

Thanks!
Please join us to discuss, share, and learn about the challenges that rural communities are facing with aging city sewer and water infrastructures. This is an opportunity for elected and appointed officials, city administrators, city maintenance supervisors, and anyone who deals with municipal water and sewer systems to join the Heron Lake Watershed District, City of Currie, and our state legislators to share your concerns, hear about programs available for assistance, and develop a basic understanding of how these issues impact the overall water quality of the West Fork Des Moines River watershed.

**Agenda**

4:00 - 4:20  Welcome and Introduction

4:20 - 5:15  Building our Water Context - Time to share our concerns and what is working well

5:15 - 5:45  Working with Our Legislators - Hear from our legislators about upcoming priorities for small towns

5:45 - 6:00  Citizen Assessment and Values Survey

6:00 - 6:50  Meal and Presentation

Karen Terry, U of Minnesota Extension - The Effects of Urban Runoff on a Watershed Scale

SEH Engineering - Small City Sewer and Water Crisis.....Problems, Solutions and Funding

6:50 - 7:00  Closing Remarks
Water in Southwest Minnesota: It Affects You!
Audience Participation Responses

What would you like to see happen with your water infrastructure and stormwater management?
- More education on systems
- Recycle stormwater and improve infrastructure
- Improve water quality cost-effectively
- Salt runoff – improve runoff
- Ag and cities work together
- Need infrastructure and cost to fix
- Need a capital improvement plan

What do you need to make what you want happen?
- Money – how to get it and use it
- Partnerships to share costs
- Is a public system still feasible?
- Easing salt discharge regulations
- Increase behavioral change
- Education about funding
- Measurement of need: do we know that the targets are right?

And what can you do to make it happen?
- Provide education
- Improve infiltration and soil structure
- Educate neighbors
- Go wider with social media
- Conservation education
- Prioritizing needs
- Education and communication
- Bipartisan education
Watershed Approach

- Improved collaboration with local government and stakeholders
- Connecting state programs with local leadership
- Comprehensive Watershed Management Plan
- Ongoing Local Implementation
- Monitoring and Assessment
- Water Resource Characterization & Problem Investigation
- Strategy Development (WRAPS)
- 10 Year Cycle

Determine overall health of major watersheds
Increase efficiency in dealing with impairments

Integrate watershed protection and restoration strategies into a single watershed management plan
Improved collaboration with local government and stakeholders
West Fork Des Moines River Watershed Timeline

Connecting state programs with local leadership

10 Year Cycle

Ongoing Local Implementation

Monitoring and Assessment

Comprehensive Watershed Management Plan

Strategy Development (WRAPS)

Water Resource Characterization & Problem Investigation

2014
✓ Biological monitoring &
✓ water chemistry monitoring

2015
✓ Biological monitoring
✓ water chemistry monitoring

2016
✓ Assessments
☐ Stressor identification

2017
☐ Stressor identification

2018
☐ Stressor identification
☐ TMDL Development
☐ WRAPS development

2019
☐ TMDL Development
☐ WRAPS development
Only 2.5% is accessible for direct human uses

< 1% of the world's freshwater is accessible for direct human uses

Illustration by Jack Cook at Woods Hole Oceanographic Institution
We can’t make more water
A watershed is an area of land that drains to a common body of water.
Minnesota’s waters flow outward in three directions; north to Hudson Bay in Canada; east to the Atlantic Ocean; and south to the Gulf of Mexico.
Benefits of Healthy Watersheds

• Safe and sufficient drinking water
• Property values
• Fish and wildlife habitat
• Quality recreational opportunities
• Livestock production
• Groundwater resources
• Sense of place
1. Safe and sufficient drinking water

- MN Population 2010: 5.2M
- Rely on Surface Water: 1.3M
- Rely on Groundwater: 3.9M

In 2014, the Minnesota Department of Health discovered 19 municipal water systems with elevated levels of impairments in their drinking water.

Nitrogen: A 2011 survey found that 62% of monitoring wells in central MN showed excessive N.
2. Protect property values

Maine study: water clarity affects lakeshore property values.

Bemidji State University study: a one meter reduction in clarity had a negative impact on property values. If extrapolated to 1/3 of all MN lakes, this is a $100B drop in property values plus $900M loss in local property taxes per year.
3. Provide fish and wildlife habitat

Rivers, streams, wetlands, and lakes – and the adjacent riparian lands – create and maintain diverse habitats which:

• Provide in-water habitat
• Are used by upland species
• Provide migration corridors
• Lead to species diversity
4. Quality recreational opportunities

**Fishing**: 43,000 Minnesota jobs
- $2.8B in retail spending directly on fishing
- >$640M per year in tax revenues
- >90,000 non-resident licenses sold in 2012

**Hunting/Wildlife Watching**: >12,000 jobs
- $1.5B in direct spending

**Total**: $4.3B and 55,000 jobs
5. Economic impact of agriculture

- Livestock and poultry production = $7.7B
- Crop production = $14.6B
- Total direct employment: 149,000 jobs
6. Groundwater recharge:

- Private wells
- Municipal wells
- Irrigation
- Lake levels
- Wetlands
- Seasonal and permanent springs
7. Sense of place
As we develop the landscape...

...we change the path precipitation takes.

Touber and Westmacott 1981
Connection between Watershed Changes and Runoff Dynamics

Streams of “altered” landscapes

Streams of “natural” landscapes
Natural runoff patterns
Altered runoff patterns
INTENSITY OF LAND USE

AMOUNT OF IMPERVIOUS SURFACE OR ARTIFICIAL DRAINAGE

POTENTIAL WATER QUANTITY & QUALITY PROBLEMS
Non-point source pollution
#1 water quality problem in the U.S.
Traditional Stormwater Runoff Management

Collect
Concentrate
Convey
Collect
Where does stormwater runoff go?
Into a lake or stream near you ...
How can we make this ... 

... function hydrologically more
Like this?
By managing stormwater runoff:

**Slow the Flow**

- Protect water quality
- Improve degraded water quality
- Recharge groundwater
- Reduce flooding potential
Slow the water down
Hold it on the landscape

Let it soak in

Use plants to take up the nutrients
Intercept the runoff before it reaches the lake.
Rain Gardens

What are they??

- **Reduce** runoff
- **Filter** runoff
- **Recharge** groundwater
- **Decrease** runoff temperature
Post-Construction Runoff
1.44 inches in 9 hours

Source: City of Burnsville and Barr Engineering
SHORELAND BUFFERS
SHORELAND BUFFERS
Grassed Swales
Green Infrastructure Practices

- Rain barrels/Water reuse
- Infiltration trenches
- Green roofs
- Tree trenches
- Permeable pavement
- Education
Have a project idea?

Do you have an idea to improve sustainability in your community? We’d love to hear from you!

How to submit a project idea to RSDP
Water in Southwest Minnesota: It Affects You!

February 12, 2018
Karen Cavett, Kirby Van Note, Heidi Peper

Small City Sewer and Water Crisis… Problems, Solutions and Funding

Building a Better World For All of Us®
Sewer Collection System Age

Source: https://www.auditor.state.mn.us/maps/

Problem
Aging Infrastructure

Slayton
Population: 2,070
Households: 995
Median Household Income: $43,472

Collection Sewer System by Age Category

- <30 Years
- 30-50 Years
- > 50 years

20 miles
PROBLEM
Aging Infrastructure

Fulda
Population: 1,296
Households: 588
Median Household Income: $42,315

Collection Sewer System by Age Category

- <30 Years
- 30-50 Years
- > 50 years

Source: https://www.auditor.state.mn.us/maps/
### PROBLEM

Cost to Improve

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Sewer System Projects in Million $</th>
<th>Total WWTF Projects in Million $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lincoln</td>
<td>$1.07</td>
<td>$1.67</td>
</tr>
<tr>
<td>Lyon</td>
<td>$20.25</td>
<td>$19.50</td>
</tr>
<tr>
<td>Pipestone</td>
<td>$14.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Murray</td>
<td>$0.00</td>
<td>$1.85</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>$0.00</td>
<td>$25.00</td>
</tr>
<tr>
<td>Watonwan</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Rock</td>
<td>$0.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>Nobles</td>
<td>$3.23</td>
<td>$0.00</td>
</tr>
<tr>
<td>Jackson</td>
<td>$14.60</td>
<td>$22.00</td>
</tr>
<tr>
<td>Martin</td>
<td>$16.19</td>
<td>$7.60</td>
</tr>
</tbody>
</table>

Source: 2018 Future Wastewater Infrastructure Needs and Capital Cost

2018 Clean Water PPL

Total Sewer System Projects in Million $: $38.50

Total WWTF Projects in Million $: $15.39

Cost to Improve: $1.85

MINNESOTA POLLUTION CONTROL AGENCY
Heron Lake Watershed

PROBLEM
Case Study – Lakefield, MN

Population: 1,694
PROBLEM  Lakefield’s Utilities Age

<table>
<thead>
<tr>
<th>Facility</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Treatment Facility</td>
<td>30 years</td>
</tr>
<tr>
<td>Water Treatment Facility</td>
<td>16 years</td>
</tr>
</tbody>
</table>

Water & Sewer Mains:

- > 50 yr: 60%
- 30-50 yr: 30%
- < 30 yr: 10%
### Problem

**Lakefield, MN**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicarbonates</td>
<td>350 mg/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>341 mg/L</td>
</tr>
<tr>
<td>Hardness</td>
<td>621 mg/L</td>
</tr>
<tr>
<td>TDS</td>
<td>1083 mg/L</td>
</tr>
<tr>
<td>Specific Conductance</td>
<td>1654 umhos/cm</td>
</tr>
</tbody>
</table>

### Phosphorous

- **> 0.5 mg/L** – Attainable by most processes and/or with basic chemical addition.
- **< 0.5 mg/L** – Requires higher cost chemical addition and/or specific process removal.

### Salty Parameters (Chlorides)

- Often more cost effective to treat at the water treatment facility.
- Can be problematic with high hardness in source drinking water.

### Sulfates

- Imposed within drainage area where wild rice is present.
- Limits are specific to each wild rice patch. Varies based on sediment characteristics

### Salty Parameters

- **Proposed improvement:**
  - Connect to Rural Water to reduce source water hardness.
  - Add RO for water softening.
  - Remove in home water softeners.

### Total Water Treatment Costs

$6,065,000
## Problem: Lakefield’s Cost to Improve Collection and WWTF

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Collection</td>
<td>$6,634,400</td>
</tr>
<tr>
<td>Water Distribution</td>
<td>$3,640,000</td>
</tr>
<tr>
<td>Storm Sewer and Other Costs</td>
<td>$1,419,500</td>
</tr>
<tr>
<td>Total Collection Costs</td>
<td>$11,693,900</td>
</tr>
<tr>
<td>Water Treatment</td>
<td>$5,555,900</td>
</tr>
<tr>
<td>Water Softener Removal Program</td>
<td>$509,100</td>
</tr>
<tr>
<td>Mechanical WWTF</td>
<td>$3,999,700</td>
</tr>
<tr>
<td>Total WWTF Costs</td>
<td>$9,498,800</td>
</tr>
<tr>
<td>Total Project Costs</td>
<td>$21,758,600</td>
</tr>
</tbody>
</table>
Inflow & Infiltration


Lakefield, MN WWTP
Average Day Flow – 0.242 MGD
Peak Flow – 2.784 MGD

Impact: capacity reduction, and additional strain on already aging and failing processes.

Source: Sump lines, down spouts, failing services, and other clean water connection to sanitary collection system.

PROBLEM

Wastewater Treatment Facility

Collection System

Homes
SOLUTION
Inflow & Infiltration

I/I Investigation Plan

Isolate potential I/I problem areas.

- Flow monitoring program.
- Manhole inspections.
- Smoke and dye testing.
- CCTV inspection (Public & Private).
  - Mainline and laterals.
- Sump pump inspections (Commercial & Residential)

Identify specific sources or collection system defects.
Inflow & Infiltration

- Eliminate storm sewer, yard drains and drain tile connections to sanitary sewer collection.
- Replace open hole MH covers.
- Replace Sanitary & Storm Sewer Pipe.
  - Install drain tile behind street curbs for sump pump connection to storm sewer.
- Rehabilitate Sanitary & Storm Sewer Pipe:
  - Cast in place pipe (CIPP), Pipe Bursting.
- Eliminate storm sewer, yard drains and drain tile connections to sanitary sewer collection.
  - Provide MH chimney seals & raise MH in drainage or ponding areas.
  - Install water tight MH covers in high water drainage areas.
SOLUTION  Inflow & Infiltration

- Disconnect sump pump connections or discharges to the service lateral
- Disconnect foundation drain, area drains and rain leader discharges
- Line and replace service lateral piping
- Replace/repair service lateral connection to the main lateral

Potential Private Infrastructure Improvements
Funding

Federal Funding

- Low interest loan program distributed to states to distribute.
- Low interest loan and grant program.
- Needs to meet affordability threshold of 1.5% of median household income to qualify for grant.
FUNDING State Funding
Wastewater

Project Priority List Needs

$1,530,854,884

Funding for 2018 Intended Use Plan

$390,733,360

Unfunded Wastewater Needs

$1.14 Billion
FUNDING
Supply & Demand

Drinking Water

Project Priority List Needs

$606,790,665

Funding for 2018 Intended Use Plan

$222,732,219

Unfunded Drinking Water Needs

$0.38 Billion
THANK YOU!
Wastewater

Project Priority List Needs

$1,530,854,884

Funding for 2018 Intended Use Plan

$390,733,360
Drinking Water

Project Priority List Needs

$606,790,665

Funding for 2018 Intended Use Plan

$222,732,219
Website showing status of Minnesota’s infrastructure (we may be able to pull from graph/map (not sure if it is MPCA’s web site (Patti or Kathy may know)

WINs report can pull for MN
Then concentrate on SW MN (Sponsoring Counties: Jackson, Lyon, Murray, Nobles, Martin, Cottonwood, Pipestone.

Then we can get specific with example of Lakefield (WWTF, Chloride requirement, WTP, Collection system - I/I)
Total cost over 20 million
DRINKING WATER
$222,732,219 Sources of Funds for 2018
Intended Use Plan

$606,790,665 Project Priority List Needs…

More than half BILLION $
Water in Southwest Minnesota: It Affects You!

Over 50 people, representing cities, counties, Soil and Water Conservation Districts, Watershed Districts, rural water associations, US Department of Agriculture, and state and federal legislators assembled at Key Largo on February 12, 2018. Ross Behrends, West Fork Des Moines River (WFDMR) Watershed Coordinator welcomed the attendees. He explained that the meeting would focus on the crisis small towns in Minnesota are experiencing in regard to failing sewer and water infrastructure and lack of funding to address those issues.

This meeting was developed in partnership with the Heron Lake Watershed District and the City of Currie. It is part of the WFDMR Major Watershed Project (MWP) which is made possible through a contract with Minnesota Pollution Control Agency (MCPA) with funds from the Clean Water Legacy Act. The primary goal of the MWP is to develop a comprehensive Watershed Restoration and Project Strategies Report (WRAPS). Achieving the WRAPS goal is only possible through partnerships between local units of government, watershed citizens, and state government.

Katherine Pekarek-Scott, MPCA provided an overview of the watershed approach. She described some of the monitoring and assessment work that has been done in the WFDMR Watershed, as well as a timeline for completion of the WRAPS report.

Tobias Spanier, University of Minnesota (UM) Extension led the group in a discussion focused on three key questions: What would you like to see happen with your water infrastructure and stormwater management? What do you need to make what you want happen? And what can you do to make it happen?

Chuck Ackman from US Senator Amy Klobuchar’s office told the group he appreciated the invitation and would provide Senator Klobuchar with information regarding this meeting.

Gene Short, City of Currie moderated a panel discussion with State Representatives Joe Schomacker, Erin Murphy, Dean Urdahl, Paul Torkelson and State Senator Bill Weber. They responded to: What are the main areas of water infrastructure and stormwater management you want to see more work done on? What opportunities do you see that exist for this work to happen? And what part(s) of this are you willing to help with?

The legislators all stated that they understand the crisis that small towns are facing with their sewer and water infrastructure. The price tag to fix all of the problems is estimated at $11 billion. Those costs cannot be realized at the local and state level alone. It is going to take partnership from all levels of government, as well as the residents of Minnesota. Even at that, it is an unrealistic price tag. We need to continue these discussions, evaluate our current water standards to determine if it is possible to meet them, and use some Minnesotan ingenuity to promote some “out-of-the-box” solutions.
Attendees were asked to complete a Citizen Assessment and Values Survey. Information gathered from this survey will be used in the WRAPS Report. This survey can be found on Facebook at https://www.facebook.com/WFDMR.

During the meal, Karen Terry, UM Extension provided water education regarding water, watersheds, stormwater, and practices to slow down runoff. Karen Cavet, SEH Engineering gave an overview of the water and sewer infrastructure needs within the WFDMR Watershed. Heidi Peper, SEH Engineering described potential funding options available at the federal and state levels.

The WFDMR watershed covers 1333 square miles in portions of seven counties: Murray, Cottonwood, Jackson, Nobles, Lyon, Pipestone, and Martin counties. The meeting included representation from almost all of the 18 cities and seven counties in the watershed.

If you have questions about this event or would like further information about the WFDMR Watershed, please contact Ross Behrends at ross.behrends@noblesswcd.org or 507-220-5331.
Since HLO & Fulda were not able to do the program this spring we only had 22 students from Windom. Normally we have around 60 students. I will put your portion towards their programs next year if that is ok?

For five years now we have been working with high school students from Heron Lake Okabena (HLO), Windom Area School, and Fulda Area School to test the water quality in the Heron Lake Watershed District. Windom and HLO test their area in the fall and spring and Fulda tests in the Spring. Students look at temperature, turbidity, color, smell, DO, pH, Nitrates, and Phosphates. Along with collecting macro invertebrates that live there. They will compare these tests to the previous year and to their results from the fall in the spring.

Let me know if you need anything else.

Alisha

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**Alisha Paplow**

Executive Director  
Prairie Ecology Bus Center  
PO Box 429, Lakefield, MN 56150  
507-662-5064  
[www.ecologybus.org](http://www.ecologybus.org)

Sign up for our eNews letter!

On Tue, Jun 5, 2018 at 3:11 PM, Jan Voit <jvoit@hlwdonline.org> wrote:

Alisha,

Could you send a couple photos and a short summary? I need to know how many students participated.

Thanks!
Nobles County Change in Cropland Use Over Time

Murray County Change in Cropland Use Over Time
<table>
<thead>
<tr>
<th>Year</th>
<th>Nobles</th>
<th>Murray</th>
<th>Jackson</th>
<th>Cottonwood</th>
<th>Nobles</th>
<th>Murray</th>
<th>Jackson</th>
<th>Cottonwood</th>
<th>Nobles</th>
<th>Murray</th>
<th>Jackson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2,278</td>
<td>2,065</td>
<td>2,372</td>
<td>2,063</td>
<td>2,206</td>
<td>2,003</td>
<td>2,240</td>
<td>1,959</td>
<td>2,075</td>
<td>1,828</td>
<td>2,096</td>
</tr>
<tr>
<td>Number of farms</td>
<td>446,488</td>
<td>440,052</td>
<td>440,243</td>
<td>401,460</td>
<td>455,680</td>
<td>453,120</td>
<td>446,720</td>
<td>409,600</td>
<td>455,680</td>
<td>453,120</td>
<td>446,720</td>
</tr>
<tr>
<td>Acres of farmland (approx.)</td>
<td>196</td>
<td>213</td>
<td>186</td>
<td>195</td>
<td>207</td>
<td>226</td>
<td>199</td>
<td>209</td>
<td>220</td>
<td>248</td>
<td>213</td>
</tr>
<tr>
<td>Average acres per farm</td>
<td>391</td>
<td>389</td>
<td>377</td>
<td>313</td>
<td>365</td>
<td>372</td>
<td>382</td>
<td>410</td>
<td>407</td>
<td>457</td>
<td>449</td>
</tr>
<tr>
<td>Number of farms with full owner operators</td>
<td>1,186</td>
<td>1,211</td>
<td>1,383</td>
<td>1,231</td>
<td>1,159</td>
<td>1,170</td>
<td>1,323</td>
<td>1,226</td>
<td>1,147</td>
<td>1,108</td>
<td>1,339</td>
</tr>
<tr>
<td>Percent of farms with part or full owner operators</td>
<td>52</td>
<td>59</td>
<td>58</td>
<td>60</td>
<td>53</td>
<td>58</td>
<td>59</td>
<td>63</td>
<td>55</td>
<td>61</td>
<td>64</td>
</tr>
<tr>
<td>Number of cattle</td>
<td>46,749</td>
<td>48,282</td>
<td>37,720</td>
<td>34,702</td>
<td>63,310</td>
<td>64,799</td>
<td>51,946</td>
<td>47,247</td>
<td>66,478</td>
<td>64,313</td>
<td>60,819</td>
</tr>
<tr>
<td>Number of farms with cattle</td>
<td>2,014</td>
<td>1,853</td>
<td>2,010</td>
<td>1,269</td>
<td>1,970</td>
<td>1,801</td>
<td>1,857</td>
<td>1,655</td>
<td>1,679</td>
<td>1,479</td>
<td>1,431</td>
</tr>
<tr>
<td>Number of hogs</td>
<td>105,120</td>
<td>74,711</td>
<td>97,780</td>
<td>58,200</td>
<td>113,903</td>
<td>102,900</td>
<td>119,507</td>
<td>82,511</td>
<td>147,392</td>
<td>114,874</td>
<td>124,285</td>
</tr>
<tr>
<td>Number of farms with hogs</td>
<td>1,928</td>
<td>1,702</td>
<td>1,938</td>
<td>1,538</td>
<td>1,727</td>
<td>1,535</td>
<td>1,666</td>
<td>1,347</td>
<td>1,549</td>
<td>1,317</td>
<td>1,458</td>
</tr>
<tr>
<td>Harvested cropland (acres)</td>
<td>355,916</td>
<td>343,938</td>
<td>351,907</td>
<td>318,820</td>
<td>351,149</td>
<td>336,842</td>
<td>345,411</td>
<td>313,226</td>
<td>353,788</td>
<td>338,163</td>
<td>358,181</td>
</tr>
<tr>
<td>Acres in reserve programs</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Acres of corn</td>
<td>165,394</td>
<td>152,322</td>
<td>162,325</td>
<td>133,715</td>
<td>152,186</td>
<td>139,450</td>
<td>151,456</td>
<td>120,237</td>
<td>186,168</td>
<td>173,670</td>
<td>203,390</td>
</tr>
<tr>
<td>Acres of soybeans</td>
<td>18,786</td>
<td>17,042</td>
<td>26,808</td>
<td>26,152</td>
<td>38,699</td>
<td>35,163</td>
<td>51,675</td>
<td>61,555</td>
<td>41,850</td>
<td>31,725</td>
<td>58,639</td>
</tr>
<tr>
<td>Acres of wheat</td>
<td>587</td>
<td>573</td>
<td>668</td>
<td>1,331</td>
<td>86</td>
<td>375</td>
<td>283</td>
<td>201</td>
<td>5,076</td>
<td>5,927</td>
<td>8,354</td>
</tr>
<tr>
<td>Acres of oats</td>
<td>101,510</td>
<td>85,761</td>
<td>90,414</td>
<td>70,693</td>
<td>106,510</td>
<td>100,527</td>
<td>99,492</td>
<td>78,341</td>
<td>64,505</td>
<td>56,473</td>
<td>44,453</td>
</tr>
<tr>
<td>Acres of barley</td>
<td>3,275</td>
<td>18,570</td>
<td>9,683</td>
<td>13,372</td>
<td>1,136</td>
<td>4,079</td>
<td>1,448</td>
<td>2,950</td>
<td>1,519</td>
<td>3,185</td>
<td>1,100</td>
</tr>
<tr>
<td>Acres of flax</td>
<td>36,196</td>
<td>38,187</td>
<td>37,536</td>
<td>48,081</td>
<td>13,823</td>
<td>17,415</td>
<td>12,227</td>
<td>17,481</td>
<td>6,757</td>
<td>18,693</td>
<td>2,085</td>
</tr>
<tr>
<td>Acres of rye</td>
<td>165</td>
<td>1,347</td>
<td>461</td>
<td>1,004</td>
<td>64</td>
<td>464</td>
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Do they have a SWPPP?

No

Ordinances

Lyon County

No obstruction of street drains, stormwater maintenance in zoning permits, wastewater disposal, erosion control during construction, prohibited uses of wetland systems

Murray County

No Murray County

Lyon County

No Murray County

Murray County

No Murray County

Murray County

No Murray County

Murray County

No Nobles County

No Nobles County

No Jackson County

No Jackson County

No

Restriction of excessive water use, littering, requires drainage plan with zoning permit, pet waste

Yes

Regulation of roof runoff and surface drainage, no discharge of wastewater into natural outlets, regulation of septic systems, as soon as connection to sanitary sewer is available for a property it must be connected, sprinkling restrictions, storm water protection comparable to MS4 regulations, pet waste, floodplain management

No Nobles County

No Jackson County

No Jackson County

No

Littering, wastewater disposal, septic system regulations, pet waste, pollution of wells and water bodies, illicit stormwater discharge, erosion and sediment control, floodplain management

No

Littering, no excessive water use during water shortages, no opening fire hydrants, wastewater disposal, pet waste

Not officially, included in comprehensive plan

Jackson County

No
WFDMR Watershed Agroecoregions

AgroEcoregions:
- Coteau
- Drier Blue Earth Till
- Inner Coteau
- Poorly Drained Blue Earth Till
- Wetter Blue Earth Till

Location:
- Murray
- Nobles
- Cottonwood
- Jackson
Dams

WFDMR Watershed Dam Locations

Cottonwood
Jackson
Murray
Nobles
WFDMR Watershed Drained Lakes

Cottonwood County:
- Lenhart Lake
- Wilson Lake
- South Oaks
- Unnamed Lakes: 2

Jackson County:
- Jones Lake
- Quelvis Lake
- Swenson Lake
- Unnamed Lakes: 11

Martin County:
- Lake Fremont
- Unnamed Lakes: 11

Nobles County:
- Eagle Lake
- Unnamed Lakes: 10

Murray County
- Field Lake
- Berry Lake
- Central Lake
- Lake Elsie
- Star Lake
- Clear Lake
- Mud Lake
- Lake Beauty
- Great Oasis Lake
- Crooked Lake
- Rush Lake
- Oscar Lake
- Bear Lake
- Ivadelle Lake
- Unnamed Lakes: 5

Lyon County
- Unnamed Lakes: 1
WFDMR Watershed Feedlot Distribution by Total Animal Units

Feedlots (Total Animal Units)
- 0.0 - 132.0
- 132.0 - 400.0
- 400.0 - 812.6
- 812.6 - 1560.0
- 1560.0 - 3428.0
Impaired Streams
- Ammonia, Dissolved Oxygen, Fecal Coliform, Turbidity
- E.coli
- Fecal Coliform
- Fecal Coliform, Turbidity
- pH, Turbidity

Impaired Lakes

WFDMR Watershed
Impaired Waters

Cottonwood
Jackson
Murray
Nobles
Land type associations are characterized by glacial formations, bedrock types, topographic roughness, lake and stream patterns, depth to ground water table, and soil material.
WFDMR Watershed Regulated Areas

State Parks
Wellhead Protection Areas
Wildlife Refuges
RIM Easements
Protected Trout Streams
A [watershed] is an area of land on which all surface water flows to a common outlet. [Watersheds come in all shapes and sizes]. They can be broken down into smaller subwatersheds or added together to create larger ones. Either way, people are always within a watershed and their actions always have the potential to affect that watershed.

[Find where you are in the watershed].

Most people know about the [water cycle], but it can be difficult to grasp just how interconnected water really is. Pollution problems can be caused by one source dumping pollutants into a stream, but they can also be caused by multiple indirect processes that may be inconspicuous and difficult to identify. Because water moves and pollutants can accumulate, they can become an issue at any distance from their sources. In addition, pollutants already in the water can sometimes lead to other, often more pressing issues.

The West Fork Des Moines River watershed extends across parts of seven counties in Southwestern Minnesota. It covers an area of 1,333 square miles of land. The land is used primarily for agricultural purposes, both crop and livestock production. The West Fork Des Moines River flows from Lake Shetek and leaves Minnesota through the Southern border south of Jackson. It eventually enters the Mississippi River at Keokuk, Iowa. The [impairments] that are seen within the West Fork Des Moines River watershed are [E. coli bacteria], [turbidity/total suspended solids] (also known as clarity), [nutrients], and [pH]. An impairment refers to one single pollution problem in one body of water. Some parts of the
watershed only have one pollution problem, but some have several problems and therefore multiple impairments.

[C] Agricultural Changes

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Over time, [agriculture] has changed significantly in the West Fork Des Moines River watershed. [Large changes] happened during the 1960s and 1970s to alter the way farming was practiced throughout the watershed. Technological advances in farm machinery made it possible for farms to grow much larger. By 1970, tractors had replaced animal power, which meant that more land could be harvested by a single farm. Due to this change, there has been a decrease in number of farms, but an increase in acres per farm. C¹

There has also been a shift in the type of crops produced by farms in the watershed. The decrease in work animals following the transition from animal power to tractors led to a decrease in demand for feed and bedding. Acreage was then used for higher paying cash crops like corn and soybeans instead of having crops like oats and hay in crop rotations. C²

There were two major reasons for the increased demand in corn and soybeans. During the 1970s, the US was launched into the globalized market. This higher demand for corn and soybean exports increased farmer pay incentives. On the other hand, the US food market shifted towards convenience foods which tend to be processed heavily using corn and soy products. This also increased the demand for corn and soybean production. C³

[D] Cropland and Livestock

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<td>Side Panel</td>
<td>Livestock inventories</td>
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<tr>
<td>Side Panel</td>
<td>Ackermann soil</td>
<td>HLWD</td>
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<tr>
<td>Side Panel</td>
<td>Hog confinement</td>
<td>Web</td>
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Having a larger array of crops in rotation and increasing vegetative cover helps to maintain good soil health and improve infiltration. This helps to make sure water doesn’t run off fields carrying soil and fertilizer into waterways. Landowners can help to maintain their soil health by implementing cover crops or residue and tillage management. [**Good soil health**] and increased infiltration may help root function, plant growth, nutrient availability and cycling, soil structure, soil erodibility, and water storage. D⁴

In recent years, both crop production and livestock production operations have gotten even fewer and even larger. This is because profitability is positively correlated with farm size. The returns are higher and the risks are lower as farm size increases.

As livestock producers grow larger, it can be more difficult to manage the manure from an increased amount of animals and keep it out of the waterways. However, many large livestock producers are turning toward using [**confinement buildings**], which eliminate manure runoff entirely.

### [E] Hydrology

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<td>Side Panel (Medium)</td>
<td>streambank before_after</td>
<td>HLWD</td>
</tr>
<tr>
<td>Map</td>
<td>Altered Water Course Map/Before After Elk Creek SWIPE</td>
<td>MPCA</td>
</tr>
<tr>
<td>Photos</td>
<td>The Great Oasis</td>
<td>MPCA</td>
</tr>
</tbody>
</table>

**Hydrology** is the study of how water is distributed and its relationship with and movement through the earth and atmosphere. Altered hydrology refers to changes in the flow, size, or shape of streams and rivers. Though all channels within the West Fork Des Moines River watershed started out as natural, 39% of channels are now altered. The prevalence of row crop farming has demanded that fields be drained of excess water. This usually happens by directing this water to a ditch or stream. This excess water in the channel causes changes in its stability. E⁵ Many lakes, ponds, and wetlands within the watershed have been completely drained to increase the amount of farmable land. Streams have also been straightened to make farming along streambanks easier causing a change in flow, and therefore changes in [**stability**].

The Great Oasis

[**The Great Oasis**] was actually part of a four-lake chain called Bear Lake located in [**Lowville Township**] in Murray County. Settlers looking for more farmland petitioned the Murray County Commissioners to drain the lakes in 1909. By 1915, the lakes were drained.

The main stage map (on the right) is a digital version from the state’s original plat maps drawn by the U.S. Surveyor General’s Office over the years 1848–1907. It was created during the first government land survey of the state.

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These maps serve as fundamental legal records for real estate, as an essential resource for surveyors, and as an analytical tool for the state’s physical geography prior to European settlement. The original public land survey plats are the official legal land records for Minnesota and all property titles and descriptions stem from them. For more information about historical plat maps visit: http://www.mngeo.state.mn.us/glo/

The original map shows the location of the lakes. In the photo above, the lakes have been replaced by tiled farm fields. The red/yellow map is the [Hydrographic Position Index] (HPI) of the Great Oasis. The HPI accentuates the location of water conveyance landforms. The ditches through the Great Oasis are represented as black lines. The edges of the ditches are highlighted in yellow. This coloring helps natural resources professionals see how the movement of water has been altered.

More information about The Great Oasis can be found in [Draining the Great Oasis: An Environmental History of Murray County, Minnesota].

[F] Groundwater

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<tr>
<th>Placement/Type</th>
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<td>Marilyn Bayerl</td>
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<td>Side Panel (Medium)</td>
<td>Great Bend DWSMA</td>
<td>MDA</td>
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<td>Tractor symbol</td>
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<tr>
<td>House symbol</td>
<td>web</td>
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<tr>
<td>Government symbol</td>
<td>web</td>
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</table>

The main supply of drinking water to the residents and businesses in the West Fork Des Moines River watershed is groundwater – either from [private wells] or [community wells]. Drinking water sources in some cases are so limited that many farms, rural residences, small towns, and unincorporated communities rely on a [rural water system].

Public water supplies are tested for over 100 contaminants and treated as necessary to keep water safe. At well construction, water is tested for coliform bacteria, nitrate, and arsenic. Private well users are responsible for all further testing.

[Groundwater] is a limited resource. Both groundwater availability and the presence of certain pollutants are a concern. There are also land use activities that could cause groundwater pollution if not carefully managed. The risk of groundwater contamination in the West Fork Des Moines River watershed is particularly high in areas of high pollution sensitivity.

The communities of Alpha, Balaton, Lake Wilson, and Windom have vulnerable drinking water systems that indicate a connection and influence from surface water in the watershed. Red Rock Rural Water’s Lake Augusta, Great Bend, and Lindstrom wellfields are also highly vulnerable with a highly vulnerable surface water contribution area. This example from the Great Bend wellfield shows a sand and gravel aquifer located along the West Fork Des Moines River where water quality of the aquifer is influenced by upland runoff. Contaminants on the surface can move into the drinking water aquifers more quickly in these areas and are directly connected to the surface water resources in the watershed.

The communities of Ceylon, Dunnell, Fulda, Iona, Jackson, Lakefield, and Sherburn have low vulnerability to contamination which means that in those areas the deep aquifers are fairly protected. There is also the potential for contamination through unused and abandoned wells. Ensuring abundant and high
quality supplies of groundwater is critical; especially in light of altered hydrology and the impacts on groundwater recharge.

What You Can Do to Protect Groundwater

At Your Farm

▪ **Practice the 4R’s of nutrient stewardship.** Apply the right source, right rate, right time, and right place.
▪ **Comply with MPCA feedlot rules.**
▪ **Increase living cover.** Plant cover crops, buffer strips and grow perennial crops.
▪ **Adopt water conservation measures** such as irrigation scheduling and increasing soil organic matter.
▪ **Use and store chemicals safely.** Read and follow application and storage instructions.
▪ **Participate in the Pesticide Container Recycling Program** (run by Minnesota Department of Agriculture).
  Seal unused wells.

At Home

▪ **Test your well** every year for coliform bacteria, every other year for nitrate, and at least once for arsenic and lead.
▪ **Seal unused wells.**
▪ **Use and store chemicals wisely.** Read and follow label instructions. Store chemicals in a safe spot.
▪ **Dispose of household chemicals, paints, and pharmaceuticals** at community-supported collection sites.
▪ **Use water efficient appliances.**
  Run only full loads of laundry and dishes.

Through Local Government

▪ **Enact land use controls** that add protections for groundwater quality and quantity.
▪ **Support chemical and pharmaceutical take back programs** to reduce the risk of contamination.
▪ **Support staff and programs that protect groundwater and drinking water**, such as water testing clinics, well sealing programs, and working with landowners to minimize loss of pollutants and over use of water.

[G] Impervious Surface

<table>
<thead>
<tr>
<th>[G] Impervious Surface - Multimedia</th>
<th>Placement/Type</th>
<th>Topic/Subject</th>
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<tr>
<td>Main Stage Picture (Large, High Resolution)</td>
<td>City of Jackson</td>
<td>Web</td>
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<tr>
<td>Side Panel (Medium)</td>
<td>Storm drain</td>
<td>HLWD</td>
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<tr>
<td>Map</td>
<td>Impervious surface area</td>
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Impervious surfaces are land areas that are covered with material that does not allow the infiltration of water. Examples of impervious surfaces are roads, sidewalks, and buildings. Impervious surface cover is another way to alter hydrology. It disrupts the way water naturally flows along and through the earth. When added to an urban storm drain system, this effect is amplified. Not only does this increase the amount of water in channels because no water can infiltrate, but water that comes through storm drains can pick up pollutants from roads and sidewalks before entering waterways.
The West Fork Des Moines River watershed only has about 8 square miles of impervious surface, which is about 0.6% of the watershed. Although towns within the watershed have urbanized more than they were in the past, water quality issues generally occur when impervious surface makes up 10% or more of the watershed.

[H] Septic Systems

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<tr>
<td>Side Panel</td>
<td>Outhouse</td>
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Outhouses were commonly used before the advent of septic systems. A septic system is known more formally as an Individual Sewage Treatment System (ISTS). They will also sometimes be called Subsurface Sewage Treatment Systems (SSTS). Homes that do not have access to public sewer systems, such as in rural areas, must have and maintain their own system to treat their household wastewater. A septic system must be designed and installed by [licensed businesses and certified individuals] in order to ensure regulations are followed.

When septic systems were first placed within the West Fork Des Moines River watershed, they could have used a wide variety of techniques, as there were no regulations in place to make sure that septic systems were not affecting the environment. Many systems were straight-pipes that sent raw sewage directly into ditches, streams, or lakes. Others may have been cesspools that infiltrated into groundwater. These systems were not regulated by the State until 1970, and statewide compliance criteria was not established until 1997. Under the current rule, a system that is not in compliance is one that is failing to protect groundwater and/or is an imminent threat to public health and safety. It is estimated that there are between 0 and 5 non-compliant septic systems per 1,000 acres, depending on the county, within the watershed. These numbers have slowly improved over the years as property owners are replacing their systems as a result of compliance inspections or maintenance issues with their old system.

[I] Wildlife Habitat

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<td>Side Panel</td>
<td>restoration, HL system</td>
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<td>Map</td>
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Loss of habitat along the West Fork Des Moines River and throughout the watershed causes a direct loss in wildlife habitat, as well as an indirect degradation in water quality. This degradation in water quality

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can mean losses in habitat for aquatic life. Excess sediment, excess nutrients, low dissolved oxygen levels, chemical and bacterial contaminants, and changes in pH can all have drastic effects on aquatic life and can be affected by surrounding land use.

The Heron Lake system, within the West Fork Des Moines River watershed, is a complex of shallow prairie lakes and marshes that has been nationally known as a waterfowl nesting and breeding area for over a century. Since the years of early settlement, there has been a significant decrease in the aquatic vegetation within the Heron Lake system due to heavily fluctuating water levels. Artificial drainage within the watershed has contributed considerably to these water level issues. The destruction of the vegetation within the lake system has all but eradicated the ability of waterfowl to nest and feed in the area.

Although there have been many changes to the land use of the watershed, there have also been [significant habitat conservation efforts] that have begun to restore natural vegetation and suitable water quality and quantity throughout the watershed. Projects have been implemented by the Heron Lake Watershed District, County Soil and Water Conservation Districts within the watershed, and the Natural Resources Conservation Service, in cooperation with concerned watershed landowners. The Department of Natural Resources implements projects to manage the water quantity issues within the watershed and, along with the US Fish and Wildlife Service, maintain natural prairie lands to provide wildlife habitat.

**[J] Important Bird Areas (IBA)**

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<tr>
<td>Map</td>
<td>Link to IBA on Audubon Society page</td>
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In addition to these governmental efforts, non-profit groups such as The Nature Conservancy and Audubon have taken an interest in conserving the area’s natural habitats. Two Important Bird Areas (IBA) have been identified within the West Fork Des Moines River watershed, as well as the Lindgren-Traeger Bird Sanctuary.

**[J1] [Des Moines River IBA]:** The Des Moines River IBA H8 is a corridor of native habitats along the Des Moines River between Windom and the Minnesota-Iowa border. Bird species include: Bobolink, Dickcissel, Eastern Wood-Pewee, Field Sparrow, Grasshopper Sparrow, Northern Rough-winged Swallow, Ovenbird, Rose-breasted Grosbeak, Sedge Wren, Swamp Sparrow, Wood Thrush, and Yellow-bellied Sapsucker.

**[J2] Heron Lake IBA:** The Heron Lake IBA H9 encompasses North and South Heron Lakes, as well as the Talcot Lake WMA. Bird species include: American Bittern, Black Tern, Black-crowned Night Heron, American Bittern, Black Tern, Black-crowned Night Heron, American Bittern, Black Tern, Black-crowned Night Heron.
Forster’s Tern, Franklin’s Gull, Henslow’s Sparrow, Trumpeter Swan, Upland Sandpiper, Western Grebe, Bald Eagle, and Wilson’s phalarope.

[J3] Lindgren-Traeger Bird Sanctuary: The Nature Conservancy’s (TNC) Lindgren-Traeger Bird Sanctuary H10 lies on the northern edge of North Heron Lake. It serves as a visual reminder of the vast 8,000 acre-wetland that once was one of North American’s most productive marshes. Bird species include: American White Pelican, Least Bittern, Magnolia Warbler, Marsh Wren, Nashville Warbler, Orange-crowned Warbler, Osprey, Spotted Sandpiper, Trumpeter Swan, Yellow-headed Blackbird, and Yellow-rumped Warbler.

[K] Conservation Efforts

Landowners within the watershed have been implementing voluntary conservation efforts for several decades. Best management practices that have been installed include prairie restoration, buffer strips, wetland restorations, conservation tillage, cover crops, terraces, waterways, sediment basins, and rain gardens.

Video Links:
- Cover Crops in Southern Minnesota
- Interseeding Cover Crops into Corn
- Terraces
- Waterways
- Buffer strips
- Conservation tillage

[L] Working Together

[L] Conclusions - Multimedia

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<td>Side Panel</td>
<td>WFDMR map</td>
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<td>Side Panel</td>
<td>Logos</td>
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Your opinion counts! Please take our survey and provide us with valuable input on the water in the West Fork Des Moines River watershed!

The efforts for clean water in the West Fork Des Moines River watershed would not happen if it without successful partnerships. Are you interested in a partnership opportunity to install a project on your property to reduce water pollution? Would you like to learn more about activities within the WFDMR watershed? You can find more information about each of the local government units within the watershed on their websites: Lyon County and SWCD; Pipestone County and SWCD; Murray County and SWCD; Nobles County and SWCD; Cottonwood County and SWCD; Jackson County and SWCD; Martin County and SWCD; and the Heron Lake Watershed District.

Questions regarding this Story Map? Contact Jan Voit, Heron Lake Watershed District, PO Box 345, Heron Lake, MN 56137; 507-793-2462; or jvoit@hlwdonline.org.

Works Cited
The West Fork Des Moines River Watershed

A watershed is an area of land on which all surface water flows to a common outlet. For example, all the water that falls within the Heron Lake watershed flows to Heron Lake in some way. Watersheds come in all shapes and sizes. They can be broken down into smaller subwatersheds, or added together to create larger ones. Either way, people are always within a watershed and their actions always have the potential to affect that watershed.

Find where you are in the watershed.

Most people know about the water cycle, but it can be difficult to grasp just how interconnected water really is. Pollution problems can be caused by one source dumping pollutants into a stream, but they can also be caused by multiple indirect processes that may be inconspicuous and difficult to identify. Because water moves and pollutants can accumulate, they can become an issue at any distance from their sources. In addition, pollutants already in the water can sometimes lead to other, often more pressing issues.
West Fork Des Moines River (WFDMR) Watershed
Story Map
Works Cited

The WFDMR
Sunset over the WFDMR
Photo credit: Jan Voit

Watershed

Watersheds Location

Water Cycle

Bacteria

Turbidity

Nutrients

pH

About
Canoe
Photo credit: Heron Lake Watershed District (HLWD)

Fulda Lake
Photo credit: HLWD

Impaired Waters List
**Agricultural Changes**

Farm photo

Brian Peterson – Star Tribune file


**Agriculture**


**Large Changes**


Farm Size Changes Chart


**Corn**

Photo credit: HLWD

**Soybean Field**


**Oats**


**Hay**


**Cropland and Livestock**

Cattle and streambank photo

Brian Peterson – Star Tribune file


Livestock Production Chart

Confinement building

Soil Health
Photo credit: HLWD

Hydrology
Valleau WMA entering Jack Creek, Section 31, Weimer Township, Jackson County
Photo credit: HLWD

Hydrology

Hydrologic Cycle

Altered Hydrology PowerPoint Presentation

Streambank Stabilization Project
Photo credit: HLWD

Elk Creek Swipe
<iframe frameborder="0" class="juxtapose" width="100%" height="760" src="https://cdn.knightlab.com/libs/juxtapose/latest/embed/index.html?uid=1a68db08-7e36-11e8-b263-0eda8f81e27"></iframe>

Excess water in channels causes changes in stability

The Great Oasis

Main Stage Photo
“GLO Historic Plat Map.” MN IT Services, www.mngeo.state.mn.us/glo/.

“Lowville Township Board.” Murray County, Murray County, 2015, murraycountymn.com/lowville/.


GLO: MNGeo, MNDOT, Foth


**Groundwater**

Jackson Water Tower

Photo credit: Marilyn Bayerl

Private well


Community well


Rural water system


Groundwater


House symbol


Courthouse symbol


Tractor symbol


Great Bend DWSMA


**Impervious Surface**

City of Jackson
Water quality issues occur when impervious surface makes up 10% or more of the watershed.


**Septic Systems**

Septic system installation

Photo credit: HLWD

Outhouse information


Non-compliant septic systems


Outhouse


**Wildlife Habitat**

Wildflowers

Photo credit: Jan Voit

Heron Lake System

Photo credit: Minnesota Department of Natural Resources

Habitat conservation efforts

Photo credit: HLWD

**Important Bird Areas**

Eggs

Photo credit: Jan Voit

*Des Moines IBA*

Bobolink


Dickcissel

Eastern Wood-Pewee  

Field Sparrow  

Grasshopper Sparrow  

Northern Rough-winged Swallow  

Ovenbird  

Sedge Wren  

Rose-breasted Grosbeak  

Swamp Sparrow  

Wood Thrush  

Yellow-bellied Sapsucker  

Heron Lake IBA  
American Bittern
Black Crowned Night Heron

Black Tern

Forster’s Tern

Franklin’s Gull

Henslow’s Sparrow

Trumpeter Swan

Upland Sandpiper

Western Grebe

Bald Eagle
Photo credit: Jan Voit

Wilson’s Phalarope

Lindgren-Traeger Wildlife Viewing Area

American White Pelican

Least Bittern
Conservation Efforts

Construction
Prairie restoration
Buffer strips
Wetland restoration
Conservation tillage
Cover crops
Terrace
Waterway
Sediment basin
Rain garden
Video Links to Conservation Practices

Cover Crops in Southern Minnesota
mnccornvids. “Cover Crops in Southern Minnesota.” YouTube, YouTube, 23 Nov. 2015, www.youtube.com/watch?v=KtRu8cYkLpE.

Interseeding Cover Crops into Corn

Terraces
IowaNRCS. “Conservation Choices Practice Spotlight: Terraces.” YouTube, YouTube, 18 Nov. 2015, www.youtube.com/watch?v=BBLgVaN9jA8g.

Waterways

Buffer strips

Conservation tillage

Working Together
Rain garden installation
Photo credit: HLWD

Partner logos:

WFDMR watershed map
Photo credit: HLWD
A watershed (link: https://oceanservice.noaa.gov/facts/watershed.html) is an area of land on which all surface water flows to a common outlet. Watersheds come in all shapes and sizes (link: https://www.pca.state.mn.us/water/watersheds). They can be broken down into smaller subwatersheds or added together to create larger ones. Either way, people are always within a watershed and their actions always have the potential to affect that watershed.

Find where you are in the watershed. (link available only in online story)

Most people know about the water cycle, but it can be difficult to grasp just how interconnected water really is. Pollution problems can be caused by one source dumping
pollutants into a stream, but they can also be caused by multiple indirect processes that may be inconspicuous and difficult to identify. Because water moves and pollutants can accumulate, they can become an issue at any distance from their sources. In addition, pollutants already in the water can sometimes lead to other, often more pressing issues.

About

The West Fork Des Moines River watershed extends across parts of seven counties in Southwestern Minnesota. It covers an area of 1,333 square miles of land. The land is used primarily for agricultural purposes, both crop and livestock production. The West Fork Des Moines River flows from Lake Shetek and leaves Minnesota through the Southern border south of Jackson. It eventually enters the Mississippi River at Keokuk, Iowa. The impairments that are seen within the West Fork Des Moines River watershed are E. coli bacteria (link: https://www.pca.state.mn.us/water/bacteria), turbidity/total suspended solids (link: https://mrbdc.mnsu.edu/what-turbidity) (also known as clarity), nutrients (link: https://www.pca.state.mn.us/water/phosphorus), and pH (link: https://water.usgs.gov/edu/ph.html). An impairment refers to one single pollution problem in one body of water. Some
parts of the watershed only have one pollution problem, but some have several problems and therefore multiple impairments.

View the Impaired Waters in the watershed. (link available only in online story)

Read the list of impaired waters in the watershed. (Table (link: http://www.hlwdonline.org/php/images/pdf/Grants/Major%20Watershed%20Project%20Phase%202/2018_Draft_IWL_WFDMR.pdf).)
Agricultural Changes

Over time, agriculture (link: http://www.netstate.com/economy/mn_economy.htm) has changed significantly in the West Fork Des Moines River watershed. Large changes (link: https://mnagmag.org/archive/agmag-archive/agmag-2015-2016/agmag-winter-2015-2016/agmag-winter-2015-2016-online-edition/big-changes-in-minnesota-agriculture/) happened during the 1960s and 1970s to alter the way farming was practiced throughout the watershed. Technological advances in farm machinery made it possible for farms to grow much larger. By 1970, tractors had replaced animal power, which meant that more land could be harvested by a single farm. Due to this change, there has been a decrease in number of farms, but an increase in acres per farm.
www.agcensus.usda.gov/Publications/

There has also been a shift in the type of crops produced by farms in the watershed. The decrease in work animals following the transition from animal power to tractors led to a decrease in demand for feed and bedding. Acreage was then used for higher paying cash crops like corn (link available only in online story) and soybeans (link available only in online story) instead of having crops like oats (link available only in online story) and hay (link available only in online story) in crop rotation.

There were two major reasons for the increased demand in corn and soybeans. During the 1970s, the US was launched into the globalized market. This higher demand for corn and soybean exports increased farmer pay incentives. On the other hand, the US food market shifted towards convenience foods which tend to be processed heavily using corn and soy products. This also increased the demand for corn and soybean production.
Cropland and Livestock

In recent years, both crop production and livestock production operations have gotten even fewer and even larger. This is because profitability is positively correlated with farm size. The returns are higher and the risks are lower as farm size increases.
As livestock producers grow larger, it can be more difficult to manage the manure from and increase amount of animals and keep it out of the waterways. However, may large livestock producers are turning toward using confinement buildings (link available only in online story), which eliminate manure runoff entirely.

View a map of feedlots in the watershed. (link available only in online story)

Having a larger array of crops in rotation and increasing vegetative cover helps maintain good soil health and improve infiltration. This helps to make sure water doesn't run off fields carrying soil and fertilizers into waterways. Landowners can help maintain their soil health by implementing cover crops or residue and tillage management. Good soil health (link available only in online story) and increased infiltration may help root function, plant growth,
Hydrology
Before Restoration
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Though all channels within the West Fork Des Moines River watershed started out as natural, 39% of channels are now altered (link available only in online story). The prevalence of row crop farming has demanded that fields be drained of excess water. This usually happens by directing this water to a ditch or stream. This excess water in the channel causes changes in its stability. Many lakes, ponds, and wetlands within the watershed have been completely drained to increase the amount of farmable land. Streams have also been straightened (link available only in online story) to make farming along streambanks easier causing a change in flow, and therefore changes in stability.
The Great Oasis (link: http://www.smsu.edu/sslrh/publications/books/drainingEnviro.html) was actually part of a four-lake chain called Bear Lake located in Lowville Township (link: https://murraycountymn.com/lowville/) in Murray County. Settlers looking for more farmland petitioned the Murray County Commissioners to drain the lakes in 1909. By 1915, the lakes were drained.
The main stage map (on the right) is a digital version from the state’s original plat maps drawn by the U.S. Surveyor General’s Office over the years 1848–1907. It was created during the first government land survey of the state.

These maps serve as fundamental legal records for real estate, as an essential resource for surveyors, and as an analytical tool for the state’s physical geography prior to European settlement. The original public land survey plats are the official legal land records for Minnesota and all property titles and descriptions stem from them. For more information about historical plat maps visit: [http://www.mngeo.state.mn.us/glo/](http://www.mngeo.state.mn.us/glo/).
The original map shows the location of the lakes. In the photo above, the lakes have been replaced by tiled farm fields. The red/yellow map is the Hydrographic Position Index (link: http://www.mngeo.state.mn.us/chouse/elevation/HPI_Description_and_Symbolization.pdf) (HPI) of the Great Oasis. The HPI accentuates the location of
water conveyance landforms. The ditches through the Great Oasis are represented as black lines. The edges of the ditches are highlighted in yellow. This coloring helps natural resources professionals see how the movement of water has been altered.
Groundwater
The main supply of drinking water to the residents and businesses in the West Fork Des Moines River watershed is groundwater – either from private wells or community wells. Drinking water sources in some cases are so limited that may farms rural residences, small towns, and unincorporated communities rely on a rural water system.

Public water supplies are tested for over 100 contaminants and treated as necessary to keep water safe. At well construction, water is tested for coliform bacteria, nitrate, and arsenic. Private well users are responsible for all further testing.

Groundwater is a limited resource. Both groundwater availability and the presence of certain pollutants are a concern. There are also land use activities that could cause groundwater pollution if not carefully managed. The risk of groundwater contamination in the West Fork Des Moines River watershed is particularly high in areas of high pollution sensitivity.

The communities of Alpha, Balaton, Lake Wilson, and Windom have vulnerable drinking water systems that indicate a connection and influence from surface water in the watershed. Red Rock Rural Water System's Lake Augusta, Great Bend, and Lindstrom wellfields are also highly vulnerable with a highly vulnerable surface water contribution area. This example from the Great Bend wellfield shows a sand and gravel aquifer located along the West Fork Des Moines River where water quality of the aquifer is influenced by upland runoff. Contaminants on the surface can move into the drinking water aquifers more quickly in these areas and are directly connected to the surface water resources in the watershed.
What You Can Do to Protect Groundwater

At your farm

- **Practice the 4R's of nutrient stewardship.** Apply the right source, right rate, right time, and right place.
- **Comply with MPCA feedlot rules.**
- **Increase living cover.** Plant cover crops, buffer strips, and grow perennial crops.
- **Adopt water conservation measures** such as irrigation scheduling and increasing soil organic matter.

• **Use and store chemicals safely.** Read and follow application and storage instructions.
• **Participate in the Pesticide Container Recycling Program** run by the [Minnesota Department of Agriculture](http://www.mda.state.mn.us).
• Seal unused wells.

![At home](image)

At home

• **Test your well** every year for coliform bacteria, every other year for nitrate, and at least once for arsenic and lead.
• Seal unused wells.
• **Use and store chemicals wisely.** Read and follow label instructions. Store chemicals in a safe spot.
• **Dispose of household chemicals, paints, and pharmaceuticals** at community-supported collection sites.
• **Use water efficient appliances.**
• Run only full loads of laundry and dishes.

![Through local government](image)

Through local government

• **Enact land use controls** that add protection for groundwater quality and quantity.
• **Support chemical and pharmaceutical take back programs** to reduce the risk of contamination.
• **Support staff and programs that protect groundwater and drinking water,** such as water testing clinics, well sealing programs, and working with landowners to minimize loss of pollutants and over use of water.
Impervious Surface

Impervious surfaces are land areas that are covered with material that does not allow the infiltration of water. Examples of impervious surfaces are roads, sidewalks, and buildings. Impervious surface cover is another way to alter hydrology. It disrupts the way water naturally flows along and through the earth. When added to an urban storm drain system, this effect is amplified. Not only does this increase the amount of water in channels because no water can infiltrate, but water that comes through storm drains (link available only in online story) can pick up pollutants from roads and sidewalks before entering waterways.

The West Fork Des Moines River watershed only has about 8 square miles of impervious surface, which is about 0.6% of the watershed. Although towns within the watershed have urbanized more than they were in the past, water quality issues generally occur when impervious surface makes up 10% or more of the watershed (link: https://svs.gsfc.nasa.gov/2176).

View a map of Impervious surfaces in the West Fork Des Moines River watershed (link available only in online story).
Septic Systems

Outhouses (link: http://www.sewerhistory.org/photosgraphics/outhouses/) were commonly used before the advent of septic systems. A septic system is known more formally as an Individual Sewage Treatment System (ISTS). They will also sometimes be called Subsurface Sewage Treatment Systems (SSTS). Homes that do not have access to public sewer systems, such as in rural areas, must have and maintain their own system to treat their household wastewater. A septic system must be designed and installed by licensed businesses and certified individuals (link: http://www.hlwdonline.org/php/images/pdf/Grants/2016%20CWP%20Loan%20Program/2018_Septic_Contractors.pdf) in order to ensure regulations are followed.
When septic systems were first placed within the West Fork Des Moines River watershed, they could have used a wide variety of techniques, as there were no regulations in place to make sure that septic systems were not affecting the environment. Many systems were straight-pipes that sent raw sewage directly into ditches, streams, or lakes. Others may have been cesspools that infiltrated into groundwater. These systems were not regulated by the State until 1970, and statewide compliance criteria was not established until 1997.

Under the current rule, a system that is not in compliance is one that is failing to protect groundwater and/or is an imminent threat to public health and safety. It is estimated that there are between 0 and 5 non-compliant (link: https://www.pca.state.mn.us/sites/default/files/wq-wwists1-56.pdf) imminent threat septic systems per 1,000 acres, depending on the county, within the watershed. These numbers have slowly improved over the years as property owners are replacing their

systems as a result of compliance inspections or maintenance issues with their old system.
Wildlife Habitat

Loss of habitat along the West Fork Des Moines River and throughout the watershed causes a direct loss in wildlife habitat, as well as an indirect degradation in water quality. This degradation in water quality can mean losses in habitat for aquatic life. Excess sediment, excess nutrients, low dissolved oxygen levels, chemical and bacterial contaminants, and changes in pH can all have drastic effects on aquatic life and can be affected by surrounding land use.

The Heron Lake system (link available only in online story), within the West Fork Des Moines River watershed, is a complex of shallow prairie lakes and marshes that has been nationally known as a waterfowl nesting and breeding area for over a century. Since the years of early settlement, there has been a significant decrease in the aquatic vegetation within the Heron Lake system due to heavily fluctuating water levels (link: https://www.dnr.state.mn.us/lakefind/search.html?name=Heron+Lake&county=). Artificial drainage within the watershed has contributed
considerably to these water level issues. The destruction of the vegetation within the lake system has all but eradicated the ability of waterfowl to nest and feed in the area.

Although there have been many changes to the land use of the watershed, there have also been significant habitat conservation efforts (link available only in online story) that have begun to restore natural vegetation and suitable water quality and quantity throughout the watershed. Projects have been implemented by the Heron Lake Watershed District, County Soil and Water Conservation Districts within the watershed, and the Natural Resources Conservation Service (link: https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/), in cooperation with concerned watershed landowners. The Department of Natural Resources (link: https://www.dnr.state.mn.us/) implements projects to manage the water quantity issues within the watershed and, along with the US Fish and Wildlife Service (link: https://www.fws.gov/refuge/windom_wmd/), maintain natural prairie lands to provide wildlife habitat.
Important Bird Areas

In addition to these governmental efforts, non-profit groups such as The Nature Conservancy (link: https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/minnesota/index.htm) and Audubon (link: http://mn.audubon.org/) have taken an interest in conserving the area’s natural habitats. Two Important Bird Areas (IBA) have been identified within the West Fork Des Moines River watershed, as well as the Lindgren-Traeger Bird Sanctuary.

Des Moines River IBA (link: https://www.audubon.org/important-bird-areas/des-moines-river-iba): The Des Moines River IBA is a corridor of native habitats along the Des Moines River between Windom and the Minnesota-Iowa border. Bird species include: Bobolink (link available only in online story), Dickcissel (link available only in online story), Eastern Wood-Pewee (link available only in online story), Field Sparrow (link available only in online story), Grasshopper Sparrow (link available only in online story), Northern Rough-winged Swallow (link available...
only in online story), Ovenbird (link available only in online story), Rose-breasted Grosbeak, (link available only in online story) Sedge Wren (link available only in online story), Swamp Sparrow (link available only in online story), Wood Thrush (link available only in online story), and Yellow-bellied Sapsucke (link available only in online story).

**Heron Lake IBA**: The Heron Lake IBA encompasses North and South Heron Lakes, as well as the Talcot Lake WMA. Bird species include: American Bittern (link available only in online story), Black Tern (link available only in online story), Black-crowned Night Heron (link available only in online story), Forster’s Tern (link available only in online story), Franklin’s Gull (link available only in online story), Henslow’s Sparrow (link available only in online story), Trumpeter Swan (link available only in online story), Upland Sandpiper (link available only in online story), Western Grebe (link available only in online story), Bald Eagle (link available only in online story), and Wilson’s phalarope (link available only in online story).

The Nature Conservancy’s (TNC) **Lindgren-Traeger Bird Sanctuary** lies on the northern edge of North Heron Lake. It serves as a visual reminder of the vast 8,000-acre wetland that once was one of North America’s most productive marshes. The Nature Conservancy’s (TNC) Lindgren-Traeger Bird Sanctuary lies on the northern edge of North Heron Lake. The Nature Conservancy’s (TNC) Lindgren-Traeger Bird Sanctuary lies on the northern edge of North Heron Lake. Bird species include: American White Pelican (link available only in online story), Least Bittern (link available only in online story), Magnolia Warbler (link available only in online story), Marsh Wren (link available only in online story), Nashville Warbler (link available only in online story), Orange-crowned Warbler (link available only in online story), Osprey (link available only in online story), Spotted Sandpiper (link available only in online story), Trumpeter Swan (link available only in online story), Yellow-headed Blackbird (link available only in online story), and Yellow-rumped Warbler (link available only in online story).
Conservation Efforts

Landowners within the watershed have been implementing voluntary conservation efforts for several decades. Best management practices that have been installed include prairie restoration (link available only in online story), buffer strips (link available only in online story), wetland restorations (link available only in online story), conservation tillage (link available only in online story), cover crops (link available only in online story), terraces (link available only in online story), waterways (link available only in online story), sediment basins (link available only in online story), and rain gardens (link available only in online story).
Cover crops at harvest in Cottonwood County. Photo credit: Nathan Voit

https://www.arcgis.com/apps/MapJournal/resources/tpl/viewer/print/print.html?appid=a78bdf0568064467ad09e1a8eef777e3
Video Links to Conservation Practices

- Cover Crops in Southern Minnesota
- Interseeding Cover Crops into Corn
- Terraces
- Waterways
- Buffer strips
- Conservation tillage

View a map of WFDMR Conservation Efforts (under construction)
Working Together

Your opinion counts! Please take our survey and provide us with valuable input on the water in the West Fork Des Moines River watershed!

Click here to take our survey! (link: https://www.surveymonkey.com/r/WFDMR1)

The efforts for clean water in the West Fork Des Moines River watershed would not happen if it without successful partnerships. Are you interested in a partnership opportunity to install a project on your property to reduce water pollution? Would you like to learn more about activities within the West Fork Des Moines River watershed?
You can find more information about each of the local government units within the watershed on their websites: Lyon County (link: http://www.lyonco.org/) and SWCD (link: http://www.lyonco.org/swcd); Pipestone County (link: https://www.pipestone-county.com/); and SWCD (link: http://www.pipestoneswcd.org/); Murray County (link: http://www.murraycountymn.com/); and SWCD (link: http://www.murrayswcd.org/); Nobles County (link: http://www.co.nobles.mn.us/); and SWCD (link: https://www.noblesswcd.org/); Cottonwood County (link: http://www.co.cottonwood.mn.us/); and SWCD (link: https://www.wc.cottonwoodswcd.org/); Jackson County (link: https://www.co.jackson.mn.us/); and SWCD (link: https://www.co.jackson.mn.us/?SEC=01CF05A8-F4D9-4274-8F2A-D2BC568848D0); Martin County (link: http://www.co.martin.mn.us/); and SWCD (link: https://martinswcd.net/); and the Heron Lake Watershed District (link: http://www.hlwdonline.org/php/).
Questions regarding this story map?

Contact
Jan Voit
Heron Lake Watershed District
PO Box 345
Heron Lake, MN 56137
Phone: 507-793-2462
Email: jvoit@hlwdonline.org
Website: hlwdonline.org

Works Cited
Appendix 8
Save the Date!

March 26, 2018
1:00 – 3:00 pm
Fulda American Legion, Fulda MN

Please mark your calendars to join the Heron Lake Watershed District for a West Fork Des Moines River Watershed update session. This meeting will cover the Watershed Restoration and Protection Strategies (WRAPS) report that is nearing completion. It will also provide an opportunity for discussion of the upcoming One Watershed One Plan (1W1P) that you will all be responsible for developing. This meeting is for all Elected and Appointed Officials and Local Government staff.

An agenda will be sent out at a later date. Please let me know if you will be attending or if you have any questions.
Des Moines River Watershed Shared Leadership Meeting

March 26, 2018
1:00 pm – 3:00 pm
Fulda American Legion
106 W. Front St., Fulda, MN

Agenda

1:00 – 1:05  Welcome and Introductions
Ross Behrends, Heron Lake Watershed District (HLWD)

1:05 – 1:35  Watershed Restoration and Protection Strategies (WRAPS) Update
Katherine Pekarek, Minnesota Pollution Control Agency

1:35 – 2:25  Developing a Watershed Vision
Toby Spanier, U of MN Extension

2:25 – 2:55  One Watershed One Plan
Board of Water and Soil Resources

2:55 – 3:00  Closing Questions and Comments
Ross Behrends, HLWD
Developing a Watershed Vision – Facilitation Notes (1:35 – 2:25 p.m.)

<table>
<thead>
<tr>
<th>TIME</th>
<th>TOPIC/FOCUS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:35</td>
<td>Introduction to Values and Vision</td>
<td>Do you know everyone in Fulda – SW Minnesota – Minnesota – USA?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vision quotes at tables</td>
</tr>
<tr>
<td>1:40</td>
<td>Overview of “Our Cover Story Vision”</td>
<td>➢ Pass out the graphic guide to participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Visualization: It is now 2030, you have accomplished everything you wanted in the watershed and the media (newspaper, magazines, facebook, etc.) is featuring your watershed as its cover story. What does the story say about your watershed? What are the major headlines and images? What are the sidebars and quotes being used? Remember the story is already written. If you find you can’t recall the details, JUST MAKE IT UP!</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Explain the different areas of the guide and launch into individual work (5 minutes) followed by small group work (15 - 20 minutes)</td>
</tr>
<tr>
<td>2:05</td>
<td>Vision Stories</td>
<td>➢ Smaller Groups Report Out and the Creation of a Collective Vision Story</td>
</tr>
</tbody>
</table>
| 2:20 | Reflections for Collaboration and Engagement Together | ➢ Start with Why  
➢ Anticipate Resistance  
➢ Choose Loyalty  
➢ Communicate Clearly then Trust  
➢ Time  
➢ Acknowledge Others & Their Perspective |
Reflections
Six Common Themes on Collaboration and Engagement Together

West Fork Des Moines River Watershed
Shared Leadership Meeting

Tobias Spanier
Associate Professor at the Center for Community Vitality Leadership & Civic Engagement
Reflections

1. Start with **WHY** – ask why are we doing this?
   - Improve the quality/quantity of water for area residents (What is the vision?)
     - Why?
     - How?
     - What?
Start with Why

How Great Leaders Inspire Everyone to Take Action

Simon Sinek

TED Talks

www.ted.com/talks
Reflections

2. Anticipate resistance – criticism

➢ General criticism – governmental bodies cannot work together.

➢ Choose what you will be criticized for and stand ready to plead “guilty”.
If I were to try to read, much less answer all the attacks made on me this shop might as well be closed for any other business
Reflections
3. Choose Loyalty – To each other and the cause

“Loyalty means not that I agree with everything you say or that I believe you are always right. Loyalty means that I share a common ideal with you and, regardless of minor differences, we fight for it, shoulder to shoulder, confident in one another’s good faith, trust, constancy and affection.”
~ Dr. Karl A. Wenninger
Reflections

4. Communicate clearly and then Trust that people will make good decisions if given the facts

- *Be transparent with the facts. Hold nothing back!*

- *Empower people with facts. Expect them to own them and to use them.*
I am a firm believer in the people. If given the truth, they can be depended upon to meet any national crisis. The great point is to bring them the real facts.
**Inform**

**P2 Goal:** To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.

**Promise to the Public:** We will keep you informed.

**Example Tools:**
- Fact sheets
- Web sites
- Open houses

---

**Consult**

**P2 Goal:** To obtain public feedback on analysis, alternatives and/or decisions.

**Promise to the Public:** We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.

**Example Tools:**
- Public comment
- Focus groups
- Surveys
- Public meetings

---

**Involve**

**P2 Goal:** To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.

**Promise to the Public:** We will work with you to ensure that your concerns and issues are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.

**Example Tools:**
- Workshops
- Deliberative polling

---

**Collaborate**

**P2 Goal:** To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.

**Promise to the Public:** We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.

**Example Tools:**
- Citizen Advisory Committees
- Consensus-building
- Participatory decision-making

---

**Empower**

**P2 Goal:** To place final decision-making in the hands of the public.

**Promise to the Public:** We will implement what you decide.

**Example Tools:**
- Citizen Juries
- Ballots
- Delegated decisions

visit www.iap2.org
Reflections

5. Time – Anything worthwhile takes time

➢ Time to prepare
➢ Time to change
➢ Time to fail
Abraham Lincoln said:

“If I had six hours to chop down a tree,
I’d spend the first four hours sharpening the axe”.
Reflections

6. Acknowledge Others & Their Perspective

- Be crystal clear about the value of each player
- Remind each other we will accomplish TOGETHER what we cannot accomplish in ISOLATION!
- Keep an Empty Chair
- Give credit – Acknowledge others
  - John Wooden
Recognize others!

Point a finger!

Wink!

Give a “thumbs up!

Acknowledge your teammate!
Kindest wishes as you commence your work together!
Q1 Please list your ZIP CODE.

Answered: 36  Skipped: 0
Q2 Please check which one(s) represent you the best:

Answered: 36  Skipped: 0

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<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
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<tr>
<td>SWCD/NRCS</td>
<td>11.11%</td>
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<td>Production Ag.</td>
<td>22.22%</td>
</tr>
<tr>
<td>Sportsman Association</td>
<td>2.78%</td>
</tr>
<tr>
<td>Rural Resident</td>
<td>8.33%</td>
</tr>
<tr>
<td>Elected Official</td>
<td>33.33%</td>
</tr>
<tr>
<td>Civic Organization</td>
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</tr>
<tr>
<td>Lake Association</td>
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<tr>
<td>Student</td>
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<tr>
<td>Ag. Business</td>
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<tr>
<td>Business Owner</td>
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<tr>
<td>City Resident</td>
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</tr>
<tr>
<td>Other (please specify)</td>
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</tr>
<tr>
<td>City Resident</td>
<td>33.33%</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------</td>
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<tr>
<td>Other (please specify)</td>
<td>16.67%</td>
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Q3 Which of the following describes your age?

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<th>ANSWER CHOICES</th>
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<tr>
<td>18 - 30</td>
<td>5.56%</td>
</tr>
<tr>
<td>31 - 50</td>
<td>25.00%</td>
</tr>
<tr>
<td>51 - 70</td>
<td>55.56%</td>
</tr>
<tr>
<td>71 or older</td>
<td>13.89%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36</td>
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</table>

Answered: 36  Skipped: 0
Q4 How important are each of the following to your quality of life?

Answered: 36   Skipped: 0

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Somewhat</th>
<th>Not important</th>
<th>Do not impact me</th>
<th>Total Respondents</th>
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<tr>
<td>Lakes</td>
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<td>0.00%</td>
<td>36</td>
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<tr>
<td>Steams</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
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<td>Groundwater</td>
<td>%</td>
<td>%</td>
<td>%</td>
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<td></td>
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<td>Category</td>
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<td>Count</td>
<td>Total Percentage</td>
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<td>Steams</td>
<td>63.89%</td>
<td>23</td>
<td>0.00%</td>
<td>0</td>
<td>5.56%</td>
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<td>20</td>
<td>2.78%</td>
<td>1</td>
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<tr>
<td>Groundwater</td>
<td>100.00%</td>
<td>36</td>
<td>0.00%</td>
<td>0</td>
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West Fork Des Moines River Watershed Survey
Q5 In your opinion, what is the quality of surface water in your area?

Answered: 36  Skipped: 0

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<td>Good</td>
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<tr>
<td>Fair</td>
<td>47.22%</td>
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<tr>
<td>Poor</td>
<td>19.44%</td>
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<tr>
<td>Very Poor</td>
<td>2.78%</td>
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<tr>
<td>TOTAL</td>
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Q6 In your opinion, what is the quality of groundwater in your area?

Answered: 36  Skipped: 0

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<th>ANSWER CHOICES</th>
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<td>Excellent</td>
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<td>41.67%</td>
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<td>Poor</td>
<td>8.33%</td>
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<tr>
<td>Very poor</td>
<td>0.00%</td>
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<tr>
<td>TOTAL</td>
<td></td>
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</table>
Q7 How important are the following uses for the lakes, creeks, ponds, and wetlands in your area?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Somewhat</th>
<th>Not Important</th>
<th>Does Not Impact Me</th>
<th>Total</th>
<th>Weighted Average</th>
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<tbody>
<tr>
<td>Motor boating</td>
<td>38.89%</td>
<td>38.89%</td>
<td>11.11%</td>
<td>11.11%</td>
<td>36</td>
<td>1.94</td>
</tr>
<tr>
<td>Swimming</td>
<td>38.89%</td>
<td>14</td>
<td>8.33%</td>
<td>3</td>
<td>14</td>
<td>1.89</td>
</tr>
<tr>
<td>Canoe/Kayaking</td>
<td>42.86%</td>
<td>3</td>
<td>0.00%</td>
<td>14.29%</td>
<td>7</td>
<td>1.86</td>
</tr>
<tr>
<td>Fishing</td>
<td>72.22%</td>
<td>27.78%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
<td>1.28</td>
</tr>
<tr>
<td>Hunting</td>
<td>44.44%</td>
<td>55.56%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>36</td>
<td>1.56</td>
</tr>
<tr>
<td>Wildlife watching</td>
<td>33.33%</td>
<td>52.78%</td>
<td>8.33%</td>
<td>5.56%</td>
<td>36</td>
<td>1.86</td>
</tr>
<tr>
<td>Outlet for drainage</td>
<td>68.57%</td>
<td>20.00%</td>
<td>5.71%</td>
<td>5.71%</td>
<td>35</td>
<td>1.49</td>
</tr>
<tr>
<td>Livestock water source</td>
<td>37.14%</td>
<td>42.86%</td>
<td>5.71%</td>
<td>14.29%</td>
<td>35</td>
<td>1.97</td>
</tr>
</tbody>
</table>
Q8 Who is responsible for water quality? Please rank the options below in order of responsibility. ONE being the most responsible for water quality to FOUR being the least responsible.

Answered: 34  Skipped: 2

<table>
<thead>
<tr>
<th>Option</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal government</td>
<td>12.90%</td>
<td>3.23%</td>
<td>0.00%</td>
<td>83.87%</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>State government</td>
<td>3.33%</td>
<td>16.67%</td>
<td>80.00%</td>
<td>0.00%</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Local government</td>
<td>12.90%</td>
<td>67.74%</td>
<td>16.13%</td>
<td>3.23%</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Landowners</td>
<td>72.73%</td>
<td>12.12%</td>
<td>3.03%</td>
<td>12.12%</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>
Q9 Please prioritize each of the Best Management Practices (BMPs) listed below by indicating whether you believe the BMP is High, Medium, or Low Priority for improving water quality. Also, indicate Yes or No as to whether or not you would be willing to implement the BMP on your property.

Answered: 36  Skipped: 0
Conservation Tillage...

Cover Crops

Urban Waste and Storm Water...
West Fork Des Moines River Watershed Survey

<table>
<thead>
<tr>
<th>BMP</th>
<th>High Priority</th>
<th>Medium Priority</th>
<th>Low Priority</th>
<th>Would You Implement on Your Property? Yes</th>
<th>Would You Implement on Your Property? No</th>
<th>Would You Implement on Your Property? N/A</th>
<th>Do Not Know What the BMP Is</th>
<th>Total Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer/Filter Strips</td>
<td>38.89%</td>
<td>38.89%</td>
<td>16.67%</td>
<td>38.89%</td>
<td>5.56%</td>
<td>2</td>
<td>16.67%</td>
<td>8.33%</td>
</tr>
<tr>
<td>Feedlot Compliance</td>
<td>62.86%</td>
<td>20.00%</td>
<td>11.43%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>0</td>
<td>34.29%</td>
<td>8.57%</td>
</tr>
<tr>
<td>Grazing Management</td>
<td>11.43%</td>
<td>48.57%</td>
<td>31.43%</td>
<td>20.00%</td>
<td>2.86%</td>
<td>1</td>
<td>31.43%</td>
<td>8.57%</td>
</tr>
<tr>
<td>Nutrient Management</td>
<td>37.14%</td>
<td>51.43%</td>
<td>5.71%</td>
<td>40.00%</td>
<td>0.00%</td>
<td>0</td>
<td>14.29%</td>
<td>8.57%</td>
</tr>
<tr>
<td>Wetland Restoration</td>
<td>37.14%</td>
<td>34.29%</td>
<td>25.71%</td>
<td>14.29%</td>
<td>5.56%</td>
<td>1</td>
<td>25.71%</td>
<td>5.71%</td>
</tr>
<tr>
<td>Septic System Compliance</td>
<td>52.78%</td>
<td>30.56%</td>
<td>16.67%</td>
<td>38.89%</td>
<td>2.78%</td>
<td>1</td>
<td>19.44%</td>
<td>2.78%</td>
</tr>
<tr>
<td>Controlled/Reduced Drainage</td>
<td>41.67%</td>
<td>33.33%</td>
<td>22.22%</td>
<td>44.44%</td>
<td>5.56%</td>
<td>2</td>
<td>11.11%</td>
<td>5.56%</td>
</tr>
<tr>
<td>Streambank/Shoreline Protection</td>
<td>55.56%</td>
<td>38.89%</td>
<td>5.56%</td>
<td>38.89%</td>
<td>0.00%</td>
<td>0</td>
<td>22.22%</td>
<td>2.78%</td>
</tr>
<tr>
<td>Alternative Tile Intakes</td>
<td>36.11%</td>
<td>47.22%</td>
<td>13.89%</td>
<td>38.89%</td>
<td>5.56%</td>
<td>2</td>
<td>16.67%</td>
<td>5.56%</td>
</tr>
<tr>
<td>Surface Erosion Practices</td>
<td>50.00%</td>
<td>38.89%</td>
<td>2.78%</td>
<td>47.22%</td>
<td>0.00%</td>
<td>0</td>
<td>16.67%</td>
<td>8.33%</td>
</tr>
<tr>
<td>Fertilizer Education - Residential Lawn Care</td>
<td>52.78%</td>
<td>41.67%</td>
<td>5.56%</td>
<td>52.78%</td>
<td>0.00%</td>
<td>0</td>
<td>8.33%</td>
<td>2.78%</td>
</tr>
<tr>
<td>Groundwater Protection</td>
<td>66.67%</td>
<td>30.56%</td>
<td>2.78%</td>
<td>61.11%</td>
<td>0.00%</td>
<td>0</td>
<td>2.78%</td>
<td>2.78%</td>
</tr>
<tr>
<td>Conservation Tillage</td>
<td>38.89%</td>
<td>50.00%</td>
<td>11.11%</td>
<td>36.11%</td>
<td>5.56%</td>
<td>2</td>
<td>19.44%</td>
<td>2.78%</td>
</tr>
<tr>
<td>Cover Crops</td>
<td>41.67%</td>
<td>44.44%</td>
<td>11.11%</td>
<td>33.33%</td>
<td>11.11%</td>
<td>4</td>
<td>19.44%</td>
<td>2.78%</td>
</tr>
<tr>
<td>Urban Waste and Storm Water Management</td>
<td>68.57%</td>
<td>28.57%</td>
<td>2.86%</td>
<td>34.29%</td>
<td>0.00%</td>
<td>0</td>
<td>25.71%</td>
<td>5.71%</td>
</tr>
<tr>
<td>Lake Management</td>
<td>44.44%</td>
<td>41.67%</td>
<td>8.33%</td>
<td>25.00%</td>
<td>5.56%</td>
<td>2</td>
<td>25.00%</td>
<td>11.11%</td>
</tr>
<tr>
<td>Flood Control Structures</td>
<td>30.56%</td>
<td>47.22%</td>
<td>19.44%</td>
<td>30.56%</td>
<td>5.56%</td>
<td>2</td>
<td>22.22%</td>
<td>5.56%</td>
</tr>
<tr>
<td>Urban BMPs (Rain Gardens, Rain Barrels, etc.)</td>
<td>33.33%</td>
<td>38.89%</td>
<td>25.00%</td>
<td>30.56%</td>
<td>11.11%</td>
<td>4</td>
<td>16.67%</td>
<td>5.56%</td>
</tr>
</tbody>
</table>
Q10 List in order (1 thru 5) what you believe are the biggest obstacles that keep people from implementing BMPs on their property? ONE being the biggest obstacle to Five being the least obstacle.

Answered: 35  Skipped: 1

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>58.82%</td>
<td>14.71%</td>
<td>17.65%</td>
<td>5.88%</td>
<td>2.94%</td>
<td>34</td>
<td>4.21</td>
</tr>
<tr>
<td>Lack of information</td>
<td>20.00%</td>
<td>22.86%</td>
<td>20.00%</td>
<td>34.29%</td>
<td>2.86%</td>
<td>35</td>
<td>3.23</td>
</tr>
<tr>
<td>Distrust of government agencies</td>
<td>5.88%</td>
<td>14.71%</td>
<td>29.41%</td>
<td>17.65%</td>
<td>32.35%</td>
<td>34</td>
<td>2.44</td>
</tr>
<tr>
<td>Do not believe there is a problem</td>
<td>11.76%</td>
<td>17.65%</td>
<td>26.47%</td>
<td>20.59%</td>
<td>23.53%</td>
<td>34</td>
<td>2.74</td>
</tr>
<tr>
<td>Loss of agricultural production acres</td>
<td>5.88%</td>
<td>29.41%</td>
<td>5.88%</td>
<td>20.59%</td>
<td>38.24%</td>
<td>34</td>
<td>2.44</td>
</tr>
</tbody>
</table>
Q11 Have you been impacted by flooding?

Answered: 35  Skipped: 1

**ANSWER CHOICES**  
Yes  
No

**RESPONSES**

| Yes | 57.14% | 20 |
| No  | 42.86% | 15 |
| TOTAL | | 35 |

West Fork Des Moines River Watershed Survey

SurveyMonkey
Q12 List in order (1 thru 4) what you believe is the biggest contributor towards flooding issues in your area? ONE being the biggest contributor to FOUR being the least contributor.

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>Contribution</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run off from impervious surfaces</td>
<td>25.71%</td>
<td>31.43%</td>
<td>28.57%</td>
<td>14.29%</td>
<td>35</td>
<td>2.69</td>
</tr>
<tr>
<td>Increased precipitation</td>
<td>42.86%</td>
<td>17.14%</td>
<td>20.00%</td>
<td>20.00%</td>
<td>35</td>
<td>2.83</td>
</tr>
<tr>
<td>Agricultural drainage (ditching, tiling, ect)</td>
<td>30.30%</td>
<td>27.27%</td>
<td>15.15%</td>
<td>27.27%</td>
<td>33</td>
<td>2.61</td>
</tr>
<tr>
<td>Wetland draining</td>
<td>2.94%</td>
<td>23.53%</td>
<td>35.29%</td>
<td>38.24%</td>
<td>34</td>
<td>1.91</td>
</tr>
</tbody>
</table>
Q13 What concerns you about the condition of the lakes, creeks, ponds, and wetlands in your area? (choose all that apply)

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of water</td>
<td>75.00%</td>
</tr>
<tr>
<td>Stability of water levels</td>
<td>25.00%</td>
</tr>
<tr>
<td>Flooding</td>
<td>25.00%</td>
</tr>
<tr>
<td>Abundance and diversity of...</td>
<td></td>
</tr>
<tr>
<td>Erosion along stream banks...</td>
<td></td>
</tr>
<tr>
<td>Sediment filling in t...</td>
<td></td>
</tr>
<tr>
<td>Pollutants like road-sa...</td>
<td></td>
</tr>
<tr>
<td>Health of the fishery</td>
<td></td>
</tr>
<tr>
<td>Amount of aquatic...</td>
<td></td>
</tr>
<tr>
<td>Variety of aquatic...</td>
<td></td>
</tr>
<tr>
<td>Aquatic invasive...</td>
<td></td>
</tr>
<tr>
<td>Amount of trash in or...</td>
<td></td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td></td>
</tr>
<tr>
<td>Inability to use the water...</td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
</tr>
<tr>
<td>Issue</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Erosion along stream banks or shorelines</td>
<td>75.00%</td>
</tr>
<tr>
<td>Sediment filling in the water body</td>
<td>66.67%</td>
</tr>
<tr>
<td>Pollutants like road-salt, fertilizer and heavy metals entering water bodies</td>
<td>61.11%</td>
</tr>
<tr>
<td>Health of the fishery</td>
<td>50.00%</td>
</tr>
<tr>
<td>Amount of aquatic vegetation</td>
<td>36.11%</td>
</tr>
<tr>
<td>Variety of aquatic vegetation</td>
<td>22.22%</td>
</tr>
<tr>
<td>Aquatic invasive species</td>
<td>41.67%</td>
</tr>
<tr>
<td>Amount of trash in or around the water body</td>
<td>38.89%</td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td>30.56%</td>
</tr>
<tr>
<td>Inability to use the water body for recreation</td>
<td>25.00%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>2.78%</td>
</tr>
</tbody>
</table>

Total Respondents: 36
Q14 What is the best way for you to get information about water quality projects and programs?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>38.89%</td>
</tr>
<tr>
<td>Television</td>
<td>8.33%</td>
</tr>
<tr>
<td>Radio</td>
<td>5.56%</td>
</tr>
<tr>
<td>Farm Journals</td>
<td>2.78%</td>
</tr>
<tr>
<td>Social Media</td>
<td>33.33%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>11.11%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>
Q15 As a thank you, we are offering a prize drawing of a $100 gift card. To be entered in the drawing you must submit this completed survey along with your contact information below. Your name and contact information will only be used for the drawing. Any other use will remain confidential and not attached to your survey answers. If you have further questions please contact the Heron Lake Watershed District Office at 507-793-2462 or email Ross Behrends at ross.behrends@noblesswcd.org. Thank you!

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>100.00%</td>
</tr>
<tr>
<td>Company</td>
<td>0.00%</td>
</tr>
<tr>
<td>Address</td>
<td>10.00%</td>
</tr>
<tr>
<td>Address 2</td>
<td>0.00%</td>
</tr>
<tr>
<td>City/Town</td>
<td>90.00%</td>
</tr>
<tr>
<td>State/Province</td>
<td>93.33%</td>
</tr>
<tr>
<td>ZIP/Postal Code</td>
<td>93.33%</td>
</tr>
<tr>
<td>Country</td>
<td>0.00%</td>
</tr>
<tr>
<td>Email Address</td>
<td>93.33%</td>
</tr>
<tr>
<td>Phone Number</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Jan Voit

From: Jan Voit
Sent: Monday, March 26, 2018 7:49 AM
To: 'Ross Behrends'; kyle.krier@co.pipestone.mn.us; adam.ossefoort@co.pipestone.mn.us; 'Goodrich, Douglas (BWSR)'; 'Hiles, Mark (BWSR)'; 'Andy Geiger'; 'Ashley Brenke'; 'Brian Nyborg'; 'Brooke Burmeister'; 'Chris Bauer'; 'Dave Bucklin'; 'John Biren'; 'John Shea'; 'Jon Bloemendaal'; 'Ed Lenz'; 'Kay Gross'; 'Pam Flitter'; slewis@co.murray.mn.us; jchristoffels@co.murray.mn.us; laura.debeer@co.pipestone.mn.us; 'Mark Koster'; 'Craig Christensen'; jahlers@co.nobles.mn.us; gmetz@co.nobles.mn.us; mwidboom@co.nobles.mn.us; rdemuth@co.nobles.mn.us; dlinssen@co.nobles.mn.us; administration@co.nobles.mn.us; jjens@co.murray.mn.us; lgunnink@co.murray.mn.us; gmagnus@co.murray.mn.us; gkluis@co.murray.mn.us; dthiner@co.murray.mn.us; aheard@co.murray.mn.us; jim.schmidt@co.cottonwood.mn.us; kevin.stevens@co.cottonwood.mn.us; donna.gravley@co.cottonwood.mn.us; norm.holmen@co.cottonwood.mn.us; tom.apple@co.cottonwood.mn.us; kelly.thongvivong@co.cottonwood.mn.us; scott.mcclure@co.jackson.mn.us; don.wachal@co.jackson.mn.us; cathy.hohenstein@co.jackson.mn.us; kim.hummel@co.jackson.mn.us; james.eigenberg@co.jackson.mn.us; steven.duncan@co.jackson.mn.us; c_sanow@yahoo.com; swriter@gmail.com; graupmann.paul@gmail.com; garycrowley@co.lyon.mn.us; rickanderson@co.lyon.mn.us; lorenstomberg@co.lyon.mn.us; montokenman@yahoo.com; les.nath@co.pipestone.mn.us; blkooiman@iw.net; dan.wildermuth@co.pipestone.mn.us; chris.hollingsworth@co.pipestone.mn.us; cathy.feste@co.pipestone.mn.us; elliot.belgard@co.martin.mn.us; tom.mahoney@co.martin.mn.us; kathy.smith@co.martin.mn.us; dan.schmidtke@co.martin.mn.us; steven.flohrs@co.martin.mn.us; scott.higgins@co.martin.mn.us; julie.westerlund@state.mn.us

Cc: Tobias Spanier; Karen L. Terry; Pekarek-Scott, Katherine (MPCA)

Subject: RE: March 26 Shared Leadership Meeting

Importance: High

All--

Due to inclement weather, the Shared Leadership meeting scheduled for today is cancelled. A new date and time will be chosen and those details will be provided as soon as possible.

Stay safe!

Jan Voit
Heron Lake Watershed District
PO Box 345
Heron Lake, MN 56137
Phone: 507-793-2462
Email: jvoit@hlwдонline.org
Website: www.hlwdonline.org
Office hours: Monday – Thursday
Des Moines River Watershed Shared Leadership Meeting

June 18, 2018
1:00 pm – 4:00 pm
Fulda American Legion
106 W. Front St., Fulda, MN

Agenda

1:00 – 1:05 Welcome and Introductions
Ross Behrends, Heron Lake Watershed District (HLWD)

1:05 – 1:45 Watershed Restoration and Protection Strategies (WRAPS) Update
Katherine Pekarek, Minnesota Pollution Control Agency

1:45 – 2:00 Break

2:00 – 3:10 Developing a Shared Watershed Vision
Toby Spanier, U of MN Extension

3:10 – 3:20 Break

3:20 – 3:45 One Watershed One Plan
Julie Westerlund, Board of Water and Soil Resources

3:45 – 4:00 Closing Questions and Comments
Ross Behrends, HLWD
Des Moines River Watershed Shared Leadership Meeting

Katherine Pekarek-Scott
Minnesota Pollution Control Agency
June 18, 2018
Watershed Approach

Connect state programs with local leadership

Comprehensive Watershed Management Plan

Strategy Development (WRAPS)

Water Resource Characterization & Problem Investigation

Monitoring and Assessment

Ongoing Local Implementation

10 Year Cycle

Locally Led

Integrate watershed protection and restoration strategies into a single watershed management plan

Determine overall health of major watersheds

State Led

Increase efficiency in dealing with impairments

Improved collaboration
Altered Watercourses

Altered Watercourse Type
- Altered
- Natural
- Impounded
- No definable channel

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community
Monitoring in the Des Moines Basin
Des Moines Biological Impairments and Stressors

- Some PRELIMINARY Stressors:
  - Nitrates
  - DO
  - Eutrophication
  - TSS
  - Habitat
  - Connectivity

- 56 Reaches
Next Steps

1. Develop a TMDL Report
   - Pollutant Targets for Impaired Streams and Lakes
   - Reductions
   - Underway
Bacteria
- 15 Reaches
- 10-86% Reduction

Turbidity
- 15 Reaches
- 50-80% Reduction

North and South Heron Lake for Nutrients
- 87% Reduction of Phosphorus

Heron Lake Outlet for pH
- Addressed by lakes
Okamanpeeden Lake

- Iowa Study
- 57% Reduction of Total Phosphorus
Lake TMDLs
Streams Requiring TMDLs

- Bacteria - 10
- Sediment - 3
- Phosphorus - 2
- Chloride - 1
- Dissolved Oxygen - 1
Next Steps

1. Develop a TMDL Report
   - Pollutant Targets for Impaired Streams and Lakes
   - Reductions
   - Underway

2. Develop a WRAPS Report
   - The Science
   - Strategies for Restoration and Protection
   - Beginning stages
Questions?
West Fork Des Moines River Watershed Survey

Monday, June 18, 2018
103
Total Responses
Date Created: Tuesday, December 12, 2017
Complete Responses: 103
Q2: Please check which one(s) represent you the best:

Answered: 101    Skipped: 2

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWCD/NRCS</td>
<td>24.75%</td>
</tr>
<tr>
<td>Production Ag.</td>
<td>12.87%</td>
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<tr>
<td>Sportsman Association</td>
<td>8.91%</td>
</tr>
<tr>
<td>Rural Resident</td>
<td>19.80%</td>
</tr>
<tr>
<td>Elected Official</td>
<td>18.81%</td>
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<tr>
<td>Civic Organization</td>
<td>3.96%</td>
</tr>
<tr>
<td>Lake Association</td>
<td>0.99%</td>
</tr>
<tr>
<td>Student</td>
<td>1.98%</td>
</tr>
<tr>
<td>Ag. Business</td>
<td>1.98%</td>
</tr>
<tr>
<td>Business Owner</td>
<td>8.91%</td>
</tr>
<tr>
<td>City Resident</td>
<td>32.67%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>6.93%</td>
</tr>
<tr>
<td>Total Respondents: 101</td>
<td></td>
</tr>
</tbody>
</table>
Q3: Which of the following describes your age?

Answered: 102    Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
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</tr>
</thead>
<tbody>
<tr>
<td>18 - 30</td>
<td>12.75%</td>
</tr>
<tr>
<td>31 - 50</td>
<td>31.37%</td>
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<tr>
<td>51 - 70</td>
<td>45.10%</td>
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<tr>
<td>71 or older</td>
<td>10.78%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>102</td>
</tr>
</tbody>
</table>
Q4: How important are each of the following to your quality of life?

Answered: 102    Skipped: 1

<table>
<thead>
<tr>
<th></th>
<th>VERY</th>
<th>SOMEWHAT</th>
<th>NOT IMPORTANT</th>
<th>DO NOT IMPACT ME</th>
<th>TOTAL RESPONDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakes</td>
<td>82.35%</td>
<td>17.65%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>84</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Steams</td>
<td>71.29%</td>
<td>26.73%</td>
<td>0.00%</td>
<td>1.98%</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>72</td>
<td>27</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td>70.30%</td>
<td>27.72%</td>
<td>0.99%</td>
<td>0.99%</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>71</td>
<td>28</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>91.09%</td>
<td>8.91%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>92</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Q5: In your opinion, what is the quality of surface water in your area?

Answered: 102    Skipped: 1

**Answer Choices**

<table>
<thead>
<tr>
<th>Quality</th>
<th>Responses</th>
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</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>0.00%</td>
</tr>
<tr>
<td>Good</td>
<td>30.39%</td>
</tr>
<tr>
<td>Fair</td>
<td>42.16%</td>
</tr>
<tr>
<td>Poor</td>
<td>24.51%</td>
</tr>
<tr>
<td>Very Poor</td>
<td>2.94%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>102</td>
</tr>
</tbody>
</table>

*Powered by SurveyMonkey*
Q6: In your opinion, what is the quality of groundwater in your area?

Answered: 102    Skipped: 1

- Excellent: 2.94% (3 responses)
- Good: 43.14% (44 responses)
- Fair: 38.24% (39 responses)
- Poor: 14.71% (15 responses)
- Very poor: 0.98% (1 response)

TOTAL: 102
Q7: How important are the following uses for the lakes, creeks, ponds, and wetlands in your area?

Answered: 102    Skipped: 1
Q8: Who is responsible for water quality? Please rank the options below in order of responsibility. ONE being the most responsible for water quality to FOUR being the least responsible.

Answered: 99    Skipped: 4

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal government</td>
<td>9.09%</td>
<td>10.23%</td>
<td>3.41%</td>
<td>77.27%</td>
<td>88</td>
<td>1.51</td>
</tr>
<tr>
<td>State government</td>
<td>5.75%</td>
<td>12.64%</td>
<td>78.16%</td>
<td>3.45%</td>
<td>87</td>
<td>2.21</td>
</tr>
<tr>
<td>Local government</td>
<td>14.61%</td>
<td>66.29%</td>
<td>10.11%</td>
<td>8.99%</td>
<td>89</td>
<td>2.87</td>
</tr>
<tr>
<td>Landowners</td>
<td>76.60%</td>
<td>9.57%</td>
<td>5.32%</td>
<td>8.51%</td>
<td>94</td>
<td>3.54</td>
</tr>
</tbody>
</table>

Powered by SurveyMonkey
Q9: Please prioritize each of the Best Management Practices (BMPs) listed below by indicating whether you believe the BMP is High, Medium, or Low Priority for improving water quality. Also, indicate Yes or No as to whether or not you would be willing to implement the BMP on your property.

Answered: 92    Skipped: 11

<table>
<thead>
<tr>
<th>Buffer/Flow Dance</th>
<th>High Priority</th>
<th>Medium Priority</th>
<th>Low Priority</th>
<th>Would You Implement on Your Property?</th>
<th>Would You Implement if Funding Were Available?</th>
<th>Do Not Know</th>
<th>Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>56.4% 29.6% 7.7%</td>
<td>7.7%</td>
<td>24.1%</td>
<td>2.3%</td>
<td>19.7%</td>
<td>5.4%</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>91% 97% 22% 4%</td>
<td>12.3%</td>
<td>9.3%</td>
<td>0.0%</td>
<td>32.3%</td>
<td>5.6%</td>
<td>99</td>
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</tr>
<tr>
<td>Weed Control</td>
<td>53.2%</td>
<td>33.3%</td>
<td>11.1%</td>
<td>37.8%</td>
<td>11.5%</td>
<td>99</td>
<td></td>
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<tr>
<td>Cost-benefit analysis</td>
<td>41.1%</td>
<td>27.7%</td>
<td>31.2%</td>
<td>30.3%</td>
<td>10.0%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>32.5%</td>
<td>23.3%</td>
<td>44.2%</td>
<td>19.4%</td>
<td>14.4%</td>
<td>99</td>
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<tr>
<td>Alternative Trees</td>
<td>30.5%</td>
<td>46.7%</td>
<td>22.9%</td>
<td>19.8%</td>
<td>6.6%</td>
<td>99</td>
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<tr>
<td>Surface Erosion</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>19.8%</td>
<td>6.6%</td>
<td>99</td>
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<tr>
<td>Fertilizer Education</td>
<td>29.9%</td>
<td>29.9%</td>
<td>40.0%</td>
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<td>6.6%</td>
<td>99</td>
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<tr>
<td>Drainwater/Soil Conservation</td>
<td>22.7%</td>
<td>22.7%</td>
<td>54.5%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
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<tr>
<td>Stormwater/Soil Conservation</td>
<td>29.1%</td>
<td>29.1%</td>
<td>41.7%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>28.5%</td>
<td>28.5%</td>
<td>43.0%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>27.9%</td>
<td>27.9%</td>
<td>44.2%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>27.3%</td>
<td>27.3%</td>
<td>44.6%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
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<tr>
<td>Stormwater/Soil Conservation</td>
<td>26.7%</td>
<td>26.7%</td>
<td>45.0%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
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<tr>
<td>Stormwater/Soil Conservation</td>
<td>26.1%</td>
<td>26.1%</td>
<td>45.5%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>25.5%</td>
<td>25.5%</td>
<td>46.0%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>24.9%</td>
<td>24.9%</td>
<td>46.4%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>24.3%</td>
<td>24.3%</td>
<td>46.8%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>23.7%</td>
<td>23.7%</td>
<td>47.1%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>23.1%</td>
<td>23.1%</td>
<td>47.5%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
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<tr>
<td>Stormwater/Soil Conservation</td>
<td>22.5%</td>
<td>22.5%</td>
<td>47.8%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
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</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>21.9%</td>
<td>21.9%</td>
<td>48.2%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
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<tr>
<td>Stormwater/Soil Conservation</td>
<td>21.3%</td>
<td>21.3%</td>
<td>48.5%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Stormwater/Soil Conservation</td>
<td>20.7%</td>
<td>20.7%</td>
<td>48.8%</td>
<td>19.3%</td>
<td>6.6%</td>
<td>99</td>
<td></td>
</tr>
</tbody>
</table>
Q10: List in order (1 thru 5) what you believe are the biggest obstacles that keep people from implementing BMPs on their property? ONE being the biggest obstacle to Five being the least obstacle.

Answered: 95    Skipped: 8

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<thead>
<tr>
<th>Obstacle</th>
<th>1</th>
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<th>4</th>
<th>5</th>
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<th>SCORE</th>
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</thead>
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<tr>
<td>Cost</td>
<td>54.84%</td>
<td>17.26%</td>
<td>16.13%</td>
<td>7.53%</td>
<td>4.30%</td>
<td>93</td>
<td>4.11</td>
</tr>
<tr>
<td>Lack of information</td>
<td>14.29%</td>
<td>25.57%</td>
<td>20.88%</td>
<td>29.67%</td>
<td>6.59%</td>
<td>93</td>
<td>3.14</td>
</tr>
<tr>
<td>Distrust of government agencies</td>
<td>9.89%</td>
<td>15.38%</td>
<td>17.58%</td>
<td>27.47%</td>
<td>29.67%</td>
<td>91</td>
<td>2.48</td>
</tr>
<tr>
<td>Do not believe there is a problem</td>
<td>15.56%</td>
<td>17.76%</td>
<td>20.00%</td>
<td>13.33%</td>
<td>33.33%</td>
<td>90</td>
<td>2.69</td>
</tr>
<tr>
<td>Loss of agricultural production acres</td>
<td>8.99%</td>
<td>22.47%</td>
<td>23.60%</td>
<td>20.22%</td>
<td>24.72%</td>
<td>89</td>
<td>2.71</td>
</tr>
</tbody>
</table>
Q11: Have you been impacted by flooding?

Answered: 94   Skipped: 9

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>32.98%</td>
</tr>
<tr>
<td>No</td>
<td>67.02%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Q12: List in order (1 thru 4) what you believe is the biggest contributor towards flooding issues in your area? ONE being the biggest contributor to FOUR being the least contributor.

Answered: 96    Skipped: 7

<table>
<thead>
<tr>
<th>Contribution</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>TOTAL</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run off from impervious surfaces</td>
<td>32.58%</td>
<td>20.22%</td>
<td>28.09%</td>
<td>19.10%</td>
<td>89</td>
<td>2.66</td>
</tr>
<tr>
<td>Increased precipitation</td>
<td>25.27%</td>
<td>21.98%</td>
<td>23.08%</td>
<td>29.67%</td>
<td>91</td>
<td>2.43</td>
</tr>
<tr>
<td>Agricultural drainage (ditching, tiling, ect)</td>
<td>34.41%</td>
<td>32.26%</td>
<td>18.28%</td>
<td>15.05%</td>
<td>93</td>
<td>2.86</td>
</tr>
<tr>
<td>Wetland draining</td>
<td>11.24%</td>
<td>25.84%</td>
<td>28.09%</td>
<td>34.83%</td>
<td>89</td>
<td>2.13</td>
</tr>
</tbody>
</table>
Q13: What concerns you about the condition of the lakes, creeks, ponds, and wetlands in your area? (choose all that apply)

Answered: 96    Skipped: 7

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of water</td>
<td>82.29%</td>
</tr>
<tr>
<td>Stability of water levels</td>
<td>37.50%</td>
</tr>
<tr>
<td>Flooding</td>
<td>26.04%</td>
</tr>
<tr>
<td>Abundance and diversity of wildlife</td>
<td>39.58%</td>
</tr>
<tr>
<td>Erosion along stream banks or shorelines</td>
<td>70.83%</td>
</tr>
<tr>
<td>Sediment filling in the water body</td>
<td>63.54%</td>
</tr>
<tr>
<td>Pollutants like road-salt, fertilizer and heavy metals entering water bodies</td>
<td>63.54%</td>
</tr>
<tr>
<td>Health of the fishery</td>
<td>55.21%</td>
</tr>
<tr>
<td>Amount of aquatic vegetation</td>
<td>36.46%</td>
</tr>
<tr>
<td>Variety of aquatic vegetation</td>
<td>27.06%</td>
</tr>
<tr>
<td>Aquatic invasive species</td>
<td>42.71%</td>
</tr>
<tr>
<td>Amount of trash in or around the water body</td>
<td>43.75%</td>
</tr>
<tr>
<td>Impacts of climate change</td>
<td>21.88%</td>
</tr>
<tr>
<td>Inability to use the water body for recreation</td>
<td>32.29%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>1.04%</td>
</tr>
</tbody>
</table>

Total Respondents: 96
Q14: What is the best way for you to get information about water quality projects and programs?

Answered: 94    Skipped: 9

**Answer Choices**

<table>
<thead>
<tr>
<th>Choice</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>40.43%</td>
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<td>Television</td>
<td>7.45%</td>
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<tr>
<td>Radio</td>
<td>5.32%</td>
</tr>
<tr>
<td>Farm Journals</td>
<td>3.19%</td>
</tr>
<tr>
<td>Social Media</td>
<td>36.17%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>7.45%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>
Q15: Are you willing to pay for projects to improve water quality?
LEADERSHIP AND CIVIC ENGAGEMENT TIP SHEETS

Collaboration

WHY COLLABORATE WITH OTHERS?

Planning the best course of action to build healthy communities involves interconnected and complex concerns that cannot be “solved” by one person or entity. Instead, it requires entities and community stakeholders to work together. Working together is the essence of collaboration. According to David Chrislip, “Collaboration is more than simply sharing knowledge and information (communication) and more than a relationship that helps each party achieve its own goals (cooperation and coordination). The purpose of collaboration is to create a shared vision and joint strategies to address concerns that go beyond the purview of any particular party.”\(^1\)

COLLABORATION 101

Collaboration “is a mutually beneficial relationship between two or more parties who work toward common goals by sharing responsibility, authority, and accountability for achieving results.”\(^2\)

Collaborative partners may include local government units, citizens, non-profits, tribal governments, business owners, special interest advocacy groups, educators, and others. So what elements make collaboration effective?

1. **Appropriate people** – Consider the context to determine who should be involved. Think broadly. What skills are needed? Where is buy-in necessary? Who will be impacted? What knowledge/experiences are needed? What other resources are needed and who has them?

2. **Credible data** – What information is needed to understand the issue and inform planning? Who can provide necessary information? Do they have credibility with stakeholders?

3. **Constructive process** – Is the interaction and implementation conducted in a respectful and inclusive manner? How open or transparent is the process for those collaborating?

TIPS FOR SUCCESSFUL COLLABORATION

- Start collaboration discussions when the timing is good and the need is clear.
- Represent any people, organizations, or stakeholder groups from across sectors that are organized and can speak and act credibly for the interests they represent.

---


• Build credibility and openness into the process. Be transparent about who is involved to what level and what expectations are. Share how decisions are being made and the mechanism for groups to have a seat at the table, a voice, and a hand in the work.

• Gain commitment and involvement from high-level, visible leaders. Established authorities or powers that agree to support and abide by the recommendations of the stakeholder groups add validity to the work and can help remove possible barriers along the way.

• Be willing to trust first. A key way to build trust is by extending trust. Others in the collaborative are likely to follow once the norm is set.

• Celebrate small successes along the way.

• Reframe the focus to encompass broader concerns related to the common good, moving away from individual interests.

COLLABORATIVE LEADERSHIP IN THE PROCESS

Creating and nurturing an open and credible process is extremely important for those initiating collaboration. Remember that:

• Accomplishing the objective is more important than who is nominally in charge.

• Making good decisions is more important than serving individual interests.

• Being open is more important than projecting a “good image.”

• Ensuring high transparency is essential.

• Gaining stakeholder commitment at the beginning signals that their involvement will amount to something.

FINDING OPPORTUNITIES FOR COLLABORATION

• Intentionality is essential for successful collaborative partnership development. This includes seeking collaborators and building a foundation for credibility, openness, fairness, respect, trust, and relationship building.

• Some projects require the support of local government leadership. You may develop recommendations for review by a policy committee or another body of local decision makers – consider how you might involve them early in the collaborative process.

• Tools, models, and reports provide credible data to raise awareness of broader community concerns. Consider whom you might work with that has access to existing data or who can provide that data for the collaboration.

COLLABORATION IN YOUR WORK

It’s never too early to think about collaboration. Find ways to contribute to the work and support a collaborative environment. Think of ways you can contribute, which may include:

• Taking meeting minutes

• Facilitating a discussion

• Planning an agenda

• Offering to provide leadership for complete specific tasks/roles
# IAP2’S PUBLIC PARTICIPATION SPECTRUM

The IAP2 Federation has developed the Spectrum to help groups define the public’s role in any public participation process. The IAP2 Spectrum is quickly becoming an international standard.

<table>
<thead>
<tr>
<th>PUBLIC PARTICIPATION GOAL</th>
<th>INFORM</th>
<th>CONSULT</th>
<th>INVOLVE</th>
<th>COLLABORATE</th>
<th>EMPOWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.</td>
<td>To obtain public feedback on analysis, alternatives and/or decisions.</td>
<td>To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.</td>
<td>To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.</td>
<td>To place final decision making in the hands of the public.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROMISE TO THE PUBLIC</th>
<th>INFORM</th>
<th>CONSULT</th>
<th>INVOLVE</th>
<th>COLLABORATE</th>
<th>EMPOWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>We will keep you informed.</td>
<td>We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.</td>
<td>We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.</td>
<td>We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.</td>
<td>We will implement what you decide.</td>
<td></td>
</tr>
</tbody>
</table>

© IAP2 International Federation 2014. All rights reserved.
The cover includes major headlines and central image conveys the “big story.”

The headlines are bold short sentences that convey the main story, key events, actions and accomplishments.

The sidebars support the cover story through such materials as profiles of key people, statistics and small success stories within the big one.

Use this section to identify what you value about the watershed. i.e. swimming, hunting, outlet for drainage, etc.

Use to capture what people are saying about the group’s success in the watershed.

Use for pictures, graphs and photos that bring out highlights of the story.
Reflections

Six Common Themes on Collaboration and Engagement Together

West Fork Des Moines River Watershed
Shared Leadership Meeting

Tobias Spanier
Associate Professor at the Center for Community Vitality
Leadership & Civic Engagement
Reflections

1. Start with WHY – ask why are we doing this?
   - Improve the quality/quantity of water for area residents (What is the vision?)
     - Why?
     - How?
     - What?

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Start with Why

How Great Leaders Inspire Everyone to Take Action

Simon Sinek

TED Talks
www.ted.com/talks
Reflections

2. Anticipate resistance – criticism

- General criticism – governmental bodies cannot work together.
- Choose what you will be criticized for and stand ready to plead “guilty”.

If I were to try to read, much less answer all the attacks made on me this shop might as well be closed for any other business
Reflections
3. Choose Loyalty – To each other and the cause

“Loyalty means not that I agree with everything you say or that I believe you are always right. Loyalty means that I share a common ideal with you and, regardless of minor differences, we fight for it, shoulder to shoulder, confident in one another’s good faith, trust, constancy and affection.”
~ Dr. Karl A. Wenninger
Reflections

4. Communicate clearly and then Trust that people will make good decisions if given the facts

➢ *Be transparent with the facts. Hold nothing back!*

➢ *Empower people with facts. Expect them to own them and to use them.*
I am a firm believer in the people. If given the truth, they can be depended upon to meet any national crisis. The great point is to bring them the real facts.
Reflections

5. Time – Anything worthwhile takes time

- Time to prepare
- Time to change
- Time to fail
Abraham Lincoln said:

“If I had six hours to chop down a tree, I’d spend the first four hours sharpening the axe”.
Reflections

6. Acknowledge Others & Their Perspective

- Be crystal clear about the value of each player
- Remind each other we will accomplish TOGETHER what we cannot accomplish in ISOLATION!
- Keep an Empty Chair
- Give credit – Acknowledge others
  - John Wooden
Recognize others!

Point a finger!

Wink!

Give a “thumbs up!

Acknowledge your teammate!
Kindest wishes as you commence your work together!
Imagine it is 2030. What would we expect to see as the major cover story describing what has happened in our watershed? What would be the big headlines, information or data contained in the sidebars, values expressed, quotes and images?

**Cover Stories**

- Better water for recreation
- Better water quality
- Fishable, swimmable, fully supporting
- Wild life/fish returning and thriving
- Recreation options
- Clean lakes, rivers and streams
- Delisting impaired waters
- Reduced flooding
- WRAPS -10 years

**Big Headlines**

- Watershed delist 25 water bodies
- State water recreation activities shifts from Northern Minnesota to Southern Minnesota as a result of improved water quality
- Southern Minnesota Lakes outperform North Country
- Graham Lakes clean and clear
- Cover crops, conservation tillage improve water quality
- Phenomenal fishing throughout the watershed
- Clean drinking water through wellhead protection
- Bottled water is thing of the past
- BMP's help communities meet water quality standards
- Ditch failures stop occurring
- Partnerships in large suppy
- Water standards met
- Young people come back
- Crop yields are up
- Community is using our resources
- Erosion fixed
- Fish are safe for human consumption
- Water is clean enough to swim
- Water bodies support healthy aquatic communities
- Business growth
- Fishing derby's & tubing races
Values

- Drinking water
- Quality of life – clean, recreational use, social
- Controlled drainage
- Water storage
- Improved water quality
- Community involvement – and sense of personal responsibility
- Partnerships lead to measured success
- Reduced algae blooms
- Business growth
- Improved farming techniques
- Community involvement to use resources
- Hard work
- Education about goals
- Personal responsibility
- Maintaining what we have achieved

Sidebars

- Camp grounds filled to capacity - waiting list abound
- Recreation activities increase
- 50% increase in sediment control basins
- 90% open tile intakes replaced
- Bottled water is a thing of the past
- People utilizing clean water through recreation
- Fisheries thrive in improved resources
- Communities find clean drinking water abundant after well head protection projects

Quotes

- “Thank you got the funds for our Water Quality projects”
- “Thank you to all the residents who helped make this possible”
- “Thank you for cleaning up our groundwater, river and lakes”
- “Thank you for the grant and matching funds to assist with practice adoption”
- “Innovative”
- “It took everyone to make the change”
- “I can see my feet again”
- “I got 99 problems but the fish aren’t one”

Images

- Before and after pictures of various lakes and rivers
- Pictures of anglers and boaters
- BMPs
- Clean glass of water
Key principles or take-ways from our vision

- Water quality - surface, ground, drinking, recreation
- Education on procedures, understanding of shared goals
  - How to engage public
    - Field demos
    - Meetings
    - Tours
    - Be visible
    - Show successes
    - Share cost burden
    - Clarity of vision – needs to be created, shared and driven
Water management is evolving.

WRAPS information will help inform the local water planning process.

Each type of local government has a unique role in managing water.

Develop prioritized, targeted and measurable local plans aligned with state strategies on major watershed boundaries.

Program Vision

Planning Concept

States
Counties
Public
Federal
Other partners
SWCDs
Watershed Districts
Shared vision and goals

1937: Soil Conservation Law
1965: Watershed Act
1972: Federal Clean Water Act
1982: Metro Surface Water Navig. Act

1940s 1950s 1960s 1970s 1980s

1938: First SWCD formed
1955: Watershed Act
1987: First Watershed District
1997: County Water Management Act
2005: Clean Water Legacy Act
2012: Local Gov’t Water Re统筹
2013: Clean Water Accountability Act
2015: Comprehensive Watershed Management Plans

2008: Clean Water Local & Legacy
2011: Local water mgmt. coordination
2015: Watershed Based Funding

2005 2011 2013 2015 2017

www.mnwcd.org
www.cooncreekwd.org
Local Government Water Roundtable

Policy Paper

- Scale (major watersheds)
- Streamline (statute and programs)
- Funding (predictable, equitable)

Statute, Policy and Guidance

M.S. §103B.801 - Comprehensive Watershed Management Plans:
- Surface water and groundwater quality
- Natural storage and retention systems
- Groundwater recharge
- Soil erosion and transport
- Minimize cost of flooding and water-quality problems
- Wetlands
- Riparian management zones and buffers
- Habitat and recreation

Adopted by MPCA
Purpose Science to support local planning
Scope Water Quality
Goals State’s goals
Describes What needs to happen and where
Strategies and Actions Strategy Table (required)
Social Elements Civic Engagement

WRAPS Report | One Watershed, One Plan
---|---
Adopted by | MPCA
Purpose | Local water management authorities
Scope | Water Quality
Goals | Comprehensive
Describes | Local governments’ goals
Strategies and Actions | Strategy Table (required)
Social Elements | Durable implementation partnership

Goal: Watershed Management Plans that...

Prioritize | Target | Measure
---|---|---
10-Year Goal | 20-Year Goal | Ultimate Watershed Goal
10-Year Goal | 20-Year Goal | Progress Monitoring
Water Planning Authorities

- Regulations and land management (zoning, SSTS, shoreland, wetland, feedlot, forestry)
- Drainage
- Public Health
- Investigate problems and identify preventative practices
- Implement projects with land occupier consent – provide technical and financial help
- Can accept delegation of local ordinances and controls

SWCDs

Watershed Districts

Counties

Watershed management
Drainage
Monitoring
Capital Projects
Outreach Programs

Murray County
Murray SWCD
Cottonwood County
Cottonwood SWCD
Nobles County
Nobles SWCD
Jackson County
Jackson SWCD
Martin County
Martin SWCD
Heron Lake Watershed District

Yellow Medicine River
$551,712

Red Lake River
$677,551

Lake Superior North
$387,059

Yellow Medicine River
$551,712

Root River
$851,301
What is One Watershed, One Plan?

One Watershed, One Plan (1W1P) is a program through the Board of Water and Soil Resources (BWSR) that supports partnerships of local governments in developing prioritized, targeted, and measurable implementation plans. Key principles are planning at the major watershed scale and aligning local plans with state strategies. Plans created through the 1W1P program are called comprehensive watershed management plans and are described in §103B.801.

- The program is designed to foster collaboration between upstream and downstream neighbors to work where it’s most important in the watershed, not limited to county or other jurisdictional boundaries.
- Plans identify and prioritize resources and issues and set measurable goals. A targeted implementation schedule describes planned actions. Plans also describe programs and the future partnership that will implement the plan.
- Plans are comprehensive: they address water quality and quantity, groundwater, drinking water, habitat, recreation, and other issues.
- Collaboration between local partners and state agencies creates opportunities for dialogue about water management goals and activities, and fosters the use of state data and strategies in local planning.

Who is involved?

Soil and water conservation districts (SWCDs), counties, and watershed districts are required participants. Participation is optional for local governments in the seven-county metropolitan area.

Developing a plan involves an advisory committee (which includes state agencies and other interested or affected parties, who make recommendations to the policy committee) and a policy committee (which makes the final decisions on the plan). A steering team may facilitate the process, and groups may wish to hire consultants to help with technical analyses and plan writing. Local governments work together to leverage each other’s strengths to develop watershed-based plans. Planning partnerships establish:

- Agreement on the expectations, benefits, and outcomes for implementing the plan

Minnesota has a long history of water management by local government. One Watershed, One Plan (1W1P) is the next step in the evolution of water planning. The program is built on three components:

1. State legislation: §103B.101 and §103B.801
2. Recommendations from the Local Government Roundtable (Association of Minnesota Counties, Minnesota Association of Soil and Water Conservation Districts, and Minnesota Association of Watershed Districts)
3. BWSR policy: Guiding Principles, Plan Content Requirements, and Operating Procedures
Implementation activities that address the largest threats to water resources and that provide the greatest environmental benefit

An understanding of the procedures for substituting or replacing all or portions of existing water plans

An understanding of next steps for coordinated funding and implementation

What goes into the plans?

Comprehensive watershed management plans contain:

- A narrative describing the watershed’s land and water resources
- A summary of the priority issues and resource concerns
- Measurable goals for addressing each priority issue
- A targeted implementation schedule outlining actions
- A description of the program(s) that will be used to implement the actions in the schedule
- A description of the ongoing partnership that will work together to implement the plan

Ultimately, the One Watershed, One Plan program encourages planners to look beyond individual water management projects – plans include programs that address education, recreation, soil health, monitoring, and more. The program also encourages local governments to move beyond jurisdictional boundaries to build regional partnerships and to seek out diverse funding sources.

Where can I find more information?

Program information is available at [http://www.bwsr.state.mn.us/planning/1W1P/index.html](http://www.bwsr.state.mn.us/planning/1W1P/index.html). Key documents:

- *One Watershed, One Plan Operating Procedures* (process, structure, roles)
- *One Watershed, One Plan Plan Content Requirements* (required plan elements)
- *One Watershed, One Plan Guidebook* (additional information, advice, and examples)
Using WRAPS Reports in Local Water Planning

This document provides a general overview of connections between a Watershed Restoration and Protection Strategies (WRAPS) report and a water plan, and outlines how local governments can incorporate the elements of a WRAPS report into their local water planning process. It is important to connect local water management programs and activities and WRAPS reports because each informs the other. Water plan in this document refers to County Water Plans, Watershed District Plans, Watershed Management Organization Plans, and Comprehensive Watershed Management Plans (One Watershed, One Plan).

Reports Available Through the MPCA & the WRAPS Process

Watershed Restoration and Protection Strategies Report (WRAPS)

This report summarizes the reports listed below, and uses that information to determine what actions are needed to improve or maintain water quality. The report includes current and past assessments of water quality, diagnostic studies and TMDL work, water quality (and in some cases drinking water) goals, and outlines ways to prioritize waters and focus implementation actions and strategies to enhance measurable outcomes. The WRAPS also provides:

- Water quality goals/targets for each assessed water
- Identification of critical source areas based on pollutant loading and/or hydrologic parameters (peak flows and volumes);
- An overview of civic engagement efforts that were conducted and that may be useful for future planning and implementation efforts
- Recommended strategies and timelines needed to fully meet restoration goals, protection targets, and groundwater and/or drinking water goals where appropriate

How to use the WRAPS report in water planning: The information in the WRAPS report can be valuable to understanding the broader watershed-wide water quality and water resource issues by providing information such as the relative magnitude and type of contributing pollutant sources and the relationships between water management practices and water quality conditions. The protection-related information in WRAPS is designed to help prioritize, target, and deliver measurable improvements in protection outcomes. The WRAPS may also incorporate statewide water quality plans, such as the Nutrient Reduction Strategy and sediment strategy reports where available; potentially streamlining the development of local water plan priorities. WRAPS strategies to restore impaired waters should be incorporated into a water plan. If WRAPS strategies are not identified as local priorities, the plan should include a description of why not.

Monitoring and Assessment Report

Identifies the results and status of sampled waters within the watershed over the most recent 10-year period and collects baseline information on a watershed’s physical characteristics. The report provides valuable information on the specific resources monitored and assessed as well as any long-term trends within the watershed. Key information found in the report includes:

March 28, 2018 (same content as 2016 version) www.bwsr.state.mn.us 1
- Locations of permitted groundwater and surface water withdrawals and summaries of groundwater quality and quantity in the watershed
- Biological condition (fish, macroinvertebrates, and/or aquatic plants) for streams, rivers, and lakes;
- Habitat information documented during each fish sampling visit
- Stream channel stability information
- Watershed hydrology information
- Pollutant loading data at the major watershed outlet (and in some cases for some minor watersheds)
- Water chemistry results representing the outlet of the minor watersheds;
- A summary of lake water quality results
- A summary of drinking water protection needs where appropriate.

**How to use the Monitoring and Assessment Report in water planning:** This report characterizes the water quality conditions in the watershed. Data collected in support of the report (such as the physical characteristics) can be valuable for land and water resources inventory and subsequent prioritization of resources in a plan. Additionally, understanding the monitoring section of the report can assist with development of ongoing monitoring actions within the water plan.

**Stressor Identification Report**

Summarizes the key causes or “biotic stressors” contributing to impaired fish, aquatic macroinvertebrate, and aquatic plant communities and includes a comprehensive review of existing biological, chemical, and physical data to assess the stressors on stream and lake health (examples: low oxygen, excess sedimentation, temperature, poor water clarity, interrupted connectivity, and lack of habitat).

**How to use the Stressor Identification Report in water planning:** Stressors identified in the report should be identified as concerns or issues within the water plan. If these biotic stressors are not identified as priorities, the plan should describe why not. Management actions in the implementation sections of water plans should address the stressors to the extent possible.

**TMDL Report**

After impaired waters are listed, the MPCA addresses each of the impairments with a Total Maximum Daily Load (TMDL). The TMDL process identifies all sources of the pollutant and determines how much each source must reduce its contribution in order to meet the standard. Implementation recommendations are provided in the TMDL report and/or incorporated directly into the WRAPS report. Each TMDL project may contain one or more waterbodies or segments of a waterbody. A TMDL is the maximum amount of a pollutant a water body can receive without violating water quality standards, and an allocation of that amount to the pollutant’s sources. TMDLs may directly impact municipal stormwater (MS4), wastewater facilities, and permitted/regulated businesses with required pollutant load reductions.

**How to use the TMDL in water planning:** The source reduction strategies form the basis of the TMDL implementation plan which is further refined during the water planning process. The TMDL sets pollution reduction goals (examples: nitrogen, phosphorus, sediment), to be achieved through implementation of the water plan. The TMDL will also provide insight into capital projects and other practices that may be implemented within a watershed to address impairments. The TMDL report identifies the sources of the impairment while the associated TMDL modeling information provides further details about the water quality impairment that are useful for estimating future restoration costs and for funding applications.
# Connecting WRAPS to the Water Planning Process

In the water planning process, data and information are used in the context of local values and needs to set priorities. The following table provides a general overview of the water plan development process and how a WRAPS report connects with those steps. Note that not all the steps are part of every planning process, not every WRAPS is complete, and that local water plans will address many items beyond those in the WRAPS. The connections outlined above may apply to other state plans, e.g. Groundwater Restoration and Protection Strategies report (GRAPS), the Nonpoint Priority Funding Plan.

<table>
<thead>
<tr>
<th>Planning Process Step</th>
<th>WRAPS Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planning Start-up</strong></td>
<td></td>
</tr>
<tr>
<td>Initial meetings of local government planning staff to discuss planning process</td>
<td>In the meeting, local staff are encouraged to include a discussion of the current status of the WRAPS.</td>
</tr>
<tr>
<td>Advisory committee or water plan task force meeting(s) shortly prior to plan initiation</td>
<td>MPCA staff may be asked to provide a WRAPS overview to the Advisory Committee (timing may be more appropriate after plan initiation).</td>
</tr>
<tr>
<td>Governing Board passes a resolution to update the water plan</td>
<td>Local staff may want to consider including a commitment to the WRAPS in the resolution to update the plan.</td>
</tr>
<tr>
<td>Local government requests initial input on the plan or Priority Concerns Scoping Document (PCSD) for County Water Planning</td>
<td>All agencies – be sure to reference WRAPS report and include critical items in the response letter (not all items in the WRAPS can be addressed in a 10-year water plan; specificity about agency priorities early on will help in the planning and approval processes).</td>
</tr>
<tr>
<td><strong>County Water Planning PCSD</strong></td>
<td></td>
</tr>
<tr>
<td>Local government develops the PCSD</td>
<td>Local staff encouraged to discuss approach for incorporating WRAPS into the PCSD with MPCA project manager, the WRAPS technical core team, or other experts the project manager references.</td>
</tr>
<tr>
<td>Local government response to comments on the PCSD</td>
<td>Review response to comments to ensure any comments regarding WRAPS are addressed.</td>
</tr>
<tr>
<td>Recommendation to BWSR Region Planning Committee (PCSD)</td>
<td>BWSR staff will specifically note if/how PCSD addresses critical issues identified in WRAPS in memo and presentation to board committee.</td>
</tr>
<tr>
<td><strong>Plan Development</strong></td>
<td></td>
</tr>
<tr>
<td>Local government hosts a plan kickoff meeting and ongoing Advisory Committee or task force meetings</td>
<td>Local staff should be communicating with MPCA staff about providing a WRAPS overview at the kick off meeting and/or to the advisory committee. All agencies should be discussing the WRAPS as appropriate at advisory committee meetings.</td>
</tr>
<tr>
<td>Local government drafts the water plan. Drafts of the plan or plan sections may be provided along the way for feedback.</td>
<td>Go back to response letter submitted during plan start-up and make sure items in letter are addressed in the water plan. Agency staff will coordinate with local and BWSR staff if items are not addressed.</td>
</tr>
<tr>
<td><strong>Final Plan</strong></td>
<td></td>
</tr>
<tr>
<td>Final water plan is submitted to BWSR.</td>
<td>BWSR reviews the plan against statute, rule, and policy requirements and agency letters received. BWSR ensures that critical issues identified in the WRAPS report have been incorporated into the water plan. BWSR will communicate</td>
</tr>
</tbody>
</table>
Information Used in WRAPS That Could Inform Local Water Planning

As part of WRAPS development, a Hydrological Simulation Program—Fortran (HSPF) model is built for each major watershed. Following construction of the model, a Scenario Application Manager (SAM) utility may be developed. This utility allows a water planner to evaluate the water quality effects of a range of scenarios (e.g., increase in perennial cover; conversion of forest to agriculture). The application does not require modeling expertise; however, knowledge of the assumptions associated with and appropriate uses for an HSPF model is recommended. A few WRAPS have used a Soil and Water Assessment Tool (SWAT) model instead of HSPF.

In addition, many WRAPS have used information on fluvial geomorphology (stream stability), hydrology (stream flow), and connectivity (dams and road crossings), as well as the Watershed Health Assessment Framework, which provides major watershed and catchment–scale scores for a variety of watershed health metrics.

Other data, analysis, and models not listed here may have been used in the WRAPS process and could be useful in developing a water plan. Agency staff can help local water planners determine what data is available and what analysis and models have been developed for a given watershed.

Should or Must?

Requirements for Using WRAPS and other information in Local Water Plans

Local water planning is a process of prioritizing water bodies and issues and selecting locally relevant strategies to work toward water resource goals. This process is informed by data, information, and goals from a variety of sources, including WRAPS, state-level plans and strategies, and citizen input. Strategies in local plans should be connected back to these sources, and ideally, they should provide multiple benefits to address a variety of issues identified in the planning process. Because WRAPS and some other sources are comprehensive, it’s not expected that everything in a WRAPS or other source be reflected in a local water plan. The following clarifies the requirements for using this information in different plan types:

**MUST:** Using WRAPS is a key purpose of One Watershed, One Plan [see Minnesota Statutes §103B.801, Subd. 2(3)] and incorporating data and information from WRAPS and other sources, including state-generated reports, plans and strategies is required (see One Watershed, One Plan - Plan Content Requirements).

**SHOULD:** While this requirement is not presently outlined in statute for County Water Plans, Watershed District Plans, and Watershed Management Organization Plans, WRAPS can add value to all local water plans. All plans should connect information in WRAPS and other sources to the strategies and actions listed for locally identified priority resources.
On June 18, 2018, a Des Moines River Watershed Shared Leadership meeting was held at the American Legion in Fulda, MN. The purpose of the this meeting was to bring together elected and appointed officials, as well as the Citizen Council and local work group, for an update on the Des Moines Watershed Restoration and Protection Strategies (WRAPS) Report, as well as an introduction to the One Watershed One Plan (1W1P) process. There were 33 people in attendance, representing six of the seven counties in the watershed.

Ross Behrends, Heron Lake Watershed District (HLWD), started the meeting with introductions.

Katherine Pekarek-Scott, Minnesota Pollution Control Agency (MPCA), gave an overview of the watershed approach, described land use and altered watercourses, provided an update on the WRAPS process including preliminary assessments for stream and lake impairments, including biological impairments and stressors, and explained work completed to-date. She also provided a summary of the Total Maximum Daily Load impairments and general timeframes towards the overall completion of the WRAPS report.

Ross Behrends, HLWD, presented the results from the West Fork Des Moines River (WFDMR) Watershed Survey. To date there were 103 surveys completed and entered online into Survey Monkey. Results will be used in the WRAPS Report, as well as included in the Major Watershed Project Phase II Final Report.

Tobias Spanier, University of Minnesota (UM) Extension, explained collaboration. The purpose of collaboration is to create a shared vision and joint strategies to address concerns that go beyond the concerns of any particular party. To begin to develop a shared vision within the Des Moines Watershed, attendees were broken up into small groups to develop their vision for the watershed. Each group's vision was shared with the whole group and discussion was held. Key Values were shared from the group. Values shared were: drinking water; quality of life – clean, recreational use, social; controlled drainage; water storage; Improved water quality; community involvement – and sense of personal responsibility; partnerships lead to measured success; reduced algae blooms; business growth; improved farming techniques; community involvement to use resources; hard work; education about goals; personal responsibility; and maintaining what has been achieved.

Julie Westerlund, Minnesota Board of Soil and Water Resources (BWSR), provided information on 1W1P. BWSR’s vision for 1W1P is to align local water planning on major watershed boundaries with state strategies towards prioritized, targeted, and measurable implementation plans – the next logical step in
the evolution of water planning in Minnesota. The benefits of a shared watershed plan would be: a
shared understanding of the concepts of prioritized, targeted, and measured; agreement on the
expectations, benefits, and outcomes for implementing 1W1P; implementation activities that address
the largest threats and provide the greatest measurable environmental benefit; an understanding of the
procedures for substituting or replacing all or portions of existing water plans; and an understanding of
next steps for coordinated funding and implementation.
Appendix 9
Hello Band of 5,

Shortly after we met by phone on March 7 and had a very productive meeting, I took off for vacation. I have summarized my notes (see below), and I am hoping that you can read through them and correct/add to anywhere that I am suffering from 'vacation-brain.' Overall, I feel like we have a good start to launching this event.

Thanks!

Karen

**Event logistics:** 26 June, 4pm-7pm (2 hours inside, 20 minutes travel/reconvene, 30 minutes lakeside discussing projects, then refreshments). Start at the Fulda Legion, then move to Seven Mile Park (~4 blocks away).

Who is the audience? **General citizens.** Use radio advertising. Include the ppl in the room when we met in Heron Lake. What are we offering the public that they think they need? The fact that they are a part of the watershed. No max # of participants. Registration will be requested but not required.

**Draft Agenda (indoors)**

- Introductions (Ross? 15 min.)
- Watersheds 101 (Karen; 45 min.)
- Overview of the watershed (connections and impairments) (Jan; 20 min.)
- Highlight the Fulda project (Ross; 10 min.) and wetland restoration (Catherine; 10 min.) — emphasis on how citizens drove that project
- What citizens can do at home (Karen; 20 min.)

**Additional info (outdoors)**

- At the park, everyone can meet at one point and look down the shoreline to see each of the three sites.
- We will have posters for each of the projects there, and handouts with maps for people.
- We will have a large whiteboard up to collect their thoughts on what they will do differently (at home or at work or in their community) based on this event.
- We will provide hotdogs, chips, drinks, etc. Local volunteers (Fulda Lake Fish and Game Club and Heron Lake interns) can help set up and serve. We can use Council Capacity Building Budget (~$2100) — for refreshments and other supplies.
- Ross will offer to lead a walking tour after the meal for anyone interested in seeing the sites up close (15 minutes).

**Objectives**

What is our #1 goal/objective? Public participation—**get a good representation to attend.**

What is our #2 goal/objective? Better understanding of their role in water quality.
What is our #3 goal/objective? Better understanding of watersheds in general. Ppl who live on the river have a better idea of watersheds than those who don’t.

Next steps

- Ross will check with the Fulda Legion to reserve the date.
- Karen will draft a flyer and circulate to Band of 5 for feedback.
- Karen will start a list of outlets through which we can promote the event, and will share that with Jan to fill in the details. Announcements/invitations will start going out in late May.
- Who is checking with Catherine to see if she is available June 26 and willing to speak about the wetland restoration?

Karen L. Terry  
Extension Educator, Water Resources  
University of Minnesota Extension  
West Central Research and Outreach Center  
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Like us on Facebook!

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The University of Minnesota Extension Water Resource team’s mission is to make a difference by connecting community needs and University resources to address Minnesota’s critical water resource issues by providing and modeling effective education to ensure safe and sustainable water resources.
Where Does Your Water Go?  
West Fork Des Moines River  
**Presentations and Picnic**

Water flows through our watersheds, through our lives, and through our bodies. What do we know about it? How do we take care of it? Join us for this free event to learn and share about the West Fork Des Moines River Watershed.

Tuesday, June 26  
4pm-7pm  
Fulda American Legion and Seven Mile Park

The evening begins with four presentations at the Legion:
- Watersheds 101
- Status of the lakes and rivers in the West Fork Des Moines Watershed
- Overview of projects done so far, including the Fulda Wetland Restoration
- What Each of Us Can Do

We then move to Seven Mile Park for a picnic meal provided free of charge. A poster tour of clean water efforts will be offered. Attendees will have the opportunity to share ideas about water pollution within the watershed!

This free event is a part of the watershed approach that is happening in the West Fork Des Moines River watershed, brought to you by the Heron Lake Watershed District, Minnesota Pollution Control Agency, and the University of Minnesota Extension.

For more information, contact Jan Voit at 507-793-2462, jvoit@hlwdonline.org.
Sharing the flyer for the June 26 watershed workshop:

1. Local radio – will they do free public service announcements?
2. Local papers – how many are there? Will they do free press releases? Would they be willing to run an article about the WRAPS and include info about the event?
3. Personal invitation and flyer:
   a. Citizen’s Council members – enlist them to help circulate
   b. City council members
      Emailed to all cities – June 11, 2018
   c. County commissioners
      Emailed to all seven counties – June 11, 2018
   d. Appropriate city and county staff (mayors, p&z staff, water plant operators, etc.)
      Emailed to all seven counties – June 11, 2018
4. Hard copies of the flyer:
   a. Area churches
   b. Local service clubs
   c. Businesses with bulletin boards
   d. Ag businesses
      New Vision Co-op
      Meadowland Farmers’ Cooperative
      Crystal Valley
5. Electronically:
   a. Lake associations email lists
      NHLGPA – June 11, 2018
   b. HLWD Facebook page – encourage folks to share on their own FB pages – June 11, 2018
   c. Partners such as SWCD and other agency staff, ag producers, conservation groups, sportsmen’s groups – June 11, 2018
What do we really know about our water? The water that flows through our watersheds, through our lives and through our bodies?

Find out Tuesday June 26th at a free event to learn and share about the West Fork Des Moines River Watershed.

It begins at 4pm at the Fulda Legion with information on the Fulda Wetland Restoration Project and the status of lakes and rivers in the Watershed plus what each of us can do.

From there it goes to 7 mile park for a free picnic meal and a tour of the clean water efforts.

This free event is a part of the approach that is happening in the West Fork Des Moines River watershed, brought to you by the Heron Lake Watershed District, Minnesota Pollution Control Agency, and the University of Minnesota Extension.

Join your friends for this free event Tuesday June 26th beginning at 4pm at the American Legion in Fulda.

If you have questions call Jan at 793-2462.

With the mentioned budget we can begin running this June 15 and air it 40 times through the day of the event. We will also include at no charge mentions on our community calendar and small town news segments. Will also get the information on our weekend fishing and sportsman call in show.
**COMMERCIAL PRODUCTION**

<table>
<thead>
<tr>
<th>DATE ASSIGNED:</th>
<th>COMMERCIAL:</th>
<th>:60</th>
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</thead>
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<td>TALENT:</td>
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| CLIENT: HERON LAKE WATERSHED DISTRICT | WEST FORK DES MOINES RIVER PRESENTATION / PICNIC |

| DATES AIRING: 6/14/18 – 6/26/18 |

WATER, EVERYONE NEEDS IT. IT FLOWS THROUGH OUR WATERSHEDS, THROUGH OUR LIVES, AND THROUGH OUR BODIES. BUT WHAT DO WE KNOW ABOUT IT? HOW DO WE TAKE CARE OF IT? THE PUBLIC IS INVITED TO JOIN THE HERON LAKE WATERSHED DISTRICT FOR A FREE PRESENTATION ON THE WEST FORK DES MOINES RIVER ON TUESDAY JUNE 26TH BEGINNING AT THE FULDA AMERICAN LEGION AT 4 PM. COME LEARN ABOUT WATERSHEDS, STATUS OF THE LAKES AND RIVERS IN THE WEST DES MOINES WATERSHED, AN OVERVIEW OF PROJECTS DONE SO FAR AND WHAT EACH OF US CAN DO. THE EVENING CONCLUDES WITH A FREE PICNIC AT SEVEN MILE PARK. ATTENDEES WILL HAVE THE OPPORTUNITY SHARE IDEAS ABOUT WATER POLLUTION WITHIN THE WATERSHED! THIS FREE EVENT IS PART OF THE WATERSHED APPROACH THAT IS HAPPENING IN THE WEST FORK DES MOINES RIVER WATERSHED, BROUGHT TO YOU BY THE HERON LAKE WATERSHED DISTRICT, MINNESOTA POLLUTION CONTROL AGENCY, AND THE UNIVERSITY OF MINNESOTA EXTENSION. FOR MORE INFORMATION, CONTACT JAN VOIT AT 507-793-2462 OR ONLINE AT JVOIT@HLWDONLINE.ORG.

Jan,

Nice to hear from you. Attached is a sixty second commercial for the West Fork Des Moines River presentation and picnic. Please make any changes or correction to the copy.

Based on your budget I propose the following schedule:

- **KUSQ – FM** – (3) :60’s per day, 6a-8p, 6/14 – 6/26, (4) :60’s on 6/23. Skip Sunday 6/17. Total (34) :60’s @ $11.00 non-profit rate = $374.00
- **KWOA – AM 730** – (3) :60’s per day, 6a-8p, 6/14-6/26, (4) :60’s on 6/23. Skip Sunday 6/17. Total (334) :60’s @ $11.00 non-profit rate = $374.00

Plus we will include this on community calendar and farm news. If you have any questions call or email me.

Dan Dobson
WATER FLOWS THROUGH OUR WATERSHEDS, THROUGH OUR LIVES, AND THROUGH OUR BODIES DAILY BUT WHERE DOES IT ACTUALLY GO? HOW DO WE TAKE CARE OF IT? MAKE PLANS TO ATTEND A FREE INFORMATIVE EVENT TO LEARN AND SHARE MORE INFORMATION ABOUT THE WEST FORK DES MOINES RIVER WATERSHED. IT TAKES PLACE TUESDAY JUNE TWENTY-SIXTH FROM FOUR TO SEVEN P.M. THE EVENING STARTS AT THE FULDA AMERICAN LEGION WITH SEVERAL PRESENTATIONS. IT THEN MOVES TO SEVEN MILE PARK FOR A FREE PICNIC. FOR MORE INFORMATION CONTACT JAN VOIT AT FIVE OH SEVEN SEVEN NINE THREE TWENTY-FOUR SIXTY-TWO.
HERON LAKE WATERSHED

KARL, KARZ, KKCK, KMHL

- 3 times daily Friday, Saturday, Monday on each station: 1 - A.M. drive, 1- Mid-day, 1- P.M. drive - 36 ads -$650.75
- 3 times on Sunday on each station: 1-A.M. drive, 1-Mid-day, 1 P.M. drive- 12 ads free
- Prairie Outdoorsman Program interview: 2 ads during Thursday / 2 ads during Saturday airing. $50
- KMHL interview - $35

Total: $735.75

Will Rutledge
Marshall Radio
507-532-2282

P.O. Box 61
1414 East College Drive
Marshall, MN 56258
Bus. (507) 532-2282
Fax (507) 532-3739
KDOM Radio Interview Questions

**What event are you promoting?**
This is a free event to learn more about water in southwest Minnesota - how it affects us, and how we affect it, especially in the West Fork Des Moines River watershed.

**Where is the WFDMR watershed?**
The West Fork Des Moines River watershed extends across parts of seven counties (Nobles, Jackson, Murray, Cottonwood, Martin, Lyon, and Pipestone) in Southwestern Minnesota. It covers an area of 1,333 square miles of land. The land is used primarily for agricultural purposes, both crop and livestock production. The West Fork Des Moines River flows from Lake Shetek in a southeasterly direction for 94 miles to the Minnesota/Iowa border and eventually enters the Mississippi River at Keokuk, Iowa.

**Who should attend this event?**
This event is meant for everyone! Whether you live in a town or a rural area, you live in a watershed.

**When will this event take place?**
This event will be held on Tuesday, June 26 beginning at 4 pm at the Fulda Legion Hall. Following the indoor presentations, we will travel to Seven Mile Park for a free picnic.

**What is planned?**
We will meet at the Fulda American Legion. The event begins at 4 pm.

Karen Terry, UM Extension, will provide information about how watersheds work. A watershed is an area of land where all the water that flows from it goes to the same stream, river, or lake. Karen will explain how the watershed works and how human activity affects our water.

I will provide an update on the lakes and rivers in the West Fork Des Moines River watershed.

Ross Behrends, WFDMR Watershed Coordinator, will explain some of the projects that have been done in the Fulda Lakes area to clean up the water.

Karen Terry will conclude the indoor portion of the event by describing things that each of us can do on our own to help clean up our water.

We will then move to Seven Mile Park for a picnic meal, provided free of charge.

We will also ask attendees to share ideas about water pollution in the West Fork Des Moines River watershed.
Why should people consider attending this event?
There are many wonderful water resources within the West Fork Des Moines River Watershed – Lake Shetek, the Graham Lakes, the Fulda Lakes, Talcot Lake, the Heron Lakes, and Cottonwood Lake, in addition to Beaver Creek, Jack and Okabena Creek, and the river itself. This event gives everyone a way to learn a little bit more about how the waters flow and how they are affected by the things that we do. It can be overwhelming to know what can be done and this is an easy way to start.

How is this event funded?
This free event is part of the watershed approach that is happening in the West Fork Des Moines River watershed. It is sponsored by the HLWD, MPCA, and UM Extension with funding from the Clean Water Land and Legacy Amendment.
Where Does Your Water Go?
West Fork Des Moines River

26 June 2018

Agenda

4:00-4:15pm  Welcome and introductions
4:15-5:00pm  Watershed 101
5:00-5:20pm  Overview of the watershed
5:20-5:40pm  The Fulda Lakes Projects
5:40-6:00pm  What citizens can do at home
6:00-7:00pm  Lessons in Seven Mile Park
Objectives

• Consider the range of benefits of healthy watersheds
• Better understand the impacts of land use practices and runoff
• Become familiar with Minnesota’s watersheds
• Think more deeply about your role in watershed health
Only 2.5% of the world's freshwater is accessible for direct human uses.
We can’t make more water
Any land within the watershed may contribute runoff and associated pollutants to that lake, river, stream, or wetland.

A watershed contains all the land and water features that drain excess surface water to a specific location on the landscape.
Minnesota’s waters flow outward in three directions; north to Hudson Bay in Canada; east to the Atlantic Ocean; and south to the Gulf of Mexico.

A THREE-WAY CONTINENTAL DIVIDE

A drop of rain water falling here in the Giants Range, a rare three-way continental divide, may flow either north into icy Hudson Bay, east into the Atlantic Ocean, or south into the warm waters of the Gulf of Mexico.

From the north slope of these very old granite ridges, streams flow into the Red River of the North through Lake Winnipeg, and into Hudson Bay in northern Canada.

Creeks and rivers on the south slope flow into the St. Louis River, enter Lake Superior at Duluth, and eventually reach the north Atlantic through the Great Lakes and the St. Lawrence River.

On a western spur of Giants Range the great watershed of the immense Mississippi River system gathers the flow from a maze of streams and swamps as the legendary river begins its winding course from lake teases to the Gulf of Mexico, more than 2,500 miles away.

Lying as it does near the center of the North American continent, Minnesota marks the transition between eastern woodlands and western prairies and between northern coniferous forests and rich grain-growing lands of the mid-nation. It is a land of dramatic differences, tied to the world through three great waterways that originate in these rocks and streams.
Ten Major River Basins

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

Basins:
- Cedar River
- Des Moines River
- Lake Superior
- Lower Mississippi River
- Minnesota River
- Missouri River
- Rainy River
- Red River of the North
- St. Croix River
- Upper Mississippi River
10 Major Basins

80 Major Watersheds

Minnesota Pollution Control Agency
Benefits of Healthy Watersheds

- Safe and sufficient drinking water
- Strong ag systems
- Property values
- Fish and wildlife habitat
- Quality recreational opportunities
- Groundwater resources
- Sense of place
1. Safe and sufficient drinking water

- MN Population 2010: 5.2M
- Rely on Surface Water: 1.3M
- Rely on Groundwater: 3.9M

In 2014, the MDH discovered 19 municipal water systems with elevated levels of impairments in their drinking water.

Nitrogen: A 2011 survey found that 62% of monitoring wells in central MN showed excessive N.
2. Economic impact of agriculture

• Livestock and poultry production = $7.7B
• Crop production = $14.6B
• Total direct employment: 149,000 jobs
3. Protect property values

Maine study: water clarity affects lakeshore property values.

Bemidji State University study: a one meter reduction in clarity had a negative impact on property values. If extrapolated to 1/3 of all MN lakes, this is a $100B drop in property values plus $900M loss in local property taxes per year.
4. Provide fish and wildlife habitat

Rivers, streams, wetlands, and lakes – and the adjacent riparian lands – create and maintain diverse habitats which:

- Provide in-water habitat
- Are used by upland species
- Provide migration corridors
- Lead to species diversity
5. Quality recreational opportunities

**Fishing:** 43,000 Minnesota jobs
- $2.8B in retail spending directly on fishing
- >$640M per year in tax revenues
- >90,000 non-resident licenses sold in 2012

**Hunting/Wildlife Watching:** >12,000 jobs
- $1.5B in direct spending

Total: $4.3B and 55,000 jobs
6. Groundwater recharge protects:

• Private wells
• Municipal wells
• Irrigation
• Lake levels
• Wetlands
• Seasonal and permanent springs
Healthy Community

- Agriculture
- Drinking water
- Groundwater
- Sense of place
- Property values
- Fish and wildlife
- Recreation
As we develop the landscape...

...we change the path precipitation takes.

Touber and Westmacott 1981
Ponds:
Excessive stormwater runoff

Problems

Done work on SW

Flow (cfs)

Time (hr)

Rainfall event over time

Connection between Watershed Changes and Runoff Dynamics

Streams of “natural” landscapes

Streams of “altered” landscapes
How have we altered hydrology?

Removed surface storage
How have we altered hydrology?

Added impervious surfaces
Polluted runoff is possible from:
Phosphorus Inputs
Sediment Inputs

Adapted From: Wisconsin DNR
Impacts of development on lakes
Impacts of development on streams
What is an impairment?
INTENSITY OF LAND USE

AMOUNT OF IMPERVIOUS SURFACE OR ARTIFICIAL DRAINAGE

POTENTIAL WATER QUANTITY & QUALITY PROBLEMS
How can we make these... function hydrologically like this?
By managing stormwater runoff: slow the flow

- Protect water quality
- Improve degraded water quality
- Recharge groundwater
- Reduce flooding potential
Example: Shoreline restorations
Example: Bioretention basins
Minnesota is leading the way …

- WRAPS
- One Watershed/One Plan
- Citizen monitoring
- Citizen engagement
- Groundwater monitoring
- Clean Water, Land, and Legacy Amendment
Karen Terry
University of Minnesota Extension
West Central Outreach and Research Center
218-770-9301
kterry@umn.edu
“What we really need is to establish an ethic of clean water practices. I urge you ... to spend today establishing our ethic: that clean water practices are every Minnesotan’s responsibility. That anything less is unacceptable. And that it’s achievable if all of us do our part.”

– Minnesota Governor Mark Dayton, Water Summit, St. Paul, February 27, 2016
Ways to be involved

- Volunteer monitoring
- Board service (SWCD, watershed district, lake association, etc.)
- Work with youth
- Plans, Practices, and Policy
- Community projects
- WRAPS
Where Does Your Water Go?

Jan Voit
HLWD Administrator

June 26, 2018
E. Coli

- Fecal coliform bacteria live in the digestive tract of warm-blood animals
  - Humans, pets, farm animals, and wildlife
- Fecal coliform bacteria are usually not harmful, but they can indicate the presence of waterborne pathogens.
What levels of E. coli are found in the watershed?

Bacteria is 5 – 10 times higher in wet conditions.

Summer-fall bacteria levels are about 3 – 10 times higher than spring.
Sources of fecal coliform bacteria

- Humans
  - Approximately 66% of the individual septic systems are out of compliance
  - Wastewater Treatment Plants bypasses and violations
  - Stormwater runoff
- Pets and Wildlife
  - Runoff
- Livestock
  - There are an estimated 742 livestock facilities in the watershed.
    - Improper manure application
    - Open feedlot runoff
    - Overgrazed pasture
Turbidity

- Turbidity is the measurement of water clarity.
- Limits light penetration and creates difficult living conditions for aquatic organisms.
- Turbidity is closely associated with two other stream measurements:
  - Total suspended solids (TSS)
  - Transparency
What are the levels of turbidity?

- Need 50-80% reductions in solids loadings to meet standard throughout the flow regime.

- Heron Lake, Lake Shetek, Windom reservoir
  - Worse under dry conditions due to algae
  - Carp may also be cause in Heron Lake
Sources of turbidity

- Runoff:
  - Fields
  - Construction sites
  - Highly Erodible Lands

- Erosion:
  - Wind
  - Gully
  - Streambank
  - Overgrazed pasture

- Suspended organic matter:
  - Algae

- Carp and other rough fish
What is excess nutrients?

Excessive nutrient concentrations in the water column can fuel undesirable growths of algae. Such conditions interfere with recreational and aquatic life uses and reduce the aesthetic quality of these waters.

Algal blooms reduce transparency causing:
- Decreased recreation
- Fish species have difficulty finding food
- Decreased submergent vegetation
Sources of excess nutrients

- Wastewater Treatment Facilities
- Runoff of:
  - Fertilizers
  - Soil
  - Manure
- Erosion
- Noncompliant septic systems
- Feedlots
- Internal load
  - Sediments/rough fish
Watershed Challenges

- Changing hydrology
- Standards require significant load reductions
- Equitable allocations for point/nonpoint sources
- Balance agricultural production and conservation practices
What will a WRAPS look like?

Yellow Medicine River Watershed Report

- Are waters meeting standards and providing beneficial uses?
- What factors are affecting fish and bugs?
- Restoration and Protection Strategies
Current Implementation Strategies

- Focus on likely high contributors, hot spots
- Continued efforts on agricultural best management practices, failing septic tanks, and feedlots
- Stream restoration/bank erosion controls
- Wastewater treatment facility upgrades to control phosphorus
- Control rough fish
- Adaptive management
At the state level

- Assessment complete – Monitoring and Assessment Report on web
  - All new impairments on draft 2018 impaired waters list
- HSPF watershed modeling complete
- Watershed Characterization Report complete
- Stressor ID monitoring is complete
  - Report is being drafted, completion goal of fall 2018
At the state level continued

- Contracting with Houston Engineering, Inc. to complete TMDL work
  - Work has started
  - Draft allocations presented in June 2018
  - Start drafting report in July 2018
- MPCA is drafting the WRAPS report
- Goal is to public notice late 2019 or early 2020
On the local level

- Watershed Coordinator
- Local Work Group
  - Water Education Event
- Citizen Council
  - Identify public involvement activities
  - Recommended survey
  - Asked for Facebook page
- Shared Leadership
On the local level
On the local level

Des Moines Basin Preliminary Assessments

Assessed Streams
- Full Support Aquatic Recreation
- Full Support Aquatic Life
- Impaired Aquatic Life
- Impaired Aquatic Recreation
- Streams Not Assessed

Assessed Lakes
- Full Support
- Not Supporting
- Not Assessed

Program Vision

One Watershed One Plan

Develop prioritized, targeted and measurable local plans aligned with state strategies on major watershed boundaries.
On the local level

Where Does Your Water Go?
West Fork Des Moines River
**Presentations and Picnic**

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For more information, contact Jan Voit at 507-793-2462, jvoit@hlwdonline.org.
Questions??
Fulda Lakes

• Comprised of two lakes
  – First Fulda and Second Fulda
• First Fulda (179 acres)
• Second Fulda (60 acres)
• Receiving basin for 4,199 acres of agricultural and urban runoff
• 18 : 1 watershed to basin ratio  

08/05/2008
Fulda Lakes Subwatershed
Dierk’s Wetland Restoration
Judicial Ditch 13 Treatment

75 percent reduction of TSS

JD 13  Dierks  Schindlers  Murray Co.
Payment Rates

- Minimum – Till: $7.00/acre
- Ridge – Till: $12.00/acre
- No - Till: $12.00/acre
- Forage Residue: $12.00/acre
- Strip – Till: $20.00/acre
- 4,625 acres enrolled
- $38,115 paid to operators
Shoreline Restorations

Blanchette Property 10/15/2008
Leeben Property 08/12/2008
City of Fulda 10/15/2008
Lubben Property
• Installation of variable crest structure
• Drawdown
• Fish Reclamation
Fulda Lakes Avg TP Concentrations

Fulda Lake 1
Fulda Lake 2

mg/L

Recent Projects
Storm Water
Partnerships

- USFWS
- NRCS
- DNR
- MPCA
- MN Extension
- BWSR
- Nobles, Jackson, Murray, and Cottonwood Counties
- HL-O Community Foundation
- MDA
- U of M
- ADMC
- SWCDs
- NHLGPA
- PEBC
- SSC
- Landowners
- USDA
- Cities
Questions?
Where Does Your Water Go: West Fork Des Moines River Watershed

What You Can Do

Karen Terry
Extension Educator
Fulda, MN
26 June 2018
Minnesota is leading the way …

• WRAPS
• One Watershed/One Plan
• Citizen monitoring
• Citizen engagement
• Groundwater monitoring
• Clean Water, Land, and Legacy Amendment
How can we make these... function hydrologically like this?
By managing stormwater runoff:
slow the flow

- Protect water quality
- Improve degraded water quality
- Recharge groundwater
- Reduce flooding potential
“What we really need is to establish an ethic of clean water practices. I urge you … to spend today establishing our ethic: that clean water practices are every Minnesotan’s responsibility. That anything less is unacceptable. And that it’s achievable if all of us do our part.”

– Minnesota Governor Mark Dayton, Water Summit, St. Paul, February 27, 2016
Ways to be involved

• Plans, Practices, and Policy
• Your own property and community projects
• Volunteer monitoring
• Board service (SWCD, watershed district, lake association, etc.)
• Work with youth
What can we do?

Plans

Policies

Practices
PLANS

- Plans are blueprints
- Establish vision
- Set broad goals and priorities
- Provide you direction
What are examples of PLANS?

- Comprehensive Plan
- Land Use Plan
- County Water Plan
- Stormwater Plan
- Watershed Plan
- TMDL Plans
What can we do?

Plans

Policies

Practices
• **Ordinances**

A piece of legislation (law) enacted by a LUG (county, municipality, township)

• **Regulations**

A rule or directive made and maintained by a executive authority (e.g., planning dept.) to meet requirements of ordinances
What types of ‘clean water’ provisions are covered in a local ordinances?

• **Zoning** (Floodplain, subdivision, building codes, soils protection, impervious surface standards)

  • **Vegetation** (Trees, landscaping, street-scaping, critical areas preservation, buffers, riparian management)

• **Design** (Site planning, dimensional standards, clearing & grading, engineering, hard-scaping, stormwater)
Best Management Practices (BMPs) for Healthy Watersheds
What are Best Management Practices (BMPs) for Healthy Watersheds?
Best Management Practices

“Creative Techniques to Treat, Use, Store, Retain, Detain, and Recharge”

- Bio-retention/rain gardens
- Strategic grading
- Site finger printing
- Resource conservation
- Flatter, wider swales
- Conservation tillage
- Long flow paths
- Tree/shrub depression
- Turf depression
- Landscape island storage
- Rooftop detention/retention
- Roof leader disconnection
- Parking lot/street storage
- Smaller culverts, pipes & inlets
- Conservation drainage
- Perennial cover crops
- Smart irrigation systems
- Grassed waterways
- Minimize application of herbicides and pesticides
- Vegetative swales, buffers & strips
- Infiltration swales & trenches
- Eliminate curb and gutter
- Shoulder vegetation
- Maximize sheet flow
- Maintain drainage patterns
- Reforestation
- Pollution prevention .............
Rain Gardens

- Reduce runoff
- Filter runoff
- Recharge groundwater
- Decrease runoff temperature

And they can be pretty, too!
Post-Construction Runoff
1.44 inches in 9 hours

Source: City of Burnsville and Barr Engineering
SHORELAND BUFFERS
SHORELAND BUFFERS
Rain Barrels
Rain Barrels
Practice Good Stewardship

- Contain grass clippings
- Remove pet waste
- Clean driveway
- Hold water on site
- Reuse water
- Maintain septic system
Non-structural Practices

Education & Outreach

Audience segmentation

- Citizen & general homeowners
- Local elected & appointed officials and community leaders
- Businesses & industry
Citizen water monitoring

Clean water, one volunteer at a time

Join more than 1,400 Minnesotans who track the health of their favorite lake or stream — become a citizen water monitor today! Volunteers measure the water clarity of lakes and streams, and the MPCA uses that valuable data to make decisions on watershed protection and restoration. For some lakes and streams, volunteer monitoring provides the only data available, making this work indispensable.

Resources for monitors
Guides, reports, and data for current volunteers

About the programs
What we do and why it matters, sign up to help

Meet our volunteers
Meet Minnesotans helping to collect water data

• Sign up to volunteer
• Contact the Citizen Water Monitoring Program
• Find your watershed
Ways to be involved

• Plans, Practices, and Policy
• Your own property and community projects
• Volunteer monitoring
• Board service (SWCD, watershed district, lake association, etc.)
• Work with youth
• Clean water is important
• Having enough water is important
• Thinking long-term is important

• Make the water ‘walk’
• Keep pollutants out of the water
Online Tools to Explore Minnesota’s Watersheds

- PCA’s Watersheds
- DNR’s Watershed Health Assessment Framework
- NRCS’s Minnesota Rapid Watershed Assessments
- U of M Extension’s Fields to Streams
- DNR’s Lakefinder
Online Tools to Explore Minnesota’s Watersheds

- PCA’s Watersheds
  https://www.pca.state.mn.us/water/watersheds
- DNR’s Watershed Health Assessment Framework
  https://www.dnr.state.mn.us/whaf/index.html
- NRCS’s Minnesota Rapid Watershed Assessments
- U of M Extension’s Fields to Streams
- DNR’s Lakefinder
  https://www.dnr.state.mn.us/lakefind/index.html

Email Karen Terry at kterry@umn.edu to get a clickable list of these links.
Online Tools to Explore Minnesota’s Watersheds

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Email Karen Terry at kterry@umn.edu to request a clickable list of these links.
What are rain gardens?

A rain garden is a planted depression that is designed to allow rainwater runoff to be absorbed from impervious urban areas like roofs, driveways, walkways, and compacted lawn areas. This allows storm water runoff to soak into the ground before it flows into storm drains and streams, reducing erosion, water pollution, flooding, and diminished groundwater. Water quality data shows that small rain gardens save one pound of phosphorus per one-inch rain event or 50—80% and 90—100% of the heavy metals, petroleum, and bacteria found in storm water. Rain gardens also have been found to reduce storm water flows by 80—90%.

What we did

The HLWD installed six rain gardens within the City of Fulda. Each rain garden was excavated to 4’ in depth and backfilled with a sand-clay mix of approximately 60% sand and 40% clay to allow for better infiltration. Native prairie grasses and Minnesota wildflowers were selected and planted in each of the gardens. Landowners, community members, and HLWD staff came together to help plant and install each of the rain gardens.

Funding

Funding for this project came from 319 Demonstration, Education, Research. Partnership for this project included St. Paul Lutheran School staff and students, Bondin, Belfast 4-H Club, Master Gardeners, Fulda City Council, Fulda Heritage Society, Fulda Game and Fish, Jim and Rona Brown, Jack and Carol Tomford, Jerry Johnson, Jim and Lori Stainer, Howard and Virginia Anderson, Chuck and Georgia Lursen and HLWD staff.
What was the problem?

Erosion along the lakeshore was washing the banks into the lake, making the water dirty and increasing algae blooms. Rain running off of lawns and into the lakes was also carrying dirt and unwanted nutrients into the lake.

What we did

Multiple shoreline restoration projects were completed along Fulda Lakes. These projects stabilize the banks by re-sloping, mulching, and planting native prairie plants. Native plants have deep roots that help keep the bank's soil in place and also help filter water by up-taking nutrients from the water, reducing pollution in the lake. The thick native vegetation also slows down the rain runoff, allowing the water — and the pollutants that it picks up — to soak into the ground before it reaches the lake.

Funding

Funding for this project was provided by the DNR Shoreline Habitat Grant Program. The total cost of the project was $11,239. HLWD staff and Jim and Rona Brown also partnered on this project.
Biodetention basins were installed to protect the Fulda Lakes and are now being used to reduce sediment and phosphorus entering the lake system and provide flood storage during storm events. The biodetention basins treat runoff from 95 acres of agricultural lands before it enters the lakes.

**What are biodetention basins?**

Biodetention basins are used to reduce gully erosion in a natural watercourse, provide temporary storage of storm water to trap sediment and pollutions, and reduce the negative impacts from flooding. The detention basin has an orifice that is level with the bottom of the basin so that all of the water eventually drains out and it remains dry between storms.

**What we did**

**Funding**

Funding for this project was provided by LCCMR and HLWD staff. The total cost was $14,860.
Watersheds 101 Event

On June 26, 2018, a West Fork Des Moines River (WFDMR) Water Education Event was held at the American Legion in Fulda, MN. The need for this event was identified by the WFDMR Local Work Group and Citizen Council. Watersheds 101 was developed to bring awareness to the residents of the WFDMR watershed. There were 36 people in attendance.

Ross Behrends, Heron Lake Watershed District (HLWD), started the event by welcoming the attendees and asking everyone to introduce themselves and share what they value most about water.

Karen Terry, University of Minnesota Extension, presented on watershed basics and what residents can do to help improve water quality. Clean water is important to all of us for the life it sustains and the opportunities it provides. Every drop of water that runs across the surface of the land has the ability to pick up pollution (like phosphorus and dirt) and carry it to a nearby lake or stream. To improve and protect water quality, we need to stop water from running overland into our waterbodies. We can do that by creating spaces for the water to slow down and soak into the ground or be taken up by plants. Some of the ways to do that are by creating rain gardens and shoreline restorations, installing rain barrels, restoring wetlands, and building bioretention basins. She commented that the HLWD can help attendees identify the best strategies for their property.

Ross Behrends, HLWD, gave an update on the Watershed Restoration and Protection Strategies Report (WRAPS) and presented on the current status of the lakes and streams in the West Fork Des Moines River watershed.

Following the WRAPS and WFDMR update, Ross Behrends, HLWD, highlighted past and current projects throughout the Fulda Lakes area that have led to the successful improvement of Fulda Lakes. Partnerships and active participation from the Fulda Lakes community have driven this grassroots effort to become one of the great water quality success stories in Southern Minnesota.

Questions were asked and discussion was held following the presentations. Several Fulda residents commented on the excellent health of their lake and thanked the HLWD for their efforts. Some concerns and possible areas for improvement were mentioned.

Attendees were invited to a picnic at Seven Mile Park. At the park, attendees had an opportunity to see the lake, water quality projects around the lake, and also take part in a poster tour highlighting specific Fulda Lakes’ projects.
<table>
<thead>
<tr>
<th>Task/Subtask</th>
<th>Detailed Task</th>
<th>Primary Responsibility</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Convene LWG</td>
<td>WC</td>
<td>October 2015</td>
</tr>
<tr>
<td></td>
<td>Send Invite</td>
<td>WC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop Agenda</td>
<td>WC, Jan, KPS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meeting room setup/take down</td>
<td>WC</td>
<td></td>
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<tr>
<td></td>
<td>Lead Meeting</td>
<td>WC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Take Notes</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type Minutes</td>
<td>WC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meeting Follow-up</td>
<td>WC</td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>Set up first meeting with UM Extension to plan identification process</td>
<td>WC, Jan</td>
<td>October 2015</td>
</tr>
<tr>
<td></td>
<td>Set up citizen council identification meeting</td>
<td>WC, Toby</td>
<td>October 2015</td>
</tr>
<tr>
<td></td>
<td>Send out invites</td>
<td>WC</td>
<td></td>
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<tr>
<td></td>
<td>Develop Agenda</td>
<td>WC, Toby, Jan, KPS</td>
<td></td>
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<tr>
<td></td>
<td>Room setup/take down</td>
<td>WC</td>
<td></td>
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<tr>
<td></td>
<td>Lead Meeting</td>
<td>Toby?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Take notes</td>
<td>WC</td>
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<td></td>
<td>Type Minutes</td>
<td>WC</td>
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<tr>
<td></td>
<td>Meeting follow-up</td>
<td>WC</td>
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</tr>
<tr>
<td></td>
<td>Contact identified citizens for involvement</td>
<td>WC</td>
<td>October 2015</td>
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<tr>
<td></td>
<td>Convene first citizen council meeting</td>
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<td>October/November 2015</td>
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<tr>
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<td>Send out invites</td>
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<td>Develop Agenda</td>
<td>WC, Jan, Toby, KPS</td>
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<td></td>
<td>Room setup/take down</td>
<td>WC</td>
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<tr>
<td></td>
<td>Lead Meeting</td>
<td>Toby</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Take notes</td>
<td>WC</td>
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<td>Type minutes</td>
<td>WC</td>
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<td></td>
<td>Meeting follow-up</td>
<td>WC</td>
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<tr>
<td>A3</td>
<td>Shared Leadership Sessions</td>
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<td>Educational Session</td>
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<td>Develop evaluation</td>
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<td>Develop progress tracking</td>
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</tr>
<tr>
<td>B1</td>
<td>Determine data to collect from LWG</td>
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<tr>
<td></td>
<td>Develop process and format for collecting data</td>
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<td>Start collecting data</td>
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<tr>
<td></td>
<td>Data management</td>
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<tr>
<td>C1</td>
<td>Annual Reports</td>
<td>Jan, WC</td>
<td>Feb 1 2016, 2017, 2018</td>
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<td>Semi-annual Reports</td>
<td>Jan, WC</td>
<td>Aug 1 2016, 2017</td>
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<td>Reimbursement Requests</td>
<td>Jan, WC</td>
<td>Monthly or Quarterly</td>
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<td></td>
<td>Monthly Activity reports</td>
<td>WC</td>
<td>Monthly</td>
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<tr>
<td></td>
<td>Attend project update meetings</td>
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<tr>
<td></td>
<td>Attend Extension meeting</td>
<td>WC, Jan, Toby, KPS</td>
<td>Oct 13, 2015</td>
</tr>
<tr>
<td></td>
<td>Develop list of WC professional development</td>
<td>WC</td>
<td></td>
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<tr>
<td></td>
<td>Set up meeting with East Fork</td>
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<tr>
<td>Review work plan to make sure tasks are being completed</td>
<td>WC</td>
<td>Ongoing</td>
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</tr>
<tr>
<td>--------------------------------------------------------</td>
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</tr>
<tr>
<td><strong>C2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in SID planning efforts</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Complete SID work</td>
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<td></td>
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<tr>
<td>Data Management of SID</td>
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<td></td>
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<tr>
<td>Regular communication with MPCA</td>
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<td></td>
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<tr>
<td>Participate in PJG meeting</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Participate in MPCA project meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help plan PJG meeting</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Help plan MPCA project meetings</td>
<td></td>
<td></td>
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</tr>
<tr>
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<td>First Name</td>
<td>Organization</td>
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<tr>
<td>Bauer</td>
<td>Chris</td>
<td>Jackson SWCD</td>
<td>603 S. Highway 86</td>
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<tr>
<td>Biren</td>
<td>John</td>
<td>Lyon County</td>
<td>1424 E. College Dr. #600</td>
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<tr>
<td>Brenke</td>
<td>Ashley</td>
<td>Martin SWCD</td>
<td>923 N. State St. #110</td>
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<tr>
<td>Flitter</td>
<td>Pam</td>
<td>Martin County</td>
<td>201 Lake Ave. #104</td>
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<tr>
<td>Geiger</td>
<td>Andy</td>
<td>Jackson County</td>
<td>603 S. Highway 86</td>
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<tr>
<td>Gross</td>
<td>Kay</td>
<td>Cottonwood SWCD</td>
<td>339 9th Street</td>
</tr>
<tr>
<td>Hansen</td>
<td>Chris</td>
<td>Murray County</td>
<td>2500 28th St.</td>
</tr>
<tr>
<td>Konkol</td>
<td>Howard</td>
<td>Murray SWCD</td>
<td>2740 22nd Street</td>
</tr>
<tr>
<td>Krier</td>
<td>Kyle</td>
<td>Pipestone County</td>
<td>119 2nd Ave. SW #13</td>
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<tr>
<td>Lenz</td>
<td>Ed</td>
<td>BWSR</td>
<td>1400 E. Lyon St.</td>
</tr>
<tr>
<td>Morrill</td>
<td>Jared</td>
<td>Cottonwood County</td>
<td>339 9th Street</td>
</tr>
<tr>
<td>Nordquist</td>
<td>Erin</td>
<td>HLWD</td>
<td>PO Box 345</td>
</tr>
<tr>
<td>Nyborg</td>
<td>Brian</td>
<td>DNR</td>
<td>175 Co. Rd. 26</td>
</tr>
<tr>
<td>Pekarek-Scott</td>
<td>Katherine</td>
<td>MPCA</td>
<td>1601 E. Hwy. 12 #1</td>
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<tr>
<td>Shea</td>
<td>John</td>
<td>Nobles SWCD</td>
<td>1567 McMillan St.</td>
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<tr>
<td>Smith</td>
<td>Wayne</td>
<td>Nobles County</td>
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<td>Spanier</td>
<td>Toby</td>
<td>UM Extension</td>
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</tr>
<tr>
<td>Voit</td>
<td>Jan</td>
<td>HLWD</td>
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</table>
Objective 1: WRAPS Development

Task A: Community Outreach

Sub-Task 1: Local Work Group
- No activities during this reporting period

Sub-Task 2: Citizen Council
- No activities during this reporting period

Sub-Task 3: Public Participation and Education
- Attend a Linking Land Use and Water Quality workshop on March 26, 2015 at 12:00 pm in Fulda, MN. The workshop provided information to decision makers within the watershed on how their work affects water quality in our region. Karen Terry, University of Minnesota (UM) Extension, Jan Voit, Heron Lake Watershed District (HLWD), and Jon Lore, Minnesota Department of Natural Resources (MDNR), gave presentations on different aspects of watershed health. The Watershed Game was played as a part of this workshop.
- Host and attend a Linking Land Use and Water Quality workshop on March 26, 2015 at 5:00 pm in Fulda, MN. The workshop provided information to decision makers within the watershed on how their work affects water quality in our region. Karen Terry, UM Extension, Jan Voit, HLWD, and Jon Lore, MDNR, gave presentations on different aspects of watershed health. The Watershed Game was played as a part of this workshop.

Task B: Information Analysis
Sub-Task 1: Data Collection
- No activities during this reporting period

Task C: Project Coordination
Sub-Task 1: Project Management
- No activities during this reporting period

Sub-Task 2: Assist MPCA in Data Collection in Watershed Approach
- No activities during this reporting period
Objective 1: WRAPS Development
Task A: Community Outreach
  Sub-Task 1: Local Work Group
  • No activities during this reporting period

  Sub-Task 2: Citizen Council
  • No activities during this reporting period

  Sub-Task 3: Public Participation and Education
  • No activities during this reporting period

Task B: Information Analysis
  Sub-Task 1: Data Collection
  • No activities during this reporting period

Task C: Project Coordination
  Sub-Task 1: Project Management
  • No activities during this reporting period

  Sub-Task 2: Assist MPCA in Data Collection in Watershed Approach
  • No activities during this reporting period
Major Watershed Project – Phase II
May 2015 Monthly Report

Objective 1: WRAPS Development

Task A: Community Outreach
   Sub-Task 1: Local Work Group
     • No activities during this reporting period

   Sub-Task 2: Citizen Council
     • No activities during this reporting period

   Sub-Task 3: Public Participation and Education
     • No activities during this reporting period

Task B: Information Analysis
   Sub-Task 1: Data Collection
     • No activities during this reporting period

Task C: Project Coordination
   Sub-Task 1: Project Management
     • No activities during this reporting period

   Sub-Task 2: Assist MPCA in Data Collection in Watershed Approach
     • No activities during this reporting period
Major Watershed Project – Phase II
June 2015 Monthly Report

Objective 1: WRAPS Development
  Task A: Community Outreach
    Sub-Task 1: Local Work Group
      • No activities during this reporting period

    Sub-Task 2: Citizen Council
      • No activities during this reporting period

    Sub-Task 3: Public Participation and Education
      • No activities during this reporting period

Task B: Information Analysis
  Sub-Task 1: Data Collection
    • No activities during this reporting period

Task C: Project Coordination
  Sub-Task 1: Project Management
    • No activities during this reporting period

  Sub-Task 2: Assist MPCA in Data Collection in Watershed Approach
    • No activities during this reporting period
Objective 1: WRAPS Development
   Task A: Community Outreach
      Sub-Task 1: Local Work Group
      • No activities during this reporting period

      Sub-Task 2: Citizen Council
      • No activities during this reporting period

      Sub-Task 3: Public Participation and Education
      • No activities during this reporting period

Task B: Information Analysis
   Sub-Task 1: Data Collection
   • No activities during this reporting period

Task C: Project Coordination
   Sub-Task 1: Project Management
   • No activities during this reporting period

   Sub-Task 2: Assist MPCA in Data Collection in Watershed Approach
   • No activities during this reporting period
Des Moines River WRAPS Project Meeting
10:30 – 12:30
September 30, 2015
DNR Office, Windom

❖ Introductions

❖ Project Updates

❖ Basics of Watershed Modeling
   Introduction to the statewide modeling effort and overview of the model study area. Tetra Tech will describe the goals, the model to be used, general inputs and outputs, and applications of this modeling effort.

❖ Data Needs, Data Collection, and Areas of Concern for Modeling
   Detail on the data needs for model development will be provided. As a group we will discuss issues of concern and data sources to ensure that we have all of the relevant information.

❖ Next Steps
Des Moines River Watershed Project Update Meeting Notes
September 30, 2015

Attendance: Katherine Pekarek-Scott, MPCA; Bryan Spindler, MPCA; Jan Voit, HLWD; Adam Ossefoort, Pipestone SWCD; Ed Lenz, BWSR; Wayne Smith, Nobles Co; Ashley Brenke, Martin SWCD; Chris Bauer, Jackson SWCD; Brady Swanson, DNR; Andy Geiger, Jackson Co; Brian Nyborg, DNR; Andrea Plevan, Tetra Tech

Katherine Pekarek-Scott provided updates of the work that has been completed thus far. MPCA sampled 76 biological sites in 2014 and 16 sites in 2015 in which 2 sites were new. Katherine also discussed the assessment process that will take place starting this winter. If anyone knows of water quality data that is not in the MPCA database, it should be submitted by November 2. More information about data submission can be found on the web at http://www.pca.state.mn.us/bkzqd3d. There will be a Professional Judgement Group meeting in late winter/early spring to get local input on the draft impairments. Katherine will send out more information closer to the meeting. Input was requested about how to make the PJG meeting more meaningful. It was suggested to supply maps of the draft impairments before meetings and insist that attendees provide comments, possibly before the meeting so that questions can be discussed at the meeting.

Katherine also updated on the stressor identification process. Monitoring planning will begin this winter with data collection starting in the spring. There will be many people involved including Martin SWCD and HLWD to help collect the data, but the MPCA stressor identification lead staff will be the one to analyze the data and write the report. The report should be finished between the end of 2017 and the beginning of 2018.

Brady Swanson provided an update of the work completed by the DNR. They completed surveys at 12 sites. A report will be written this winter to aide in the stressor identification process. Hydrology analysis will also be completed by Scott Bohling.

Katherine provided an updated on the local work for the West Fork Des Moines. A new watershed coordinator was hired and will start on October 5. The work plan focuses on a local work group, citizen group, gathering watershed data and ultimately helping the MPCA develop strategies. One education workshop was held this past spring. Once the new coordinator starts, the local work group meetings will start to convene. A contract is also being worked on with the U of M Extension for CE work.

Bryan Spindle provided an update for the East Fork Des Moines. The work plan focuses on one on one interviews/surveys and meetings. They are in the process of working on a subcontract with MSU Water Resources Center for CE guidance and assistance.

Andrea Plevan provided an introduction to the Hydrologic Simulation Program – Fortan (HSPF) model. Andrea presented on the type of data that is used to develop the model, the outputs from the model, and what the model is used for. She explained that the model does not set targets, but rather helps
develop management practices to reach the target. There was discussion about scenarios. Scenarios are not part of the current contract with Tetra Tech. It is a complex process to get scenario information out of the model, so this step needs to be completed by someone like the consulting firm.

Andrea led a discussion about data needs and existing data available.

- DNR has completed cross sections Upper and Lower Beaver Creek that will be available and will be sent to Andrea when completed.
- Bathymetry is needed on a number of lakes. The updated list is at the end.
- Information on any existing control structures is needed. Elevations for Okamanpeedan are needed as well.
- Any information on ditch operations including shapefiles of public ditches. Murray County has information available online, but do not have digitized maps. There are two ditches in Martin County that are getting redetermined.
- Any other existing water quality data. Bryan can get biomonitoring one-time grab samples can be useful but not crucial. There is existing sonde data, Bryan will look into acquiring that information. If any additional data is entered into Equis, we should let Andrea know.

If possible, get any information to Andrea in a few weeks, by October 23.

Next steps for the project include the local work of the East Fork Des Moines and West Fork Des Moines contracts will continue to move forward and to look from updates from the project sponsors, the MPCA will start assessments this winter, the Professional Judgement Group meeting will take place in late winter/early spring, and the MPCA will start the stressor identification process will start in the spring.

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<thead>
<tr>
<th>Lake Name</th>
<th>Lake ID</th>
<th>Bathymetry</th>
<th>Lake Level data (OHW - ft)</th>
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<td>Clear</td>
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<td>Cottonwood</td>
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West Fork Des Moines River (WFDMR) Major Watershed Project – Phase II
October 2015

Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group
- Met with Ed Lenz (BWSR) at 1:30PM in HLWD office on October 19, 2015 to get acquainted.
- Met with Wayne Smith (Nobles Co) at 9:30AM in Worthington on October 20, 2015 to get acquainted.
- Met with Chris Bauer (Jackson SWCD) at 9AM in Lakefield on October 21, 2015 to get acquainted.
- Met with Jared Morrill (Cottonwood Co) at 3:30PM in Windom on October 21, 2015 to get acquainted.
- Met with Howard Konkol (Murray SWCD), Chris Hansen (Murray Co), and Jon Bloemendaal (Murray Co) in Slayton at 9AM on October 22, 2015 to get acquainted.
- Held a phone call with Katherine Pekarek-Scott (MPCA) on October 21, 2015 at 10:30AM to discuss plans for the first Local Work Group meeting that will be held on November 5, 2015. Brainstorming questions were formulated and the decision was made that the Watershed Coordinator will be running the meeting.

Subtask 2: Citizen Council
- Met with Jan Voit (HLWD), Katherine Pekarek-Scott (MPCA), and Toby Spanier (UM Extension) in Marshall on October 13, 2015 at 10AM to make decisions about citizen council formation timeline and group design. It was decided that the citizen council would not be formed until January of 2017.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis

Subtask 1: Data Collection
- Accompanied DNR staff on annual survey of 5 channel cross sections on Jack, Lime, and Okabena Creeks on October 14, 2015.

Task C: Project Coordination

Subtask 1: Project Management
- Attended the Civic Engagement Summit on Water Quality in Mankato on October 15, 2015. This all-day training included presentations by Dr. Ryan Atwell (NPS) and Toby Spanier (UM Extension) about the role of civic engagement and public participation in water quality projects, as well as
small group activities and brainstorming sessions. Attendees included water quality specialists from across Southern Minnesota.

- Attended BWSR Academy, organized by the Minnesota Board of Water and Soil Resources (BWSR), in Breezy Point, MN on October 27-29, 2015. The 3-day training included sessions on meeting facilitation, employee engagement, and BWSR’s One Watershed, One Plan program.

**Subtask 2: Assist MPCA in Data Collection in Watershed Approach**

- No activities during this reporting period.
Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group
- No activities during this reporting period.

Subtask 2: Citizen Council
- Contacted Ed Lenz, BWSR and Toby Spanier, UM Extension on December 10, 2015 to explore options for incentives for the citizen council.

Subtask 3: Public Participation and Education
- Was contacted by Jeremy Braaksma on December 16, 2015 to present information about the TMDL and WRAPS at the Minnesota Wastewater Operators Association annual meeting on February 3, 2016. Started preparing presentation and notes.

Task B: Information Analysis

Subtask 1: Data Collection
- Held a phone call with Katherine Pekarek-Scott at 10:15AM on December 2, 2015. Discussion was held about GIS maps, wildlife counts, and USDA census data.
- Held a phone call with Katherine Pekarek-Scott at 9:30AM on December 16, 2015. Katherine answered questions about next steps for data collection. It was decided that work can begin on completing the level III feedlot inventory.
- Analyzed the collected USDA census data. The purpose of the analysis was to learn about the context of certain trends seen in the census data.
- Created and compiled GIS maps of watershed characteristics. These maps will be distributed that the next Local Work Group meeting to ensure accuracy.
- Researched possible drained lakes and created a shapefile for visualization. Local Work Group members and local historical societies will be asked to review shapefile for accuracy.
- Collected estimated pet population data for urban areas within the watershed.
- Researched TMDL water quality standards. The purpose of this research was to put the standards into a context that the general public may better understand. Instead of using a measurement such as mg/L, we can use something like dump truck loads to better demonstrate the standards. The need for this was brought up at the Local Work Group meeting on November 12, 2015. It was discussed that our group needs to be very clear about what the water quality standards really mean for stakeholders.
• Met with Brooke Burmeister, Jackson County Feedlot Officer, on December 31, 2015 at 9:00AM to go over the specifics of completing the feedlot inventory. Discussion and training was held regarding what to expect and how to perform required tasks.

Task C: Project Coordination

Subtask 1: Project Management
• Compiled documents for the annual report.

Subtask 2: Assist MPCA in Data Collection in Watershed Approach
• No activities during this reporting period.
Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group
- Held a phone call with Katherine Pekarek-Scott at 9:30AM on November 4, 2015 to discuss final plans for the Local Work Group meeting that was originally scheduled for November 5, 2015. Due to the number of members who expressed that they could not attend, it was decided that the meeting would be postponed one week.
- Held a phone call with Katherine Pekarek-Scott at 1:30PM on November 9, 2015. A list of possible inventories was discussed in order to bring some more suggestions to the first Local Work Group meeting.
- A Local Work Group meeting was held on November 12, 2015 at 10:30AM. This meeting consisted of an introduction to the new watershed coordinator, an overview of the project work plan, an update on the activities of each part of the work plan, and a group discussion. The group discussion involved decisions about the formation of the citizen council and about the data collection needs.

Subtask 2: Citizen Council
- No activities during this reporting period.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis

Subtask 1: Data Collection
- Held a phone call with Katherine Pekarek-Scott at 9:30AM on November 4, 2015. Katherine gave suggestions on what data to begin collecting and how to go about it.
- Held a phone call with Katherine Pekarek-Scott at 9:20AM on November 18, 2015. Katherine helped explain the inventory and data collection projects in greater detail.
- Collected data from the USDA Agricultural Census. Compiled all necessary data between the years of 1950-2012. The purpose of this data collection is to show the change in farm practices over time as a means of better characterizing the watershed.
- Collected data about cities within the watershed (size, human population, pet population, etc.) and any storm water oriented ordinances they may have. The purpose of this data collection is to show that all entities within the watershed are responsible for water quality.
- Worked on characterizing the watershed through visuals in GIS.
Task C: Project Coordination

Subtask 1: Project Management
- Applied for the Watershed Specialist Training through the University of Minnesota on November 18, 2015 and was accepted into the program on November 19, 2015.

Subtask 2: Assist MPCA in Data Collection in Watershed Approach
- No activities during this reporting period.
West Fork Des Moines River (WFDMR) Major Watershed Project – Phase II
January 2016

Objective 1: WRAPS Development

Task A: Community Outreach
  Subtask 1: Local Work Group
    • Sent a reminder email about the Local Work Group meeting to members on January 14, 2016.
    • Sent a follow-up email to members to amend the date of the Local Work Group meeting due to a large scheduling conflict on January 21, 2016.

Subtask 2: Citizen Council
  • No activities during this reporting period.

Subtask 3: Public Participation and Education
  • No activities during this reporting period.

Task B: Information Analysis
  Subtask 1: Data Collection
    • Researched historical records from County Historical Society websites. The purpose of this research was to find any historical descriptions of the watershed to visualize how the watershed has changed. Particular attention was paid to descriptions of lakes to determine locations of lakes that have been drained.
    • Researched information on past and current wildlife patterns within the watershed.
    • Interpreted aerial photos of the watershed to determine watershed characteristics, shoreline buffer placements, possible bank failures, and sediment islands.
    • Created an infographic to help the general public visualize the water quality standards that were put into plain language.

Task C: Project Coordination
  Subtask 1: Project Management
    • Held a phone call with Katherine Pekarek-Scott on January 5, 2016 at 11:00AM. Plans to set up a meeting for January 13, 2016 were discussed.
    • Reviewed work plan and budget documents on January 6, 2016.
    • Reviewed manager and staff orientation document on January 6, 2016.
    • Held a meeting with Katherine Pekarek-Scott on January 13, 2016. Discussion was held about, stakeholder analysis, data collection that has been done, changes to the water quality standards plain language document, the next Local Work Group meeting, and story map ideas.
    • Held a meeting with Katherine Pekarek-Scott on January 20, 2016 in Willmar at 10:00AM. The purpose of this meeting was to revise the TMDL
and WRAPS presentation to be presented at the Southwest Region Minnesota Wastewater Operators Association annual meeting on February 3, 2016.

- Began classwork for the Watershed Specialist Training through University of Minnesota on January 21, 2016.
- Interviewed Wayne Smith, Nobles County, for the Watershed Specialist Training course on January 27, 2016 at 10:30AM. The purpose of the interview was to learn more about how local units of government work together and what their individually specialties are.
- Attended a webinar presented by the MPCA about the new requirements for obtaining 319 and CWP funding on January 29, 2016 at 9:00AM.

**Subtask 2: Assist MPCA in Data Collection in Watershed Approach**

- No activities during this reporting period.
Discovering Our Water Resources Through TMDL and WRAPS

Erin Nordquist,
Heron Lake Watershed District,
West Fork Des Moines River Watershed Coordinator

Minnesota Wastewater Operators Association Annual Meeting

February 17, 2016
Outline

• Impaired Waters Overview
• TMDL Study
• Challenges
• Watershed Approach
• WRAPS
• Implementation Strategies and Challenges
Impaired Waters

When a waterbody exceeds standards set by the MPCA, it is listed as an impaired water.

This listing requires that a Total Maximum Daily Load (TMDL) Assessment be done on the water body.

A TMDL report allocates loads for each impaired water.
What made this TMDL project unique?

• First project in Minnesota to address multiple impairments from a basin approach

• First test of shallow lake nutrient standard in a TMDL
  o In the Western Corn Belt Plains/Northern Glaciated Plains ecoregions

• Heron Lake
  o Nationally recognized migratory waterfowl habitat
Fecal Coliform Levels

- Bacteria is 5 – 10 times higher in wet conditions
- Summer-fall bacteria levels are about 3 – 10 times higher than spring
- 21 of 27 sites exceeded the monthly standard
- 513 samples collected, **17%** exceeded 2,000 cfu/100 mL
Sources of Fecal Coliform Bacteria

• Humans
  - Approximately 66% of the individual septic systems are out of compliance
  - Wastewater Treatment Plants bypasses and violations
  - Storm water

• Pets and Wildlife
  - Storm water

• Livestock
  - There are an estimated 742 livestock facilities in the watershed.
    ▪ Improper manure application
    ▪ Open feedlot runoff
    ▪ Overgrazed pasture
Turbidity Levels

• 52% of all samples collected exceeded the turbidity standard

• Need 50-80% reductions in solids loadings to meet standard
Sources of turbidity

- Runoff:
  - Fields
  - Construction sites
  - Highly Erodible Lands

- Erosion:
  - Wind
  - Gully
  - Streambank
  - Overgrazed pasture

- Suspended organic matter:
  - Algae

- Carp and other rough fish
Excess Nutrients

Excessive nutrient concentrations in the water column can fuel undesirable growths of algae. Such conditions interfere with recreational and aquatic life uses and reduce the aesthetic quality of these waters.

- Algal blooms reduce transparency causing:
  - Decreased recreation
  - Fish species have difficulty finding food
  - Decreased submergent vegetation
Sources of excess nutrients

- Runoff of:
  - Fertilizers
  - Soil
  - Manure
- Erosion
- Noncompliant septic systems
- Feedlots
- Internal load
  - Sediments/rough fish
- Wastewater Treatment Facilities
Target Phosphorus Loading Allocations (%)

- Lakefield (1%)
- Brewster (<1%)
- Worthington Industrial (4%)
- Worthington Municipal (8%)
- Okabena (<1%)
- Worthington Stormwater Runoff (1%)
- Nonpoint Source Runoff (81%)
- Margin of Safety (5%)
pH

• pH Standard is 6.5 to 8.5 units
  ○ Higher or lower is harmful to aquatic life
• Heron Lake Outlet is impaired for high pH
• Controlling eutrophication in Heron Lake will lower pH in the impaired reach by limiting algal production
Watershed Challenges

- Changing hydrology
- Standards require significant load reductions
- Fair allocations for point/nonpoint sources
- Balance implementation measures & land production
Limitations of the TMDL

- Federal TMDL requirements
- Single parameter impairments
- Variable scale
- Only water chemistry impairments
- Variable time
- End product: Permit Decisions
- Produced only a TMDL
- High cost: $100k – $1m / TMDL
The Watershed Approach

- Restoration and Protection for Minnesota watersheds
- Tools and Procedures
  - Water quality assessments for lakes and streams
  - Process to identify biological impairment stressors
  - Pollutant load and wastewater discharge limit modeling
  - Develop impaired water TMDL studies for EPA approval
  - Develop focused and targeted implementation strategies
  - Adaptive Management
- Data and information to tell the story
- Data and measures to track
- 8 digit HUC scale – 80 in the state
- Chemistry + Biology + Physical impairments
- End products: Permit + Local Plans + Action Decisions
- 4 years planning, 6 years implementing
- Produces Condition assessments + Stressor Id. + HSPF Modeling and Spatial analysis +TMDL + Locally adopted and State Approved local water/shed plan
- Less expensive: $400-500k / Watershed
The 10 Year Cycle

Watershed Restoration and Protection Strategy
- TMDL
- Protection Strategy
- Implementation Plans

Every 10 Years

Implementation Activities
- BMPs
- Permits
- Etc.

Monitoring and Assessment
- Condition monitoring
- Effectiveness monitoring

21
2013 Clean Water Accountability Act

- Purpose - to ensure effectiveness and accountability
- Defines WRAPS – Watershed Restoration and Protection Strategy requirements
- Defines Implementation Table requirements
- Prioritized/targeted/measurable
It’s a WRAP

The goal is clean water. To get there we are:

• Monitoring all 80 watersheds by 2017
• Monitoring not just chemical, physical and biological
• Protection as well as restoration of impaired waters
• Taking a comprehensive, focused, and targeted approach
• Integrating point and non point
• Adapting – revisit and build off what’s been done and see if it’s working
• Reduced costs of doing assessments and TMDLs
What will a WRAP look like?

- Summary document for local planners
- Feedback from stakeholders
- Template finalized
## Water Quality Targeting

<table>
<thead>
<tr>
<th>Water Quality Parameter</th>
<th>Current Conditions</th>
<th>Water Quality Targets by Parameter.</th>
<th>Strategies</th>
<th>Required Adoption Rate</th>
<th>Measures</th>
<th>Who</th>
<th>Milestone</th>
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<tr>
<td><strong>Total Suspended Solids</strong></td>
<td><strong>Watershed Derived Sediment: approx. 35%</strong></td>
<td><strong>Pervious Areas by land-use category</strong></td>
<td>Current Loading by Flow Zone all sources. High 4.9 T/day Mid - 1.6 T/day Low – 0.49 T/day Very low – 0.027 T/day</td>
<td>TSS levels reduced by _% by flow zones, to achieve WQ standards. Moving the 90% to $2mg/l TSS. Loading Capacity by Flow Zone all sources. Very High – 15 T/day High – 3.1 T/day Mid - 1.2 T/day Low – 0.40 T/day Very low – 0.027 T/day</td>
<td><strong>Source Prevention:</strong> All cropland continuously protected by 30% residue or equivalent. <strong>Interception &amp; Treatment:</strong> 100 year flood plan in permanent vegetation. * In-Channel Work:** Percent of TSS reduced from near channel sources to meet TMDL reduction targets.</td>
<td><strong>Percent of TSS reduced by flow zone per year to meet TMDL reduction targets.</strong></td>
<td>Land-owners SWCD BWSR NRCS</td>
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<tr>
<td><strong>Total Suspended Solids</strong></td>
<td><strong>Watershed Derived Sediment: Impervious Areas. - MS4.</strong></td>
<td><strong>Near-Channel Derived Sediment: Approx. 65%</strong></td>
<td>No data available for this watershed</td>
<td>TSS levels reduced by _% to achieve WQ standards. BMPs designed to achieve target levels.</td>
<td><strong>Source Prevention:</strong> Compliance with SWPPP <strong>Interception &amp; Treatment:</strong></td>
<td><strong>Percent of TSS reduced from near channel sources to meet TMDL reduction targets.</strong></td>
<td>Land-owners SWCD BWSR NRCS</td>
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<td><strong>Phosphorus</strong></td>
<td><strong>Nonpoint Phosphorus – by land-use category</strong></td>
<td>Current Loading by Flow Zone all sources. Very High – 82 lbs./day High – 8.4 lbs./day Mid – 2.4 lbs./day Low – 0.90 lbs./day Very low – 0.15 lbs./day</td>
<td>Reduce phosphorus levels to FWM 18.4 lbs./day or less. This level set to achieve compliance with D.O. WQ standard during 7Q10 flows. WLA – 0.02 lbs./day MOS 1.84 lbs./day LA: Very High – 27 lbs./day High – 4.7 lbs./day Mid – 1.6 lbs./day Low – 0.69 lbs./day Very low – 0.13 lbs./day</td>
<td><strong>Source Prevention:</strong> All manure applied at agronomic rates for phosphorus. 25 foot permanent vegetation buffers around all pasture lands. * <strong>Interception &amp; Treatment:</strong></td>
<td><strong>Percent of flow-weighted mean goal achieved from nonpoint sources.</strong></td>
<td>Land-owners SWCD BWSR NRCS</td>
<td>100% in 10 years. 10% or more protected during each year.</td>
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Implementation Strategies

- Focus on likely high contributors, hot spots
- Continued efforts on agricultural best management practices, failing septic tanks, and feedlots
- Stream restoration/bank erosion controls
- Control rough fish
- Adaptive management
Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group
- Sent the meeting agenda and three additional documents to the Local Work Group members on January 11, 2016. The members were asked to review the documents before attending the meeting on February 25, 2016.
- Facilitated the Local Work Group meeting on February 25, 2016 at 10:00AM. A project update was given from both the Heron Lake Watershed District as well as the MPCA. Group discussion was held about the three documents that the group was asked to review. There was also discussion about story maps and next steps in the Major Watershed Project. It was decided that the next meeting will be held at the end of June or the beginning of July.

Subtask 2: Citizen Council
- Performed a stakeholder analysis activity with Jan Voit on February 18, 2016.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis

Subtask 1: Data Collection
- Facilitated a meeting with the County Feedlot Officers Brooke Burmeister, Jackson County; Jon Bloemendaal, Murray County; Al Langseth, Nobles County; and Jared Morrill, Cottonwood County on February 25, 2016 at 1:00PM. The purpose of the meeting was to discuss the plans for the 20% of feedlots within the watershed that remain to be inspected.

Task C: Project Coordination

Subtask 1: Project Management
- Held a phone call with Katherine Pekarek-Scott on February 1, 2016 at 11:00AM. Discussion was held about the agenda for the upcoming Local Work Group meeting and next steps for the story maps project.
- Continued coursework for the Watershed Specialist Training through University of Minnesota.
- Held a phone call with Katherine Pekarek-Scott on February 9, 2016. Discussion was held about Katherine’s prior meeting with Ashley Ignatius, MPCA GIS Analyst regarding requirements for the story maps project.
- Assisted with the CSCAP Webinar facilitated by Jan Voit on February 11, 2016. Kept track of questions that participants had for the presenters so that Jan could relay them during Q&A sessions.
• Presented at the Southwest Region Minnesota Wastewater Operators Association annual meeting on February 17, 2016 at 9:15AM. The meeting was rescheduled for this date due to inclement weather on the original meeting date. The presentation included an overview of the TMDL process, an explanation of the impaired reaches in the watershed, the limitations of the TMDL process, and an overview of the new watershed approach.

• Reviewed the Heron Lake Watershed District annual report.

• Held a phone call with Katherine Pekarek-Scott on January 18, 2016 at 3:00PM. Discussion was held regarding the format of the Local Work Group meeting.

Subtask 2: Assist MPCA in Data Collection in Watershed Approach

• No activities during this reporting period.
Objective 1: WRAPS Development

Task A: Community Outreach
Subtask 1: Local Work Group
- Typed and emailed minutes from the February 25, 2016 meeting to Local Work Group members on March 2, 2016.

Subtask 2: Citizen Council
- No activities during this reporting period.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis
Subtask 1: Data Collection
- Updated watershed feedlot spreadsheets to include 20% of uninspected feedlots and sent them to feedlot officers for review.
- Met with Brooke Burmeister, Jackson County and Jared Morrill, Cottonwood County on March 3, 2016 at 2:00PM. Jared demonstrated how to use the MinnFARM form and collect the necessary data to complete it.
- Met with Brooke Burmeister, Jackson County on March 4, 2016 to perform feedlot inspections. Two feedlots were inspected.
- Had a phone conversation with Katherine Pekarek-Scott on March 7, 2016 at 1:30PM. Discussion was held about the feedlot spreadsheets.
- Continued reading historical documents to find descriptions of what the watershed looked like before and during settlement.

Task C: Project Coordination
Subtask 1: Project Management
- Held a Skype meeting with Katherine Pekarek-Scott on March 1, 2016 at 10:00AM. The purpose of this meeting was to determine what documents were needed to begin work on the feedlot inspections.
- Reviewed Heron Lake Watershed District annual report.
- Met with Wayne Rasche on March 8, 2016 during his new manager orientation to describe the duties of the WFDMR Watershed Coordinator position.
- Participated in a teleconference with classmates from the Watershed Specialist Training course on March 8, 2016 at 12:00PM. The purpose of this teleconference was to perform a planning exercise for a mock implementation project.
- Reviewed the newsletter for the Aquatic Habitat Program Grant from the DNR.
• Created the layout for the brochure for the Heron Lake Sediment and Phosphorus Reduction Implementation Project Grant through Environment and Natural Resources Trust Fund.

• Attended the Commercial Animal Waste Technician workshop on March 16, 2016 at 9:30AM. The workshop was held at Pizza Ranch in Slayton and included presentations about animal waste application with regards to the WRAPS project, MNDOT, and MDA.

• Attended the Cottonwood County Water Planning Task Force meeting on March 3, 2016 at 2:00PM. The purpose of this meeting was to inform attendees of the water planning process and make some initial decisions about the water plan priority items.

Subtask 2: Assist MPCA in Data Collection in Watershed Approach

• Had a phone conversation with Katherine Pekarek-Scott on March 14, 2016 at 2:00PM. Discussion was held about the Stressor ID project that will be beginning in May.

• Attended training for the Stressor ID data collection project on March 23, 2016 at 10:00AM. The training was led by Katherine Pekarek-Scott and Bryan Spindler (MPCA). It included training on how to take proper water samples and field data, information on the Stressor ID work, how to fill out the field data sheet, chain of custody, and bottle labels, and what to take photos of in the field. Attendees were also provided with sample bottles for the project.
Objective 1: WRAPS Development

Task A: Community Outreach
   Subtask 1: Local Work Group
   - No activities during this reporting period.

   Subtask 2: Citizen Council
   - No activities during this reporting period.

   Subtask 3: Public Participation and Education
   - No activities during this reporting period.

Task B: Information Analysis
   Subtask 1: Data Collection
   - Met with Jared Morrill on April 7, 2016 at 2:00PM to plan a day of feedlot inspections in Cottonwood County.
   - Met with Brooke Burmeister on April 13, 2016 at 9:00AM to plan two days of feedlot inspections in Jackson County.
   - Prepared inspection forms and maps for the Cottonwood County inspections.
   - Conducted feedlot inspections with Jared Morrill on April 19, 2016 from 11AM-5PM.
   - Met with Jared Morrill on April 25, 2016 at 2:00PM to work on the MinnFARM modeling for sites inspected on April 19, 2016.
   - Continued research of the history of the watershed to help understand how the watershed has changed over time.
   - Worked on an infographic to explain the WFDMR watershed’s Water Quality Standards in plain language.

Task C: Project Coordination
   Subtask 1: Project Management
   - Finished all coursework for the Watershed Specialist Training through the University of Minnesota.
   - Had a phone call with Katherine Pekarek-Scott on April 27, 2016 at 9:00AM to discuss next steps with the project.

   Subtask 2: Assist MPCA in Data Collection in Watershed Approach
   - Had a phone call with Katherine Pekarek-Scott on April 14, 2016 at 2:00PM regarding logistics of Stressor ID sampling to being in May.
   - Met with Catherine Wegehaupt on May 18, 2016 at 8:00AM to discuss sampling logistics. Catherine answered questions about the sampling process and shipping samples.
• Went out sampling with Catherine Wegehaupt on May 20, 2016 and May 26, 2016 to become familiar with the sampling process and procedures.
Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group
- Had a phone conversation with Katherine Pekarek-Scott on May 26, 2015 to discuss the creation of a survey to go out to Local Work Group members. The purpose of the survey is to inform LWG members that the data collection done through this grant may help them get funding for projects more easily. The survey asked:
  - As LGUs, what targeted projects or programs would you like to seek funding for?
  - Aside from quantifiable load reduction numbers, what questions need to be answered in order for your organization to seek funding for these projects?

Subtask 2: Citizen Council
- Attended the Civic Engagement Work Session in Redwood Falls on May 19, 2016 from 9:00AM to 3:30PM.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis

Subtask 1: Data Collection
- Prepared inspection forms and maps for Jackson County feedlot inspections.
- Conducted feedlot inspections with Brooke Burmeister, Jackson County, on May 5, 2016 from 9AM-4PM.
- Conducted feedlot inspections with Brooke Burmeister on May 9, 2016 from 9AM-4PM.
- Worked on an infographic to explain the WFDMR watershed’s Water Quality Standards in plain language.
- Attended a webinar about the use of the MinnFARM model on May 10, 2016 at 1:30PM.
- Worked on MinnFARM modeling for the Jackson County feedlots inspected on May 5, 2016 and May 9, 2016.
- Met with Chris Bauer, Jackson SWCD, on May 12, 2016 at 9:00AM. The purpose of this meeting was to try to get some more ideas about data collection needed within the watershed.
- Had a phone conversation with Ed Lenz, BWSR, on May 12, 2016 at 11:00AM. The purpose of this conversation was to try to get some more ideas about data collection needed within the watershed.
• Met with Jon Bloemendaal, Murray County, on May 16, 2016 at 8:00AM to coordinate feedlot inspections to be done another day.
• Prepared inspection forms and maps for Murray County feedlot inspections.
• Created a form to guide notetaking while on feedlot inspections.
• Had a phone conversation with Al Langseth, Nobles County, on May 24, 2016 to discuss the feedlot inspections left to do in Nobles County.
• Met with Al Langseth on May 26, 2016 at 10:30AM to create a plan for conducting Nobles County feedlot inspections.

Task C: Project Coordination

Subtask 1: Project Management
• Had a phone conversation with Katherine Pekarek-Scott on May 24, 2016 at 11:00AM. During this call, a meeting was set up for May 27, 2016.
• Met with Katherine Pekarek-Scott in Willmar on May 27, 2016 at 10:00AM. During this meeting, plans were made for how to proceed with the project. Discussion was held regarding Stressor ID sampling, secchi tube surveys, tillage transects, the Local Work Group, and the Citizen Council.

Subtask 2: Assist MPCA in Data Collection in Watershed Approach
• Conducted Stressor ID sampling on May 3, 2016 and May 4, 2016 with Katherine Pekarek-Scott.
• Conducted Stressor ID sampling with Cole Sinnamon and Chloe Evenson, HLWD summer interns, on May 31, 2016.
Objective 1: WRAPS Development

Task A: Community Outreach
Subtask 1: Local Work Group
- Sent out the inventory survey to the Local Work Group on June 6, 2016.
- Had a phone conversation with Katherine Pekarek-Scott on June 15, 2016 at 9:30AM to discuss the next Local Work Group meeting. The decision was made to hold the next meeting on July 28, 2016.

Subtask 2: Citizen Council
- No activities during this reporting period.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis
Subtask 1: Data Collection
- Conducted feedlot inspections with Jon Bloemendaal, Murray County, on June 2, 2016 from 10:00AM to 4:00PM.
- Completed MinnFARM modeling for the Murray County feedlots inspected on June 2, 2016.
- Conducted a longitudinal Secchi tube survey of Jack Creek on June 9, 2016 from 8:00AM to 3:00PM.
- Had a phone conversation with Katherine Pekarek-Scott on June 9, 2016 at 3:00PM about the Jack Creek longitudinal survey.
- Created a GIS shapefile of the longitudinal survey data.
- Met with Brooke Burmeister, Jackson County, on June 14, 2016 at 10:00AM to set up the remaining feedlot inspections for Jackson County.
- Contacted John Biren, Lyon county, Pam Flitter, Martin County, and Kyle Krier, Pipestone County, in hopes of working with them to complete inspections of feedlots that fall within the West Fork Des Moines River Watershed. This would allow an inventory 100% of the feedlots within the entire watershed.
- Had a phone conversation with Katherine Pekarek-Scott and Ashley Ignatius (MPCA) on June 15, 2016 at 9:00AM. The purpose of this conversation was to discuss the GIS Story Map project. Ashley explained how to set up a Story Map narrative in order to begin work on the project.
- Worked on the narrative for the Story Map project. The objective and intended audience for the Story Map were identified and the narrative describing the changes in agricultural production has been started.
- Conducted a longitudinal Secchi tube survey of Okabena Creek on June 15, 2016 from 10:00AM to 4:30PM.
• Conducted Nobles County feedlot inspection with Al Langseth on June 16, 2016 from 10:00AM to 1:30PM. This concludes the inspections for Nobles County feedlots.
• Completed MinnFARM modeling for the Nobles County feedlots that were inspected on June 16, 2016.
• Conducted a longitudinal Secchi tube survey of Beaver Creek on June 21, 2016 from 8:00AM to 5:30PM.

Task C: Project Coordination
Subtask 1: Project Management
• Had phone conversation with Katherine Pekarek-Scott on June 6, 2016 at 9:00AM. A weekly “check-in” with Katherine was established for Mondays at 9:00AM.
• Attended the Professional Judgement Group meeting for the West Fork Des Moines River watershed on June 17, 2016 at 10:00AM. The purpose of this meeting was for the MPCA to obtain local input on the conclusions that have been made about the impaired reaches within the watershed.

Subtask 2: Assist MPCA in Data Collection in Watershed Approach
• Conducted Stressor ID sampling on June 1, 2016 from 7:00AM to 12:00PM.
• Conducted Stressor ID sampling on June 22, 2016 from 8:00AM to 4:30PM.
• Entered Stressor ID data and photos, prepared coolers, chain of custody forms, and coordinated shipping on June 1, 2016 and June 23, 2016.
West Fork Des Moines River (WFDMR) Major Watershed Project – Phase II
July 2016

Objective 1: WRAPS Development

Task A: Community Outreach
Subtask 1: Local Work Group
- No activities during this reporting period.

Subtask 2: Citizen Council
- Conducted research on strategies for forming a citizen council. The purpose of this research was to determine a way to include as many people that represent the population within the watershed as possible. This includes, women, people of differing ages, and other minority groups. Collected demographic data and calculated numbers of individuals in each group living within the watershed.

Subtask 3: Public Participation and Education
- No activities during this reporting period.

Task B: Information Analysis
Subtask 1: Data Collection
- Conducted a longitudinal Secchi tube survey on North Fork Jack Creek on July 6, 2016 from 12PM to 5PM.
- Worked on the narrative for the Story Map project. Completed draft sections on watershed impairments, agriculture, hydrology, impervious surface, and septic systems.
- Conducted feedlot inspections with Brooke Burmeister, Jackson County, on July 7, 2016 from 11AM to 5PM.
- Conducted a longitudinal Secchi tube survey of Lime Creek on July 12, 2016 from 10AM to 3PM.
- Worked on compiling a document of all feedlots in the West Fork Des Moines River watershed and all relevant information from each feedlot inspection. In addition, organizing data files to make all feedlot information easier to access.
- Met with Devin Ryan and Luke Olson, Lyon County feedlot staff, on July 27, 2016 at 9AM to discuss the process for conducting some feedlot inspections within Lyon County.

Task C: Project Coordination
Subtask 1: Project Management
- Attended the Southwest District’s Water Management Partners Workshop on July 26, 2016. The purpose of this workshop was to provide support for local watershed district managers and staff, address any questions they may have, and help managers learn about their role and responsibilities.
Subtask 2: Assist MPCA in Data Collection in Watershed Approach

- Conducted Stressor ID sampling on July 5, 2016 until 3PM.
- Entered Stressor ID data and photos, prepared cooler, chain of custody forms, and coordinated shipping on July 5, 2016.
- Had a phone conversation with Katherine Pekarek-Scott on July 12, 2016 at 9AM to discuss the timeframe for deploying sondes at some of the Stressor ID sites.
- Checked sites to evaluate the water depth and flow on July 12, 2016. The purpose of this was to decide whether or not to deploy sondes at the sites the following day.
- Conducted Stressor ID sampling on July 20, 2016 until 3PM.
- Conducted Stressor ID sampling on July 21, 2016 until 12PM.
- Entered Stressor ID data and photos, prepared cooler, chain of custody forms, and coordinated shipping on July 21, 2016.
West Fork Des Moines River (WFDMR) Major Watershed Project – Phase II
August 2016

Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group

- Had a phone call with Katherine Pekarek-Scott on August 1, 2016 at 9AM. Discussion was held regarding the next Local Work Group Meeting. A date and time for the meeting were established and a general outline of the meeting was formulated.
- Had a phone call with Katherine Pekarek-Scott on August 9, 2016 at 9AM. Further discussion was held about the agenda for the Local Work Group meeting.
- Created an agenda for the Local Work Group meeting on August 15, 2016. The agenda and other information about the meeting was sent to Local Work Group members on August 18, 2016.
- Had a phone call with Katherine Pekarek-Scott on August 25, 2016 at 2PM. Discussion was held about the format of the Local Work Group meeting, getting data from the HSPF model to present to the group, and a deadline was set for getting meeting materials in for review.

Subtask 2: Citizen Council

- Set up a meeting with Toby Spanier, UM Extension; Katherine Pekarek-Scott, MPCA; and Jan Voit, HLWD to discuss the formation of the citizen council.

Subtask 3: Public Participation and Education

- No activities during this reporting period.

Task B: Information Analysis

Subtask 1: Data Collection

- Continued working on organizing and compiling all of the feedlot inspection data into one document.
- Met with Jared Morrill, Cottonwood County, on August 3, 2016 at 2PM to set up inspections for remaining Cottonwood County feedlots.
- Met with Kathy Henderschiedt, Nobles County, on August 4, 2016 at 9AM to clear up some of the issues with the list of Nobles County feedlots. Some feedlots were duplicated within the State reporting system. This caused some confusion with the list of feedlots that have not yet been inspected.
- Conducted feedlot inspections for Lyon County with Devin Ryan and Luke Olson on August 8, 2016 until 1:30PM. All feedlot inspections for Lyon County were completed.
- Met with Jon Bloemendaal, Murray County, on August 9, 2016 at 11AM to set up two days of feedlot inspections.
• Ran MinnFARM models on August 15, 2016 for the Lyon County feedlots that were inspected on August 8, 2016.
• Inspected a feedlot with Jared Morrill, Cottonwood County, on August 17, 2016 at 8:30AM.
• Inspected a feedlot with Jared Morrill, Cottonwood County, on August 22, 2016 at 8:30AM.
• Conducted feedlot inspections with Jon Bloemendaal, Murray County, on August 23, 2016 until 3PM.
• Inspected a feedlot with Jared Morrill, Cottonwood County, on August 24, 2016 at 8:30AM.
• Conducted feedlot inspections with Jon Bloemendaal, Murray County, on August 25, 2016 until 2PM.

Task C: Project Coordination
   Subtask 1: Project Management
   • No activities during this reporting period.

   Subtask 2: Assist MPCA in Data Collection in Watershed Approach
   • Conducted Stressor ID sampling on August 2, 2016 until 5PM.
   • Conducted Stressor ID sampling on August 3, 2016 until 12PM.
   • Entered Stressor ID data and photos, prepared coolers, chain of custody forms, and coordinated shipping on August 3, 2016.
   • Assisted Katherine Pekarek-Scott and Matt Moon, MPCA, on August 4, 2016 until 5:30PM to deploy sondes at some stream sites around the West Fork Des Moines Watershed. Sondes are probes that stay in a stream for an extended time that periodically record water quality data. This gives watershed analysts a better understanding of the water quality data. They may be able to find patterns in what the data indicates at certain times of the day.
   • Conducted Stressor ID sampling on August 16, 2016 until 3:30PM.
   • Entered Stressor ID data and photos, prepared cooler, chain of custody forms, and coordinated shipping on August 17, 2016.
   • Conducted Stressor ID sampling on August 17, 2016 until 5PM.
   • Entered Stressor ID data and photos, prepared cooler, chain of custody forms, and coordinated shipping on August 18, 2016.
   • Conducted Stressor ID sampling on August 30, 2016 until 7PM.
   • Conducted Stressor ID sampling on August 31, 2016 until 12PM.
   • Entered Stressor ID data and photos, prepared coolers, chain of custody forms, and coordinated shipping on August 31, 2016.
West Fork Des Moines River (WFDMR) Major Watershed Project – Phase II
September 2016

Objective 1: WRAPS Development

Task A: Community Outreach

Subtask 1: Local Work Group
• Created handouts outlining general project activities as well as specific data collection activities associated with the project.
• Planned the format of the Local Work Group meeting, wrote discussion questions, and created materials for a group activity.
• Had a phone conversation with Katherine Pekarek-Scott on September 8, 2016 at 9AM. The purpose of this conversation was to go over the discussion questions for the Local Work Group meeting and to discuss any changes to the handouts that were needed.
• Facilitated the Local Work Group meeting on September 15, 2016 at 10AM. Project updates were presented to the group members. Group discussion was held about the upcoming formation of the citizen council, ideas regarding citizen council activities, and possible names for the citizen council.
• Typed minutes from the Local Work Group meeting. Emailed minutes to the Local Work Group members on September 26, 2016.

Subtask 2: Citizen Council
• No activities during this reporting period.

Subtask 3: Public Participation and Education
• No activities during this reporting period.

Task B: Information Analysis

Subtask 1: Data Collection
• Continued working on organizing and compiling all of the feedlot inspection data into one document.
• Met with Jon Bloemendaal, Murray County, on September 7, 2016 at 10AM to plan two days of feedlot inspections.
• Prepared inspection forms and aerial photos for Murray County feedlot inspections.
• Conducted MinnFARM modeling for Murray County feedlots that were inspected in August 2016.
• Communicated with Adam Ossefoort, Pipestone SWCD, on September 19, 2016 about inspecting the feedlots in Pipestone County that are within the WFDMR watershed.
• Conducted feedlot inspections with Jon Bloemendaal, Murray County, on September 19, 2016.
• Conducted feedlot inspections with Jon Bloemendaal, Murray County, on September 20, 2016.
• Conducted a feedlot inspection with Adam Ossefoort, Pipestone SWCD, on September 26, 2016.

**Task C: Project Coordination**  
**Subtask 1: Project Management**

• Had a phone conversation with Katherine Pekarek-Scott on September 26, 2016 at 9AM to discuss the remaining components of the Major Watershed Project – Phase II.

**Subtask 2: Assist MPCA in Data Collection in Watershed Approach**

• Conducted Stressor ID sampling on September 13, 2016 until 5:30PM.  
• Conducted Stressor ID sampling on September 14, 2016 until 12:30PM.  
• Prepared coolers, chain of custody forms, and coordinated shipping on September 14, 2016.  
• Entered Stressor ID data and photos on September 15, 2016.  
• Conducted Stressor ID sampling, prepared cooler and chain of custody form, and coordinated shipping on September 29, 2016.
West Fork Des Moines River (WFDMR) Major Watershed Project – Phase II
October 2016

Objective 1: WRAPS Development

Task A: Community Outreach
   Subtask 1: Local Work Group
     • No activities during this reporting period.

   Subtask 2: Citizen Council
     • Met with Toby Spanier and Karen Terry, UM Extension; Katherine
       Pekarek-Scott, MPCA; and Jan Voit, HLWD. The purpose of this meeting
       was to familiarize Toby and Karen with the work that has been done with
       the Local Work Group for planning the formation and structure of the
       citizen council.

   Subtask 3: Public Participation and Education
     • No activities during this reporting period.

Task B: Information Analysis
   Subtask 1: Data Collection
     • Continued working on organizing and compiling all of the feedlot
       inspection data into one document.
     • Completed a first draft of the narrative for the Story Map project. The draft
       document was sent to Katherine Pekarek-Scott and Ashley Ignatius, MPCA,
       for review.
     • Completed all MinnFARMs for the Murray County feedlot inspections that
       were conducted on August 23, 2016; August 25, 2016; September 19, 2016;
       and September 20, 2016.
     • Prepared inspection forms and aerial photos for Pipestone County feedlot
       inspections.
     • Conducted feedlot inspections with Adam Ossefoort, Pipestone SWCD, on
       October 6 - 7, 2016.
     • Completed all MinnFARMs for the Pipestone County feedlot inspections
       that were conducted on October 6 - 7, 2016.

Task C: Project Coordination
   Subtask 1: Project Management
     • Created a task list and instructional document outlining the remainder of the
       work to be done on the Major Watershed Project – Phase II.
     • Organized GIS files on the Watershed Coordinator computer to make them
       easier to find and understand.

   Subtask 2: Assist MPCA in Data Collection in Watershed Approach
     • Entered Stressor ID data and photos on October 3, 2016.
• Conducted Stressor ID sampling and entered data and photos on October 12, 2016.
• Prepared cooler and chain of custody form, and coordinated shipping on October 13, 2016.