HoustonEngineering Inc.

APPENDIX A

Root River Watershed
Memorandum of Agreement

MEMORANDUM OF AGREEMENT

This agreement (Agreement) is made and entered into between:

The Counties of Dodge, Fillmore, Mower, Olmsted, Houston, and Winona (Counties), by and through their respective County Board of Commissioners, and the Dodge, Fillmore, Mower, Olmsted, Root River, and Winona Soil and Water Conservation Districts (SWCDs), by and through their respective Soil and Water Conservation District Board of Supervisors, and The Crooked Creek Watershed District, by and through the Board of Managers.

WHEREAS, the Counties of this Agreement are political subdivisions of the State of Minnesota, with authority to carry out environmental programs and land use controls, pursuant to Minnesota Statutes Chapter 375 and as otherwise provided by law; and

WHEREAS, the Soil and Water Conservation Districts (SWCDs) of this Agreement are political subdivisions of the State of Minnesota, with statutory authority to carry out erosion control and other soil and water conservation programs, pursuant to Minnesota Statutes Chapter 103C and as otherwise provided by law; and

WHEREAS, the parties to this Agreement have a common interest and statutory authority to prepare, adopt, and assure implementation of a comprehensive watershed management plan in the Root River Watershed to conserve soil and water resources through the implementation of practices, programs, and regulatory controls that effectively control or prevent erosion, sedimentation, siltation and related pollution in order to preserve natural resources, ensure continued soil productivity, protect water quality, reduce damages caused by floods, preserve wildlife, protect the tax base, and protect public lands and waters; and

WHEREAS, with matters that relate to coordination of water management authorities pursuant to Minn. Stat. Sections 103B, 103C, and 103D and with public drainage systems pursuant to Minn. Stat. 103E, this Agreement does not change the rights or obligations of the public drainage system authorities.

WHEREAS, pursuant to Minn. Stat. Section 103B.101 Subd. 14, the Board of Water and Soil Resources (BWSR)"may adopt resolutions, policies, or orders that allow a comprehensive plan, local water management plan, or watershed management plan, developed or amended, approved and adopted, according to chapter 103B, 103C, or 103D to serve as substitutes for one another or be replaced with a comprehensive watershed management plan," also known as the "One Watershed, One Plan". The parties have formed this agreement for the specific goal of developing the BSWR - One Watershed, One Plan for the Root River Watershed.

NOW, THEREFORE, the parties hereto agree as follows:

1. **Purpose:** The parties to this Agreement recognize the importance of partnerships to plan and implement protection and restoration efforts for the Root River Watershed *(See Attachment A with a map of the planning area)*. Parties signing this agreement will be collectively referred to as the "Root River Watershed 1W1P" and are partnering together in the form of a joint powers agreement under Minn. Stat. Section 471.59.

2. **Term:** This agreement is effective upon signature of all parties in consideration of the BWSR Participation Requirements for One Watershed, One Plan; and will remain in effect until canceled according to the provisions of this Agreement, unless earlier terminated by law. This agreement end date will run consistent with the BWSR grant agreement end date. Parties may revisit the grant agreement end date and make extensions to the term of the grant agreement if agreed upon by the Policy Committee (the structure, membership, and governing provisions of the Policy Committee are described in a later paragraph in this Agreement).

3. **Adding Additional Parties:** A qualifying party within the Root River Watershed that is responsible for water planning and resource management according to Minnesota State Statutes desiring to become a member of this agreement shall indicate its intent by adoption of a governing board resolution prior to June 30, 2015. The qualifying party agrees to abide by the terms and conditions of the Agreement; including but not limited to the bylaws, policies and procedures adopted by the Policy Committee.

4. **Removal of Parties:** A party desiring to leave the membership of this agreement shall indicate its intent in writing to the Policy Committee in the form of an official board resolution. Notice must be made 30 days in advance of leaving the group and not later than June 30, 2015.

5. **General Provisions**:

   a. **Compliance with Laws/Standards:** The parties agree to abide by all Federal, State or local laws; statutes, ordinances, rules and regulations now in effect or hereafter adopted pertaining to this Agreement or to the facilities, programs and staff for which the Agreement is responsible.

   b. **Indemnification:** Each party to this Agreement shall be liable for the acts of its officers, employees or agents and the results thereof to the extent authorized or limited by law and shall not be responsible for the acts of the other party, its officers, employees or agents. The provisions of the Municipal Tort Claims Act, Minnesota Statute Chapter 466 and other applicable laws govern liability of the parties. To the full extent permitted by law, actions by the parties, their respective officers, employees and agents, pursuant to this Agreement are intended to be and shall be construed as a "cooperative activity" and it is the intent of the parties that they shall be deemed a "single governmental unit" for the purpose of liability, as set forth in Minnesota Statutes Section 471.59, Subd. 1a(a), provided further that for purposes of that statute it is the intent of each party that this Agreement does not create any liability or exposure of one party for the acts or omissions of the other party.

   c. **Records Retention:** The parties agree that records created pursuant to the terms of this Agreement will be retained in a manner that meets their respective entity's records retention schedules that have been reviewed and approved by the State in accordance with Minn. Stat. §138.17. The records retention will follow the Fiscal Agent's and Day to Day Contact Agent's schedules. At the time this agreement expires, all records will be turned over to the Day to Day Contact for continued retention.

d. **Timeliness:** The parties agree to perform obligations under this Agreement in a timely manner and keep each other informed about any delays that may occur.

e. **Termination:** The parties anticipate that this Agreement will remain in full force and effect through the term of the grant agreement with BWSR and until canceled by all parties, unless otherwise terminated in accordance with law or other provisions of this Agreement. The parties acknowledge their respective and applicable obligations, if any, under Minn. Stat. Section 471.59, Subd. 5 after the purpose of the Agreement has been completed.

f. **Extension:** The parties may extend the termination date of this Agreement for the purposes of implementation of the plan beyond the BWSR grant planning phase identified in Section 2 as agreed upon by the group.

6. **Administration:**

a. **Establishment of a Policy Committee and Advisory Committee for Development of the One Watershed, One Plan.** The parties agree to designate one representative, who must be an elected or appointed member of the governing board, to a Policy Committee for development of the One Watershed, One Plan. The Policy Committee will meet monthly or as needed to develop and decide on the content of the plan.

i. Authority of Policy Committee member: Each representative shall have one vote and shall have the authority to act on behalf of their Board in all matters, such as grant agreement(s) and amendment(s), interim report review and approval, payments under the grant, professional contracts, and voting on the recommended plan to be submitted to local review and comment process. The Policy Committee will establish bylaws by 02/28/2015.

ii. The Policy Committee member will serve as a liaison to their respective boards. The governing boards may choose alternates to serve from their boards as needed.

iii. An Advisory Committee as required by rule and statute will be established to provide technical support on the development of the plan, plan content, and plan implementation to the Policy Committee, including identification of priorities. The Advisory Committee will consist of the local Planning Workgroup, stakeholders, the state's main water agencies, and/or plan review agencies. The Advisory Committee will meet quarterly or as needed.

iv. A Planning Workgroup as recommended under rule will be established consisting of local staff, local water planners, local watershed staff, and local SWCD staff for the purposes of logistical and day-to-day decision-making in the planning process. The Planning Workgroup will meet monthly or as needed.

b. **Submittal of the Plan.** The Policy Committee will recommend the draft plan to the parties of this Agreement. Each party will participate in hosting a public hearing(s) through the Policy Committee for local review and comment process that conforms to Minnesota Statutes 103B and 103D including required public hearings. The Policy Committee will be responsible for initiating a formal review process for the watershed-based plan conforming to Minnesota Statutes 103B and 103D including public hearings. Upon completion of local review and comment, and approval of the plan for submittal to BWSR by each party, the Policy Committee will submit the watershed-based plan jointly to the Board of Water and Soil Resources for review and approval.

c. **Adoption of the Plan.** The parties agree to adopt and begin implementation of the plan within 120 days of state approval and provide notice of plan adoption pursuant to Minnesota Statutes Chapter 103B and 103D.

7. **Fiscal Agent:** Winona County Soil and Water Conservation District will act as the fiscal agent for the purposes of this agreement and agrees to:

   a. Accept all fiscal responsibilities associated with the implementation of the BWSR grant agreement for developing a watershed-based plan and sign the grant agreement on behalf of the parties listed within.

   b. Perform financial transactions as part of contract implementation.

   c. Pursuant to Minn. Stat. Section 471.59, Subd. 3, provide for strict accountability of all funds and report of all receipts and disbursements and annually provide a full and complete audit report.

   d. Provide the Policy Committee and its members with such records as are necessary to describe the financial condition of the BWSR grant agreement.

   e. Responsible for fiscal records retention consistent with the agents records retention schedule until termination of the agreement (at that time, records will be turned over to the grant Day-to-Day contact.)

8. The Fillmore County Soil and Water Conservation District agrees to provide the following services to the partnership and agrees to:

   a. Accept all day to day responsibilities associated with the implementation of the BWSR grant agreement for developing a watershed-based plan.

   b. Day to Day Contact for the One Watershed, One Plan Grant Agreement and Plan.

   c. Responsible for the BWSR reporting requirements (ELink).

   d. Provide the Policy Committee with such records as are necessary to describe the planning condition of the BWSR grant agreement.

9. **Authorized Representatives:** The following persons will be the primary contacts for all matters concerning this Agreement:

Dodge County
County Administrator
22 6th Street South
Mantorville, MN 55955
Telephone: (507)635-6239

Dodge SWCD
District Administrator
916 2nd Street SE
Dodge Center, MN 55927
Telephone: (507)374-6364

Fillmore County
County Administrator
101 Fillmore Street, PO Box 466
Preston, MN 55965
Telephone: (507)765-4566

Fillmore SWCD
District Administrator
900 Washington Street NW
Preston, MN 55965
Telephone: (507)765-3878

Houston County
County Administrator
304 South Marshall Street
Caledonia, MN 55921
Telephone: (507)725-5800

Root River SWCD
District Administrator
805 North Hwy 44/76, Suite 1
Caledonia, MN 55921
Telephone: (507)724-5261

Mower County
County Administrator
201 1st Street NE
Austin, MN 55912
Telephone: (507)437-9494

Mower SWCD
District Administrator
1408 21st Avenue NW, Suite2
Austin, MN 55912
Telephone: (507)434-2603

Olmsted County
County Administrator
151 4th Street SE
Rochester, MN 55904
Telephone: (507)328-6001

Olmsted SWCD
District Administrator
1485 Industrial Drive NW, Room 102
Rochester, MN 55901
Telephone: (507)280-2850

Winona County
County Administrator
177 Main Street
Winona, MN 55987
Telephone: (507)457-6353

Winona SWCD
District Administrator
400 Wilson Street, PO Box 39
Lewiston, MN 55952
Telephone: (507)523-2171

Crooked Creek Watershed District
Robert Mierau
13598 Heintz Road
Caledonia, MN 55921
Telephone: (507)259-3617

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Dodge SWCD

APPROVED:

BY: Larry Selinger 11-20-14
Board Chair Date

BY: 11/20/14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Dodge County

APPROVED:

BY: _____ 12-12-2014
Board Chair Date

BY: _____ 12.15.14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____ 12/17/2014
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Fillmore County

APPROVED:

BY: Duane Bakke 11/25/14
Board Chair Date

BY: [signature] 11/25/14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: Brett Corso 11/25/14
County Attorney Date

APPROVED AS TO EXECUTION

BY: Brett Corso 11/25/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Fillmore SWCD

APPROVED:

BY: Brian Hazl 11-13-2014
Board Chair Date

BY: Donna Rasmussen 11/13/14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: Brett Corso 11/25/14
County Attorney Date

APPROVED AS TO EXECUTION

BY: Brett Corso 11/25/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Crooked Creek Watershed District

APPROVED:

BY: Wilfred Johnson 11-13-14
Board Chair Date

BY: Anne Selners 11-13-14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: Janis P. Heeren 11/24/14
County Attorney Date

APPROVED AS TO EXECUTION

BY: Janis P. Heeren 11/24/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Root River SWCD

APPROVED:

BY: _____ 11-12-14
Board Chair Date

BY: Anne Selner 11-12-14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____ 11/24/14
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 11/24/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Houston County Commissioners

APPROVED:

BY: Teresa Walker 11/18/14
Board Chair Date

BY: Anne Selners 11/18/14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: James R Hearee 11/24/14
County Attorney Date

APPROVED AS TO EXECUTION

BY: James R Hearee 11/24/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Mower County

APPROVED:

BY: _____ 11/25/14
Board Chair Date

BY: _____
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 12/23/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Mower SWCD

APPROVED:

BY: James Debhardt 11-12-14
Board Chair Date

BY: Beverly Lindby 11-12-14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Olmsted County

APPROVED:

BY: _____ 11-18-14
Board Chair Date

BY: _____ 11/18/2014
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____ 12/8/14
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____ 12/8/14
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Olmsted Soil and Water Conservation District

APPROVED:

BY: _____ 11/20/14
Board Chair Date

BY: _____ 11/20/14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: _____
County Attorney Date

APPROVED AS TO EXECUTION

BY: _____
County Attorney Date

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Winona County

APPROVED:

BY: _____ 11/25/14
Board Chair Date

BY: _____ 11/25/14
District Manager/Administrator Date
Interim

APPROVED AS TO FORM

BY: _____
County Attorney Date 11-14-14

APPROVED AS TO EXECUTION

BY: _____
County Attorney Date 12-3-14

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.
(Repeat this page for each participant)

PARTNER: Winona County SWCD

APPROVED:

BY: _____ 11/12/14
Board Chair Date

BY: _____ 11/12/14
District Manager/Administrator Date

APPROVED AS TO FORM

BY: Kevin O Sonnenon 11-12-14
County Attorney Date

APPROVED AS TO EXECUTION

BY: Kevin O. Sonnenon 11-12-14
County Attorney Date

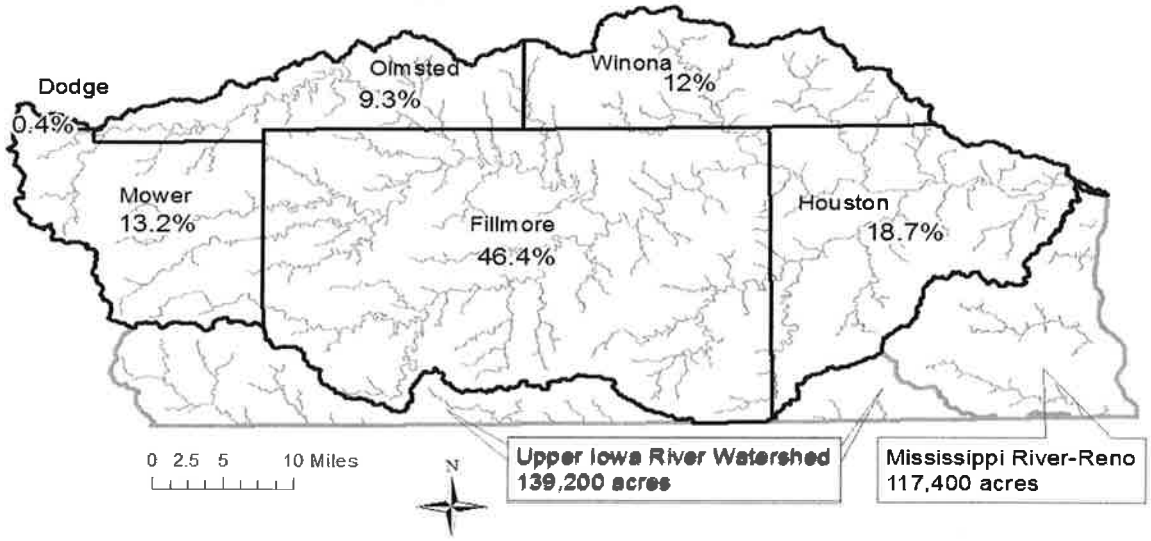
Attachment A

Root River Watershed
One Watershed One Plan Planning Area

Root River = 1,062,000 acres
(Fillmore 46.4%, Houston 18.7%, Mower 13.2%, Winona 12%, Olmsted 9.3%, Dodge 0.4%)

Upper Iowa River = 139,200 acres

Mississippi River-Reno = 117,400 acres



HoustonEngineering Inc.

APPENDIX B

Root River Watershed
Land and Water Resources Inventory

TABLE OF CONTENTS

1 INTRODUCTION 1
2 CLIMATE AND PRECIPITATION 3
3 GEOLOGY IN THE DRIFTLESS AREA 5
3.1 TOPOGRAPHY 6
3.2 BEDROCK 9
3.3 SURFICIAL GEOLOGY 13
3.4 KARST FEATURES 15
3.5 SOILS 17
3.5.1 HISTORICAL CONTEXT 17
3.5.2 SOIL ASSOCIATIONS 17
4 HYDROLOGY 19
4.1 LENTIC SYSTEMS 19
4.2 LOTIC SYSTEMS 19
4.2.1 RIVERS AND STREAMS 19
4.2.2 PUBLIC DRAINAGE SYSTEMS 21
5 GROUNDWATER RESOURCES 23
5.1 HISTORICAL LAND USE 25
5.2 LAND USE TRENDS 27
6 VEGETATION 29
6.1 PLANT COMMUNITIES 30
6.1.1 MESIC HARDWOOD FOREST COMMUNITIES 30
6.1.2 FIRE-DEPENDENT FOREST/WOODLAND COMMUNITIES 33
6.1.3 FLOODPLAIN FOREST COMMUNITIES 33
6.1.4 CLIFF AND TALUS COMMUNITIES 34
6.1.5 UPLAND PRAIRIE COMMUNITIES 35
6.1.6 WET MEADOW/CARR COMMUNITIES 35
7 RARE AND NATURAL FEATURES 36
7.1 MCBS SITES OF BIODIVERSITY SIGNIFICANCE 36
8 RARE PLANT AND ANIMAL SPECIES 38
9 WILDLIFE 38
9.1 TERRESTRIAL 38
9.2 AQUATIC 38
9.3 SPECIES IN GREATEST CONSERVATION NEED 39
10 RECREATION AND CONSERVATION 39
11 HISTORICAL CULTURAL RESOURCES 42

FIGURES

Figure 1: Root River Watershed Plan Boundary 2
Figure 2: Precipitation – Water Year October 2007-September 2 4
Figure 3: Driftless Area 5
Figure 4: Topography 7
Figure 5: Slope Percentage 8
Figure 6: Precambrian Bedrock Geology 10
Figure 7: Paleozoic Bedrock Geology 11
Figure 8: Bedrock Stratigraphic Column 12
Figure 9: Surficial Geology 14
Figure 10: Karst Features 16
Figure 11: Soil Textures and Water Holding Capacity 18
Figure 12: Root River 1W1P - Water Resources 20
Figure 13: Drainage Systems 22
Figure 14: Groundwater Vulnerability 24
Figure 15: Pre-Settlement Vegetation 26
Figure 16: Generalized Land Use 28
Figure 17: Ecological Subsections 31
Figure 18: Native Plant Communities 32
Figure 19: Sites of Biological Diversity 37
Figure 20: Designated Water-Related Recreational Areas 41
Figure 21: Conservation Lands Ownership 42

ATTACHMENTS

Attachment 1: Species of Interest

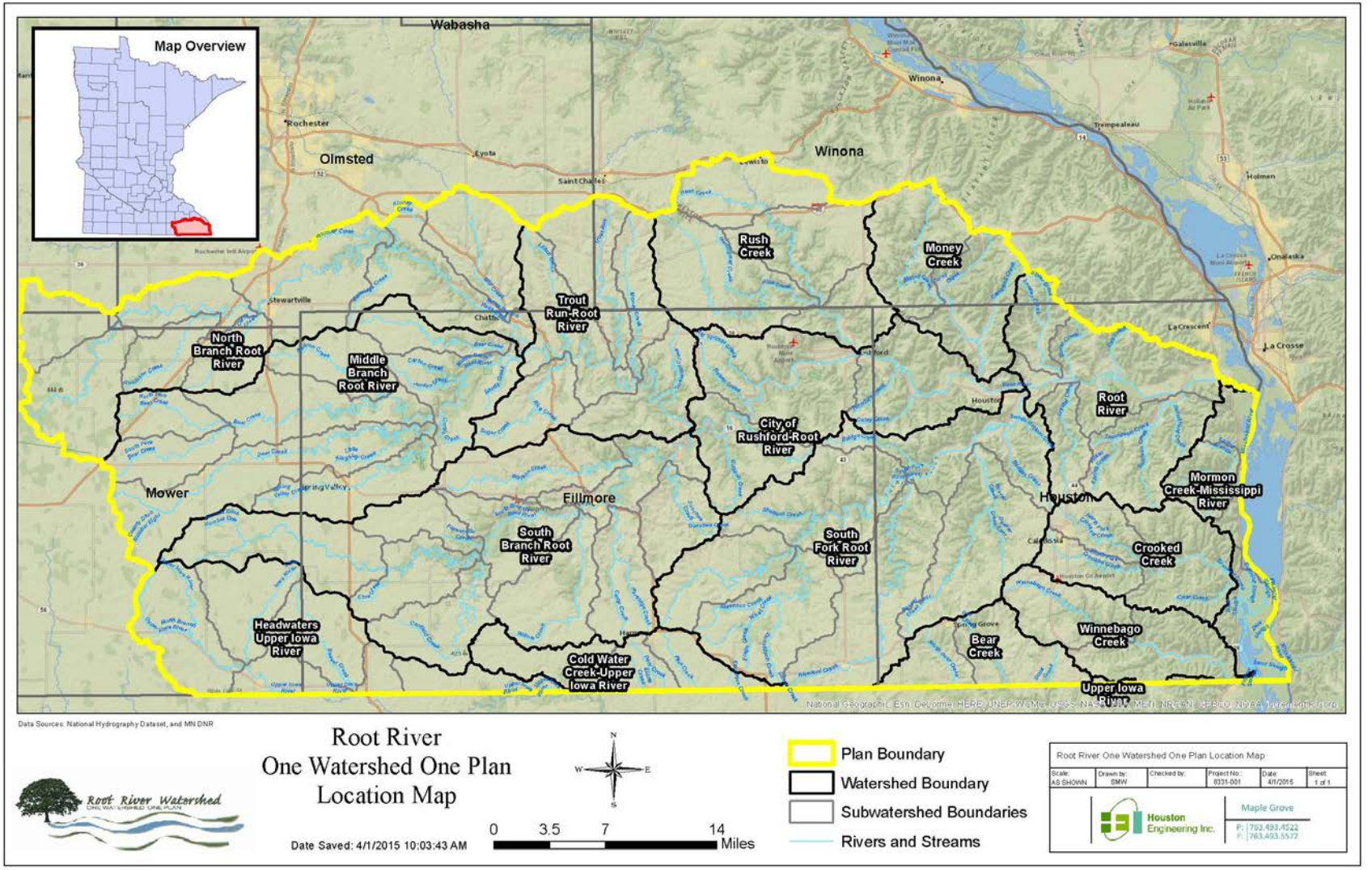
1 INTRODUCTION

The Root River One Watershed One Plan (1W1P) Boundary represents a very unique region, unlike any other in Minnesota (see **Figure 1** for location). The Root River 1W1P Boundary includes all of the Root River Watershed in addition to areas that drain directly into the Mississippi River and those that drain south into Iowa. The Root River 1W1P Boundary is comprised of an area that is approximately 1.731 million acres (2,704 mi^2); the areas draining south into Iowa accounts for approximately 475,005 acres (742 mi^2) and the area directly draining to the Mississippi River is approximately 191,467 acres (299 mi^2).

The Root River Watershed is located in the southeastern corner of the state, with an estimated area of 1.064 million acres (1,663 mi^2), the Root River Watershed is characterized by its rich habitat for game and nongame wildlife species and its aesthetic beauty. Long valleys rimmed with dry prairies and hardwood hills are bisected by coldwater trout streams. Much of the watershed and the greater Mississippi River Blufflands was not covered like the rest of the state, by the last Wisconsinan Glaciation, leaving this area unscathed by glaciers for the last 500,000 years. This results in the naturally weathered Blufflands with extraordinarily unique geology and topography, enriched with diversity and unique habitats.

The information contained within Appendix B is largely transcribed from the Root River Landscape Stewardship Plan (June 2013) for the purpose of providing background information on the existing natural resources within the watershed for the Root River One Watershed One Plan (1W1P).

Figure 1: Root River Watershed Plan Boundary



2 CLIMATE AND PRECIPITATION

Climate within the watershed is typical of a continental climate, with hot summers and cold winters. Because of the location in the middle of the North American continent, the area experiences some of the widest variety of weather in the United States, with each of the four seasons having its own distinct characteristics.

Winter is characterized by cold (below freezing) temperatures. Monthly mean temperatures during December, January and February are 22.7 F, 18.7 F and 23.9 F, respectively. Snow is the main form of winter precipitation, but freezing rain, sleet, and occasionally rain are all possible during the winter months. Common storm systems include Alberta clippers or Panhandle hooks; some of which develop into blizzards. Snowstorms are common early in the spring, but by late-spring as temperatures begin to moderate the state can experience tornado outbreaks, a risk which diminishes but does not cease through the summer and into the autumn. Monthly mean precipitation during December, January, and February 1.37 in, 1.17 in, 1.0 in respectively.

In summer, heat and humidity predominate. Monthly mean temperatures during June, July and August are 70.1 F, 74.5 F and 72.4 F, respectively. Monthly mean precipitation during December, January, and February 4.29 in, 4.21 in, 5.11 in respectively. These humid conditions help kick off thunderstorm activity 30–40 days per year. The growing season is an estimated 160 days.

Tornadoes are possible from March through November, but the peak tornado month is June, followed by July, May, and August. The state averages 27 tornadoes per year. Average annual is approximately 35 inches. Autumn is largely the reverse of spring weather. The jet stream—which tends to weaken in summer—begins to re-strengthen, leading to a quicker changing of weather patterns and an increased variability of temperatures. By late October and November these storm systems become strong enough to form major winter storms. Autumn and spring are the windiest times in southeast Minnesota.

Droughts are an annual summer concern, especially for farmers. The growing season is 160 days and this corresponds to the period of highest percentage of annual precipitation. A lack of precipitation during this time period can be devastating to crops. The last major drought was in 1988. During that year, the period of April–July was the 2nd driest in the previous century, and the period of May–August was the hottest on record. Memorable droughts occurred in 1976 and the Dust Bowl years of the 1930s.

Floods occur within the Root River Watershed. Recent flash floods have occurred in 2005, 2007 and 2008. During August 18-20, 2007, a stalled frontal boundary in southeast Minnesota brought a series of thunderstorms that dropped a total of six inches of rain or more across the region. Rains were most intense during the afternoon and evening hours, Saturday, August 18th into Sunday morning August 19th. Four inches of precipitation was common across 28 counties in southern Minnesota with heaviest rainfalls in southeastern portions of the state ranging from eight to eighteen inches. Winona, Fillmore, and Houston counties experienced the highest rainfall rates; the recorded 36-hour precipitation exceeded fourteen inches. This 24-hour rainfall was the largest event ever recorded by an official National Weather Service reporting location in Minnesota. **Figure 2** shows the precipitation and department from normal precipitation for the October 2007 – September 2008 water year.

Figure 2: Precipitation – Water Year October 2007-September 2

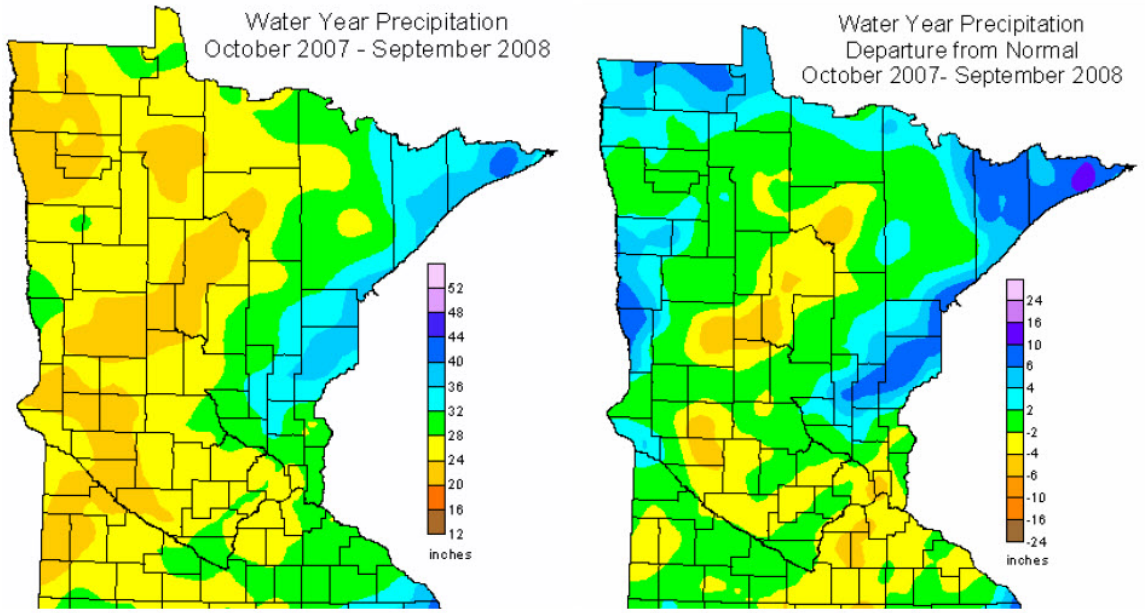


Figure 2 from the Minnesota State Climatology Office, *Water Year Precipitation Maps*, http://www.dnr.state.mn.us/climate/historical/water_year_maps.html.

Results of the August 2007 extreme rainfall event included seven fatalities, major flood damage to hundreds of homes and businesses in southeastern Minnesota, stream flooding, urban flooding, mud slides, and road closures. What made this storm so severe was the geographical extents across the south/southeastern portion of the state and the significant amounts of rainfall during a relatively short period of time. Thousands of square miles across the region received six or more inches of rain in a 24-hour period; this amount of rain for this area of Minnesota is considered a 100-year (1% probability) storm event. Extreme rainfall events of similar magnitude and geographic extents include June 9-10, 2002 in northwestern Minnesota and on September 14-15, 2004 in southern Minnesota.

Two extreme rainfall events in June, 2008 also resulted in flash flooding. Already saturated ground from rains the week prior to the June 7-9 rains contributed to the Houston County Board of Commissioners declaring a state of emergency on June 9th. Southeastern Minnesota was hit with high rainfall totals; the highest 24-hour total recorded in Minnesota during this time was 10.61 inches southeast of Caledonia in Houston County. All roads in Houston County were closed at one point during this storm event. Waters from the swollen Root River flooded Preston in Fillmore County and impacted fifty to seventy-five homes and twelve business in the downtown area. Some areas affected by the June 7-9, 2008 rains were the same areas impacted by the historic August 18-20, 2007 flooding.

A second round of heavy rain storms on June 11-12, 2008 in southeastern Minnesota resulted in additional flooding. During the evening of June 11th, granted the already saturated ground and intense rain, manhole covers were forced up due to the water pressure. Other conditions experienced included overtopping of roads, submerged vehicles, human lives were at risk in the city of Austin (Mower County). The city of Lansing (Mower County) had the highest 24-hour total for this storm system, ending in the morning of June 12, at 4.25 inches. The two-day totals were between five and six inches over eastern Freeborn and western Mower County.

Southeastern Minnesota was hit again in July 16-17, 2008 when a small, intense thunderstorm produced torrential downpours over Winona and Houston counties. The La Crosse National Weather Service recorded the greatest one-day precipitation total for July 16th at 2.50 inches. La Crescent in Houston County received the highest rainfall totals of 5.21 inches. La Crescent experienced flooded streets and intersections. Mudslides were reported along Interstate 94 near Dresbach in southeastern Winona County.

3 GEOLOGY IN THE DRIFTLESS AREA

The Root River Watershed is located within the Driftless Area. This epithet is derived from geologic terminology for "glacial drift", which refers to the materials (clay, silt, sand, gravel, boulders) left behind by glaciers. The Driftless Area is void of much glacial drift material from the last glaciation that impacted the mid-west. Approximately 20,000 square miles, of an area also referred to as the Paleozoic Plateau, spanning across southeastern Minnesota, southwestern Wisconsin, northeast Iowa, and northwestern Illinois was untouched by the last continental glacier (see **Figure 3** showing the boundary of the Driftless Area). The last Wisconsinan Glaciation passed by this area leaving behind a region that has naturally weathered over the past 500,000 years. The watershed is characterized with steep bluffs, deep valleys, and rolling uplands, and karst topography that offers rich environments for unique habitats and wildlife.

Figure 3: Driftless Area

Figure 3 is from the United States Department of Agriculture, Natural Resources Conservation Service, *Driftless Area Landscape Conservation Initiative*, May 2013.

3.1 TOPOGRAPHY

Rolling hills and deep valleys characterize the topography within the Root River Watershed. The area includes rugged hills and steep topography that drains east to the Mississippi River. Portions of the area along the Minnesota – Iowa border drain south into Iowa and some areas immediately adjacent and west of the Mississippi River drain east to the River. The highest area within the watershed is located in Mower County with an elevation of 1,440 feet msl. The lowest area within the watershed is located in Houston County with an elevation of 619 feet msl (see **Figure 4**, *Topography*). Most of the area is generally well drained with relatively few wetlands. Slopes generally increase moving from west to east toward the Mississippi River. Steep slopes defined as bluffs occur throughout much of the area (see **Figure 5**, *Slope Percentage*).

Figure 4: Topography

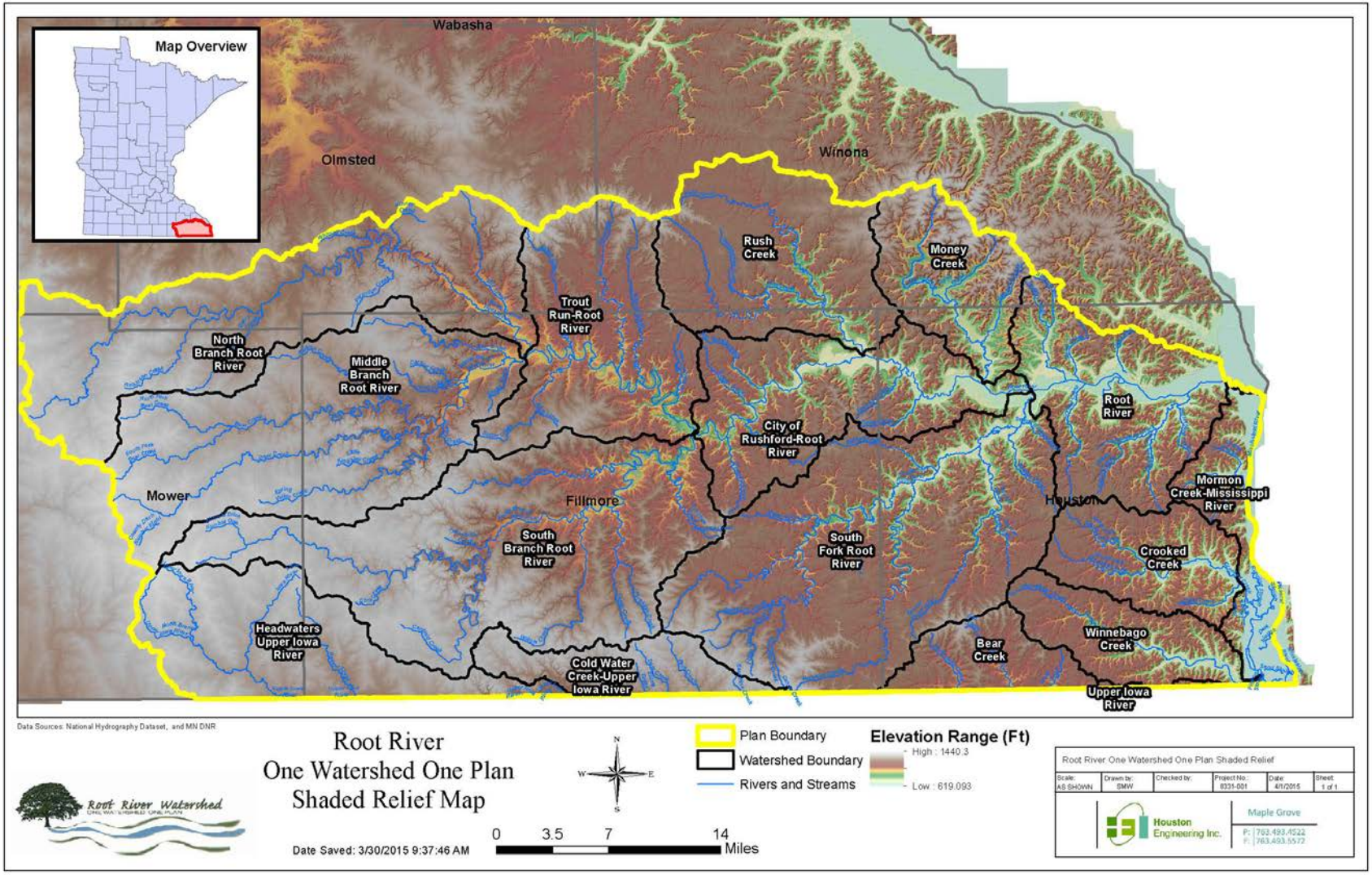
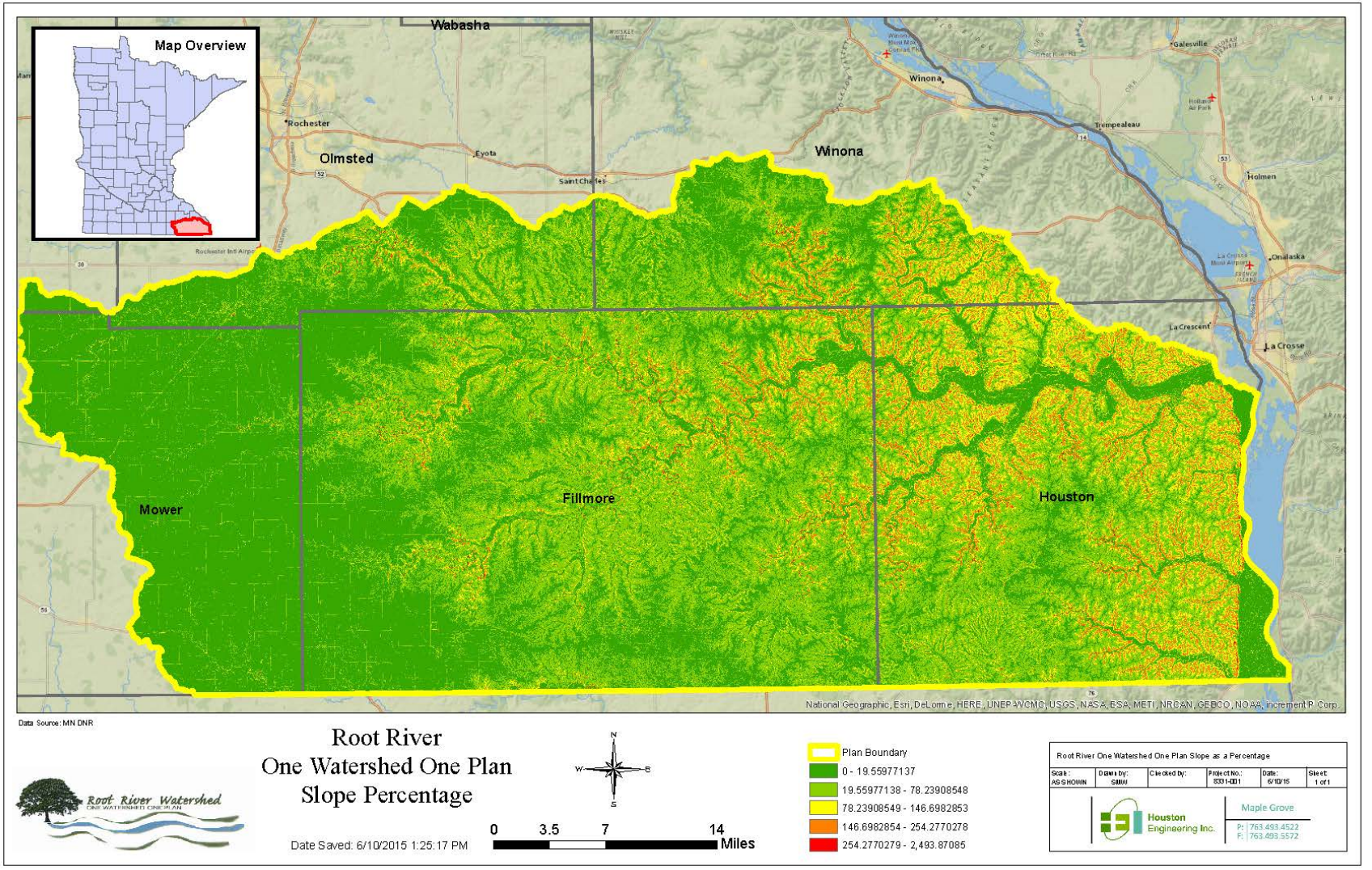


Figure 5: Slope Percentage



3.2 BEDROCK

The bedrock within the Root River Watershed is dominated by sedimentary rock. **Figures 6 through8** illustrate the rock units present and bedrock stratigraphy. The Minnesota Geologic Survey suggest the environs in which these units were formed was in extensive, shallow subtropical seas that covered the region during the Cambrian, Ordovician, and Devonian Periods of the Paleozoic era, 545-360 million years ago. Southeastern Minnesota probably lay above sea level between 300 and 2 million years ago, whereby the land surface was eroded by wind and water. Today, unconsolidated sediment overlying bedrock was most likely deposited in the geological timeframe of 2 million years by natural weathering by the elements.

As the glaciers melted, large volumes of melt water engulfed the forming stream channels, contributing to increased rates of erosion. The Root River and the valleys of the tributaries were formed by this mechanism, in response to lowering of base level in the Mississippi River. Twenty-five thousand years before present during the Late Wisconcian, ice lobes were advanced reaching down towards the west and north of the region. Rapid ice melt contributed considerable sand and gravel deposits in southeast Minnesota. Valleys were filled with sand and gravel and windblown silt (loess) deposited across the region. Various types of vegetative communities are now supported by these substrates deposited throughout the landscape. Outwash sands support pine and oak barrens and prairies. The more fertile loess sustains mesic hardwood and fire-dependent forests.

As the last continental ice mass melted approximately 10,000 years ago and the streams again began cutting through Pleistocene sand and gravel deposits that had filled the valleys. This process generally left behind a series of terraces as the streams carved out the valley stream beds. Lake Agassiz, an enormous glacial lake that extended across eastern North Dakota, northwestern Minnesota, and southern Manitoba drained through the Minnesota River into the Mississippi River. This resulted in the entrenchment of the Mississippi river and the response of other undercutting streams, such as the Root River.

Streams and rivers such as the Mississippi and Root inevitably became reduced in their erosive power after the ice melted and glacial lakes in the north drained. River valleys were again filled with sediments, though this time with more organic-rich silts that offered conducive environments for sustaining a variety of floodplain ecosystems in ancient oxbow lakes.

Figure 6: Precambrian Bedrock Geology

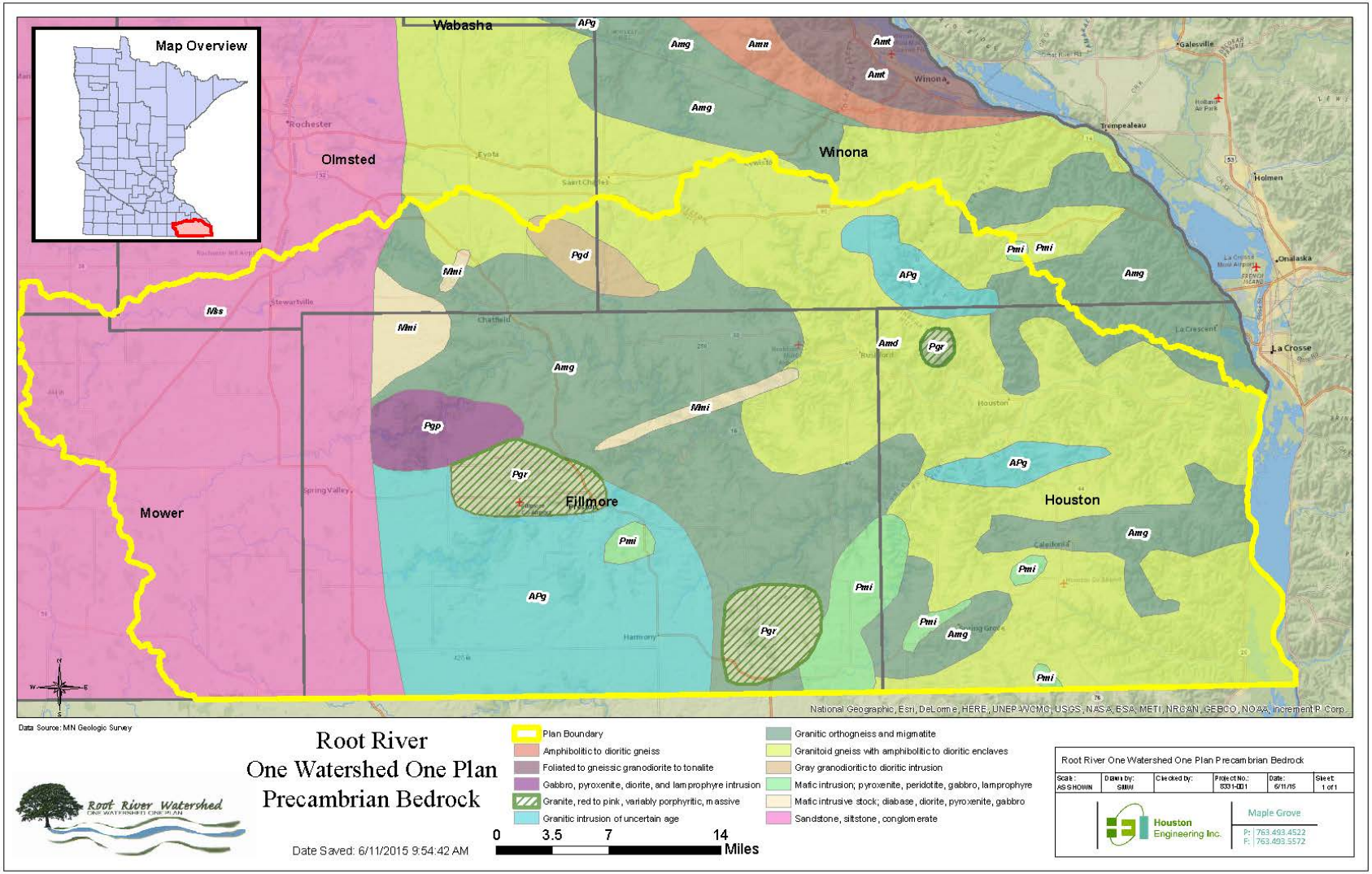


Figure 7: Paleozoic Bedrock Geology

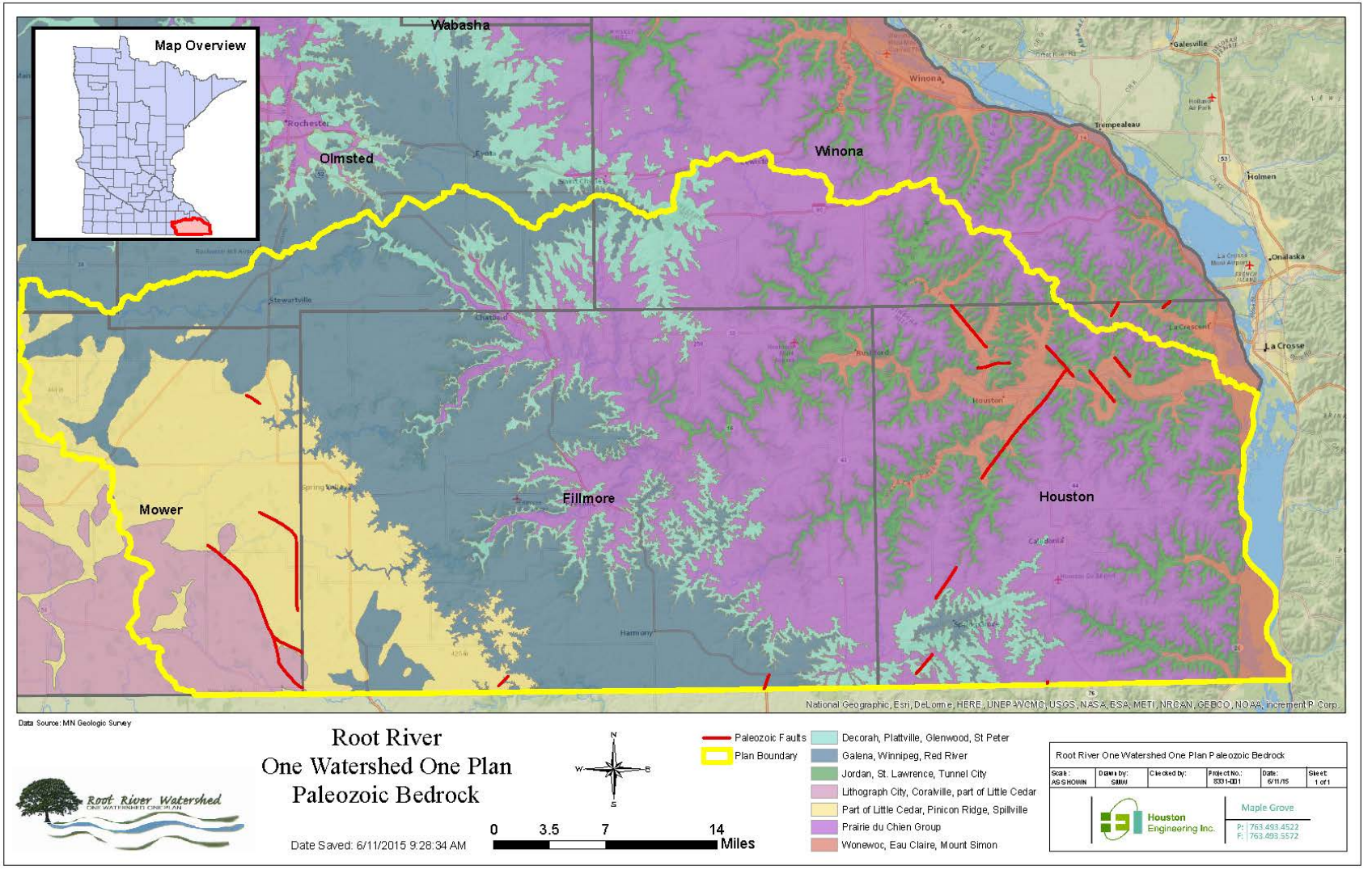


Figure 8: Bedrock Stratigraphic Column

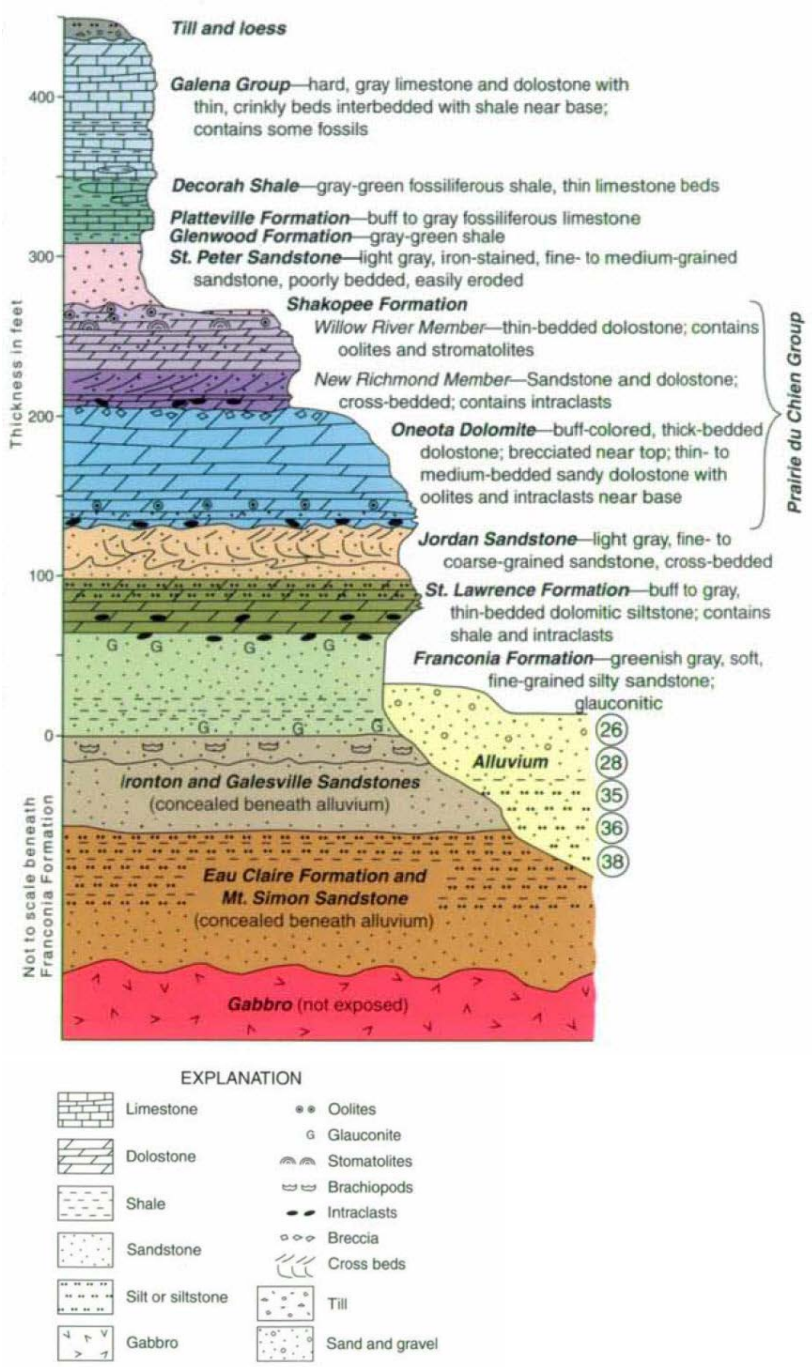


Figure 8: Bedrock stratigraphy of the Root River State Trail area from the Minnesota Geological Survey Educational Series (10), *Geology of the Root River State Trail Area, Southeastern Minnesota*, by John H. Mossler.

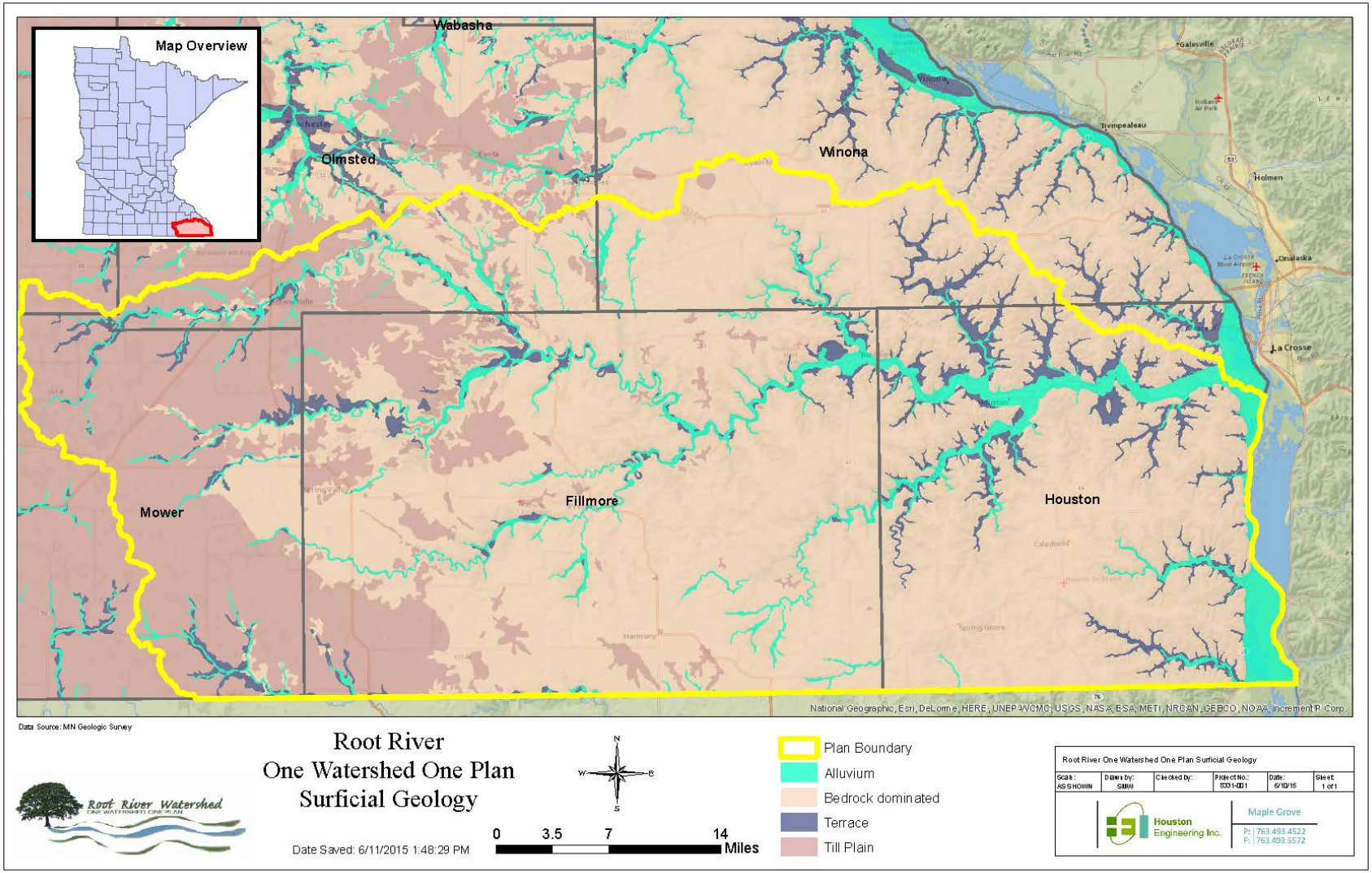
During the Paleozoic era, the alternative layers of shale, sandstone and carbonates were formed. Erosion occurs west to east and individual formations vary in their vertical position. Carbonate rock exposed at the surface may be highly weathered and dissolved, such as with the Galena Group, which is comprised of limestone and dolostone. Subsequent of these are the northeast facing escarpments exposing St. Peter Sandstone, Glenwood Formation, Platteville Formation, and Decorah Shale, followed by the less permeable Prairie Du Chien group of carbonates. Below these are the Cambrian carbonates and sandstones of the Eau Claire Formation; the Ironton and Galesville Sandstones; Oneota Dolomite; and Shakopee Formation. The oldest Paleozoic unit in the region is the Cambrian Mt. Simon Sandstone.

The exposed sedimentary bedrock units are apt to experience erosion and weathering. Downcutting, a natural weathering and geologic process resulting in vertical erosion that deepens valleys and/or stream channels, which adds unique character to the lay of the land within the Root River Watershed Region. Areas where bedrock is exposed provides for several significant native plant communities, including cliff and talus slopes. Bedrock outcrops are present in forests, bedrock bluff prairies, and other plant communities, and frequently support rare plant and animal populations that utilize the exposed rock for all or parts of their life cycle.

3.3 SURFICIAL GEOLOGY

The Pleistocene Ice Age, which occurred between 2 million and 10,000 years ago, brought ice that extended to as much as two miles thick and expanded across northern Canada. Thinner ice lobes reached southward into the upper Midwest, covering portions of the Root River Watershed. Locally, within the watershed, the direction of ice flow was west to east. Overall, the ice mass was moving southward. The advancing ice scraped and carved the earth's surface and incorporated materials (sands, silts, clays, gravel, and boulders) into its mass. As the glaciers receded, these earth materials became deposited across the landscape. Deposits of glacial drift till and outwash are thicker and more continuous west of Fountain, where local stream channels have not cut into the landscape and transported the material downstream. **Figure 9** shows the surficial geology in the Root River 1W1P Boundary.

Figure 9: Surficial Geology



3.4 KARST FEATURES

The landscape in the Root River Watershed, with considerable presence of carbonate rock, represents a region unlike any other within the state. The presence of karst features within the watershed is unmatched by any other watershed throughout Minnesota and of the six counties within the watershed. Karst features characterize a landscape formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum. It is characterized by underground drainage systems with sinkholes, dolines, and caves.The relatively soft and porous rocks react with water, precipitation and water from melting snow through time, creating secondary geologic features including sink holes, springs, underground streams, and caves. Fillmore County alone has more karst features than all other Minnesota counties combined. See **Figure 10** showing where karst topography is most prevalent within the Root River Watershed.

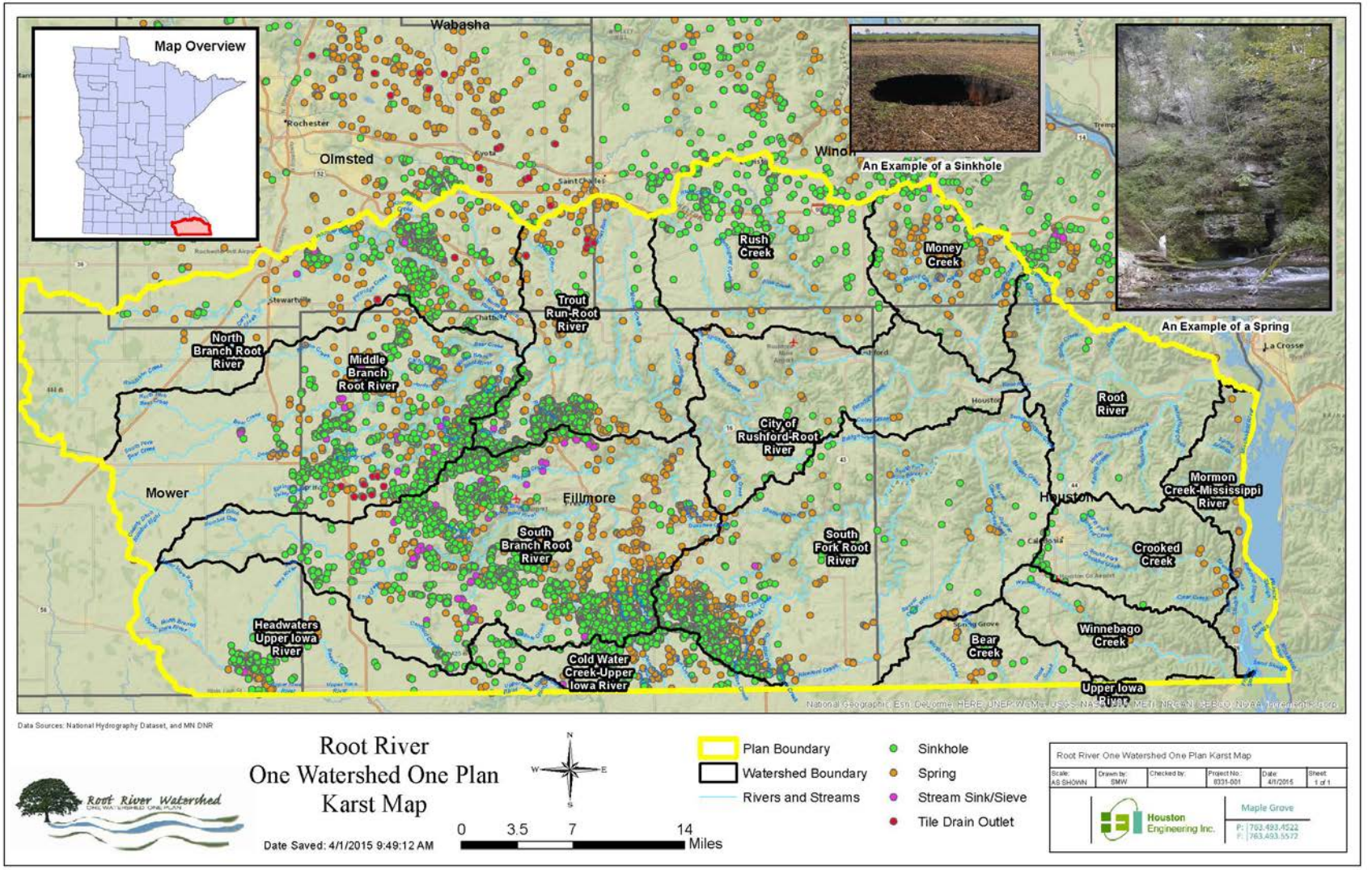
A variety of cave types are present within the Root River Watershed including network caves, branchwork caves, intermediate caves, and ramiform caves. Most recognized cave systems within this region include the Mystery Cave, located in Preston, is a network cave with over 13 miles of mapped passages. This cave is largely influence by flooding and stream flow; Mystery Cave has been formed where surface water enters the bedrock, more specifically, the Galena Group limestone, which is considerably susceptible to dissolution. Pine Cave, Tyson's Spring Cave, and Stagecoach Cave are examples of branchwork caves. These types of caves serve as outlets, returning subsurface water to the surface. Niagara Cave, located in Harmony, is an intermediate cave with an underground river and waterfall. The Crawlaway Coave is an example of a ramiform cave. Ramiform caves are characterized by large rooms and short dead-end passages that are references as resembling inkblots in shape and layout. The Crawlaway Cave has approximately 200 feet of identified passages.

Sinkholes are notoriously prevalent and visible to the naked eye on the land's surface. Within the Root River Watershed there are over 6,700 mapped sinkholes. Most notably is Fountain, Minnesota, which has been coined the sinkhole capital of the United States.

Sediment and soils collapse into cavities that are dissolved away by water, creating sinkholes. These features are often associated with spring and seep outlet channels, where the water pressure at these locations cause a direct and visible overland flow.

Actively subsiding and passively filling sinkholes are present throughout the watershed. These can form anywhere in the watershed except in stream valleys that have eroded below the Oneota Dolomite. Active sinks typically have less than 50 feet of substrate overlaying bedrock. Sinkholes generally develop in areas that have neighboring sinkholes. Map resources have identified some areas of known sinkholes although this is not comprehensive. Sinkholes form and in time can fill back in as is the case with many inactive sinkholes that have been filled with pre- and post- glacial sediments.

Figure 10: Karst Features



Springs can be relatively complex systems that function with a variety of influences acting upon them. There are two types of springs; those with a rapid response to a recharge event (e.g. hours) and those with more lag time in their response (e.g. weeks). Throughout the Root River Watershed over 1,100 springs have been mapped. One complicated issue with springs is related to groundwater movement within karst environments. Contaminants within a spring can have multiple and/or varying sources.

Conduit springs respond more directly to recharge events. These rapidly responding springs recharge from sinkholes or stream sinks, and as such, maintain properties from their source. One hundred forty conduit springs have been mapped within the watershed. Due to the relatively rapid flux and presence of contaminants (nitrates, pesticides, and bacteria) and water quality degradation, springs are not generally used as a potable water resource.

Generally, the relationship between surface and subsurface vertical water movement occurs relatively slowly. In areas dominated by carbonate rock, karst environments offer a mode of relatively streamlined movement. Once contaminants have entered into karst aquifers, contaminated waters can laterally migrate, carrying surface contaminants (as the environment provides) long distances. Since groundwater in karst environments can travel between aquifers, it is common that this water is also high in ions dissolved from carbonate bedrock. Contaminated waters from karst aquifers, when returning to the surface, can also contribute to existing contaminate loads within those receiving streams and rivers.

3.5 SOILS

3.5.1 HISTORICAL CONTEXT

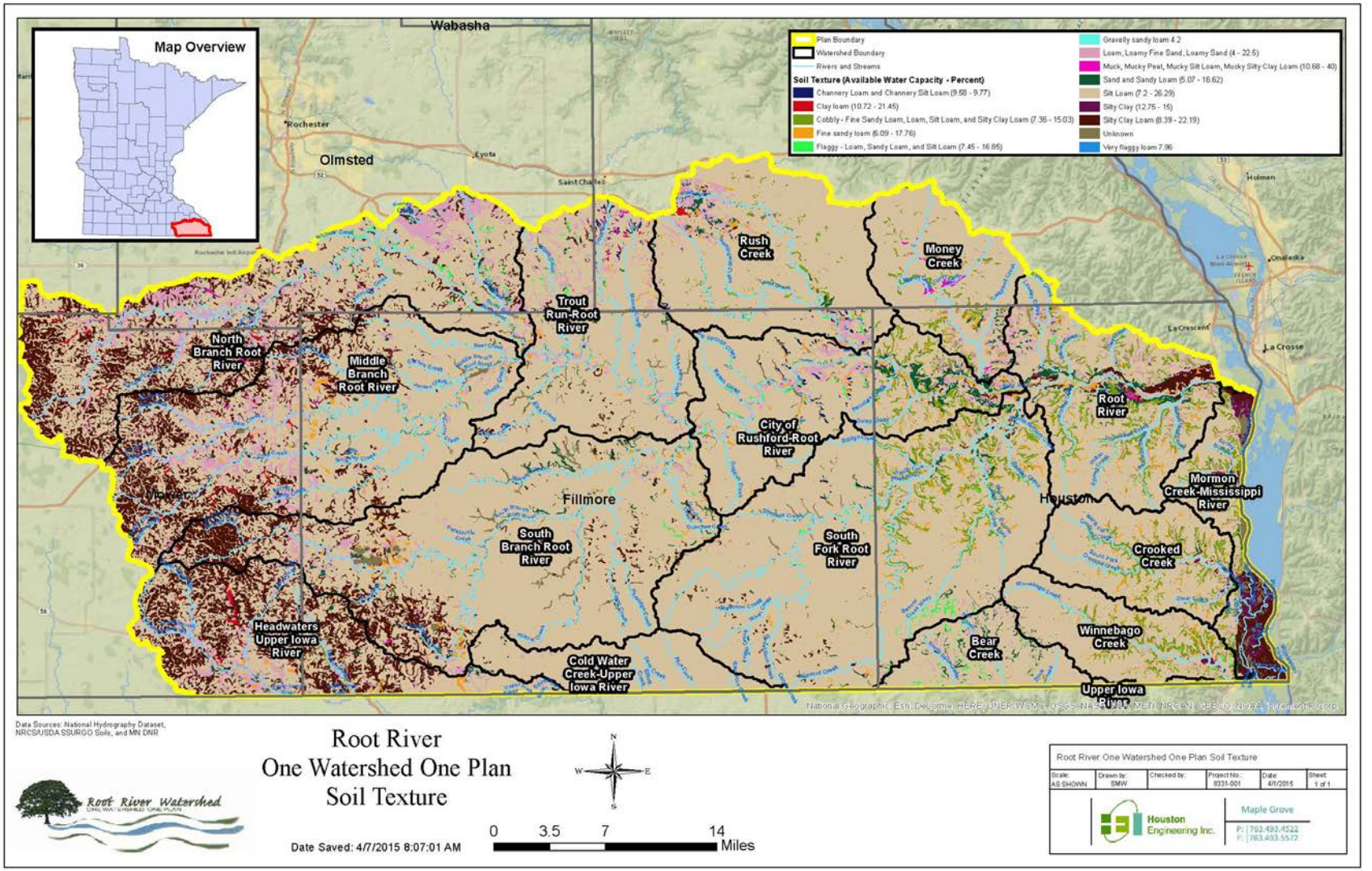
Soils in the region were largely formed by the deposition of sediments by ice, water, and wind during the Pleistocene epoch. Loess, visually distinguished in exposed substrate by its yellowish color, deposited by wind can be observed in thickness of a few inches to 20 feet deep. This wind-blown silt covered much of the watershed, was deposited during the retreat of the Iowan glacier. Steep valley slopes, mostly in larger valleys, where geologic erosion has bed active, bedrock is exposed and loess coverage is relatively thin.

Glacial drift deposits from the Iowan age cover western portions of the Root River watershed. Glacial deposits are thinner, east, from the thick Iowan drift area. In some places, the deposits occur in pre-glacial valleys and as a thin mantle on the sides. Terraces of the Root River valley are comprised of stratified gravel, sand, and silt. Terraces, within the glacial drift areas, have deposits left by melt waters from the glaciers.

3.5.2 SOIL ASSOCIATIONS

The watershed is characterized with hills and valleys composed of well-drained and moderately well-drained silty soils over bedrock. The west quarter of the watershed is characterized with gently sloping to very steep dissected till plains. Soils are predominately well-drained, formed in thin silty material over loamy till, with the underlain sedimentary bedrock. Soils data is available through the United States Department of Agriculture, Natural Resources Conservation Service (NRCS), STATSGO (State Soil Geographic) database. Soil textures and range of water holding capacity per soil texture type is shown in **Figure 11**.

Figure 11: Soil Textures and Water Holding Capacity



4 HYDROLOGY

4.1 LENTIC SYSTEMS

Due to the geology in this region, the land-surface has little capacity to hold water on its surface and lakes are generally absent from the landscape, except as backwater areas of the Mississippi River. Within the Root River Watershed, there are five basins greater than ten acres (4 hectares) in size. Of these, four are less than 20 acres (8 hectares). All of these basins are considered wetlands by the MDNR (MPCA, 2012, p. 10). The United States Fish and Wildlife Service maintains the National Wetlands Inventory that provides wetland data for the U.S. **Figure 12** shows the locations of lake and wetland resources within the Root River 1W1P Boundary.

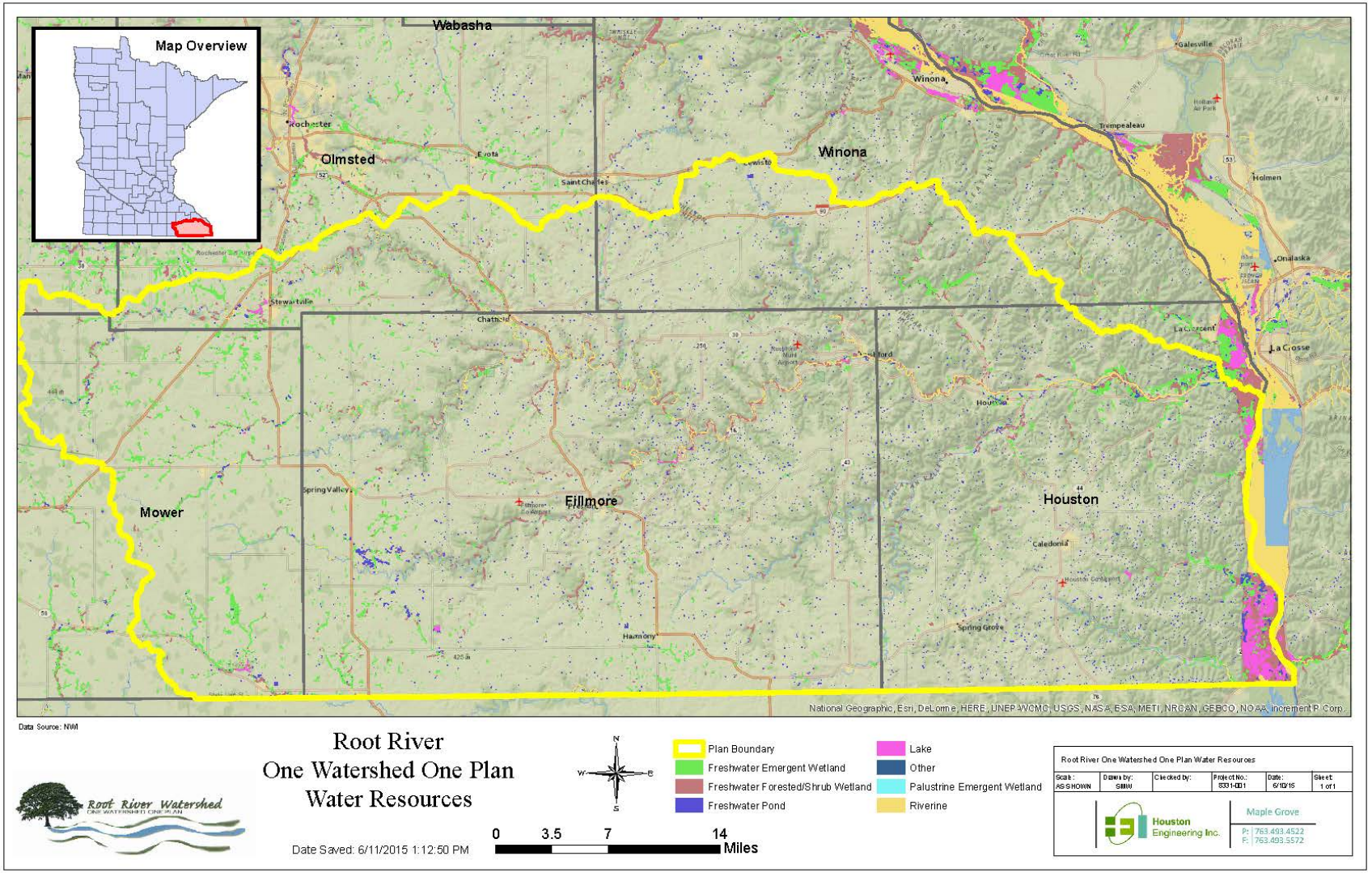
4.2 LOTIC SYSTEMS

4.2.1 RIVERS AND STREAMS

The Root River is 81 miles long, and has four main branches: i.e., the North, Middle, South Branch and South Fork. **Figure 1** shows the branches and tributaries that constitute the Root River Watershed in the Root River 1W1P Boundary. The headwaters of the Root River reside in an area with agriculture as the predominant land use. The river flows onward to the east through more wooded, rolling karst topography, where groundwater provides the base flow for trout streams. Of the branches, the North and Middles Branches join just south of Chatfield, intersecting the South Branch near Lansboro. This South Branch flows through the Yucatan Valley, entering the main stem of the Root River near Houston. Money Creek, Rush Creek, and Thompson Creek are other larger tributaries.

Groundwater plays a significant role in inputs into streams, which have historically supported coldwater trout populations. Agricultural practices in the last decade, including conversion to row crop agriculture in lowland and floodplain areas, are potentially resulting in rising soil temperatures and corresponding groundwater temperatures in critical areas. Stream temperature increases are contributed to an increasing number of trout stream unable to support the historic levels of trout.

Figure 12: Root River 1W1P - Water Resources



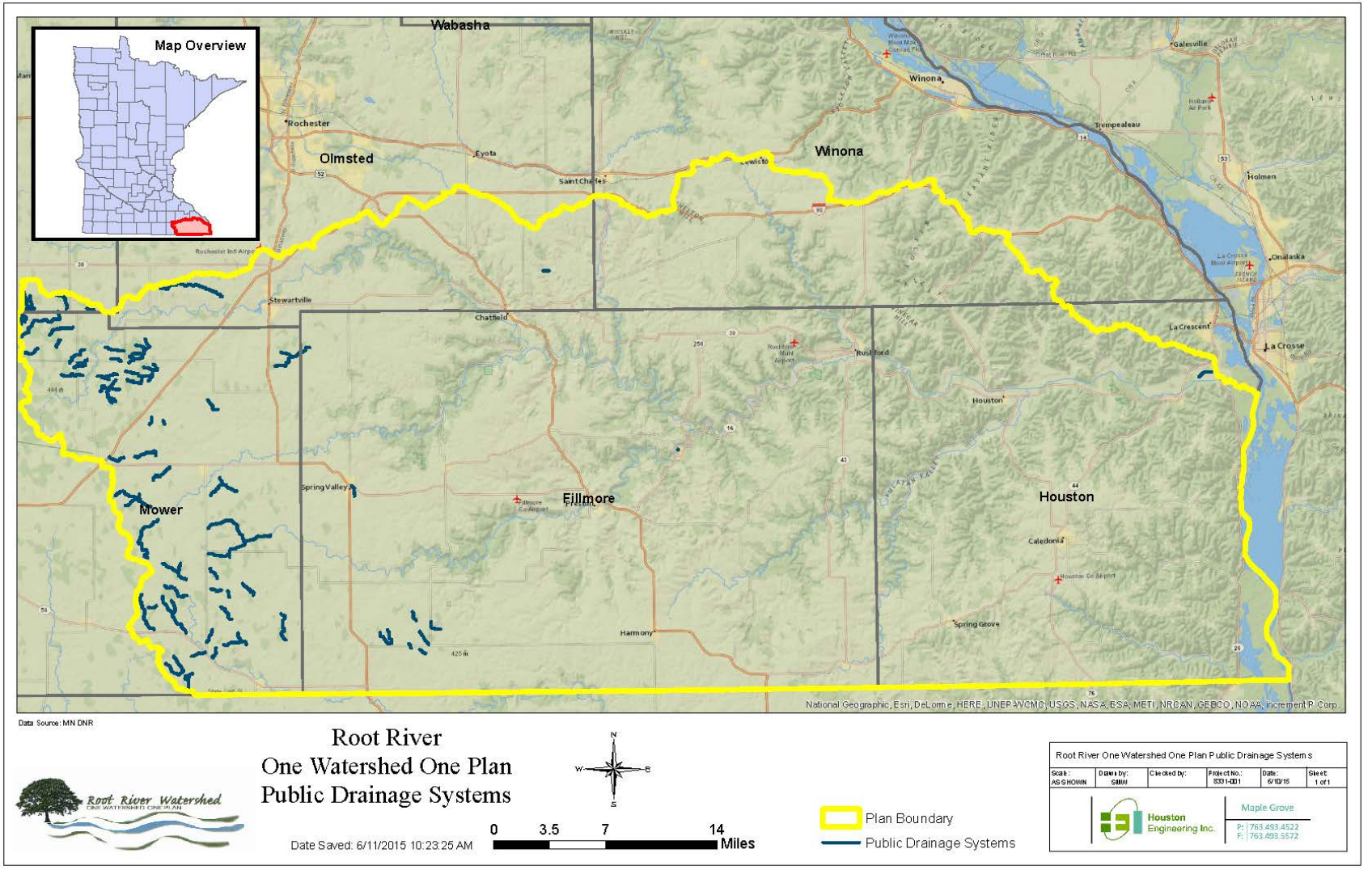
The Root River Watershed receives an average annual precipitation of 32 to 36 inches, with areas in the southeast receiving higher rates of precipitation. The corresponding annual runoff ranges from 5.5 to 8 inches, increasing west to east. In Houston, during 2000-2008, the average stream discharge was 1,152 cubic feet per second compared to the 1950-1979 average of 670 cubic feet per second. The increase (57%) in mean annual flow, from 1980-2009 compared to 1940-1979 is predominately influenced by changes to vegetative cover within the watershed. Prairie grasses and forestland contribute significantly less runoff after precipitation events in comparison to annual crops. With the increased portions of the watershed dedicated to annual crops, higher stream discharges and higher flooding flows from intense summer rains can be expected.

The streams within the watershed are Class 1B (for domestic consumption following disinfection) and 2A (support of cold water sport or commercial fish and associated aquatic life, and support of aquatic recreation). Fecal coliform bacteria and sediment impair the Root River in relatively high concentrations. These impairments limit suitability and support for recreation and aquatic life. High nitrate and phosphate levels contribute to algal growth, which through their development and decomposition consume dissolved oxygen, which is necessary for aquatic life. Phosphorus, un-ionized ammonia, and fecal coliform bacteria have been decreasing in the past decades, though nitrate-nitrogen concentrations are continuing to increase. The chief sources of these concentrations are non-point through overland runoff, not including feedlots, row crop fertilizers, and stormwater.

4.2.2 PUBLIC DRAINAGE SYSTEMS

Public drainage systems are managed by the drainage authority on behalf of the benefitted landowners. Public drainage systems within the watershed are primarily located in the flatter western topography within Mower County.

Figure 13: Drainage Systems



5 GROUNDWATER RESOURCES

The Root River Watershed with its visually unique surface features, is also characterized by a rather complex groundwater environment. Surface and groundwater interactions within the watershed have a different relationship than exhibited throughout the rest of Minnesota. Typically, movement of groundwater is a relatively slow process. This movement occurs through small spaces between rock and mineral grains, which offers an effective natural filtration of suspended sediment and other impurities in the water. Given the karst geology present within the watershed, surface water can easily enter subsurface water resources, and consequently travel significant distances in relatively short periods of time.

The Prairie du Chien-Jordan aquifer supports much of the potable (household) water used within the watershed. Provided the direct relationship between surface and groundwater flows, groundwater vulnerability throughout the watershed is shown in **Figure 13**. Sinkholes, caverns and crevices in the karst terrain do not filter the water that is recharging the water table due to the porosity and solubility of the rocks and minerals. Areas underlain by carbonate rocks are highly susceptible to pollution. Runoff from agricultural fields often contain sediments and agricultural chemicals or bacteria. This runoff can reach the water table rather quickly via sinkholes, through underground waterways, by which bypassing natural filtration offered through typical rock and mineral substrate. Common within the watershed, sinkholes have been used as rubbish dumps, which is highly undesirable when considering groundwater quality. Contaminated water can spread over large areas and remain within the aquifer indefinitely.

Figure 14: Groundwater Vulnerability

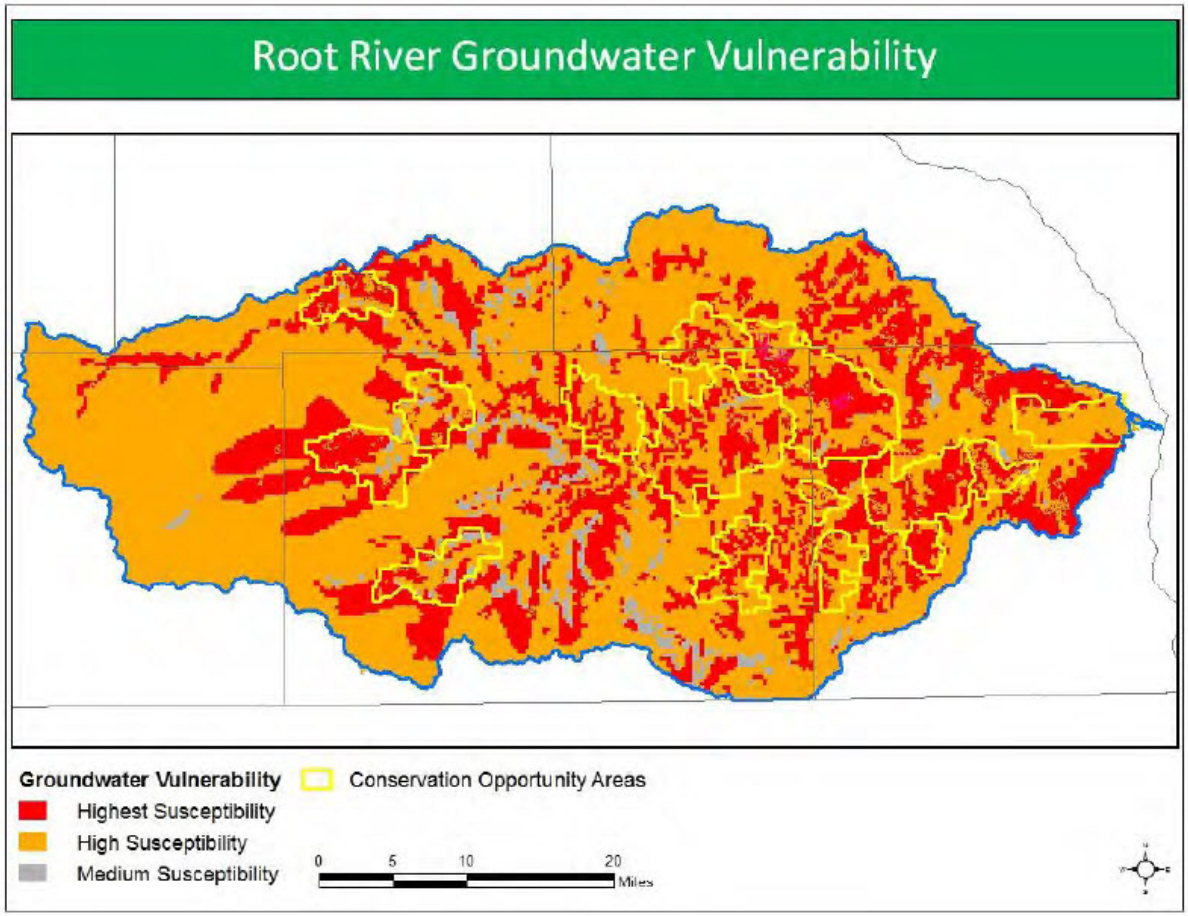


Figure 13: Groundwater vulnerability in the Root River Watershed, image from the Root River Landscape Stewardship Plan (June 2013).

Figure 13 has been generated based on the Groundwater Contamination Susceptibility model by the Minnesota Department of Natural Resources. The model inputs consider aquifer materials; vadose zone (subsurface unsaturated layer) materials; net recharge; and soil type for characterizing the vulnerability of groundwater to contamination.

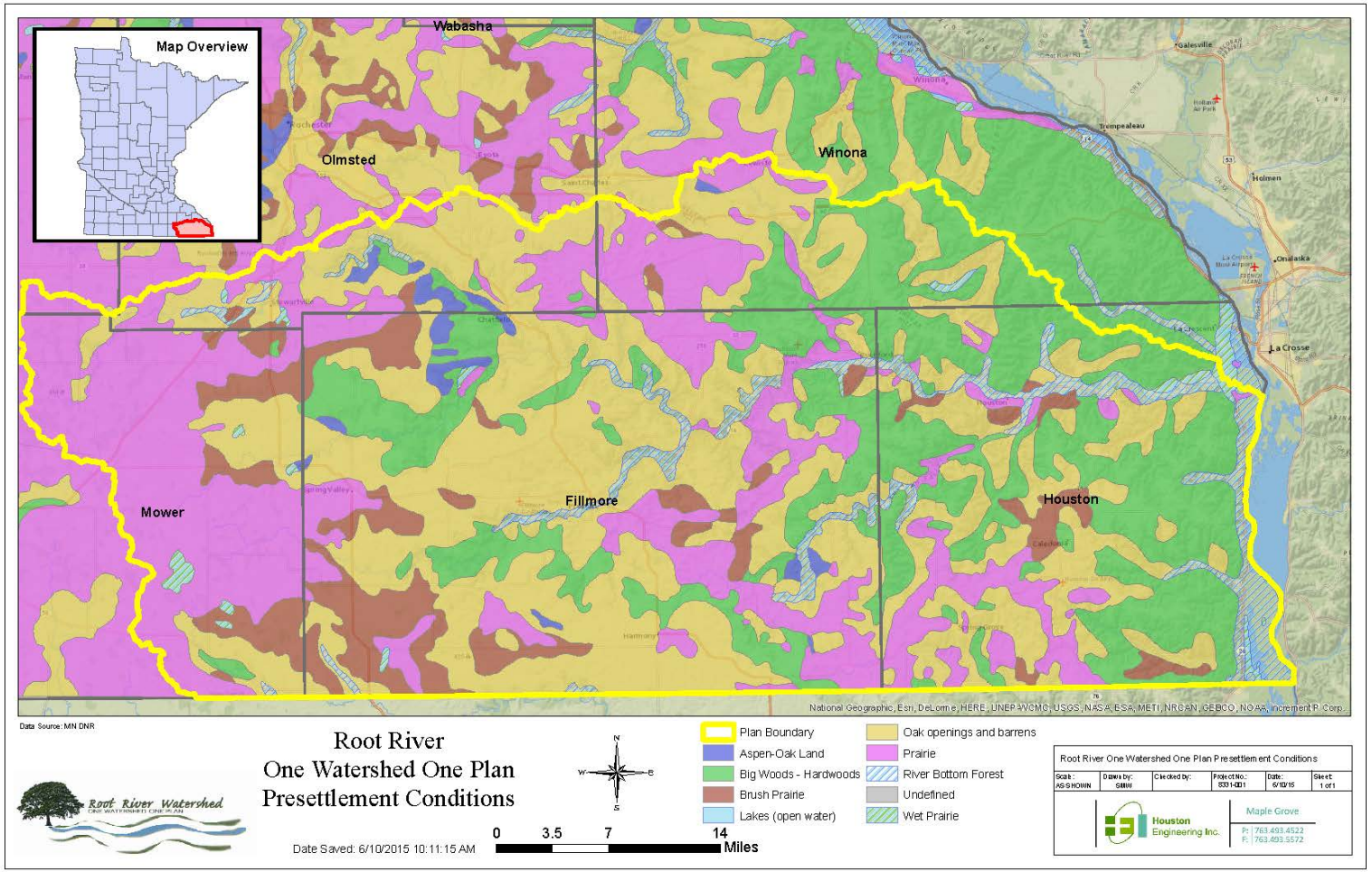
The groundwater resources greatly influence and support native plant communities and biodiversity within the Root River Watershed. The health (quality) and flow of groundwater is an important and influential resources within the region. Some plant communities that are only in abundance within the watershed, depend on moisture that is solely provided through groundwater seepage. These unique communities host rare plants and animals extremely sensitive to environmental change. For example, in Southern Algific Talus and Southern Wet Cliffs communities, plants such as the Iowa golden saxifrage (*Chrysosplenium iowense*, MN endangered species) and montia (*Montia chamissoi*, MN endangered) receive moisture only through these groundwater seeps. The Midwest Pleistone vertigo (*Vertigo hubrichti*, MN endangered species) (a mollusk) exists only within these communities and is extremely sensitive to agricultural chemicals and pesticides. Land Use and Cover

5.1 HISTORICAL LAND USE

Historically, the Root River Watershed has experienced a shift in land use, demands on the land, and the expansions of human developments. Prior to the European settlement in the 1800's, native peoples grew crops, set fires, and impacted the lands in other ways. After the Europeans began to settle to area, demands on the landscape drastically changed and this shift accelerated rather rapidly resulting in the modern conditions seen today.

Human settlement within the watershed influenced a change in how the land was utilized. **Figure 14** shows pre-settlement vegetation. Large, flat, fertile lands were converted to agriculture whereas steeper areas were typically used as pasture lands. Other human influences on land used include the suppression of fires, which has resulted in changes in fire-dependent plant communities. Along with housing development that has since continued to expand across the area.

Figure 15: Pre-Settlement Vegetation



Human settlement patterns imposed and shift in the types of large mammals present on the landscape. Prior to the 1800's, bison and elk were common. Upon the European settling the area, confined and concentrated livestock grazing became more prevalent. Though it is not well understood, this shift in these large grazing animals has also impacted the natural vegetation (species composition and structure of plant communities). Concentrated livestock grazing often led to increases in shrubs such as the eastern red cedar and sumac in prairies of oak savannas; increases of prickly ash and buckthorn in forests and woodlands areas; increases in invasive non-native plants in all plant communities. Also corresponding to the change in large mammals dominant within the landscape, deer densities increased, causing increased herbivory of ground layers and tree seedlings in forests.

Initially the land within the Root River Watershed was limited in physical disturbances. Thick sod covered open spaces nearby water resources and in other fertile, relatively flat areas. Soil erosion was not a significant problem because the native vegetation covered the landscape and naturally managed stormwater by reducing runoff. Land use, post-European settlement, which promoted cultivation, exposed light loess soils due to the necessary removal of sod cover, increasing the rates of runoff.

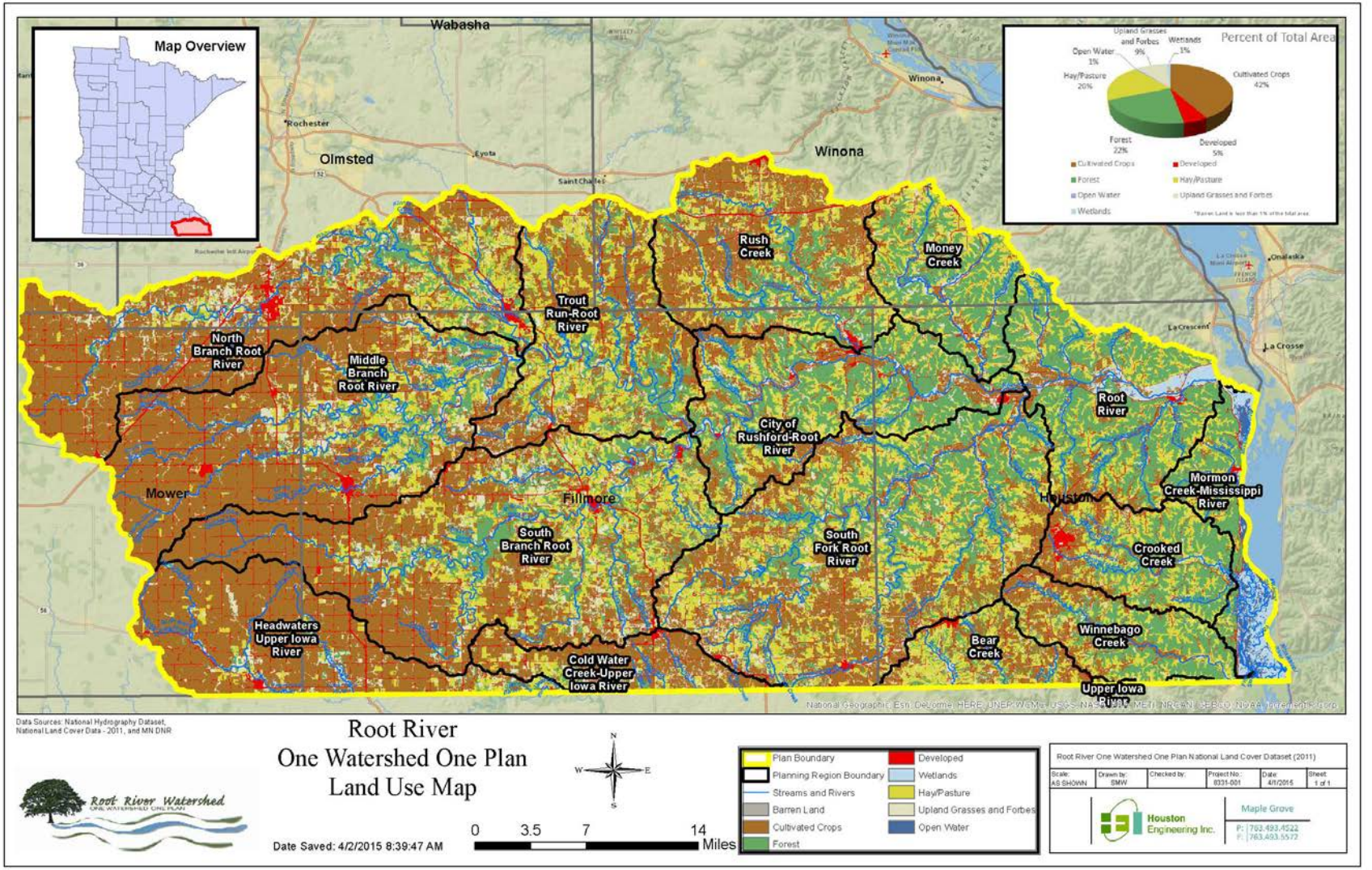
In such areas, where cultivation has remained the primary land use, rainwater infiltrates the soils and can travel rapidly downslope through carbonate bedrock. Consequently, flooding is an issues among the communities located along major streams in southeast Minnesota during extreme rainfall events. The thick layers (7-8 feet) of silt that were once abundant upon the lands surface have since been eroded during heavy rainfall events from fields on uplands and been deposited near mouths of tributaries along major stream valleys.

One of these major flooding events occurred most recently in 2007 whereby flooding was so severe it was calculated that a similar occurrence would be on a once in every 500-1,000 year interval. In Houston, the Root River is generally at a 3.5 foot level. During the August 2007 floods, the Root River crested at 18 feet. The 24-hour rainfall report for August 18-19 was between 15-18 inches. Fillmore County experienced damages including flooding of an estimated 75 homes.

5.2 LAND USE TRENDS

In continuation of the historical context of land use within the Root River Watershed, agriculture remains the dominant land use in southeastern Minnesota. See **Figure 15** for the map showing current land use across the landscape.

Figure 16: Generalized Land Use



Recent agricultural trends generally represent fewer larger farms with increased field size cultivating limited variety of crops. More soybean acreage, decreasing acreage of forage, small grain and pasture are prevalent within the region. Such trends have become concern to some residents within southeastern Minnesota. In addition, rates of development in rural areas and development in and around municipalities is project to continue, exceeding rates of development experienced within the past decades.

Resulting impacts to water quality from these trends are expected: increased runoff; reduced base flow; thermal pulses; and increased sedimentation, nutrient, and chemical inputs. Climate change is expected to influence the area, making the region warmer, drier, and experience more frequent high intensity storms. These will most likely exacerbate impacts to coldwater streams.

Agricultural development has also impacted the prevalence and expanse of mature hardwood forests of oak, elm, walnut and other tree species that historically covered stream bottoms and hillsides. Many floodplain areas have been cleared for agriculture. Heavy grazing, poorly planned harvesting techniques, and fire suppression have reduced oak regeneration where oak was once predominant. Shade tolerant trees and shrubs cover such areas more than before. Non-native invasive species, including buckthorn and Tartarian honeysuckle often invade areas disturbed by grazing; these species tend to become dominant, reducing oak regeneration and overall diversity of the plant communities. Herbaceous non-native invasive species including garlic mustard are spreading and establishing as ground cover, contributing to loss in vegetative diversity. The primary threat to oak forests, oak savannas, and prairies within the Root River Watershed is fire suppression. A result of suppressing fires is that woody cover has increased, which includes several invasive species.

Once fertile flat upland prairies and oak savannas, which dominated the landscape, along with many floodplains, have been converted to cultivated row crops. Runoff and erosion, unnaturally flashy flooding cycles, polluted streams and rivers, and impaired habitat for aquatic species are results of such continued land use and development.

Many existing prairies and savannas have greatly experienced influences from overgrazing, fire suppression, and invasive vegetative species, such as eastern red cedar, other hardwood trees, shrubs, and other non-native herbaceous plants. Particular species of plants and animals that require open habitats have been impacted from the reduction of fire frequency. For example, the Timber rattlesnake, prefers open prairies habitats for thermoregulation and summer feeding grounds, as they often travel from bluff prairie to another bluff prairie. Such prairies have become overrun with more woody vegetation, and bluff tops have become developed; suitable habitat has become rather limited.

6 VEGETATION

Native plant communities in Minnesota have been described by the Minnesota Department of Natural Resources (DNR) and the U.S. Forest Service according to an Ecological Classification System using a hierarchical system including Provinces, Sections, Subsections, and Land Type Associations. The Root River Watershed falls within the Minnesota and Northeast Iowa Morainal and Paleozoic Plateau Sections of the Eastern Broadleaf Forest Province. The Root River 1W1P Boundary resides within the Oak Savanna, Rochester Plateau, and Bufflands Ecological Subsections (see **Figure 16**). Native plant communities in the watershed fall into 10 ecological systems as described in the *Field Guide to the Native Plant Communities of Minnesota Eastern Broadleaf Forest Province* (MNDNR 2005): Mesic Hardwood Forest, Fire Dependent

Forest/Woodland, Floodplain Forest, Open Rich Peatland, Wet Forest, Cliff/Talus, River Shore, Upland Prairie, Wet Meadow/Carr, and Marsh.

A native plant community is a group of native plants that interact with each other and with their environment in ways not greatly altered by modern human activity or by introduced organisms. These groups of native plants form recognizable units, such as oak savannas, pine forests, or marshes, that tend to repeat over space and time. Native plant communities are classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes. Examples of natural disturbances include wildfires, severe droughts, windstorms, and floods. **Figure 17** shows the locations of mapped native plant communities within the Root River Watershed.

6.1 PLANT COMMUNITIES

6.1.1 MESIC HARDWOOD FOREST COMMUNITIES

Mesic Hardwood Forest communities are on upland sites with soils that retain water and in settings where wildfires are infrequent. These forests are characterized by continuous, often dense canopies of deciduous trees. Basswood, sugar maple, and northern red oak are the most common canopy dominants, but MH communities are characteristically mixtures of at least four tree species. Other associated or occasionally dominant tree species include American elm, bur oak, paper birch, quaking aspen, white oak, black ash, red elm, ash, bitternut hickory, black cherry, hackberry, and big-toothed aspen.

Tree mortality in older MH communities is rather constant, with stand-regenerating disturbances such as wildfires and catastrophic windthrow being uncommon. The death of established canopy trees is most often caused by windthrow or disease affecting individual trees or small patches of trees, or by other fine-scale disturbances.

The mesic hardwood forests generally occur on north to east facing slopes and on narrow valley floors. White pine is sometimes a component where there are very steep north facing slopes and/or exposed bedrock on ridge tops. Some examples of rare plants and rare animals found here as shown by the web-accessible *Rare Species Guide* (MNDNR 2012) include cerulean warblers, which generally require large forested tracts and closed canopy cover (WVDNR 2003), and goldenseal, a state- endangered plant that requires deep loamy soils and heavy shade. MHs39 (Southern mesic maple-basswood) forests occurring on lower to middle north-facing slopes with deep silt soils are especially significant as they support a large number of rare plant species that are intolerant to disturbances that open up the canopy. Timber species of economic value include red oak, white oak, sugar maple and black cherry to name a few. Non-timber species of economic value include morel mushrooms and ginseng. Game species that utilize these forests include wild turkey, deer and grouse. Additionally these mesic hardwood forests provide an important scenic resource from spring ephemeral wildflowers to brilliant fall foliage.

Important threats to these forests include forest fragmentation, invasive species such as buckthorn,garlic mustard, and earthworms, and heavy logging. Management focus should be on controlling invasive species, controlling site conversion to agriculture, and avoiding disturbances that cause soil erosion. These forests can thrive in the absence of active timber management; where active management is desired, care should be taken to avoid extensive canopy clearing that may result in erosion and invasion by non-native invasive plant species.

Figure 17: Ecological Subsections

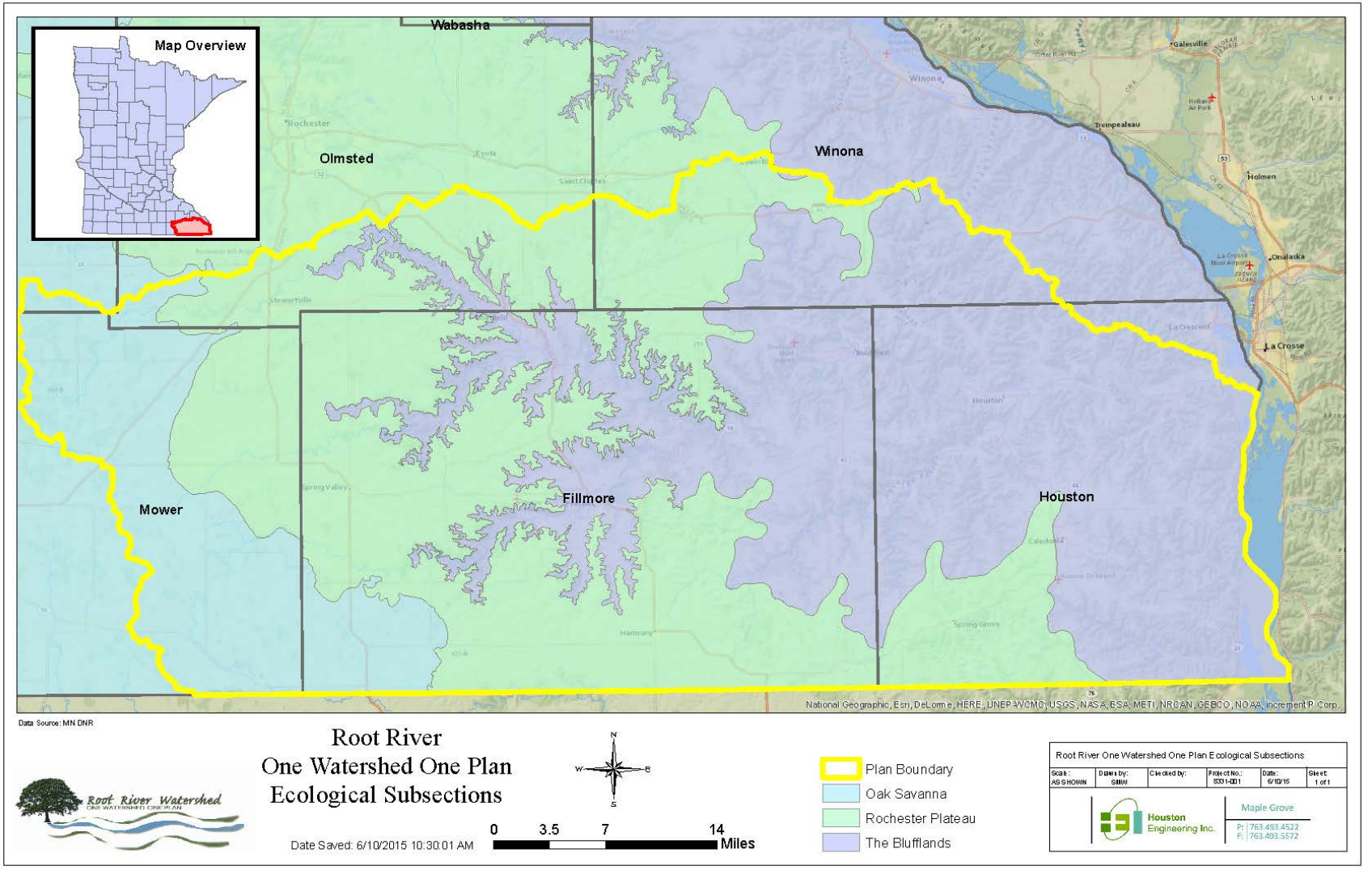
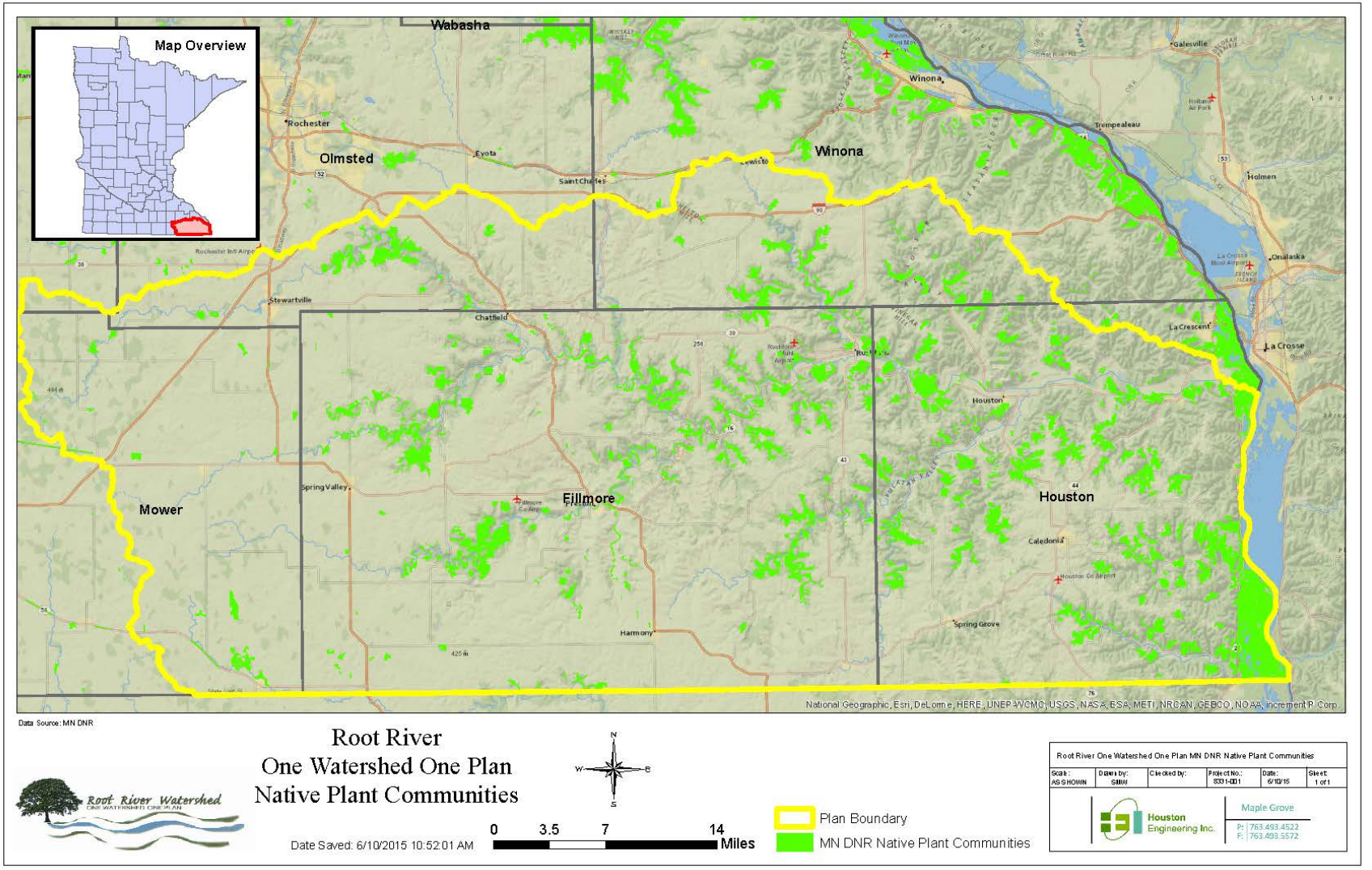


Figure 18: Native Plant Communities



6.1.2 FIRE-DEPENDENT FOREST/WOODLAND COMMUNITIES

As the name indicates, Fire-Dependent Forest/Woodland communities are largely influenced by fire frequency and intensity. Historically, these lands burned frequently, but not enough to favor development of prairies. The vegetation of these lands was historically often sparse trees or brush, consisting of shrubs and of trees stunted by fire or resprouting after fire.

Today, in the absence of fire, tree density has increased and deciduous trees and shrubs have become more common. Species that are common in FD communities include white pine, jack pine, black oak, bur oak, bitternut hickory, shagbark hickory, American elm, black walnut, and box elder. Fire dependent forests generally occur on south to west facing slopes, ridge tops and areas with sandy loam or coarser soils.

Some examples of rare plants and animals found here as shown by the web-accessible Rare Species Guide (MNDNR 2012) include northern myotis, a bat that requires natural caves and mature diverse forests to roost in during the day, and upland boneset, a state listed Threatened plant species that often borders forest openings and prairie remnants. Timber species of economic value include red oak, black oak, bur oak, and walnut to name a few. Non-timber species of economic value include morel mushrooms and hazelnuts. Game species that utilize these forests include wild turkey, deer and grouse. Additionally, because of their prairie heritage these fire-dependent forests provide an important habitat for rare prairie plants and rare prairiebrushland animals.

Important threats to these forests include forest fragmentation, fire suppression, conversion to agriculture, earthworms, and invasive species such as buckthorn, Tartarian honeysuckle, and garlic mustard. Management focus should be on controlling invasive species, controlling site conversion to agriculture and restoring the natural fire regime.

There are two fire dependent communities within the Root River Watershed – FDs27 and FDs38. The FDs27 community is a southern dry-mesic pine-oak woodland with patchy to interrupted canopy dominated by white pine, jack pine, black oak, or bitternut hickory. The FDs38 community is a southern dry-mesic oak-hickory woodland. It is dominated by bur oak, shagbark hickory, American elm, black walnut, and box elder. FDs27 and FDs38 differ in that FDs27 is much less common and is restricted to sandy terraces, while FDs38 occurs widely on silty soils on upper south to west facing bluffs.

6.1.3 FLOODPLAIN FOREST COMMUNITIES

Floodplain Forest communities are present on occasionally or annually flooded sites along streams and rivers. FF communities are dominated by deciduous trees tolerant of saturated soils, prolonged inundation, and frequent erosion and deposition of sediment.

The only floodplain forest community mapped within the Root River Watershed is FFs59. The FFs59 community is a southern terrace forest present on silty or sandy alluvium on level, occasionally flooded sites along small streams to large rivers. The canopy is typically dominated by American elm, green ash, hackberry, basswood, box elder, silver maple, black ash, and cottonwood. Although floodplain forests do not cover large expanses of acreage, their roles in species and forest diversity, stream quality, and as wildlife travel corridors are important. Some examples of rare species occurring here as shown by the web-accessible Rare Species Guide (MNDNR 2012) include the Blanding's turtle, a state listed Threatened species, snowy campion, a state listed Threatened species due to agriculture and grazing, and red shouldered hawk which requires large amounts of mature deciduous forest. Timber species of economic value include silver maple, black ash, and elm to name a few. Nontimber species of economic value include a variety of mushrooms. Many game species and nongame

species utilize this community because of its proximity to water, lush herbaceous vegetation late into the summer and abundance of nesting cavities.

Important threats to these forests include forest fragmentation, conversion to agriculture, large gap openings, and invasive species such as buckthorn, garlic mustard, and earthworms. Management focus should be on controlling invasive species, controlling site conversion to agriculture, restoring native vegetation in areas that have been cleared, keeping older mature forests as such by utilizing small gap selective silviculture approaches and avoiding disturbances that cause soil erosion.

6.1.4 CLIFF AND TALUS COMMUNITIES

Cliff/Talus communities are present on steep-sided bluffs, along streams, on margins of bedrock ridges, and in other settings with sheer bedrock exposures. Exposures of limestone, dolomite, and sandstone are all common with temperature and moisture fluctuations varying by aspect, presence of groundwater or cold air seeps and time of day. Talus refers to a sloping deposit of large, angular fragments of rock, usually at the base of a cliff or steep slope. Algific talus slopes are cool, moist, open plant communities on steep northwest- to northeast-facing bluffs in karst landscapes characterized by cold, wet microclimate maintained by cold air and groundwater emanating from subterranean ice. A maderate cliff refers to an algific slope without talus. In the summer these cool slopes act as an air exchange with sinkholes atop the ridge. As air enters the sink or nears the cliffs it cools and flows downslope. In the winter the airflow is reversed. Spring to fall temperatures are maintained from 30-50°F with plenty of humidity.

The vegetation of these communities is generally open with lichens and mosses often being the dominant life form. Scarcity of soils leads to less than 50% of woody cover on talus slopes and less than 25% woody cover on cliffs. Limited nutrients, wind and gravitational forces often dictate community composition and growth form, with stunted trunks and vegetative reproduction being common. Algific talus slopes and maderate cliff communities provide habitat for several vascular plant and animal species, some of which are boreal species with disjunct populations in Minnesota. A few examples include balsam fir, northern oak fern, and dwarf alder. Additionally, four different relic populations of snails (Iowa Pleistocene Ambersnail, stateEndangered; Midwest Pleistocene Vertigo, state Endangered; Minnesota Pleistocene Ambersnail, state Threatened; and the Variable Pleistocene Vertigo, state Threatened) occur on Algific talus slopes and maderate cliffs. These species were once abundant during the Wisconsin glacial period; some of these species are now only found within the Root River Watershed of Minnesota. Other rare species of cliffs and talus communities as shown by the web-accessible Rare Species Guide (MNDNR 2012) include the reniform sullivantia, a plant that is state listed as Threatened and only grows on cliffs with cool water seeps and overhanging ledges, and the peregrine falcon, a bird that is state listed as Threatened and requires undeveloped cliffs for nesting.

Disturbances that shape the surrounding forests, woodlands and prairies often affect these already sensitive cliff/talus communities. Fires, windstorms or logging of surrounding communities may cause warming and drying effects. Erosion caused by flooding of nearby rivers may also impact these communities.

Important threats to these communities include quarrying, clearing of surrounding vegetation, agricultural chemicals, disruption of water and air vent systems, and invasive species. Management focus should be on controlling quarrying, invasive species, keeping a buffer of older mature forests around sensitive sites and avoiding disturbances that cause soil erosion and compaction of nearby talus, sinks, vents and fissures.

6.1.5 UPLAND PRAIRIE COMMUNITIES

Within the watershed, upland prairie (UP) and savanna communities are found on steep south and west facing slopes and occasionally on large deposits of sand in valleys. They are dominated by tall grasses such as big bluestem and Indian grass as well as mid height grasses such as prairie dropseed. Often taller shrubs and trees such as American hazelnut, sumac, bur oak and pin oak may also be found. The presence and recurrence of fire is a large factor in determining species composition in upland prairies and savannas with more woody vegetation encroaching in the absence of fire. Frequent fire (with the return interval of less than 10 years) is critical for the occurrence of the historical prairies and savannas of the watershed.

UPs13 (Southern dry prairie) and UPs14 (Southern dry savanna) are the most common prairie and savanna types within the watershed and are home to many rare plants and animals as shown by the web-accessible *Rare Species Guide* (MNDNR 2012).

A few include the Henslow's sparrow, a bird state listed as Endangered that requires uncultivated grasslands with dead stalks and perches for singing, and the timber rattlesnake, a reptile that is state listed as Threatened and requires open sites for thermoregulation and den sites for hibernation. UPs23 (Southern mesic prairie) and UPs24 (Southern mesic savanna) were common on the presettlement landscape in flat upland areas, but have been nearly eliminated by conversion to agriculture because of the rich soils associated with them. Those places where these communities do persist tend to be small remnants that support many rare plant species because so much of this habitat has been destroyed.

Important threats to these communities include fire suppression, conversion to agriculture, heavy grazing, and invasive species such as buckthorn,garlic mustard, and earthworms. Management focus should be on restoring the natural fire regime, sustainably grazing, controlling site conversion to agriculture, removing woody vegetation, and controlling invasive species. Where feasible, restoring mesic prairie and savanna to areas they formerly occupied in upland sites would contribute to lowering soil erosion, building up depleted soils, and restoring important habitat for grassland wildlife species.

6.1.6 WET MEADOW/CARR COMMUNITIES

Wet meadow communities within the watershed are usually located at the bottom of a slope and are associated with ground water seepage. Often these sites have organic sediments and few trees because of such high water tables. The neutral to basic pH of the groundwater source is a result of nearby bedrock and supports a variety of sedges and grasses including tussock sedge and bluejoint grass, many forb species, and occasionally willow and other shrub species.

Rare plants and animals found in these communities as shown by the web-accessible *Rare Species Guide,* including the small white lady's-slipper, which requires an estimated 12 years to reach maturity and is negatively impacted by domestic grazing, and the Wilson's phalarope, a wetland bird that is state listed as Threatened and requires stable levels of water within the wetland and natural vegetation maintained through prescribed burning.

Important threats to these communities include draining or alteration of wetlands, grazing, invasive species, agricultural chemicals, and fire suppression. Management focus in these areas should be on maintaining or restoring natural hydrologic systems, controlling invasive species such as buckthorn, controlling grazing, and using prescribed fire to restore natural vegetation structure.

7 RARE AND NATURAL FEATURES

7.1 MCBS SITES OF BIODIVERSITY SIGNIFICANCE

The Minnesota Biological Survey (MBS) is a Minnesota DNR program within the Division of Ecological and Water Resources with the goal of identifying significant natural areas and collecting and interpreting data on the distribution and ecology of rare plants, rare animals, and native plant communities. Data collected by MBS are entered into the Natural Heritage Information System, managed by the DNR's Division of Ecological and Water Resources. As a result of this systematic survey, the relative ecological importance of natural areas and representative ecological landscapes can be assessed.

Following the initial mapping of native plant communities from aerial photos in each county, MBS ecologists delineated sites of biodiversity significance that helped to geographically organize the data. Within the Root River Watershed, MBS identified 508 sites of biodiversity significance encompassing 166,185 acres. Following field surveys of native plant communities and searches for rare species (see below for more details), the sites were ranked according to the presence of rare species populations, the size and condition of native plant communities within the site, and the landscape context of the site (for example, whether the site is isolated in a landscape dominated by cropland or developed land, or whether it is connected or close to other areas with intact native plant communities). Minnesota Sites of Biodiversity Significance are shown in **Figure 18**.

There are four biodiversity significance ranks - outstanding, high, moderate, and below, which are indicated on the map figure:

"**Outstanding**" sites contain the best occurrences of the rarest species, the most outstanding examples of the rarest native plant communities, and/or the largest, most ecologically intact or functional landscapes.

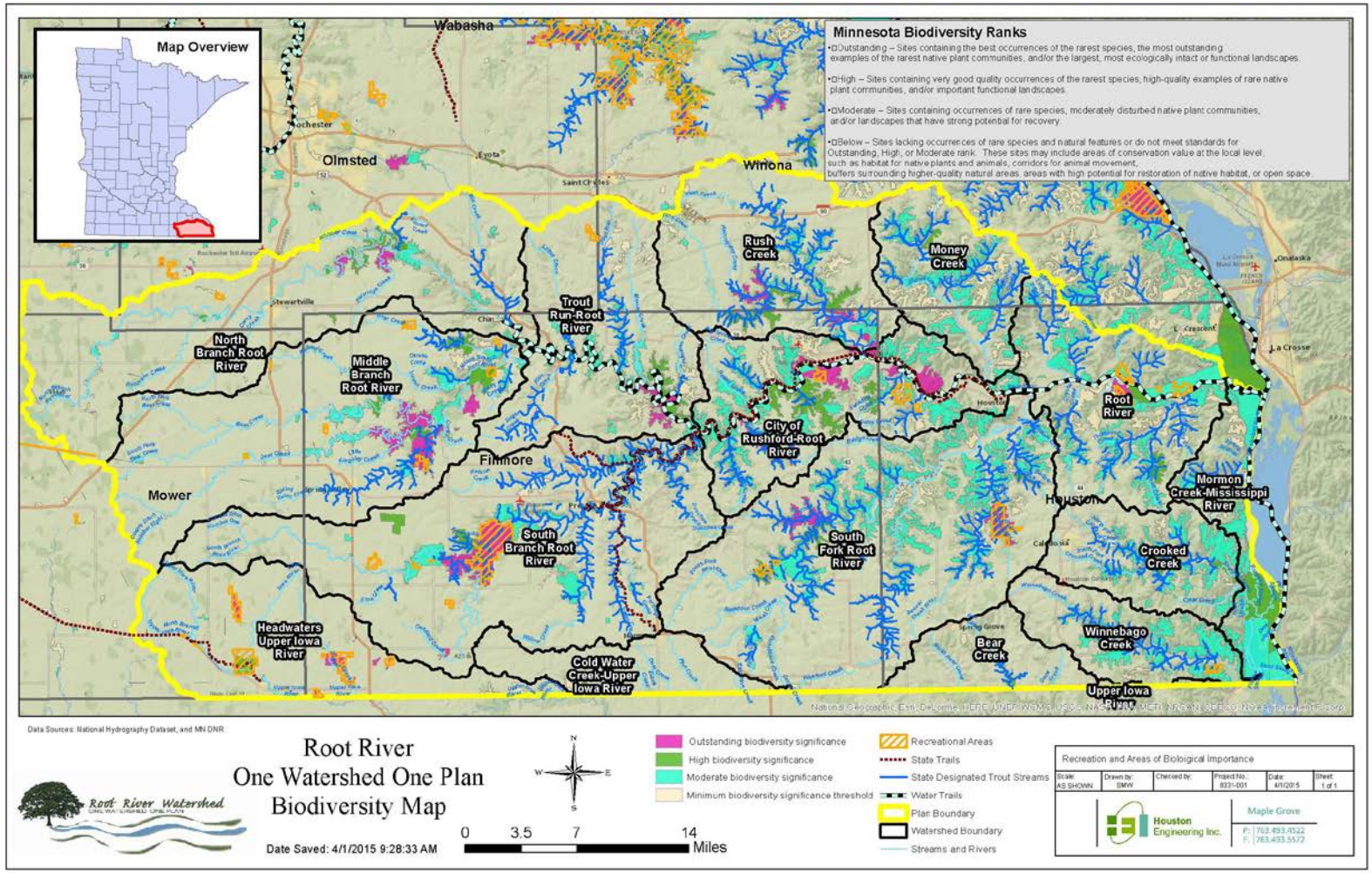
"**High**" sites contain very good quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes.

"**Moderate**" sites contain occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery of native plant communities and characteristic ecological processes.

"**Below**" sites lack occurrences of rare species and natural features or do not meet MBS standards for outstanding, high, or moderate rank. These sites may include areas of conservation value at the local level, such as habitat for native plants and animals, corridors for animal movement, buffers surrounding higher-quality natural areas, areas with high potential for restoration of native habitat, or open space.

Ecologists with the Ecological and Water Resources Division have written extensive ecological evaluations for 10 areas within the Root River Watershed. These areas include one or more sites of outstanding or high biodiversity significance, and have been proposed for special protection and management. They include summaries and details about the rare natural features in the areas as well as some general management and protection recommendations.

Figure 19: Sites of Biological Diversity



8 RARE PLANT AND ANIMAL SPECIES

There are 161 species of plants and animals that are reported in the Root River 1W1P Boundary that are listed in Rule 6134, Endangered, Threatened, and Special Concern Species. Minnesota Statute 84.0895 (Protection of Threatened and Endangered Species) and the Rule 6134 impose a variety of restrictions, a permit program, and several exemptions pertaining to species designated as endangered or threatened.

The Minnesota DNR tracks occurrences of state-listed rare species in the Natural Heritage Information System (NHIS). The NHIS also has listed an additional 22 "Watchlist" species and 14 other species that have no particular legal status, but are monitored. These species of interest within the Root River 1W1P Boundary have been tabulated and provided in **Attachment 1**.

Plant and animal species designated as *Endangered* or *Threatened* at the state or federal level or designated as a *species of Special Concern* by are defined as:

"Endangered" plants and animals are threatened with extinction throughout all or a significant portion of their ranges in Minnesota.

"Threatened" plants and animals are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges in Minnesota.

"Special Concern" plants and animals are extremely uncommon in Minnesota, or have unique or highly specific habitat requirements, and deserve careful monitoring. Species on the periphery of their ranges that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations.

9 WILDLIFE

9.1 TERRESTRIAL

The Root River watershed is home to some of the best white tailed deer habitat in Minnesota. Other mammals such as gray fox, red fox, coyotes, raccoons, woodchucks, squirrels, weasels, and badgers are found throughout the hills and valleys of the area. It is quite common to see blue herons, egrets, and wood ducks moving about the river's edge, as the watershed supports over 40 species of birds. Raptors in the area include red-tailed hawks, osprey, turkey vultures, and bald eagles. Wooded shores harboring river otters and beaver can also be found. Lizards such as the skink, racerunner, and many species of snakes can be found along the banks and outcrops.

9.2 AQUATIC

There are many species of warm water fish inhabiting the Root River watershed including smallmouth bass, channel catfish, rock bass, sunfish, and crappies. Warm water tributaries, dependent on runoff, may join the main stream as it gradually changes from a trout stream to a warm water river harboring walleye, northern pike, bass and catfish. Many of the cold water streams are known to have trout.

Streams within the watershed are mostly spring fed with cool temperatures and steady flow. Unlike trout streams in northern Minnesota that are more acidic, local limestone in the drainage makes these hard-water streams alkaline and very productive.

Caddisflies, mayflies, and midges have frequent hatches in cool, spring-fed streams, such as the Root River, and provide a favorable food source for trout. Several species of caddisflies present are unique to the

watershed (Houghton, et al 2001). Frequent insect hatches provide ample food for trout. Although not native, brown trout are well suited to this area and are valued by anglers. Brook trout are also present.

In streams with limited natural reproduction and spawning habitat, the trout fishery is maintained by stocking. Some tributaries do, however, support self-sustaining populations of trout. The Root River system contains brook trout that are believed to have remnant genetics. Most brook trout populations in other parts of southeast Minnesota can be traced to strains stocked from other eastern states like Michigan. Brown trout can also be found in the clearer and colder spring-fed streams, as well as the western end of the South Branch.

Designated trout streams can be found in areas with high quality, cold water streams. These streams have been designated because they have been stocked with trout that are native to them and to regulate angling activities. Designation also requires anglers to have a trout stamp validation and a fishing or sports license when fishing in these trout streams. There are over 400 miles of designated coldwater trout streams in the watershed and many more where trout can be found.

DNR habitat improvement activities along a stream corridor in return for payment. Although an easement cannot guarantee catching more trout, it does promote sustainable, active conservation for streams with the most potential for improvement. Public funding cannot be used to improve trout streams (including stocking) that are not accessible to everyone.

Easements are an effective tool in the starting and promoting of conservation of this habitat that is unique to the state; however, trout streams still have challenges. Fence-to-fence grain farming on the uplands and pasturing of the river bottoms contribute to land erosion and sedimentation of the streambeds. This fine sediment covers the gravel runs and riffles that trout need to spawn and invertebrates need to survive. The clearing of shoreline trees takes away the underwater root wads and fallen trees in which trout find cover from currents and predators. Finally, many of these streams simply are not very large, and large trout find little cover.

9.3 SPECIES IN GREATEST CONSERVATION NEED

Of particular importance are the animal species in greatest conservation need (SGCN) that are found in the Root River Watershed. SGCN are defined as native animals whose populations are rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability. Some of these receive protection under the state listing as 'Endangered', 'Threatened', or 'species of Special Concern' while some SGCNs do not receive such protection. The Minnesota DNR, Minnesota's State Wildlife Action Plan, *Tomorrow's Habitat for the Wild and Rare* is an action plan for Minnesota's SGCN. The Minnesota DNR maintains this list of SGCN along with descriptions of those species' key habitats and other pertinent information about these species on the DNR's Website: http://www.dnr.state.mn.us/cwcs/index.html.

10 RECREATION AND CONSERVATION

The Root River Watershed offers outstanding outdoor recreation opportunities and two state parks; the Beaver Creek Valley and Forestville/Mystery Cave, which offer camping, fishing, and hiking opportunities. **Figure 19** shows designated recreation areas within the watershed. Tourism provides local jobs and offers significant economic contributions for small rural communities within the Root River area. Visitors are drawn to the region's attractiveness; its beautiful natural scenery can be absorbed while participating in other enjoyable activities including hiking, fishing, camping and water recreating. The city of Rochester and surrounding communities also offer many bed and breakfast retreats. Several orchards, vineyards, wineries, and other small niche farmers are sprinkled throughout the communities.

The Root River State Trail is a paved, 42-mile trail connecting the communities of Fountain, Preston, Lanesboro, Whalan, Peterson, Rushford, and Houston. Dozens of bridges cross over the Root River and its tributaries offering views of limestone cliffs, wooded bluffs, fields, that are habitat for a variety of wildlife, including hawks, turkeys, and eagles. This trail systems offers a considerable resource for outdoor recreation whether bicycle riding, walking, jogging, or inline skating. The trail is also available to cross country skiers during the winter season.

Other excellent recreational opportunities within the Root River Watershed include canoeing, kayaking, and tubing. These activities are available to for any adventure and challenge level. Public canoe launches are available throughout the watershed area, including several equipment rental and shuttle locations.

Larger cities within or adjacent to the watershed region, including Rochester, Minnesota and La Crosse, Wisconsin are locations for employment for many. Tourism, agriculture, logging, saw mills and grain industries, for example, provide more local employment.

69,275 acres of the 1,030,149 privately owned acres, have experienced some degree of natural resource planning employed upon them. **Figure 20** shows lands registered in a conservation program. There are 29,880 acres with natural resource plans that are less than 10 years old and 39,395 acres of land with plans associated with them, which are greater than 10 years old.

Figure 20: Designated Water-Related Recreational Areas

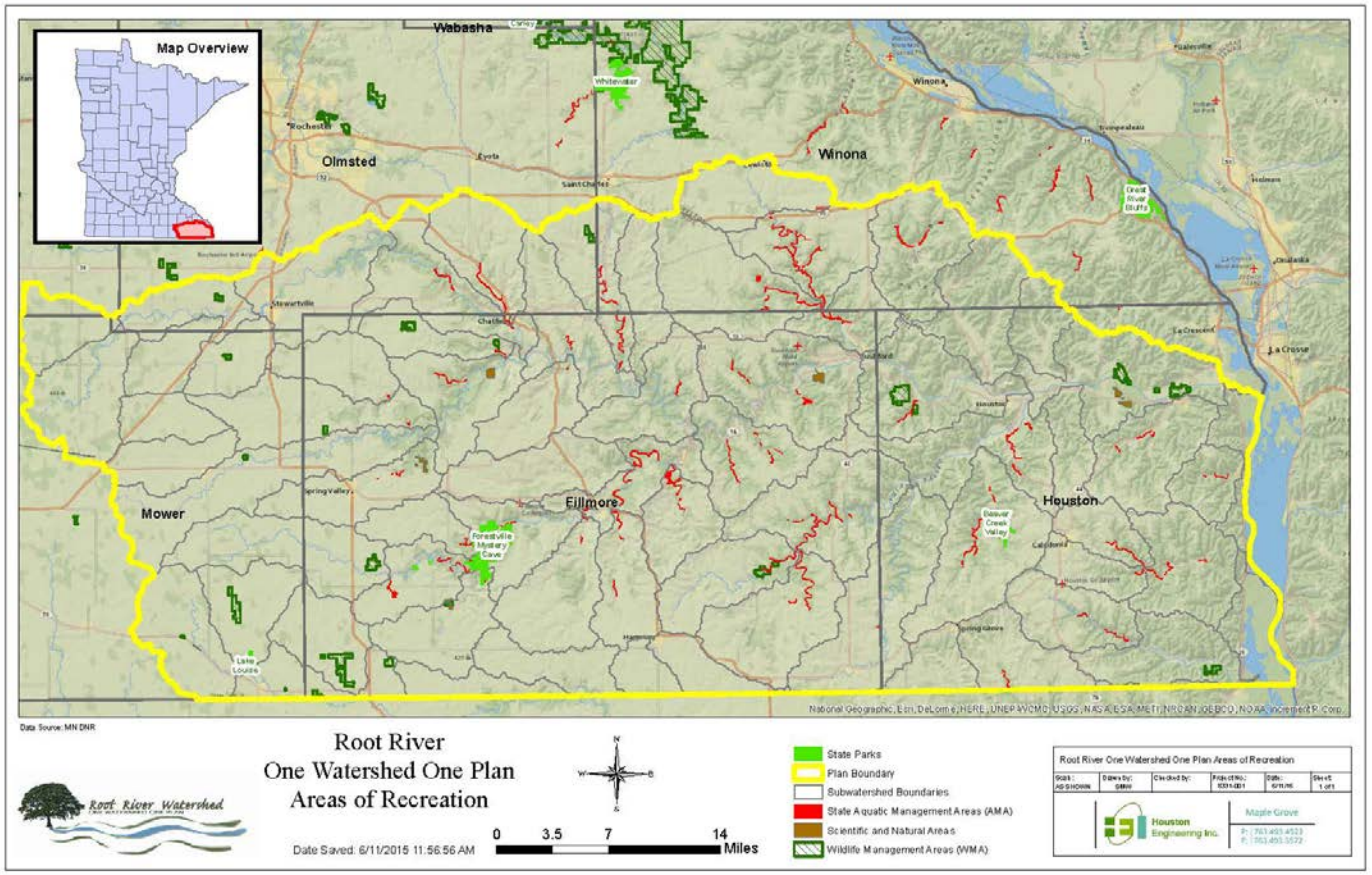


Figure 21: Conservation Lands Ownership

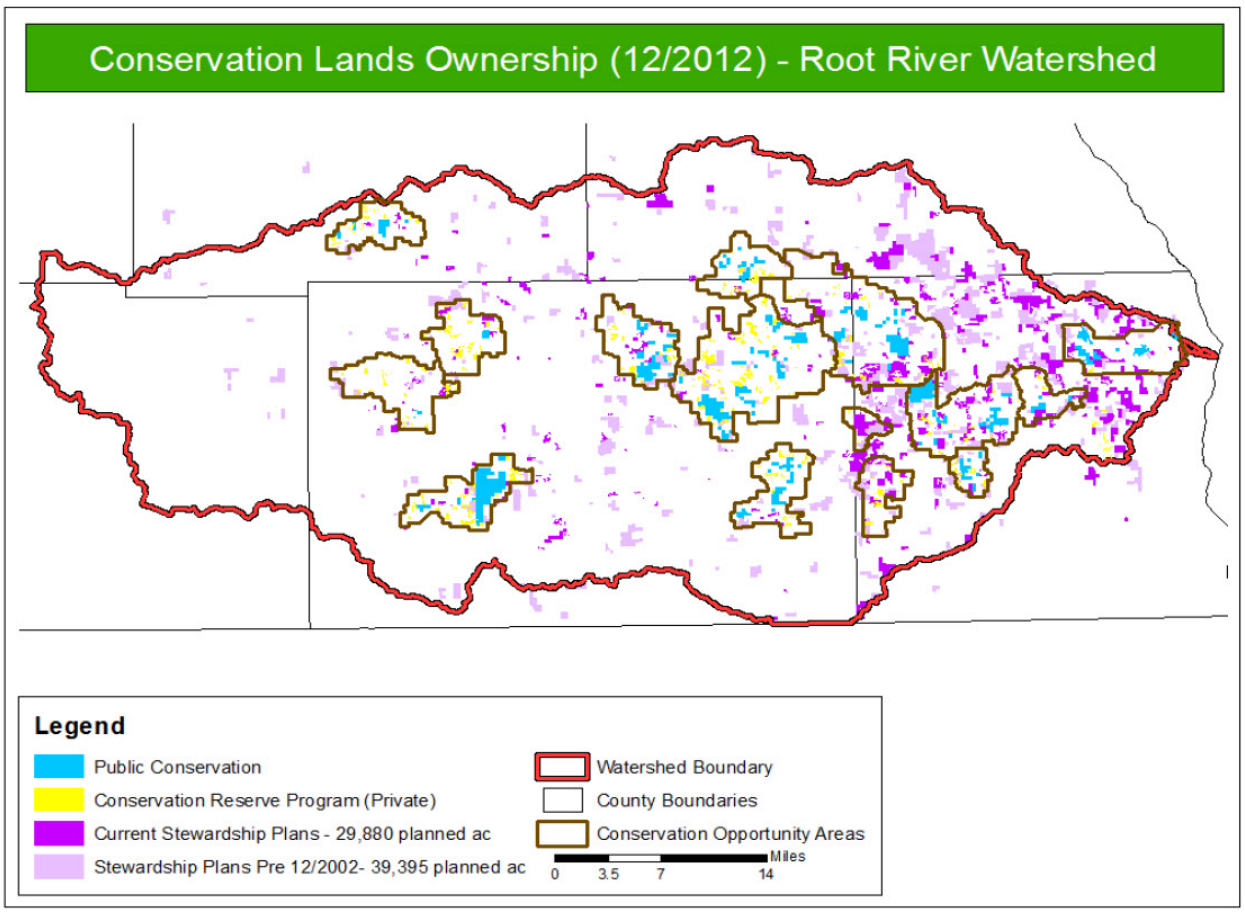


Figure 21: Conservation Lands ownership in the Root River Watershed, image from the Root River Landscape Stewardship Plan (June 2013).

11 HISTORICAL CULTURAL RESOURCES

The Root River Watershed has a rich cultural history. The watershed has served as a passageway for the cultures from southeast North America, primarily the central-lower Mississippi Valley; the "Mississippian Tradition" represents a group of cultures that traveled northward to the area during 900 to 1000 A.D. These peoples used the fertile bottomland as farmland and built terraces on the lands above the river.

During the 1640's and the European Exploration, France claimed the surrounding area as part of the "New World". In 1803, the newly established United States purchased the area from France. By 1852, the Native Dakota Indians that had inhabited the region where mandated to relocated per the Treaty of Traverse de Sioux. After this, development expanded, stands of hardwood were cleared, and fields were cultivated. The land use of the area changed and as a result of the development, the environment was considerably impacted. Negative impacts of the poor land management included water quality issues and

destructive erosion and inevitably, southeastern Minnesotans began to recognize the need for wiser land use.

The State Historic Preservation Office maintains a database listing of archaeological sites and historic structures throughout the state of Minnesota. Sites of high cultural significance documented within the Root River Watershed include: mills, sawmills, burial mounds, railroad camps, and prehistoric cave sites.

Archaeological sites can be found within terraces of the Root River; at the confluences of smaller drainages; and on other landscapes that hunters utilized. Tops of coulees and ravines where hunters could see game traveling out of vegetated river valleys and high ridges dividing drainages where cobbles could be collected for use as stone tools were areas most likely utilized by early inhabitants of this region.

Areas with high prehistoric site potential are at stream confluences; uplands overlooking the Root River; and areas adjacent to ravines. Larger prehistoric sites tend to be on the first terrace of the Root River. Burial mounds are typically found nestled safety above the floodplain along larger rivers.

Scientific Name	Common Name	Category	State Protection Status
Acris blanchardi	Blanchard's Cricket Frog	Vertebrate Animal	Endangered
Agrostis hyemalis	Ticklegrass	Vascular Plant	Endangered
Alosa chrysochloris	Skipjack Herring	Vertebrate Animal	Endangered
Ammodramus henslowii	Henslow's Sparrow	Vertebrate Animal	Endangered
Arcidens confragosus	Rock Pocketbook	Invertebrate Animal	Endangered
Asclepias stenophylla	Narrow-leaved Milkweed	Vascular Plant	Endangered
Carex careyana	Carey's Sedge	Vascular Plant	Endangered
Chrysosplenium iowense	Iowa Golden Saxifrage	Vascular Plant	Endangered
Crystallaria asprella	Crystal Darter	Vertebrate Animal	Endangered
Diarrhena obovata	American Beakgrain	Vascular Plant	Endangered
Dodecatheon meadia	Prairie Shooting Star	Vascular Plant	Endangered
Dryopteris marginalis	Marginal Shield-fern	Vascular Plant	Endangered
Elliptio crassidens	Elephant-ear	Invertebrate Animal	Endangered
Fusconaia ebena	Ebonyshell	Invertebrate Animal	Endangered
Hasteola suaveolens	Sweet-smelling Indian-plantain	Vascular Plant	Endangered
Hesperia ottoe	Ottoe Skipper	Invertebrate Animal	Endangered
Hybanthus concolor	Green Violet	Vascular Plant	Endangered
Hybopsis amnis	Pallid Shiner	Vertebrate Animal	Endangered
Hydrastis canadensis	Golden-seal	Vascular Plant	Endangered
Iodanthus pinnatifidus	Purple Rocket	Vascular Plant	Endangered
Juglans cinerea	Butternut	Vascular Plant	Endangered
Lampsilis higginsii	Higgins Eye	Invertebrate Animal	Endangered
Lampsilis teres	Yellow Sandshell	Invertebrate Animal	Endangered
Lanius ludovicianus	Loggerhead Shrike	Vertebrate Animal	Endangered
Lechea tenuifolia var. tenuifolia	Narrow-leaved Pinweed	Vascular Plant	Endangered
Megalonaias nervosa	Washboard	Invertebrate Animal	Endangered
Paronychia canadensis	Canadian Forked Chickweed	Vascular Plant	Endangered
Parthenium integrifolium	Wild Quinine	Vascular Plant	Endangered
Phegopteris hexagonoptera	Broad Beech-fern	Vascular Plant	Endangered

Scientific Name	Common Name	Category	State Protection Status
Platanthera praeclara	Western Prairie Fringed Orchid	Vascular Plant	Endangered
Plethobasus cyphyus	Sheepnose	Invertebrate Animal	Endangered
Polystichum acrostichoides	Christmas Fern	Vascular Plant	Endangered
Psoralidium tenuiflorum	Slender-leaved Scurf Pea	Vascular Plant	Endangered
Rhodiola integrifolia ssp. leedyi	Leedy's Roseroot	Vascular Plant	Endangered
Tritogonia verrucosa	Pistolgrip	Invertebrate Animal	Endangered
Acipenser fulvescens	Lake Sturgeon	Vertebrate Animal	Special Concern
Allium cernuum	Nodding Wild Onion	Vascular Plant	Special Concern
Anodonta suborbiculata	Flat Floater	Invertebrate Animal	Special Concern
Apalone mutica	Smooth Softshell	Vertebrate Animal	Special Concern
Aphredoderus sayanus	Pirate Perch	Vertebrate Animal	Special Concern
Arabis laevigata	Smooth Rock-cress	Vascular Plant	Special Concern
Arabis laevigata var. laevigata	Smooth Rock Cress	Vascular Plant	Special Concern
Arisaema dracontium	Green Dragon	Vascular Plant	Special Concern
Asplenium platyneuron	Ebony Spleenwort	Vascular Plant	Special Concern
Baptisia bracteata var. glabrescens	Plains Wild Indigo	Vascular Plant	Special Concern
Baptisia lactea var. lactea	White Wild Indigo	Vascular Plant	Special Concern
Botrychium campestre	Prairie Moonwort	Vascular Plant	Special Concern
Buteo lineatus	Red-shouldered Hawk	Vertebrate Animal	Special Concern
Carex annectens	Yellow-fruited Sedge	Vascular Plant	Special Concern
Carex grayi	Gray's Sedge	Vascular Plant	Special Concern
Carex muskingumensis	Muskingum Sedge	Vascular Plant	Special Concern
Carex typhina	Cattail Sedge	Vascular Plant	Special Concern
Cicindela macra macra	Sandy Stream Tiger Beetle	Invertebrate Animal	Special Concern
Cicindela splendida cyanocephalata	Splendid Tiger Beetle	Invertebrate Animal	Special Concern
Cirsium pumilum var. hillii	Hill's Thistle	Vascular Plant	Special Concern
Coluber constrictor	North American Racer	Vertebrate Animal	Special Concern
Cycleptus elongatus	Blue Sucker	Vertebrate Animal	Special Concern
Cypripedium candidum	Small White Lady's-slipper	Vascular Plant	Special Concern

Scientific Name	Common Name	Category	State Protection Status
Deparia acrostichoides	Silvery Spleenwort	Vascular Plant	Special Concern
Dicentra canadensis	Squirrel-corn	Vascular Plant	Special Concern
Draba arabisans	Rock Whitlow-grass	Vascular Plant	Special Concern
Dry Bedrock Bluff Prairie (Southern) Type	Goldie's Fern	Vascular Plant	Special Concern
Dryopteris goldiana	Goldie's Fern	Vascular Plant	Special Concern
Empidonax virescens	Acadian Flycatcher	Vertebrate Animal	Special Concern
Eryngium yuccifolium	Rattlesnake-master	Vascular Plant	Special Concern
Etheostoma chlorosoma	Bluntnose Darter	Vertebrate Animal	Special Concern
Falco peregrinus	Peregrine Falcon	Vertebrate Animal	Special Concern
Gallinula galeata	Common Gallinule	Vertebrate Animal	Special Concern
Gymnocarpium robertianum	Limestone Oak Fern	Vascular Plant	Special Concern
Gymnocladus dioica	Kentucky Coffee-tree	Vascular Plant	Special Concern
Helianthemum canadense	Canada Frostweed	Vascular Plant	Special Concern
Hesperia leonardus leonardus	Leonard's Skipper	Invertebrate Animal	Special Concern
Hybognathus nuchalis	Mississippi Silvery Minnow	Vertebrate Animal	Special Concern
Ichthyomyzon fossor	Northern Brook Lamprey	Vertebrate Animal	Special Concern
Jeffersonia diphylla	Twinleaf	Vascular Plant	Special Concern
Juniperus horizontalis	Creeping Juniper	Vascular Plant	Special Concern
Lasmigona compressa	Creek Heelsplitter	Invertebrate Animal	Special Concern
Ligumia recta	Black Sandshell	Invertebrate Animal	Special Concern
Microtus ochrogaster	Prairie Vole	Vertebrate Animal	Special Concern
Microtus pinetorum	Woodland Vole	Vertebrate Animal	Special Concern
Morone mississippiensis	Yellow Bass	Vertebrate Animal	Special Concern
Moxostoma duquesnei	Black Redhorse	Vertebrate Animal	Special Concern
Myotis septentrionalis	Northern Myotis	Vertebrate Animal	Special Concern
Necturus maculosus	Mudpuppy	Vertebrate Animal	Special Concern
Notropis nubilus	Ozark Minnow	Vertebrate Animal	Special Concern
Nuttallanthus canadensis	Old Field Toadflax	Vascular Plant	Special Concern

Scientific Name	Common Name	Category	State Protection Status
Oenothera rhombipetala	Rhombic-petaled Evening Primrose	Vascular Plant	Special Concern
Panax quinquefolius	American Ginseng	Vascular Plant	Special Concern
Parkesia motacilla	Louisiana Waterthrush	Vertebrate Animal	Special Concern
Pellaea atropurpurea	Purple Cliff-brake	Vascular Plant	Special Concern
Perimyotis subflavus	Tricolored Bat	Vertebrate Animal	Special Concern
Phidippus apacheanus	A Jumping Spider	Invertebrate Animal	Special Concern
Phlox maculata	Wild Sweet William	Vascular Plant	Special Concern
Pituophis catenifer	Gophersnake	Vertebrate Animal	Special Concern
Plestiodon fasciatus	Common Five-lined Skink	Vertebrate Animal	Special Concern
Pleurobema sintoxia	Round Pigtoe	Invertebrate Animal	Special Concern
Poa wolfii	Wolf's Bluegrass	Vascular Plant	Special Concern
Polytaenia nuttallii	Prairie-parsley	Vascular Plant	Special Concern
Quercus bicolor	Swamp White Oak	Vascular Plant	Special Concern
Reithrodontomys megalotis	Western Harvest Mouse	Vertebrate Animal	Special Concern
Ruppia cirrhosa	Widgeon-grass	Vascular Plant	Special Concern
Sanicula trifoliata	Beaked Snakeroot	Vascular Plant	Special Concern
Setophaga cerulea	Cerulean Warbler	Vertebrate Animal	Special Concern
Symphyotrichum shortii	Short's Aster	Vascular Plant	Special Concern
Taenidia integerrima	Yellow Pimpernel	Vascular Plant	Special Concern
Tephrosia virginiana	Goat's-rue	Vascular Plant	Special Concern
Trillium nivale	Snow Trillium	Vascular Plant	Special Concern
Triplasis purpurea var. purpurea	Purple Sand-grass	Vascular Plant	Special Concern
Verbena simplex	Narrow-leaved Vervain	Vascular Plant	Special Concern
Vireo bellii	Bell's Vireo	Vertebrate Animal	Special Concern
Actinonaias ligamentina	Mucket	Invertebrate Animal	Threatened
Alasmidonta marginata	Elktoe	Invertebrate Animal	Threatened
Aristida tuberculosa	Sea-beach Needlegrass	Vascular Plant	Threatened
Arnoglossum plantagineum	Tuberous Indian-plantain	Vascular Plant	Threatened

Scientific Name	Common Name	Category	State Protection Status
Arnoglossum reniforme	Great Indian-plantain	Vascular Plant	Threatened
Asclepias amplexicaulis	Clasping Milkweed	Vascular Plant	Threatened
Asclepias hirtella	Prairie Milkweed	Vascular Plant	Threatened
Asclepias sullivantii	Sullivant's Milkweed	Vascular Plant	Threatened
Botrychium oneidense	Blunt-lobed Grapefern	Vascular Plant	Threatened
Carex jamesii	James' Sedge	Vascular Plant	Threatened
Carex laevivaginata	Smooth-sheathed Sedge	Vascular Plant	Threatened
Carex laxiculmis	Spreading Sedge	Vascular Plant	Threatened
Carex sterilis	Sterile Sedge	Vascular Plant	Threatened
Crotalus horridus	Timber Rattlesnake	Vertebrate Animal	Threatened
Desmodium cuspidatum var. longifolium	Big Tick-trefoil	Vascular Plant	Threatened
Desmodium nudiflorum	Stemless Tick-trefoil	Vascular Plant	Threatened
Diplazium pycnocarpon	Narrow-leaved Spleenwort	Vascular Plant	Threatened
Ellipsaria lineolata	Butterfly	Invertebrate Animal	Threatened
Elliptio dilatata	Spike	Invertebrate Animal	Threatened
Emydoidea blandingii	Blanding's Turtle	Vertebrate Animal	Threatened
Erimystax x-punctatus	Gravel Chub	Vertebrate Animal	Threatened
Eupatorium sessilifolium	Upland Boneset	Vascular Plant	Threatened
Floerkea proserpinacoides	False Mermaid	Vascular Plant	Threatened
Glyptemys insculpta	Wood Turtle	Vertebrate Animal	Threatened
Hamamelis virginiana	Witch-hazel	Vascular Plant	Threatened
Ictiobus niger	Black Buffalo	Vertebrate Animal	Threatened
Lasmigona costata	Fluted-shell	Invertebrate Animal	Threatened
Leersia lenticularis	Catchfly Grass	Vascular Plant	Threatened
Lespedeza leptostachya	Prairie Bush Clover	Vascular Plant	Threatened
Melica nitens	Three-flowered Melicgrass	Vascular Plant	Threatened
Minuartia dawsonensis	Rock Sandwort	Vascular Plant	Threatened
Napaea dioica	Glade Mallow	Vascular Plant	Threatened

Scientific Name	Common Name	Category	State Protection Status
Orobanche fasciculata	Clustered Broomrape	Vascular Plant	Threatened
Orobanche uniflora	One-flowered Broomrape	Vascular Plant	Threatened
Pantherophis obsoletus	Western Ratsnake	Vertebrate Animal	Threatened
Phalaropus tricolor	Wilson's Phalarope	Vertebrate Animal	Threatened
Phemeranthus rugospermus	Rough-seeded Fameflower	Vascular Plant	Threatened
Platanthera flava var. herbiola	Tubercled Rein-orchid	Vascular Plant	Threatened
Poa paludigena	Bog Bluegrass	Vascular Plant	Threatened
Polyodon spathula	Paddlefish	Vertebrate Animal	Threatened
Quadrula metanevra	Monkeyface	Invertebrate Animal	Threatened
Quadrula nodulata	Wartyback	Invertebrate Animal	Threatened
Rudbeckia triloba var. triloba	Three-leaved Coneflower	Vascular Plant	Threatened
Scutellaria ovata var. versicolor	Ovate-leaved Skullcap	Vascular Plant	Threatened
Silene nivea	Snowy Campion	Vascular Plant	Threatened
Sullivantia sullivantii	Reniform Sullivantia	Vascular Plant	Threatened
Trichophorum clintonii	Clinton's Bulrush	Vascular Plant	Threatened
Truncilla donaciformis	Fawnsfoot	Invertebrate Animal	Threatened
Valeriana edulis var. ciliata	Valerian	Vascular Plant	Threatened
Venustaconcha ellipsiformis	Ellipse	Invertebrate Animal	Threatened
Vitis aestivalis var. bicolor	Silverleaf Grape	Vascular Plant	Threatened
Bartramia longicauda	Upland Sandpiper	Vertebrate Animal	Watchlist
Carex trichocarpa		Vascular Plant	Watchlist
Cystopteris laurentiana	Laurentian Bladder Fern	Vascular Plant	Watchlist
Dodecatheon amethystinum	Jewelled Shooting Star	Vascular Plant	Watchlist
Galium circaezans var. hypomalacum	Licorice Bedstraw	Vascular Plant	Watchlist
Geum laciniatum	Rough avens	Vascular Plant	Watchlist
Grus canadensis	Sandhill Crane	Vertebrate Animal	Watchlist
Haliaeetus leucocephalus	Bald Eagle	Vertebrate Animal	Watchlist
Heterodon platirhinos	Eastern Hognose Snake	Vertebrate Animal	Watchlist

Scientific Name	Common Name	Category	State Protection Status
Lampropeltis triangulum	Milksnake	Vertebrate Animal	Watchlist
Lethenteron appendix	American Brook Lamprey	Vertebrate Animal	Watchlist
Lithobates catesbeianus	Bullfrog	Vertebrate Animal	Watchlist
Lithobates palustris	Pickerel Frog	Vertebrate Animal	Watchlist
Lycopus virginicus	Virginia Water Horehound	Vascular Plant	Watchlist
Obovaria olivaria	Hickorynut	Invertebrate Animal	Watchlist
Opsopoeodus emiliae	Pugnose Minnow	Vertebrate Animal	Watchlist
Oxypolis rigidior	Cowbane	Vascular Plant	Watchlist
Pantherophis ramspotti	Western Foxsnake	Vertebrate Animal	Watchlist
Penstemon digitalis	Beard-tongue	Vascular Plant	Watchlist
Scaphirhynchus platorynchus	Shovelnose Sturgeon	Vertebrate Animal	Watchlist
Symphyotrichum pilosum	White Heath Aster	Vascular Plant	Watchlist
Vertigo hubrichti	Hubricht's Vertigo	Invertebrate Animal	Watchlist
Actaea pachypoda	White Baneberry	Vascular Plant	NHIS
Adoxa moschatellina	Moschatel	Vascular Plant	NHIS
Bat Colony	Bat Concentration	Animal Assemblage	NHIS
Carex woodii	Wood's Sedge	Vascular Plant	NHIS
Cephalanthus occidentalis	Buttonbush	Vascular Plant	NHIS
Colonial Waterbird Nesting Area	Colonial Waterbird Nesting Site	Animal Assemblage	NHIS
Echinochloa walteri	Walter's Barnyard Grass	Vascular Plant	NHIS
Liparis liliifolia	Lilia-leaved Twayblade	Vascular Plant	NHIS
Novasuccinea n. sp. minnesota a	Minnesota Pleistocene Ambersnail	Invertebrate Animal	NHIS
Novasuccinea n. sp. minnesota b	Iowa Pleistocene Ambersnail	Invertebrate Animal	NHIS
Solidago sciaphila	Cliff Goldenrod	Vascular Plant	NHIS
Vertigo hubrichti hubrichti	Midwest Pleistocene Vertigo	Invertebrate Animal	NHIS
Vertigo hubrichti variabilis n. subsp.	Variable Pleistocene Vertigo	Invertebrate Animal	NHIS
Vitis riparia	Dune Grape	Vascular Plant	NHIS

HoustonEngineering Inc.

APPENDIX C

Root River Watershed Stakeholder Involvement Plan and Meeting Notes

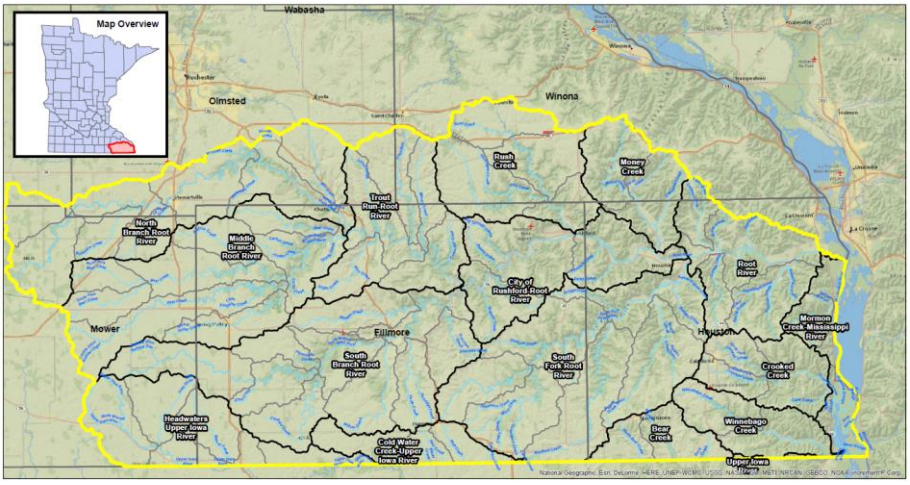
April 28, 2015

Stakeholder Involvement Plan

Root River Watershed 1 Watershed 1 Plan

Background

The Counties of Dodge, Fillmore, Mower, Olmsted, Houston, and Winona (Counties), by and through their respective County Board of Commissioners, and the Dodge, Fillmore, Mower, Olmsted, Root River, and Winona Soil and Water Conservation Districts (SWCDs), by and through their respective Soil and Water Conservation District Board of Supervisors, and the Crooked Creek Watershed District, by and through the Board of Managers, were selected by the Minnesota Board of Water and Soil Resources (BWSR) as a One Watershed One Plan (1W1P) pilot. Collectively, the parties are called the "Root River One Plan One Watershed Pilot Project" (hereafter referred to as the "Partnership"). The Partnership recognized the importance of collaborating to plan and implement protection and restoration efforts for the Root River Watershed (an area of 1,659.4square miles), the Upper Iowa River (217.5 square miles) and the Mississippi River – Reno watersheds (183.4 square miles).



The Partnership is responsible for preparing a priority concerns implementation plan (i.e., a Plan) under the 1W1P effort. The members of the Partnership share an interest in and the statutory authority to prepare, adopt, and assure implementation of a Plan for the Root River Watershed. The purpose of the Plan to conserve soil and water resources through the implementation of practices, programs, and regulatory controls that effectively control or prevent erosion, sedimentation, siltation and related pollution in order to preserve natural resources, ensure continued soil productivity, protect water quality, reduce damages caused by floods, preserve wildlife, protect the tax base, and protect public lands and waters.

The Partnership has the specific goal of developing the Plan for the Root River Watershed. This document describes the Stakeholder Participation Process for developing the Plan.

Audience & Roles

One of the Guiding Principles of One Watershed, One Plan is the process "must involve a broad range of Stakeholders to ensure an integrated approach to watershed management." A Stakeholder is defined as a party (person or group) who holds a vested interest in the outcome of the planning process. The primary outcome resulting from the Plan will be a targeted implementation plan, focused on the implementation of specific conservation practices, projects, programs, and regulatory controls. A variety of Stakeholders may be directly or indirectly affected.

Participants in the planning process are comprised of several potential target audiences or groups and collectively comprise the Stakeholders. These groups include:

Policy Committee – The primary role of the Policy Committee is for the purposes of making final decisions about the content of the plan and its submittal to and approval by BWSR. Expectations are that the Policy Committee will review and approve a draft of the plan outline, review and approve information about the priority resources, priority concerns and issues affecting the priority concerns, review and approve the targeted implementation plan, and review and approve the Plan. An additional expectation is that members of the Policy Committee will engage in constructive discussion and debate about issues addressed by the Plan and provide consensus direction on plan development matters, to the Planning Work Group. The Policy Committee will review and approve membership on the Advisory Committee. The Policy Committee has additional obligations as described by The Memorandum of Agreement executed by the Partnership members.

Advisory Committee – Membership on the Advisory Committee may consist of members from the Planning Workgroup, other local government staff, the state's main water agencies and/or plan review agencies, the general public, trade organization, nonprofit organizations, and special interest groups. Leaders within the local community are valued members of the Advisory Committee. Membership to the Advisory Committee is reviewed and approved by the Policy Committee.

The purpose of an Advisory Committee is to make recommendations on the Plan and the Targeted Implementation Plan to the Policy Committee, including identification of priority resources, priority concerns and issues affecting the priority concern. Expectations are that members of the Advisory Committee will communicate Plan related activities to their

respective organizations. Advisory Committee members are expected to communicate practical concerns during the plan development process and to assist the Policy Committee in ensuring a credible Plan development process.

Each state or federal agency or organization participating on the Advisory Committee shall designate one lead representative and one designated alternate. An agency's or organization's guidance, input, and decisions shall be communicated through the lead representative or designated alternative. The lead agency or organization representative is expect to coordinate information flow and communication within their agency or organization.

Planning Workgroup – The Planning Workgroup is comprised of local staff, local water planners, local watershed staff, and local SWCD staff for the purposes of logistical and day-to-day decision-making in the planning process. The Planning Work Group includes the consultant and other advisors responsible for assembling the draft and final Plans. Members of the Planning Work Group are responsible for providing information needed for the planning process, reviewing and approving draft plan related information, and assisting in Plan development. Identifying Priority Resources, Priority Concerns and Issues Affecting the Priority Concerns for their specific county is also the responsibility of the Planning Work Group.

General Public – Various public meetings and hearings will be completed as part of the Plan development process. The general public is expected to be an important Stakeholder group. Input from the public meetings will be used to ensure a complete list of priority resources and priority concerns is developed. The role of the general public is expected to include identifying issues affecting the priority concerns. The public will be engaged to rank concerns establishing a "public priority concern" rank. An additional role for the general public is expected to include review of and discussion about the targeted implementation plan and ability to achieve the measurable goals.

Intent for Stakeholder Involvement

The principal intent of involving stakeholders during the planning process is to build acceptance of the Plan and the recommended solutions described by the Targeted Implementation Plan. Acceptance is critical because the Partnership is focused on actively utilizing their Plan to implement projects and programs within the Root River Watershed. Successful implementation will depend highly on the degree to which the Stakeholders believe their concerns, issues or expectations are addressed within the Plan.

The Partnership intends for the Stakeholder involvement process to be active, genuine and credible. To that end, the Stakeholder groups will be involved early in the planning process and will remain engaged through plan completion. Input provided by Stakeholders is intended to

help ensure the comprehensiveness of the Plan and validate the implementation priorities of the Partnership and Stakeholders.

Tools for Stakeholder Involvement

The Partnership expects to use several tools to involve Stakeholders. These tools include:

- Inform the stakeholders of status and progress by posting information on each county website, including document drafts as they become available.
- Convening meetings and workshops with Stakeholders at key milestones (refer to Attachments A and B) to discuss relevant content and obtain input.
- Use of existing "standing" committees within each county, including local water plan advisory committees. These committees tend include broad representation.

There are many methods for conveying information and communicating messages. This Stakeholder Involvement Plan will utilize a variety of tools as appropriate and beneficial for sharing progress and soliciting input. Information about the planning process can be obtained from the Fillmore Soil and Water Conservation District website (http://www.fillmoreswcd.org/rootRiverWatershed.html).

Conduct

The conduct of members of the various Stakeholder Groups —how the Committees function and affect the process—will be based on the overall intent of building acceptance of the Plan through a credible yet timely process. Where appropriate, the Partnership will strive to achieve consensus on Plan related matters. However, because of the diversity of issues and range of resources, full agreement between or among all Stakeholders is not realistic or expected. The ultimate responsibility for the content of the Plan rests with the Policy Committee. Participants are expected to act in a professional, constructive and contributory manner. Members failing to act in good faith during the planning process can be removed from the Advisory Committee by consensus of the Policy Committee.

April 28, 2015

Attachment A
Stakeholder List
Root River Watershed Plan

Policy Committee Members

County	Name	Organization
Dodge		
	Rodney Peterson	County Commissioner
	Glen Hahn	SWCD Supervisor
Olmsted		
	Matt Flynn	County Commissioner
	Steve Connelly	SWCD Supervisor
Winona		
	Marcia Ward	County Commissioner
	Jerry Mueller	SWCD Supervisor
Houston		
	Dana Kjome	County Commissioner
	Loren Lapham	SWCD Supervisor
Fillmore		
	Duane Bakke	County Commissioner
	Leonard Leutink	SWCD Supervisor
Mower		
	Tim Gabrielson	County Commissioner
	Jim Kellogg	SWCD Supervisor
Crooked Creek WD		
	Bob Mierau	Watershed District Manager

Technical Advisory Committee Members

Pat Bailey	MN Department of Health	Source Water Protection
Shaina Keseley	MN Pollution Control Agency	Project Manager
Kevin Kuehner	MN Department of Agriculture	Water Quality Specialist
Nicole Lehman	MN Department of Natural Resources	Clean Water Hydrologist
Jeanne Daniels, alt.		
John Boyum	Fillmore SWCD (5 counties)	Nutrient Management Specialist
Dean Thomas	Fillmore SWCD (11 counties)	Area Soil Health Technician
Jake Overgaard	U of M Extension-Winona	Extension Educator
Chris Graves	Fillmore County	Zoning Administrator
Bob Scanlan	Houston County	County Feedlot Officer
Linda Dahl	SE MN Water Resources Board	Executive Director
John Beckwith	Hiawatha Valley RC&D	Executive Director
Pete Fryer	SE MN SWCD Technical	JPB Engineer
Kate Bruss, alt.		
Lindberg Ekola	MN Forest Resources Council	SE MN Landscape Committee
James Fritz	NRCS Area Office	Area Resource Conservationist
Tim Connolly	U.S. Fish & Wildlife Service	Private Lands Biologist
Tom Pyfferoen	MN Cattlemen's Association	
Sangeetha Gummadi	MN Milk Producers Association	
Craig Mensink	Fillmore County Pork Producers	MN Pork Producers
Doug Busselman	MN Farm Bureau	
Scott Winslow	Fillmore County Farm Bureau	
Matt Feldmeier	Houston County Farm Bureau	
Eunice Biel	MN Farmers Union	
Warren Formo	Agricultural Water Resource Ctr	Executive Director
Lori Feltis	MN Corn Growers	
Paula Volmer/Joe Smentek	MN Soybean Growers	
Bill Bond	MN Crop Production Retailers	
Caroline VanSchaik	Land Stewardship Project	
	MN Chamber of Commerce	
Cris Gastner	Community and Economic Development Associates	
Don Farrow	Community and Economic Development Associates	
Wes Harding	Root River Trail Towns	
	Historic Bluff Country	
Nathan Redalen	MN Association of Townships	2nd Vice President, District 1
Ron Stevens	Fillmore County Assoc. of Twps	Chair
Jack Peck	Bluffland Whitetails Association	
Emilee Nelson/Steve Olson	MN Pheasants Forever	
Jeff Hastings	Trout Unlimited	Driftless Area Coordinator
Paul Krolak, alt.	Hiawatha Chapter Trout Unlimited	
Richard Enochs	National Trout Center	
Patrick Schmidt	Root River Valley Chapter	MN Wild Turkey Federation
David Schmidt	The Nature Conservancy	SE Coordinator
Margaret Lyngholm	Friends of the Root River	
Nancy North, alt.		

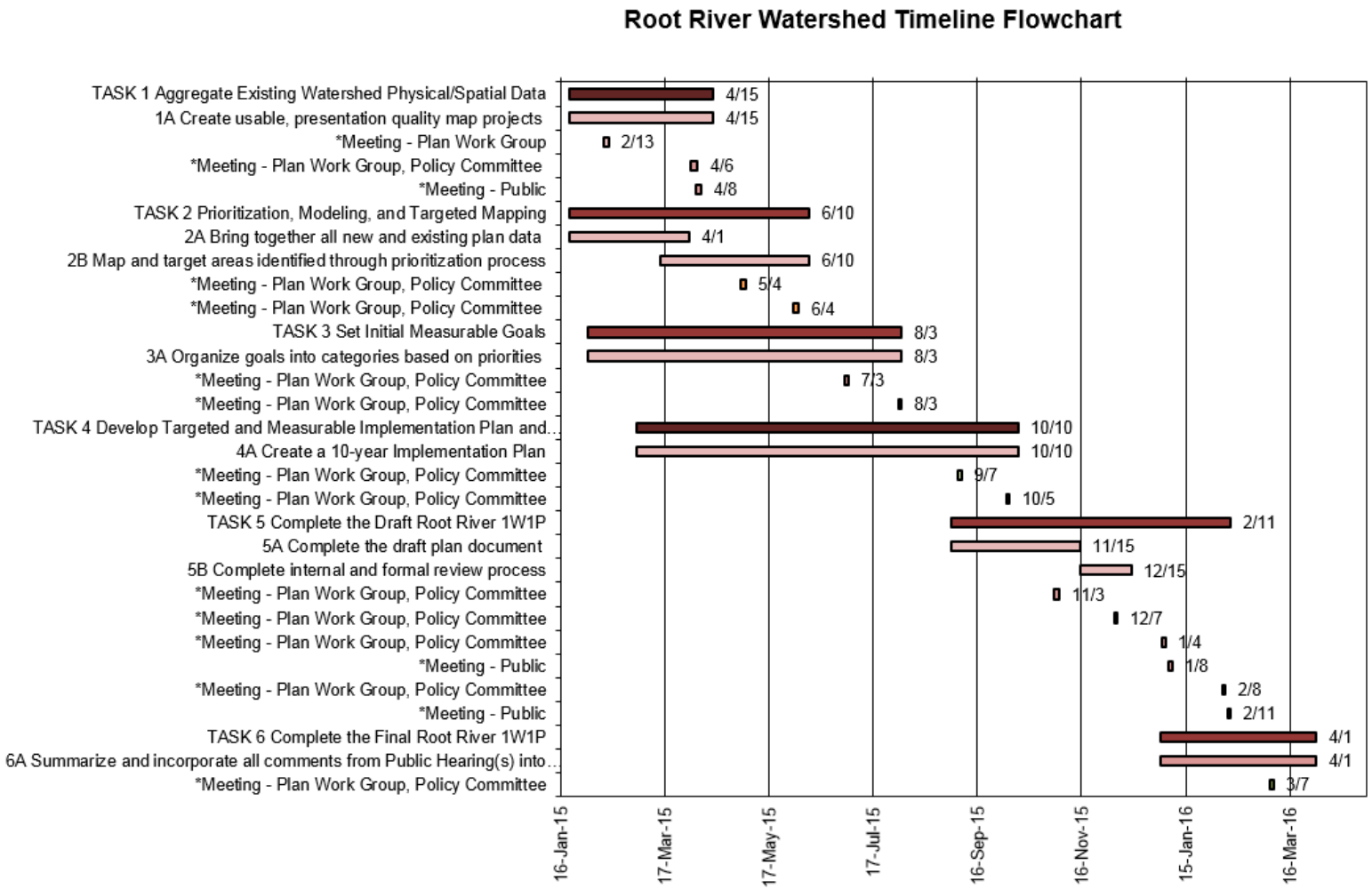
The Technical Advisory Committee also includes the Planning Work Group members.

Planning Work Group

Adam King	Dodge SWCD
Dean Schrandt	Dodge County
Donna Rasmussen	Fillmore SWCD
Jennifer Ronnenberg	Fillmore SWCD
Justin Hanson	Mower SWCD
Tim Ruzek	Mower SWCD
Bev Nordby	Mower SWCD
John Helmers	Olmsted County
Skip Langer	Olmsted SWCD
Dave Walter	Root River SWCD/Crooked Creek Watershed District
Bob Scanlan	Root River SWCD
Ron Meiners	Root River SWCD
Daryl Buck	Winona SWCD
Sheila Harmes	Winona County
Natalie Siderius	Winona County
Steve Lawler	MN Board of Water and Soil Resources
Adam Beilke	MN Board of Water and Soil Resources
Dave Johnson	MN Board of Water and Soil Resources
Tom Gile	MN Board of Water and Soil Resources
Mark Deutschman	Houston Engineering
Rachel Olm	Houston Engineering

April 28, 2015

Attachment B – Schedule



Meeting of the Advisory Committee for Root River, One Watershed One Plan

Wednesday, April 29, 2015, 9:00 AM – 12:00 PM

Chatfield Public Library, Intersection of Hwy 52 and Hwy 30 in Chatfield

Meeting notes

In attendance: Jennifer Ronnenberg (Fillmore SWCD), Donna Rasmussen (Fillmore SWCD), Bev Nordby (Mower SWCD), Justin Hanson (Mower SWCD), Jeff Hastings (Trout Unlimited), Margaret Lyngholm (Friends of the Root River), Drew Kessler (HEI), Pete Fryer (SE SWCD Tech Support), Sheila Harmes (Winona Co), Jake Overgaard (Winona Co. Extension), John Boyum (Fillmore SWCD), Tim Connolly (USFWS), Rich Enochs (Trout Unlimited/National Trout Center), Chris Graves (Fillmore Co./MACPZA), Tom Gile (BWSR), Caroline Van Schaik (Land Stewardship Project), David Schmidt (The Nature Conservancy), Nicole Lehman (MN DNR), Pat Bailey (MN Dept. of Health), Kevin Kuehner (MN Dept. of Agriculture)

1. The meeting was opened by Jennifer Ronnenberg.

2. Introductions were made. Emails sent out recently with the agenda were not received by most in the group. This will be investigated to avoid that problem again.

3. Review agenda: Agendas and meeting minutes are being posted for the Policy Committee and the Advisory Committee on the Fillmore SWCD website: www.fillmoreswcd.org.

4. New Business
    a. Brief overview of the One Watershed, One Plan process was presented by Jennifer. This process is a way to focus priorities to best utilize finite resources/funding. The Advisory Committee has input into how implementation happens.
    b. Review the Draft Stakeholder Plan: This outlines how groups are involved in the planning process.
        i. Roles and responsibilities of Advisory Committee were reviewed. Discussion will follow on how to make the Advisory Committee functional given its potential to be a very large committee. The most recent list of Advisory Committee contacts will be posted on the Fillmore SWCD website.
    c. Discuss anticipated schedule: Priorities that will be in the plan need to be established by June. Input from the public has been received via the kickoff open house and comment cards, and through future online surveys (to be developed) and each county's local water management committee. Fillmore's committee has met, and Winona and Mower are meeting in the next two weeks. Dodge, Houston and Olmsted will be contacted to find out if their committees will be providing input. There will be ongoing opportunities for input plus up to four public hearings next spring. Future Advisory Committee meetings and input will be scheduled at key points as it is needed while the plan is being drafted.
    d. Discussion and input on the Draft Resources, Concerns and Issues matrix
        i. Review draft document: Drew Kessler, Houston Engineering, reviewed the format for the resource concerns matrix which will form the framework for the targeted implementation plan.
        ii. Action: Mark preferences on the matrix: Each attendee was provided with two dots for indicating their preferences for priorities on the matrix. These results will be compiled with those from the public kickoff and the Planning Work Group. The Policy Committee will determine the priorities based on these results and recommendations from the Planning Work Group.
        iii. Review results from April 8th public kickoff open house: Jennifer had a handout summarizing the comments from the open house, which was the starting point for public input. There were 87 people who signed in; some people did not sign in so the actual number is higher. It was advertised on the radio and through news releases to the local

media. KTTC and AgriNews covered the event in addition to local papers. The presentations at 5:00 and 7:00 generated good questions from the audience.

iv. Discuss definitions of protection and restoration: The definitions were drafted by Houston Engineering with the intent that input from the Advisory Committee could help to refine them. Protection is aimed at protecting what is not degraded (impaired) to keep it from becoming degraded. The key question is how to define what needs to be protected. There is a definition for anti-degradation, so these definitions should be consistent with that. There was also a question whether all the criteria need to be met in #8 or if that could be changed to "meet most" or "several". We need to evaluate whether or not there are actually resources in the watershed that meet the criteria, such as the exceptional water quality criterion in 8.a. There was also discussion about the use of the term "self-sustaining" in 8.b. The question was raised regarding why focus so much on public lands since all the land use in the watershed has an impact. One reason given is to build out from those public areas to the surrounding landscape to protect the public resources by improving land use on private lands around those areas, all of which has an impact downstream. Climate is another factor to consider. In other parts of the state, lakes are a rallying point for water quality protection/restoration. How can we define areas within a river system that can rally support? What would trigger special consideration (specific contributing areas, known loading, specific goals)? Identify those rallying points for protection and have good criteria attached to locations on the landscape, especially for practices that can provide multiple benefits.

5. Next meeting
    a. Review dates for upcoming meetings: How does the group function in future meetings? Two options: 1) continue to meet as a whole group and funnel recommendations back to the Policy Committee through the Planning Work Group, or 2) form subcommittees that can meet directly with the Policy Committee. It was the consensus of the group to continue to meet as a group to sort through the details and then bring recommendations back to the Policy Committee. Subcommittees could be formed if there is a need identified. We will forward the Policy Committee meetings agendas and minutes to the Advisory Committee.

       Feedback on the voting process: It would have been helpful to have had the matrix information prior to voting, which would have happened had not the emails failed. There was also the question about how much more will the Policy Committee be informed by the voting process.

       Jennifer will send out possible dates for a June meeting. Evening meetings may be a possibility to get more non-governmental organizations represented. There were no ag representatives today, probably due in part to the good weather for planting and possibly the email glitch.

    b. Agenda items: Topics will be based on the stage in the planning process.

6. Adjourned shortly after noon.

<u>Upcoming Meetings of the Policy Committee:</u>

May 4, 2015: Policy Committee meeting: review of Priority Resources/Concerns/Issues
June 3, 2015: Policy Committee meeting: review of Goals/Preparation for Implementation Schedule
July 6, 2015: Policy Committee meeting: review of Goals/Preparation for Implementation Schedule
August 3, 2015: Policy Committee meeting
September 14, 2015: Possible Policy Committee meeting: Review of Draft Implementation Schedule
October 5, 2015: Policy Committee meeting
November 2, 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Advisory Committee for Root River, One Watershed One Plan

June 30, 2015, 9:00 AM – 12:00 PM

Meeting Notes

In attendance: Donna Rasmussen, Mark Deutschman, Nicole Lehman, Daryl Buck, Sheila Harmes, David Schmidt, Tim Connolly, Rich Enochs, Pat Bailey, Jeff Hastings, Melissa Lewis, Tom Gile, Justin Hanson, Jennifer Ronnenberg, Dave Walter,

1. Open meeting: Donna Rasmussen called the meeting to order at 9:08 a.m.
2. Introductions were made.
3. Approve Agenda: no changes made to the agenda.
4. New Business
    a. Update on Planning Process Status: Mark Deutschman reported on the status of the planning process. A working draft of the plan will be ready for the Planning Work Group (PWG) to begin reviewing this week. It is anticipated that the plan will be ready for outside review by early fall. The Policy Committee is discussing the governance structure; they made a decision at their last meeting to continue to work together on plan implementation but still need to decide on the structure. Things will slow down to allow time for the PWG to thoroughly review the plan. Mark explained the process for prioritizing the resource concerns. The concerns come from the priorities identified by the state agencies and in local water management plans; no concerns are being eliminated. Some, like those in the "C" category, may not be implemented by local government but by other agencies or groups. Due to the interconnectedness of the resource concerns, addressing "A" concerns may serve to address others.. A series of concerns maps will be in the plan to help identify where implementation will start on the landscape. Goals and the targeted implementation schedule in the plan define the desired outcome and what has to happen in the environment to achieve the desired outcome. Measurable goals have two parts: what we measure and an amount. Actions outline the what, who, when, where, how much money and funding sources. Plan components include: General Operations, Statutory Obligations, Local Ordinances, Financial Incentive Programs, Education/Outreach/Data, and Capital Projects. Common protection definitions are those of the MCPA, DNR, and MDH. State, federal and local funding will be cross-referenced. The governance issue may take several months to work through. Considerations include funding, consistency of education/outreach, landowner expectations, efficiency, central administration/fiscal/reporting duties, and capital projects.
    b. Open Forum: A key question is how the Advisory Committee communicates with the Policy Committee either through the PWG or through an appointed representative. At the last meeting, it was decided to go through the PWG. However the Policy Committee may wish to hear from others besides the usual staff. Maybe subcommittees could be established to work on specific concerns. It was suggested that the Advisory Committee can sometimes reach consensus but may not. They may also have the role of identifying where there is lack of agreement and potential unintended consequences. After lengthy discussion, it was the consensus to continue to meet as a group and have more specific topics on future agendas so all those who are interested will participate. To get the most valuable input from the Advisory Committee, break the plan into segments for review. Their input is needed before the plan goes public. There will be a draft within a month to react to and provide input. A record will be maintained of the comments and the response/incorporation into the plan.

5. Next meeting of the Advisory Committee will be in early August with more frequent meetings thereafter. By August, the plan may be ready to break out pieces to focus on. Send out a meeting date as soon as possible. The future meeting dates may need to be adjusted to allow enough time for review. The PWG will discuss this more next week. The meeting adjourned at 11:53 a.m.

July 6, 2015: Policy Committee meeting: review of Goals/Preparation for Implementation Schedule

August ~~3~~ 5, 2015: Policy Committee meeting

September 14, 2015: Possible Policy Committee meeting: Review of Draft Implementation Schedule
October 5, 2015: Policy Committee meeting
November 2, 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Advisory Committee for Root River, One Watershed One Plan

August 21, 2015, 9:00 AM – 12:00 PM

Room 108, Fillmore County Office Building, 902 Houston St. NW, Preston, MN

Meeting Notes

In attendance: Donna Rasmussen (Fillmore SWCD), Mark Deutschman (HEI), Rachel Olm (HEI), Don Farrow (Fillmore County EDA), John Boyum (Fillmore SWCD), Scott Winslow (MN Corn Growers), Adam King (Dodge SWCD), Matt Drewitz (BWSR), Dean Thomas (Fillmore SWCD), Tom Gile (BWSR), Daryl Buck (Winona SWCD), David Schmidt (TNC), Shaina Keseley (MPCA), Caroline Van Schank (LSP), Sheila Harmes (Winona Co.), Pat Bailey (MDH), Nicole Lehman (DNR), Tim Connolly (USFWS), Tom Pyfforoen (MSCA), Jeff Hastings (TU), Jennifer Ronnenberg (Fillmore SWCD), Matt Feldmeier (Houston Co. Farm Bureau/Root River SWCD), Pete Fryer (SE SWCD TSA #7)

1. Open meeting: Jennifer Ronnenberg opened the meeting at 9:06 a.m.

2. Introductions were made.

3. Approve Agenda

4. New Business
    a. Plan Status Update and Overview: Mark Deutschman, HEI, reviewed the schedule for completing the plan, which should be completed as scheduled. Sections 3,4, an 5 of the plan are the "meat" of the plan. It is assumed at this time that the current MOA-type structure will be used for implementation. The plan is based on local priorities and tied to state clean water funding. Priorities for other organizations are still being incorporated into the plan even if they are not among those at the local level. Still need to identify the roles and responsibilities to get those done. A question was asked about how to define flooding since it can vary by scale. Mark responded that flooding is looked at by the damage that is done to ag land, transportation infrastructure and to communities. There are different magnitudes of flooding that cause different types of problems. Flood prone areas with historic damage are being mapped. Structural practices are not the only solution; the plan can include creative local solutions for all types of storage to modify the amount of water leaving the landscape.
    b. Opportunities for Providing Comments on the Draft Plan: Opportunities for input include the prioritization process, protection strategies, measurable goals, implementation program initiatives, identifying science gaps, delivery of conservation programs, policy needs for effective implementation, identifying capital improvement projects, the implementation process (governance, administration, budget), and roles and responsibilities (e.g. MOA). The plan is a road map of how to accomplish goals, and lays the framework for grant proposals. Non-governmental organization goals are incorporated into the plan; need to identify how they mesh with local priorities.
    c. Process for Incorporating Advisory Committee Comments: High level comments should go to the Policy Committee for the August 31st meeting. Details and markups will come later.
    d. Discussion about Draft Plan Content: Sections 1, 2, and 5 are ready for review.
        i. The maps were discussed. Due to the amount of information on each one, it gets difficult to interpret them. It was suggested to break down the watershed with a map for each HUC10 and put separate resource concerns on each map. This gets to be a large number of maps, so a map book in the appendix may be more feasible. The data to make the maps will also be made available so areas can be zoomed in. Mapping livability and sustainability will be a challenge and may not be feasible; instead may just include explanations of what those priority resources involve.

ii. Emerging issues include climate change and how to address it locally; funding delivery that is different from existing methods to ensure implementation (e.g. block grants); collaboration with NGOs linking their goals to the initiatives in the plan.
iii. The research section includes something about mapping Drinking Water Supply Management Areas (DWSMAs) and Wellhead Protection Areas (WPAs) which is led by the state; how might the local plan enhance this?
iv. Land acquisition is something that could be added in section 5.1.1 (Types of Assistance).
v. The table of practices is not all inclusive, and the title/introduction should indicate that, e.g. "…including but not limited to…."
vi. Education and outreach needs to be expanded to include such things as civic engagement, which goes beyond traditional one-time contact educational programs.
vii. In the Capital Improvements list, the last two items present the idea of identifying a HUC10 and all the practices needed for restoration and protection and then applying for all the funds needed as a whole.

e. Responsibilities as Organization Representative: Take information back to the organization and build consensus for comments to bring back to the planning process.

5. Next meeting
   a. Confirm topics for discussion at future Advisory Committee meetings: The consensus was that plan review be the priority for the next meetings using the same format.
   b. Review dates for upcoming meetings: Next meeting is Monday, September 21st at 9:00 a.m. to review section 3 of the plan. Comments should be submitted within three weeks after the meeting.
   c. Agenda items

6. Adjourn: 12:15 p.m.

<u>Upcoming Meetings of the Policy Committee:</u>

October 5, 2015: Policy Committee meeting
November 2, 2015: Policy Committee meeting
November 30, 2015: Policy Committee meeting
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Advisory Committee for Root River, One Watershed One Plan
Monday, October 19, 2015, 9:00 AM – 12:00 PM
Chatfield Public Library, Intersection of Hwy 52 and Hwy 30 in Chatfield

In attendance: Don Farrow (Fillmore County EDA), Jenny Mocol-Johnson (BWSR), Nathan Redalen (Farmer, MN Association of Townships), Dean Thomas (Fillmore SWCD), Jennifer Ronnenberg (Fillmore SWCD), Donna Rasmussen (Fillmore SWCD), John Boyum (Fillmore SWCD), Jack Overgaard (UMN Extension, Winona County), Sheila Harmes (Winona County), Pat Bailey (MDH), Matt Drewitz (BWSR), Tim Connolly (USFWS), Kevin Kuehner (MDA), David Schmidt (TNC), Daryl Buck (Winona SWCD), Linda Dahl (SE MN Water Resources Board), Justin Hanson (Mower SWCD), Aaron Gamm (Mower SWCD), Gina Bonsignore (MN DNR), Adam King (Dodge SWCD).

Jennifer Ronnenberg opened the meeting followed by introductions.

Section 3 Review: The review was divided into two segments: Groundwater and Surface Water (9:15-10:15) and Social Capacity/Sustainability of Communities and Landscape Features/Water Resources Infrastructure (10:45-11:30). Four groups formed; groups 1 and 2 reviewed Groundwater and groups 3 and 4 reviewed Surface Water. After the group review, an oral report was given to entire committee. The same process was used for the remaining parts of section 3. Due to shortage of time, not all of section 3 was reviewed. The comments will be incorporated into a version for the Policy Committee to review at their next meeting on November 2nd.

Next meeting: The next meeting date is still to be determined depending on how quickly the Policy Committee completes review of Section 3 and when Section 4 is ready for review (planned for the end of the year).

<u>Upcoming Meetings of the Policy Committee:</u>

November 2, 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
November 30, 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Advisory Committee for Root River, One Watershed One Plan
March 7, 2016, 9:00 AM – 12:00 PM
Meeting Notes

In attendance: Kevin Kuehner (MDA), David Schmidt (The Nature Conservancy), Shaina Keseley (MPCA), Tim Ruzek (Mower SWCD), Tim Connolly (US Fish & Wildlife Service), Sheila Harmes (Winona County), Daryl Buck (Winona SWCD), Dean Thomas (Fillmore SWCD), Dean Schrandt (Dodge County), Ben Roush (MPCA), Jeff Hastings (Trout Unlimited), George Poch (Hiawatha Valley RC&D), David Johnson (BWSR), Jennifer Ronnenberg and Donna Rasmussen (Fillmore SWCD)

Committee members reviewed section 4 of the draft plan by heading (or by strategy) in the Implementation Table (Table 4-5) rather than line by line. This section will be reviewed by the Policy Committee at the April 11th meeting with the comments from the Advisory Committee included.

The meeting adjourned about noon after which the Planning Work Group met.

Meeting of the Policy Committee for Root River Area One Watershed One Plan
Wednesday, January 21, 2015, 9:00 AM – 12:00 PM
Fillmore County Office Building, 902 Houston Street NW, Room 108, Preston, MN

Meeting Minutes

1. Jennifer Ronnenberg, Fillmore SWCD Water Management Coordinator, opened the meeting. Following introductions, she reviewed the revised agenda.

2. Introduction to the Root River Area One Watershed, One Plan: Steve Lawler, BWSR Board Conservationist, provided the background and history of One Watershed, One Plan. He first thanked the Policy Committee for their commitment to the process. He reviewed the timeline of water planning in Minnesota starting with the Soil Conservation Law 80 years ago which established SWCDs. Each SWCD had an annual comprehensive plan that addressed flooding and soil conservation; water quality concerns were added later. In 1938, the Burns-Homer-Pleasant SWCD in Winona County was the first established in Minnesota. Other key dates: 1955 Watershed Act that established watershed districts (WD); 1972 Federal Clean Water Act; 1982 Metropolitan Surface Water Management Act; 1987 County Water Management Act.
   More than 260 entities do water planning in Minnesota and there are 150 water plans. (There are 6 local water plans and 1 watershed district plan in the Root River planning area.) At the 2011 Water Summit, the Local Government Water Round Table, made up of counties, SWCDs and WDs, met to determine how to bring better coordination and efficiency to water management. The Policy Paper from this effort is based on four recommendations: 1) scale (watershed); 2) streamline statutes and programs; 3) funding is predictable and equitable; and 4) remove barriers (share and coordinate services).
   MPCA's Watershed Approach focuses on assessment and the Watershed Restoration and Protection Strategy (WRAPS) process to identify pollutants in a watershed and strategies to meet water quality standards. The steps in the process are 1) monitoring and assessment, 2) water resource characterization and problem investigation, 3) WRAPS, 4) comprehensive watershed plan, and 5) ongoing implementation in a 10-year cycle.
   In 2012, the Water Management Coordination Act was passed which allows a comprehensive plan, local water management plan, or watershed management plan, may serve as substitutes for one another or be replaced with a comprehensive watershed management plan. BWSR established the planning area boundaries. BWSR's guiding principles are: 1) water planning will stay local and that past planning history, 2) leverage past planning history and experience to streamline plans, 3) leverage streamlined plans to increase efficiency of implementation, and 4) build off the Watershed Approach (WRAPS). The timing is good for the Root River because the WRAPS is almost complete. As one of five pilots in the state, the experience here will be used to learn how to improve the process so that statewide guidance documents will be ready for use by 2016. The key words are prioritized, measurable and targeted implementation; goals must be achievable. 1W1P= WRAPS + GRAPS (science and analysis) + aspects of comprehensive water management + citizen values/priorities (citizen committees) + local adoption and fiscal projections and commitments + join agreement about who does what where.

   Jennifer reviewed the consultant's schedule which will result in a draft document by this fall and showed a map of the planning area. The Planning Workgroup and consultant will work closely together in this process. The Planning Workgroup has held monthly meetings since August to develop the MOA, RFP and bylaws. The RFP went out to nine consultants, and seven proposals were returned. The Planning Workgroup ranked all seven and selected three for interviews in December. Houston Engineering is the unanimous recommendation from the Planning Workgroup.

3. Organizational structure – Karin Sonneman, Winona County Attorney, has coordinated legal review with the other county attorneys in the planning area. She also worked with Brein Maki (Winona SWCD), Sheila Harmes and Natalie (Winona County), Donna Rasmussen and Jennifer Ronnenberg (Fillmore SWCD), and Jennifer Wolf (MICT).
    - The MOA is not a Joint Powers Board (JPB). It outlines cooperation among the 13 entities to develop a plan for the Root River watershed. Liability language is based on MCIT recommendations. This is a Joint Powers Agreement (JPA) to form a collaborative entity for the purposes of planning similar to a mutual aid agreement for public safety. A JPA is not a JPB.
    - The bylaws govern the business of the Policy Committee. Robert's Rules of Order are used; Karen has a simplified version which she will provide.
    - The Policy Committee will appoint a temporary Chair to conduct the election of a permanent Chair, Vice Chair and Secretary.
    - The contract submitted by Houston Engineering still needs changes; it was written for engineering projects, not a planning project. The contract will be signed by the Policy Committee Chair, the Winona SWCD Chair as fiscal agent, and the Fillmore SWCD Chair as day-to-day contact, all on behalf of the Policy Committee.
    - It is the consensus of the Policy Committee that if the county attorneys are ok with Karin's opinions, then it is ok with the Policy Committee as long as the other county attorneys are kept informed.
    - The bylaws state that alternates may be appointed; this is recommended so it is easier to meet a quorum.
    - Open meetings: notice of meetings must be posted. Data practice laws apply to this group.
    - Sharepoint is being developed by the DNR to allow limited access by committee members. A public website should also be maintained for transparency. Fillmore SWCD has a Root River web page which could be used and could include links to the other counties and SWCDs.

4. Action Item: Appointment by Membership of Temporary Chair to conduct Elections of Chair
   Marcia Ward nominated Karin Sonneman as Temporary Chair; seconded by Matt Flynn; passed unanimously.
   Sonneman called for nominations for Chair. Matt Flynn nominated Duane Bakke; Dana Kjome moved that nominations cease and cast a unanimous ballot; Marcia Ward seconded the motion. The motion passed unanimously.

5. Action Item: Elected Chair conducts election of Vice-Chair and Secretary
   Chair Bakke called for nominations for Vice Chair. Marcia Ward nominated Jerry Mueller; seconded by Dana Kjome. The Chair called for further nominations three times; there were no further nominations. The Chair called for the vote, and the motion passed unanimously.
   Chair Bakke called for nominations for Secretary. Dana Kjome nominated Marcia Ward; seconded by Leonard Leutink, Jr. The Chair called for further nominations three times; there were no further nominations. The Chair called for the vote, and the motion passed unanimously.

6. Action Item: Adoption of Bylaws by the Membership
   Question regarding expenses on page 4, item 5: the Policy Committee sees that the work is completed and approves Winona SWCD to make the payment. Notifications will be sent to the primary contact by email; replies should be sent to Jennifer Ronnenberg if unable to attend to assure there is a quorum. Names for alternates should be sent to Jennifer. If the primary contact is unable to attend, they should contact the alternate. Hard copies of additional materials will be mailed to the members. Matt Flynn moved to approve the bylaws; Glen Hahn seconded the motion; 100% approved the motion.

7. Action Item: Approve hiring of the recommended consultant firm to write the watershed plan. County Attorney Sonneman has the proposed changes to the contract with Houston Engineering which must still be reviewed by their representative. Matt Flynn moved to authorize the Chair to sign the agreement pending legal and staff review; seconded by Leonard Leutink, Jr.; motion passed unanimously.

8. February meeting
    a. Choose location, date and time: The fourth Wednesday was agreed upon for the next meeting, which will be Feb. 25th at 9 a.m. in Room 108 of the Fillmore County Office Building. Jennifer will check on the availability of Houston Engineering.
    b. Agenda items
        i. Kick-off event planning: The consensus is to have two events on the same day, one in the afternoon and one in the evening in Preston in Room 108. Press releases should go out to Agri-News, radio stations, local papers (Bluff Country Reader, Fillmore County Journal, Houston County News). The Root River citizens group may help with meeting facilitation. Have cards available for people to write their questions and to be added to the mailing list. A presentation should be given first to orient visitors about the planning process. Committee members will donate money for coffee and snacks.

    Prior to adjourning, those in attendance signed the bylaws.

9. Adjourn: Motion to adjourn by Steve Connelly; seconded by Rick Gehling; motion passed at 11:10 a.m.

Respectfully submitted,

Marcia Ward, Secretary

Upcoming Meetings of the Policy Committee:

Meetings are anticipated but have not yet been scheduled. Dates and topics are based on the work plan.

February 2015: Prioritization Process/Development
Mid-March 2015: Public "Kick-off" Meeting
April 2015: Review of Priorities
July 2015: Review of Goals/Preparation for Implementation Schedule
September 2015: Review of Draft Implementation Schedule
November 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Policy Committee for Root River, One Watershed One Plan
Monday, March 2, 2015, 9:00 AM – 12:00 PM, Fillmore County Office Building

In attendance: Tim Gabrielson (Mower Co.), Glen Hahn (Dodge SWCD), Dana Kjome (Houston Co.), Jerry Mueller (Winona SWCD), Duane Bakke (Fillmore Co.), Leonard Leutink (Fillmore SWCD), Marcia Ward (Winona Co.), Bob Meirau (Crooked Creek WD), Jim Kellogg (Mower SWCD)

1. Open Meeting: Meeting was called to order by Chair Bakke at 9:08 am followed by introductions.
2. Approve Agenda: Moved by Jerry Mueller to approve the agenda; second by Tim Gabrielson; motion carried unanimously.
3. Approve minutes of the 1/21/15 meeting: Move by Tim Gabrielson to approve the minutes; second by Dana Kjome; motion carried unanimously.

4. Schedules
   a. Choose a new meeting day of the month to use on an ongoing basis: After a short discussion, Jerry Mueller moved to set the first Monday of every month as the meeting date for the Policy Committee at the Fillmore County Office Building; second by Bob Meirau; motion carried unanimously. (Later discussion revealed conflicts for the first Monday in June and September, so June 3 and September 14 were selected as alternates. September 14 may have a conflict with SE MN Water Resources Board; another date will be selected later if that is the case.)

5. Introduction to Houston Engineering Inc.: Jennifer Ronnenberg introduced Mark Deutschman of Houston Engineering.
   a. Presentation by HEI – Mark Deutschman covered the following topics. (A copy of the entire presentation is available.)
      i. Consultant Introduction: Other staff assisting with the Root River plan are Drew Kessler and Larry Kramka. HEI is only working on the Root River pilot.
      ii. What is One Watershed One Plan (1W1P): The concept began from discussions in the Local Government Round Table to reduce the number of plans related to water. The Clean Water Accountability Act of 2013 requires prioritization, targeting and measurability for better implementation for the money spent.
      iii. Policy Committee Role: The role of the committee is to make final decisions and to review and approve the draft plan outline, information about the priority resources, concerns and issues, targeting implementation, and the final version of the plan. Constructive discussion and consensus direction are needed on plan development to guide the Planning Workgroup; also approve an Advisory Committee with a good variety of representation, and fulfill the requirements in the MOA.
      iv. Probable Schedule for Plan Completion: Draft completed by the end of 2015; final plan completed after public hearings in spring 2016.
      v. Draft Stakeholder Plan: Provides guidance regarding committee roles and conduct of the Advisory Committee who "are expected to act in a professional, constructive or contributory manner."
      vi. Thoughts on Process for Identifying Priority Concerns: The prioritization process will involve various entities and venues. It is very important for the Policy Committee and others to communicate expectations for the plan. A measure of success will be the projects implemented on the ground; measuring water quality changes could take longer than ten years.
      vii. Draft Plan Outline: The yellow items are required elements to meet BWSR statutory content requirements; blue items are optional additions.
      viii. Opportunities for Policy Committee Input

   Questions were asked regarding pond cleanouts (link to a concern and determine the effect and cost), economic sustainability (needed to make implementation feasible), diverse geography (issues related to local geography will be incorporated into the plan—need to report to the state how priorities are set), relationship of the Root River plan to other state and federal plans (federal Clean Water Act is addressed in the plan with regard to WRAPS and TMDLs; measureable goals will be identified along with strategies

to reach those goals). This is a ten-year plan that is a living document which can be changed to meet challenges and opportunities that arise in that timeframe. An annual planning process will be built in. There will be a need to determine how to organize post-planning to address how implementation will happen. Letters from the state agencies are due by March 9th, and their concerns will be incorporated into the Priority Resources/Concerns/Issues table by HEI. Those letters will be scanned and emailed to the Policy Committee.

6. Discuss plans for the Public Kick-off Event – Planning Workgroup & HEI will advise
   a. Choose date (middle of April at the latest) and location: Wednesday, April 8 was chosen. Staff will check on the availability of the Lanesboro Community Center; alternate sites are Fountain Community Center or Tri-County Electric in Rushford (may be too far for Mower residents).
   b. Decide format: structured presentation vs. open house with hourly shorter presentations: The time will be from 4-8 pm with an open house format and hourly presentations by HEI to provide a formal introduction to the planning process. A survey will be developed that can be filled out at the open house or online or published in newspapers. Sheila Harms provided an example of a layout for an open house. Since this is mainly an event to get the word out about the planning process, contacting and involving the media is very important, including the TV stations (KTTC, KAAL, and LaCrosse-WKBT or WXOW), as well as press releases, radio, links on county and SWCD websites.
   c. Review logo ideas and online survey options – Planning Workgroup staff will present
      i. To see the Red Lake 1W1P survey example go to the website at: http://www.redlakewatershed.org/ and click the link for the "One Watershed, One Plan Survey" on the top right of the webpage. Sheila also had a sample handout with logo and information about One Watershed, One Plan and a postcard for returning comments at the meeting or to be mailed in later.. It was suggested that comments or a survey could be filled out on a computer at the open house, and also that a list of options be provided for people to choose from similar to the Red Lake WD online survey.

   Jim Kellogg moved to use the Root River One Watershed, One Plan logo with some modifications to allow it to printed in a smaller format; second by Jerry Mueller; motion carried unanimously.

7. Action Item: Consider approval of the Advisory Committee members
   a. Refer to list created by Planning Workgroup: There was lengthy discussion about the number of people on the list, especially from DNR and other state agencies. The role of the Advisory Committee is to provide input to and help rank priorities with the Policy Committee. Suggestions were to divide the committee into two subcommittees, such as one technical and the other non-technical, or utilizing the existing local citizen groups, which have members that represent many of the stakeholder groups on the list. The Advisory Committee should be active in April to begin providing input for setting priorities. Staff will modify the list based on the suggestions made and send it out via email for review to be ready for adoption in April.

   Marcia Ward moved to bring Item #7 back to the next meeting; second by Bob Meirau; motion carried unanimously.

8. Next meeting
   a. Location, date and time: Monday, April 6th at 9 am at the Fillmore County Office Building
   b. Agenda items: Item #7, begin work on setting priorities.

9. Adjourn: Motion by Leonard Leutink to adjourn—passed unanimously. Meeting adjourned at 11:50 am.

Respectfully submitted,

Marcia Ward, Secretary

Meeting of the Policy Committee for Root River, One Watershed One Plan

Monday, April 6, 2015, 9:00 AM – 12:00 PM, Fillmore County Office Building

In attendance: Tim Gabrielson (Mower Co.), Glen Hahn (Dodge SWCD), Dana Kjome (Houston Co.), Jerry Mueller (Winona SWCD), Duane Bakke (Fillmore Co.), Leonard Leutink (Fillmore SWCD), Marcia Ward (Winona Co.), Bob Meirau (Crooked Creek WD), Richard Gehling (Mower SWCD), Matt Flynn (Olmsted Co.), Steve Connelly (Olmsted SWCD)

1. Open meeting: The meeting was called to order at 9:05 a.m. by Chair Duane Bakke

2. Approve Agenda: Marcia Ward moved to approve the agenda with the addition of 5.c. Prioritization Discussion; seconded by Jerry Mueller; approved unanimously.

3. Approve minutes of the 3/2/15 meeting: Tim Gabrielson moved to approve the minutes; seconded by Dana Kjome; approved unanimously

4. Old Business
    a. Action Item: approve the Advisory Committee list: The draft Advisory Committee list was reviewed. Suggested additions are MN County Planning and Zoning Association, County Feedlot Officers, SE MN Ag Alliance, ag retailers association, and Southern Minnesota Tourism Association. It was moved by Jerry Mueller to approve the Advisory Committee list with those additions; seconded by Leonard Leuntink; approved unanimously. A letter or email will be drafted to be signed by Chair Bakke to be sent to the non-governmental organizations. A master email list will be developed for the Committee.
    b. Discuss final details of the Public Kick-off Event:
        i. It was decided to serve coffee, lemonade, water and cookies for the open house. Tom Gile from BWSR indicated that this would be an eligible grant expense.
        ii. Chair Bakke will be the spokesperson to speak with the media.
        iii. Signage outside the building would be helpful for people to find the location.

5. New Business
    a. Action Item: Matt Flynn moved to approve payment of HEI Inc. invoice #0023875, dated March 5, 2015 for $6,381.55; seconded by Jerry Mueller; approved unanimously.
    The Financial Report was provided by Winona SWCD. Jerry Mueller moved to approve the Financial Report; seconded by Dana Kjome; approved unanimously.

    b. Discussion on the Draft Resources, Concerns and Issues table: Mark Deutschman, HEI, provided an overview of the priority concerns matrix which will be central to developing the watershed implementation plan. He reviewed the definitions of Resource, Potential Resource of Concern, and Issues emphasizing that there was a clear intention not to use judgmental statements in the Issues. The numbers in the table will be used to cross reference to the concerns in the agency letters and to make it easy to track the connections to other comments made by the public. A column will be added for ranking the concerns by the public, the Advisory Committee, the Policy Committee and the Planning Workgroup. Other columns will be added for Measurable Goals and Strategies to Achieve the Goals. The matrix is a working document and a draft until the final plan is developed. We need to start adding public input and other issues. All issues will be cataloged. The Root River plan is a Priority Concerns Plan; the priorities will rise to the top. The Policy Committee makes the final decisions.
    c. Prioritization Discussion: The process for prioritization at the open house will be to place dots next to the Potential Resources of Concern that are most important. Different colors will be used for residents/landowners vs. non-residents of the watershed. Each person will be given two dots to indicate their priorities. The process used will be included in the response

letters to the agencies as well as using the matrix to reference that their concerns were included.

6. Next meeting:
    a. Review dates for upcoming meetings: The dates are ok through August—May 4, June 3, July 6, and August 3.
    b. Agenda items: no agenda items were discussed.

7. Adjourn: Moved by Matt Flynn to adjourn at 10:50 a.m.; seconded by Richard Gehling; approved unanimously.

Marcia Ward, Secretary

Meeting of the Policy Committee for Root River, One Watershed One Plan
Monday, May 4, 2015, 9:00 AM – 12:00 PM
Fillmore County Office Building, 902 Houston Street NW, Room 108, Preston, MN
Meeting Minutes

In attendance: Glenn Hahn, Matt Flynn, Marcia Ward, Paul Schollmeier, Dana Kjome, Duane Bakke, Leonard Leutink, Tim Gabrielson, Jim Kellogg

1. Open meeting: Chair Bakke opened the meeting at 9:05 a.m.
2. Approve Agenda: Moved by Jim Kellogg to approve the agenda; seconded by Glenn Hahn; motion carried unanimously.
3. Approve minutes of the 4/6/15 meeting: Moved by Tim Gabrielson to approve the minutes; seconded by Leonard Leutink; motion carried unanimously.
4. Old Business
    a. Action Item: Approve the Stakeholder Involvement Plan: Mark Deutschman, HEI, reviewed the purpose of the plan to define the roles and responsibilities of the committees and to ensure and encourage contributions to the process that are positive and constructive by the Advisory Committee. It was suggested that in addition to posting information on the websites that whatever goes onto the websites also be emailed to the Advisory Committee contact list to be sure the information is available to them. The makeup of the Planning Work Group was also discussed; it is mostly SWCD staff with some county staff. Other county staff has involvement through the Advisory Committee. Leonard Leutink moved to approve the Stakeholder Involvement Plan; seconded by Tim Gabrielson. There was further discussion regarding the definition of "acceptance" on page 3; the primary mechanism will be by consensus to gather input from the stakeholders. It will be important to get information out to the stakeholders as the targeted implementation plan is developed. The motion passed unanimously.
    b. Perspectives on Public Meeting: Jennifer Ronnenberg reviewed the comments compiled from the April 8th kickoff event; we received one comment card in the mail while the rest were submitted at the event. There were 87 signatures on the sign in sheet although some people did not sign in so the actual number is higher. There were no new issues identified that were not on the matrix. Public input will help the Policy Committee determine priorities. Most of the dots were placed in drinking water protection and flooding categories. An updated matrix was made for today's Policy Committee meeting showing where the agency comments are being addressed in the matrix.
5. New Business
    a. Action Item: Approve payment of HEI Inc. invoice #0024208, dated April 3, 2015 for $13,055.13: Moved by Matt Flynn to approve payment to HEI; seconded by Dana Kjome; motion carried unanimously.
    b. Response to Agency Comments: The letter acknowledges the agencies' comments, and the matrix will be attached showing that their concerns are being addressed. The letter also reminds them that it is the Policy Committee that ultimately decides the priorities in the plan. The matrix will also be emailed to the stakeholders. Marcia Ward moved to accept the draft letter and have it signed by Chair Bakke; seconded by Matt Flynn; motion carried unanimously.
    c. Updated Resources, Concerns and Issues Table: Mark Deutschman presented PowerPoint slides that reviewed the process used to introduce a topic to the Policy Committee, then to discuss and debate the topic, then to make a decision over a series of three meetings, ideally. He also reviewed a flow chart of the One Watershed, One Plan process. The Committee requested that all the slides be sent to them, including the flow chart to use as a guide as they work through the process.
    d. Summary / presentation of type of data available for developing Targeted Implementation Plan: Drew Kessler, HEI, explained using a presentation, the parallel project going on to develop the Prioritization, Targeting, Measurable Application (PTMapp) with funding from BWSR to the International Water Institute through the Red River Watershed Board. The tool is to be used by

LGUs to meet the requirements of the Clean Water Fund Accountability Act to ensure that Clean Water Funds result in measurable improvements in water quality. The desktop version will be ready for use in June. The Root River and the Red Lake River have been chosen as pilot areas to test the tool. It is not required that the results be used, and there may be a need for further analysis. He showed examples of how the tool can be used, such as identifying sources and loads of sediment, phosphorus and nitrogen; or peak discharges. Even though local staff can often identify where practices are needed, the tool can justify why the practice is needed in a certain location. BMP and conservation practice treatment costs can be calculated, for example, $/ton of sediment reduced to determine where the most reductions can be achieved related to the cost. HEI applied for a grant to compare the tool's calculations to actual monitoring data in the Root, but the project was not funded. The main implication for the application for the Policy Committee is *to identify locations of priority resources of concern* on the landscape and in identifying issues and what is practical for achieving water quality goals based on the costs. Justin Hanson from Mower SWCD remarked that having this information available to landowners in the Turtle Creek Watershed was well received because it helped explain to the landowner why it's a priority. The data can also be used for funding requests. Priorities need to be identified within the next six weeks or so to be able to begin developing the targeted implementation plan. One of the emerging issues could be the need for stable and consistent funding (such as a block grant) to implement the watershed plan. The tool can show progress toward meeting the water quality goals which improves grant application rankings.

e. Targeted Implementation Plan Structure: Mark showed a draft structure with these categories: General Operations, Statutory Obligations (shoreland, feedlots, etc.), Cost Share (e.g. for urban and rural BMPs, sinkhole protection), Education/Information/Outreach/Data Programs, and Capital Projects (flood control structures, dams, etc.). These can be modified, such as changing Cost Share to Financial Incentives to include low-interest loan programs or property tax incentives. Some statutory obligations are not necessarily required that the counties do, such as feedlots, which can be regulated by the state. Things such as soil health could fall under more than one category.
f. Thinking About the Future – Structure for Plan Implementation: It is necessary to begin the discussion about how to move forward as a group to do implementation. Mark showed examples of the types of governance models that could be used to make decisions about implementation and funding. This decision will affect how the implementation plan is developed. He has other documents which describe local water governance options. This topic will be covered in more detail by Larry Kramka at the June meeting with a discussion of the pros and cons of each. Marcia Ward noted that this information should be run by the county attorneys and MCIT. A consensus is needed by July. Mark will make available the slides with this information to be sent to the Policy Committee.

Tom Gile informed us that Steve Lawler will be leaving BWSR for a position with the Mower SWCD in mid-May. Tom will be the primary contact with BWSR until the position is backfilled.

6. Next meeting
    a. Review dates for upcoming meetings: June 3rd is the next meeting, which is a Wednesday. It was suggested to get the meeting packets out earlier in order to allow more time to review the materials. The goal is to have them out one week prior to the meeting.
    b. Agenda items: Items will be based on this meeting's discussions.

7. Adjourned at 10:37 a.m.

Marcia Ward, Secretary

Meeting of the Policy Committee for Root River, One Watershed One Plan
Wednesday, June 3, 2015, 9:00 AM – 12:00 PM
Meeting Minutes

In attendance: Glen Hahn, Steve Connelly, Marcia Ward, Jerry Mueller, Dana Kjome, Duane Bakke, Leonard Leutink, Tim Gavrielson, Jim Kellogg. Others present: Sheila Harmes, Rich Enochs, Margaret Lyngholm, Dave Walter, Dan Wermager, Daryl Buck, Joe Smentek, Tom Gile, Skip Langer, Jennifer Ronnenberg, Donna Rasmussen

1. Chair Bakke opened the meeting at 9:04 a.m.
2. Approve Agenda: Motion to approve the amended agenda made by Steve Connelly; seconded by Jim Kellogg; passed unanimously.
3. Approve minutes of the 5/4/2015 meeting: Motion to approve minutes made by Tim Gabrielson; seconded by Jerry Mueller; passed unanimously.
   Introductions were made by those in attendance.

4. Old Business
   a. Establishing the Priority Resources of Potential Concern – Planning Work Group Recommendation

      Mark Deutschman, HEI, gave a status update. Financially, $58,000 has been spent of their $146,093 budget. A draft plan should be ready by September/October for review by the Policy Committee. Key decisions are needed in order to move forward: setting priority concerns and a governance structure. Next big pushes within HEI are to develop a solid internal draft of the plan, draft measurable goals, finish descriptions of initiatives, and finish funding needs and sources.

      Mark described the prioritization process of categorizing the resource concerns as A (4), B (7), or C (11) based on the preferences from all the groups: public, Advisory Committee, Planning Work Group and the local water committees. BWSR requires that priorities be identified. Since things change, priorities will be subject to evaluation annually, and there will be an annual planning process during which priorities can be modified based on current events. Advisory Committee recommendations differed from the local/public; however, the resource concerns and priorities tend to overlap creating a need for good communication between the various groups. All can be measured, there are just differences in how they are measured.

      Concerns maps will be done for each resource in the plan to show where the concerns are in the watershed. His example for groundwater shows public drinking water supplies and springshed boundaries.

      The Policy Committee reviewed the recommendations for priority resource concerns categorized as A, B, or C. Jim Kellogg moved to accept the recommendations for priority resource concerns; Tim Gabrielson seconded the motion. It was noted during discussion that the Policy Committee should indicate their preferences before voting on the motion. The members indicated their preferences on the matrix provided. There was also some discussion on flooding issues and drinking water. Chair called for the vote, which passed unanimously. The preferences of the Policy Committee aligned with those recommended.

   b. Targeted Implementation Plan Structure – A Concept

      Mark reviewed the concept for targeted implementation: Resource→Resource Concern→Issues→Strategies→Metric→Actions→who will do it, when will it be done,

where will it be done, with what initiatives, funding needs and funding resources. He showed an example of a measurable goal using groundwater. Each Resource will have a goal and protection and restoration strategies. In order to reduce overlapping strategies, the strategy will be listed followed by the issues that they address.

c. Governance Concepts for Targeted Plan Implementation

Larry Kramka, HEI, showed a table with the various options for governance. Key questions are 1) What does the system of governance need to do for us? and 2) What are the outcomes form collective decision-making? Some considerations are the ability to receive competitive grants and how to generate revenue for local match; the desire for consistency across the watershed for education/outreach, ordinances, etc.; landowner expectations for consistency across county boundaries; efficiencies for sharing staff; central administration, fiscal management, and reporting; and potential for large capital projects. The options on the table include Lake Improvement Districts and Watershed Management Organizations, which our project would not be eligible to form, but they do have characteristics that might be considered for a new type of governance structure if we want to go that route later. For example, "Watershed Lite", could adopt limited rules for rural development. If we want to track collective accomplishments and to evaluate and modify watershed priorities, the LGUs need to continue to work together in some form. That can begin by using one structure and then change into another later. The consensus of the group was to go forward as a group. The structure will likely be one of the options on the table. More discussion is needed at the next meeting regarding governance structure.

5. New Business
    a. Action Item: approve payment of HEI Inc. invoice #0024756, dated May 05, 2015 for $12,750.20: Motion by Tim Gabrielson to approve the invoice; seconded by Glen Hahn; passed unanimously.
    b. Action Item: approve May 29, 2015 Financial Report : Motion by Tim Gabrielson to accept the Financial Report; seconded by Glen Hahn; passed unanimously.

6. Next meeting
    a. Review dates for upcoming meetings: Monday, July 6th and Wednesday, August 5th are agreed upon.
    b. Agenda items: Governance structure discussion. Karin Sonneman, Winona County Attorney, is willing to be available to answer questions. The August meeting may be a good time for her to attend.

7. Adjourn: Motion by Tim Gabrielson to adjourn; seconded by Jerry Mueller. Meeting adjourned at 11:54 a.m.

Upcoming Meetings of the Policy Committee:

July 6, 2015: Policy Committee meeting: review of Goals/Preparation for Implementation Schedule
August 5, 2015: Policy Committee meeting NOTE CHANGE TO WEDNESDAY
September 14, 2015: Possible Policy Committee meeting: Review of Draft Implementation Schedule
October 5, 2015: Policy Committee meeting
November 2, 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Policy Committee for Root River, One Watershed One Plan
Monday, July 6, 2015
Meeting Minutes

In attendance: Tim Gabrielson, Glen Hahn, Dana Kjome, Jerry Mueller, Steve Connelly, Marcia Ward, Duane Bakke, Matt Flynn, Richard Gehling

1. The meeting was called to order by Chair Bakke at 9:06 a.m.

2. Approve Agenda: Tim Gabrielson moved to approve the agenda with the addition of item h. under New Business, an action item to approve payment of the invoice from Winona SWCD for $307.25; seconded by Matt Flynn; motion passed unanimously.

3. Approve minutes of the 6/3/2015 meeting: Marcia Ward moved to approve the minutes; seconded by Steve Connelly; motion passed unanimously.

4. Old Business
   Status update:
   Mark Deutschman, HEI, reported that the draft plan will likely be available to the Policy Committee in September. A draft was delivered to the Planning Work Group (PWG) on Wednesday. It is about 75% done without PWG review. Time will be taken at this point for a thorough review.

   There is still work being done on the protection strategy to be consistent with state definitions. Implementation functions in the plan include determining how to implement the plan either with existing staff or with dedicated staff to do daily operations, fiscal management, etc. The roles for the committees as they are drafted now assume that implementation will be done with existing staff. It is anticipated that an annual work plan and budget will be approved by the Policy Committee with recommendations from the PWG. Next meeting's governance discussion with the Winona County Attorney should consider things such as competitive grants, consistency (e.g. ordinances), landowner expectations, efficiency, central administration/ fiscal responsibilities/ reporting, and capital projects. Drivers include funding needs and capital improvements.

   The plan review process will start with the PWG, then go to the Advisory Committee, the Policy Committee, and the public. There was lengthy discussion about the review process and how and when the Policy Committee and members of the public will review the draft so that there is still opportunity for input.

   Mark went through the sections of the plan. A key decision was identifying the priority resource concerns. Measurable goals were completed by HEI last week. He showed an example of the relationship between goals, strategies and actions. The actions will go into a table that identifies them as either protection or restoration, the metric and amount, the location, funding, responsible party and the timeline. The table is a tool for the PWG to do the annual work plans. There are two ordinances that could be a focus watershed-wide: soil loss and sinkholes. Sediment is an issue affecting a resource concern (rivers and streams), and sinkholes are a direct conduit to groundwater. Five of the six counties have a soil erosion ordinance. Although different, they could be modified to be more consistent. A sinkhole ordinance would relate to setbacks and buffers. Capital projects are not required in the plan but may want to be included. Examples are repairing flood control structures, constructing more larger storage structures, larger streambank projects, or projects in entire tributaries.

There was discussion about the Advisory Committee and PWG meetings and the need for the Policy Committee to have more information about those meeting discussions. Copies of those meeting notes will be sent to the Policy Committee.

The August meeting for the Policy Committee will include discussions about governance and money related to how existing budgets are linked to the initiatives.

5. New Business
   Action Item: Approve payment of HEI Inc. invoice #0025135, dated June 01, 2015 for $23,411.50: Moved by Matt Flynn to approve payment; seconded by Dana Kjome; passed unanimously.
   Action Item: Approve payment of Fillmore SWCD invoice #8637, dated June 29, 2015, for $11,298.81 for expenses from January 21 to June 19, 2015: Moved by Steve Connelly to approve payment; seconded by Matt Flynn; passed unanimously.
   Action Item: Approve June 29, 2015 Financial Report: Moved by Matt Flynn to approve the June Financial Report; seconded by Glen Hahn; passed unanimously.
   Action Item: Approve payment of Winona SWCD invoice #2015-87 for $307.25: Moved by Tim Gabrielson to approve payment; seconded by Jerry Mueller; passed unanimously.

   Update on Advisory Committee Meeting: The Advisory Committee meeting was held last Tuesday, June 30. It was mostly agency representatives in attendance. Business and producer groups were missing. Every attempt is being made to include these groups which will be documented. There was discussion about identifying specific areas where Advisory Committee help is needed, e.g. financial incentives and where they can contribute either technical or financial assistance. The Advisory Committee discussed the method for communicating with the Policy Committee with the consensus still to communicate through the PWG rather than directly with the Policy Committee. One attendee did point out the differences between the Advisory Committee and others who had input into the priority resource concerns.

6. Next meeting
   Review dates for upcoming meetings: There is a conflict for the September 14th meeting, so that meeting is moved to August 31st.

   Agenda items: Governance discussion with Winona County Attorney; money and estimating budgets linked to initiatives.

   The committee is encouraged to view the websites for the other pilot projects.
   Dodge SWCD distributed information for a field day about saturated buffers on July 21 at Kasson.

7. Adjourn: Moved by Marcia Ward to adjourn; seconded by Glen Hahn; passed unanimously.

Marcia Ward, Secretary

Upcoming Meetings of the Policy Committee:
August 5, 2015: Policy Committee meeting NOTE CHANGE TO WEDNESDAY
~~September 14, 2015~~ **August 31, 2015**: Policy Committee meeting: Review of Draft Implementation Schedule
October 5, 2015: Policy Committee meeting
November 2, 2015: Review/Approval of Draft Plan Document and Reassess the Formal Agreement
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Policy Committee for Root River One Watershed, One Plan
Monday, August 31, 2015, 9:00 AM – 3:00 PM
Meeting Minutes

In attendance: Board Members: Glen Hahn, Matt Flynn, Steve Connelly, Marcia Ward, Jerry Mueller, Dana Kjome, Loren Lapham, Duane Bakke, Leonard Leutink, Tim Gabrielson
Guest: Daryl Buck, Sheila Harmes, Karin Sonnemen, Tom Gile, Melissa Lewis, Rachel Olm, Adam King, Justin Hanson, Skip Langer, Donna Rasmussen, Jennifer Ronnenberg

1. The meeting was opened by Chair Bakke at 9:07 a.m.
2. Approve Agenda: Moved by Leonard Leutink to approve the agenda; seconded by Glen Hahn; passed unanimously.
3. Approve minutes of the 7/6/2015 meeting: Moved by Tim Gabrielson to approve the meeting minutes for 7/6/2015; seconded by Matt Flynn; passed unanimously.
4. Old Business
    a. Action Item: None
5. New Business
    a. Action Item: Moved by Steve Connelly to approve payment of HEI Inc. invoice #0025558, dated July 1, 2015, for $29,458.00; seconded by Glen Hahn; passed unanimously.
    b. Action Item: Moved by Marcia Ward to approve payment of HEI Inc. invoice #0026115, dated August 4, 2015, for $16,689.56; seconded by Leonard Leutink; passed unanimously.
    c. Action item: Moved by Jerry Mueller to approve the August 27, 2015 Financial Reports; seconded by Tim Gabrielson; passed unanimously.
    d. Report from Policy Committee members re: feedback from their respective Boards: This item will be on future agendas. Bakke reported that he is informing his Board of the meetings and the work of the consultant. Ward reported that Sheila Harmes had provided an update to the Winona County Board. Comments from the Board were that the existing MOA structure is preferred moving forward, and they prefer a structure without taxing authority. Hahn reported his communication with the Dodge County Commissioner regarding their representation on the Policy Committee with respect to the small area of their county that is in the Root River watershed. There was also discussion about how to handle evaluating the cost/benefit of a targeted project versus one that is broader across the watershed. Flynn reported that Olmsted County does not want another JPB formed.
    e. Update on Advisory Committee Meeting and Engagement Process: Meeting notes were provided in the Policy Committee packets. The Advisory Committee members are being notified of the Policy Committee meetings in case they want to attend. Their preference is to continue reviewing the plan sections rather than having meetings about specific topics. One Advisory Committee comment was to add land acquisition as a type of assistance, although it may not be something done by the 1W1P LGUs, it could be done by a partner agency or organization.
    f. Presentation of Plan Status and Decisions: Mark Deutschman reviewed progress on the plan, which is a working draft and input will continue to be used to revise it until the plan is approved by the Policy Committee. Section 3 is under review by the Planning Work Group. Section 4 will be built on the actions in section 3. Tasks are still on schedule. The MOA type structure is assumed for implementation at this point. He reviewed the plan features. There are still parts of the plan to be completed, including the flood prone areas mapping. The Policy Committee "Watch List" includes the policy and funding emerging issues as they relate to implementation, incentive-based initiatives in section 5, roles in general, capital improvements and how local funding can improve chances for other sources of funding, and the funding needed to get projects on the ground. There was extensive discussion regarding capital improvement projects and what should or should not be on the list. The committee members are asked to bring the capital improvements list to their respective boards to get input on what to include in the table. Members are reminded of their roles

as a representative of their boards: to share information with their boards, gather input, and get a consensus on feedback for the Policy Committee. Mark explained the Estimated Current Revenue sheet he had prepared, which does not include any competitive grants or NRCS funding. Only $47,000 per year is currently available for implementation. Another $645,000 is used for staffing to implement both state and federal projects, which can be as much as $5 million per county. He had an example of funding one capital improvement project every 5 years by setting aside a designated amount of funds each year. The overall purpose of this exercise is to compare what can be done with existing funds to the goals that are in the plan.

g. Governance Discussion with Winona County Attorney and MCIT: Jen Wolf and Joel Swanson provided the perspective of MCIT, which represents all the LGUs except Olmsted County and SWCD. The governance decision is ultimately a policy decision, and MCIT will not push in any one direction. Their advice is to consider 3 questions: 1) What are the entity's goals? 2) What authority do the individual boards want to maintain? 3) What authority are the boards willing to delegate? Sharing liability is a major concern, e.g. for a capital improvement project. Sharing staff resources may be taking on shared liability. Under an MOA, all boards will need to sign agreements, whereas a JPE can designate the Chair to sign. Such things as pollution and inverse condemnation are not covered by MCIT. An MOA could still be worded to be legally binding and mentions the JPA state statute; therefore a joint project with one shared pool of money. Under any agreement, MCIT covers the individual members; a new JPE has joint coverage/liability if working collectively as a separate entity from the county. There is a need to plan for contingencies if one entity decides to leave the joint entity, especially related to grant funds. Only an entity or a person can sign an agreement. Karin Sonneman, Winona County Attorney, provided similar information regarding liability issues and autonomy. Her suggestion is to have a working committee evaluate the options and bring a recommendation back to the Policy Committee. The Policy Committee broke into small groups for discussion of/reaction to the information presented and then reported back to the whole group:
   Table #1: Ward, Flynn, Lapham, Gabrielson
   - Olmsted does not want another joint powers board.
   - Whoever does payroll for a JPA employee is responsible for their health care.
   - Revenues-who pays, how much-is one structure less costly?
   - What is the state's plan?
   - Mutual Aid Agreement vs. other options?
   - Grants→block grants→competitive?
   - How to implement can be included in the emerging issues part of the plan.
   - How to keep grant administration as simple as possible.

   Table #2: Bakke, Leutink, Hahn
   - Liability issue
     - JPB better than on our own.
   - State funding – receive as an organization
   - JPA vs. JPB depends on how agreement is written.
   - With an MOA, it's too easy to walk away.
   - How does this fit with the SE MN Water Resources Board?
     - Constant overhead with each board.

   Table #3: Connelly, Kjome, Mueller
   - Similar discussions related to liability and state funding
   - One of five pilots and funds are being managed using the MOA structure.
   - Streamline reporting process for water planning—how does that happen?

A straw poll taken at the end of the discussion showed support for going forward with either an MOA or some sort of JPA; little or no support for going alone, a watershed district, or JPB.

6. Lunch Break

7. New Business continued
    a. Review of Working Draft Plan and Comments: There were not comments on Section 1. Mark pointed out that the priorities identified in Section 2 overlap, so that even if something is a B or C priority, it may be addressed by another A priority. In section 2.6.2.2., it was suggested to change the word "matching", which implies 1:1 match, to "in kind match". The frac sand paragraph title was questioned; it was the consensus to leave it since the primary issue is extraction of sand for fracking, and not for other uses. Buffers for Waterways should be changed to Buffers for Rivers and Streams. Mark provided an overview of the organization of section 5. Section 5.1.2 lists incentive-based initiatives to get practices on the land. The education and outreach activities are to achieve a consistent campaign across the watershed focused on particular audiences. The Administration and Coordination (section 5.3) includes guidance for the annual planning process, how to evaluate progress toward the goals, and when an amendment is required (only for adding new capital improvements). Section 5.4 lists the local ordinances already being enforced. There are no special regulations proposed with this plan. It is not anticipated that this plan will add more reporting since reporting on these programs is already happening. Future streamlining of reporting is anticipated, according to BWSR staff. Self-evaluation regarding progress toward the goals in the plan will be done annually. The list in 5.3.4.4 should either be expanded to include all statutory programs, e.g. feedlots, or remove WCA so that only 1W1P programs are on the list. The ordinance table needs to be reviewed by each Policy Committee member for accuracy. The title for the table in 5.4.1.6 should change to "These programs may include…." The table in 5.1.2 lists practices, but is not all inclusive. It still needs to be determined how to fund staffing. The Planning Work Group will work on those details.

    The Policy Committee is ready for the working draft to be available for the public to review.

8. Next meeting
    a. Review dates for upcoming meetings
    b. Agenda items: Section 3 will be reviewed at the October 5th meeting plus further discussion of governance and other items for follow up that are listed above.

9. Adjourn: Moved by Jerry Mueller to adjourn; seconded by Tim Gabrielson.

Marcia Ward, Secretary

Upcoming Meetings of the Policy Committee:

~~October 5, 2015: Policy Committee meeting~~
November 2, 2015: Policy Committee meeting
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, November 2nd, 2015, 9:00 AM – 12:00 PM
Room 108, Fillmore County Office Building, 902 Houston Street NW, Preston, MN

Members in attendance: Matt Flynn, Duane Bakke, Marcia Ward, Leonard Leutink Jr., Jim Kellogg, Rodney Peterson, Dana Kjome, Jerry Mueller, Tim Gabrielson, Glen Hahn. Also present: Mark Deutschman, Jennifer Ronnenberg, Donna Rasmussen, Skip Langer, Justin Hanson, Karin Sonneman, Jenny Mocol-Johnson, Sheila Harmes, Nicole Lehman, Adam King.

1. Open meeting: Chair Bakke opened the meeting at 9:02 a.m.
2. Approve Agenda: Old Business item c. was moved to a. Tim Gabrielson moved to approve the agenda with that change; Marcia Ward seconded; motion passed unanimously.
3. Approve minutes of the 8/31/2015 meeting: Dana Kjome moved to approve the minutes from the August 31st Policy Committee meeting; Matt Flynn seconded; motion passed unanimously.
4. Old Business
    a. Possible action item: Continue discussions about governance structures for plan implementation (action needed this meeting or at November 30th meeting): At the August 31st meeting, a straw poll of the members was in favor of moving forward as a group with implementation under either a MOA or JPA. Karin Sonneman, Winona County Attorney, was in attendance to provide guidance. Concerns were raised again about forming another JPB. Although there are benefits to a JPB, Sonneman pointed out some of the disadvantages: it is a separate entity that takes away the power of the individual entities, requires its own liability insurance and has its own employees. JPAs and MOAs are similar, and there is flexibility in the Joint Powers statute so that agreements can be set up to define liability, police powers, etc. Anything that is developed will be reviewed by MCIT. Grants/funding are issues that are important as the counties are reluctant to impose taxes to raise funds, and joint grants are more successful. Capital projects are large ticket items that will require other funding sources. The consensus was to leave a list of projects in the plan based on staff recommendations so that the process for doing capital projects is in place in case project funding becomes available. Ordinances (police powers) should continue through the individual counties, not as a function of the joint entity. Sonneman stated that an agreement should be very specific in its purpose and such things as disbursing funds (assigning a fiscal agent, process for approving disbursements, deciding on contractors, etc.) can be specified. Big projects can be decided by the joint entity while day-to-day operations can be designated to specific staff. The current MOA could be modified to reflect additional needs, such as distributing joint grant funds to the individual entities and completing capital projects. The initial step is to identify the essential functions of the joint entity and go back to the individual boards to get approval to allow the joint entity to do those things, such as decisions about grants. Jim Kellogg moved to have Sonneman develop a draft JPA for review at the November 30th meeting including a visual (e.g. flow chart) to show how decisions are made; Leonard Leutink seconded; motion passed unanimously.
    b. Discussion item: Continue discussions on staffing needs and deliverables for plan implementation along with various funding sources: The members reviewed the table showing costs per county for varying staffing levels and the possible coordination duties and funding sources. No new funding is planned from any of the counties at this time, so any staffing would come from funds already budgeted for water management, such as the Local Water Management Grants. The members directed the staff to provide further input about what level of staffing is needed for the duties listed.

c. Action Item: Continue draft plan review, Approval of Section 3
    i. Review and discussions will be determined by the content of the comment cards filled out by the Policy Committee members: Jennifer Ronnenberg read the comments submitted for the Groundwater and Surface Water sections. The action items related to developing local ordinances for mandatory setbacks from sinkholes were deleted. Among the other topics discussed were irrigation, soil health, septic system upgrades, and designating the lead entities for several actions. Time did not allow for review of the remaining Resources. Those will be finished at the November 30th meeting.

5. New Business
    a. Action Item: approve payment of HEI invoice #0026510, dated September 2, 2015, for $12,485.49: Moved by Rodney Peterson to approve; seconded by Jim Kellogg; passed unanimously.
    b. Action Item: approve payment of HEI invoice #0026924, dated October 2, 2015, for $7,524.30: Moved by Tim Gabrielson to approve; Glen Hahn seconded; passed unanimously.
    c. Action item: approve current Financial Reports (available as a handout at the meeting): Moved by Jerry Mueller to approve; Rodney Peterson seconded; discussion regarding the different balances shown on the two reports, one of which reflects the balance before paying the bills approved at this meeting and one after payment is approved; passed unanimously.
    d. Action Item: approve payment of Winona SWCD invoice #2015-1003, dated October 30, 2015, for $446.18: Moved by Marcia Ward to approve; Dana Kjome seconded; passed unanimously.
    e. Report from Policy Committee members re: feedback from their respective Boards: none

6. Next meeting
    a. Review dates for upcoming meetings: The next meeting will be November 30th at 9 a.m. in Room 108 of the Fillmore County Office Building. Members are reminded to bring their 2016 calendars to this meeting to begin scheduling future meetings.
    b. Agenda items: 1) Finish the four remaining Resources in section 3; 2) Governance-review draft JPA; 3) Staffing level needs-review staff recommendations.

7. Adjourn: Moved by Rodney Peterson to adjourn; Jerry Mueller seconded; passed unanimously.

Marcia Ward, Secretary

Upcoming Meetings of the Policy Committee:

November 30, 2015: Policy Committee meeting
February 15-March 1, 2016: Public Hearing Meetings and Response to Summary of Public Comments
June 2016: Approval of Final Plan Document and Submission to BWSR

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, November 30th, 2015, 9:00 AM – 12:00 PM
Room 108, Fillmore County Office Building, 902 Houston Street NW, Preston, MN

In attendance: Glenn Hahn (Dodge SWCD), Matt Flynn (Olmsted County), Marcia Ward (Winona County), Jerry Mueller (Winona SWCD), Dana Kjome (Houston County), Loren Lapham (Root River SWCD), Duane Bakke (Fillmore County), Leonard Leutink (Fillmore SWCD), Tim Gabrielson (Mower County). Guests: Tom Gile (BWSR), Scott Winslow (MN Corn Growers/Farm Bureau), Karin Sonneman (Winona County Attorney), Natalie Siderius (Winona County), Daryl Buck (Winona SWCD), Skip Langer (Olmsted SWCD), Justin Hanson (Mower SWCD), Dave Walter (Root River SWCD), Adam King (Dodge SWCD), Donna Rasmussen (Fillmore SWCD).

1. Open meeting: Chair Bakke opened the meeting at 9:11 a.m.
2. Approve Agenda: Tim Gabrielson moved to approve the agenda; Leonard Leutink seconded; motion carried unanimously.
3. Approve minutes of the 11/02/2015 meeting: Marcia Ward moved to approve the minutes; Dana Kjome seconded; motion carried unanimously.
4. Old Business
    a. Action item: The draft JPA prepared by Karin Sonneman, Winona County Attorney, was reviewed. It outlines the intended implementation phase governance structure. Its purpose is to make decisions as a watershed, not by political boundaries.
        i. There are two attachments: a watershed map and the bylaws.
        ii. Each party is liable for the actions of their own staff. Contracts will be brought to all the individual boards for signature.
        iii. In 3. Adding Additional Parties: the first sentence will end with "…shall indicate its intent by adoption of a governing board resolution." The remainder of the sentence "prior to …." will be deleted.
        iv. In 4. Removal of Parties: the last sentence will be changed to "Notice must be made 180 days in advance of leaving the group." The rest of the sentence will be deleted.
        v. In the Indemnification paragraph, MCIT will be asked for clarification of Minnesota Statutes Section 471.59, Subd. 1a(a) regarding liability and coverage caps, and also to clarify the sentence with the terms "cooperative activity" and "single government unit".
        vi. The meeting schedule in 6.a.i-iv. is worded to allow flexibility for either more or less meetings.
        vii. In 7. and 8., a request is needed to the Winona SWCD Board and Fillmore SWCD Board to be the fiscal agent and day-to-day contact, respectively. More general language could also be used to indicate that the Policy Committee will appoint the fiscal agent and day-to-day contact each year. Karin's recommendation is that each grant agreement be reviewed by the individual member Boards and signed by them if a Joint Powers Board is not being formed.
        viii. Corrections will be made to the titles of the county administrators/coordinators and SWCD managers/administrators.

    These changes will be made and brought back to the Policy Committee at their next meeting along with additional information requested from MCIT.

    b. Action Item: Continue draft plan review, Approval of Section 3
        i. Discussion and review of section 3 began at 3.5 Landscape Features.
            1. LF-1.3 Counties will be revising their shoreland ordinance ag buffer language to be consistent with the new state buffer law, and the actions in the plan should reflect that same language.
            2. LF-1.7: question regarding trespass law and why have it in the plan; people accessing streams often have questions so education can help the public understand when trespass law might apply; DNR lead with SWCDs and counties supporting.
            3. LF-1.9: mapping of other waters where buffers may be needed; the responsibility of the SWCDs but not required; map eventually incorporated into water plans.
            4. LF-2.1: stream shading reference questioned; DNR also commented on this and these references will be removed since stream shading is not always the desired outcome.
            5. Definitions are needed for things like IBI and Rosgen Stream Classification; also provide a list of acronyms and what they represent.
            6. There was much discussion about how to list the lead entity when multiple groups/entities are the potential lead and if non-governmental organizations should be the lead. One lead

entity/responsible party should be listed; others can be listed as supporting entities/partners. If it is a county, specify the department whenever possible. The Planning Work Group should make these changes in Section 4. In 3.5.2-SW-9, the WCA LGU would be the first contact, but the project may be funded by one of the other entities. Can add "Work with partners to increase acreage…." Include table of WCA LGUs in the plan.

7. In SC-2.2, remove "local"; this is addressed by the MN Ag Water Quality Certification Program.
8. The plan is complex, and there is concern that its length and complexity may make it difficult for staff to use and that the public will be overwhelmed. Staff commented that water management is complex, and the plan provides rational and defensible reasons for doing projects and applying for grants. Section 4 is intended to be in table format and easier to understand.
9. With regard to property tax credits in LF 4.4, include language that local units of government will be reimbursed for the lost revenue. This action should get input from county assessors.
10. LF 5.3-Add pollinator programs into the plan. LF 6.4 lists these types of programs for protecting karst features.
11. Cooperative Weed Management Areas were explained, and there are examples in Winona and Wabasha counties. County highway departments are commonly a partner.
12. Better salesmanship is needed to implement BMPs, which highlights the need for social capacity.
13. SC 2.3 Fall nitrogen application restrictions are currently voluntary but will become mandatory. Crop input suppliers from outside the planning area that still fall apply N present a challenge. Landowners / producers and crop input suppliers need to be brought on board with education. Lead: County Extension.
14. 3.6.3 Producers are a business, so don't forget to invite and include them.
15. 3.7.3 The involvement of cities is lacking, although Bob Mierau from Crooked Creek Watershed Board is also a city employee.
16. The livability index is not easily defined. The EDA contact on the Advisory Committee is helping to gather information about if/how this can be used as a metric.

The Advisory Committee did not complete section 3. The Policy Committee would like their comments before continuing review starting at 3.7.3, action 3.7. It was noted that 3.8.1 Drainage Systems is important in Dodge and Mower counties; field tile mapping and inventory have not been done so input is needed from the Advisory Committee on this section.

5. New Business
    a. Action Item: approve payment of HEI Inc. invoice #0027510, dated November 6, 2015, for $3,480.75; Moved by Glenn Hahn to approve the invoice for payment; Tim Gabrielson seconded; motion passed unanimously.
    b. Action item: approve November 19, 2015 Financial Reports; Moved by Mueller to approve the financial reports; Leonard Leutink seconded; motion passed unanimously.
    c. Report from Policy Committee members re: feedback from their respective Boards: nothing to report from any of the boards.

6. Next meeting
    a. Review dates for upcoming meetings: The next meeting is planned for Monday, Jan 4th pending confirmation that Mark Deutschman can attend and Advisory Committee comments can be received by then.
    b. Agenda items: updated JPA draft; continue review of section 3

7. Adjourn: Marcia Ward moved to adjourn at 11:53 a.m.; Leonard Leutink seconded; motion carried unanimously.

Marcia Ward, Secretary

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, January 4, 2016, 9:00 AM – 12:00 PM
Room 108, Fillmore County Office Building, 902 Houston Street NW, Preston, MN

In attendance: Rodney Peterson, Glenn Hahn, Matt Flynn, Steve Connelly, Marcia Ward, Jerry Mueller, Dana Kjome, Loren Lapham, Duane Bakke, Leonard Leutink, Tim Gabrielson, Jim Kellogg.
Also present: David Johnson, Tim Ruzek, Justin Hanson, Tom Gile, Rachel Olm, Mark Deutschman, Jennifer Ronnenberg, Donna Rasmussen, Eric Evenson-Marpen, Adam King, Skip Langer, Daryl Buck, Sheila Harmes, Dave Walter.

1. Open meeting: Chair Duane Bakke opened the meeting at 9:02 a.m.
2. Approve Agenda: Marcia Ward moved to approve the agenda; Tim Gabrielson seconded; motion approved unanimously.
3. Approve minutes of the 11/30/2015 meeting: Leonard Leutink moved to approve the minutes; Dana Kjome seconded; motion approved unanimously.
4. Old Business
    a. ~~Action item~~: Review draft JPA for decision on intended implementation phase governance structure: A new draft of the JPA is not available due to the Winona County Attorney's involvement in a murder trial. Mark Deutschman stated that the JPA is critical for the final work plan review since it lays out roles and responsibilities for implementation. The consensus was to review the revised JPA when it is ready at the next meeting to allow for further discussion of roles and responsibilities.
    b. Action Item: Continue draft plan review, Approval of Section 3 beginning at 3.7.3: Initial discussion was about the definition of Urban Environmental Health, which was included to differentiate between issues associated specifically with urban areas, such as stormwater runoff, and rural/ag issues to show that urban issues are being addressed in addition to those that affect the rural/ag areas.
        Sust-4.1: change "Promote and enforce shoreland rules…" to "Meet all statutory requirements of the shoreland rules…."
        Sust-4.5: change "Promote the protection of cultural and historic resources…" to "Comply with all applicable rules and regulations for the protection of cultural…."
        Sust-4.6: add "(See Section 5 for counties with existing ordinances.)"
        Sust-4.7: change "Enforce…" to "Administer…."
        Sust-4.8: change "Enforce…" to "Administer…."
        Strategy WI-3: add explanation/definition of Atlas 14.
        Action WI-6.5: change to "Implement ~~native~~ permanent plantings, preferably natives, to increase infiltration."
        Action WI-7.2: change to "Encourage the use of post construction BMPs that decrease compaction of soil in active construction sites."
        Action WI-8.2: Discussion; no change. "Promote incorporation of Low Impact Design strategies into county zoning ordinances."

    Members were reminded during this discussion that the lead and lead entities in the draft section 3 will be removed and placed into the implementation schedule in section 4.

5. New Business
    a. Action Item: approve payment of HEI Inc. invoice #0027829, dated December 3, 2015, for $3,823.30: Tim Gabrielson moved to approve payment; Glenn Hahn seconded; motion approved unanimously.
    b. Action item: approve Financial Reports: Jim Kellogg moved to approve the January 4, 2016 Financial Report; Rodney Peterson seconded; motion approved unanimously.
    c. Action Item: approve Work Plan Budget revisions as recommended by the Planning Work Group: Budget revisions as recommended were provided in the Board packet that would transfer funding from several areas of the budget to Coordination, which has greatly exceeded the budgeted hours. The total

budget will not change. Tom Gile, BWSR, noted that the other pilot projects have similar scenarios where the time for local coordination is greater than what was budgeted. Rodney Peterson moved to approve the revised budget; Jerry Mueller seconded; motion approved unanimously.

d. Action Item: approve payment of Fillmore SWCD invoice #8757, dated December 28, 2015, for $7,498.14: Jerry Mueller moved to approve payment; Dana Kjome seconded; motion approved unanimously.

e. Report from Policy Committee members re: feedback from their respective Boards:

Duane Bakke reported that he will now be the Fillmore County Board representative to the SWCD Board meetings to tie into the SWCD involvement in One Watershed, One Plan.

Rodney Peterson attended the Watershed District convention and spoke in favor of One Watershed, One Plan.

Glen Hahn also noted that Peterson is the Dodge County Board representative at the SWCD Board meetings.

f. Presentation of PTM app examples run for the Root River – HEI: Mark Deutschman showed an example from the South Fork Root River demonstrating the targeting tools in PTMapp (Prioritize, Target, Measure Application). The tools were conceived and led by the International Water Institute and development was funded by BWSR Clean Water Fund grants. The tool is intended for use in watershed planning by local units of government to empower them to develop their own water management strategies. It runs on a desktop using ArcGIS to produce information about the watershed, the pollution sources, and BMP effectiveness. The computer model is based on the design standards for storage, filtration and source reduction practices in catchments of 24 to 140 acres. The model is only a starting point recognizing that one-on-one contact with landowners is still needed to implement practices with those who are willing. In the South Fork example, too much sediment is causing impaired use of the stream for aquatic life. Both structural and management practices are identified that are feasible to implement on the landscape to reduce pollutants. The model estimates reductions at the practice site and at the mouth of the watershed, which accounts for the combination of benefits from practices upstream. Nitrogen, phosphorus and sediment reductions and the cost are estimated for the area upstream of a monitoring location. Sediment reduction is based on RUSLE2 calculations and land cover data. The model uses the best science available for the data inputs. The model is just finishing analysis of the top 100 practices in each HUC10 planning area with the best sediment reductions at the outlet and the best nitrogen reductions locally (to address leaching to groundwater). It does not take into account the existing practices, so that will be part of the follow up by local staff to determine what implementation is needed. The results can be used for grant applications and for reporting results in eLink. A future PTMapp website will have data that is continually updated. The data will not be available to the public at a field scale; only LGU staff will be able to request access to that data.

6. Next meeting
   a. Review dates for upcoming meetings: February 29th was tentatively set as the next meeting date to review the revised JPA. The Planning Work Group and Advisory Committees will review the final section of the draft plan (section 4 implementation schedule) prior to the Policy Committee review. Public hearings will follow the Policy Committee's final review and approval of the entire draft plan. HEI will have the draft plan ready for Planning Work Group review by the end of January.
   b. Agenda items: Revised JPA review

7. Adjourn: Moved by Tim Gabrielson to adjourn the meeting at 11:30 a.m.; Jim Kellogg seconded; motion approved unanimously.

Marcia Ward, Secretary

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, April 11, 2016, 9:00 AM – 12:00 PM
Room 108, Fillmore County Office Building, 902 Houston Street NW, Preston, MN

In attendance: Jerry Mueller (Winona SWCD), Tim Gabrielson (Mower County), Steve Connelly (Olmsted SWCD), Dana Kjome (Houston County), Rodney Peterson (Dodge County), Loren Lapham (Root River SWCD), Leonard Leutink (Fillmore SWCD), Duane Bakke (Fillmore County), Marcia Ward (Winona County), Matt Flynn (Olmsted County), Jim Kellogg (Mower SWCD)
Others in attendance: Jennifer Ronnenberg (Fillmore SWCD), Donna Rasmussen (Fillmore SWCD), Dave Johnson (BWSR), Erik Evensen (Winona County), Sheila Harmes (Winona County), Daryl Buck (Winona SWCD), Tim Ruzek (Mower SWCD), Bob Scanlan (Root River SWCD), Adam King (Dodge SWCD), Skip Langer (Olmsted SWCD)

1. Open meeting: Chair Bakke called the meeting to order at 9:02 a.m.
2. Approve Agenda: Jerry Mueller moved to approve the agenda; seconded by Tim Gabrielson; motion carried unanimously.
3. Approve minutes of the 1/4/2016 meeting: Marcia Ward moved to approve the minutes; seconded by Jim Kellogg; motion carried unanimously.
4. Old Business
    a. Action item: Review draft JPA for decision on intended implementation phase governance structure (draft enclosed): Karin Sonneman, Winona County Attorney, reviewed the draft JPA and highlighted changes to the previous draft after getting comments back from Jen Wolf, MCIT. The discussion included records retention, how the governance structure affects applications and approval process for watershed-wide grants and for grants only affecting a few counties, liability, by laws, and termination. If grant applications are submitted that only affect a portion of the watershed, resolutions will be passed by the respective LGUs affected by the grant activities. Those LGUs unaffected by the grant activities would not need to take action. Karin will make changes to the draft based on the discussion and then send the revised agreement to Donna by Thursday morning to distribute to the individual Policy Committee members. They should send their questions only to Donna to forward on to Karin. Once Karin has made any changes, she will send the JPA back to Donna to email to the Policy Committee members, who can then take it to their individual boards and county attorneys for review. Karin will reference the existing by laws and will review them for any needed changes (e.g. end date). Donna will contact MCIT (Joel Swanson) to ask if we need to get additional coverage for the SWCD or county that takes additional responsibilities as the fiscal agent or day-to-day contact, noting that the employees remain employees of the LGUs. Also ask MCIT if that coverage can be transferred to different entities if others are assigned those duties. A question for BWSR is if any future operational funds can be used to cover additional coverage, if it's needed. Jim Kellogg moved to go forward with the governance model as discussed with the proposed changes to be made by the Winona County Attorney; Rodney Peterson seconded; motion carried unanimously.

5. New Business
    a. Action Item: approve payment of HEI Inc. invoice #0028418, dated January 15, 2016, for $13,149.50: moved by Rodney Peterson to approve payment; seconded by Dana Kjome; motion carried unanimously.

b. Action Item: approve payment of Fillmore SWCD invoice #8757, dated April 8, 2016, for $1,716.20: moved by Jim Kellogg to approve payment; seconded by Tim Gabrielson; motion carried unanimously.
c. Action Item: approve payment of Winona SWCD invoice 2016-01, dated April 6, 2016, for $390.95: moved by Leonard Leutink to approve payment; seconded by Rodney Peterson; motion carried unanimously.
d. Action item: approve Financial Reports: moved by Rodney Peterson to approve; seconded by Jim Kellogg; motion carried unanimously.
e. Introduction to Section 4 : Donna reviewed the handout of Section 4 which does not have the Advisory Committee comments included yet or the outcomes from the discussion last week between HEI and the Planning Work Group. To save staff time, HEI would like to make the final changes to the section all at once. Handwritten comments were marked on the handout to provide further information to the Policy Committee as they reviewed Section 4 about changes to be made and issues that had been discussed. Table 4-7 budget for implementation discussion included many questions about how to fund implementation. Section 5 can be completed now that the governance model has been decided. The target date for HEI to complete the final draft of the entire plan, including the changes to Sections 4 and 5, is April 30th.
f. Report from Policy Committee members re: feedback from their respective Boards: Duane Bakke reported that the Fillmore County Board had been informed about BWSR's statewide rollout of 1W1P funding.

6. Next meeting
    a. Review dates for upcoming meetings: The timeline was discussed for final plan review and submission to BWSR. As soon as possible the final draft will go through local review, then will be considered for approval by the Policy Committee to submit to BWSR at the next meeting on June 13th. That starts a 60-day formal review process by the state agencies (until August 13th). No sooner than 14 days after that review is completed, public hearings will be held (September). Following the public hearings, any comments received are addressed, and the plan goes back the BWSR Board for final approval within 90 days (December). Following BWSR Board approval, the LGUs have 120 days to adopt the plan.
    b. Agenda items: the next meeting will be Monday, June 13, at 9:00 a.m. in Room 108 of the Fillmore County Office Building for review of the final draft plan before submission to BWSR.

7. Adjourn: Motion and second to adjourn at 11:55 a.m.; motion carried.

Upcoming Meetings of the Policy Committee:

June 2016: Approval of Final Plan Document and Submission to state agencies for 60-day review
Public Hearing Meetings and Response to Summary of Public Comments, TBD (tentatively set for September)

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, June 13, 2016, 9:00 AM – 12:00 PM
Room 108, Fillmore County Office Building, 902 Houston Street NW, Preston, MN

In attendance: Glenn Hahn (Dodge SWCD), Jerry Mueller (Winona SWCD), Dana Kjome (Houston County), Tim Gabrielson (Mower County), Loren Lapham (Root River SWCD), Leonard Leutink (Fillmore SWCD), Marcia Ward (Winona County), Duane Bakke (Fillmore County), Matt Flynn (Olmsted County), Jim Kellogg (Mower SWCD). Others in attendance: Dave Johnson (BWSR), Eric Evenson-Marden (Winona County), Daryl Buck (Winona SWCD), Adam Bielke (BWSR), Marie Kovecsi (Winona County), Bob Scanlan (Root River SWCD), Dave Walter (Root River SWCD), Natalie Siderius (Winona County), Sheila Harmes (Winona County), Bobbie Vickerman (Fillmore County), Justin Hanson (Mower SWCD), Tim Ruzek (Mower SWCD), Skip Langer (Olmsted SWCD), Jennifer Ronnenberg (Fillmore SWCD), Donna Rasmussen (Fillmore SWCD)

1. Open meeting: The meeting was called to order by Chair Bakke at 9:08 a.m.
2. Approve Agenda: Motion to approve the agenda by Leonard Leutink; seconded by Tim Gabrielson; motion carried unanimously.
3. Approve minutes of the 4/11/2016 meeting: Motion to approve the 4/11/2016 meeting minutes by Marcia Ward; seconded by Jim Kellogg; motion carried unanimously.
4. Old Business
    a. Action item: Consider revisions to draft JPA based on review and discussion of comments received from County Attorneys and County Administrators: Karin Sonneman, Winona County Attorney, first noted that the changes made to the JPA follow the recommendations of Jen Wolf of MCIT to minimize the perception that 1W1P is a separate entity but rather a collaborative group formed for purpose of advising and guiding the implementation of the watershed plan in a coordinated and cohesive manner. The changes to the JPA will necessitate changes to the bylaws so they are consistent. Contracts, grant agreements and other agreements should be in the name of the individual entities rather than using "Root River 1W1P". Two handouts were provided that were written with Dave Johnson, BWSR, to summarize the frequently asked questions about 1W1P and BWSR's main talking points. The changes made to the JPA include additional clarifying language:
        - referencing the Minnesota Statutes,
        - setting the history and purpose of 1W1P,
        - this agreement does not replace or supplant local land use planning and zoning authority,
        - reiterating that this is a collaborative and cooperative group, a framework for coordination and consistency, not a separate entity,
        - liability caps are in effect for the individual entities,
        - employees are employees of the individual entity, not the group,
        - if the Policy Committee serves an advisory capacity, the word "Technical" is added to the existing Advisory Committee name to avoid confusion.

    There were several questions with extensive discussion. (Is water planning mandated? How do counties with more than one plan function? Does the 1W1P JPA replace local planning and zoning authorities? How does the collaborative accept block grants? How are grant applications handled? Will counties still need or want their individual plans along with 1W1P?) It was suggested to remove "almost completed" from the fifth Whereas on page 2 since the plan will be completed by the time the JPA goes to the boards for signature. Chair Bakke and Dave Johnson both explained the intended funding mechanism being proposed by the Local Government Round Table, Clean Water Council and BWSR to transition Clean Water Funds from mostly competitive grants to more non-competitive block grants for 1W1P administration, education and practice implementation with a smaller percentage available as competitive grants.

    Karin has sent the JPA to Jen Wolf at MCIT to review. If there are no changes from MCIT, then the JPA will be sent again to the county attorneys. If MCIT has changes, those will be made by Karin and

then sent out to the county attorneys. Chair Bakke noted that it will be several months before the JPA goes to the individual boards for adoption which allows time for further review.

b. Action item: Consider submission of final draft of the Root River One Watershed, One Plan Implementation Plan for 60-day state agency review: The Chair asked if there were any questions about the draft plan. Marcia Ward asked about the involvement of the cities and whether they have been specifically engaged. Donna reported that the cities and townships were among those notified that the plan is being developed. Bob Mierau is a city employee and has that perspective. There was no one else who volunteered to represent the cities on the Advisory Committee. They will be able to comment along with the rest of the public. Discussion followed about who will be contacted regarding the 60-day review including how the public will be notified via emails, news releases and other means that the plan is available to review. Cities and townships will be included in the email notifications as well as local water plan citizen committees, attendees at the April 2015 public meeting and past Root River Conversations.

Leonard Leuntink moved to submit the draft plan for 60-day state agency review; motion seconded by Jim Kellogg; motion carried unanimously.

5. New Business
   a. Action item: Consider 1W1P budget revision to transfer $6,171.39 from Education (PTMApp training) to Planning and Assessment (Meeting Costs): Donna noted that there are no more PTMApp trainings scheduled for this year, and it was the recommendation of the Planning Work Group to utilize those funds to publicize the plan and public hearings. Some of the funds may be used to have HEI attend future meetings at a cost of $3000/meeting. Moved by Loren Lapham to approve the budget revision; seconded by Jerry Mueller; motion carried unanimously.
   b. Action Item: approve payment of Winona SWCD invoice 2016-11 in the amount of $288.00 dated May 31, 2016: Moved by Marcia Ward to approve payment; seconded by Dana Kjome; motion carried unanimously.
   c. Action Item: approve payment of Fillmore SWCD invoice #9034 in the amount of $1,146.43 dated June 6, 2016: Moved by Jim Kellogg to approve payment; seconded by Jerry Mueller; motion carried unanimously.
   d. Action item: approve June 7, 2016 Financial Reports: Moved by Jerry Mueller to approve the financial statements; seconded by Tim Gabrielson; motion carried unanimously. Marcia requested an accounting of the hours that HEI spent on developing the plan.
   e. Report from Policy Committee members re: feedback from their respective Boards: No reports.

6. Next meeting
   a. Review dates for upcoming meetings: The next meetings will be the public hearings set for Wednesday, September 7th in Stewartville and Thursday, September 8th in Caledonia. There will be an open house for an hour prior to the hearings with staff available to show maps, discuss parts of the plan, demonstrate PTMApp and answer questions. The open houses will run from 6:30 to 7:30 p.m. with the public hearings starting at 7:30 p.m. A quorum of the Policy Committee is required at each hearing. Planning Work Group will work on the details for the hearings, such as PA systems, speaker stands, recording the hearing, etc.
   The Policy Committee will meet Monday, September 19th at 9:00 a.m. at the Fillmore County Office Building to review comments from the state agency review and from the public hearings. HEI will be asked to attend this meeting.
   b. Agenda items

7. Adjourn: Moved by Marcia Ward to adjourn; seconded by Jim Kellogg; motion carried unanimously.

Marcia Ward, Secretary

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, September 26, 2016, 9:00 AM – 12:00 PM
Room 108, Fillmore County Office Building, 902 Houston Street NW, Preston, MN

In attendance: Rodney Peterson (Dodge County), Glenn Hahn (Dodge SWCD), Matt Flynn (Olmsted County), Marcia Ward (Winona County), Jerry Mueller (Winona SWCD), Dana Kjome (Houston County), Loren Lapham (Root River SWCD), Duane Bakke (Fillmore County), Tim Gabrielson (Mower County), Jim Kellogg (Mower SWCD). Also in attendance: Jennifer Ronnenberg (Fillmore SWCD), Donna Rasmussen (Fillmore SWCD), David Johnson (BWSR), Adam Beilke (BWSR), Rachel Olm (Houston Engineering), Tim Ruzek (Mower SWCD), Adam King (Dodge SWCD), Sheila Harmes (Winona County), Daryl Buck (Winona SWCD), Skip Langer (Olmsted SWCD).

1. Open meeting: The meeting was called to order by Chair Bakke at 9:05 am.
2. Approve Agenda: Motion to approve the agenda by Marcia Ward; second by Jim Kellogg; motion carried unanimously.
3. Approve minutes of the 6/13/2016 meeting: Motion to approve the June 13, 2016 minutes by Tim Gabrielson; second by Dana Kjome; motion carried unanimously.
4. Approve minutes of 9/7/2016 Root River 1W1P Public Hearing in Stewartville: Motion to approve the September 7, 2016 minutes by Matt Flynn; second by Jim Kellogg; motion carried unanimously.
5. Approve minutes of 9/8/2016 Root River 1W1P Public Hearing in Caledonia: Motion to approve the September 8, 2016 minutes by Marcia Ward; second by Jerry Mueller; motion carried unanimously.
6. Old Business
    a. Action item: Consider state agency and public comments and responses: All state agency comments were reviewed individually. Recommended changes included:
        i. Include "over 10-yr lifespan of the plan" or equivalent text in the description of the $1 million needed for technical support to implement practices (BWSR Discretionary 3)
        ii. Spell out NPFP in the plan and in the comment/response table (BWSR Discretionary 8)
        iii. Change "Biennial Evaluation" to "Biennial Budget Request" (BWSR Discretionary 13)
        iv. Search text for spelling/ grammar
        v. Spell out One Watershed, One Plan in the plan wherever 1W1P is used

    Other comments that generated discussion:
    - What is the difference between BWSR mandatory comments and the others? Mandatory changes are needed to meet BWSR's plan content requirements.
    - There were several comments from the agencies about PTMApp indicating a lack of understanding about what the application does and how data was used to develop it. There are differences of opinions about the reliability of the data and the calculations used in PTMApp. Three of the five pilots tested PTMApp which still needs to be groundtruthed.
    - The Belmont study refers to the Root River Sediment Budget completed by Patrick Belmont and others to determine sediment sources in the Root River.
    - It is very important to develop an easy to understand summary document for the general public.
    - BWSR Mandatory 12 comment seems critical of the Crooked Creek Watershed District. There are watershed district plan requirements that must be included in 1W1P in order for the watershed district to adopt 1W1P as their plan.
    - MN DNR comment 14 does not support the use of downsized culverts for water storage. The action actually states that hydrologic studies would be used to develop the best design, which may or may not result in downsizing culverts.
    - MDA comment 2 regarding Advisory Committee participation; there is a need to improve how the Advisory Committee is involved.

- MDA comment 8 regarding quantifiable goals for phosphorus encourage setting a lower goal; however, the phosphorus goal is tied to the sediment goal which is still a 45% reduction goal by 2025.

  Each agency will receive a copy of the comments and responses with their comment response letter.

  Public hearing comments and responses were also reviewed. Commenters will receive copies of the comments and responses.

  Motion to approve the state agency and public hearing comments and responses with the changes above was made by Rodney Peterson; seconded by Glenn Hahn; motion carried unanimously.

b. Action item: Consider draft state agency comment response letters: Motion to approve the state agency comment response letters by Jim Kellogg; seconded by Tim Gabrielson; motion carried unanimously.
c. Action item: Consider submission of final draft of the Root River One Watershed, One Plan Implementation Plan to the MN Board of Water and Soil Resources for approval: Motion to approve submitting the final draft to the MN BWSR by Dana Kjome; second by Tim Gabrielson; motion carried unanimously.

   The timeline for the final approval of the plan involves the 90-day review by BWSR, which includes 30 days for the state agencies to determine if our responses to their comments are adequate. On November 4th, BWSR's Southern Region Planning Committee will vote to recommend the plan to the full BWSR Board. This meeting will involve staff to present information about the plan. The BWSR Board will consider approval of the plan at their December 14th meeting. This meeting will also involve a presentation by staff.

7. New Business
   a. Action item: Approve HEI invoice #30603 dated July 7, 2016, in the amount of $2,384.00: Motion by Jim Kellogg to approve HEI invoice #30603; second by Matt Flynn; motion carried unanimously.
   b. Action Item: approve payment of Fillmore SWCD invoice #9107 dated September 19, 2016, in the amount of $3,293.97: Motion by Tim Gabrielson to approve Fillmore SWCD invoice #9107; second by Glenn Hahn; motion carried unanimously.
   c. Action item: approve September 19, 2016 Financial Reports: Motion by Marcia Ward to approve the September 19, 2016 Financial Reports; second by Jerry Mueller; motion carried unanimously.
   d. Report from Policy Committee members re: feedback from their respective Boards: None. Chair Bakke noted that it was good to see other County and SWCD Board members at the public hearings.
8. Next meeting
   a. Review dates for upcoming meetings: The next meeting will be Monday, December 19, 2016, in Room 108 of the Fillmore County Office Building.
   b. Agenda items: Final approval of the Joint Powers Agreement, pay last bills to close out the planning grant, discuss details about governance, and hear a report from the Planning Work Group perspective about how to move forward to make this work.
9. Adjourn: Motion to adjourn by Matt Flynn at 11:33 am; second by Jim Kellogg; motion carried unanimously.

Respectfully submitted,
Marcia Ward, Secretary

Meeting of the Policy Committee for Root River One Watershed, One Plan
Monday, December 19, 2016, 9:00 AM – 12:00 PM
Chatfield City Hall meeting room
21 Second Street SE, Chatfield MN, 55923

In attendance: Duane Bakke (Fillmore County), Jerry Mueller (Winona SWCD), Leonard Leutink (Fillmore SWCD), Tim Gabrielson (Mower County), Rodney Peterson (Dodge County), Marcia Ward (Winona SWCD), Glenn Hahn (Dodge SWCD). Also present: Adam King (Dodge SWCD), Justin Hanson and Tim Ruzek (Mower SWCD), Sheila Harmes (Winona County), Daryl Buck (Winona SWCD), Skip Langer (Olmsted SWCD), Dave Walter and Bob Scanlan (Root River SWCD), Adam Beilke (BWSR), Jennifer Ronnenberg and Donna Rasmussen (Fillmore SWCD)

1. Open meeting: The meeting was called to order by Chair Bakke at 9:01 a.m.
2. Approve Agenda: Tim Gabrielson moved to approve the agenda as amended to include a report on the 1W1P presentations to the Clean Water Council and BWSR and BWSR action on the plan; Jerry Mueller seconded; motion passed unanimously.
3. Approve minutes of the 9/26/2016 meeting: Marcia Ward moved to approve the minutes; Glenn Hahn seconded; motion passed unanimously.
4. Old Business
    a. Report on 1W1P presentations to Clean Water Council and BWSR and BWSR action on the plan.
    Jennifer and Donna, along with Adam Beilke from BWSR, traveled to New Ulm and presented the plan to the BWSR Southern Regional Committee on November 4th. The Committee voted to recommend approval of the plan to the entire BWSR Board.

    On November 21st, Jennifer, Donna and Duane presented the plan to the Clean Water Council with an emphasis on our experience as a pilot project. Our presentation was followed by representatives from the Local Government Round Table, including Duane representing AMC and LeAnn Buck, MASWCD, and Ray Bohn, MAWD, speaking about the funding proposal to provide block grants to watersheds with approved plans. This would result in less competitive grants as more funds go into the block grants for implementing watershed plans that are completed. Duane commented that the Clean Water Council funding recommendation for 1W1P in the 2018-2019 biennium is $12 million. AMC has passed a resolution submitted by him supporting this plan for funding watershed plans. A similar resolution submitted by the Fillmore SWCD was passed at the MASWCD convention.

    Donna, Jennifer, Adam Beilke and Shaina Keseley from BWSR all attended the BWSR Board meeting on December 14th where Donna and Jennifer gave almost the same presentation that was given on November 4th with some additional lessons learned from being a pilot. The Board had several questions about the budget and the amount of state funding we anticipate is needed to fund the plan. They then voted unanimously to be the first 1W1P in the state to be approved. Marcia commented about the wording in the BWSR approval letter that stated that the partners "must adopt and begin implementing the plan within 120 days" when there is no funding yet for implementation. It was noted that the Planning Work Group has a draft implementation plan for 2017 that is based on using existing resources. The 120-day timetable is the same as what has been required for county-based local water management plans. Duane commented that the discussion about how the regional organizations can improve collaboration could factor in to implementation activities in the watersheds.

    b. <u>Action item</u>: Consider approval of Draft JPA: The Policy Committee reviewed the June 17, 2016 version of the JPA. Corrections requested at the Policy Committee are as follows:

        i. Section 6.a.ii.a: Policy Committee Duties, Annual Report: changed wording from "The Policy Committee shall prepare an annual work plan…." to " The Policy Committee shall review and approve an annual work plan….."

        ii. Section 6.b: The Technical Advisory Committee: changed wording from "The Technical Advisory Committee will meet quarterly or as needed", to "The Technical Advisory Committee will meet annually or as needed."

        iii. Section 6.c.: The Planning Workgroup: Added the sentence "The Planning Workgroup shall prepare a draft annual work plan and budget consisting of an itemized statement of the One Watershed, One Plan Root River Watershed revenues and expenses for the ensuing calendar year which shall be presented to the Policy Committee for review and approval."

    Marcia Ward moved to approve the recommended language changes regarding committee duties; Tim Gabrielson seconded the motion; motion passed unanimously.

Rodney Peterson moved to approve the amended JPA; Tim Gabrielson seconded the motion; motion passed unanimously.

c. Action item: Consider recommendation for adoption of Root River 1W1P by the participating member local governmental units. Duane suggested that SWCD staff from the Planning Work Group also attend the county board meetings when the plan is being presented for adoption. Leonard Leutink moved to recommend adoption of the plan by the participating member local governmental units; Jerry Mueller seconded; motion passed unanimously. Adam Beilke commented that a resolution template will be prepared by BWSR and sent to the Planning Work Group staff prior to the board meetings.

d. Discussion item: Consider report from PWG on Implementation Plan for Year 1: Jennifer reviewed the draft work plan for 2017. Validation of the PTMApp was discussed as very important to accurately measuring the effectiveness of BMPs on the landscape. The need for landowner engagement is another critical piece of the annual work plan. This activity created much interest from members of the audience at all the 1W1P presentations.

5. New Business
    a. Action item: Approve HEI invoice # 0031793 dated October 6, 2016, in the amount of $3,000.00: Leonard Leutink moved to approve payment; Tim Gabrielson seconded; motion passed unanimously.
    b. Action item: Approve HEI invoice # 0031818 dated October 6, 2016, in the amount of $1,498.75: Jerry Mueller moved to approve payment; Glenn Hahn seconded; motion passed unanimously.
    c. Action item: approve payment of Winona SWCD invoice #2016-27 in the amount of $1,120.00 dated December 15, 2016, for fiscal services: Jerry Mueller moved to approve payment; Rodney Peterson seconded; motion passed unanimously.
    d. Action item: approve payment of Fillmore SWCD invoice #9160 in the amount of $4,777.39 dated December 12, 2016, for grant administration and coordination and reimbursement of public hearing advertising expenses: Rodney Peterson moved to approve payment; Jerry Mueller seconded; motion passed unanimously.
    e. Action item: approve December 15, 2016 Financial Reports showing a grant balance of $4,373.65; Leonard Leutink moved to approve the Financial Reports; Jerry Mueller seconded; motion passed unanimously.
    f. Action item: approve costs for printing of the Root River implementation plan, appendices and maps up to a maximum amount: Rodney Peterson moved to approve printing the plan, appendices and maps up to $4,373.65; Tim Gabrielson seconded; motion passed unanimously.
    g. Report from Policy Committee members re: feedback from their respective Boards: There has not been much to report recently as the plan moves through the approval process. Rodney Peterson commented that the 1W1P process is beginning in the Cedar River watershed. An educational meeting is being held with Freeborn County with BWSR to encourage participation. There is total support from the other LGUs.

6. Next meeting
    a. Returning and new Policy Committee members for 2017: Leonard Leutink, Dana Kjome and Loren Lapham will not be returning to the Committee. Duane thanked them and all the rest of the committee and the staff for their work and dedication to successfully completing the watershed plan. New committee members should be appointed at the same meetings when the JPA and plan are acted upon.
    b. Review dates for upcoming meetings: The next meeting is set tentatively for Monday, March 20, 2017, in Preston.
    c. Agenda items will include setting the new meeting schedule and meeting locations, considering the bylaws, and approval of the work plan. Anyone attending legislative days for MASWCD and AMC are encouraged to advocate for the block grant funding recommendation.

7. Adjourn: Motion to adjourn by Rodney Peterson; seconded by Marcia Ward. Meeting adjourned at 10:25 a.m.

Respectfully submitted,

Marcia Ward, Secretary

HoustonEngineering Inc.

APPENDIX D

Root River Watershed
One Watershed, One Plan:
Plan Content for Pilot Watersheds

One Watershed, One Plan

Plan Content for Pilot Watersheds

September 23, 2014

Purpose: As per Minnesota Statutes §103B.101 Subd. 14, the Board of Water and Soil Resources "*may adopt resolutions, policies, or orders that allow a comprehensive plan, local water management plan, or watershed management plan, developed or amended, approved and adopted, according to chapter 103B, 103C, or 103D to serve as substitutes for one another or be replaced with a comprehensive watershed management plan,*" also known as *One Watershed, One Plan.* This document outlines plan content requirements for implementing this statute through selected pilot watersheds.

Introduction

This document contains specific details on the content requirements for drafting a plan through the *One Watershed, One Plan* pilot program. Full operating procedures for developing the plan - including initiating the planning process through review, approval, and adoption - are contained in the *One Watershed, One Plan* Operating Procedures document on the *One Watershed, One Plan* page of the BWSR website.

The following Guiding Principles provided sideboards and direction in the plan content requirements outlined in this document:

- *One Watershed, One Plan* will result in plans with prioritized, targeted, and measurable implementation actions that meet or exceed current water plan content standards.
- *One Watershed, One Plan* will strive for a systematic, watershed-wide, science-based approach to watershed management; driven by the participating local governments.
- Plans developed within *One Watershed, One Plan* should embrace the concept of multiple benefits in the development and prioritization of implementation strategies and actions.
- *One Watershed, One Plan* planning and implementation efforts will recognize local commitment and contribution.
- *One Watershed, One Plan* is not intended to be a one size fits all model.

The requirements in this document are also supported by the vision of the Local Government Water Roundtable that future watershed-based plans will have sufficient detail that local government units can, with certainty, indicate a pollutant of concern in a water body, identify the source(s) of the pollutant, and provide detailed projects that address that particular source. This vision also includes a future of limited wholesale updates to watershed-based plans; with a streamlined process to incorporate collected data, trend analysis, changes in land use, and prioritization of resource concerns into the watershed-based plan; and an emphasis on watershed management and implementation through shorter-term workplans and budgeting. This vision includes acknowledging and building off of existing plans and data (including local and state plans and data), as well as existing local government services and capacity.

Table of Contents

Introduction 1
I. Overview 3
II. Plan Content Requirements 4
1. Executive Summary 4
2. Analysis and Prioritization of Issues 4
3. Establishment of Measurable Goals 6
4. Targeted Implementation Schedule 7
5. Implementation Programs 8
6. Plan Appendix - Land and Water Resources Inventory 14

NOTE: Operating Procedures for establishing planning boundaries, requirements for participation and formal agreement between local governemnts within the boundary, and procedures for plan development are provided in a separate document.

I. Overview

The requirements for plan content found in this document in general include background information and a purpose for the requirement, guidance for how the requirement can be met through the planning process, and the specific plan content requirements. The primary planning terms used are: priority issues, goals, and actions. These terms are defined within the sections they are used.

Plan development procedures and steps such as: initiating a plan, establishing a planning boundary, requirements for participation and formal agreements between local governments within the boundary, and procedures for formal review and approval can be found in the *One Watershed, One Plan Program* Operating Procedures for Pilots document found on the BWSR website. Also found in the Operation Procedures for Pilots is the concept of three approvable plan types within the *One Watershed - One Plan* framework:

- **Water Quality Implementation Plan**: This plan further develops the strategies identified in a Watershed Restoration and Protection Strategies (WRAPS) document or equivalent studies into a consolidated implementation plan. This plan can be used to replace the implementation section of an existing plan(s), or can be used by local government partners on its own to collaboratively apply for state grants.
- **Priority Concerns Watershed Implementation Plan**: This plan leverages the existing process for developing a plan based on priority concerns typically associated with current county water planning; but shifts the scope of the plan to a watershed boundary and elevates requirements for prioritizing, targeting, and measuring implementation actions.
- **Comprehensive Watershed Management Plan**: This all-inclusive plan leverages the existing requirements for watershed district plans and has the highest standards of the three plan options. These plans will address surface and groundwater, water quality and quantity, and land use; and implementation actions in the plan will consider the broad range of tools, including capital improvements, official controls, and other tools and programs necessary to achieve the goals of the plan.

Each plan content requirement section in this document contains a statement as to how the requirement may vary by these plan types. The Water Quality Implementation Plan type must have goals to address the water quality priority issues. The remaining plan types must have goals to address all identified priority issues such as water quality, water quantity, groundwater, etc.

Although not required, a recommendation in the planning process is to develop an overarching mission or vision statement, as well as higher-level guiding principles or purposes. The purpose of establishing a vision, mission, and/or guiding principles is to provide a sense of direction for the plan and participants in the planning process. Additionally, overall organization and format of the watershed-based plan is a local decision unless otherwise specified in these requirements as long as the plan content requirements are met. However, using planning terminology consistent with this document is recommended.

An underlying theme within these requirements is the intent for watershed-based plans developed through *One Watershed, One Plan* to be succinct, with a thorough and science-based process used in development, and an emphasis in the resulting plan on the implementation schedule and implementation programs. For example, the information found in a Land and Water Resources Inventory is extremely valuable to the planning process and ultimate implementation of the actions in the plan; however, the majority of this information can be incorporated into the final plan document by reference.

II. Plan Content Requirements

Each watershed-based plan will contain the elements outlined in the following sections.

1. Executive Summary

Each plan will have a section entitled "Executive Summary." The purpose of the executive summary is to provide a condensed and concise summary of the contents of the overall plan. A well-written executive summary is beneficial for current and future elected officials, staff, citizens, and stakeholders to achieve an understanding of the plan and its intent.

Plan Content Requirement: Executive Summary

Each plan will have a section entitled "Executive Summary." The purpose of the executive summary is to provide a brief look at the contents of the plan. The summary will include:

A. Purpose, mission, or vision statement if developed;
B. A general map or description of the planning boundary and smaller planning or management units if used;
C. A summary of the priority issues and goals that are addressed in the plan;
D. A summary of the implementation actions and programs;
E. A brief description of the process used to identify the measurable goals and targeted implementation actions; and
F. An outline of the responsibilities of participating local governments.

This requirement applies to all plan types; however, the requirement to have a separate Executive Summary for the plan type Water Quality Implementation Plan can be waived if this plan type is amended into an existing local water plan.

2. Analysis and Prioritization of Issues

This section of the plan is intended to summarize the process planning partners used to reach understanding of and agreement on the watershed issues and priorities that will be addressed within the lifespan of the plan. Prioritizing is recognition that not all identified issues can be addressed in the timeframe of a ten year plan—some items will be addressed before others.

Planning partners are strongly encouraged to consider the potential for more extreme weather events and their implications for the water and land resources of the watershed in the analysis and prioritization of issues. While these events cannot be predicted with certainty as to time and occurrence, the meteorological record shows increased frequency and severity of extreme weather events, which has a direct effect on issues in local water planning.

Broad issues likely to be identified through the watershed planning process include:

- Soil erosion and sedimentation
- Soil health
- Altered hydrology
- Shoreland and riparian management
- Maintenance of core services; understanding of local capacity
- Water quality
- Water supply (protect, provide and conserve)
- Drinking water supply
- Wetland management
- Drainage system management
- Wastewater management
- Groundwater protection
- Flood damage reduction
- Drought mitigation
- Habitat, wildlife and fisheries
- Education, outreach and civic engagement
- Contaminants of emerging concern
- Emerging issues (e.g. land cover, climate change, etc.)
- Invasive species management

The list above is not all inclusive; any land and water related issue could be part of the plan. The process for considering and prioritizing issues generally has two parts: agreement on priority natural resources and agreement on priority issues impacting those resources. High quality recreational lakes, the main stem of the primary river in the watershed, or a specific groundwater aquifer that is the primary drinking water source in the watershed are all examples of priority resources. Identifying priority issues goes a step further by focusing on the issue(s) that impact the priority resources of the watershed, such as: "high quality recreational lakes showing a downward trend in water quality" or "sedimentation in the main stem of the priority river."

Through plan development, potential priority resources and issues are reviewed, aggregated, and summarized from: existing local plans, studies, and information; modeling, data collection, and assessment completed through the WRAPS and/or TMDLs; other state plans or studies; feedback received from the initial notifications to the plan review authorities and stakeholders; and the initial planning meeting(s) held in the watershed (see *One Watershed, One Plan* Operating Procedures for Pilots). These summarized issues are then filtered through local knowledge and information, and priority issues are selected in consideration of:

- Science and data generated through modeling, data collection, and assessment such as WRAPS, TMDLs, or equivalent;
- Anticipated future impacts or landuse changes that may provide an opportunity or escalate a risk if nothing occurs;
- Understanding of trends and/or tipping points for individual water resources;
- Understanding of precipitation frequency as per National Oceanic and Atmospheric Administration (NOAA) Atlas 14;
- Understanding of citizen and local landowner willingness to participate in potential changes to watershed management;
- Local values which may incorporate specific water or landscape resources as a priority.

Additional consideration should be made of the high-level state priorities identified in the state's Nonpoint Priority Funding Plan for Clean Water Implementation Funding. These are the priorities identified by the state agencies for investing Clean Water Fund nonpoint implementation money, based on the principles of asset preservation and risk-opportunity assessment.

- Restore those impaired waters that are closest to meeting state water quality standards.
- Protect those high-quality unimpaired waters at greatest risk of becoming impaired.
- Restore and protect water resources for public use and public health, including drinking water.

Plan Content Requirement: Analysis and Prioritization of Issues

The plan must contain:

1. A summary of the issues and resource concerns identified;
2. The steps used to consider and prioritize the identified resources and issues; and
3. A list of the agreed upon priority resources and issues for the watershed and a brief description of why the issue was selected.

Priority issues can be articulated in the plan through both a list/descriptions and map(s). The format and exact planning terminology used in the plan for presenting priority issues may vary as long as the plan covers the three requirements above, and the terminology used is defined in the plan (the summary and steps are suggested to be included as appendices). The plan is not expected to address all identified issues; however, it should include a brief explanation as to why certain issues were rejected as priorities for this planning cycle.

In the event that conflicts exist in the interpretation of issues and/or selection of priority issues, consider whether the conflict can be addressed by having both watershed-wide priorities as well as individual priorities of the participating local governments.

Plans that do not demonstrate a thorough analysis of issues, using available science and data, will not be approved. BWSR will consider the guidance and recommended tools outlined in *Section 2 Analysis and Prioritization of Issues* in assessing if analysis has been thorough.

This requirement applies to all plan types.

Through the development of the *One Watershed, One Plan* program, BWSR has partnered with the University of Minnesota to assess tools and models to assist in prioritization for the purposes of developing a watershed-based plan. Through this project, specific models and tools are recommended to be used in the pilot watersheds to assist in the identification of priority issues.

Assistance with selecting and using the models and tools will be made available to pilot watersheds through BWSR. Additional or alternative models, tools, or processes that are already in use across the state may be proposed; however, agreement between the pilot watershed and BWSR staff on whether the proposed tool, model, or process meets the specific criteria outlined in the analysis will need to be achieved before proceeding. This agreement will be outlined in the approved workplan for the pilot watersheds.

3. Establishment of Measurable Goals

The plan must contain measurable goals, sometimes called objectives in planning, to address the priority issues. Measurable goals articulate what the planning partners want to achieve and allow for future evaluation of progress. A useful method for assessing if a goal is measureable is to ask the question for each goal: “will we be able to measure / show / report that we have been successful in achieving this goal when we assess implementation of the plan in the future?”

The development of measurable goals and the resulting implementation actions will be an iterative process. Goals from existing local water plans and information should be summarized and discussed for potential inclusion as part of this process. WRAPS, TMDLs, and the models used for the prioritization process noted above should all be used in the setting of goals. The implementation programs and schedule for achieving the goals should be considered and goals adjusted to reflect those achievable within the timeframe of the plan versus those that may reflect a longer view.

Formatting, terminology, and organization in the plan to meet this requirement can vary. For example, a goal to “maintain clean drinking water for future generations” is too broad to be feasibly measured and may better serve as a

guiding principle. However, a broad goal such as this could be acceptable if it is supported by a series of measurable sub-goals or objectives similar to the examples below. The plan may contain a blend of goals common to the watershed as a whole, goals individual to a specific local government participant(s) and/or resource, and goals that persist beyond the timeframe of the plan.

Not every goal can be measurable within the timeframe of the plan; however the aggregate of goals in the plan should together articulate an intended pace of progress. For example, if a water quality standard is unable to be met within the lifespan of the plan, the plan should contain longer-term goals with interim points at which progress can be examined and methods and models to establish the goal can be reevaluated. Ideally, these interim points would use some measure to show attainment of an interim goal.

The timeframe of goals may also need to recognize unique settings and situations across the state. As an example, The Minnesota Geological Survey notes that response time of nitrate concentrations to changes in land use practices in southeast Minnesota will likely vary in different hydrogeologic settings, and may lag behind landuse changes by decades. In addition some water quality or designated use support goals may take decades to achieve (e.g. changes in stream biota, altered base flow hydrology).

Plan Content Requirement: Establishment of Measurable Goals

Each priority issue must have associated measurable goals for addressing the issue. Some goals will be watershed-wide; however, the majority should be focused on a specific subwatershed, natural resource, or local government. Goals for prevention of future water management problems should also be considered. Plans that do not contain sufficient measurable goals to indicate an intended pace of progress for addressing the priority issues will not be approved.

BWSR will consider the guidance and recommended tools outlined in *Section 2 Analysis and Prioritization of Issues,* the balance of broad versus focused goals and shorter-term versus longer-term goals, and detail in the targeted implementation schedule to assess if goals are sufficient. Additionally, the pace of progress towards achieving goals will be used in determinations of the extent or depth of future 10 year plan revisions. BWSR may consider issuing findings when a plan and associated implementation is sufficient that a complete revision will not be required.

The Water Quality Implementation Plan type must have goals to address the water quality priority issues. The remaining plan types must have goals to address all identified priority issues.

4. Targeted Implementation Schedule

Targeting takes a closer look at the priority issues and identifies cost-effective, targeted, and measurable actions necessary to achieve the goals. These actions are included in the plan in consideration of: available technical skills and capabilities, knowledge of landowner willingness, funding resources available, and implementation items or projects from existing local water plans and information and the Strategies and Actions table from the WRAPS. Actions are entered into a schedule or table that provides the details of:

- A brief description of what each action is;
- Location targeting where the action will occur;
- Identification of roles and who is responsible for the action;
- An estimate of cost and potential sources of funding for implementing the action;
- An estimate of when the implementation will occur within the 10 year timeframe of the plan; and
- How the action will be measured.

The purposes of the implementation schedule are to clearly indicate an intended pace of progress for achieving the goals, support development of shorter term workplans and budgets for the planning partners, and to support budget requests to the state through BWSR's Biennial Budget Request (BBR). A template for the targeted implementation schedule will be provided. The schedule should be supported by maps indicating the location(s) of the targeted activities.

The development of a targeted implementation schedule and associated actions is an iterative process. The same tools used for prioritization and goal setting can be used to assist with the selection of actions to be included in the targeted implementation schedule. Additionally, some actions may require prior feasibility study to determine the viability of the action.

The depth and specificity of targeted actions identified in the plan will vary. For example, capital improvement projects and best management practices to be implemented on public land can generally be specifically located and identified in the plan; whereas, conservation practices proposed for private lands may be specifically identified through the use of models and tools for purposes of developing measurable goals and the targeted implementation schedule, but those locations are only generally described in the plan itself. For these areas, the plan must overtly describe actions to work with landowners in these critical areas and tailor conservation practices.

Plan Content Requirement: Targeted Implementation Schedule

Each plan will have a targeted implementation schedule for achieving the goals with:

1. A brief description of what each action is;
2. Targeting where the action will occur;
3. Identification of roles and the responsible government unit for the action;
4. An estimate of cost and potential sources of funding for implementing the action;
5. An estimate of when the implementation will occur within the 10 year timeframe of the plan; and
6. How the action will be measured.

The schedule must clearly identify the actions the planning partners will undertake with available local funds versus the actions that will be implemented only if other sources of funds become available, and should be supported by maps indicating the location(s) of the targeted activities.

5. Implementation Programs

The implementation programs described below support the targeted implementation schedule by describing the overarching program(s) that will be used to implement actions identified in the schedule and how these programs will be coordinated between the local water management responsibilities.

A. **Plan Administration and Coordination**: The plan must describe the following administration and coordination programs as indicated in the table *Plan Content Requirement: Implementation Programs by Plan Type* at the end of this section.

   i. **Decision-making and Staffing:** Describe how the partners will transition from a planning partnership to implementation of a watershed-based plan through descriptions of roles and responsibilities of participating local governments.

      a. **Policy Team** (decision-making): Describe if the policy team created to develop the plan will continue through plan implementation, or clearly outline an alternative method to provide oversight and maintain accountability throughout plan implementation.

b. **Advisory Committee** (advising): Describe if the advisory committee(s) created for plan development will continue through plan implementation and/or describe alternative methods to ensure: a dependable forum to exchange information and knowledge about the watershed and implementation of the plan, and meet the statutory requirements for ongoing advisory committees of counties (Minnesota Statutes §103B.301-103B.3355) and watershed districts (Minnesota Statutes §103D.331-103D.337).

   The plan should also establish procedures for engaging state agencies, and describe the ongoing role and commitments of the state agencies on project teams for plan implementation.

c. **Identification and Coordination of Shared Services** (staffing): Describe specialized and shared service areas that will be used in the watershed to implement the actions identified in the schedule and achieve greater efficiencies in service delivery. This may include shared services for program management such as if a plan action requires forest resource management technical assistance, but the local government where the action is occurring does not have a staff forester. The watershed plan and associated formal agreements should describe how the service will be shared and/or the need met. Or it may include project management, for example if one county has history and experience in implementing a large-scale multipurpose drainage project, another county in the watershed may want to contract for services with staff of the first to implement a similar project. Shared services may also include partnership with non-governmental organizations.

ii. **Collaboration with other Units of Government:** Describe relationships with other units of government not part of the formal agreement for plan development, including the drainage authorities within the planning boundary. For example, cities and townships are not required participants; however, recognition and inclusion of cities and townships is important and especially critical to recognize for actions involving waste water treatment plants, source water and wellhead protection for population centers, MS4s, etc. Additionally, federal government partners are not required participants; however, federal programs and partnerships are very important resources in watershed management.

iii. **Funding:** Describe how actions in the implementation schedule will be funded. Both the state and local governments have responsibility for funding water management. All funding methods currently available to participants remain available to the participants and/or to the organization as a whole through the participants.

a. **Local Funding:** The local government planning partners have variable methods and options for generating funds to implement watershed management and to leverage state and other funding. These methods, options, and commitments of the participants must be clearly outlined in the plan.

b. **State Funding:** Describe state funding needs for implementation of the plan. This can be achieved through separation in the targeted implementation schedule of locally funded projects versus projects that will proceed only with state funds.

c. **Collaborative Grants:** Describe the intended approach to coordinated submittal of state grant applications. Collaborative grant making is a goal of *One Watershed, One Plan*.

d. **Federal Funding**: Federal sources of funds can be important to watershed management. The plan should describe what type of federal funding resources may be pursued to implement the plan, to the extent possible.

e. **Other Funding Sources**: Other sources of funds, such as from non-governmental organizations and private landowner funding, can be important to watershed management. The plan should describe what types of other funding resources may be pursued to implement the plan, to the extent possible.

iv. **Work Planning:** Describe how the targeted implementation schedule and the implementation programs will be used for work planning. For example, describe if a collaborative work plan for the watershed, individual work plans for each local government participant, or some combination work planning be used; and describe how the work plan will be finalized and approved.

   a. **Local Purpose:** Include a frequency, method, decision-making, and local purposes for work planning. Frequency is suggested to be annual in order to be incorporated into local budgeting and staffing decisions related to implementation of the plan and can be no more than every two years. Purposes depend on the extent of collaboration intended in the implementation schedule, programs, and subsequent agreements; as well as the extent of collaborative grant-making intended.

   b. **State Purpose:** Describe a biennial commitment to collaboratively review and submit a BWSR biennial budget request (BBR) from the watershed. Future BBRs should be generated from the Targeted Implementation Schedule. Submittal of the BBR is a requirement for Soil and Water Conservation Districts and Counties to meet planning requirements associated with grants.

v. **Assessment and Evaluation:** Describe the frequency, method(s), purposes, decision-making, and procedures for periodic assessment and evaluation of plan implementation. Periodic understanding of accomplishments—based on the targeted implementation schedule—is needed to measure progress, drive the work plan, and provide accountability.

   a. **Annual Evaluation:** Describe an annual commitment to collaboratively review and submit to BWSR's Level I Performance Review and Assistance Program performance standards. Additionally, describe sufficient baseline local evaluation of previous years' work to support generation of the local work plan above (if an annual local work plan is being used) and reporting requirements below.

   b. **Biennial Evaluation:** If the watershed chooses a biennial work plan, a biennial evaluation must be described to evaluate the previous years' work and support the work plan. It is recommended this baseline evaluation ties to the requirement for measurability in the targeted implementation schedule and that a method for tracking implementation consistently across the watershed be described.

   c. **Five Year Evaluation:** Include a schedule for a thorough five year assessment and potential revision to implementation schedule. The purpose of this evaluation is to determine progress and consider whether staying the course or resetting direction is necessary, and it may include revisions to models, considerations of new monitoring data, etc. Additional guidance, including BWSR involvement in this evaluation, will be developed through the pilot watersheds.

   d. **Reporting:** Describe collaborative approaches to provide accountability to stakeholders and to meet annual reporting requirements of local governments, grant reporting requirements, and specific program and financial reporting requirements. Information on required annual reporting can be found on the BWSR website: www.bwsr.state.mn.us/grants/reporting/reporting.html. Consider a periodic 'state of the watershed report,' or individualized 'waterbody report cards' or other methods to provide accountability and demonstrate outcomes locally. See also the Education and Information requirements below.

vi. **Plan Amendments:** Describe procedures for considering plan amendments, who can propose amendments, what criteria will be used in considering amendments, and who makes the decision to proceed with the amendment.

vii. **Formal Agreements:** List and briefly describe any formal agreements between local governments that are pertinent to water management. This includes longstanding existing agreements and any new agreements to be implemented as part of the plan. For example, prior to completion of the plan the formal agreement between partners for planning purposes should be revisited in consultation with Minnesota Counties

Intergovernmental Trust (MCIT) and legal counsel. MCIT may recommend revising the planning agreement, establishing separate agreements or contracts for specific services or actions; and/or developing a broader, watershed-wide agreement for ongoing partnership.

B. **Plan Implementation Programs**: Describe the following programs to support the targeted implementation schedule, including necessary feasibility studies, as indicated in the table *Plan Content Requirement: Implementation Programs by Plan Type* at the end of this section.

i. **Incentive Programs:** Describe local voluntary cost share or grant programs necessary to achieve the goals; including the general purpose and scope, criteria that will be used to select projects/disperse funds, actions to work with landowners in these critical areas to tailor conservation practices, and how the program(s) will be implemented across the watershed to provide consistency and achieve goals. Incentive programs may be targeted to specific issues, e.g. grants for sealing abandoned wells, or specific areas, e.g. watershed of priority lakes.

ii. **Capital Improvements:** Describe opportunities for watershed-wide collaboration (e.g. sharing of specialized services and/or lessons learned on these large-scale projects) on capital improvements (physical/structural improvement with an extended life) identified in the targeted implementation schedule. Consider including opportunities for improved water management associated with county and township roads and within drainage systems managed through Drainage Law.

a. **Drainage**: Describe opportunities for enabling large-scale multi-purpose projects on a watershed basis.

b. **Capital Improvement Programs (CIPs) for Watershed Districts.** CIPs are required in the plan when a watershed district is included, consistent with the requirements of Minnesota statutes §103B and 103D. A CIP is an itemized program for at least a five-year prospective period, and any amendments to it, subject to at least biennial review, that sets forth the schedule, timing, and details of specific contemplated capital improvements by year, together with their estimated cost, the need for each improvement, financial sources, and the financial effect that the improvements will have on the local government unit or watershed management organization. This requirement can be incorporated into the targeted implementation schedule if the specific requirements are clearly met.

iii. **Operation and Maintenance:** Include a description of who is responsible for inspection, operation and maintenance of stormwater infrastructure, public works, facilities, and natural and artificial watercourses. Specify any new programs or revisions to existing programs needed to accomplish the goals or that may benefit from watershed-wide collaboration.

iv. **Regulation and Enforcement:** Describe existing regulations, controls, and authorities relevant to water management for the purposes of highlighting areas of duplication, gaps, and opportunities. Include description of drainage authorities and responsibilities. Use this analysis to identify areas to maximize effectiveness and build efficiencies through improved coordination and consistent application of regulations in support of meeting plan goals. Consider also opportunities for efficiencies in required annual reports related to regulation, and enforcement and connections to possible data gaps. Regulatory areas to consider include, but are not limited to: shoreland, floodplain, septic, Wetland Conservation Act, erosion control, minimum impact design standards, land use, feedlots, prescription drug drop off, etc.

a. **Regulation and Enforcement for Watershed Districts:** Describe the rules and associated permit programs of watershed districts in the watershed, consistent with and as necessary to meet the requirements of Minnesota statutes §103B.337-103D.345.

b. **Comprehensive or land use plans:** Describe the land use authorities within the watershed as well as potential opportunities to achieve goals through, or potential conflicts with, comprehensive land use plans.

v. **Data Collection and Monitoring:** Describe data collection and monitoring activities necessary to support the targeted implementation schedule and reasonably assess and evaluate plan progress.

a. **Inventory:** Describe additional inventories needed in the watershed to address any gaps in the land and water resources inventory support actions in the targeted implementation schedule, if applicable.

b. **Monitoring:** Describe the locations, frequency, and parameters of existing water quality, quantity and other monitoring programs in the watershed. Describe if these established monitoring programs are capable of producing an accurate evaluation of the progress being made toward the goals, including improved calibration of model(s), and any new monitoring needed to improve understanding of the watershed baseline or assess particular resources. State agencies are available to assist with identification of state monitoring activities.

Include a requirement for periodic analysis of the data, a commitment to collect data consistent with state compatibility guidelines, and a commitment to submit locally collected data to the appropriate state agency for entry into public databases.

vi. **Information, Outreach, and Education Programs:** The plan must describe information, outreach, and education program(s); specifically, opportunities where there are benefits from watershed-wide collaborations and areas where focused or targeted actions will support the priority issues and goals of the plan. At a minimum, include the purpose, targeted audiences, and a description of the actions or methods. Consider development of an education plan for the overall watershed using an approach currently successfully used in Minnesota is an adaptation of the U.S. Environmental Protection Agency guidance "Getting in Step: A Guide for Conducting Watershed Outreach Campaigns" available at: www.epa.gov/owow/watershed/outreach/documents/getnstep.pdf.

Plan Content Requirement: Implementation Programs by Plan Type

The following outlines the ***minimum*** plan content requirements for implementation programs, by plan type. BWSR will use the descriptions of the programs above to determine if the requirement has been met.

	Plan Content Requirement	Water Quality Implementation Plan	Priority Concerns Implementation Plan	Comprehensive Watershed Management Plan
Plan Administration & Coordination	Decision-making and staffing	Required	Required	Required
	Collaboration with other units of government	May include	May include	Required
	Funding	Required	Required	Required
	Work Planning	Required	Required	Required
	Assessment and Evaluation	Required	Required	Required
	Plan Amendments	Required	Required	Required
	Formal Agreements	Required	Required	Required
Plan Implementation Programs	Incentive Programs	Required	Required	Required
	Capital Improvements	May include	Required if necessary to address priorities	Required
	Operation and Maintenance	May include	Required if necessary to address priorities	Required
	Regulation and Enforcement	May include	Required if necessary to address priorities	Required
	Data Collection and Monitoring	Required	Required	Required
	Information, Outreach, and Education Programs	Required	Required	Required

6. Plan Appendix - Land and Water Resources Inventory

A land and water resource inventory is simply an account of the water resources and physical factors affecting the water resources within the watershed. In most cases, adequate data, inventories, and general analysis of land and water resources already exist; new information does not necessarily need to be generated and the majority of resource information can be incorporated by reference with a brief general description. At a minimum, the plan should acknowledge the resource information from existing local water plans and the Watershed Restoration and Protection Strategies Report (WRAPS). This information is important not just to understand the historic status of the watershed, but useful to consider the future.

Going forward, wholesale updates and/or revisions to land and water resource inventories should be limited. Instead greater flexibility and a streamlined process for more frequent updates to incorporate collected data, updated trends analysis, and changes in land use typically associated with land and water resource inventories are envisioned.

Plan Content Requirement: Land and Water Resources Inventory

The plan must contain sufficient land and water resource information to inform the planning process and support actions in the plan. Specifically, the plan must include a brief general description of—and reference where to find—the typical and available land and water resource information. This information includes, but is not limited to:

- Topography, soils, general geology;
- Precipitation;
- Water Resources
  - Surface water resources; including streams, lakes, wetlands, public waters and public ditches;
  - Groundwater resources, including groundwater and surface water connections if known;
  - Water quality and quantity, including trends of key locations and 100-year flood levels and discharges, regulated pollutant sources and permitted wastewater discharges;
  - Stormwater systems, drainage systems and control structures;
  - Water-based recreation areas;
- Fish and wildlife habitat, rare and endangered species;
- Existing land uses and proposed development

Inventory information critical to supporting the priorities and actions of the plan may need to be more thoroughly described. For example, a description of results of trend analysis may need more in-depth description to support a priority issue in the plan; however, the data behind the analysis can be referenced.

If gaps in inventory information are identified through the plan development process, consider implementation action(s) to fill the gap rather than delaying the planning process to generate new data.

This requirement applies to all plan types and is suggested to be included as an appendix to the plan.

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APPENDIX E

Root River Watershed
Documents Reviewed and Relied Upon During Plan Development

APPENDIX E: DOCUMENTS REVIEWED AND RELIED UPON

Belmont, P. 2013. Sediment fingerprinting for sources and transport pathways in the Root River, southeastern Minnesota.

Belmont, P., Willenbring, J.K., Schottler, S.P., Marquard, J., Kumarasamy, K., Hemmis, J.M. 2014. Toward generalizable sediment fingerprinting with tracers that are conservative and nonconservative over sediment routing timescales. J Soils Sediments 14:1479–1492.

Board of Water and Soil Resources (BWSR). 2014. Nonpoint Priority Funding Plan for Clean Water Implementation Funding Version 1.0 (July 2014 – June 2016). Available at: http://www.bwsr.state.mn.us/planning/npfp/NPFP%20Final.pdf

Dodge County. 2006. Dodge County Comprehensive Water Management Plan. Available at: http://dodgeswcd.org/wp-content/uploads/2014/05/Dodge-County-Amended-2006-2016-Comprehensive-Water-Plan.pdf

Fillmore County. 2006. Fillmore County Comprehensive Local Water Management Plan. Available at: http://www.fillmoreswcd.org/localWater.html

Green, J.A., Barry, J.D., Alexander, E.C. 2011. Springshed Assessment Methods for Paleozoic Bedrock Springs of Southeastern Minnesota. Available at: http://www.lccmr.leg.mn/projects/2011/finals/2011_05b_rpt_spring-assessment-protocols.pdf

Houston County. 2007. Houston County Comprehensive Water Plan. Available at: http://www.co.houston.mn.us/Documents/SoilWater/2007-2017_Comprehensive_Water_Plan.pdf

Minnesota Department of Agriculture (MDA). 2015. Minnesota Nitrogen Fertilizer Management Plan. Available at: http://www.mda.state.mn.us/nfmp

Minnesota Department of Health (MDH). 2012. Volunteer Nitrate Monitoring Network Study. Available at: http://www.health.state.mn.us/divs/eh/water/swp/nitrate/reports/methodsresults.pdf

Minnesota Geological Survey (MGS). 2013. Geologic controls on groundwater and surface water flow in southeastern Minnesota and its impact on nitrate concentrations in streams.

Minnesota Pollution Control Agency (MPCA). 2012. Root River Watershed Monitoring and Assessment Report. Available at: https://www.pca.state.mn.us/sites/default/files/wq-ws3-07040008b.pdf

Minnesota Pollution Control Agency (MPCA). 2014. Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List. Available at: https://www.pca.state.mn.us/sites/default/files/wq-iw1-04.pdf

Minnesota Pollution Control Agency (MPCA). 2014. The Minnesota Nutrient Reduction Strategy. Available at: https://www.pca.state.mn.us/sites/default/files/wq-s1-80.pdf

Minnesota Pollution Control Agency (MPCA). 2015. Root River Watershed Stressor Identification Report. Available at: https://www.pca.state.mn.us/sites/default/files/wq-ws5-07040008.pdf

Minnesota Pollution Control Agency (MPCA). 2015. Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River. Available at: https://www.pca.state.mn.us/sites/default/files/wq-iw4-02.pdf

Minnesota Pollution Control Agency (MPCA). 2016 (DRAFT). Draft Root River Watershed Total Maximum Daily Load Report for Bacteria, Nitrate and Suspended Solids. Available at: https://www.pca.state.mn.us/sites/default/files/wq-iw9-17b.pdf

Minnesota Pollution Control Agency (MPCA). 2016 (DRAFT). Draft Root River Watershed: Watershed Restoration and Protection Strategy Report. Available at: https://www.pca.state.mn.us/sites/default/files/wq-ws4-18a.pdf.

Mower County. 2006. Mower County Local Water Management Plan. Available at: http://www.mowerswcd.org/documents/MowerCountyLocalWaterPlan.pdf

Olmsted County. 2013. Olmsted County Water Management Plan. Available at: http://www.co.olmsted.mn.us/environmentalresources/plans/waterresourceplans/Documents/Water%20Plan%202013%20Web%20Version.pdf

Root River Watershed Landscape Stewardship Plan. 2013. Available at: http://www.fillmoreswcd.org/documents/RootRiverLandscapeStewardship_final_5-7-14.pdf

Stout, Justin Collin, "Identifying and quantifying sediment sources and sinks in the Root River, Southeastern Minnesota" (2012). All Graduate Theses and Dissertations. Paper 1304. Available at: http://digitalcommons.usu.edu/etd/1304

Justin C. Stout, Patrick Belmont, Shawn P. Schottler & Jane K. Willenbring. 2014. Identifying Sediment Sources and Sinks in the Root River, Southeastern Minnesota, Annals of the Association of American Geographers, 104:1, 20-39, DOI: 10.1080/00045608.2013.843434

Winona County. 2011. Winona County Comprehensive Local Water Management Plan. Available at: http://www.co.winona.mn.us/sites/winonacounty.new.rschooltoday.com/files//water_plan_1.pdf

United States Geological Survey. 2013. Suspended-Sediment Concentrations, Loads, Total Suspended Solids, Turbidity, and Particle-Size Fractions for Selected Rivers in Minnesota, 2007 through 2011. Available at: http://pubs.usgs.gov/sir/2013/5205/pdf/sir2013-5205.pdf

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APPENDIX F

Root River Watershed
Comments Received During Plan Development and Comment Responses

Root River 1W1P: Comments and Responses

Agency	Date Received	Comment Number	Plan Section	Comment	Change Made to Plan (Y/N)?	Comment Response(s)
USFWS	*9/11/2015*	1	5.1.1.2	Technical Assistance: Other agencies and conservation groups (such as NRCS, MN DNR, USFWS, TU, etc.) can also provide technical assistance for projects.	Y	Changed to: "Technical assistance may be provided through a SWCD, a County, a watershed district, or other agencies and conservation groups (Minnesota Department of Natural Resources (MnDNR), National Resource Conservation Service (NRCS), United States Fish and Wildlife Service (USFWS), Trout Unlimited (TU), etc.), within the Plan area."
		2	5.1.2	Row = Maintain records of invasive species-Suggest checking boxes in Columns under Streams and Rivers, Wetlands, Riparian Corridor, Aquatic Habitat for..., and Trout Streams.	Y	Checked boxes for Streams and Rivers, Wetlands, Riparian Corridor, Aquatic Habitat, and Trout Streams.
		3	5.1.2	Row = Increase public accessibility to natural resources-Suggest checking boxes for Trout streams and Areas of moderate and high biological diversity. Possibly check boxes for Streams and rivers and wetlands.	Y	Checked boxes for Trout Streams, Areas of Moderate and High Biological Diversity, Streams and Rivers, and Wetlands.
		4	5.2 (Table 6)	Is this table supposed to be filled in? If so, then USFWS Partners for Fish and Wildlife Program can provide funding for wetland restoration (Surface Water Initiative) and prairie and oak savanna restoration (Landscape Features Initiative). We also provide funding to TU through a cooperative agreement for trout stream habitat improvement projects (Landscape Features Initiative).	Y	Table edited to reflect comment
		5	5.2 (Table 7)	Row = Federal Add: Organization = USFWS; Program = Partners for Fish and Wildlife Program (PFW); Primary Assistance Type = Financial/Technical; Check boxes under Surface Water Initiative and Landscape Features Initiative	Y	Row = Federal; Organization = USFWS; Program = Partners for Fish and Wildlife Program (PFW); Primary Assistance Type = Financial/Technical; Checked boxes under Surface Water Initiative and Landscape Features Initiative
		6	2.2	3.2 Aquatic Habitat- the description is the same as for 3.1 Riparian Corridor.	Y	Changed to: The pools, riffles, runs and bank overhangs within streams, creeks and rivers, the pooled areas of wetland, and the underwater areas of lakes and backwater areas comprise the livable space for aquatic life. A number of the waterways on the state's Impaired list are listed for impairments to fish, macroinvertebrates, and aquatic life. Frequently, these impairments are a result of degraded aquatic habitat. In addition, the Root River 1W1P boundary area contains a number of stream reaches with high quality aquatic habitat.
		7	2.6.1.3	Third line: Kart should be Karst	Y	Changed to: "karst"
		8	2.6.1.6	Second paragraph, third line: trout stream should be trout streams?	Y	Changed to: "trout streams"
		9	2.6.1.7	First paragraph, eleventh line: prepare and Environmental .... should be prepare an Environmental....	Y	Changed to: "prepare an Environmental"
		10	5.4.2.6	Second line: exiting should be existing	Y	Changed to: "existing"
NRCS	*9/11/2015*	1	5.1.2	Do you want to spell out that the conservation practices would match up with the NRCS practice standards and criteria found in MN NRCS section IV of the eFOTG?	N	The local Planning Work Group decided not to include NRCS practice code numbers, as several included, local practices are not NRCS practices.
MnDNR	*9/11/2015*	1	2.4.2.1	DNR recommends to only use those potential fish barriers/culverts with a rating of 1 and 2 that were identified by DNR Fisheries staff (Vaughn and Melissa reviewed in May) as being significant potential barriers. Fisheries staff identified 38 potential culverts as important, as depicted in the attached "Culvert Rating 1_2 Fisheries Reivew_May2015 layer file"	Y	Revised so only Culverts rated 1 and 2 were used
		2	2.4.2.1	Culverts ranked 3, 4 and 5 have not been evaluated at this time and we do not recommend depicting all the potential barriers as currently shown in Figure 6	Y	Revised so only Culverts rated 1 and 2 were used
		3	5.2 (Table 7)	Please consider adding the content identified in the attached "Root_1W1P_Table7_insert" along with the written description titled, "FEMA Grants for Preserving and Restoring Floodplains"	Y	Added suggested columns and rows.
MnDNR	*9/25/2015*	1	2 (Table 2)	1.2.3 and 1.3.3 also impacts trout streams as the primary limitation for a trout stream is the quality and temperature of the water from the spring feeding the trout stream.	Y	Added 1.2.3 and 1.3.3 to Priority Resources Concerns Table, row "3.3 Trout Streams"
		2	2 (Table 2)	3.3.12 barriers impact sediment transport and restrict flow damaging stream banks resulting in degraded habitat which impact trout populations by degrading water quality and filling quality stream substrate habitat with sediment. Addressing these issues will be essential as well as the other issues listed.	Y	Added "3.3.17 Degradation of stream banks, stream substrate habitat, and water quality caused by barriers which impact sediment transport and restrict flow"
		3	2 (Table 2)	6.1.1 The impacts to the stream banks and stream slope should be specifically mentioned in addition to the mention of flooding.	Y	Changed to: "6.1.1 Consequences of tile drainage systems related to the rate, volume and duration of runoff, local and regional flooding and flood damages, and impacts to stream banks and stream slopes"
		4	2 (Table 2)	3.1 Riparian Corridors and 3.2 Aquatic Habitat for Fish, Macroinvertebrates and Aquatic Life - it should be noted that riparian corridors and connectivity when flooded are essential habitat for life stages of non-game and game fish present in these streams. I would suggest including fish habitat with the mention of wildlife habitat.	Y	Changed to: "Riparian areas serve important functions including filtering runoff, habitat for fish and wildlife, wildlife migration, and aesthetic enjoyment."
		5	2 (Table 2)	6.3 Water Retention Systems - Restoring additional wetlands is essential to impacting runoff in the agricultural sector of the landscape to store runoff and filter nutrients. Preserving those areas on the landscape are important but restoring additional wetlands in specific watersheds is needed. I know this addressed under 2.3.3 but would be pertinent in this category as well.	N	Purposefully did not make judgement on how water would be stored. This decision is instead made by the entity.
		6	2.6.1.6	Please consider adding additional language to the 2nd paragraph in this section as follows: o Barriers as they relate to invasive carp are a potential management tool to limit the expansion of invasive carp populations and will be considered at strategic locations. Considerations include effectiveness against target species, impacts to native species, and costs. o Barriers could be physical, electrical, or acoustic. Determining the locations is important because if a carp is captured or verified in the Root River, there is likely to going to be a strong push for management action (likely a barrier). o The Root River is connected to a section of the Mississippi River where invasive carp have been detected. Though the likelihood of an invasive carp being detected in the Root River at this time is very low, it is still a possibility.	Y	Added: "Barriers are a potential management tool to limit the expansion of invasive carp populations and will be considered at strategic locations. Considerations include effectiveness against target species, impacts to native species, and costs. Barriers could be physical, electrical, or acoustic. Determining strategic locations for barriers is important because if a carp is captured or verified in the Root River, there is likely to going to be a strong push for management action, likely in the form of a barrier. The Root River is connected to a section of the Mississippi River where invasive carp have been detected. Though the likelihood of an invasive carp being detected in the Root River at this time is very low, it is still a possibility."

		7	2.6.1.6	Please consider adding additional language to the 2nd paragraph in this section as follows: o The DNR employs a full time field biologist who responds to all reported sightings and is available to investigate/sample an area with a verified specimen or a highly suspect report. o In September 2012, the DNR began a GIS-based invasive carp risk assessment project, called the Minnesota Barrier Assessment Study to carry out the following objectives: Provide visual representation of potential pathways of invasive carp upstream migration; Assess aquatic barriers for ability to limit upstream invasive carp migration; Identify potential watershed breaches (i.e. pathways across major watershed boundaries such as ditches, culverts, etc.); Identify waters susceptible to expansion; Develop tools to help quantify resources affected; Develop tools to help assess migration/infestation scenarios; Identify strategic sites for potential invasive carp barriers. The project applied GIS analysis to information gathered from several barrier databases and data from field level professionals. A preliminary risked-based spatial map, titled "Relative Risk of Invasive Carp Upstream Movement Map" was released in November 2013 depicting where in Minnesota invasive carp may spread by their own swimming capabilities. In addition, the project produced the following outcomes: Assignment of relative risk of invasive carp passage on 2,000+ stream barriers; GIS tools for quantifying resources and evaluating scenarios, and; Identification of watershed breaches. Future work will be done verifying and refining data, prioritizing locations for potential stream barrier enhancement, and prioritizing watershed breaches for projects to prevent passage by invasive fish species. Information for this study (dams, pass ability, etc.) was collected from area fisheries offices. DNR believes inclusion of the Relative Risk of Invasive Carp Upstream Movement Map into this section of the report would put managers ahead of the game rather than being reactive or defensive.	N	Comment acknowledged, but not included in the plan.
MnDNR			Section 3	Extensive comments and responses provided. Document tracking comments and responses is available upon request.	Y	Extensive comments and responses provided. Document tracking comments and responses is available upon request.
Hiawatha Valley RC&D	*11/12/2015*	1	Section 5	Just who are the groups/partners doing it may need some attention. Much of the needed effort is placed on the district staff, but I am wondering if some thoughts should be directed to approve private sources developed through some type of Technical Service providers.	N	Roles and responsibilities will be addressed in Section 4
		2	Section 5-ordinances	The future requirements of the riparian buffer amendment were left out. The time line for that is in the future however because of the DNR's role and the counties role in governing it. The acreage within this watershed is large and will take a lot of organizational planning to process that need.	N	Buffer legislation included in Section 5.5
		3	Section 5	One of my thoughts through my tenure with the HVRC&D process was to find ways to establish and manage the required perennial vegetation as business model modal such as creating biomass for energy use or a food source for livestock. To make such an effort go may require the need of forming cooperatives to assist both with the planning and application to make it work.	N	Acknowledged: Actions will be defined in Section 4. Creation of cooperatives such as coordination with crop advisors is suggested in Landowner and Producer Engagement Campaign
		4	Section 5	Other parts of the Plan implementation and Initiative (Section 5) appear to be dealing with items that should or could be dealt with and referenced to the state and federal level, who are considered as partners. Adjoining watersheds that share the groundwaters of the Hollandale embayment do share similar concerns and applications from all of these watersheds need could be addressed here also.	N	Acknowledged: Planning boundary area has been determined by BWSR for the One Watershed, One Plan. Other watersheds and groundwater areas will be addressed as the One Watershed, One Plan program continues to expand across the state.
		5	Section 2	Where is soil erosion? What has also caught my attention is in not identifying soil erosion as a critical problem facing all counties in our SE Minnesota more so now since than prior to the 1980's. We have lost a lot of perennial type cover, especially with the lack of hay in our crop rotations that is of concern. Soil erosion is implied with the listing of needed practices, which does appear, however.	N	Yes, soil erosion is implied with the listing of needed practices. It is addressed in Strategy SW-3, which addresses levels of sediment in surface waters.
		6	Section 1	Sorting these in where in the watershed areas where they might be dominantly applied. I did a very rough sketch of the listed items in section 2 in terms of my thoughts of sorting based on the HUC 12 versus the broader HUC 10 to see where the applications most likely would be made	N	The planning region as agreed upon by local input is the HUC 10 level. Through PTMApp, data will be available at a smaller, field scale, so practices can be targeted to a smaller scale than the HUC 10.
		7	Section 5	I was trying to read into this item too, of the whole process of governance and found it almost too detailed to make it useful to the average Root River watershed citizen. I don't state that to be critical, but too much of this type of material tends to sit on a shelf and results in limited use or forgotten about with the extension of time.	N	Simplified: The Root River 1W1P has formed a Draft Joint Powers Agreement
		8	Section 5	Minnesota state statutes outline organizational settings such as joint powers, watershed/ lake improvement districts, and associations all of which can serve organizational purposes. It is important to note too that any of these groups have a role within a county and counties. How such organizations need to be formed will be very dependent on planned task ahead within each immediate watershed unit.	N	The Root River 1W1P has formed a Draft Joint Powers Agreement
		9	Section 5	From my experience with the SCS/NRCS and Soil and Water Conservation District supervisor, staff management is, that their role is primarily one of technical advisory, design and application of approved practices and the related land use.	N	Addressed in Financial Incentive Programs and related funding sources table, and Section 4 Roles and Responsibilities.
		10	Section 5	The role of townships and county government ties to the planning approval process, that are connected through the water plans, the ordinances for soil erosion and likely the future riparian buffer management authority. The state has also been given authorities to map these buffer areas and also likely through its authorities, set standards for both water quality and quantity, delegated its various agencies. Enforcement, just may be done more at the local level, also needs to be a part of the plan, which likely includes the justice system also.	N	Administration of ordinances and regulations is defined in Section 4.

				~~These edits provide the correct and current language for the plans referenced in this bullet point.~~ Areas with high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) as identified in the revised 2015-2025 Minnesota's Wildlife Action Plan (MN WAP) for the Root River 1W1P planning area; As is, the wording is unclear/incorrect and references Tomorrow's Habitat which was the 2005 plan and does not have anything regarding the Wildlife Action Network. The edit doesn't add a new concept, it just makes an existing concept correct.		Text changed to "Areas with high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) as identified in the revised 2015-2025 Minnesota's Wildlife Action Plan (MN WAP);" per Nichole Lehman's edits
		1			Y	
				Action LF-4.1: Promote and enforce zoning regulations that encourage development practices which preserve and enhance natural/ areas and/or areas of moderate or higher biodiversity and/or areas of high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN).	Y	Action LF-4.1: Promote and enforce zoning regulations that encourage development practices which preserve and enhance natural areas. Higher priority should be given to areas where high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) are located.
				Action LF-4.3: Identify parcels adjacent to areas of moderate and higher biodiversity and/or areas of high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) and promote BMPs to protect and enhance biodiversity.	Y	Action LF-4.3: Identify parcels adjacent to areas of moderate and higher biodiversity and/or areas of high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) and promote BMPs to protect and enhance biodiversity.
MnDNR	*12/21/2015*		Section 3	~~Action LF-4.4: Promote protection of lands identified as areas of moderate, high, and outstanding~~ and/or areas of high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) biodiversity through such programs as		Action LF-4.4: Promote protection of lands identified as areas of moderate, high, and outstanding biodiversity and/or areas of high, medium-high and medium Species of Greatest Conservation Need (SGCN) wildlife and habitat scores within the Wildlife Action Network (WAN) through such programs as acquisition, property tax credits and easements.
		2		acquisition, property tax credits and easements.	Y	
		3		Suggest rephrasing this to ....fund sustainable forest, prairie, savanna and wetland management, and preserve and restore other natural areas through grants and partnerships.	Y	Action SUST-1.4: Identify opportunities to fund sustainable forest, prairie, savanna, and wetland management, and preserve and restore other natural areas through grants and partnerships.
		4		Lead Entity: Add Fish and Wildlife Service since they have been active in the Root River Watershed.	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		5		Lead Entity NRCS, SWCD	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		6		County level, but enforcement may be more effective State level oversight is provided by Dept of Ag.	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		7		Lead Entity: local and county zoning and planning departments.	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		8		Lead Entity: DNR, SWCD, BWSR, NRCS	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		9		Not sure what this has to do with water quality. Seems out of place. Historic and cultural issues are protected by SHPO	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		10		Lead Entity: City and County zoning and planning departments	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		11		Lead Entity: FSA, SWCD	N	Roles edited within Implementation Table (Section 4). Listed partners are not all-inclusive
		1		SW 8.1 Publish and make available most current floodplain maps – add DNR. We have a big role in coordinating between FEMA and the communities, educating on how to use / interpret the maps, coordinating with locals and watersheds to leverage available data, and doing some of the modeling.	N	Roles edited within Implementation Table: SWCD- lead; County- Partner. Listed partner entities are not all-inclusive
		2		SW 8.2 – Using floodplain management ordinances – the county and the cities are the primary, but DNR works with the communities to ensure they meet national and state requirements (and must approve the ordinances), and we encourage/educate on higher standards that address reduction of flood damage potential and address many of the water quality and natural functions in the floodplain	N	Removed draft action
MnDNR	*12/22/2015*	3	Section 3	SW 8.3 – capital improvement projects to address areas subject to damage – Add the cities and DNR – DNR provides guidance on what can be done that is consistent with the regulations, and we assist with designs that are more environmentally beneficial (like the "floodplain culvert designs"). We also have state flood damage reduction grants that are administered through the Floodplain program, and staff strive to partner with other federal, regional and local funding partners for projects that reduce flood damage potential. The priorities for these funds have been acquisition of flood prone properties, but we have worked with the other levels of government on many types of projects	N	Edited for Implementation Table: now states "Maintain public infrastructure to provide drainage at the anticipated level of service to minimize flood damage to agricultural land both upland and downstream of the managed systems." Listed partner entities are not all-inclusive
		4		~~SW 8.4 – proper H&H design for road crossings to provide flood protection, while considering fish~~ passage and environmental needs – Again, DNR and the cities need to be added. As noted above, DNR has a direct permit role for many of these projects on public waters, and an advisory/oversight role in ensuring local floodplain management ordinances are met so there's no increase in flood damage potential. And as noted above, we also have a role in recommendations on designs that consider fish and other environmental needs.	N	Roles edited within Implementation Table: SWCD- lead; NRCS Watershed District- Partners. Listed partner entities are not all-inclusive
MnDNR	*3/21/2016*	N/A	Section 4, PTMApp Section 5	Extensive comments and responses provided. Document tracking comments and responses is available upon request.	Y	Extensive comments and responses provided. Document tracking comments and responses is available upon request.

Root River Watershed - One Watershed One Plan

Resource Categories, Resource of Potential Concern and Issues Affecting a Resource of Potential Concern Matrix

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27-Apr-15

	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Comment Provided by Agency				
Resource Category	Name	Description	Description	Minnesota Pollution Control Agency	Board of Soil and Water Resources	Minnesota Department of Agriculture	Minnesota Department of Health	Minnesota Department of Natural Resources
1. Groundwater: water which is held underground within the pores of rocks and soils and which reaches the ground surface.								
	1.1 Drinking Water Supplies (public and private)	Drinking water supplies are water within the subsurface pores of soil and rock (within the aquifer) that are used by humans for drinking water. The susceptibility of the drinking water supply to contamination is driven largely by how quickly and easily water can be transported from the surface to the aquifer and the karst geology of the region.	1.1.1 Water Quality: Elevated levels of nitrate-nitrogen in groundwater reducing suitable as a drinking water supply 1.1.2 Water Quality: Elevated E. coli, fecal coliform bacteria, and total coliform bacteria levels in groundwater used for drinking water, thereby posing a risk to human health 1.1.3 Water Quality: Pesticides and fertilizers applied to the land surface in excess of manufacturer recommendations, which enters the drinking water supply posing a health risk to humans 1.1.4 Water Quantity: Diminished rate of aquifer recharge because of poor soil health, an increase in the amount of impervious surface area, and the lack of vegetative cover 1.1.5 Water Quantity: The volume of groundwater available for human use and maintaining the long-term sustainability of the groundwater resource (lack of groundwater mining) 1.1.6 Water Quality and Quantity: Managing land use for specific areas on the landscape where surface water moves into the aquifer (i.e., Wellhead Protection Area boundary) 1.1.7 Rural residential development and urbanization occurring in locations with sensitive geologic conditions, thereby leading to safety concerns and the placement of practices and infrastructure 1.1.8 Water Quantity; Preparing for and increasing resiliance in response to drought.	X	X	X	X	X
	1.2 Springsheds	Springs are groundwater that comes to the surface and the springshed is the area on the landscape which contributes water to the spring. Springsheds are visual evidence of where the groundwater comes to the surface	1.2.1 Water Quantity: Adequacy of groundwater recharge to ensure the maintenance of spring flows and the delivery of cold water to streams, creeks and rivers 1.2.2 Water Quality and Quantity: Defining the specific areas on the landscape where surface water feeds a spring i.e., springshed boundary) 1.2.3 Water Quality: Elevated levels of nitrate-nitrogen, herbicides and other chemicals in spring water diminishing water quality 1.2.4 Water Quantity: Maintaining ecological plant communities relying on springs as a water supply source	X	X	X		X
	1.3 Surficial-Subsurface Hydrologic Connections	Surficial areas with subsurface connections are those areas where water is quickly and easily transported to the aquifer and sometimes connected to springs. The surface to subsurface connection is driven by thin soil layers that are overly fractured carbonate bedrock. This provides an avenue for infiltrating water to short circuit soil filtration and enter ground water supplies. The land surface which contributes to the rapid movement of water and how it is managed influences the amount and quality of water moving into the aquifer.	1.3.1 Pesticide, fertilizer and animal waste practices and the potential impact upon groundwater 1.3.2 Zoning and land use management in the areas with an intimate surface water - ground water connectedness 1.3.3 Rare animal and plant species and unique habitats dependent on the amount and chemical composition of groundwater 1.3.4 Providing recreational opportunities and economic opportunities	X	X	X		X
2. Surface Water - water resulting from excess precipitation leaving the landscape and collecting in streams, rivers, creeks, wetlands, lakes and ponds								
	2.1 Streams and Rivers	Numerous streams and rivers are found within the Root River 1W1P boundary. The water quality within some of these currently supports the beneficial uses of this water, while others do not. Some of these beneficial uses include swimming, fishing, support of aquatic life, drinking and irrigation. Some creeks, streams and rivers need to have the water quality improved (i.e., restored), while others need water quality maintained at or no less than the current level (protected).	2.1.1 Water quantity: Rate, volume and duration of runoff (i.e., altered hydrology) and the effect on the geomorphic stability of stream and river channels causing sediment deposition into the water bodies 2.1.2 Riparian condition: Degradation of aquatic and riparian habitat associated with the physical damage to the banks and beds of creeks, streams and rivers caused by bluff and bank failure and lateral movement and loss of lateral connectivity 2.1.3 Water quality: Elevated concentrations of suspended solids and sediment approaching (protection) or exceeding (restoration) water quality standards for aquatic life 2.1.4 Water quality: Elevated concentrations of bacteria approaching (protection) or exceeding (restoration) water quality standards for recreational 2.1.5 Water quality: Elevated concentrations of nitrate-nitrogen approaching (protection) or exceeding (restoration) water quality standards for potable uses and for aquatic life 2.1.6 Water quality: Reduced concentrations of dissolved oxygen or elevated temperatures approaching (protection) or below (restoration) tolerable levels that may affect aquatic life 2.1.7 Water Quantity: Potential changes in the rate, volume and intensity of runoff as a result of changing weather patterns and intense storms	X	X	X		X

DRAFT - SUBJECT TO REVISION DURING PLANNING PROCESS

27-Apr-15

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Resource Category	Name	Description	Description	Minnesota Pollution Control Agency	Board of Soil and Water Resources	Minnesota Department of Agriculture	Minnesota Department of Health	Minnesota Department of Natural Resources
	2.2 Flooding	Flooding is the inundation of land, homes, building and roads. Flooding causes infrastructure damage, economic loss and has adverse societal consequences in the community. Flooding can also have ecological benefits by maintaining a hydrologic connection between the river and the adjacent (riparian) lands.	2.2.1 Water quantity: The rate, volume and duration of runoff leading to flooding and flood damages and the loss of productivity of agricultural lands, damage to public infrastructure including the public transportation system, the water conveyance system (including streams and rivers) and buildings and structures 2.2.2 Water quantity: Lack of connectedness of water bodies to their floodplains altering baseline ecosystem services 2.2.3 Water quantity: Changing climate and weather patterns resulting in higher intensity precipitation events leading to changes in the rate, volume and duration of runoff 2.2.4 Water quantity: Defining the relationship between localized and regional flooding, the locations of flood prone areas and the increase in tile density on the landscape 2.2.5 Developing and maintaining compreshensive analyses and maps showing floodplain boundaries					X
	2.3 Wetlands	Wetlands are frequently saturated lands with multiple potential benefits. The Minnesota Wetland Conservation Act has set the goal of no net loss of wetlands inn total acreage and functions. Wetland loss and modification is an ongoing concern and focus of several state and federal agencies, and non-profit organizations.	2.3.1 The historical loss of wetlands and the role they provide within the landscape for storing water, modifying water quality and providing habitat 2.3.2 Providing adequate water supply to wetlands to maintain hydrology and vegetation quality 2.3.3 Selecting locations for restoring quality wetlands, while recognizing land owner rights and agricultural operations (i.e., trafficability)		X			X
3. Landscape Features: visible natural features and characteristics of the landscape, often which are prominent or unique.								
	3.1 Riparian Corridors	The riparian corridor is the land area adjacent to a creek, stream, river or similar water body characterized by perennial vegetation. The riparian area boundary is defined by relatively frequent flooding. Preferably the perennial vegetation consists of native plant species. Riparian areas serve important functions including filtering runoff, use by wildlife as habitat and migration and aesthetic enjoyment Riparian corridors are sometimes subject to regulatory controls (e.g., shoreland ordinance; floodplain requirements).	3.1.1 Presence, width and quality of vegetated areas adjacent to streams and rivers within urban and rural landscapes for filtering surface runoff, providing shading and maintaining surface water temperatures, as a corridor for wildlife movement, and as physical protection barrier from disturbance 3.1.2 Placement and number of locations for legal and controlled public access to provide recreational access and opportunities 3.1.3 Recognition of land rights and the need for fair and equitable compensation to landowners for the maintenance and use of riparian corridors 3.1.4 Presence of perennial vegetation for filtering surface water runoff and providing shading from solar radiation and elevated surface water temperatures	X	X			X
	3.2 Aquatic Habitat for Fish, Macroinvertebrates and Aquatic Life	The riparian corridor is the land area adjacent to a creek, stream, river or similar water body characterized by perennial vegetation. The riparian area boundary is defined by relatively frequent flooding. Preferably the perennial vegetation consists of native plant species. Riparian areas serve important functions including filtering runoff, use by wildlife as habitat and migration and aesthetic enjoyment Riparian corridors are sometimes subject to regulatory controls (e.g., shoreland ordinance; floodplain requirements).	3.2.1 See 2.1.1 Water quantity: Rate, volume and duration of runoff (i.e., altered hydrology) and the effect on the geomorphic stability of stream and river channels causing sediment deposition into the water bodies 3.2.2 See 2.1.2 Riparian condition: Degradation of aquatic and riparian habitat associated with the physical damage to the banks and beds of creeks, streams and rivers caused by bluff and bank failure and lateral movement and loss of lateral connectivity 3.2.3 See 2.1.3 Water quality: Elevated concentrations of suspended solids and sediment approaching (protection) or exceeding (restoration) water quality standards for aquatic life 3.2.4 See 2.1.6 Water quality: Reduced concentrations of dissolved oxygen or elevated temperatures approaching (protection) or below (restoration) tolerable levels that may affect aquatic life 3.2.5 See 2.2.2 Water quantity: Lack of connectedness of water bodies to their floodplains altering baseline ecosystem services 3.2.6 See 2.3.1 The historical loss of wetlands and the role they provide within the landscape for storing water, modifying water quality and providing habitat 3.2.7 See 3.1.1 Presence, width and quality of vegetated areas adjacent to streams and rivers within urban and rural landscapes for filtering surface runoff, providing shading and maintaining surface water temperatures, as a corridor for wildlife movement, and as physical protection barrier from disturbance 3.2.8 See 3.1.4 Presence of perennial vegetation for filtering surface water runoff and providing shading from solar radiation and elevated surface water temperatures	X	X			X

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	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Comment Provided by Agency				
Resource Category	Name	Description	Description	Minnesota Pollution Control Agency	Board of Soil and Water Resources	Minnesota Department of Agriculture	Minnesota Department of Health	Minnesota Department of Natural Resources
	3.3 Trout streams	Trout streams are type of "special" aquatic habitat, designated by the Minnesota Department of Natural Resources. Miles of designated trout streams exist with the Root River 1W1P boundary. Trout streams are important economically, as they are a resource relied upon for recreation and tourism.	3.3.1 See 2.1.1 Water quantity: Rate, volume and duration of runoff (i.e., altered hydrology) and the effect on the geomorphic stability of stream and river channels causing sediment deposition into the water bodies 3.3.2 See 2.1.2 Riparian condition: Degradation of aquatic and riparian habitat associated with the physical damage to the banks and beds of creeks, streams and rivers caused by bluff and bank failure and lateral movement and loss of lateral connectivity 3.3.3 See 2.1.3 Water quality: Elevated concentrations of suspended solids and sediment approaching (protection) or exceeding (restoration) water quality standards for aquatic life 3.3.4 See 2.1.5 Water quality: Elevated concentrations of nitrate-nitrogen approaching (protection) or exceeding (restoration) water quality standards for potable uses and for aquatic life 3.3.5 See 2.1.6 Water quality: Reduced concentrations of dissolved oxygen or elevated temperatures approaching (protection) or below (restoration) tolerable levels that may affect aquatic life 3.3.6 See 2.2.2 Water quantity: Lack of connectedness of water bodies to their floodplains altering baseline ecosystem services 3.3.7 See 2.3.1 The historical loss of wetlands and the role they provide within the landscape for storing water, modifying water quality and providing habitat 3.3.8 See 3.1.1 Presence, width and quality of vegetated areas adjacent to streams and rivers within urban and rural landscapes for filtering surface runoff, providing shading and maintaining surface water temperatures, as a corridor for wildlife movement, and as physical protection barrier from disturbance 3.3.9 See 3.1.2 Placement and number of locations for legal and controlled public access to provide recreational access and opportunities 3.3.10 See 3.1.3 Recognition of land rights and the need for fair and equitable compensation to landowners for the maintenance and use of riparian corridors 3.3.11 See 3.1.4 Presence of perennial vegetation for filtering surface water runoff and providing shading from solar radiation and elevated surface water temperatures 3.3.12 Presence of physical impediments and barriers to the upstream and downstream movement of trout and other fish species, including culverts, bridges, and waterway crossings 3.3.13 Lack of fish species diversity representative of a healthy, muliti-species complex					X
	3.4 Areas of Moderate and High Biodiversity	Many locations within the area, support unique and rare plant and animal species, special assemblages of plants, and or unusual combinations of landscape features, plants and animals. The Minnesota Department of Natural Resources through the Minnesota Biological Survey inventories and maps these areas. Because of their uniqueness, there is a general desire to preserve and protect these locations.	3.4.1 Degradation and fragmentation of native plant communities due to urban/rural developments and changes in land use, especially within riparain areas 3.4.2 Presence of invasive species threatening the quality of high biodiversity areas and native plant communities 3.4.3 Landonwer awareness of the presence and value of native communities and locations exhibiting moderate and high biodiversity 3.4.4 Maintaining the hydrologic needs and requirements for unique habitats and areas exhibiting moderate and high biodiversity 3.4.5 See 3.1.2 Placement and number of locations for legal and controlled public access to provide recreational access and opportunities 3.4.6 See 3.1.3 Recognition of land rights and the need for fair and equitable compensation to landowners for the maintenance and use of riparian corridors		X			X
	3.5 Karst Formations	Karst formations are a unique geological feature within the Root River 1W1P boundary. These formations are basically "holes" in the surficial land surface connected to the underlying subsurface. Karst formations are driven by thin soil layers that cover fractured carbonate bedrock. Their occurrence requires special consideration for safety, zoning, and the placement of urban and agricultural best management and conservation practices. Water entering a karst formation quickly enters the subsurface hydrologic cycle.	3.5.1 See 1.1.1 Water Quality: Elevated levels of nitrate-nitrogen in groundwater reducing suitable as a drinking water supply 3.5.2 See 1.1.2 Water Quality: Elevated E. coli, fecal coliform bacteria, and total coliform bacteria levels in groundwater used for drinking water, thereby posing a risk to human health 3.5.3 See 1.1.3 Water Quality: Pesticides and fertilizers applied to the land surface in excess of manufacturer recommendations, which enters the drinking water supply posing a health risk to humans 3.5.4 See 1.1.6 Water Quality and Quantity: Managing land use for specific areas on the landscape where surface water moves into the aquifer (i.e., Wellhead Protection Area boundary, springsheds, karst formations) 3.5.5 See 1.1.7 Rural residential development and urbanization occurring in locations with sensitive geologic conditions, thereby leading to safety concerns and the placement of practices and infrastructure 3.5.6 See 1.2.2 Water Quality and Quantity: Defining the specific areas on the landscape where surface water feeds a spring i.e., springshed boundary) 3.5.7 Susceptibility of water contamination associated with an increase rate of water movement into the groundwater to surface waters 3.5.8 Unstable surface and subsurface conditions adjacent to karst formations, posing a safety risk when locating urban and rural structures and using the land	X	X	X		X

4.Social Capacity: the collective understanding of water related matters within the community and the ability to respond to and resolve water related issues.

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27-Apr-15

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Resource Category	Name	Description	Description	Minnesota Pollution Control Agency	Board of Soil and Water Resources	Minnesota Department of Agriculture	Minnesota Department of Health	Minnesota Department of Natural Resources
	4.1 Public Knowledge of and Behavior Relative to Water Issues	The behavioral changes needed to understand the relationship between daily decisions and the affect on water requires knowledge, beginning at an early age and continuing through adulthood. The necessary behavioral changes are most effective when based upon positive relationships and experiences. These positive relationships are often driven by education and outreach efforts that inform and engage citizen's, urban and rural residents, landowners, and farmers to better understand context.	4.1.1 Developing, implementing and executing sound and credible programs about water management focused on the next generation (youth and grade school aged children) to build future water awareness 4.1.2 Developing, implementing and executing sound and credible programs intended for general public audiences for gaining an understanding of water related issues and changing behaviors adverse to wise water management 4.1.3 Developing, implementing and exciting sound and credible programs to gain a better understanding of water issues, the adverse and beneficial consequences of decisions as they relate to water management and necessary behavioral changes, for the residents of urban and rural communities 4.1.4 Developing, implementing and exciting sound and credible programs to gain a better understanding of water issues, the adverse and beneficial consequences of decisions as they relate to water management and necessary behavioral changes, for local units of government / local offices	X				
	4.2 Landowner and Producer Engagement in Water Management	Most land within the Root River 1W1P boundary is privately owned. How these lands are managed affects water resources. Some programs focused on implementing practices to improve water quality and reduce the rate and volume of runoff, go unused for a variety of reasons. Understanding, engaging, and communicating with landowners, agricultural producers and those controlling the land resource is needed to facilitate effective water resources management with the plan area. Increased implementation of practices may result from increased capacity and understanding.	4.2.1 Understanding on-farm production decisions about water management and the fiscal and operational implications of conservation practice placement 4.2.2 Describing barriers to practice implementation and the fiscal incentives needed to execute voluntary programs related to conservation practices 4.2.3 Credibly communicating the value of conservation and being sensitive to areas with geologic features such as karst formations, sinkholes and riparian areas, in regards to their relationships to land use and agricultural practices 4.2.4 Developing, implementing and exciting sound and credible programs to communicate information about incentive and cost-share programs and their benefits 4.2.5 Knowledge about the extents and benefits of existing practices and conservation measures currently implemented	X		X		
	4.3 Connecting Water and the Business Community	Businesses use, rely upon on and can affect the quantity and quality of water. Private sector businesses are found throughout the planning area. These businesses are and integral part of the watershed.	4.3.1 Collaboration with the business community to raise awareness about the necessity for water resource management and the interrelationship to economic development opportunities 4.3.2 Identifying and describing opportunities for businesses to become engaged in and support water management activities as community members of the community 4.3.3 Build partnerships to identify and develop business opportunities which capitalize on the unique water and land resources within the Root River Watershed	X		X		
	4.4 Technology, Tools, and Existing Capabilities	New tools and technology are frequently being developed for use in water resources management. In order to take advantage of these tools, there is often a need to build and maintain the technical capacity to utilize them.	4.3.1 Developing and maintaining the technical capacity to use emerging technologies and tools at the local level 4.3.2 Establishing defensible and agreed upon metrics for describing and communicating measurable goals and the amount progress toward achieving the goals 4.3.3 Clarity about the coordination of roles and responsibilities among local, state and federal agencies for the delivery of programs focused on managing water resources 4.3.4 Piecemeal approach and lack of long term and consistent funding for water management programs at the local level 4.3.5 Lack of funding for state and federal programs delivered at the local level					X
5. Sustainability of Communities: the endurance, resilience and interconnectedness of systems and processes which support a community, including the economy, culture, politics and ecology								
	5.1 Livability	Numerous societal factors effect the livability of the Root River 1W1P area including the ability to make a living (rural and urban economics and equity), and the basic needs for food, shelter and safety. These societal factors have relevance to a persons desire and willingness to live within the area.	5.1.1 Acknowledging the importance of integrated economic, environmental and social policies and practices when managing water resources 5.1.2 Maintaining a community capable of meeting the basic needs of food, shelter, safety and health which includes good water resources 5.1.3 Managing the relationship between the land, soil productivity and water as a sustainable asset 5.1.4 Recognizing the connectedness between the quantity and quality of water and the need for public infrastructure (e.g., water quality and need for surface water treatment) 5.1.6 Understanding the interrelationship between environmental and land condition, the production of food and fiber, and economic opportunities 5.1.7 Recognizing the economic value of environmental assets such as biodiversity, forests, fish and natural resources in decision-making 5.1.7 Cost-share, incentive, and tax break programs that provide economically viable options to promote sustainable agriculture and forest management 5.1.8 Acknowledging the need for economic and social equity in urban and rural areas					

DRAFT - SUBJECT TO REVISION DURING PLANNING PROCESS

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	5.2 Rural Environmental Health	The health of the rural environment is a cornerstone of ensuring a prosperous rural economy. Factors which typify good rural environmental health include using agricultural practices which maintain soil health, the judicious use of fertilizers and pesticides in agricultural operations especially in sensitive environmental settings, and utilizing smart methods to dispose of animal and human wastes. Practices implemented to improve water resources should compliment and be consistent with maintaining and enhancing rural environmental health.	5.2.1 The rate and amount of soil loss and the impact on soil productivity and agricultural input costs 5.2.2 Maintaining soil productivity using ordinary methods and means 5.2.3 The disposal and use of wastes including those from animal operations and humans in a safe and efficient manner	X	X			X
	5.3 Urban Environmental Health	A number of cities and municipalities are located within the Root River 1W1P area. Factors that typify good urban environmental health include using water judiciously, managing stormwater runoff to prevent downstream flooding and water quality degradation, the judicious use of fertilizers and pesticides, maintaining and protecting natural waterways, and managing wastes in a manner which protects water resources. These factors are important to citizen's quality of life and the maintenance of environmental systems within built environments.	5.3.1 Increases in the amount of impervious surface and the rate, volume and duration of runoff as well as an increase in sediment and nutrient loads 5.3.2 Incorporating natural water features including streams, rivers, and lakes into an urbanizing landscape 5.3.3 Use of fertilizers and pesticides in urban landscapes and their affect on surface water quality 5.3.4 See 5.2.3 The disposal and use of wastes including those from animal operations and humans in a safe and efficient manner	X				X
	5.4 Land Use	The land within the Root River 1W1P boundary area is used for many different purposes. Some of these purposes include living and working, producing agricultural crops, outdoor recreation, enjoying landscape vistas and timber production. How the land is used affects the desirability and livability of the community and is directly linked to the rate and quality of surface runoff.	5.4.1 Applicability and use of local ordinances, regulations or rules for managing shore land areas meeting statutory obligations 5.4.2. Applicability and desirability of using local ordinances, regulations or rules for: protecting unique habitats, animals and plants; management of karst and sinkhole conditions; riparian resources; and water 5.4.3 Managing statutory obligations related to Individual Sewage Treatment Systems 5.4.4 Managing land use and development processes 5.4.5 Utilization of easements and land acquisition for managing resources 5.4.6 Use of zoning and local land use management tools for resource management					X
6. Water Resources Infrastructure: the natural and man-made systems important for managing the rate, volume and quality of water.								
	6.1 Drainage Systems	A number of culverts and bridges under roads, stormsewer systems within urban areas, and tile, ditch, and drainage systems including the creeks, streams, rivers, and natural waterways have a role in safely conveying water. These are important infrastructure features within the Root River watershed.	6.1.1 Consequences of tile drainage systems related to the rate, volume and duration of runoff and local and regional flooding and flood damages 6.1.2 Increasing amounts of impervious surfaces in urban landscapes and managing stormwater to reduce the rate, volume and duration of runoff 6.1.3 Presence of conservation practices along public and private drainage systems in rural and urban landscapes, as a means to control the rate of water movement, reduce loads and minimize potential for downstream erosion 6.1.4 Desiging, constructing and paying for infrastrucure to manage water, while considering changing precipitation depths and intensity associated with climate change					X

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	6.2 Point Sources	Stormwater discharge pipes, the return of water from industrial operations, and wastewater discharges discharged back into rivers and are point sources. These discharges can affect the amount and quality of water.	6.2.1 Adequacy and efficiency of using individual sewage treatment systems (ISTSs) for wastewater treatment for private residences and small communities 6.2.2 Water supply treatment needs and costs as function of surface water quality and the relationship to nonpoint source contributions 6.2.3 Downstream water quality consequences of discharges from wastewater treatment facilities to waterways					X
	6.3 Water Retention Systems	Ponds, wetlands and surface depressions store water. The design, construction, and management of new and existing water retention systems provides the opportunity to manage water quantity and reduce local and regional flooding, as well as reduce sediment in runoff.	6.3.1 Identifying and maintaining those areas on the landscape which provide critical live flood storage important in minimizing flooding and flood damages 6.3.2 Understanding the implications of future development on the the need for additional practices to control the rate and volume of runoff from the landscape 6.3.3 Using designed storage to manage high peak flows from urban/rural developments 6.3.4 Planning, designing, implementing and maintaining stormwater management facilities including storage and complying with evolving stormwater rules and regulations 6.3.5 Urban stormwater and construction site erosion management and the contribution to sediment levels in stream, creeks, rivers and lakes 6.3.6 Gaining acceptance of low impact development techniques and methods and implementing these practices within urban landscapes					

MINNESOTA
MDH
DEPARTMENT OF HEALTH

Protecting, maintaining and improving the health of all Minnesotans

March 9, 2015

Jennifer Ronnenberg
Fillmore SWCD Water Mgmt Coordinator
900 Washington St NW, Box A
Preston MN 55965

Dear Jennifer,

Thank you for the opportunity to submit comments regarding water management issues to be addressed in the 1W1P planning process for the Root River Watershed Planning Area.

The Minnesota Department of Health's (MDH) mission is to protect, maintain, and improve the health of all Minnesotans. MDH's environmental goals include Minnesota's air, water, and soil are safe and non-toxic, and Minnesota's food and drinking water are safe. To that end, protecting and restoring sources of drinking water are a priority water management issue.

Groundwater as the Source of Drinking Water:
It can be assumed that all households within the planning area are utilizing groundwater as the source of drinking water. These households obtain their water from private wells or from wells that are managed by community public water suppliers. Of the roughly estimated 17,000 households in the planning area, approximately 60 % utilize 27 community public water supply systems and 40% of the households obtain water from private wells.

In addition to the community public water systems, there are four nontransient public water systems and over 80 transient public water supply systems.

Community Public Water Supplies:
Of the 27 community public water supply systems, 21 systems are in the wellhead protection planning process or are implementing their plans. The remaining six systems will be brought into the wellhead protection planning process over the next few years.

Of the 27 systems, 19 systems are considered not to be vulnerable to contamination from the land surface. Where Drinking Water Supply Management Areas (DWSMA) have been delineated, the vulnerabilities of the DWSMAs can be considered Low, Moderate, High or have a Variable Vulnerability across the landscape as indicated in the accompanying table. PDF maps of the DWSMAs can be downloaded from the individual Source Water Assessment on the MDH website http://www.health.state.mn.us/divs/eh/water/swp/swa/ or shapefiles of the DWSMAs can be obtained at http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm. Part 1 and Part 2 of the wellhead protection plans can be obtained from the communities or from MDH with permission from the communities. Water chemistry data collected from these systems can be provided by request to MDH.

The community Drinking Water Supply Management Areas should be considered priority areas within the Root River 1W1P. Water management issues within DWSMAs, however, vary with the vulnerability of the source water to contamination. Water samplings have shown nitrate contamination of source water aquifers of the following communities:

- Utica and Lewiston have primary wells where nitrate-nitrogen concentrations are greater than 5 mg/l.
- Chatfield and Spring Grove have primary wells where nitrate-nitrogen concentrations are between 3 mg/l and 5 mg/l.
- It should be noted that Lewiston has plans to seal their one primary well with high nitrate in the near future.

The community public water supplies with elevated nitrate should be high priority areas for working with landowners on nutrient management and to address other potential sources of nitrogen.

A common potential source of contamination that is acknowledged in all wellhead protection plans are wells. Wells, particularly unused, unsealed wells that penetrate the confining layers above source water aquifers, can provide a conduit for contaminants from the land surface to enter the source water aquifers. **Unused, unsealed wells have been identified within several of the DWSMAs and are an important water management protection issue.**

Other identified contamination of source water aquifers of community public water supplies that should be mentioned although not necessarily to be addressed in the 1W1P plan are (1) the contamination of Spring Grove's municipal wells with TCE trichloroethylene and (2) radium found in several municipal wells using the Mt. Simon aquifer. The TCE contamination in the Spring Grove area has also impacted several businesses and homes on private wells. Details regarding this issue can be found in the health assessment http://www.health.state.mn.us/divs/eh/hazardous/sites/index.html. Because of the groundwater contamination in this area, a Special Well Construction Area was also designated in the Spring Grove vicinity (see http://www.health.state.mn.us/divs/eh/wells/swca/ for more information). Radium 226/228 is a naturally occurring contaminant that has been found in exceedance of the Safe Drinking Water Act Maximum Concentration Level in several municipal wells within the planning area. These communities are addressing this issue through treating the water, blending the water, or sealing the wells that have high radium levels.

Noncommunity Public Water Supplies:
Source water assessments have been completed for all noncommunity public water supplies. These assessments and water chemistry data collected by MDH can be used to prioritize protection and restoration activities. Source water assessments are available at http://www.health.state.mn.us/divs/eh/water/swp/swa/swainfo/. Water chemistry data from these system wells can be obtained from MDH.

Private Wells:
There are several sources of information that can be used to further evaluate the vulnerabilities and potential contaminants sources impacting the source water of private drinking water wells. These sources of information include County Geologic Atlases, Nitrate Probability Maps, the Volunteer Nitrate Nitrogen Monitoring Network Study, well logs, and water chemistry data from Southeastern Minnesota

Water Analysis Laboratory (SEMWAL) and MDH laboratory. Some interpretation of regional information has been completed by MDH staff. See http://www.health.state.mn.us/divs/eh/water/swp/nitrate/volunteerstudy.html for reports and presentation.

Again, thanks for the opportunity to be involved in this process. If you have any questions, feel free to call me at 507/206-2741

Sincerely,

Pat Bailey

Pat Bailey, Planner
Minnesota Department of Health
Source Water Protection Unit
18 Wood Lake Dr. SE
Rochester, MN 55904-5506
507-206-2741
pat.bailey@state.mn.us

Community Public Water Supplies			
PWS ID	**Name**	**Wellhead Program-DWSMA VULNERABILITY**	**Source Water Assessment**
1230001	**Canton**	Moderate	Vulnerable
1230002	**Chatfield**	High/Low	Vulnerable
1230003	**Fountain**	Writing Part 1, not yet delineated	Not vulnerable
1230004	**Greenleafton**	Not presently in WHP Program Wellhead	Not vulnerable based on water chemistry data
1230005	**Harmony**	Moderate	Vulnerable
1230006	**Lanesboro**	Writing Part 1, not yet delineated	Not vulnerable
1230007	**Mabel**	Writing Part 1, not yet delineated	Not vulnerable
1230008	**Ostrander**	Not presently in WHP Program Wellhead	Not vulnerable based on water chemistry data
1230009	**Peterson**	Not presently in WHP Program Wellhead	Not vulnerable based on water chemistry data
1230010	**Preston**	Low (3 DWSMAs)	Not vulnerable
1230011	**Rushford**	Not presently in WHP Program Wellhead	Not vulnerable based on water chemistry data
1230012	**Spring Valley**	Not presently in WHP Program Wellhead	Not vulnerable
1230013	**Wykoff**	Writing Part 1, not yet delineated	Not vulnerable
1230014	**Rushford Village**	Low	Not vulnerable
1280002	**Caledonia**	Low	Not vulnerable
1280003	**Eitzen**	Low	Not vulnerable
1280004	**Hokah**	High/Low	Vulnerable
1280005	**Houston**	High/Low	Vulnerable
1280010	**Spring Grove**	High	Vulnerable
1500006	**Dexter**	Low	Not vulnerable
1500008	**Grand Meadow**	Low	Not vulnerable
1500009	**LeRoy**	Low	Not vulnerable
1500012	**Racine**	Low	Not vulnerable
1500023	**Haven Industries**	Not presently in WHP Program Wellhead	Not vulnerable based on water chemistry data
1550026	**Stewartville**	Not yet delineated	Not vulnerable
1850006	**Lewiston**	High	Vulnerable
1850011	**Utica**	High	Vulnerable

Minnesota Board of Water & Soil Resources

March 5, 2015

Jennifer Ronnenberg
Fillmore SWCD Water Management Coordinator
900 Washington St. NW
Preston, MN 55965

RE: Response to request for priority issues and plan expectations (One Watershed, One Plan).

Dear Root River One Watershed One Plan Policy Committee:

Thank you for providing the opportunity to provide priority issues and plan expectations for the development of the Root River One Watershed One Plan under Minnesota Statutes section 103B.101, Subd. 14. We appreciate the partner's willingness to participate in development of a watershed-based plan.

The Board of Water and Soil Resources (BWSR) has the following overarching expectations for the plan:

Process

- The planning process must follow the requirements outlined in the *One Watershed, One Plan – Operating Procedures for Pilot Watersheds* document, approved by the BWSR Board on June 25, 2014 and available on the BWSR website: www.bwsr.state.mn.us/planning/1W1P/index.html. More specifically, the planning process must:
    - Involve a broad range of stakeholders to ensure an integrated approach to watershed management.
    - Reassess the agreement established for planning purposes when finalizing the implementation schedule and programs in the plan, in consultation with the Minnesota Counties Intergovernmental Trust and/or legal counsel of the participating organizations, to ensure implementation can occur efficiently and with minimized risk. This step is critical if the plan proposes to share services and/or submit joint grant applications.

Plan Content

- The plan must meet the requirements outlined in the *One Watershed, One Plan – Plan Content Requirements for Pilot Watersheds* document, approved by the BWSR Board on September 24,

2014 and available on the BWSR website: www.bwsr.state.mn.us/planning/1W1P/index.html. More specifically, the plan must have:

- A thorough analysis of issues, using available science and data, in the selection of priority resource concerns.
- Sufficient measurable goals to indicate an intended pace of progress for addressing the priority issues.
- A targeted and comprehensive implementation schedule, sufficient for meeting the identified goals.
- A thorough description of the programs and activities required to administer, coordinate, and implement the actions in the schedule; including work planning (i.e. shared services, collaborative grant-making, decision making as a watershed group and not separate entities) and evaluation.

Connection to Research, Scientific Analysis, and Monitoring Data:

Currently, the Watershed Restoration and Protection Strategy (WRAPS) is being developed for the Root River Watershed. This document, which is anticipated to be completed later this year, will have valuable information regarding water quality monitoring and trends, pollutant load allocations and water quality goals, and a framework for water quality strategies for this watershed. It is important that the WRAPS and the associated data therein is taken into consideration when developing the watershed based One Watershed One Plan. Additionally, BWSR recommends you utilize the recently approved MPCA's Statewide Nutrient Reduction Strategy when considering implementation efforts to address phosphorus and nitrogen. Lastly, it is important to consult with the work from the MDA's Field to Stream Partnership research project and how the project outcomes could help guide future implementation strategies for Root River watershed as a whole.

BWSR has the following specific priority issues:

- **Surface Water Quality:** The plan should use the information from the WRAPS study, the existing Regional Fecal Coliform TMDL for Southeastern Minnesota, and other water quality data available to prioritize specific water resources and/or sub-watersheds needing land treatment and water quality practices for protection and restoration projects. Measurable reduction goals, including reasonable timelines, to address those priority resources, and target implementation activities to meet those goals, should be a part of the surface water quality strategy.
- **Soil Erosion and Sedimentation**: Protecting soil from erosion has multiple benefits such as reducing sedimentation, maintaining/improving soil quality, meeting nutrient reduction goals, increasing water storage on the landscape via increased soil organic matter content and water holding capacity, and improving surface water quality. The plan should identify high priority areas for wind and water erosion and sedimentation concerns using available data, inventories, and models/tools, and target implementation efforts to those areas.
- **Natural Habitat Protection/Restoration:** Protecting/Restoring natural habitat has multiple benefits including water quality buffers for groundwater and surface water, stable plant composition to resist invasive species, stable pollinator habitat, wildlife habitat and resiliency to weather extremes. The plan should identify high priority natural habitats including

water quality complexes and corridors, and promote agricultural BMPs, buffer programs, conservation plantings, wetland mitigation projects and riparian restoration activities that will protect, restore and link water quality and habitat corridors.

- **Riparian Management**: Protecting and restoring riparian and adjacent floodplain resources have multiple benefits by reducing soil erosion, stream channel instability, phosphorus and nitrogen loading, and restoring flood attenuation, wildlife habitat and wetland functions. The Plan should identify high priority areas for Minnesota Shoreland Rules buffer compliance, riparian buffer easements, erosion and sediment contribution areas, wetland restoration and other water storage and nutrient treatment opportunities, and target implementation efforts to those areas.
- **Wetland Management**: Protection and restoration of wetlands provides benefits for water quality, flood damage reduction, habitat and wildlife. The plan should support the continued implementation of the Wetland Conservation Act and look for opportunities to improve coordination across jurisdictional boundaries. The plan should also identify high priority areas for wetland restoration and strategically target restoration projects to those areas.
- **Ground Water Contamination**: Groundwater contamination by nutrients, especially nitrate, is a serious concern in all agricultural areas of the state, but particularly in southeastern Minnesota where ground water and surface water are so intimately connected. The plan should identify high-priority areas for compliance with the University of Minnesota's Best Management Practices for Nitrogen Use in Southeastern Minnesota and the Minnesota Department of Agriculture's Nitrogen Fertilizer Management Plan. The plan should make use of available geologic data from the Minnesota Geological Survey, Department of Natural Resources, US Geological Survey, and other sources, as well as existing water-quality data, to identify possible high-priority areas. These could include karst features such as sinkholes and sinking streams, and geologic contacts such as the Decorah and Saint Lawrence "edges," and areas of shallow carbonate bedrock. Groundwater contamination from unused, unsealed wells and improperly constructed wells also present a threat to groundwater quality, especially where they breech a protective confining layer.

  The plan should also set priorities for applying existing programs, tools, and practices to these areas, such as nutrient management planning, conservation easements, buffers, septic system upgrades, sinkhole treatments, and sealing of unused wells.
- **Emerging Issues:** Planning partners are strongly encouraged to consider the potential for more extreme weather events and their implications for the water and land resources of the watershed in the analysis and prioritization of issues. The meteorological record for the Root River watershed shows increased frequency and severity of extreme weather events, which have a direct effect on issues in local water planning.

The state's Nonpoint Priority Funding Plan (NPFP) outlines a criteria-based process to prioritize Clean Water Fund investments. If planning partners are intending to pursue Clean Water Fund as a future source of funding, partners are strongly encouraged to consider the high-level state priorities, keys to implementation, and criteria for evaluating proposed activities in the NPFP.

We commend the partners for their participation in the pilot. We look forward to working with you through the rest of the plan development process. If you have any questions, please feel free to contact Steve Lawler at 507-206-2891.

Sincerely,

Steve Lawler
Board Conservationist

cc: Jeff Nielsen, BWSR (via email)
Doug Thomas, BWSR (via email)
Melissa Lewis, BWSR (via email)
Tom Gile BWSR, (via email)
Jeanne Daniels, DNR (via email)
Nichole Lehman, DNR (via email)
Shaina Keseley, PCA (via email)
Kevin Kuehner, MDA (via email)
Pat Bailey, MDH (via email)
Mark Deutschman, HEI (via email)
Skip Langer, Olmsted SWCD (via email)
John Helmers, Olmsted Public Works (via email)
Daryl Buck, Winona SWCD (via email)
Sheila Harms, Winona County (via email)
Natalie Siderius, Winona County (via email)
Anne Selness, Root River SWCD (via email)
Dave Walter, Root River SWCD (via email)
Donna Rasmussen, Fillmore SWCD (via email)
Justin Hanson, Mower SWCD (via email)
Bev Nordby, Mower SWCD (via email)
Adam King, Dodge SWCD (via email)
Dean Schrandt, Dodge County (via email)

MINNESOTA DEPARTMENT OF NATURAL RESOURCES (MNDNR)
Ecological and Water Resources (EWR)
3555 9th Street NW, Suite 350
Rochester, MN 55901

Date: Monday, March 9, 2015

Addressee: Jennifer Ronnenberg,
Fillmore SWCD Water Management Coordinator
900 Washington Street NW
Preston, MN 55965

Subject: Response to Request for Priority Concerns for the Root River One Watershed, One Plan (1W1P)

Dear Ms. Ronnenberg and the Root River 1W1P Policy Committee:

Thank you for the opportunity to provide comments regarding the priority concerns for the ***Root River One Watershed, One Plan***. The Minnesota Department of Natural Resources (DNR) supports the development of the Root River 1W1P for a planning area encompassing over 1.3 million acres of land across portions of six counties in southeastern Minnesota within the Root River, Upper Iowa, and Mississippi River – Reno watersheds.

Shifting traditional county water planning methodologies to a watershed scale and aggregating individual county water plans into one cohesive watershed document builds upon prior planning efforts and local knowledge, strengthens already established partnerships, and encourages management of land and water as a ***system*** to achieve ***healthy watersheds***.

The DNR believes a watershed approach will drive multi-agency coordination, and streamline science-based data delivery to better inform future implementation actions so they are prioritized and targeted to produce measurable water quality outcomes to achieve healthy ecosystems. As the Priority Concerns Watershed Implementation Plan is developed, locally adopted, and implemented, the DNR recommends actions are conveyed using a holistic approach.

The Root River 1W1P is located entirely within the Driftless Area, a region untouched by glaciers for the past 500,000 years. A significant outcome of this unique geology are the picturesque landscapes characterized by deeply dissected river valleys, rolling karst terrain, and coldwater trout streams that are highly susceptible to groundwater contamination. The bluffs and valleys of the region are home to high quality ecosystems of cliffs, forests, oak savannas, and prairies, including 40 different native plant community types mapped by the Minnesota County Biological Survey (MCBS) covering nearly 38,000 acres. As a result, the Root River 1W1P planning area is unlike any other part of the state with over 111 species of state-listed rare plants and animals that call the Mississippi River Blufflands home.

Within this ecologically sensitive landscape the issues affecting the ***watershed system*** are interconnected. The DNR uses a five component framework to describe watersheds as ***systems*** and ***biology, hydrology, geomorphology, connectivity*** and ***water quality*** all play a role in water and land use management issues. For instance, upland soil erosion causes elevated levels of total suspended solids ***(water quality)*** which is transported downstream ***(hydrology)***, stressing fish and aquatic communities ***(biology)***, which then

degrades habitat from loss of stream stability ***(geomorphology)*** and fragments habitat ***(loss of connectivity)***. ***Healthy watersheds*** with biologically diverse and connected ecosystems function to produce clean water when these five components are in sync.

Based on the notion "healthy watersheds are how we get to clean water" the DNR has developed ***DNR's Desired Watershed Conditions*** (see attached) which we use to guide our ecological approach for water quality work. We encourage a ***healthy watershed approach*** is adopted not only for plan development, but more importantly, that these principles are locally embraced and echoed through on-the-ground implementation actions and in land use decisions.

Holistic planning should identify ***system solutions*** – those that address the root cause of the problem and which result in multiple benefits, protects and restores ecosystem functions, and increases long-term ecosystem resilience in the face of more extreme weather events associated with a changing climate, land use, and other stressors.

In order to maintain a ***healthy watershed system*** attention to all of the priority issues listed below (arranged alphabetically) should be addressed:

- Altered hydrology
- Contaminants of emerging concern
- Drainage systems management
- Drinking water & groundwater protection (including recharge areas, sinkholes and karst features)
- Drought mitigation
- Emerging issues (e.g. land cover, climate change, etc.)
- Feedlots and manure management
- Flood damage reduction
- Groundwater contamination
- Groundwater quantity (sustainable water supply management)
- Habitat for wildlife and fisheries
- Habitat loss and habitat degradation
- Human sewage treatment
- Invasive species management
- Maintenance of core services; understanding of local capacity
- Nutrient, manure, and human waste management
- Pesticide and fertilizer use
- Shoreland and riparian management
- Soil erosion, sedimentation, runoff and stormwater management
- Soil health
- Recreation
- Wastewater management
- Water quality
- Wetland resources and natural corridors

<u>DNR Priority Issues</u> – However, the DNR realizes water and land use management issues are complex and in order to systematically begin addressing them we have narrowed our focus to these specific priority issues:

1. **Water Quality and Quantity:** Increased demands on water resources create increased concerns and conflicts. Water supply sustainability, water supply interference, water quality issues related to water use, and ground and surface water interaction complexities are all related to impacts from development and growth. Although, Minnesota appears to have more than adequate supply of water the surface and ground water relationship is not fully understood, which implies our ideologies of groundwater management may require widespread change. In general, surface water and groundwater quality is threatened by contamination from pesticide and fertilizer use, nutrients (nitrogen and phosphorus), human and animal sewage (fecal coliform bacteria), and soil erosion (total suspended solids). Due to the intimate interaction of surface and groundwater within the watershed groundwater protection for quality and quantity is a priority concern. This includes recharge areas, sinkholes and karst features which act as direct conduits transporting contaminated surface water.

   Recommended Strategies:
   - Enforce existing rules and ordinances
   - Support securing funding for research projects designed to better understand groundwater / surface water interactions at calcareous fens, springs and designated trout streams
   - Continue springshed mapping efforts to better understand the complex surface/groundwater interactions
   - Encourage developing a monitoring program to measure discharge and water chemistry seasonally at select representative springs
   - Protect non-trout stream springs
   - Provide buffers surrounding all known or mapped sinkholes or karst features; coordinate identification of priority sites with local Soil and Water Conservation offices
   - Continue to support the Minnesota Department of Health Wellhead Protection and Source Water Protection Programs so that public water supply conflicts can be identified and groundwater use is managed sustainably
   - Ensure all large capacity wells are permitted and meet permit requirements in accordance with the Minnesota Well Code
   - Develop protection plans of surface water intakes
   - Properly seal abandoned wells

2. **Altered Hydrology:** Anthropogenic disruption has changed the magnitude and timing of natural streamflows due to conversion of perennial vegetation to cropland, increased tile drainage and straightened channels. These changes have altered the functionality of streams, floodplains and wetlands, resulting in increased flow velocities causing scour, bank and channel destabilization, soil erosion, increased peak flows, flooding and flood risk and decreased infiltration.

   Recommended Strategies:
   - Retain more water in the upland portions of the watershed through wetland restoration
   - Expand use of Reinvest in Minnesota (RIM) easements for riparian and floodplain protection and restoration to promote flood damage reduction

- Stabilize streambanks with native buffers

3. **Soil Erosion, Sedimentation, and Runoff Management:** Maintaining healthy soils help regulate water, sustain plant and animal life, cycles nutrients and filters pollutants to protect surface and ground water. Increasing soil organic matter content and water holding capacity in the upper portions of the landscape leads to water storage and a reduction in peak flows.

   Recommended Strategies:
   - Encourage the use of cover crops, crop rotation and no-till farming practices to increase organic matter content, water holding capacity and storage across the watershed
   - Address ephemeral gully, sheet and rill erosion at the source before contaminated runoff is transported into sinkholes, springs and groundwater
   - Restore hydrology to reestablish stream stability

   Related Issue:
   - **Shoreland and Riparian Management:** Protection of natural vegetation in shoreland areas, especially along streambanks and adjacent floodplains is critical to reducing soil erosion, protecting water quality and enhancing wildlife habitat. Shoreland buffers provide numerous ecological benefits by slowing water velocities to trap sediment, filters nutrients (nitrogen and phosphorus) before it enters the stream via uptake from deep rooted native vegetation, holds soil in place to protect shorelines from bank and slope failures, enhances instream stability and flood attenuation while connecting corridors.

   Recommended Strategies:
   - Ensure ordinances contain current shoreland and floodplain language (Minnesota Shoreland Rule 6120.2500-3900)
   - Enforce existing shoreland ordinances
   - Provide permanent buffers along all streams and rivers in agricultural areas to protect water quality, reduce erosion and enhance habitat connectivity
   - Encourage buffer areas in Public Waters Work permits
   - Plant buffers with native vegetation to encourage infiltration, minimize erosion and stabilize streambanks
   - Regularly maintain established buffers and consider rotational or flash grazing as an alternative management technique for buffer strip management
   - Support conservation grazing that helps retain perennial vegetation on the land while minimizing soil and plant disturbance
   - Pursue finding for pilot projects to accomplish innovative native plant restoration projects on trout stream easements

4. **Habitat Loss and Habitat Degradation:** Urban and rural development pressure and agricultural production reduces contiguous native habitat degrading habitat quality. Alterations from over grazing, logging or fire suppression, as well as the introduction of invasive species has resulted in reduced abundance and diversity of native species.

Recommended Strategies:

- Protect biodiversity by maintaining or improving the diversity of plant communities and provide habitat preservation for state-listed rare species, sites of biodiversity significance, and Species in Greatest Conservation Need (SGCN), especially within key habitats for the Blufflands subsection. Key habitats include oak savanna, prairie, non-forested wetlands, shoreline-dunes-cliff/talus, river-headwater to large, and river-very large (Mississippi River), which are principally located on private lands. Forested areas also provide important habitat for many SGCN. Therefore, biodiversity protection on private lands is a high priority.
- DNR recommends protection of existing Minnesota Scientific and Natural Areas (SNA) with acquisition of priority adjacent parcels, either by fee title or in some cases through prairie bank easements. The SNAs located within the Root River 1W1P area include Mound Prairie, Racine Prairie, Rushford Sand Barrens, Wykoff Balsam Fir, Pin Oak Prairie, Cherry Grove Blind Valley, Wild Indigo, and Shooting Star Prairie.
- Manage habitat for wildlife and for fisheries
- Pursue funding for habitat management, restoration, and enhancement on public lands
- Continue private land bluff prairie restorations (DNR Nongame Wildlife Program)
- Update surveys of rare plant and animal species to determine long-term trends in populations
- Monitor fish and macro invertebrates for Index of Biological Integrity (IBI) development in priority watersheds
- Support the chain of custody that enables sustainable forestry operations
- Survey for invasive species, focusing on early detection, and monitor invasives in high biodiversity areas. Provide outreach regarding identification and recommended management of invasive species

5. **Manure, and Human Waste Management:** Poor manure management techniques including spills, over-application, and application near sensitive features (land and water), application timing, and soil incorporation issues continue to persist across the watershed. In addition, inadequately treated human sewage due to failing septic systems or unpermitted systems remains a concern. Both, are sources of fecal coliform bacteria and excess nutrients in streams and groundwater and contribute to impaired waters.

   Recommended Strategies:

   - Follow the MPCAs minimum state requirements for land application of manure
   - Locally adopt and/or enforce ordinances that restrict manure application near wells, sinkholes, karst features or vulnerable drinking water supply management areas
   - Identify and repair private and public non-conforming septic systems to eliminate contamination that results from human sewage

6. **Recreation:** Outdoor recreation contributes to the overall health and well-being of the state's population and is an important driver in sustaining local economies. Outdoor recreation areas need to be protected from the detrimental effects of land conversion, development encroachment, invasive species, plant and animal diseases, floods and water pollution.

Recommended Strategies:

- Promote the diverse opportunities for outdoor recreation, including angling, fishing, hunting, hiking, bicycling, etc. that exists in the watershed
- Recognize the importance of outdoor recreation to sustaining local economies
- Develop and maintain a sustainable and resilient outdoor recreation infrastructure
- Obtain data that may have been collected regarding outdoor recreation in southeast Minnesota to help inform future recreation and conservation needs
- Promote increased outdoor recreation participation through targeted programing and outreach

Plan Content - The DNR offers the following comments, information, and recommendations for consideration in developing the Root River 1W1P, following the concepts of a Priority Concerns Watershed Implementation Plan:

- Organize the plan in a way that identifies specific priority concerns and implementation actions at a 10-digit HUC watershed scale, so water quality monitoring data, trends, pollutant load allocations and water quality goals can be seamlessly integrated with the Minnesota Pollution Control Agency (MPCA) Watershed Restoration and Protection Strategy (WRAPS).
- The plan should identify load reduction estimates for various strategies or actions (e.g. 50-foot buffer strips, sedimentation basins, cover crops) that will be selected as an implementation action to address the root cause for a particular priority issue within a minor watershed. Address priority issues at the 12-digit HUC subwatershed scale or smaller and ensure the load reduction estimates have enough specificity so the anticipated percent reduction can be utilized in a grant application to show measureable outcomes.
- Standardize the process, or identify acceptable tools, calculators or estimation techniques that are acceptable for quantifying measurable outcomes.
- Provide details regarding the process for initiating and completing amendments during the life of the plan. Amendments may include integrating new information as it becomes available from collected data or research studies, or to allow flexibility for opportunistic projects or partnerships to be considered.
- We encourage discussion between state agencies to consider integrating the United States Environmental Protection Agency's (EPA) Nine Key Elements of Watershed Plans as described in the *U.S. EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters* into the Root River 1W1P document to ensure watershed stakeholders are eligible to apply for 319 funding for watershed improvement projects. A copy of the EPA handbook can be accessed here: http://water.epa.gov/polwaste/nps/upload/2008_04_18_NPS_watershed_handbook_handbook-2.pdf.
- Protection is of critical importance especially for high-quality unimpaired waters at greatest risk of becoming impaired and those impaired waters that are closest to meeting state water quality standards. The MPCA's *Root River Watershed Stressor Identification Report,* dated January 2015 is the most recent example of using science-based monitoring and assessment data to determine and report the condition of streams and rivers overall community health. Final recommendations in the report indicate exceptional and vulnerable watersheds should be protected. Thus, based on current science, DNR agrees with MPCA's recommendations that exceptional and vulnerable watersheds should be protected:

- **Exceptional**
  - Forestville Creek and Tributary
  - Beaver Cree (2 of 3 stations)
  - Thompson Creek
  - South Branch Root River (select locations)
  - South Fork Root River (select locations)
  - Badger Creek
  - Rush Creek Tributary
  - Lower Trout Run Creek
  - Daley Creek
  - Big Springs Creek
  - Shattuck Creek (Nepstad Creek)
  - Diamond Creek
  - Coolridge Creek
  - Deer Creek
- **Vulnerable**
  - Mill Creek
  - Money Creek
  - Duschee Creek
  - Willow Creek (fish)
  - Crystal Creek
  - Wisel Creek (inverts)
  - Upper North Branch (fish)

Supplemental Information - DNR staff has identified the following supplemental information which may be of value during the Root River 1W1P planning process:

- The DNR Division of Fisheries has several *Fisheries Stream Management Plans* for designated trout streams for most of the 12-digit or smaller HUC watersheds within the Root River Watershed and the Mississippi River – Reno Watershed. A master list of available management plans and .pdf documents will be made available on the Root River Watershed and 1W1P Area SharePoint site, or can be provided upon request.
- *Strategic Plan for Coldwater Resources Management in Southeast Minnesota (2004-2015)* which sets the direction for the long-term management of coldwater resources and trout fisheries in southeast Minnesota will be update this year. A copy of the current plan can be accessed here: http://dnr.state.mn.us/input/mgmtplans/troutstream/index.html.
- The *Fisheries Long-Range Plan for Trout Stream Resource Management in Southeast Minnesota 2010-2015 and Progress Report* is a means to effectively and efficiently allocate staff resources and funds to implement the goals documented in the *Strategic Plan for Coldwater Resources Management in Southeast Minnesota*. A copy of the long-range plan can be accessed here: http://www.dnr.state.mn.us/areas/fisheries/lanesboro/trout_semn_mgtplan.html.
- The *Minnesota Department of Natural Resources 2015-2025 Strategic Conservation Agenda* was recently completed to set strategic direction for natural resources and measure conservation results. A copy of the full report can be accessed here: http://www.dnr.state.mn.us/conservationagenda/index.html.
- *Minnesota's State Wildlife Action Plan: Tomorrow's Habitat for the Wild and Rare* which identifies key habitats and priority conservation actions for sustaining Species of Greatest Conservation Need (SGCN) populations for future generations is currently being updated. We anticipate the updated action plan will be completed by September 2015. A copy of the most current action plan can be accessed here: http://www.dnr.state.mn.us/cwcs/index.html.
- Regarding the topic of grazing in riparian areas, two research studies conducted in southeastern Minnesota suggest that soil, vegetation, and rotational grazing at varying degrees of intensity can

produce desirable ecological and economical effects to influence stream channel stability and aquatic life. Citations to both articles are provided below:

- Magner, et al. "Grazed Riparian Management and Stream Channel Response in Southeastern Minnesota (USA) Streams." Environmental Management Vol. 42 (2008): 377-390.
- L.A. Sovell, et al. "Impacts of Rotational Grazing and Riparian Buffers on Physicochemical and Biological Characteristic of Southeastern Minnesota, USA, Streams." Environmental Management Vol. 26, No. 6 (2000): 629-641.

DNR Watershed Priorities - DNR Staff (Region 3 & 4) are currently in the process of meeting with each Division (Ecological and Water Resources, Fish & Wildlife, Forestry, Parks & Trails and Enforcement) to develop ***DNR Watershed Priorities*** for each 10-digit HUC watershed within the Root River 1W1P planning area. Our goal is to identify DNR's Divisional priorities in order to encourage collaborative work efforts. We anticipate the DNR Watershed Priorities will be integrated into the MPCA WRAPS for the Root River Watershed. We hope to have this information completed by April or May and are optimistic the result will add value to both the WRAPS and the Priority Concerns Watershed Implementation Plan.

The DNR acknowledges all of the hard work and collaborative partnerships that have already been established within the watershed and offer our continued support. Thank you for the opportunity to provide comments and we look forward to working with you during the Root River 1W1P planning process.

Please contact me at (507) 206-2851, or nicole.lehman@state.mn.us if you have any questions or are looking for additional information.

Sincerely,

Nicole E Lehman

Nicole E. Lehman, Clean Water Hydrologist
South District Region 3
3555 9th Street NW, Suite #350
Rochester, MN 55901
Phone: (507) 206-2851
Email: nicole.lehman@state.mn.us

Enclosures: DNR's Desired Watershed Conditions

Ec:
Jeanne Daniels, EWR
Terri Yearwood, EWR
Liz Harper, EWR
Corey Hanson, EWR
Jaime Edwards, EWR
Hannah Texler, EWR
Nick Proulx, EWR
Tara Latozke, Fisheries
Vaughn Snook, Fisheries
Jim Edgar, Forestry
Doug Rau, Forestry
Aaron Wunrow, Parks & Trails
Mark White, Parks & Trails
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Steve Lawler, BWSR
Tom Gile, BWSR
Melissa Lewis, BWSR
Shaina Keseley, MPCA
Katherine Logan, MPCA
Kevin Kuehner, MDA
Pat Bailey, MDA
Mark Deutschman, HEI
Donna Rasmussen, Fillmore SWCD

MNDNR'S DESIRED WATERSHED CONDITIONS

Vision

Healthy watersheds with biologically diverse and connected ecosystems function to produce clean water. Healthy watersheds also produce other ecosystem services and products that contribute to the state's economic and social vitality (e.g., habitat, fish, wildlife, timber, recreation). DNR uses a **five component framework** to describe watersheds as systems. This framework is based on the interplay of biology, hydrology, geomorphology, connectivity, and water quality. **Systems solutions** – those that address the root cause of the problem and which result in multiple benefits – protect and restore ecosystem functions and increase long term ecosystem resilience in the face of more extreme weather events associated with a changing climate, land use, and other stressors.

Clean Water Goal

Zero impaired waters. Healthy watersheds that provide enough clean surface water and groundwater to meet long- term human and ecosystem needs.

Desired Watershed Conditions

To reach the clean water goal, DNR's water quality work will focus on the following aspects of healthy watersheds:

A) **Upland areas** are strategically protected, restored, or enhanced so that hydrologic processes (storage, infiltration) deliver clean surface water and sustainable groundwater supplies.

B) **Floodplains and riparian areas** are connected (to their respective waterbodies, each other, and upland vegetation), composed of appropriate vegetation, and function to filter pollutants and prevent erosion.

C) **Hydrologic processes** (e.g., storage, infiltration, and conveyance) are appropriate for a given watershed's setting (e.g., precipitation, soils, slopes, natural vegetation) so that watershed responses (e.g., peak flows, annual water yield, low flows) do not result in disproportionate floods, drought, or pollutant loading that degrades rivers, lakes, streams and wetlands.

D) **Use of groundwater is sustainable** and does not harm ecosystems, water quality, or the ability of future generations to meet their needs. *(From DNR's Groundwater Management Strategic Plan)*

Approach

DNR provides **information, analysis, recommendations, and assistance** that help federal, state and local partners address watershed restoration and protection **according to the Minnesota Water Quality Framework.**

We **integrate** with other DNR work to achieve multiple benefits for clean water and other natural resource management goals. We do this by building upon our existing data collection and analysis, regulatory programs, land management activities, and outreach to support the outcomes stated below.

The type and location of strategies needed to reach watershed restoration and protection goals will be grounded in science based on watershed assessment data and local experience. Specific approaches will be developed for watersheds with federal, state, and local partners. **We acknowledge that success depends, in part upon good local engagement.**

Watersheds: a note about scale

A **watershed*** is an area of land that drains to a common body of water. Watersheds can be defined at multiple scales, from major river basin (Minnesota has 12) to catchments as small as 2 acres (currently over 10,000 delineated in the state). The scale at which we assess and manage watersheds must match the scale of the processes controlling the phenomena of interest.

Strategies

In order to achieve the desired watershed conditions, DNR's water quality work will promote or support the following strategies through our data collection, analysis, recommendations, regulatory programs, and assistance.

A) **Upland areas** are strategically protected, restored, or enhanced so that hydrologic processes (storage, infiltration) deliver clean surface water and sustainable groundwater supplies.

1. **Lands within degraded lake and river watersheds** are **strategically protected and restored** to reduce risk of further impairment and improve water quality.

2. **Intact functioning ecosystems are protected** to ensure they don't become pollution sources, and to maintain their current capacity to store, infiltrate, and filter pollutants from surface water.
    a) Watersheds have **enough undisturbed vegetation** to prevent excessive pollutant loading that could degrade water quality.
    b) Sites of biodiversity significance, mapped native plant communities, rare species, and priorities in statewide landscape plans (e.g., prairie plan, State Wildlife Action Plan) which enhance watershed functions that deliver clean water are **protected and connected** to one another and to riparian areas.

3. **Land altering activities** (agriculture, forestry, urban development, and mining) that generate polluted runoff and other hydro-modifications **use best management practices** adequate to prevent degradation to downstream receiving waters.

B) **Floodplains and riparian areas** are connected (to their respective waterbodies, each other, and upland vegetation), composed of appropriate vegetation, and function to filter pollutants and prevent erosion.

1. Streams and rivers have **access to their floodplains.**

2. **Floodplains are connected**; roads, trails, and other development projects are designed to maintain or re-establish connectivity.

3. Existing **riparian vegetation is protected and managed** to maintain its long-term health and resilience to change. Sites of biodiversity significance, mapped native plant communities, rare species, and priorities in statewide landscape plans which enhance watershed functions that deliver clean water are **protected and connected** to one another.

4. Ditches are designed with **floodplain benches.**

5. **Degraded riparian areas** of streams, lakes, rivers, wetlands, and ditches are **actively managed** to improve species composition and vigor of plant communities.

6. For streams and rivers, **perennial vegetation in the meander belt and the wider floodplain** is protected and re-established wherever possible; development is removed from or kept out of these dynamic systems.

7. **Best management practices** for land altering activities in floodplains and riparian areas allow reasonable uses while maintaining their structure, function, and composition.

C) **Hydrologic processes** (e.g., storage, infiltration, and conveyance) are appropriate for a given watershed's setting (e.g., precipitation, soils, slopes, natural vegetation) so that watershed responses (e.g., peak flows, annual water yield, low flows) do not result in disproportionate floods, drought, or pollutant loading that degrades rivers, lakes, streams and wetlands.

1. Excess **runoff volume is reduced** by increasing storage, infiltration, and evapotranspiration. Reductions are adequate to help achieve identified water quality goals.

a) **Soil health** is improved by increasing organic matter to retain more water.
b) **Wetlands** are strategically restored or improved to reduce runoff volume.
c) Water is strategically held on the landscape. **Off-channel impoundments** are strategically sited and operated to reduce total runoff volume and peak flows.
d) **Ditches** that no longer serve their original purpose are abandoned to reduce runoff.
e) **Agricultural tile drainage systems** are designed and managed to temporarily store and infiltrate water, increase evapotranspiration, decrease nitrogen loading, and decrease need for irrigation. Open surface tile intakes should be designed and/or retrofitted (e.g., French drain, raised inlet, buffer) to treat agricultural runoff, especially sediment.
f) Effective implementation of **best management practices** to manage water where it falls for **agriculture** (e.g., minimum till instead of conventional tillage, conversion of critical areas from row crops to perennial vegetation) **urban stormwater management** (e.g., Low Impact Development), **forestry** (spatial and temporal cutting patterns, harvest BMPs), and **mining** (example) are applied to reduce runoff volumes to help achieve water quality goals.

2. **Timing of runoff is managed** to balance peak flows and base flows within an acceptable range of variability for that watershed.
   a) **Agricultural tile drainage** is actively managed to alter timing (and volume) of drainage water reaching stream channels (e.g., wetland treatment systems, controlled drainage, saturated buffers, bio-reactors).
   b) Agricultural **water detention impoundments** are strategically located and sized.
   c) **Urban stormwater ponds** are appropriately located and sized when LID approaches are not feasible.

3. **Watercourses are stable;** stability means that a channel does not aggrade or degrade because it is able to transport the water and sediment from its watershed and maintain its dimension, pattern, and profile.
   a) Groundwater sources of **base flows** are protected.
   b) **Bridges and culverts** are designed to ensure bedload transport and adequate access to floodplains, and to minimize human constraints on stream systems.
   c) **Grade controls** are used appropriately.
   d) Restored and rehabilitated reaches of stream use **natural channel design principles** based on appropriate reference conditions.
   e) **Ditch systems** have stable channels (meander pattern and floodplain bench) to provide water quality benefits.
   f) **Dams and other barriers** are removed, modified, or designed to minimize human constraints on stream systems.

g) Sites of biodiversity significance, mapped native plant communities, rare species, and priorities in statewide landscape plans are **protected and connected** to one another.

4. **Lakes and wetlands** are supplied with quantities of runoff and groundwater so that amplitude and frequency of water level fluctuations support biotic integrity and shoreline stability. In – lake processes assimilate pollutants from watershed runoff without leading to impairment.
   a) **Lake outlets**, where they exist, are able to maintain lake level fluctuations consistent with sustainable hydrologic conditions in the watershed.
   b) **Water levels in degraded shallow lakes and reservoirs** are managed to improve water quality.
   c) **Biological processes** associated with in-lake nutrient cycling are managed to prevent or address impairments (e.g., common carp, curlyleaf pondweed).
   d) Sites of biodiversity significance, mapped native plant communities, rare species, and priorities in statewide landscape plans which enhance watershed functions that deliver clean water are **protected and connected** to one another.

5. **Artificial surface (ditches) and subsurface (tile) drainage systems** better designed and managed.
   a) **Systems that no longer serve their original purpose** are abandoned.
   b) **Side inlet controls** are used to reduce sediment loading from areas with channelized flow.
   c) Side slopes and bottom width are properly designed; use of **two stage ditch design** maximizes stability and other benefits (e.g., nitrogen removal) where appropriate.
   d) **Outlets** are designed and located to prevent downstream channel erosion.
   e) **Maintenance activities** on artificial channels consider opportunities to use natural channel design principles.
   f) The **adequacy of natural channels** is determined prior to allowing increased artificial drainage.

MINNESOTA DEPARTMENT OF AGRICULTURE

March 9, 2015

Jennifer Ronnenberg
Fillmore SWCD Water Management Coordinator
900 Washington St. NW
Preston, MN 55965

RE: Response to request priority issues and plan expectations (One Watershed, One Plan).

Dear Root River One Watershed One Plan Committee,

Thank you for the opportunity to provide input regarding the Root River One Watershed, One Plan.

The Minnesota Department of Agriculture recommends the following priorities:

- Where appropriate, coordinate targeted watershed implementation activities closely with the recently revised Nitrogen Fertilizer Management (NFMP) process.
    - The Nitrogen Fertilizer Management Plan is the state's blue print for helping address unsafe levels of nitrate-nitrogen in drinking water associated with agricultural activities. The primary goal of the plan is to involve the agricultural community in problem solving at the local level.
    - The plan lays out an approach for testing current nitrate levels in private wells on a township scale. Public wells are monitored by the Minnesota Department of Health.
    - Education about nitrogen best management practices (BMPs) is important for minimizing groundwater impacts.
    - The plan recognizes that it is not always possible to completely eliminate nitrate problems in the most sensitive areas where row crops are produced. The plan lays out other voluntary approaches beyond the use of BMPs. The MDA can require specific BMPs through regulation, if needed.
    - The NFMP provides a framework for how the MDA will work with local communities to respond to and address areas with elevated nitrates in groundwater. This work will be done in partnership with farmers, crop consultants, local advisory teams and other community members.
- Implement a coordinated approach to address both nutrients in groundwater and surface water. Foster new relationships with the agricultural sector, industry, crop advisors, retailers or enhance existing relations. These efforts could simultaneously address MN Nutrient Reduction Strategy goals.
- Utilize water quality data and lessons learned from the Field to Stream Partnership runoff study.
- Apply the Agricultural Conservation Planning Framework developed by the USDA-Agricultural Research Service to help facilitate an advanced level of conservation planning, targeting and delivery.

Sincerely,

Kevin Kuehner

912 Houston St. NW, Preston, MN 55965 • 507-765-4530 •

Minnesota Pollution Control Agency

Rochester Office | 18 Wood Lake Drive SE | Rochester, MN 55904 | 507-285-7343

800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us | Equal Opportunity Employer

March 9, 2015

Ms. Jennifer Ronnenberg
Fillmore Soil and Water Conservation District
900 Washington Street Northwest
Preston, MN 55965

RE: Response to request for priority concerns for the Root River Watershed One Watershed, One Plan

Dear Ms. Ronnenberg:

The Minnesota Pollution Control Agency (MPCA) appreciates the opportunity to provide comments on content of the Root River One Watershed, One Plan (1W1P).

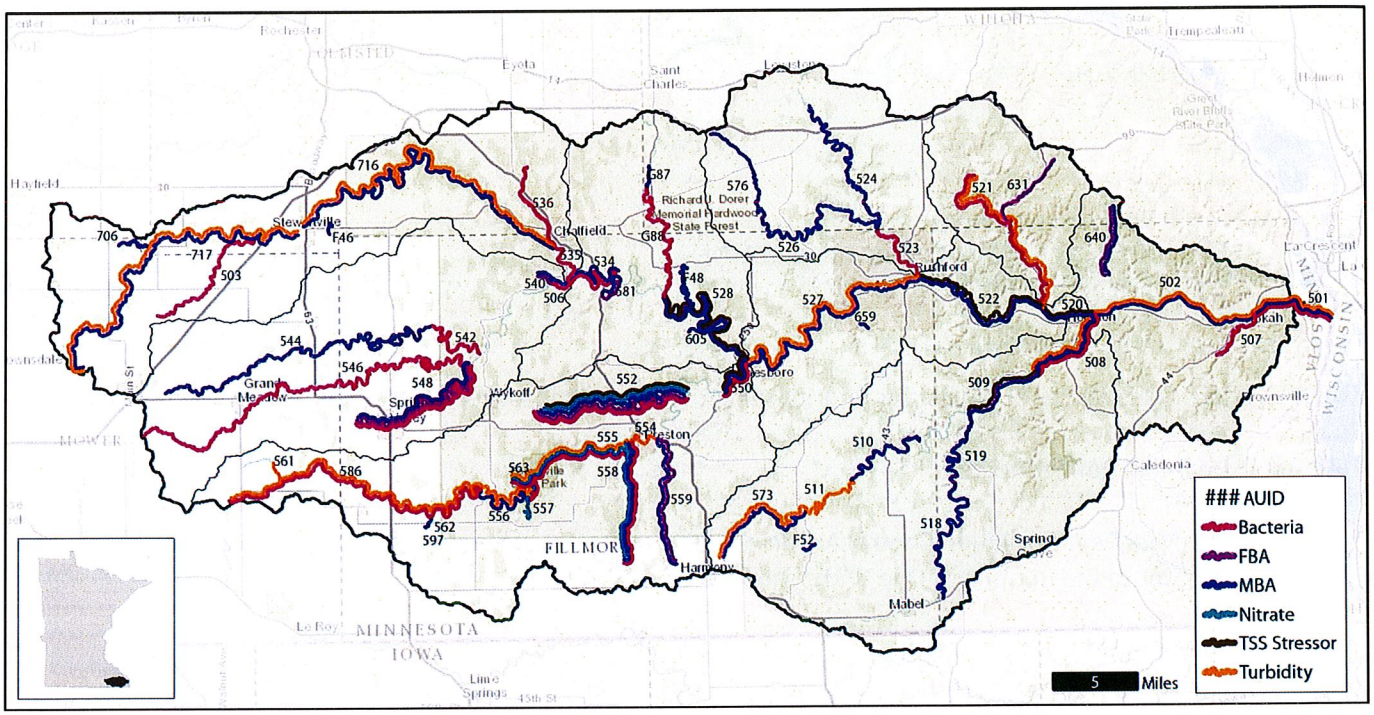
Summary of Impairments:
The Minnesota Pollution Control Agency (MPCA) last assessed the Root River watershed in 2012. For detail on the data behind that assessment, refer to the Root River Watershed Monitoring and Assessment report (http://www.pca.state.mn.us/index.php/view-document.html?gid=17986).

Note: the Upper Iowa and Mississippi River-Reno watersheds will be assessed by the MPCA in 2017. As of 2014 there are no waters on the impaired waters list in either watershed.

As of this 2012, 303(d) Impaired Waters List, the Root River has 84 impairments covering 53 Assessment Unit Identifiers (AUIDs). The table below from the draft Root River Watershed Total Maximum Daily Load (TMDL) report shows impairment type and beneficial uses that are impacted:

Impairment Type:	**Number of Listings:**	**Benficial Use:**
Turbidity	14	Aquatic Life
Total Suspended Solids (TSS) Stressor	6	Aquatic Life
Nitrates	6	Drinking Water
Fecal coliform; *E. coli*	14	Aquatic Recreation
Aquatic macroinvertebrate bioassessments (MBA)	37	Aquatic Life
Fishes bioassessments (FBA)	7	Aquatic Life

These same impairments are illustrated on the map below, again from the draft Root River Watershed TMDL report. Those listed as 'TSS Stressor' are TSS impairments based on conclusions from the MPCA's Stressor Identification process.



Impairments for all parameters are found across the watershed. The South Branch however, has the highest density of impairments and impairment types. Prioritization based on geography, instead of by issue may be more applicable in instances like Watson Creek in the South Branch subwatershed, which has five different parameters for which it is impaired. When complete, the draft Root River Watershed Restoration and Protection Strategies (WRAPS) can be referenced for priorities areas.

As of the 2012 impaired waters list, only 12 nitrate impairments based on drinking water standards were documented across the state. All six of the nitrate impairments in the Root River Watershed can be found in the trout streams of the South Branch subwatershed. This illustrates the groundwater-surface water interactions as trout streams are fed by the cold groundwater. It also aligns with the Nutrient Reduction Strategy (MPCA 2014) which described cropland groundwater as the primary transport mechanism for nitrate to surface waters in southeast Minnesota. Currently, aquatic nitrate toxicity standards are being developed to replace the drinking water standards currently applied to cold water streams.

For aquatic life impairments based on fish and aquatic macroinvertebrate bioassessments, a stressor identification process was applied to determine cause of stress to these communities. A Root River Watershed Stressor Identification report was written on these findings. Within this report, a summary of stressors can be found in Table 59, page 341. In it, six types of stressors were identified: temperature, dissolved oxygen, nitrate, suspended sediment, physical habitat, and physical connectivity. Physical habitat was identified as the most common stressor in the watershed. (http://www.pca.state.mn.us/index.php/view-document.html?gid=22460).

A separate document, the Root River Watershed Restoration and Protection Strategies report, will be completed soon and will identify restoration and protection strategy recommendations. These recommendations were based on previous report's scientific conclusions, HSPF modeling and professional judgement.

Water management issues in the Root River Watershed:
The following five issues rise to the top after scientific analysis through the Monitoring and Assessment, Stressor Identification and TMDL/WRAPS development in the Root River watershed, as well as other statewide studies. For each issue, it is MPCA's opinion that the 1W1P address how to move forward with implementation activities to improve conditions of the watershed.

- **Nitrate/Groundwater**
  Nitrate contamination of surface water and groundwater is a longstanding issue in southeastern Minnesota.
  Runkel et al (2013) evaluated nitrate transport in the Root River watershed. They were able to do this because of the relatively advanced understanding of the karstic conditions in that area. A few conclusions from the 2013 study (taken from the Executive Summary):

  1. Nitrate is transported in a groundwater- surface water system that is fracture dominated, with the largest volumes of water travelling rapidly through a complex system of conduit networks.

  2. The most important factor we have identified that impacts both the magnitude and variability of nitrate concentration in spring water and stream baseflow is the proportion of regionally sourced, nitrate-poor water contributed from deep aquifers relative to more locally sourced, nitrate-enriched water from shallower aquifers.

  3. The relative proportion of these contributions to stream baseflow can commonly be correlated with the hydrogeologic setting.

  This study has a plethora of information regarding response time of nitrate pollution and hydrogeologic settings that are most susceptible to nitrate contamination. It is recommended that the 1W1P review the report in full and apply its findings when setting priority areas and implementation efforts.

  Two other reports relevant to the current 1W1P efforts:

  1. Minnesota Nutrient Reduction Strategy (NRS) – MPCA, 2014
     This strategy was completed to guide the state in reducing excess nutrients in waters so that in-state and downstream water quality goals are ultimately met. Fundamental elements of the NRS include: Clear goals, building on current efforts, prioritizing problems and solutions, supporting local planning and implementation, and improving tracking and accountability. Successful implementation of the NRS will require broad support, coordination, and collaboration among agencies, academia, local government, private industry, and citizens.

  2. Nitrogen in Minnesota Surface Waters – MPCA, 2013
     The MPCA conducted a study of nitrogen in surface waters to better understand the nitrogen conditions in Minnesota's surface waters, along with the sources, pathways, trends and potential ways to reduce nitrogen in waters. The study was a collaborative effort led by MPCA, with assistance from the University of Minnesota and the U.S. Geological Survey. The report team used more than 50,000 water samples collected at 700 stream sites and used 35 years of monitoring data and findings from 300 published studies.

HSPF Model: The Root River Watershed is in an area of complex groundwater/surface water interaction based on its hydrogeological setting. Capturing the setting within a HSPF model proved difficult as noted here by Jon Butcher, TetraTech (memo to MPCA dated 11/8/14):

As you well know, karst presents a considerable challenge for modeling. Water and pollutants generated from the landscape in a karst area may follow either the standard paradigm of runoff and baseflow discharge direct to a stream, or it may enter karst conduits that provide an alternative pathway that sometimes connects to other watersheds. In some areas, water from stream reaches drains into subsurface karst and re-emerges downstream. This dual network of flow significantly increases the potential uncertainty in a watershed model – especially, as was the case in the Root, when data available for calibration are limited.

As long as the HSPF model limitations are realized, it has a lot of potential to assist with priority development.

- **Suspended Sediment**
  Increases in suspended sediment and turbidity within aquatic systems are now considered one of the greatest causes of water quality and biological impairment in the United States (EPA, 2003). Although sediment delivery and transport are an important natural process for all stream systems, sediment imbalance (either excess sediment or lack of sediment) can result in the loss of habitat and/or direct harm to aquatic organisms. Excess suspended sediments cause harm to aquatic life either directly or indirectly. Elevated turbidity levels and TSS concentrations can reduce the penetration of sunlight and can thwart photosynthetic activity and limit primary production (Munawar et al., 1991; Murphy et al., 1981). Sediment can also cause increases in water temperature through particles trapping heat. Total suspended solids and bedded sediment are related through several common watershed sources and processes, but each can affect aquatic biota in different ways.

  Between turbidity and TSS stressors, there are currently 20 impairments in the Root River Watershed that need to be addressed with implementation activities.

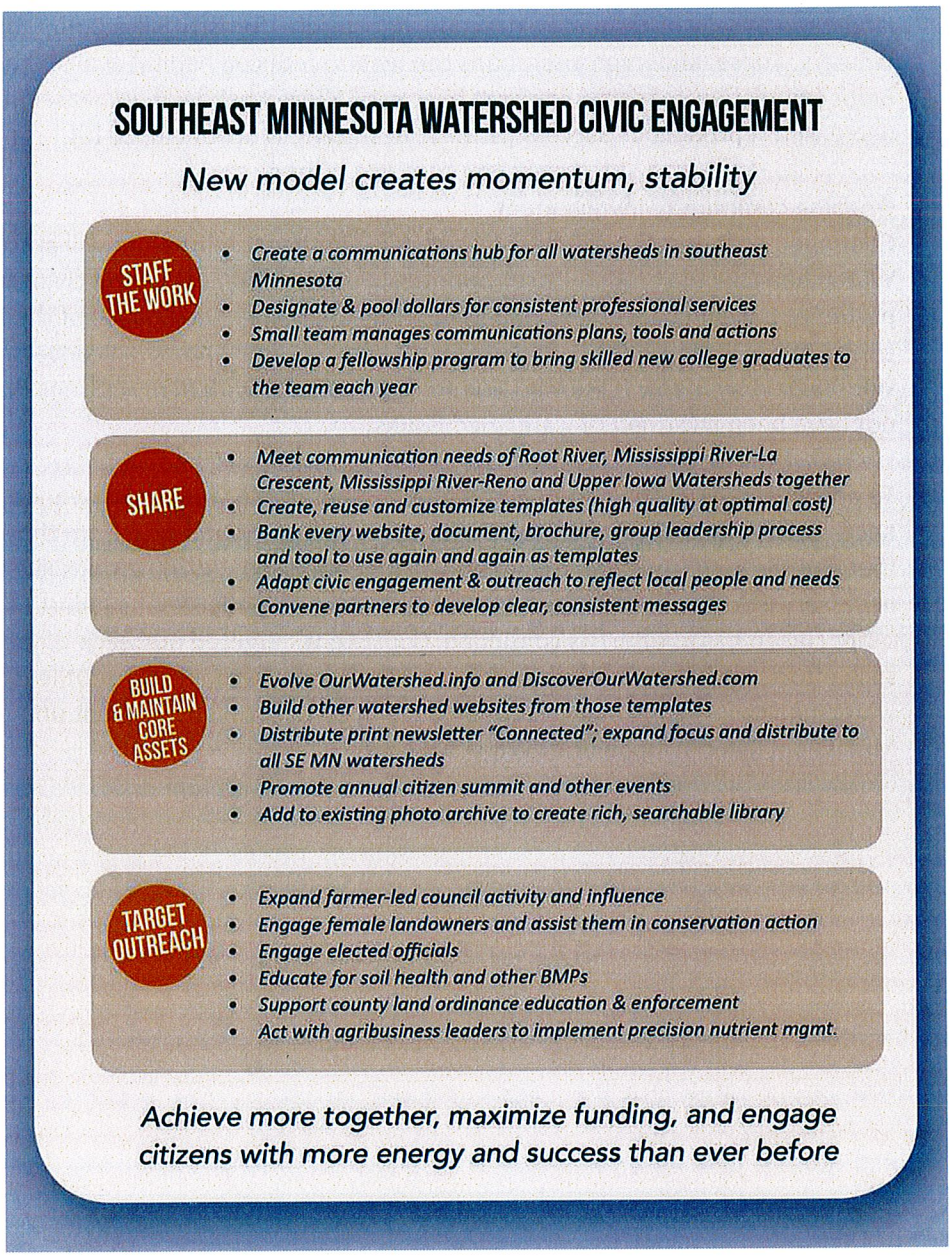
- **Bacteria**
  In 2007, the Lower Mississippi River Basin Fecal Coliform Implementation Plan was approved. It contained a plan to address the then 39 bacteria impairments in the Basin. While bacteria impairments are now based on E. coli, the implementation actions needed remain the same. A lot of work has already been done in southeast Minnesota to address sources of bacteria, but impairments persist and more work needs to be done. The main sources are spread between feedlots, manured fields, wildlife, and failing septic systems. All are ubiquitous and spread across the Basin, and specifically, the Root River Watershed. The 2007 plan contains actions still relevant to address the bacteria issue in the Root River Watershed.

- **Physical Habitat**
  Of the 41 AUIDs with aquatic life impairments based on fish and/or macroinvertebrate assessments, 35 were found to have physical habitat as a conclusive stressor through the stressor identification process. Habitat is a broad term encompassing all aspects of the physical, chemical, and biological conditions needed to support a biological community, and is often interrelated to other stressors (e.g., sediment, flow, dissolved oxygen). Specific habitats that are required by a healthy biotic community can be minimized or altered by practices on our

landscape by way of resource extraction, agriculture, forestry, silviculture, urbanization, and industry. These landscape alterations can lead to reduced habitat availability and/or quality. Biotic population changes can result by way of altered behavior, increased mortality, or decreased reproductive success (Griffith, Rashleigh, & Schofield, 2010).

- **Ongoing community involvement**
  Continued collaboration between partners in southeast Minnesota will ensure the One Watershed One Plan fulfills its set priorities. Furthermore, continued civic engagement is also pertinent to seeing necessary changes on the landscape. The Friends of the Root River (FORR) citizen group is in its infancy and eager to be involved in watershed conversations. During WRAPS development, FORR was able to communicate with many citizens that otherwise would not have been informed of watershed issues.

  To address many of the non-point pollution issues in the watershed, work by landowners is necessary. Voluntary programs can be funded, but without buy in from those implementing them on the landscape, improvement will go unrealized. Citizen groups like FORR can be the necessary link that builds support. It is highly recommended that support of FORR, and any other citizen based effort, is continued. Consistent, targeted outreach is needed to continue such efforts and implement actions in targeted areas. A model for southeast Minnesota watershed civic engagement has been developed by local government unit partners (from Mississippi River-Winona draft WRAPS report):



Piloting a new approach to water resource management in the state is not an easy task. All partners involved in this effort are commended for being on the front lines of innovation in the water resource planning arena.

Sincerely,

Shaina Keseley
State Program Administrator Principle
Rochester Office
Watershed Division

HoustonEngineering Inc.

APPENDIX G

Root River Watershed
Prioritized Table Showing Resources, Resource Concerns and Issues

Root River Watershed - One Watershed One Plan
Resource Categories, Resource of Potential Concern and Issues Affecting a Resource of Potential Concern Matrix

APPROVED BY POLICY COMMITTEE

FINAL

Resource Category	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Priority Concern Identification
	Name	Description	Description	Recommended Priority for Resource Concern
1. Groundwater: Water which is held underground within the pores of rocks and soils and which reaches the ground surface				
	1.1 Drinking Water Supplies (public and private)	Drinking water supplies are water within the subsurface pores of soil and rock (within the aquifer) that are used by humans for drinking water. The susceptibility of the drinking water supply to contamination is driven largely by how quickly and easily water can be transported from the surface to the aquifer and the karst geology of the region.	1.1.1 Water Quality: Elevated levels of nitrate-nitrogen in groundwater reducing suitable as a drinking water supply 1.1.2 Water Quality: Elevated E. coli, fecal coliform bacteria, and total coliform bacteria levels in groundwater used for drinking water, thereby posing a risk to human health 1.1.3 Water Quality: Pesticides and fertilizers applied to the land surface in excess of manufacturer recommendations, which enters the drinking water supply posing a health risk to humans 1.1.4 Water Quantity: Diminished rate of aquifer recharge because of poor soil health, an increase in the amount of impervious surface area, and the lack of vegetative cover 1.1.5 Water Quantity: The volume of groundwater available for human use and maintaining the long-term sustainability of the groundwater resource (lack of groundwater mining) 1.1.6 Water Quality and Quantity: Managing land use for specific areas on the landscape where surface water moves into the aquifer (i.e., Wellhead Protection Area boundary) 1.1.7 Rural residential development and urbanization occurring in locations with sensitive geologic conditions, thereby leading to safety concerns and the placement of practices and infrastructure 1.1.8 Water Quantity; Preparing for and increasing resilience in response to drought.	A
	1.2 Springsheds	Springs are groundwater that comes to the surface and the springshed is the area on the landscape which contributes water to the spring. Springsheds are visual evidence of where the groundwater comes to the surface	1.2.1 Water Quantity: Adequacy of groundwater recharge to ensure the maintenance of spring flows and the delivery of cold water to streams, creeks and rivers 1.2.2 Water Quality and Quantity: Defining the specific areas on the landscape where surface water feeds a spring i.e., springshed boundary) 1.2.3 Water Quality: Elevated levels of nitrate-nitrogen, herbicides and other chemicals in spring water diminishing water quality 1.2.4 Water Quantity: Maintaining ecological plant communities relying on springs as a water supply source	C
	1.3 Surficial-Subsurface Hydrologic Connections	Surficial areas with subsurface connections are those areas where water is quickly and easily transported to the aquifer and sometimes connected to springs. The surface to subsurface connection is driven by thin soil layers that are overly fractured carbonate bedrock. This provides an avenue for infiltrating water to short circuit soil filtration and enter ground water supplies. The land surface which contributes to the rapid movement of water and how it is managed influences the amount and quality of water moving into the aquifer.	1.3.1 Pesticide, fertilizer and animal waste practices and the potential impact upon groundwater 1.3.2 Zoning and land use management in the areas with an intimate surface water - ground water connectedness 1.3.3 Rare animal and plant species and unique habitats dependent on the amount and chemical composition of groundwater 1.3.4 Providing recreational opportunities and economic opportunities	B
2. Surface Water : Water resulting from excess precipitation leaving the landscape and collecting in streams, rivers, creeks, wetlands, lakes and ponds				
	2.1 Streams and Rivers	Numerous streams and rivers are found within the Root River 1W1P boundary. The water quality within some of these currently supports the beneficial uses of this water, while others do not. Some of these beneficial uses include swimming, fishing, support of aquatic life, drinking and irrigation. Some creeks, streams and rivers need to have the water quality improved (i.e., restored), while others need water quality maintained at or no less than the current level (protected).	2.1.1 Water quantity: Rate, volume and duration of runoff (i.e., altered hydrology) and the effect on the geomorphic stability of stream and river channels causing sediment deposition into the water bodies 2.1.2 Riparian condition: Degradation of aquatic and riparian habitat associated with the physical damage to the banks and beds of creeks, streams and rivers caused by bluff and bank failure and lateral movement and loss of lateral connectivity 2.1.3 Water quality: Elevated concentrations of suspended solids and sediment approaching (protection) or exceeding (restoration) water quality standards for aquatic life 2.1.4 Water quality: Elevated concentrations of bacteria approaching (protection) or exceeding (restoration) water quality standards for recreational 2.1.5 Water quality: Elevated concentrations of nitrate-nitrogen approaching (protection) or exceeding (restoration) water quality standards for potable uses and for aquatic life 2.1.6 Water quality: Reduced concentrations of dissolved oxygen or elevated temperatures approaching (protection) or below (restoration) tolerable levels that may affect aquatic life 2.1.7 Water Quantity: Potential changes in the rate, volume and intensity of runoff as a result of changing weather patterns and intense storms	A

Root River Watershed - One Watershed One Plan
Resource Categories, Resource of Potential Concern and Issues Affecting a Resource of Potential Concern Matrix

APPROVED BY POLICY COMMITTEE

FINAL

Resource Category	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Priority Concern Identification
	Name	Description	Description	Recommended Priority for Resource Concern
	2.2 Flooding	Flooding is the inundation of land, homes, building and roads. Flooding causes infrastructure damage, economic loss and has adverse societal consequences in the community. Flooding can also have ecological benefits by maintaining a hydrologic connection between the river and the adjacent (riparian) lands.	2.2.1 Water quantity: The rate, volume and duration of runoff leading to flooding and flood damages and the loss of productivity of agricultural lands, damage to public infrastructure including the public transportation system, the water conveyance system (including streams and rivers) and buildings and structures 2.2.2 Water quantity: Lack of connectedness of water bodies to their floodplains altering baseline ecosystem services 2.2.3 Water quantity: Changing climate and weather patterns resulting in higher intensity precipitation events leading to changes in the rate, volume and duration of runoff 2.2.4 Water quantity: Defining the relationship between localized and regional flooding, the locations of flood prone areas and the increase in tile density on the landscape 2.2.5 Developing and maintaining comprehensive analyses and maps showing floodplain boundaries	B
	2.3 Wetlands	Wetlands are frequently saturated lands with multiple potential benefits. The Minnesota Wetland Conservation Act has set the goal of no net loss of wetlands inn total acreage and functions. Wetland loss and modification is an ongoing concern and focus of several state and federal agencies, and non-profit organizations.	2.3.1 The historical loss of wetlands and the role they provide within the landscape for storing water, modifying water quality and providing habitat 2.3.2 Providing adequate water supply to wetlands to maintain hydrology and vegetation quality 2.3.3 Selecting locations for restoring quality wetlands, while recognizing land owner rights and agricultural operations (i.e., trafficability)	B
3. Landscape Features: Visible natural features and characteristics of the landscape, often which are prominent or unique.				
	3.1 Riparian Corridors	The riparian corridor is the land area adjacent to a creek, stream, river or similar water body characterized by perennial vegetation. The riparian area boundary is defined by relatively frequent flooding. Preferably the perennial vegetation consists of native plant species. Riparian areas serve important functions including filtering runoff, habitat for fish and wildlife, wildlife migration, and aesthetic enjoyment. Riparian corridors are sometimes subject to regulatory controls (e.g., shoreland ordinance; floodplain requirements).	3.1.1 Presence, width and quality of vegetated areas adjacent to streams and rivers within urban and rural landscapes for filtering surface runoff, providing shading and maintaining surface water temperatures, as a corridor for wildlife movement, and as physical protection barrier from disturbance 3.1.2 Placement and number of locations for legal and controlled public access to provide recreational access and opportunities 3.1.3 Recognition of land rights and the need for fair and equitable compensation to landowners for the maintenance and use of riparian corridors 3.1.4 Presence of perennial vegetation for filtering surface water runoff and providing shading from solar radiation and elevated surface water temperatures	B
	3.2 Aquatic Habitat for Fish, Macroinvertebrates and Aquatic Life	The pools, riffles, runs and bank overhangs within streams, creeks and rivers, the pooled areas of wetland, and the underwater areas of lakes and backwater areas comprise the livable space for aquatic life. A number of the waterways on the state's Impaired list are listed for impairments to fish, macroinvertebrates, and aquatic life. Frequently, these impairments are a result of degraded aquatic habitat. In addition, the Root River 1W1P boundary area contains a number of stream reaches with high quality aquatic habitat.	3.2.1 See 2.1.1 Water quantity: Rate, volume and duration of runoff (i.e., altered hydrology) and the effect on the geomorphic stability of stream and river channels causing sediment deposition into the water bodies 3.2.2 See 2.1.2 Riparian condition: Degradation of aquatic and riparian habitat associated with the physical damage to the banks and beds of creeks, streams and rivers caused bluff and bank failure and lateral movement and loss of lateral connectivity 3.2.3 See 2.1.3 Water quality: Elevated concentrations of suspended solids and sediment approaching (protection) or exceeding (restoration) water quality standards for aquatic life 3.2.4 See 2.1.6 Water quality: Reduced concentrations of dissolved oxygen or elevated temperatures approaching (protection) or below (restoration) tolerable levels that may affect aquatic life 3.2.5 See 2.2.2 Water quantity: Lack of connectedness of water bodies to their floodplains altering baseline ecosystem services 3.2.6 See 2.3.1 The historical loss of wetlands and the role they provide within the landscape for storing water, modifying water quality and providing habitat 3.2.7 See 3.1.1 Presence, width and quality of vegetated areas adjacent to streams and rivers within urban and rural landscapes for filtering surface runoff, providing shading and maintaining surface water temperatures, as a corridor for wildlife movement, and as physical protection barrier from disturbance 3.2.8 See 3.1.4 Presence of perennial vegetation for filtering surface water runoff and providing shading from solar radiation and elevated surface water temperatures	C

Root River Watershed - One Watershed One Plan
Resource Categories, Resource of Potential Concern and Issues Affecting a Resource of Potential Concern Matrix

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FINAL

Resource Category	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Priority Concern Identification
	Name	Description	Description	Recommended Priority for Resource Concern
	3.3 Trout streams	Trout streams are type of "special" aquatic habitat, designated by the Minnesota Department of Natural Resources. Miles of designated trout streams exist with the Root River 1W1P boundary. Trout streams are important economically, as they are a resource relied upon for recreation and tourism.	3.3.1 See 1.2.3 Water Quality: Elevated levels of nitrate-nitrogen, herbicides and other chemicals in spring water diminishing water quality 3.3.2 See 1.3.3 Rare animal and plant species and unique habitats dependent on the amount and chemical composition of groundwater 3.3.3 See 2.1.1 Water quantity: Rate, volume and duration of runoff (i.e., altered hydrology) and the effect on the geomorphic stability of stream and river channels causing sediment deposition into the water bodies 3.3.4 See 2.1.2 Riparian condition: Degradation of aquatic and riparian habitat associated with the physical damage to the banks and beds of creeks, streams and rivers caused bluff and bank failure and lateral movement and loss of lateral connectivity 3.3.5 See 2.1.3 Water quality: Elevated concentrations of suspended solids and sediment approaching (protection) or exceeding (restoration) water quality standards for aquatic life 3.3.6 See 2.1.5 Water quality: Elevated concentrations of nitrate-nitrogen approaching (protection) or exceeding (restoration) water quality standards for potable uses and for aquatic life 3.3.7 See 2.1.6 Water quality: Reduced concentrations of dissolved oxygen or elevated temperatures approaching (protection) or below (restoration) tolerable levels that may affect aquatic life 3.3.8 See 2.2.2 Water quantity: Lack of connectedness of water bodies to their floodplains altering baseline ecosystem services 3.3.9 See 2.3.1 The historical loss of wetlands and the role they provide within the landscape for storing water, modifying water quality and providing habitat 3.3.10 See 3.1.1 Presence, width and quality of vegetated areas adjacent to streams and rivers within urban and rural landscapes for filtering surface runoff, providing shading and maintaining surface water temperatures, as a corridor for wildlife movement, and as physical protection barrier from disturbance 3.3.11 See 3.1.2 Placement and number of locations for legal and controlled public access to provide recreational access and opportunities 3.3.12 See 3.1.3 Recognition of land rights and the need for fair and equitable compensation to landowners for the maintenance and use of riparian corridors 3.3.13 See 3.1.4 Presence of perennial vegetation for filtering surface water runoff and providing shading from solar radiation and elevated surface water temperatures 3.3.14 Presence of physical impediments and barriers to the upstream and downstream movement of trout and other fish species, including culverts, bridges, and waterway crossings 3.3.15 Lack of fish species diversity representative of a healthy, multi-species complex 3.3.16 Maintaining self-propagating native brook trout populations. 3.3.17 Degradation of stream banks, stream substrate habitat, and water quality caused by barriers which impact sediment transport and restrict flow	C
	3.4 Areas of Moderate and High Biodiversity	Many locations within the area, support unique and rare plant and animal species, special assemblages of plants, and or unusual combinations of landscape features, plants and animals. The Minnesota Department of Natural Resources through the Minnesota Biological Survey inventories and maps these areas. Because of their uniqueness, there is a general desire to preserve and protect these locations.	3.4.1 Degradation and fragmentation of native plant communities due to urban/rural developments and changes in land use, especially within riparian areas 3.4.2 Presence of invasive species threatening the quality of high biodiversity areas and native plant communities 3.4.3 Landowner awareness of the presence and value of native communities and locations exhibiting moderate and high biodiversity 3.4.4 Maintaining the hydrologic needs and requirements for unique habitats and areas exhibiting moderate and high biodiversity 3.4.5 See 3.1.2 Placement and number of locations for legal and controlled public access to provide recreational access and opportunities 3.4.6 See 3.1.3 Recognition of land rights and the need for fair and equitable compensation to landowners for the maintenance and use of riparian corridors	C
	3.5 Karst Formations	Karst formations are a unique geological feature within the Root River 1W1P boundary. These formations are basically "holes" in the surficial land surface connected to the underlying subsurface. Karst formations are driven by thin soil layers that cover fractured carbonate bedrock. Their occurrence requires special consideration for safety, zoning, and the placement of urban and agricultural best management and conservation practices. Water entering a karst formation quickly enters the subsurface hydrologic cycle.	3.5.1 See 1.1.1 Water Quality: Elevated levels of nitrate-nitrogen in groundwater reducing suitable as a drinking water supply 3.5.2 See 1.1.2 Water Quality: Elevated E. coli, fecal coliform bacteria, and total coliform bacteria levels in groundwater used for drinking water, thereby posing a risk to human health 3.5.3 See 1.1.3 Water Quality: Pesticides and fertilizers applied to the land surface in excess of manufacturer recommendations, which enters the drinking water supply posing a health risk to humans 3.5.4 See 1.1.6 Water Quality and Quantity: Managing land use for specific areas on the landscape where surface water moves into the aquifer (i.e., Wellhead Protection Area boundary, springsheds, karst formations) 3.5.5 See 1.1.7 Rural residential development and urbanization occurring in locations with sensitive geologic conditions, thereby leading to safety concerns and the placement of practices and infrastructure 3.5.6 See 1.2.2 Water Quality and Quantity: Defining the specific areas on the landscape where surface water feeds a spring i.e., springshed boundary) 3.5.7 Susceptibility of water contamination associated with an increase rate of water movement into the groundwater to surface waters 3.5.8 Unstable surface and subsurface conditions adjacent to karst formations, posing a safety risk when locating urban and rural structures and using the land	C
4.Social Capacity: The collective understanding of water related matters within the community and the ability to respond to and resolve water related issues.				

Root River Watershed - One Watershed One Plan
Resource Categories, Resource of Potential Concern and Issues Affecting a Resource of Potential Concern Matrix

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FINAL

Resource Category	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Priority Concern Identification
	Name	Description	Description	Recommended Priority for Resource Concern
	4.1 Public Knowledge of and Behavior Relative to Water Issues	The behavioral changes needed to understand the relationship between daily decisions and the affect on water requires knowledge, beginning at an early age and continuing through adulthood. The necessary behavioral changes are most effective when based upon positive relationships and experiences. These positive relationships are often driven by education and outreach efforts that inform and engage citizen's, urban and rural residents, landowners, and farmers to better understand context.	4.1.1 Developing, implementing and executing sound and credible programs about water management focused on the next generation (youth and grade school aged children) to build future water awareness 4.1.2 Developing, implementing and executing sound and credible programs intended for general public audiences for gaining an understanding of water related issues and changing behaviors adverse to wise water management 4.1.3 Developing, implementing and exciting sound and credible programs to gain a better understanding of water issues, the adverse and beneficial consequences of decisions as they relate to water management and necessary behavioral changes, for the residents of urban and rural communities 4.1.4 Developing, implementing and exciting sound and credible programs to gain a better understanding of water issues, the adverse and beneficial consequences of decisions as they relate to water management and necessary behavioral changes, for local units of government / local offices	B
	4.2 Landowner and Producer Engagement in Water Management	Most land within the Root River 1W1P boundary is privately owned. How these lands are managed affects water resources. Some programs focused on implementing practices to improve water quality and reduce the rate and volume of runoff, go unused for a variety of reasons. Understanding, engaging, and communicating with landowners, agricultural producers and those controlling the land resource is needed to facilitate effective water resources management with the plan area. Increased implementation of practices may result from increased capacity and understanding.	4.2.1 Understanding on-farm production decisions about water management and the fiscal and operational implications of conservation practice placement 4.2.2 Describing barriers to practice implementation and the fiscal incentives needed to execute voluntary programs related to conservation practices 4.2.3 Credibly communicating the value of conservation and being sensitive to areas with geologic features such as karst formations, sinkholes and riparian areas, in regards to their relationships to land use and agricultural practices 4.2.4 Developing, implementing and exciting sound and credible programs to communicate information about incentive and cost-share programs and their benefits 4.2.5 Knowledge about the extents and benefits of existing practices and conservation measures currently implemented	A
	4.3 Connecting Water and the Business Community	Businesses use, rely upon on and can affect the quantity and quality of water. Private sector businesses are found throughout the planning area. These businesses are and integral part of the watershed.	4.3.1 Collaboration with the business community to raise awareness about the necessity for water resource management and the interrelationship to economic development opportunities 4.3.2 Identifying and describing opportunities for businesses to become engaged in and support water management activities as community members of the community 4.3.3 Build partnerships to identify and develop business opportunities which capitalize on the unique water and land resources within the Root River Watershed	C
	4.4 Technology, Tools, and Existing Capabilities	New tools and technology are frequently being developed for use in water resources management. In order to take advantage of these tools, there is often a need to build and maintain the technical capacity to utilize them.	4.3.1 Developing and maintaining the technical capacity to use emerging technologies and tools at the local level 4.3.2 Establishing defensible and agreed upon metrics for describing and communicating measurable goals and the amount progress toward achieving the goals 4.3.3 Clarity about the coordination of roles and responsibilities among local, state and federal agencies for the delivery of programs focused on managing water resources 4.3.4 Piecemeal approach and lack of long term and consistent funding for water management programs at the local level 4.3.5 Lack of funding for state and federal programs delivered at the local level	C
5. Sustainability of Communities: The endurance, resilience and interconnectedness of systems and processes which support a community, including the economy, culture, politics and ecology				
	5.1 Livability	Numerous societal factors effect the livability of the Root River 1W1P area including the ability to make a living (rural and urban economics and equity), and the basic needs for food, shelter and safety. These societal factors have relevance to a persons desire and willingness to live within the area.	5.1.1 Acknowledging the importance of integrated economic, environmental and social policies and practices when managing water resources 5.1.2 Maintaining a community capable of meeting the basic needs of food, shelter, safety and health which includes good water resources 5.1.3 Managing the relationship between the land, soil productivity and water as a sustainable asset 5.1.4 Recognizing the connectedness between the quantity and quality of water and the need for public infrastructure (e.g., water quality and need for surface water treatment) 5.1.6 Understanding the interrelationship between environmental and land condition, the production of food and fiber, and economic opportunities 5.1.7 Recognizing the economic value of environmental assets such as biodiversity, forests, fish and natural resources in decision-making 5.1.7 Cost-share, incentive, and tax break programs that provide economically viable options to promote sustainable agriculture and forest management 5.1.8 Acknowledging the need for economic and social equity in urban and rural areas	A
	5.2 Rural Environmental Health	The health of the rural environment is a cornerstone of ensuring a prosperous rural economy. Factors which typify good rural environmental health include using agricultural practices which maintain soil health, the judicious use of fertilizers and pesticides in agricultural operations especially in sensitive environmental settings, and utilizing smart methods to dispose of animal and human wastes. Practices implemented to improve water resources should compliment and be consistent with maintaining and enhancing rural environmental health.	5.2.1 The rate and amount of soil loss and the impact on soil productivity and agricultural input costs 5.2.2 Maintaining soil productivity using ordinary methods and means 5.2.3 The disposal and use of wastes including those from animal operations and humans in a safe and efficient manner	C

Root River Watershed - One Watershed One Plan
Resource Categories, Resource of Potential Concern and Issues Affecting a Resource of Potential Concern Matrix

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Resource Category	Resource of Potential Concern		Issue Affecting a Resource of Potential Concern	Priority Concern Identification
	Name	Description	Description	Recommended Priority for Resource Concern
	5.3 Urban Environmental Health	A number of cities and municipalities are located within the Root River 1W1P area. Factors that typify good urban environmental health include using water judiciously, managing stormwater runoff to prevent downstream flooding and water quality degradation, the judicious use of fertilizers and pesticides, maintaining and protecting natural waterways, and managing wastes in a manner which protects water resources. These factors are important to citizen's quality of life and the maintenance of environmental systems within built environments.	5.3.1 Increases in the amount of impervious surface and the rate, volume and duration of runoff as well as an increase in sediment and nutrient loads 5.3.2 Incorporating natural water features including streams, rivers, and lakes into an urbanizing landscape 5.3.3 Use of fertilizers and pesticides in urban landscapes and their affect on surface water quality 5.3.4 See 5.2.3 The disposal and use of wastes including those from animal operations and humans in a safe and efficient manner	C
	5.4 Land Use	The land within the Root River 1W1P boundary area is used for many different purposes. Some of these purposes include living and working, producing agricultural crops, outdoor recreation, enjoying landscape vistas and timber production. How the land is used affects the desirability and livability of the community and is directly linked to the rate and quality of surface runoff.	5.4.1 Applicability and use of local ordinances, regulations or rules for managing shore land areas meeting statutory obligations 5.4.2 Applicability and desirability of using local ordinances, regulations or rules for: protecting unique habitats, animals and plants; management of karst and sinkhole conditions; riparian resources; and water 5.4.3 Managing statutory obligations related to Individual Sewage Treatment Systems 5.4.4 Managing land use and development processes 5.4.5 Utilization of easements and land acquisition for managing resources 5.4.6 Use of zoning and local land use management tools for resource management	C
6. Water Resources Infrastructure: The natural and man-made systems important for managing the rate, volume and quality of water				
	6.1 Drainage Systems	A number of culverts and bridges under roads, storm sewer systems within urban areas, and tile, ditch, and drainage systems including the creeks, streams, rivers, and natural waterways have a role in safely conveying water. These are important infrastructure features within the Root River watershed.	6.1.1 Consequences of tile drainage systems related to the rate, volume and duration of runoff, local and regional flooding and flood damages, and impacts to stream banks and stream slopes 6.1.2 Increasing amounts of impervious surfaces in urban landscapes and managing stormwater to reduce the rate, volume and duration of runoff 6.1.3 Presence of conservation practices along public and private drainage systems in rural and urban landscapes, as a means to control the rate of water movement, reduce loads and minimize potential for downstream erosion 6.1.4 Designing, constructing and paying for infrastructure to manage water, while considering changing precipitation depths and intensity associated with climate change	B
	6.2 Point Sources	Stormwater discharge pipes, the return of water from industrial operations, and wastewater discharges discharged back into rivers and are point sources. These discharges can affect the amount and quality of water.	6.2.1 Adequacy and efficiency of using individual sewage treatment systems (ISTSs) for wastewater treatment for private residences and small communities 6.2.2 Water supply treatment needs and costs as function of surface water quality and the relationship to nonpoint source contributions 6.2.3 Downstream water quality consequences of discharges from wastewater treatment facilities to waterways	C
	6.3 Water Retention Systems	Ponds, wetlands and surface depressions store water. The design, construction, and management of new and existing water retention systems provides the opportunity to manage water quantity and reduce local and regional flooding, as well as reduce sediment in runoff.	6.3.1 Identifying and maintaining those areas on the landscape which provide critical live flood storage important in minimizing flooding and flood damages 6.3.2 Understanding the implications of future development on the need for additional practices to control the rate and volume of runoff from the landscape 6.3.3 Using designed storage to manage high peak flows from urban/rural developments 6.3.4 Planning, designing, implementing and maintaining stormwater management facilities including storage and complying with evolving stormwater rules and regulations 6.3.5 Urban stormwater and construction site erosion management and the contribution to sediment levels in stream, creeks, rivers and lakes 6.3.6 Gaining acceptance of low impact development techniques and methods and implementing these practices within urban landscapes	B

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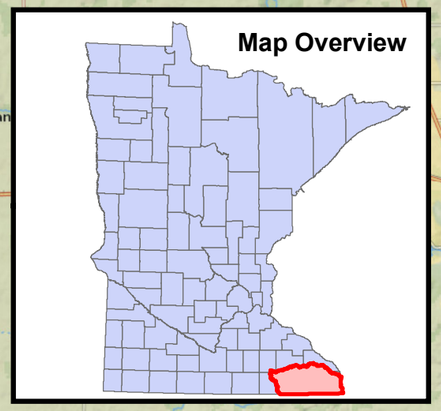
APPENDIX H

Root River Watershed
Resource Concern Maps

Resource Category: Landscape Features
Resource Concern: Aquatic Habitat for Fish, Macroinvertebrates, and Aquatic Life
Priority Category: C

Explanation: This map shows information related to aquatic habitats based on readily accessible public data. Streams, rivers, and trout streams are shown with their associated riparian corridor. The map also shows features which may impact aquatic habitats, such as Aquatic Managment Areas and potential fish barriers (i.e. culverts) inventoried by the MN DNR.



Dodge
Mower
Olmsted
Mower
North Branch Root River
Middle Branch Root River
Olmsted
Fillmore
Trout Run-Root River
Olmsted
Winona
Rush Creek
Winona
Fillmore
Money Creek
Winona
Houston
Root River
Mower
Fillmore
South Branch Root River
City of Rushford-Root River
South Fork Root River
Fillmore
Houston
Mormon Creek-Mississ River
Crooked Creek
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River
Bear Creek
Winnebago Creek

Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- Environmental Data Access Sites - Macroinvertebrate IBI
- Environmental Data Access Sites - Fish IBI
- Inventory of Potential Fish Barriers (MN DNR)
- Trout Streams
- Rivers and Streams
- Plan Boundary
- MN DNR Aquatic Management Areas
- Riparian Corridor
- Watershed Boundary

Biodiversity Significance

- Outstanding biodiversity significance
- High biodiversity significance
- Moderate biodiversity significance
- Minimum biodiversity significance threshold

Data Sources: MN DOT, MPCA, MN DNR

Aquatic Habitat

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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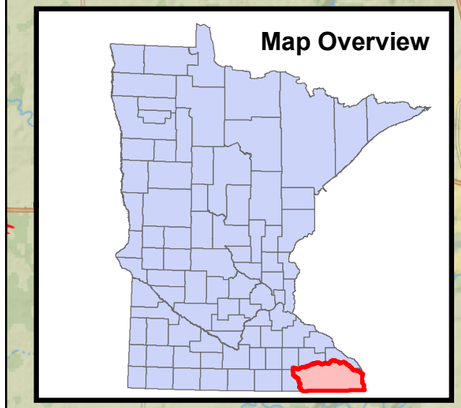

Explanation: Minnesota Biodiversity Ranks

Outstanding – Sites containing the best occurrences of the rarest species, the most outstanding examples of the rarest native plant communities, and/or the largest, most ecologically intact or functional landscapes.

High – Sites containing very good quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes.

Moderate – Sites containing occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery.

Below – Sites lacking occurrences of rare species and natural features or do not meet standards for Outstanding, High, or Moderate rank. These sites may include areas of conservation value at the local level, such as habitat for native plants and animals, corridors for animal movement, buffers surrounding higher-quality natural areas, areas with high potential for restoration of native habitat, or open space.

Resource Category: Landscape Features
Resource Concern: Areas of Moderate and High Biodiversity
Priority Category: C

Dodge
Mower
Olmsted
Mower
North Branch Root River
Middle Branch Root River
Olmsted
Fillmore
Trout Run-Root River
Olmsted
Winona
Winona
Fillmore
Rush Creek
Money Creek
City of Rushford-Root River
Fillmore
Houston
Root River
Mormon Creek-Mississ River
Crooked Creek
Winnebago Creek
Bear Creek
South Branch Root River
South Fork Root River
Mower
Fillmore
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River

Rochester Intl Airport
Stewartville
Saint Charles
Spring Valley
Preston
Fillmore
Lewiston
Trempealeau
Holmen
Onalaska
La Crescent
La Crosse
Houston
Caledonia
Spring Grove
Houston Co Airport
La Crosse Muni Airport

Data Sources: National Hydrography Dataset, and MN DNR

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- State Trails
- Water Trails
- State Designated Trout Streams
- Streams and Rivers
- Recreational Areas
- Conservation Opportunity Areas
- Plan Boundary
- Watershed Boundary
- Outstanding biodiversity significance
- High biodiversity significance
- Moderate biodiversity significance
- Minimum biodiversity significance threshold

Areas of Moderate and High Biodiversity

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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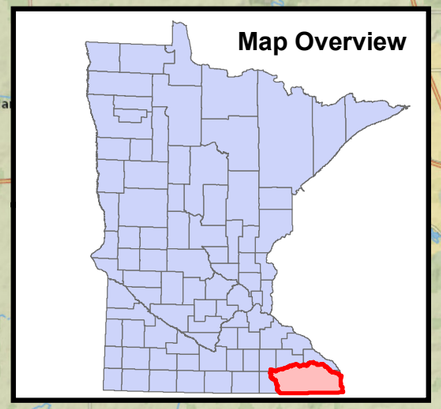
Resource Category: Water Resources Infrastructure
Resource Concern: Drainage Systems
Priority Category: B

Explanation: This map shows the infrastructure features within the Root River 1W1P boundary which have a role in safely conveying water. Features shown in this map include county and MNDOT culverts, bridges, public drainage systems, rivers, and streams. This map also shows features (i.e. culverts) inventoried by MN DNR as potential fish barriers.



Rochester
Eyota
Saint Charles
Rochester Intl Airport
Lewiston
Holmen
Onalaska
La Crescent
La Crosse
Houston Co Airport
Dodge
Mower
Olmsted
Sargeant
Stewartville
Olmsted
Fillmore
Chatfield
Trout Run-Root River
Olmsted
Winona
Rush Creek
Winona
Fillmore
Rushford Village
Rushford
Money Creek
Winona
Houston
North Branch Root River
Middle Branch Root River
Racine
Peterson
Houston
Root River
Hokah
Fountain
Whalan
City of Rushford-Root River
Dexter
Grand Meadow
Wykoff
Lanesboro
Brownsville
Mormon Creek-Mississ River
Spring Valley
Mower
Fillmore
Preston
Fillmore
Houston
South Branch Root River
South Fork Root River
Caledonia
Crooked Creek
Ostrander
Spring Grove
Bear Creek
Winnebago Creek
Taopi
Headwaters Upper Iowa River
Harmony
Canton
Mabel
Eitzen
Cold Water Creek-Upper Iowa River
Le Roy

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- MN DOT Culverts
- Fillmore County Culverts
- Inventory of Potential Fish Barriers (MN DNR)
- MN DOT Bridges
- Plan Boundary
- Rivers and Streams
- MN DNR 24K Ditches
- Dodge County Tiles
- Watershed Boundary
- Municipal Boundaries

Data Sources: MN DOT, MPCA, MN DNR, Fillmore County, and Dodge County

Drainage Systems

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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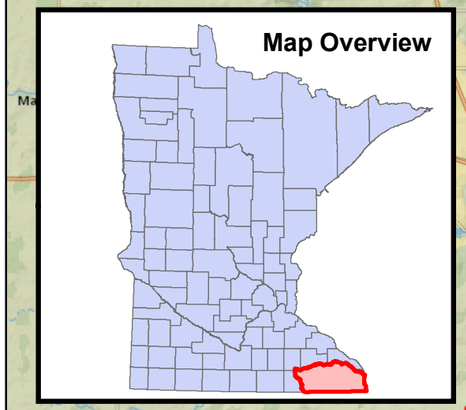

Community Water System: A public water system that supplies water to the same population year-round.

Non-Transient Non-Community Water System: A public water system that regularly supplies water to at least 25 of the same people at least six months per year (e.g., school, factory).

Transient Non-Community Water System: A public water system that provides water in a place where people do not remain for long periods of time (e.g., campground).

Resource Category: Groundwater
Resource Concern: Drinking Water Supplies
Priority Category: A

Explanation: This map shows the known locations where the groundwater resource concern is used for private and public use based on readily accessible public data. Some of the more common Issues associated with or potentially affecting the groundwater resource concern are also shown. For example, nitrate levels in private wells based on well samples and those areas within the plan boundary contributing groundwater to a public well are shown by this map.

Lewiston
Rush Creek
Money Creek
Winona
Fillmore
Olmsted
Dodge
Mower
Haven Hutterian Brethren
Stewartville
Chosen Valley MHP
Trout Run-Root River
Chatfield
North Branch Root River
Middle Branch Root River
Racine
Dexter
Grand Meadow
Spring Valley
Wykoff
Fountain
Preston
Lanesboro
City of Rushford-Root River
Rushford
Rushford Village
Peterson
Houston
Root River
Hokah
Mormon Creek-Mississ River
Caledonia
Crooked Creek
Spring Grove
Bear Creek
Winnebago Creek
Eitzen
Mabel
Canton
Harmony
Greenleafton Waterworks
Ostrander
South Branch Root River
South Fork Root River
Headwaters Upper Iowa River
LeRoy
Cold Water Creek-Upper Iowa River
Rochester Intl Airport
Onalaska
La Crescent
La Crosse
Holmen

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- DNR Water Level Monitoring Well
- Transient Non-community Public Water Supply
- Public Water Supply
- Plan Boundary
- Watershed Boundary
- Rivers and Streams
- Drinking Water Source Management Area

Private Well Nitrate Concentration Range (mg/l)

- < 6
- 6 - 8
- 8 -9
- 9 - 10
- > 10 (standard)

Drinking Water Supply Vulnerability

- Very High
- High
- Moderate
- Low
- Very Low

Data Sources: MN DOT, MPCA

Drinking Water Supplies

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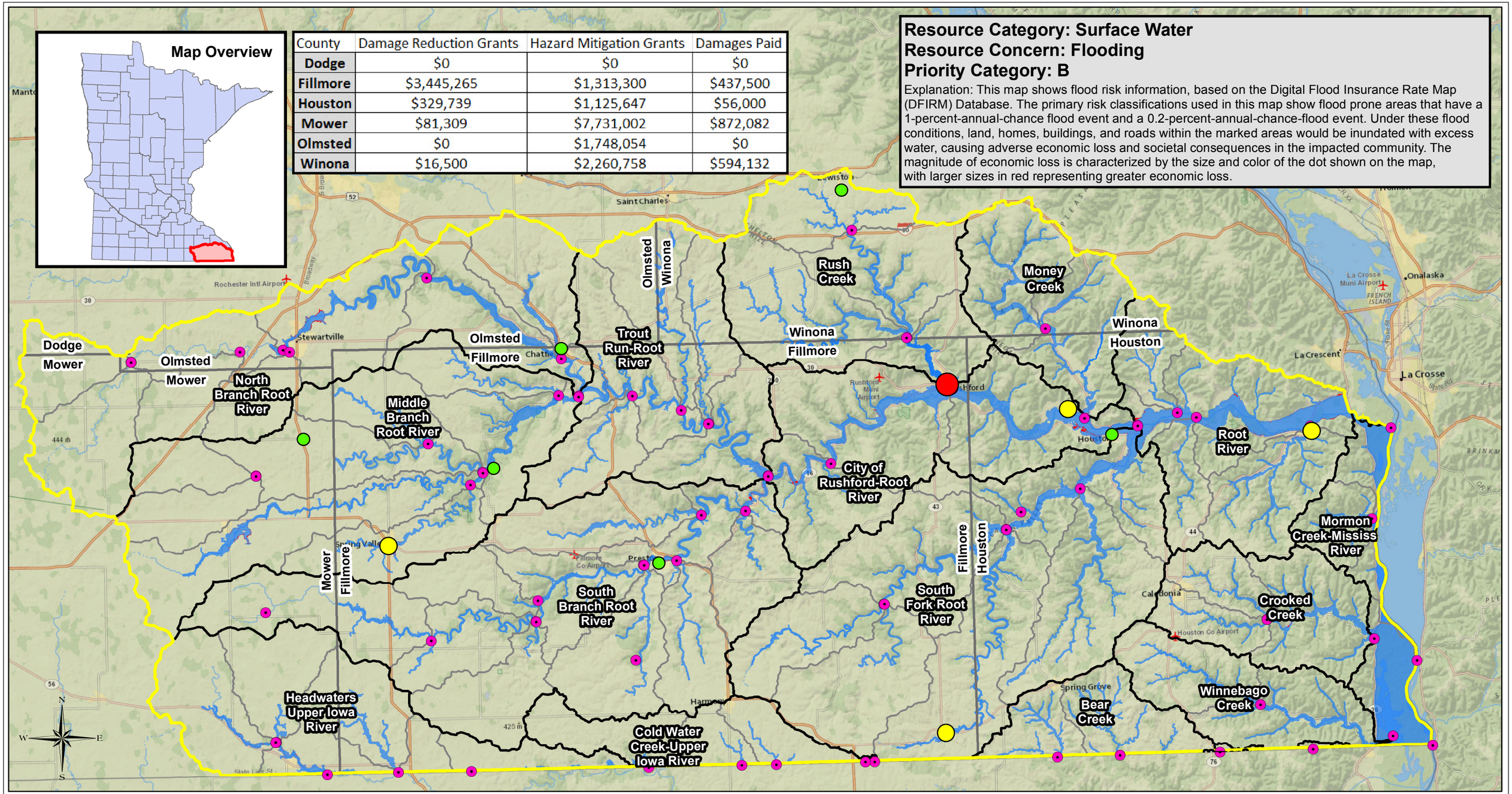
County	Damage Reduction Grants	Hazard Mitigation Grants	Damages Paid
Dodge	$0	$0	$0
Fillmore	$3,445,265	$1,313,300	$437,500
Houston	$329,739	$1,125,647	$56,000
Mower	$81,309	$7,731,002	$872,082
Olmsted	$0	$1,748,054	$0
Winona	$16,500	$2,260,758	$594,132

Resource Category: Surface Water
Resource Concern: Flooding
Priority Category: B

Explanation: This map shows flood risk information, based on the Digital Flood Insurance Rate Map (DFIRM) Database. The primary risk classifications used in this map show flood prone areas that have a 1-percent-annual-chance flood event and a 0.2-percent-annual-chance-flood event. Under these flood conditions, land, homes, buildings, and roads within the marked areas would be inundated with excess water, causing adverse economic loss and societal consequences in the impacted community. The magnitude of economic loss is characterized by the size and color of the dot shown on the map, with larger sizes in red representing greater economic loss.



Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- Priority Resource Points

Amount Granted

- $0.00 - $100,000.00
- $100,000.01 - $1,500,000.00
- $1,500,000.01 - $2,250,210.00

- Plan Boundary
- Watershed Boundary
- Subwatershed Boundaries
- DFIRM .2% Annual Chance Flood
- DFIRM 1% Annual Chance Flood

Data Sources: National Hydrography Dataset, FEMA, Houston County, Winona County, and the MPCA

Flooding

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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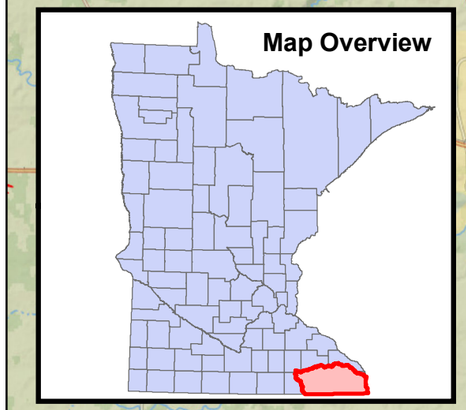
Resource Category: Landscape Features
Resource Concern: Karst Formations
Priority Category: C

Explanation: This map shows the location of karst formations based on readily accessible public data. Some of the common karst features included on this map are sinkholes and stream sinks/ sieves. Karst formations are a unique geological feature within the Root River 1W1P boundary. These formations are basically "holes" in the surficial land surface connected to the underlying subsurface. Karst formations are driven by thin soil layers that cover fractured carbonate bedrock. Their occurrence requires special consideration for safety, zoning, and the placement of urban and agricultural best management and conservation practices. Water entering a karst formation quickly enters the subsurface hydrologic cycle.



Dodge
Mower
Olmsted
Mower
North Branch Root River
Middle Branch Root River
Headwaters Upper Iowa River
Trout Run-Root River
Rush Creek
Money Creek
Winona
Fillmore
South Branch Root River
Cold Water Creek-Upper Iowa River
City of Rushford-Root River
South Fork Root River
Fillmore
Houston
Root River
Mormon Creek-Mississ River
Crooked Creek
Winnebago Creek
Bear Creek

Rochester
Eyota
Saint Charles
Stewartville
Chatfield
Rushford
Houston
Spring Grove
Caledonia
La Crescent
La Crosse
Onalaska
Rochester Intl Airport
Rushford Muni Airport
Houston Co Airport
La Crosse Muni Airport

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

Karst Type

- Stream Sink/Sieve
- Sinkhole
- Spring Locations

- Plan Boundary
- Watershed Boundary
- Rivers and Streams

Data Sources: MN DOT, MPCA, MN DNR

Karst Formations

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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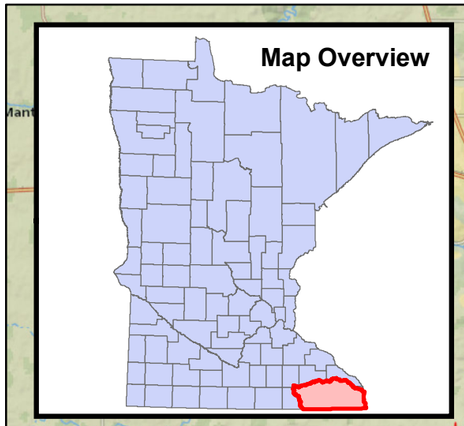

Resource Category: Sustainability of Communities
Resource Concern: Land Use
Priority Category: C

Explanation: This map shows the land use within the Root River 1W1P boundary. Land use classifications are based off of the National Land Cover Dataset, 2011. Municipal boundaries are also shown.

Rochester
Eyota
Saint Charles
Rochester Intl Airport
Holmen
La Crosse Muni Airport
Onalaska
La Crescent
La Crosse
Lewiston
Rush Creek
Money Creek
Winona
Houston
Olmsted
Winona
Dodge
Mower
Olmsted
Mower
Stewartville
Olmsted
Fillmore
Chatfield
Trout Run-Root River
Winona
Fillmore
Rushford Village
Rushford
Sargeant
North Branch Root River
Middle Branch Root River
Racine
Peterson
Houston
Root River
Hokah
Fountain
Whalan
City of Rushford-Root River
Dexter
Lanesboro
Wykoff
Brownsville
Mormon Creek-Mississ River
Grand Meadow
Spring Valley
Mower
Fillmore
Preston
Fillmore
Houston
South Branch Root River
South Fork Root River
Caledonia
Crooked Creek
Ostrander
Spring Grove
Bear Creek
Winnebago Creek
Taopi
Headwaters Upper Iowa River
Harmony
Canton
Mabel
Eitzen
Cold Water Creek-Upper Iowa River
Le Roy

Data Sources: MN DOT, MPCA, MN DNR, NLCD

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

Plan Boundary
Watershed Boundary
Rivers and Streams
Municipal Boundaries

NLCD 2011 Land Use

Barren Land
Cultivated Crops
Forest
Developed
Wetlands
Hay/Pasture
Upland Grasses and Forbes
Open Water

Land Use

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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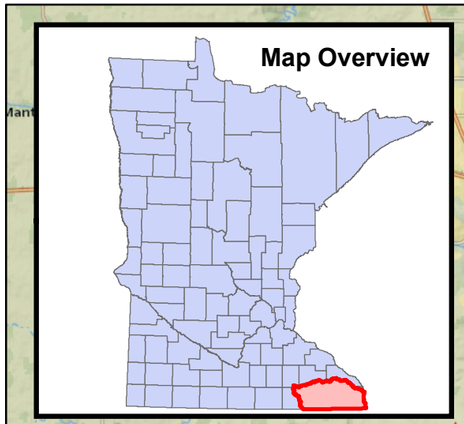

Numerous societal factors affect the livability of the Root River 1W1P area including the ability to make a living (rural and urban economics and equity), and the basic needs for food, shelter and safety. These societal factors have relevance to a person's desire and willingness to live within the area.

Resource Category: Sustainability of Communities
Resource Concern: Livability
Priority Category: A

Explanation: This map shows the land use within the Root River 1W1P boundary as a surrogate for depicting the ability to make a living, both in rural and urban areas. Urban areas are defined by municipal boundaries. Much of the land is in cultivated crops, indicating the economic importance of agriculture.

Rochester
Eyota
Saint Charles
Rochester Intl Airport
Lewiston
Holmen
La Crosse Muni Airport
Onalaska
La Crescent
La Crosse
Dodge
Mower
Olmsted
Stewartville
Olmsted
Fillmore
Chatfield
Trout Run-Root River
Olmsted
Winona
Rush Creek
Money Creek
Winona
Fillmore
Rushford Village
Rushford
Winona
Houston
Sargeant
Mower
Olmsted
North Branch Root River
Middle Branch Root River
Racine
Peterson
Houston
Root River
Hokah
Fountain
Whalan
City of Rushford-Root River
Dexter
Grand Meadow
Wykoff
Lanesboro
Brownsville
Mormon Creek-Mississ River
Spring Valley
Mower
Fillmore
Preston
Fillmore
Houston
South Branch Root River
South Fork Root River
Caledonia
Crooked Creek
Ostrander
Spring Grove
Bear Creek
Winnebago Creek
Taopi
Headwaters Upper Iowa River
Harmony
Canton
Mabel
Eitzen
Cold Water Creek-Upper Iowa River
Le Roy
N
W
E
S

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

Plan Boundary
Watershed Boundary
Rivers and Streams
State Trails
DNR Administered Water Trails
Municipal Boundaries
Conservation Opportunity Areas (Landscape Stewardship Plan)

NLCD 2011 Land Use
Barren Land
Cultivated Crops
Forest
Developed
Wetlands
Hay/Pasture
Upland Grasses and Forbes
Open Water

0 2.5 5 10 Miles

Data Sources: MN DOT, MPCA, MN DNR, NLCD

Livability

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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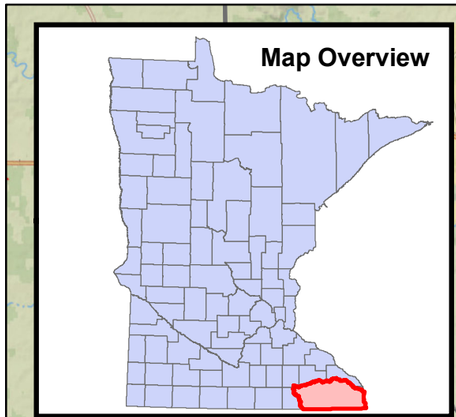

Resource Category: Water Resource Infrastructure
Resource Concern: Point Sources
Priority Category: C

Explanation: This map shows point sources of discharge within the Root River 1W1P boundary, identified as facilities, sites or places subject to environmental regulations or of environmental interest (USEPA FRS Sites). Examples of possible FRS Sites include wastewater treatment plants, automotive shops, and schools.

Olmsted
Winona
Rush Creek
Money Creek
Winona
Houston
Dodge
Mower
Olmsted
Mower
North Branch Root River
Olmsted
Fillmore
Trout Run-Root River
Winona
Fillmore
Middle Branch Root River
City of Rushford-Root River
Root River
Mormon Creek-Mississippi River
Mower
Fillmore
South Branch Root River
South Fork Root River
Fillmore
Houston
Crooked Creek
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River
Bear Creek
Winnebago Creek
Upper Iowa River

Root River
One Watershed One Plan

USEPA Facility Registry Services (FRS) Sites
Rivers and Streams
Plan Boundary
Watershed Boundary

0 2.5 5 10 Miles

Data Sources: MN DOT, MPCA, MN DNR

Point Sources

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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Resource Category: Landscape Features
Resource Concern: Riparian Corridors
Priority Category: B

Explanation: This map shows the locations of riparian areas adjacent to rivers and streams within the Root River 1W1P boundary. Riparian corridors commonly correspond with frequent flooding lands and often provide habitat and migration for wildlife. The annual chance of flood (shown by 1-percent-annual-chance flood event and the 0.2-percent-annual-chance flood event Digital Flood Insurance Rate Map (DFIRM) boundaries) is shown.

Dodge
Mower
Olmsted
Mower
North Branch Root River
Olmsted
Fillmore
Middle Branch Root River
Olmsted
Winona
Trout Run-Root River
Rush Creek
Winona
Fillmore
Money Creek
Winona
Houston
Root River
City of Rushford-Root River
Mower
Fillmore
South Branch Root River
Fillmore
Houston
South Fork Root River
Mormon Creek-Mississ River
Crooked Creek
Winnebago Creek
Bear Creek
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River

Rochester
Eyota
Saint Charles
Rochester Intl Airport
Stewartville
Rushford
Houston
Spring Valley
Fillmore Co Airport
Preston
Harmony
Spring Grove
Caledonia
Houston Co Airport
La Crescent
La Crosse
Onalaska
La Crosse Muni Airport

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

Plan Boundary
Riparian Corridor
Watershed Boundary
Rivers and Streams
DFIRM 0.2% Annual Chance Flood
DFIRM 1% Annual Chance Flood

Data Sources: MN DOT, MPCA, MN DNR

Riparian Corridors

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AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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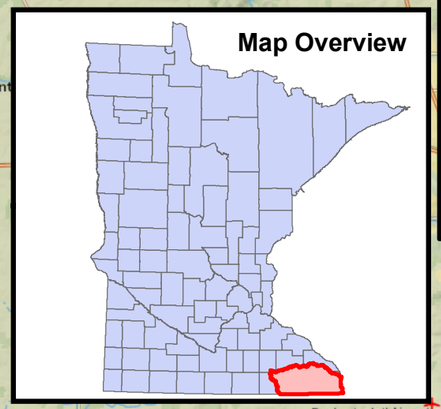

Rural Explanation: Several factors are useful when assessing an area's rural environmental health. Factors which typify good rural environmental health include using agricultural practices which maintain soil health, the judicious use of fertilizers and pesticides in agricultural operations especially in sensitive environmental settings, and utilizing smart methods to dispose of animal and human wastes. This map shows several of those potential factors, characterized by ELINK BMP points, lines, and polygons. ELINK is the MN Board of Water and Soil Resources' electronic reporting system for conservation practices implemented using state funds. This map also shows active feedlots, hazardous waste sites, and facilities, sites or places subject to environmental regulations or of environmental interest.

Resource Category: Sustainability of Communities
Resource Concern: Rural and Urban Environmental Health
Priority Category: C

Urban Explanation: Several factors are useful when assessing an area's urban environmental health. This map shows several of those potential factors, including hazardous waste sites and facilities, sites or places subject to environmental regulations or of environmental interest (USEPA FRS Sites).

Lewiston
Rush Creek
Money Creek
Winona
Houston
Olmsted
Winona
Fillmore
Rushford Village
Rushford
Peterson
Houston
Root River
Hokah
Brownsville
Mormon Creek-Mississ River
Caledonia
Crooked Creek
Spring Grove
Bear Creek
Winnebago Creek
Eitzen
Mabel
Canton
Harmony
Cold Water Creek-Upper Iowa River
Headwaters Upper Iowa River
Le Roy
Taopi
Ostrander
South Fork Root River
South Branch Root River
Preston
Fillmore
Houston
Mower
Fillmore
Spring Valley
Grand Meadow
Dexter
Wykoff
Lanesboro
Whalan
City of Rushford-Root River
Fountain
Olmsted
Winona
Trout Run-Root River
Chatfield
Olmsted
Fillmore
Stewartville
Dodge
Mower
Olmsted
Mower
North Branch Root River
Middle Branch Root River
Racine
Sargeant
Saint Charles
Holmen
Onalaska
La Crescent
La Crosse
Rochester Intl Airport
La Crosse Muni Airport

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- Landowner Engagement Efforts
- USEPA Facility Registry Services (FRS) Sites
- MPCA Active Feedlots
- Hazardous Waste, Small to Minimal Quantity Generators
- Plan Boundary
- ELINK BMP Point - June 2014
- ELINK BMP Line - June 2014
- ELINK BMP Polygon - June 2014
- MDA Field to Stream Partnership Subwatersheds
- Watershed Boundary
- Rivers and Streams
- Municipal Boundaries

Data Sources: MN DOT, MPCA, MN DNR

Rural and Urban Environmental Health

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AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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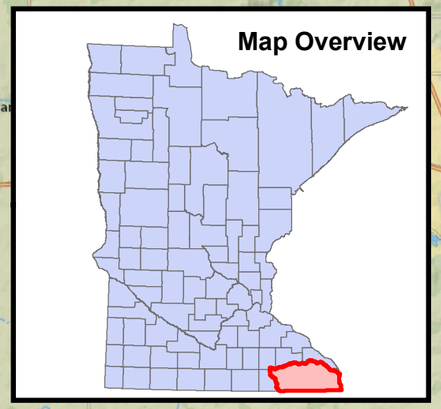
Resource Category: Groundwater
Resource Concern: Springsheds
Priority Category: C

Explanation: Springs are visual evidence of where the groundwater comes to the land surface. A springshed is an area which contributes water to the spring. Springshed boundaries do not align with surface watershed boundaries. This map shows the location of known springs and springsheds, based on readily assessable public data. Activities on the land within the springshed can impact water that contributes to springs, both through subsurface and surface water flows.



Dodge
Mower
Olmsted
Mower
North Branch Root River
Olmsted
Fillmore
Trout Run-Root River
Winona
Fillmore
Rush Creek
Money Creek
Middle Branch Root River
South Branch Root River
City of Rushford-Root River
South Fork Root River
Fillmore
Houston
Root River
Mormon Creek-Mississ River
Crooked Creek
Winnebago Creek
Bear Creek
Mower
Fillmore
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River

Rochester
Eyota
Saint Charles
Stewartville
Chatfield
Rochester Intl Airport
Rushford Muni Airport
Preston
Caledonia
Houston Co Airport
Spring Grove
La Crescent
La Crosse
Onalaska
Holmen
La Crosse Muni Airport
Houston

Content may not reflect National Geographic's current map policy.

Data Sources: NHD, MN DNR

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

- Spring Locations
- Plan Boundary
- Watershed Boundary
- Rivers and Streams

Springsheds

- sink; subsurface area contributing water to spring
- stream sink: surface area contributing water to the spring

Springsheds

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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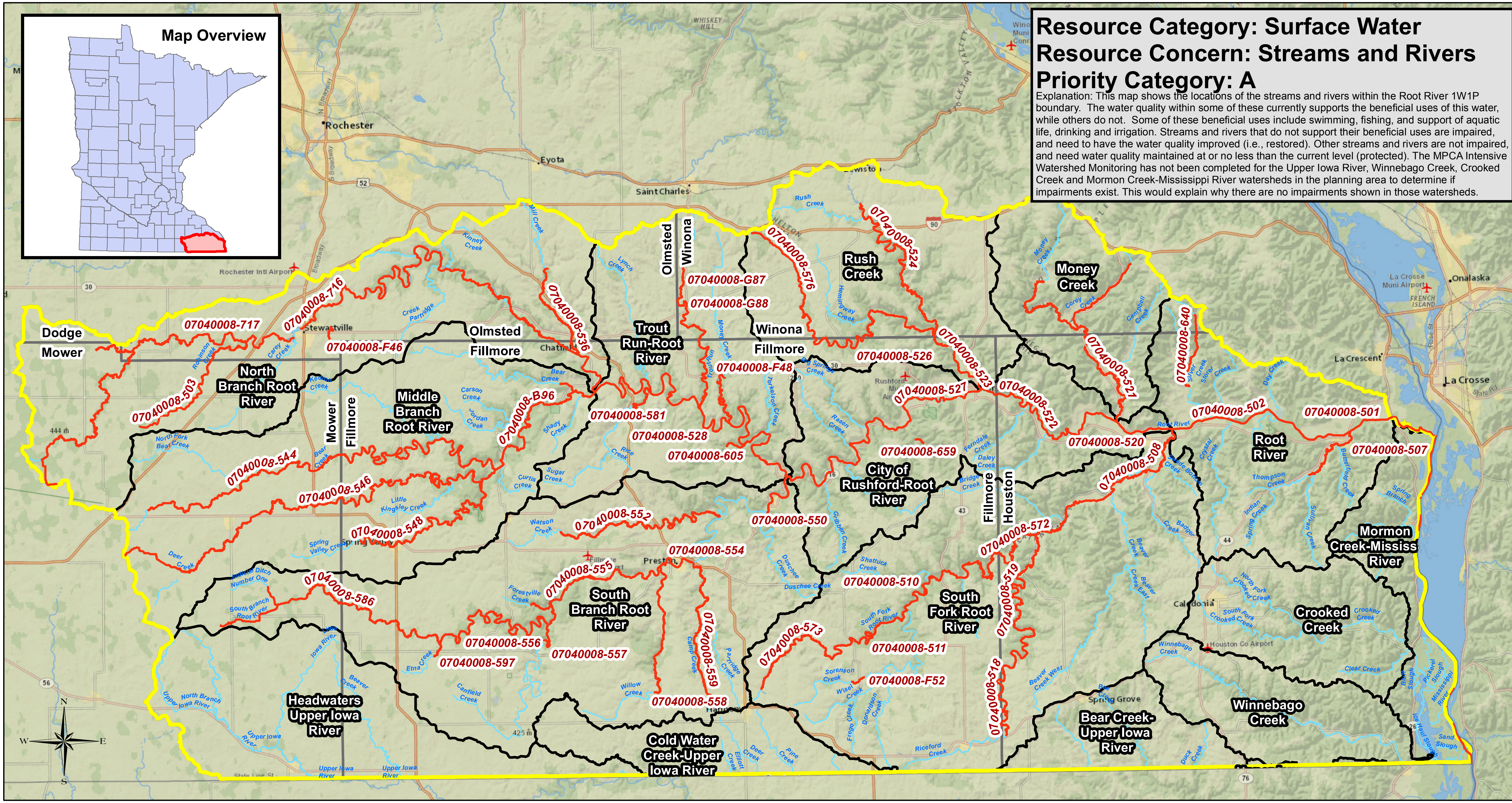

Resource Category: Surface Water
Resource Concern: Streams and Rivers
Priority Category: A
Explanation: This map shows the locations of the streams and rivers within the Root River 1W1P boundary. The water quality within some of these currently supports the beneficial uses of this water, while others do not. Some of these beneficial uses include swimming, fishing, and support of aquatic life, drinking and irrigation. Streams and rivers that do not support their beneficial uses are impaired, and need to have the water quality improved (i.e., restored). Other streams and rivers are not impaired, and need water quality maintained at or no less than the current level (protected). The MPCA Intensive Watershed Monitoring has not been completed for the Upper Iowa River, Winnebago Creek, Crooked Creek and Mormon Creek-Mississippi River watersheds in the planning area to determine if impairments exist. This would explain why there are no impairments shown in those watersheds.
Map Overview
Rochester
Eyota
Saint Charles
La Crescent
La Crosse
Onalaska
Dodge
Mower
Olmsted
Fillmore
Winona
Houston
North Branch Root River
Middle Branch Root River
Trout Run-Root River
Rush Creek
Money Creek
City of Rushford-Root River
Root River
Mormon Creek-Mississ River
South Branch Root River
South Fork Root River
Crooked Creek
Winnebago Creek
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River
Bear Creek-Upper Iowa River
07040008-717
07040008-716
07040008-F46
07040008-503
07040008-544
07040008-546
07040008-548
07040008-536
07040008-B96
07040008-581
07040008-528
07040008-605
07040008-552
07040008-554
07040008-555
07040008-586
07040008-556
07040008-557
07040008-597
07040008-559
07040008-558
07040008-G87
07040008-G88
07040008-F48
07040008-576
07040008-524
07040008-526
07040008-527
07040008-523
07040008-522
07040008-521
07040008-640
07040008-502
07040008-501
07040008-507
07040008-520
07040008-508
07040008-659
07040008-550
07040008-510
07040008-572
07040008-519
07040008-573
07040008-511
07040008-F52
07040008-518
Data Sources: MN DOT, MPCA, MN DNR

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

- Impaired Rivers and Streams
- Rivers and Streams
- Plan Boundary
- Watershed Boundary

0 2.5 5 10 Miles

Streams and Rivers

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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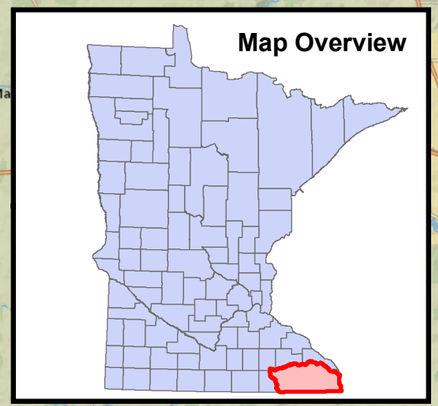

This map shows the known locations of surficial areas with subsurface connections, where groundwater resources may be easily impacted by activities taking place on the surface of the land. These areas are characterized by the locations of springs, sinkholes, stream sinks/sieves, and tile drain outlets using readily accessible public data.

Resource Category: Groundwater
Resource Concern: Surfical- Subsurface Hydrologic Connections
Priority Category: B

Explanation: Surficial areas with subsurface connections are those areas where water is quickly and easily transported to the aquifer and sometimes connected to springs. Surface to subsurface connection is driven by thin soil layers that overlay fractured carbonate bedrock. This provides an avenue for infiltrating water to short circuit soil filtration and enter ground water supplies.

Dodge
Mower
Olmsted
Mower
North Branch Root River
Middle Branch Root River
Olmsted
Fillmore
Trout Run-Root River
Olmsted
Winona
Rush Creek
Winona
Fillmore
Money Creek
City of Rushford-Root River
Fillmore
Houston
Root River
Mormon Creek-Mississ River
Crooked Creek
Winnebago Creek
Bear Creek
South Fork Root River
South Branch Root River
Mower
Fillmore
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River

Springs

Karst Type
- Sinkhole
- Stream Sink/Sieve
- Tile Drain Outlet
- Plan Boundary
- Watershed Boundary

Drinking Water Supply Vulnerability
- Very High
- High
- Moderate
- Low
- Very Low

Springsheds
- sink; subsurface area contributing water to spring
- stream sink: surface area contributing water to the spring
- Decorah Edge
- Rivers and Streams

Data Sources: MN DOT, MPCA, MN DNR, NHD

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

0 2.5 5 10 Miles

Surfical/Subsurface Hydrologic Connections

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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Maple Grove
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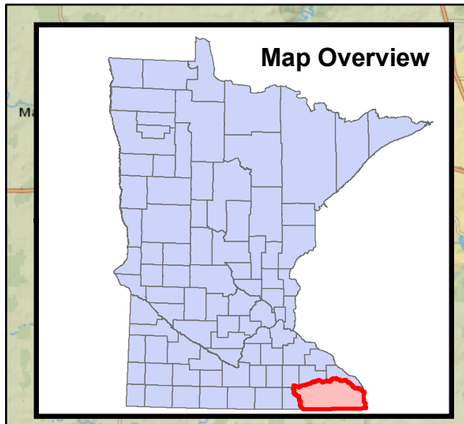

Resource Category: Surface Water
Resource Concern: Water Retention Systems
Priority Category: B

Explanation: This map shows the known locations of water retention systems based on readily accessible public data. Water retention systems shown on this map include constructed ponds, wetlands, flood control structures, and grade stabilization structures, all of which manage water quantity and reduce local and regional flooding.

Dodge
Mower
Olmsted
Mower
North Branch Root River
Olmsted
Fillmore
Middle Branch Root River
Trout Run-Root River
Olmsted
Rush Creek
Winona
Fillmore
Money Creek
Winona
Houston
Root River
City of Rushford-Root River
Mormon Creek-Mississ River
Mower
Fillmore
South Branch Root River
Fillmore
Houston
South Fork Root River
Crooked Creek
Headwaters Upper Iowa River
Cold Water Creek-Upper Iowa River
Bear Creek
Winnebago Creek

Rochester
Eyota
Saint Charles
Rochester Intl Airport
Stewartville
Spring Valley
Preston
Rushford
Houston
Caledonia
Spring Grove
Holmen
La Crosse Muni Airport
Onalaska
La Crescent
La Crosse

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

- Flood Control Structures
- Grade Stabilization Structures
- Rivers and Streams
- Plan Boundary
- Watershed Boundary

0 2.5 5 10 Miles

Elink BMP Project Type

- Feedlot Project
- Ground Water Quality
- Other Conservation Project
- Water Erosion

- Other Conservation Project
- Water Erosion
- Wind Erosion

- Feedlot Project
- Ground Water Quality
- Other Conservation Project
- Water Erosion

Data Sources: MN DOT, MPCA, MN DNR

Water Retention Systems

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

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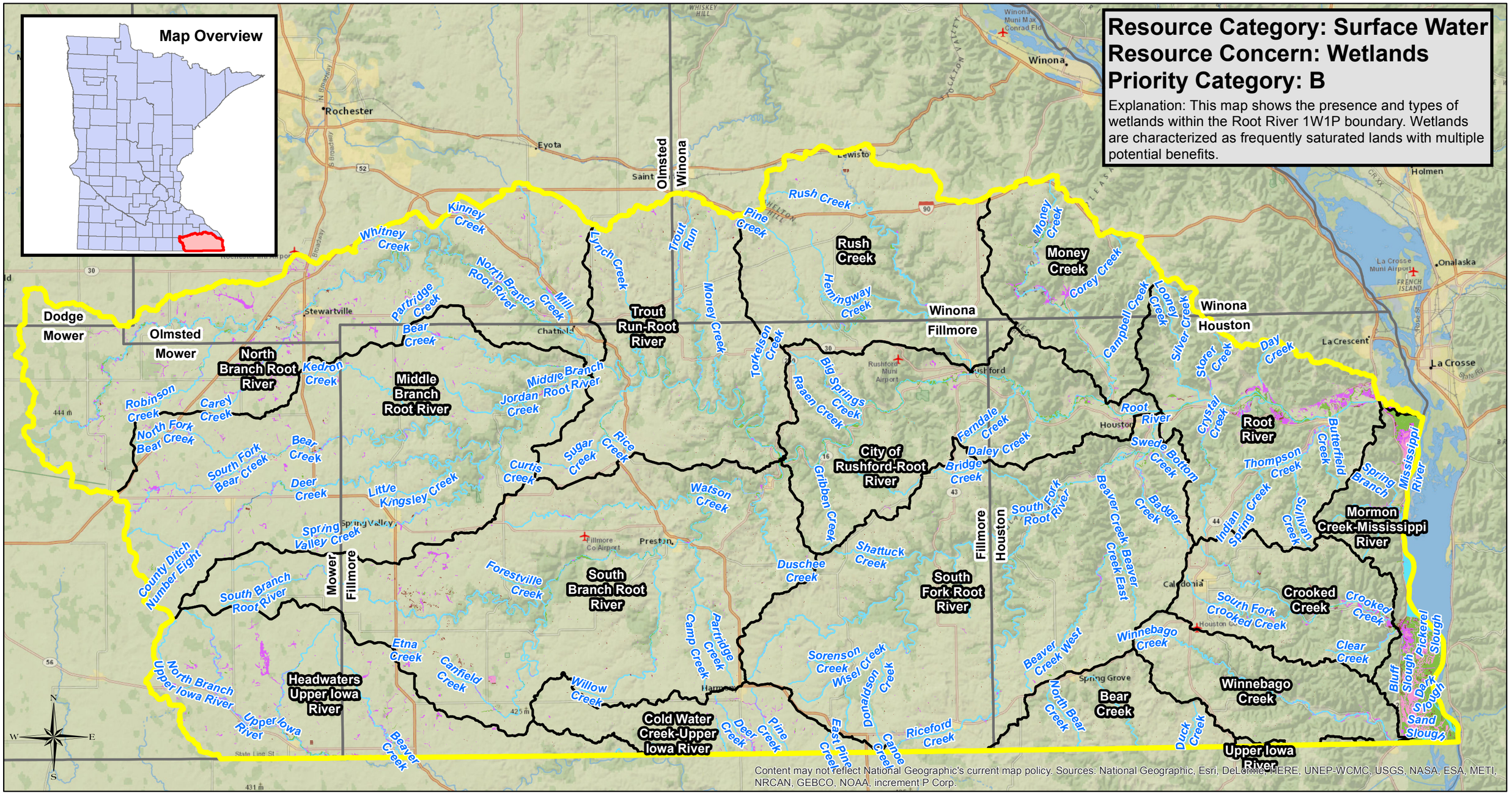
Resource Category: Surface Water
Resource Concern: Wetlands
Priority Category: B

Explanation: This map shows the presence and types of wetlands within the Root River 1W1P boundary. Wetlands are characterized as frequently saturated lands with multiple potential benefits.



Data Sources: MN DOT, MPCA, MN DNR

Root River
One Watershed One Plan

Root River Watershed
ONE WATERSHED ONE PLAN

Plan Boundary
Watershed Boundary
Rivers and Streams

Wetland Type

Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine

0 2.5 5 10 Miles

Wetlands

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	KZS		8331-001	5/23/2016	1 of 1

Houston Engineering Inc.
Maple Grove
P: 763.493.4522
F: 763.493.5572

Date Saved: 4/11/2016 9:00:22 AM

HoustonEngineering Inc.

Root River Watershed
ONE WATERSHED ONE PLAN

Appendix H Root River Watershed Resource Concern Map Package: Available online

HoustonEngineering Inc.

APPENDIX I

Root River Watershed
Estimated Sources of Sediment and Nutrients Reaching the Planning Region
Outlet: Available online

HoustonEngineering Inc.

APPENDIX J

Root River Watershed
Classifying Predominant Hydrologic Influence

APPENDIX J – CLASSIFYING PREDOMINANT HYDROLOGIC INFLUENCE

The movement of water and pollutants within the plan boundary is complex, driven by the hydrogeology of the area which includes karst formations. Within some areas, a relatively small amount of time is require for surface water runoff to reach groundwater. Within other areas, most of the precipitation leaves the landscape as runoff, and enters a stream or river. In some cases, water moving downstream encounters a "stream sink" which reintroduces the water in the subsurface aquifer, contributing water to a spring.

In order to implement strategies that accomplish the intended measurable goals for surface and groundwater, methods were needed to classify locations within the plan area according to their predominant hydrologic influence. Areas that average 40 acres in area (i.e., catchments) within the plan area were classified as: 1) predominantly surface water; 2) predominately groundwater; or 3) both surface and groundwater hydrologic influence. This qualitative classification of catchments is intended to be useful for guiding implementation and as a tool to describe whether sediment and nutrients leaving the landscape reach primarily surface or groundwater and the probable resources where the benefits of implementing BMPs may be realized. This analysis was conducted using the best available public information.

Limited fiscal resources were available for the development of the method. Input from Mr. Jeffrey A. Green, Minnesota DNR, Rochester office, helped frame some of the concepts and ideas for the classification method. Although imperfect, the classification method appears to provide reasonable results, based upon current springshed studies and dye tracing results. Because of the limitations, this approach was not used to quantify load reductions from practices between surface and groundwater resources. As research continues in this area, and our understanding of hydrogeology within the plan area grows, these methods should be revisited and improved where possible.

The remainder of this Appendix describes the methods and data used to classify catchments based upon the predominant hydrologic influence.

1.1 SEQUENTIAL PROCESS FOR ESTIMATING PREDOMINANT HYDROLOGIC INFLUENCE

A sequential process was used to classify the predominant hydrologic influence of catchments within the plan boundary (**Figure 1**). Step 1 was used to establish an initial classification of the predominant hydrologic influence of each catchment based on specific factors and scientific evidence. Each subsequent step was then used to adjust the previous classification, based on additional specific factors and scientific evidence. The methods used for each of the steps in **Figure 1** are described below using an example from the South Fork of the Root River.

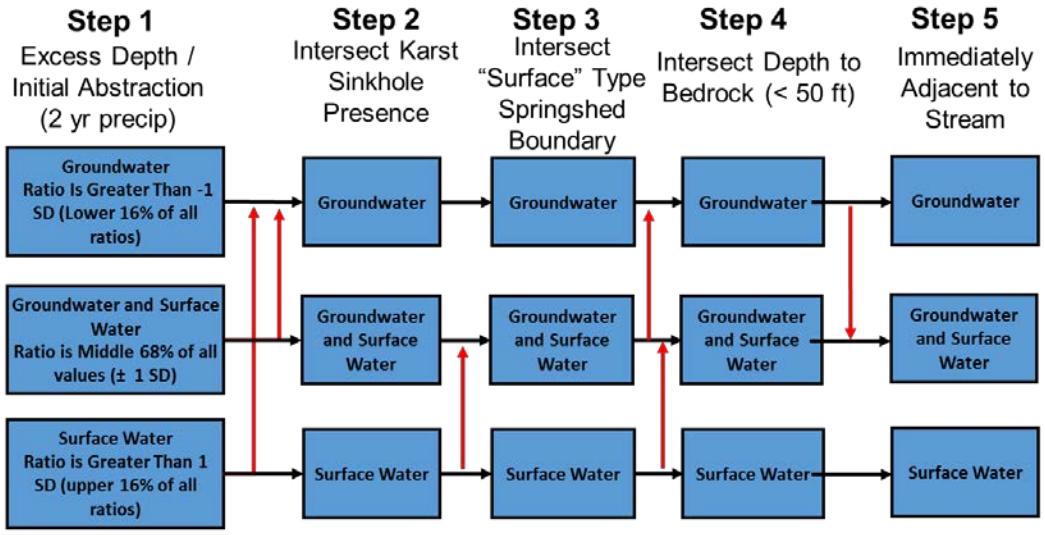


Figure 1. Tiered process for estimating the predominant hydrologic influence of catchments within the Root River plan boundary.

1.1.1 STEP 1 – CLASSIFY CATCHMENTS BASED ON RATIOS OF EXCESS PRECIPITATION DEPTH AND INITIAL ABSTRACTION

Information on initial abstraction and excess depth for a 2-year, 24-hour precipitation event were extracted from outputs generated by the Prioritize, Targeted, and Measure Application (PTMApp) Desktop for catchments within the plan boundary. PTMApp Desktop uses the curve number method to estimate initial abstraction (e.g., infiltration potential) and excess precipitation depths (i.e., runoff potential) for different storm events. A ratio of the excess precipitation depth to the initial abstraction was then calculated for each catchment. A preliminary hydrologic influence was then assigned based upon the ratio of excess precipitation depth to initial abstraction as follows:

- < 1 standard deviation = Groundwater
- ± 1 standard deviation = Groundwater and Surface Water
- > 1 standard deviation = Surface Water

Figure 2 shows the results of Step 1 for the South Fork of the Root River.

1.1.2 STEP 2 – RECLASSIFY CATCHMENTS BASED ON PRESENCE OF KARST SINKHOLES

Karst Sinkholes from the Minnesota Department of Natural Resource's Karst database (available online at https://gisdata.mn.gov/dataset/geos-karst-feature-inventory-pts) were intersected with the catchment boundary data from Step 1 (see *section 1.1.1*). All catchments intersecting Karst features were adjusted or kept as a groundwater hydrologic influence (**Figure 3)**.

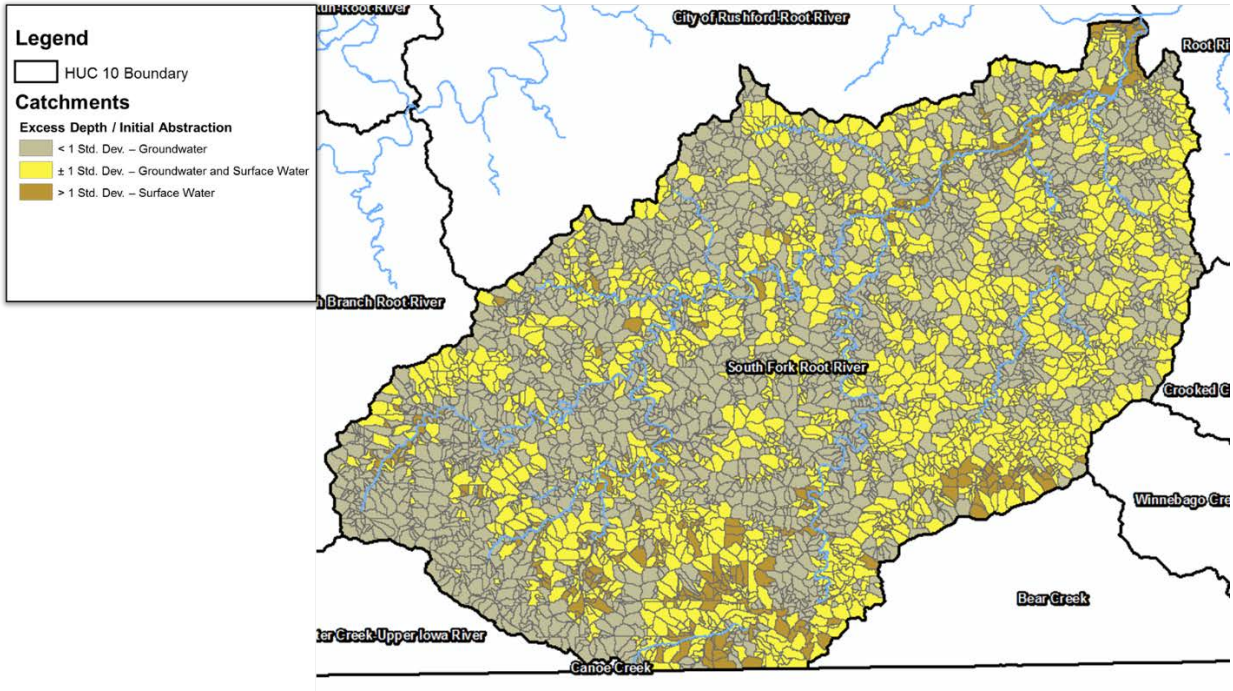


Figure 2. Ratio of excess precipitation depth (surface runoff) to initial abstraction (infiltration) based upon the curve number method used in PTMApp Desktop for the South Fork of the Root River.

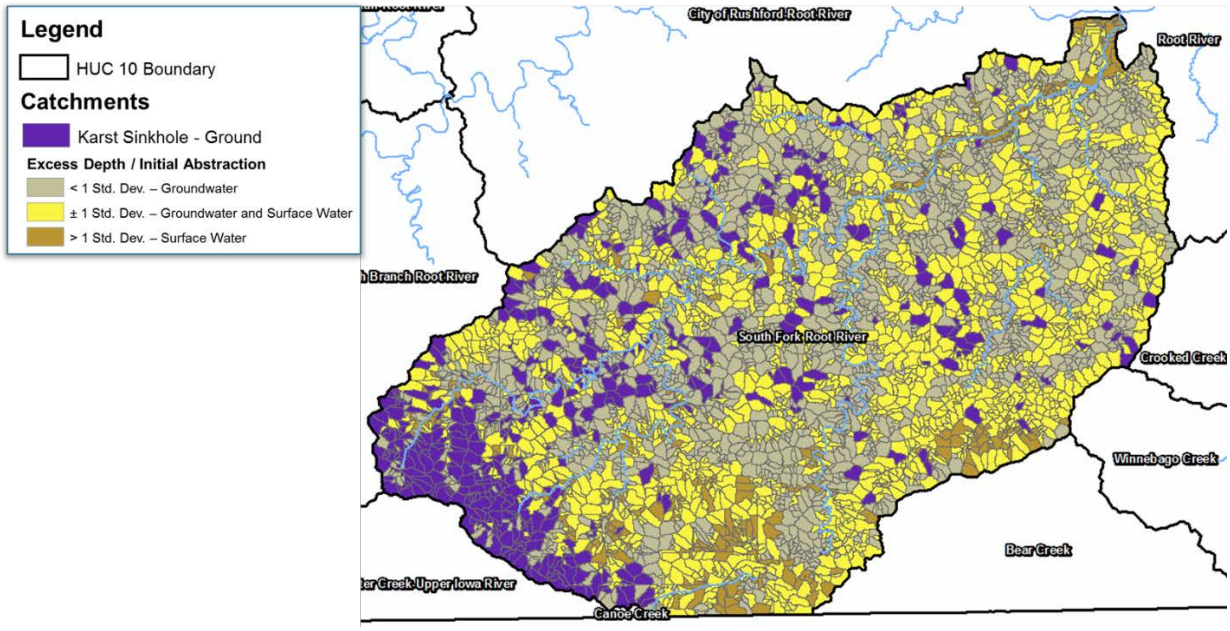


Figure 3. Reclassification of catchments within the South Fork of the Root River containing karst features (purple areas) that were assigned a groundwater hydrologic influence during Step 2.

1.1.3 STEP 3 – RECLASSIFY CATCHMENTS BASED ON PRESENCE OF SURFACE TYPE SPRINGSHEDS

The data from Step 2 (*see section 1.1.2*) was intersected with "Surface" type spring sheds from the Minnesota Department of Natural Resources (http://www.dnr.state.mn.us/waters/groundwater_section/mapping/springshed.html). Catchments classified as predominantly surface water influence at the end of Step 2 (*see section 1.1.2*) were reclassified as surface and groundwater influence (**Figure 4**) if interested by a surface type springshed.

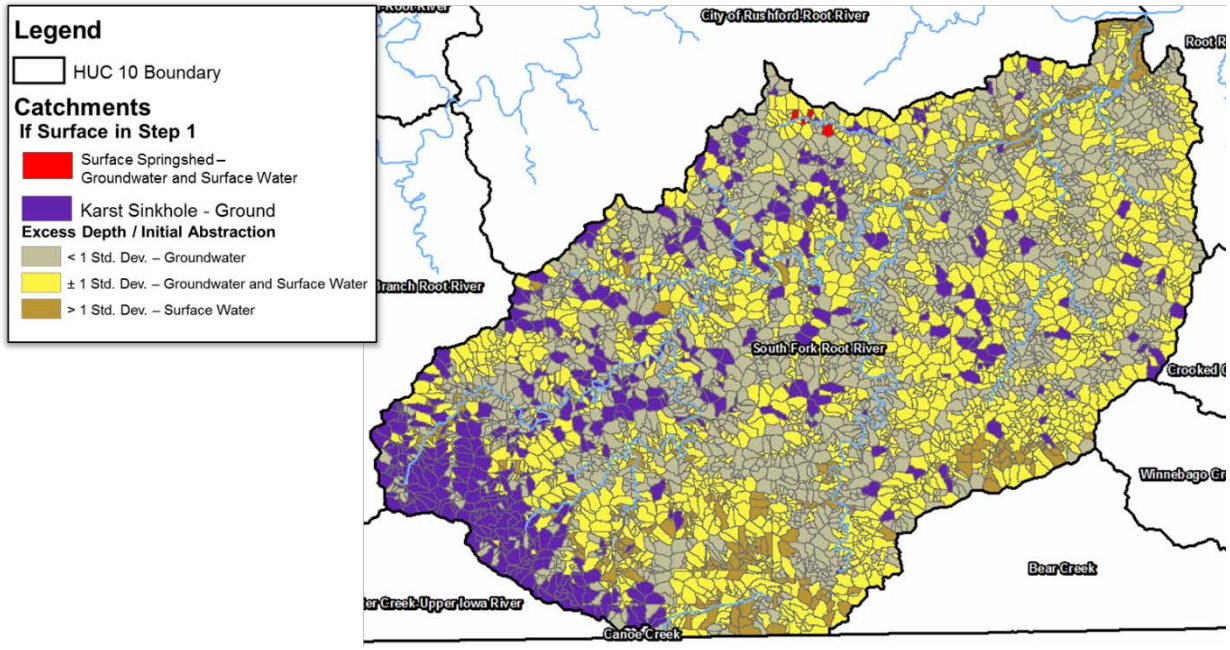


Figure 4. Catchments within the South Fork of the Root River that were reclassified as surface and groundwater influence (red areas) based upon intersection with "Surface" type springsheds.

1.1.4 STEP 4 – RECLASSIFY CATCHMENTS BASED ON DEPTH TO BEDROCK

Catchments that intersected areas with a less than 50 foot depth to bedrock were reclassified to groundwater influence or surface and groundwater influence if they were classified as surface and groundwater influence or surface water influence in Step 3 (*see section 1.1.3*), respectively (**Figure 5**). The Minnesota Geological Survey Depth to Bedrock data was used to estimate the depth to bedrock for catchments (http://www.mngeo.state.mn.us/chouse/metadata/dpthbdrk.html).

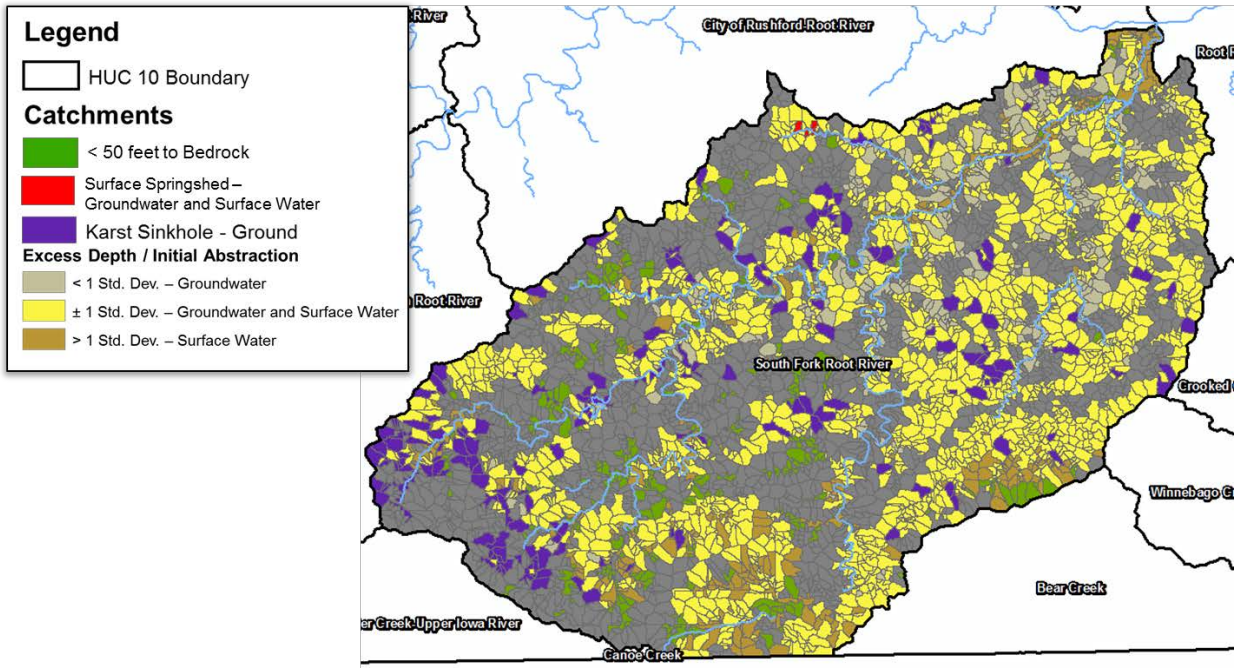


Figure 5. Catchments within the South Fork of the Root River that were reclassified (green areas) to groundwater influence or surface and groundwater influence initially classified as surface and groundwater influence or surface water influence in Step 4.

1.1.5 STEP 5 – RECLASSIFY CATCHMENTS BASED ON STREAM CHANNEL ADJACENCY

The final step was to reclassify catchments adjacent to streams as surface and groundwater influence (**Figure 6**) if they were classified as groundwater influence in Step 4 (*see section 1.1.4*). The National Hydrography Dataset (NHD) flowlines were used to designate streams (available online at http://nhd.usgs.gov/data.html).

1.2 SUMMARY OF THE RESULTS

This sequential process (see **Figure 1**) following testing using the South Fork of the Root River, was applied to the entire plan area (**Figure 7**). The results will enable practitioners to estimate where benefits will accrue (i.e. surface water, groundwater, or both) from implementing targeted projects and practices. We anticipate the classification will be used during the implementation process to qualitative assess pollutant sources and the potential benefits of BMPs. **Figure 8** shows the results of the predominant hydrologic influence classification superimposed on those areas with the greatest catchment total nitrogen yields (from PTMApp). **Figure 8** provides some guidance about whether these loads leaving the landscape reach groundwater, surface water or both surface and groundwater. **Figure 9** shows the results of the predominant hydrologic influence classification superimposed on those areas where the results from PTMApp suggest the feasibility of Best Management Practices. **Figure 9** provides some guidance about whether groundwater, surface water or both surface and groundwater will realize some benefit from placing a BMP at that location.

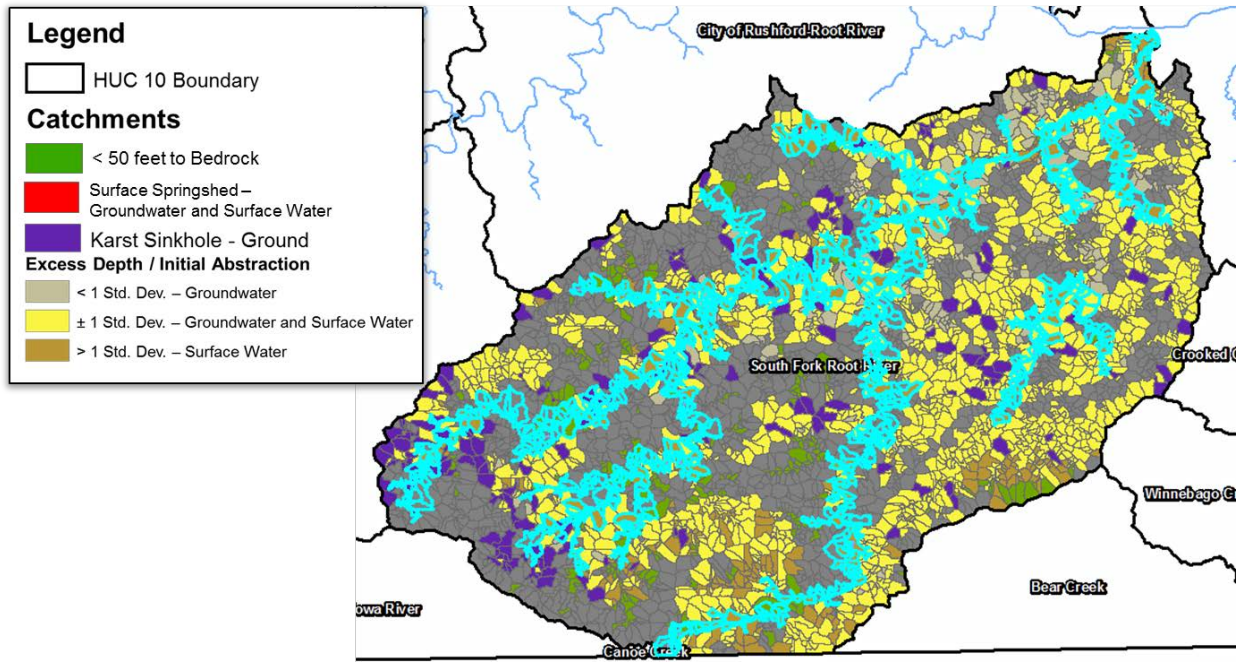


Figure 6. Groundwater predominate hydrologic influence catchments within the South Fork of the Root River that were reclassified (blue areas) to surface and groundwater influence during Step 5.

May 16, 2016

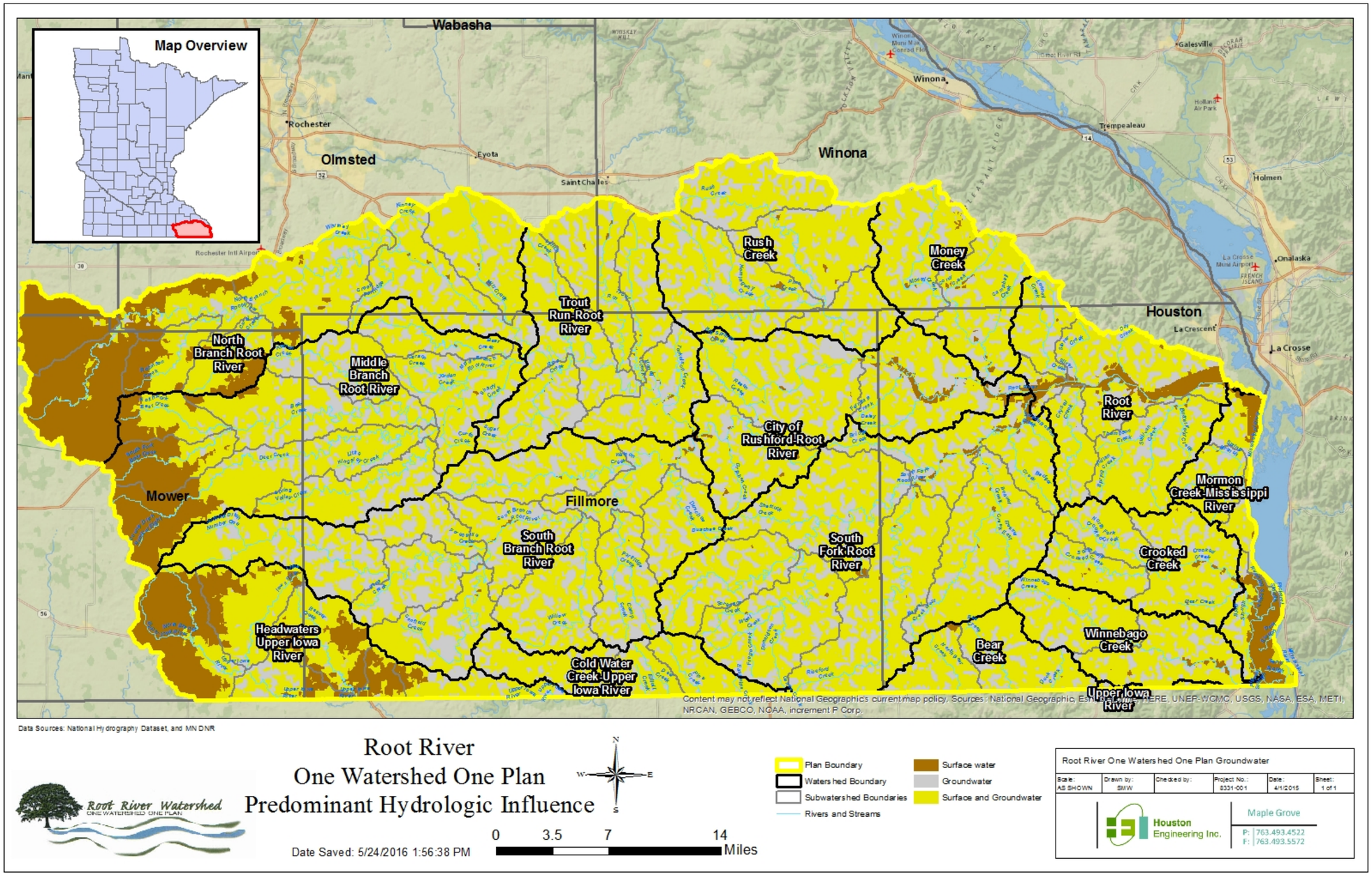
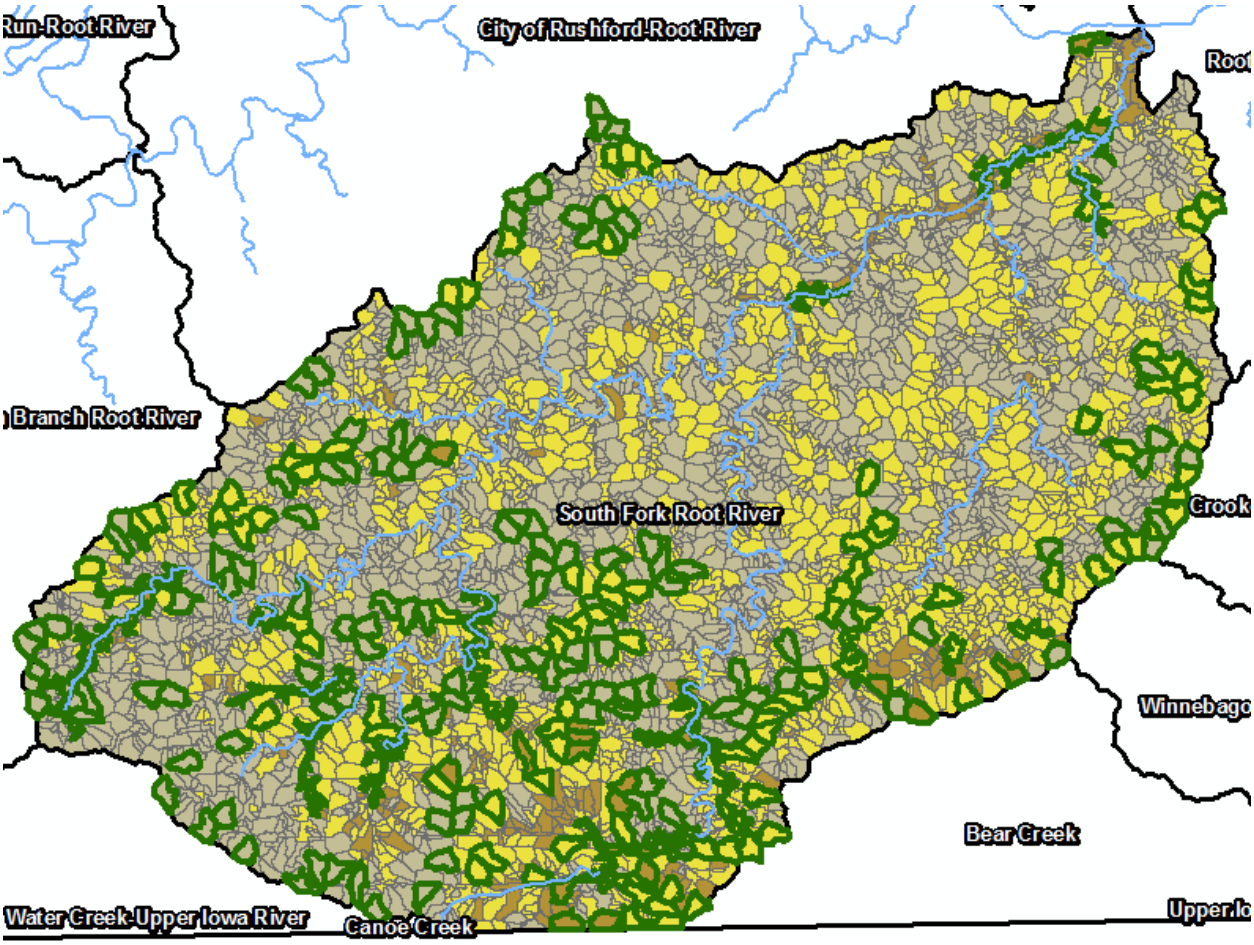


Figure 7. Predominant hydrologic influence classification for the plan area.



Predominant Hydrologic Influence Classification

Groundwater

Groundwater and Surface Water

Surface Water

TN to Catchment (highest 5%)

Figure 8. Illustration of the use of predominate hydrologic influence classification for evaluating total nitrogen sources. The catchments represented by green polygons are catchments within the upper 5% for their total nitrogen yield based on the prioritize, target and measure application. Those nitrogen from catchments with a predominate hydrologic influence of groundwater are most likely to affect drinking water supplies.

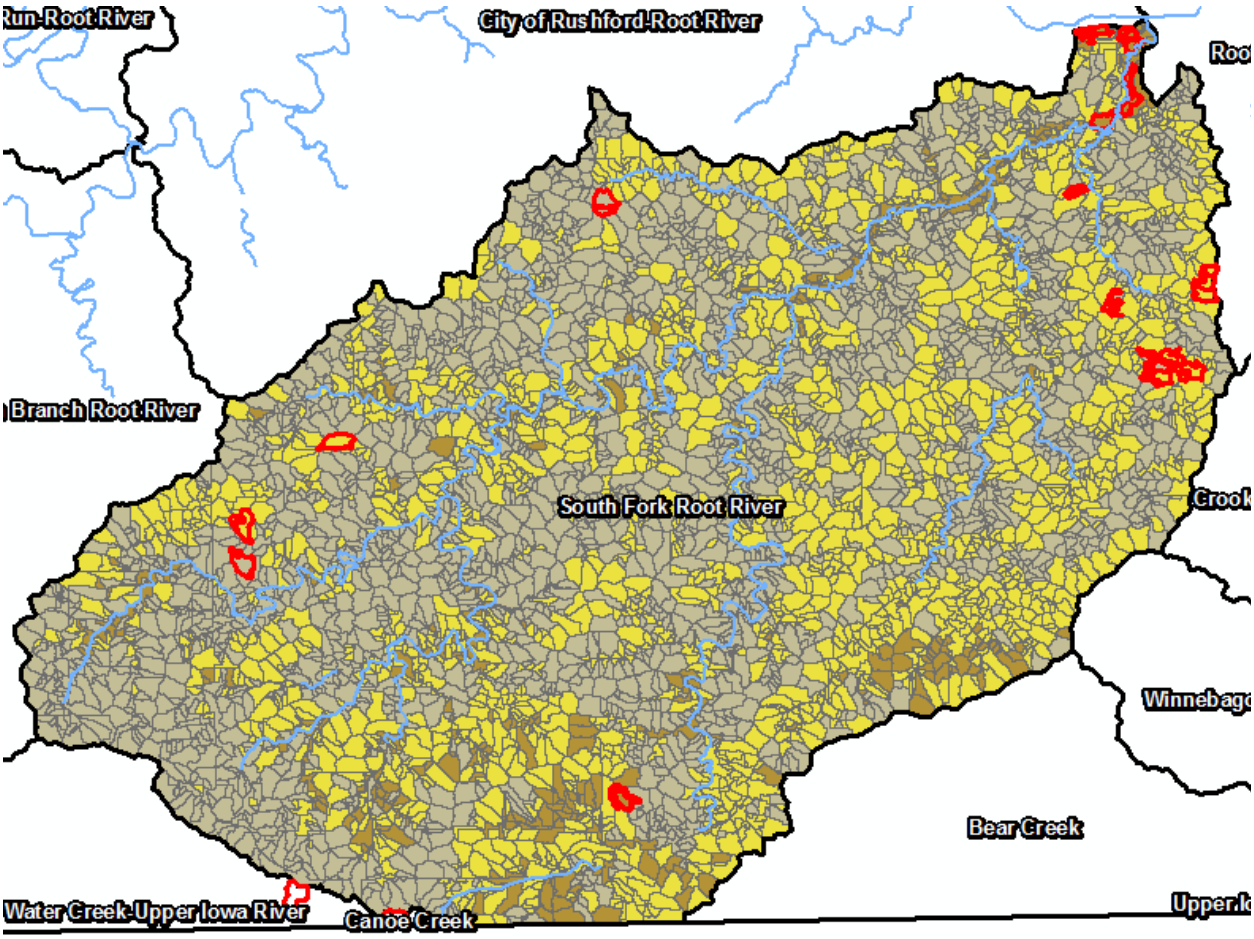


Figure 9. Illustration of the use of predominate hydrologic influence classification for evaluating potential best management practice benefits. The catchments represented by the polygons are catchments where best management practices are feasible, based on the prioritize, target and measure application. Those with a predominate hydrologic influence of groundwater are most likely to benefit drinking water supplies while those with a surface water classification are most likely to benefit streams and rivers.

HoustonEngineering Inc.

APPENDIX K

Root River Watershed
Joint Powers Agreement

JOINT POWERS AGREEMENT
ONE WATERSHED, ONE PLAN FOR THE ROOT RIVER WATERSHED

Pursuant to Minnesota Statutes Chapter 471.59, this Joint Powers Agreement (this "Agreement") is made and entered into between the following parties:

> The Counties of Dodge, Fillmore, Mower, Olmsted, Houston, and Winona (Counties), by and through their respective County Boards of Commissioners; the Dodge, Fillmore, Mower, Olmsted, Root River, and Winona Soil and Water Conservation Districts (SWCDs), by and through their respective Soil and Water Conservation District Boards of Supervisors; and the Crooked Creek Watershed District, by and through its Board of Managers.

WHEREAS, the Counties of this Agreement are political subdivisions of the State of Minnesota, with authority to carry out environmental programs and land use controls, pursuant to Minnesota Statutes Chapter 375 and as otherwise provided by law; and

WHEREAS, the Soil and Water Conservation Districts (SWCDs) of this Agreement are political subdivisions of the State of Minnesota, with statutory authority to carry out erosion control and other soil and water conservation programs, pursuant to Minnesota Statutes Chapter 103C and as otherwise provided by law; and

WHEREAS, the parties to this Agreement have a common interest and statutory authority to prepare, adopt, and assure implementation of a comprehensive watershed management plan in the Root River Watershed to conserve soil and water resources through the implementation of practices, programs, and regulatory controls that effectively control or prevent erosion, sedimentation, siltation and related pollution in order to preserve natural resources, ensure continued soil productivity, protect water quality, reduce damages caused by floods, preserve wildlife, protect the tax base, and protect public lands and waters; and

WHEREAS, with matters that relate to coordination of water management authorities pursuant to Minn. Stat. Sections 103B, 103C, and 103D and with public drainage systems pursuant to Minn. Stat. 103E, this Agreement does not change the rights or obligations of the public drainage system authorities.

WHEREAS, pursuant to Minn. Stat. Section 103B.101 Subd. 14, the Board of Water and Soil Resources (BWSR) "may adopt resolutions, policies, or orders that allow a comprehensive plan, local water management plan, or watershed management plan, developed or amended, approved and adopted, according to chapter 103B, 103C, or 103D to serve as substitutes for one another or be replaced with a comprehensive watershed management plan," also known as the "One Watershed, One Plan".

WHEREAS, in early 2014, planning partners in this watershed area joined together to submit a nomination to pilot the One Watershed, One Plan in the Root River Watershed. In June 2014, the Root River was selected as one of five major watersheds across the state to pilot this program. The six-county watershed planning area includes those portions of Dodge, Olmsted, Winona, Houston, Fillmore, and Mower counties that drain to the Root River, the Minnesota portion of the Upper Iowa River watershed and the Mississippi-Reno watershed in Houston County. The planning area is shown in Attachment A to this Agreement and encompasses over 1.3 million acres. The pilot program continues to involve a broad range of stakeholders, including governments, state agencies, and community members and organizations as partners in the planning process.

WHEREAS, the parties previously entered into in 2014 a formal agreement through a Memorandum of Agreement for the purpose of planning the BWSR- One Watershed, One Plan for the Root River Watershed. The resulting plan will address the most significant threats to our water resources and the land use practices that provide the greatest environmental benefits to the watersheds.

WHEREAS, with the development of the initial One Watershed, One Plan for the Root River Watershed almost completed, the parties now enter into this Agreement so as to continue the cooperative and collaborative work of the Counties, SWCD's and Crooked Creek with BWSR in an advisory capacity for the continued planning and implementation of One Watershed, One Plan for the Root River Watershed in the future.

WHEREAS, it is understood by all the parties to this Agreement that the One Watershed, One Plan for the Root River Watershed does not replace or supplant local land use, planning, zoning authority, but, instead, provides a framework to provide increased opportunities for cooperation and consistency on a watershed basis.

WHEREAS, it is understood by all parties to this Agreement that the One Watershed, One Plan for the Root River Watershed is intended to provide a framework for consistency and cooperation on a watershed basis and to allow local governments to cooperatively work together to implement projects with the highest return on investment for improving water quality/quantity issues on a watershed basis.
.

NOW, THEREFORE, the parties hereto agree as follows:

1. **Purpose of the Agreement:** The parties to this Agreement recognize that a guiding principle of One Watershed, One Plan for the Root River Watershed is that "implementation will be accomplished through formal agreements among participating local governments on how to manage and operate the watershed." The parties to this Agreement acknowledge "that the purpose of this principle is to provide assurances that decision-making spanning political boundaries is supported by an in-writing commitment from participants. " [The quoted sections

are from *One Watershed One Plan Operating Procedures for Pilot Watersheds,* Page 13 BWSR June 25, 2014 document.]

The parties working together for the purpose of planning the One Watershed, One Plan for the Root River Watershed, under the 2014 Memorandum of Agreement of the parties, now establish, through this Agreement, the process for the continued planning and the implementation of the Plan as they continue to recognize the importance of planning and implementing protection and restoration efforts for the Root River Watershed on a cooperative and collaborative basis together under this Agreement pursuant of the authority contained in Minn. Stat. Section 471.59.

This Agreement does not establish a joint powers entity but set outs the terms and provisions by which the parties " may jointly or cooperatively exercise any power common to the contracting parties or any similar powers, including those which are the same except for the territorial limits within which they may be exercised." Minn. Stat. Section 471.59. As is permitted under the joint exercise of powers statute, Minn. Stat. Section 471.59, the parties agree that under this Agreement, and as agreed upon and recommended by the Policy Committee, one or more of the parties may exercise any power common to them on behalf of the other participating units, such as they have done under the Memorandum of Agreement where the Fillmore County SWCD has provided the day-to-day administrative duties of the One Watershed One Plan for the Root River and the Winona County SWCD has been the fiscal agent for the current planning grant.

2. **Term:** This Agreement is effective upon signature of all parties in consideration of the BWSR Participation Requirements for One Watershed, One Plan; and will remain in effect until canceled according to the provisions of this Agreement, unless earlier terminated by law.

3. **Adding Additional Parties:** A qualifying party within the Root River Watershed that is responsible for water planning and resource management according to Minnesota State Statutes desiring to become a member of this Agreement shall indicate its intent by adoption of a governing board resolution that includes a request to the Policy Committee to join the One Watershed One Plan for the Root River Watershed and a statement that the qualifying party agrees to abide by the terms and conditions of this Agreement; including but not limited to the bylaws, policies, and procedures adopted by the Policy Committee.

4. **Procedure for Parties to Leave Membership of the Agreement:** A party desiring to leave the membership of this Agreement shall indicate its intent in writing to the Policy Committee in the

form of an official board resolution. Notice must be made 180 days in advance of leaving the One Watershed, One Plan Root River Watershed. A party that leaves the membership of the Agreement remains obligated to complying with the terms of any grants the One Watershed, One Plan Root River Watershed has at the time of the party's notice to leave membership and is obligated until the grant has ended.

5. **General Provisions**:

   a. **Compliance with Laws/Standards:** The parties agree to abide by all Federal, State or local laws; statutes, ordinances, rules and regulations now in effect or hereafter adopted pertaining to this Agreement.

   b. **Indemnification:** Each respective party to this Agreement shall be liable for the acts of its respective officers, employees or agents and the results thereof to the extent authorized or limited by law and shall not be responsible for the acts of the other respective parties, their officers, employees or agents. The provisions of the Municipal Tort Claims Act, Minnesota Statute Chapter 466 and other applicable laws govern liability of the parties. To the full extent permitted by law, actions by the parties, their respective officers, employees and agents, pursuant to this Agreement are intended to be and shall be construed as a "cooperative activity" and it is the intent of each party that this Agreement does not create any liability or exposure of one party for the acts or omissions of the other party pursuant to Minn. Stat. Section 471.59, Subd. 1a. (a).

   c. **Employee Status:** The parties agree that the respective employees or agents of each party shall remain the employees or agents of each individual respective party.

   d. **Data Practices and Records Retention:** The parties agree that each respective party will be responsible for complying with the Minnesota Government Data Practices Act (Minnesota Statutes Chapter 13), and the Official Records Act (Minnesota Statutes Section 15.17) for the data collected, created, received, maintained, disseminated or stored by each respective party pursuant to the terms of this Agreement.

   e. **Timeliness:** The parties agree to perform obligations under this Agreement in a timely manner and keep each other informed about any delays that may occur.

   f. **Termination:** The parties anticipate that this Agreement will remain in full force and effect until canceled by all parties, unless otherwise terminated in accordance with law or other provisions of this Agreement. The parties acknowledge their respective and applicable obligations, if any, under Minn. Stat. Section 471.59, Subd. 5 after the purpose of the Agreement has been completed.

6. **Structure:** To carry out the coordinated planning, development, and implementation of the One Watershed, One Plan Root River Watershed, the parties agree to continue the structure established under the Memorandum of Agreement, which includes the Policy Committee, the Technical Advisory Committee, and the Planning Workgroup.

    a. **The Policy Committee.** The parties agree that the Policy Committee established under the Memorandum of Agreement for the purpose of developing the One Watershed, One Plan shall continue to operate cooperatively and collaboratively, but not as a separate entity, for the purpose of continued planning of, review of, advising on, and coordinating of the implementation of the One Watershed, One Plan Root River Watershed plan. Membership on the Policy Committee shall remain as each party's designated representative. That individual who serves as their respective party's designated representative must be an elected or appointed member of that party's governing board. The governing boards may choose alternates to serve on the Policy Committee from their boards as needed. The Policy Committee will meet quarterly or as needed.

        i. Authority of Policy Committee Members: Each representative on the Policy Committee shall have one vote, and, subject to the authority delegated by their respective governing body, shall have the authority to act on behalf of the party they represent in the following matters: grant applications for grants the Policy Committee has voted to consider which are relevant to the implementation of the One Watershed, One Plan Root River Watershed; interim report review and approval, payments under One Watershed, One Plan Root River Watershed grant(s), professional contracts, and voting on the recommended plan to be submitted to local review and comment process. Each respective Policy Committee member will bring before their respective governing body any grants awarded to the One Watershed, One Plan Root River Watershed for a request to approve the grant(s) awarded. The Policy Committee will follow the bylaws adopted by the Policy Committee and will have the power to modify the bylaws.

        ii. Policy Committee Duties:

            a. Annual Report: The Policy Committee shall review and approve an annual work plan and budget consisting of an itemized statement of the One Watershed, One Plan Root River Watershed revenues and expenses for the ensuing calendar years which shall be presented to the respective governing boards that are represented on the Policy Committee

b. Individual Members Duties: Each Policy Committee member will serve as a liaison to their respective governing boards and keep their governing boards regularly informed on the work of the One Watershed, One Plan Root River Watershed.

b. **The Technical Advisory Committee**. The parties agree that the Technical Advisory Committee shall continue to provide technical support on the plan implementation to the Policy Committee, including identification of priorities. The Technical Advisory Committee will remain as consisting of the local Planning Workgroup, stakeholders, the state's main water agencies, and/or plan review agencies. The Technical Advisory Committee will meet annually or as needed.

c. **The Planning Workgroup**. The parties agree that the Planning Workgroup shall continue and shall consist of local staff, local water planners, local watershed staff, and local SWCD staff for the purposes of logistical and day-to-day decision-making in the implementation process. The Planning Workgroup shall prepare a draft annual work plan and budget consisting of an itemized statement of the One Watershed, One Plan Root River Watershed revenues and expenses for the ensuing calendar year which shall be presented to the Policy Committee for review and approval. The Planning Workgroup will meet quarterly or as needed.

7. **Implementation of the Plan.** The parties agree to adopt and begin implementation of the plan within 120 days of state approval and provide notice of plan adoption pursuant to Minnesota Statutes Chapter 103B and 103D.

8. **Fiscal Agent.** If a party is not already designated for a specific grant or project, the Policy Committee shall appoint annually one of the parties to the Agreement to be the Fiscal Agent for the One Watershed, One Plan Root River Watershed. Winona County Soil and Water Conservation District will be the initial Fiscal Agent for the purposes of this Agreement. The Fiscal Agent agrees to:

   a. Accept all fiscal responsibilities associated with grant agreements applied for and received by the One Watershed, One Plan Root River Watershed where no fiscal agent is already specifically designated .

   b. Perform financial transactions as part of contract implementation.

c. Pursuant to Minn. Stat. Section 471.59, Subd. 3, provide for strict accountability of all funds and report of all receipts and disbursements and annually provide a full and complete audit report.

d. Provide the Policy Committee and its members with such records as are necessary to describe the financial condition of the grant agreements the Policy Committee reviews.

e. Responsible for fiscal records retention consistent with the Fiscal Agent's records retention schedule until termination of this Agreement. At that time, the fiscal records will be turned over to the Day-to-Day Contact.

9. **Day-to-Day Contact**. If a party is not already designated for a specific grant or project, the Policy Committee shall appoint annually one of the parties to the Agreement to be the Day-to-Day Contact to be the point of contact for and handle the day-to-day administrative work of the One Watershed, One Plan Root River Watershed. The parties agree that for the first year of this Agreement, Fillmore County Soil and Water Conservation District will handle this function and continue thereafter until and unless the Policy Committee appoints a different Day-to-Day Contact.. The party that is the Day-to-Day Contact agrees to provide the following to the One Watershed, One Plan Root River Watershed for the purposes of this Agreement:

   a. Handle all day-to-day administrative responsibilities associated with the ongoing planning and implementation of the One Watershed, One Plan Root River Watershed.

   b. Be the day-to-day contact for the current One Watershed, One Plan Root River Grant Agreement and Plan and any subsequent grant agreements the One Watershed, One Plan Root River Watershed may receive.

   c. Be responsible for the BWSR and other grant reporting requirements (ELink).

   d. Assist the Policy Committee with the administrative details to oversee future planning and implementation of the watershed-based plan.

   e. Maintain the One Watershed, One Plan Root River Watershed website and perform other duties to keep the Policy Committee, the Technical Advisory Committee, and the Planning Workgroup informed about the implementation of the watershed-based plan.

10. **Authorized Representatives:** The following persons will be the primary contacts for all matters concerning this Agreement:

Dodge County
County Administrator
22 6th Street South
Mantorville, MN 55955
Telephone: (507) 635-6239

Dodge SWCD
District Manager
916 2nd Street SE
Dodge Center, MN 55927
Telephone: (507) 374-6364

Fillmore County
County Coordinator
101 Fillmore Street, PO Box 466
Preston, MN 55965
Telephone: (507) 765-4566

Fillmore SWCD
District Administrator
900 Washington Street NW
Preston, MN 55965
Telephone: (507) 765-3878

Houston County
County Auditor
304 South Marshall Street
Caledonia, MN 55921
Telephone: (507) 725-5800

Root River SWCD
District Manager
805 North Hwy 44/76, Suite 1
Caledonia, MN 55921
Telephone: (507) 724-5261

Mower County
County Coordinator
201 1st Street NE
Austin, MN 55912
Telephone: (507) 437-9494

Mower SWCD
District Manager
1408 21st Avenue NW, Suite2
Austin, MN 55912
Telephone: (507) 434-2603

Olmsted County
County Administrator
151 4th Street SE
Rochester, MN 55904
Telephone: (507) 328-6001

Olmsted SWCD
District Director
2122 Campus Drive SE, Suite 200
Rochester, MN 55901
Telephone: (507) 328-7130

Winona County
County Administrator
177 Main Street
Winona, MN 55987
Telephone: (507) 457-6355

Winona SWCD
District Manager
400 Wilson Street, PO Box 39
Lewiston, MN 55952
Telephone: (507)523-2171

Crooked Creek Watershed District
805 North Hwy 44/76, Suite 1
Caledonia, MN 55921
Telephone: (507) 724-5261

11. **Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall constitute one and the same instrument.

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