Appendix D

6-Day Plan Initiation Notice

Comment Letters

City of Centerville
City of Hugo
City of Lino Lakes
Coon Creek Watershed District
Fortin Consulting
MN Board of Water and Soil Resources
MN Department of Agriculture
MN Department of Natural Resources
MN Pollution Control Agency
Metropolitan Council Environmental Services
Washington County

Centerville
Established 1857
1880 Main Street, Centerville, MN 55038
651-429-3232 or Fax 651-429-8629

March 5, 2018

Rice Creek Watershed District
c/o Kyle Axtell
4325 Pheasant Ridge Drive NE #611
Blaine, MN 55449

Dear Mr. Axtell:

Please accept these comments on Rice Creek Watershed District's Ten Year Watershed Management Plan, pursuant to MN Rules 8410.0045. The following are the City of Centerville's comments on local water-related issues, water management goals, official controls, and programs.

- Address incomplete TMDL Implementation plans for Peltier and Centerville Lakes to take advantage of funding sources like the PFA's PSIG
- Work to reduce redundancies in rules and enforcement:
  - Maintenance agreements that repeat what's required by MS4 permit
  - Erosion control inspection by RCWD staff that's also required by MS4 permit
  - Design rules which repeat MS4 rules
- Use resources to evaluate real-world effectiveness of rules, BMPs, etc.
- Leverage resources to address large, looming issues like PAH's in ponds, etc.
- Advocate at legislature and with state agencies for reasonable stormwater re-use regulation

Thank you for allowing the less formal and collaborative opportunity at your City/County partner meeting last week. The city intends to continue to participate through that group.

Sincerely,

Mark R. Statz, PE
City Administrator/City Engineer

Cc: Paul Palzer

701 Xenia Avenue South | Suite 300 | Minneapolis, MN 55416 | (763) 541-4800

Memorandum

To: ***Rice Creek Watershed District***

From: ***Stephanie Hatten, EIT***

Cc: ***Mark Erichson, PE, City of Hugo***
Rachel Juba, City of Hugo

Date: ***April 20, 2018***

Re: ***Updates to Rice Creek Watershed District Watershed Management Plan***

The City of Hugo would like the following comments to be considered in Rice Creek Watershed District's Watershed Management Plan Update:

1. Provide funding opportunities via grants or cost share programs specifically for BMP Maintenance Projects. These projects are a recurring annual cost for cities, and providing a funding opportunity would allow the District to support the improvement of existing stormwater facilities within the watershed.
2. Include guidance and policies to encourage and promote the design and construction of large scale BMP's from which credits can be applied throughout a larger area. Often times large scale BMP's are not feasible due to their initial cost, yet often have a greater impact on water quality. Providing planning for communities to implement large scale BMP's could help to improve water quality within the District more quickly and efficiently.
3. Evaluate the policy for stormwater rate control, specifically relating to the current existing conditions benchmark. We suggest outlet guidance and planning be provided for landlocked basins or watersheds with limited outlet capacity. For instance, considering an allowable minimum rate per acre for such watersheds.
4. Modify rules to be in conformance with state and federal floodplain rules that allow some filling in the flood fringe or other areas.

Additionally, the City would like to coordinate with RCWD to prioritize projects from the City's Water Resource Management Plan that will be added to the District's CIP for budgeting.

We appreciate your consideration of these comments as the Watershed Management Plan continues its update. Please contact me at 763-762-2828 or shatten@wsbeng.com with any questions regarding these comments.

701 Xenia Avenue South | Suite 300 | Minneapolis, MN 55416 | (763) 541-4800

Memorandum

To: ***Rice Creek Watershed District***

From: ***Madison Rogers, EIT***
Pete Willenbring, PE

Cc: ***Diane Hankee, PE, City of Lino Lakes***
Michael Grochala, City of Lino Lakes

Date: ***April 19, 2018***

Re: ***Updates to Rice Creek Watershed District Watershed Management Plan***

The City of Lino Lakes would like the following comments to be considered in Rice Creek Watershed District's Watershed Management Plan Update:

1. Provide funding opportunities via grants or cost share programs specifically for BMP Maintenance Projects. These projects are a recurring annual cost for cities, and providing a funding opportunity would allow the District to support the improvement of existing stormwater facilities within the watershed.
2. Include guidance and policies to encourage and promote the design and construction of large scale BMP's from which credits can be applied throughout a larger area. Often times large scale BMP's are not feasible due to their initial cost, yet often have a greater impact on water quality. Providing planning for communities to implement large scale BMP's could help to improve water quality within the District more quickly and efficiently.
3. Evaluate the policy for stormwater rate control, specifically relating to the current existing conditions benchmark. We suggest outlet guidance and planning be provided for landlocked basins or watersheds with limited outlet capacity. For instance, considering an allowable minimum rate per acre for such watersheds.
4. Modify rules to be in conformance with state and federal floodplain rules that allow some filling in the flood fringe or other areas.

Additionally, the City would like the following projects from their Local Water Plan to be listed as a priority within the District's Implementation Plan:

1. Implementation of the Northeast Lino Lakes Comprehensive Stormwater Management Plan – involves utilizing the City's multi-functional greenway system plan to execute a final design for the ACD 72 and ACD 55 corridors.

2. Develop subwatershed management plans in order of priority:
    - Reshanau Resource Management Unit (ACD 25 Corridor)
    - Marshan Resource Management Unit (ACD 10-22-32 Corridor)
    - Clearwater Creek Resource Management Unit (JD 3 Corridor)

We appreciate your consideration of these comments as the Watershed Management Plan continues its update. Please contact me at 763-287-8521 or mrogers@wsbeng.com with any questions regarding these comments.

Kyle Axtell

From: Phil Belfiori
Sent: Friday, April 20, 2018 11:41 AM
To: Kyle Axtell
Subject: FW: Rice Creek WD - Comp Plan Scoping
Attachments: 3 Ground Water Dependent Resources.docx

Kyle – I think He meant to send this to you..
Thanks

Phil Belfiori
Administrator
Rice Creek Watershed District
phone (763) 398- 3071
pbelfiori@ricecreek.org

Please consider following the RCWD on Facebook.

From: Tim Kelly <tkelly@cooncreekwd.org>
Sent: Friday, April 20, 2018 11:11 AM
To: Phil Belfiori <PBelfiori@ricecreek.org>
Cc: Rebecca Haug - (rhaug@ci.blaine.mn.us) <rhaug@ci.blaine.mn.us>; Phil Gravel (phil.gravel@stantec.com) <phil.gravel@stantec.com>; Dan Buchholtz (dbuchholtz@slpmn.org) <dbuchholtz@slpmn.org>
Subject: Rice Creek WD - Comp Plan Scoping

Phil,

We have thought about you folks over there and about the only issues we can identify where there might be public benefit from closer coordination would be the following:

1. Declining Regional Surficial Groundwater and the Effect on Groundwater Dependent Resources. This is a different approach to the work and resulting management approach taken by the White Bear Lake effort. I have attached our plan chapter for your reference.
2. A review of the permit process for both public and private projects.

Thank you for the opportunity to provide input to your plan

Tim Kelly
District Administrator
Coon Creek Watershed District
763-755-0975

Declining Regional Surficial Groundwater and the Effect on Groundwater Dependent Resources

Issue

Ground water is the Watershed District's principal reserve of fresh water and represents much of its potential future water supply. Ground water within the Watershed is a major contributor to flow in Coon Creek and has a strong influence on the health and diversity of plant and animal species in, riparian areas, lakes, and wetlands. It also provides drinking water to individuals and communities within the watershed. Demands for safe drinking water and requirements to maintain healthy ecosystems are increasing (Appendix B, page 11-15; Appendix C, pages 59- 80).

Today, many of the concerns about ground water resources on or adjacent to the Watershed District involve questions about reductions in streamflow, potential loss of ground water-dependent ecosystems such as lakes and wetlands, land subsidence.

Ground water and surface water are interconnected and interdependent in almost all ecosystems in the Anoka Sand Plain. Ground water plays significant roles in sustaining the flow, chemistry, and temperature of streams, lakes, and wetlands, in many settings, while surface waters provide recharge to ground water in other settings. Ground water has a major influence on streambank erosion, and the headward progression of stream channels. In flat terrain, it limits soil compaction and land subsidence. Pumping of ground water can reduce stream flows, lower lake levels, and reduce or eliminate discharges to wetlands. It also can influence the sustainability of drinking-water supplies and maintenance of critical ground water-dependent habitats.

Increasingly, attention is being placed on how to manage ground water (and surface-water) resources in a sustainable manner. The potential for ground water resources to become contaminated from human as well as natural sources is being assessed. Each ground water system and development situation is unique and requires a specific analysis to draw appropriate conclusions.

Declining surficial groundwater levels will affect not only the drinking water supplies, but also resources that may depend on groundwater, such as wetlands, lakes and streams

This issue is further complicated by the fact that the dependency of these resources on groundwater is not well understood. In addition, the rates and methods of ground water recharge are not well understood, and vary depending on geologic conditions of the aquifer

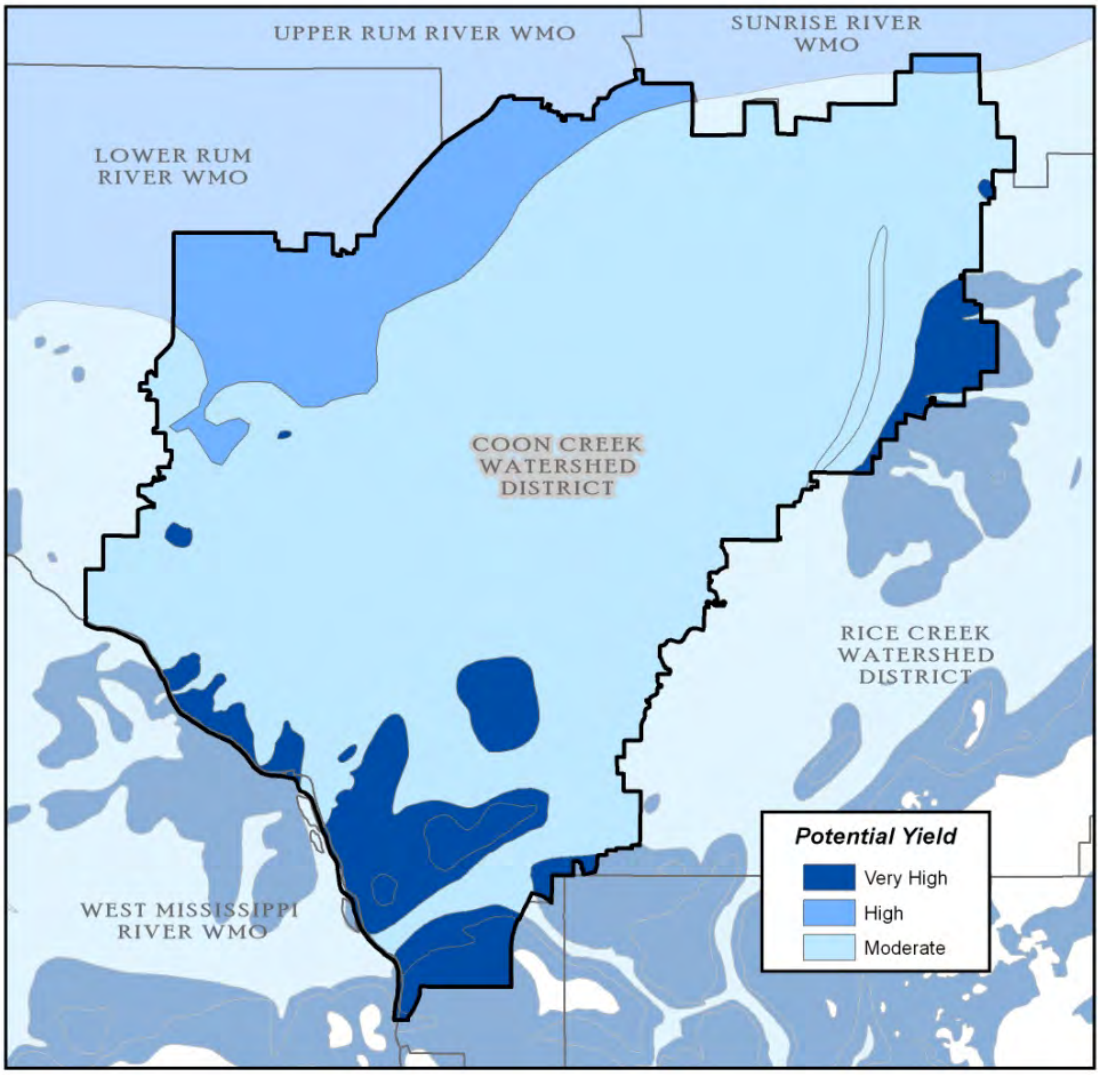
Uncertainty in meeting the projected demand in an area generally

corresponds to:

- Areas lacking in productive aquifers
- Groundwater/surface water interdependence
- High susceptibility to contamination

Aquifer Productivity

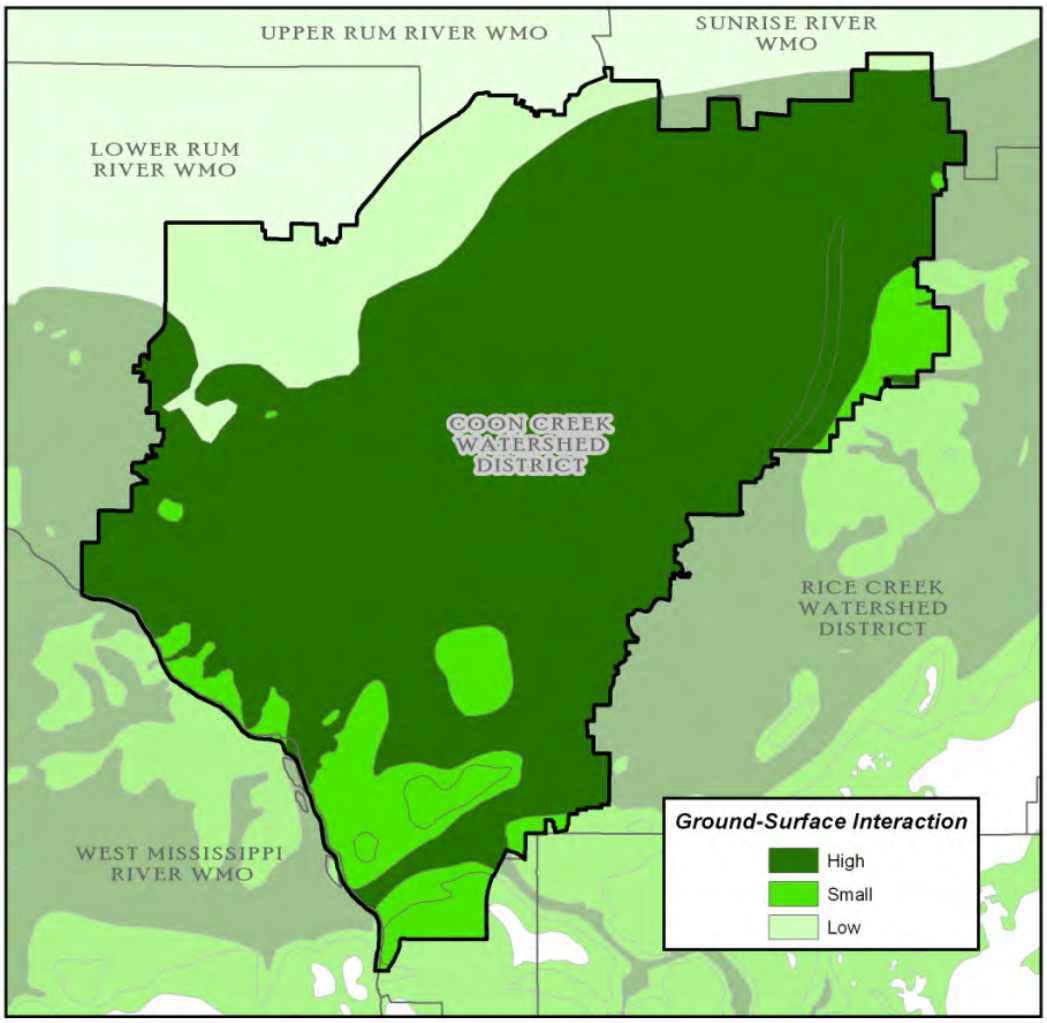
The watershed is fortunate to have a relative abundance of available groundwater. However, productive aquifers are not evenly distributed across the watershed



Groundwater/ Surface Water Interaction

The fresh groundwater in the unconsolidated formations of the watershed is derived largely from precipitation over the outcrop areas. Rainfall lost to evapotranspiration has been estimated at 79 percent. An additional 16 percent is lost to overland flow, leaving 5 percent for recharge.

Since rainfall averages 30 inches per year in the watershed, approximately 1.5 inches per year (23.9 mgy) is potentially available to recharge the surficial groundwater reservoir.



Susceptibility to Contamination

The surface, unconsolidated sands can hold a vast quantity of water. Significant pollution sources, actual or potential, include

- septic tanks
- landfills
- chemical spills and dumping
- chemical storage leaks
- Highway deicing
- Agricultural chemicals.

These sources may have immediate local impacts and may also pose long-term, cumulative threats

Pollutants detected in groundwater that could be harmful to humans or animals should they rise to inappropriate levels include:

- Bacteria
- Chloride,
- Nitrate, and
- Crop protection chemicals

It is estimated that 60,000 people reside in the unsewered portions of the watershed, producing 4.5 mgd of sewage and 6.6 million gallons per year of septage (septic tank pumpage).

Water Source	Susceptibility
Drift	Very High
Franconia-Ironton- Galesville	High
Prairie Du Chien-Jordan	Moderately Low
Mt. Simon- Hinckley	Low

Goal

To manage Watershed District water resources for multiple-uses by balancing present and future resource use with domestic water supply needs.

Manage ground water dependent ecosystems under the principles of multiple use and sustainability, while emphasizing protection and improvement of soil, water and vegetation, particularly because of effects upon aquatic and wildlife resources.

Objectives

1. Identify minor sub-watersheds providing water within the drinking water supply Management Area as defined in the City's well-head protection plan or 1-year travel time of municipal and other public wells and water supplies during land management planning.

2. Develop prescriptions on a case-by-case basis to ensure desired multiple-use outputs while recognizing domestic water supply needs.

3. Support Anoka County Geologic Atlas.

4. Show Municipal Water Supply Areas as Special Management Areas.

5. Increase Groundwater Recharge.

6. Decrease Waste of Groundwater.

7. Estimate Groundwater Storage and Supply within the Watershed.

8. Support Proper Abandonment of Unused Wells.

9. Protect the ecological processes and biodiversity of ground water-

dependent resources such as lakes and wetlands.

10. Manage ground water-dependent ecosystems to satisfy legal mandates, including but not limited to those associated with floodplains, wetlands, water quality and quantity, dredge and fill material, and endangered, threatened and special concern species.

11. To minimize the adverse impacts on groundwater dependent systems by maintaining natural patterns of recharge and discharge.

12. To minimize disruption to groundwater levels critical for sustaining groundwater dependent resources.

Introduction

Ground water-dependent ecosystems are communities of plants, animals and other organisms whose extent and life processes depend on ground water. The following are examples of some ecosystems that may depend on ground water:

- Wetlands in areas of ground water discharge or shallow water table.
- Terrestrial vegetation and fauna in areas with a shallow water table or in riparian zones.
- Aquatic ecosystems in ground water-fed streams and lakes.
- Aquifer systems.
- Springs and seeps.

Ecological resources include sensitive fish, wildlife, plants, and habitats that are at risk from exposure to ground water contaminants or ground water depletion. Some examples are breeding, spawning, and nesting areas; early life-stage concentration and nursery areas; wintering or migratory areas; rare, threatened, and endangered species locations; and other types of concentrated population or sensitive areas. These areas contain ecological resources that potentially are highly susceptible to permanent or long-term environmental damage from contaminated or depleted ground water.

Ground water-dependent ecosystems vary dramatically in how extensively they depend on ground water, from being entirely dependent to having occasional dependence. Unique ecosystems that depend on ground water, fens for example, can be entirely dependent on ground water, which makes them very vulnerable to local changes in ground water conditions. Ground water extraction by humans modifies the pre-existing hydrologic cycle. It can lower ground water levels and alter the natural variability of these levels. The result can be alteration of the timing, availability, and volume of ground water flow to dependent ecosystems.

Ground water-dependent ecosystems can be threatened by contamination and extraction. Particular threats include urban development, contamination from industry, intensive irrigation or dewatering, clearing of vegetation, mining, and filling or draining of wetlands.

Types of Ground Water-Dependent Resources

Shallow ground water can support terrestrial vegetation, such as forests and woodlands, either permanently or seasonally. Examples occur in riparian areas along streams and in upland areas that support forested wetland environments. Phreatophytes are plants whose roots generally extend downward to the water table and are common in these high-water-table areas. Some fauna depend on this vegetation and therefore indirectly depend on ground water. Terrestrial vegetation may depend to varying degrees on the diffuse discharge of shallow ground water, either to sustain transpiration and growth through a dry season or for the maintenance of perennially lush ecosystems in otherwise arid environments. Ground water-dependent terrestrial plant communities provide habitat for a variety of terrestrial and aquatic animals, which by extension must also be considered ground water dependent.

An additional group of ground water-dependent fauna (including humans) rely on ground water as a source of drinking water. Ground water, as creek baseflow, is an important source of water across much of the watershed, Its significance is greater for larger mammals and birds, as many smaller animals can obtain most of their water requirements from other sources.

Ground water is also used by native fauna. Provision of water has allowed larger populations of both wildlife and pest animals to be sustained than would otherwise be the case. Ground water-dependent vegetation and wetlands may be used by terrestrial fauna as drought refuges. Access to ground water allows the vegetation to maintain its condition and normal phenology (for example, nectar production, new foliage initiation, seeding). Populations of some birds and mammals retreat to these areas during drought and then recolonize drier parts of the landscape following recovery. The long-term survival of such animal populations relies on maintaining the vegetation communities and ensuring that their water requirements are met.

Ecosystems in Streams and Lakes Fed by Ground Water

This category of ecosystem includes many ecosystems that are dependent on ground water-derived baseflow in creeks and streams. Baseflow is that part of streamflow derived from ground water discharge and bank storage. Stream flow is often maintained largely by ground water, which provides baseflow long after rainfall or snow melt runoff ceases. On average, up to 40 percent of the flow of many streams is estimated to be made up of ground water-fed baseflow. The baseflow typically emerges

as springs or as diffuse flow from sediments underlying the stream and banks. This water may be crucial for in-stream and near-stream ecosystems. Localized areas of ground water discharge have a largely stable temperature and provide thermal refuges for fish in both winter and summer. Ground water also influences the spawning behavior of some fish. Reducing the baseflow to ground water-fed rivers could reduce upwelling or dry out riffles and reduce spawning success.

The ambient ground water flux is likely to be the key attribute influencing a surface-water ecosystem's dependency on ground water. The ground water level in riverine aquifers is important for maintaining a hydraulic gradient towards the stream that supports the necessary discharge flux. Sufficient discharge of ground water is needed to maintain the level of flow required by the various ecosystem components. Contamination of riverine aquifers by nutrients, pesticides, or other contaminants may adversely affect dependent ecosystems in baseflow-dominated streams.

Lakes, both natural and human made, can have complex ground water flow systems. Lakes interact with ground water in one of three basic ways:

1. Some receive ground water inflow throughout their entire bed;
2. Some have seepage loss to ground water throughout their entire bed
3. Others, perhaps most, receive ground water inflow through part of their bed and have seepage loss to ground water through other parts.

Changes in flow patterns to lakes as a result of pumping may alter the natural fluxes to lakes of key constituents, such as nutrients. As a result, the distribution and composition of lake biota may be altered.

The chemistry of ground water and the direction and magnitude of exchange with surface water significantly affect the input of dissolved chemicals to lakes. In fact, ground water can be the principal source of dissolved chemicals to a lake, even in cases where ground water discharge is a small component of a lake's water budget.

The transport of nutrients by ground water can be a significant source of water-quality degradation in lakes. Major sources of nutrient enrichment are inadequately designed and maintained household septic systems and nonpoint pollution sources, such as construction-project and agricultural runoff.

Hyporheic and Hypolentic Zones

The interface between saturated ground water and surface water in streams is a zone of active mixing and interchange between the two and is known as the hyporheic zone. The hyporheic zone is generally confined to the near stream area; however, in large alluvial or glacial outwash

areas this zone may extend hundreds of feet away from the river channel. Hyporheic zones can be important for aquatic life. In both gaining and losing streams, water and dissolved chemicals can move repeatedly over short distances between the stream and the shallow subsurface below the streambed. The spawning success of fish may be greater where flow from the stream brings oxygen into contact with eggs that were deposited within the coarse bottom sediment or where stream temperatures are controlled by ground water inflow. Upwelling of ground water provides stream organisms with nutrients, while downwelling stream water provides dissolved oxygen and organic matter to microbes and invertebrates in the hyporheic zone. This exchange zone is an important habitat for many invertebrates and a refuge for some vertebrates during droughts and floods.

A similar mixing zone, called the hypolentic zone, occurs at the interface between saturated ground water and surface water in lakes and wetlands. In many lakes, the most active portion of the hypolentic zone is located in the littoral zone in close proximity to the shoreline. Distinct vegetation and aquatic communities are likely to be associated with focused and diffuse discharge of ground water.

Springs

Springs typically are present where the water table intersects the land surface. Springs are important sources of water to streams and other surface-water features. They also may be important cultural and aesthetic features. The constant source of water at springs leads to the abundant growth of plants, and many times to unique habitats for endemic species like spring snails. Ground water development can reduce spring flow, change springs from perennial to intermittent, or eliminate springs altogether. Springs typically represent points on the landscape where ground water flow paths from different sources converge. Ground water development may affect the amount of flow from these different sources to varying extents, thus affecting the chemical composition of the spring water.

Wetlands

Wetlands occur in widely diverse settings from organic flats to depressions and floodplains. Similar to streams and lakes, wetlands can receive inflow from ground water, recharge ground water, or do both. The persistence, size, and function of wetlands are controlled by hydrologic processes active at each site. For example, the persistence of wetness for many wetlands depends on a relatively stable influx of ground water throughout seasonal and annual climatic cycles. Characterizing ground water discharge to wetlands and its relation to environmental factors such as moisture content and chemistry in the root zone of wetland plants is a critical but highly challenging aspect of wetlands hydrology.

Wetlands can be quite sensitive to the effects of ground water pumping. This pumping can affect wetlands not only by lowering the water table, but also by increasing seasonal changes in the elevation of the water table and exposing accumulated organic and inorganic material to oxidation. Some peat-forming wetlands are highly stable environments that may contain fossil material that provides insights into past environments. Over extraction of water, like the draining of wetlands for agriculture and other development, can destroy this valuable source of scientific data.

Fens are peat-forming wetlands that receive recharge and nutrients almost exclusively from ground water. The water table is at or just below the ground surface. Water moves into fens from upslope mineral soils, and flows through the fen at a low gradient. Fens differ from other peatlands because they are less acidic and have higher nutrient levels; therefore, they are able to support a much more diverse plant and animal community. Grasses, sedges, rushes, and wildflowers often cover these systems. Over time, peat may build up and separate the fen from its ground water supply. When this happens, the fen receives fewer nutrients and may become a bog. Patterned fens are characterized by a distribution of narrow, shrub-dominated ridges separated by wet depressions.

Fens, and ground water driven wetlands are common in the Anoka Sand Plain and the Coon Creek Watershed. Low temperatures and short growing seasons slow decomposition of organic matter and allow peat to accumulate. Fens provide important benefits in a watershed, including preventing or reducing the risk of floods, improving water quality, and providing habitat for unique plant and animal communities. Like most peatlands, fens have experienced a decline in acreage, mostly from mining and draining for cropland, fuel, and fertilizer. Because of the large historical loss of this ecosystem type, remaining fens are rare, and it is crucial to protect them. While mining and draining these ecosystems provide resources for people, up to 10,000 years are required to form a fen naturally.

Current Situation

Many of the outer suburbs of the Twin Cities area draw on groundwater aquifers for their primary drinking water supply. There is a growing concern that these aquifers are being depleted because municipalities are drawing water out faster than the water can be recharged. The Master Water Supply Plan by the Metropolitan Council indicates the potential for a significant decline in aquifer water levels, up to a 50% decline in available head by 2030.

Implications

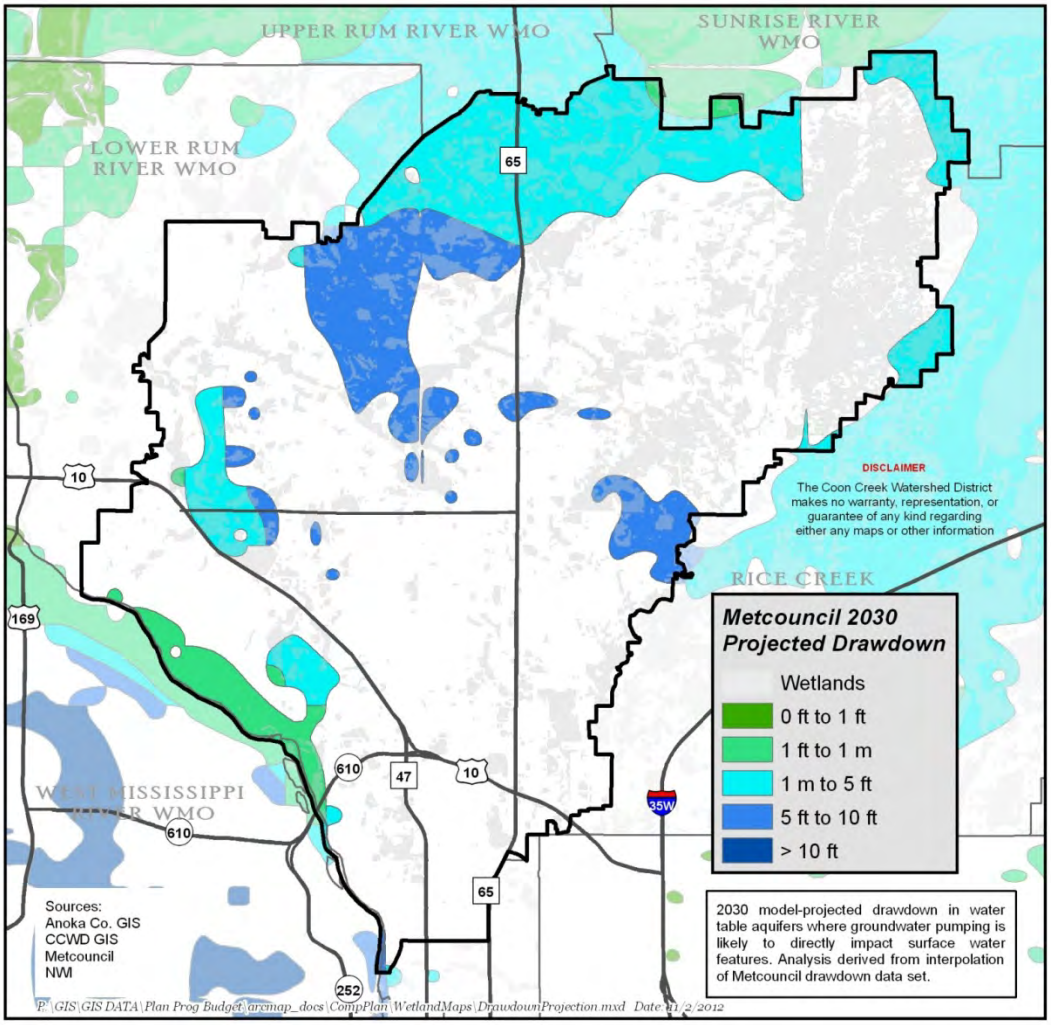
Adequate water supplies are necessity for any home or city. The source must provide quality water at a constant and dependable rate. Groundwater is the source for 100 per cent of public drinking water within the watershed for both domestic use and livestock and wildlife watering.

Loss of Groundwater Driven Surface Water Features

If surficial groundwater levels continue to fall between 2013 and 2023, surficial water features, such as

a. Lakes (decline of 50% surface area)
b. Wetlands (8,375 acres)
c. Base Flow

will be difficult to protect and sustain in the areas shown below:



Blaine "Uncertainty"

The Met Council study indicates that the 'uncertainty in meeting the projected demand in an area generally corresponds to:

- Areas lacking in productive aquifers
- Groundwater/surface water interdependence

- High susceptibility to contamination

Potential Impacts on Surface Water Contribute to Drinking Water Uncertainty in Certain Areas

If the Metropolitan Council projections are correct, the watershed will experience a loss of almost 52% (8,400 acres) of surficial water and related land resources by 2030.

The District estimates that there will be an additional impact (either through conversion of wetland type or lower lake levels) to an additional 2,000 acres (approximately 12%).

Management Considerations

The Watershed District ground water policy is specifically designed to protect ground water-dependent ecosystems so that, wherever possible, the ecological processes and biodiversity of their dependent ecosystems are maintained, or restored, for the benefit of present and future generations. The general level of understanding of the role of ground water in maintaining ecosystems is very low. Ground water resource managers and investigators tend to underestimate ecosystem vulnerability to ground water development, pollution, and land-use change. Planners must recognize ecosystem dependence on ground water and related processes. Perhaps such recognition can be best achieved by incorporating ground water resource inventory, monitoring, and protection into management plans.

The initial step in protecting ground water-dependent ecosystems is developing an inventory of those systems within the watershed. Identify and describe their locations, ecological values, and degrees of dependence on ground water. Land management plans should then be reviewed and revised as necessary to incorporate ground water-level, ground water extraction-rate, ground water recharge-rate targets or other management rules that minimize localized impacts on dependent ecosystems. The degree of protection will vary according to the characteristics and dynamics of each ground water system and the significance of the ground water-dependent ecosystems. Protection may range from minimal where the aquifer is deep and has little connection to the surface, to significant where the connection is strong and the conservation value of dependent ecosystems is high. More localized measures for protecting ground water-dependent ecosystems may include the following steps:

- Establishing buffer zones around dependent ecosystems, within which ground water extraction is excluded or limited.

- Establishing maximum limits to which water levels can be drawn down at a specified distance from a dependent ecosystem.
- Establish a minimum distance from a connected creek or other dependent ecosystem from which a well could be sited.
- Protecting ground water quality in areas that provide recharge to dependent ecosystems by limiting the types of activities that can take place there.

The social and economic costs of the recommended management prescriptions and protections, as well as the costs related to impacts from use, also need to be considered. Ground water extractions should be managed within the sustainable yield of aquifer systems so that the ecological processes and biodiversity of their dependent ecosystems are maintained or restored. In this process, threshold levels that are critical for ecosystem health should be estimated and considered. Planning, approval, and management of developments and land uses should aim to minimize adverse impacts on ground water systems by maintaining natural patterns of recharge and discharge, and by minimizing disruption to ground water levels that are critical for ecosystems.

Activities That Affect Ground Water

This section describes some of the activities that commonly cause ground water problems within the watershed.

Ground Water Pumping

As surface water resources become fully developed and appropriated, ground water commonly offers the only available source for new development. In many areas of the watershed, however, pumping of ground water has resulted in significant depletion of ground water storage. These ground water depletions can result in lowered water levels in wells, hydraulic interference between pumping wells, reduced surface water discharge, land subsidence, and adverse changes in water quality.

Declining Water Levels

It is useful to consider three terms that have long been associated with ground water sustainability:

1. Safe yield
2. Ground water mining
3. Overdraft.

The term “safe yield” commonly is used in efforts to quantify sustainable ground water development. The term should be used with respect to specific effects of pumping, such as water-level declines, reduced streamflow, and degradation of water quality. The consequences of pumping should be assessed for each level of development, and safe yield should be taken as the maximum pumpage for which the consequences are considered acceptable.

The term “ground water mining” typically refers to a prolonged, progressive, and, in many cases, permanent decrease in the amount of water stored in a ground water system. This phenomenon may occur, for example, in heavily pumped aquifers in arid and semiarid regions. Ground water mining is a hydrologic term without connotations about water-management practices.

The term “overdraft” refers to withdrawals of ground water from an aquifer at rates considered to be excessive and therefore carries the value judgment of overdevelopment. Thus, overdraft may refer to ground water mining that is considered excessive as well as to other undesirable effects of ground water withdrawals

Pumping ground water from a well always causes:

1. A decline in ground water levels at and near the well;
2. A diversion of ground water to the pumping well that was moving slowly to its natural, possibly distant, area of discharge (fig. 19).

Pumping of a single low-capacity well typically has a local effect on the ground water flow system. Pumping of high-capacity wells or many wells (sometimes hundreds or thousands of wells) in large areas can have regionally significant effects on ground water systems. Where a new pumping well is installed near an existing pumping well and both are tapping the same aquifer, overlapping cones of depression (well interference) can result (Fetter 2000).

The effect on the existing well from pumping the new well is lowered water levels, an increased rate of decline, and reduced yield. In addition, changes in water chemistry at the existing well can result. The new well likewise has a lower yield than if it had been placed farther from the existing pumping well.

Ground water heads respond to pumping to markedly different degrees in unconfined and confined aquifers. Pumping the same quantity of water from wells in confined and in unconfined aquifers initially results in much larger declines in heads over much larger areas for the confined aquifers. This is because less water is available from confined aquifers for a given loss of head compared to similar unconfined aquifers.

As might be expected, declines in heads and associated reductions in storage in response to pumping can be large compared to changes in unstressed ground water systems. For example, declines in heads as a result of intense pumping can reach several hundred feet in some hydrogeological settings. Drawdown is typically larger in confined aquifers. Widespread pumping that is sufficient to cause regional declines in aquifer heads can result in several unwanted effects:

Substantially decreased aquifer storage, particularly in unconfined aquifers;

1. Dried up wells in places because the lowered heads are below the screened or open intervals of these wells;
2. Decreased pumping efficiency and increased pumping costs because the vertical distance that ground water must be lifted to the land surface increases;
3. Changed rates of movement of low quality or contaminated ground water and increased likelihood that the low quality or contaminated ground water will be intercepted by a pumping well;
4. Land subsidence or intrusion of saline ground water may result in some hydrogeologic settings.

Perennially flowing springs can be adversely affected by too much water well pumping. Flows may diminish or cease if too much pumping occurs in an aquifer where a hydrologic connection exists between a spring and a well. Many examples of this phenomenon can be found in the Metropolitan Area and Anoka County. The same holds true for surface streamflows, especially during baseflow periods and in times of drought when all of the streamflow comes from ground water discharge.

Depletion of ground water also can lower water levels in lakes, ponds, wetlands, and riparian areas. Water temperatures can rise from solar heating of smaller volumes of water and depletion of cooler ground water inflows. In turn, geochemical reaction rates may increase and affect the organisms in those waters, possibly to their detriment. Algae blooms are more likely in these lakes, ponds, and reservoirs, and when the algae die, fall to the bottom, and decompose, dissolved oxygen is consumed in the water body, causing stress to or killing fish and other aquatic species.

Where the depletion of ground water causes a decline in surface water or even total stream dewatering, terrestrial species may be adversely affected similarly to aquatic species. If any species so affected are listed under the Endangered Species Act, the Watershed District has a duty to consult with the appropriate agency responsible for administering that act and implement its recommendations for species protection or recovery. Recommendations can include modifying or canceling an authorization for water extraction.

Land Subsidence

Land subsidence is a gradual settling or sudden sinking of the Earth's surface because of subsurface movement of earth materials. More than 80 percent of the identified subsidence in the United States is a consequence of human impact on subsurface water. This effect is an often-overlooked environmental consequence of our water-use practices. Impacts from land subsidence include damage to manmade structures, such as buildings and roads, as well as irrecoverable damage to aquifers.

In some areas, excessive pumping can cause the collapse of the framework of aquifer materials. The result is aquifer compaction and subsidence at the land surface. This compaction results in the permanent loss of aquifer storage, even if the water table should later recover when pumping stops. Although the water table may recover to prepumping levels, resumption of pumping will result in rapid drawdown because of the loss of aquifer storage capacity. In some parts of the Watershed, the lowering of the water table from pumping has resulted in drainage of organic soils and wetland areas, and such changes can adversely affect wetland ecosystems. Subsidence also can severely damage building foundations, roads, and buried pipelines, and can increase the frequency of flooding in low-lying areas.

A time lag often occurs between the dewatering of an aquifer and subsidence because much of the compaction results from the slow draining of water from confining units adjacent to the aquifer This phenomenon is called "hydrodynamic consolidation." It is also responsible for residual compaction, which may continue long after water levels are initially lowered or even after pumping stops.

Two distinct processes account for most water-related subsidence in the Watershed:

(1) Compaction of aquifer systems
(2) Drainage and subsequent oxidation of organic soils.

Impacts of Subsidence

Localized surface impacts of subsidence include earth fissures and sinkholes. Earth fissures occur as a result of ground failure in areas of uneven or differential compaction. Most fissures occur near the margins of alluvial basins or near exposed or shallow buried bedrock in regions where differential land subsidence has occurred. They tend to be concentrated where the thickness of alluvium changes markedly. When they first open, fissures are usually narrow vertical cracks, less than an inch wide and up to hundreds of feet long. They can subsequently lengthen to many thousands of feet and widen to more than 10 feet as a result of erosion and collapse. Vertical offset along the fissure is usually no more than a few inches.

The large-scale and differential settling of the ground surface that accompanies subsidence can have a profound impact on manmade structures. The cost of damage caused by subsidence is estimated to be millions of dollars each year. Types of potential damage to manmade structures caused by subsidence include the following:

- Damaged roads.
- Broken foundations.
- Severed utilities and pipelines.

- Damaged underground and above-ground storage tanks.
- Damaged storage and treatment ponds.
- Broken well casings and damaged pumps.
- Damaged railroad tracks, bridges and tunnels.
- Flood damage in low-lying areas
- Damage to irrigated fields.

Effects of Vegetation Management on Ground Water

Manipulation of vegetation, including both trees and shrubs, can directly and indirectly affect ground water. Vegetation influences the water budget through its effects on water inputs to the basin and more directly through plant water use. By intercepting rain and snow, the vegetation canopy can facilitate water loss to sublimation and evaporation. This interception loss may affect the amount of water available for ground water recharge. By shading ground and water surfaces, vegetation can also influence the rate and timing of snowmelt and evaporation from those surfaces. Plants with access to ground water (phreatophytes) also influence ground water quantity. They take up ground water directly for transpiration. Management activities that intentionally or unintentionally influence the density, structure, and species composition of vegetation may have measurable effects on the quantity and quality of ground water.

Phreatophyte Management

Plants growing along creek and ditch margins generally have better access to water than plants growing in upland areas. Although most phreatophytic plants utilize soil water when available, phreatophytes primarily use ground water. This use may cause quite dramatic diurnal fluctuations in shallow alluvial aquifers in areas near streams. Because of higher water availability in areas adjacent to stream channels and on floodplains, plants growing in these areas generally transpire at higher rates than vegetation in uplands where water is limiting. As a consequence of these high rates of water use by plants with access to ground water, attempts have been made to estimate potential water salvage through the removal of phreatophytes. Although the volumes of salvaged water proposed in these studies are often quite impressive, very few studies have actually demonstrated that removal of even extensive areas of vegetation have resulted in measurable increases in streamflow. Most studies have indicated that clearing of phreatophytes results in no measurable change in streamflow. Removal of phreatophytes, however, does often result in increases in water table elevations in shallow aquifers and destabilization of streambanks. Water salvage from removing such vegetation is often significantly less than expected and sometimes results in higher water loss from an area than before removal. Depending on the depth from the soil surface to the water table, an elevated water table may result in increased evaporative losses from the site if the capillary fringe comes into contact with the atmosphere. Furthermore, water is used by the vegetation that replaces the phreatophytes.

Evapotranspiration in stands dominated by phreatophytes has been estimated to be from 1.1 to 9 acre-feet of water per acre per year in arid areas. Robinson reported that annual savings in areas of dense vegetation may amount to 2 to 3 feet of water, depending on depth to the water table. The benefits of riparian vegetation to fish, wildlife, and humans are now recognized and far fewer projects to eliminate them are being undertaken. The recent drought, however, has stimulated an interest in controlling phreatophytes such as willow (*Salix spp.)* or Box elder (*Acer negundo*).

The presence, density, and composition of phreatophytes can affect the quality of ground water through uptake of nutrients and pollutants. Phreatophytic vegetation has been used for bioremediation of soil and ground water toxicity caused by mining and solid waste disposal. Certain species can take up and store particular ions, heavy metals, and other pollutants. Phreatophytic vegetation may be very effective in removing nitrate from ground water as well as phosphorous and other nutrients.

Upland Forest Management

Removal of the forest canopy affects the amount of interception of snow and rain by the canopy, as well as the infiltration rate of the precipitation that reaches the forest floor. Both of these processes can affect ground water recharge and the rate of ground water movement at a local scale. MPCA has estimated that interception in Minnesota ranges from 30% to 40% in natural to developed areas. Intercepted water is not available for ground water recharge; however, if the forest canopy is reduced or removed, this water can become available as long as the forest floor has not been compacted by heavy machinery or removed by erosion. Under certain conditions, forest fires can form impermeable layers (hydrophobicity), which hinder or even prevent infiltration of water on the forest floor, limiting water on the ground surface from recharging shallow aquifers. Slow drainage of soil moisture in the range of field capacity is the source of a large proportion of the baseflow of forested headwaters streams, where organic matter content of soils tends to be high.

The Developing Fringe

Residential and commercial development has been rapid within the Watershed. As dewatering occurs and water supplies become stressed, land managers will be pressured to permit additional municipal drinking-water wells. In the future, ground water management is likely to evolve toward total aquifer management. Protection measures such as limitations on activities in recharge areas, reservation of some areas for production of high quality water, and protection of unique ground water-dependent ecosystems will be incorporated into land management plans. It will no longer be sufficient to manage for operators and users. Managers must recognize that ground water serves diverse functions, some of which are ecological.

	In unincorporated areas, residential growth is characterized by the use of individual domestic wells and individual sewage treatment systems (ISTS; also known as septic systems). In the settings typical of much of the watershed, proper siting and design of an ISTS is problematic. The traditional ISTS; design is appropriate for installation in areas underlain by sufficient soil thickness and porous media aquifers.
Strategies to Achieve the Goal	Strategies to help reduce the effects of unusual or prolonged environmental conditions include:
Development Regulation	Streamline and develop consistent permitting process between the Minnesota Pollution Control Agency, the Minnesota Department of Natural Resources, Cities, and Watershed Districts. One-stop shopping is the objective with consistent requirements. Maintain natural drainage patterns of recharge and discharge, and minimize disruption of ground water levels that are critical to groundwater dependent resources. Prevent pollution or significant changes to ground water quality. Give preferential consideration to ground water-dependent resources when conflicts among land-uses activities occur. Delineate and evaluate both ground water itself and ground water-dependent ecosystems before approving any project with the potential to adversely affect those resources. Establish maximum limits to which water levels can be drawn down as a specified distance from a ground water-dependent ecosystem in order to protect the character and function of that ecosystem. Establish a minimum distance from a connected stream, wetland, lake or other ground water-dependent ecosystem from which ground water withdrawal may be sited.
Planning, Programming and Budgeting	The District anticipates addressing this issue through ground water studies, particularly support of the County Geologic Atlas, both through those completed by the District and by others. As more information becomes available, the District may revise its rules to incorporate the new knowledge. Evaluate adopting a policy that, in all state and water management district funding programs, quantifiable water conservation best management

	practices are considered an "alternative water supply" and are equally as eligible as capital facility expansion projects for grants and financial assistance. Encourage the development of region wide plans for the distribution, interconnection, and use of reclaimed water. Encourage a dedicated source of state funding for alternative water supply development projects. Evaluate the minimum flows and levels needed to protect water supply needs of natural systems before determining the availability of surface water for water supply. Plan and implement to minimize adverse impacts on ground water-dependent ecosystems. Evaluate, plan and implement a program to pursue rehabilitation of degraded ground water systems, where possible.
Public & Governmental Relations	Cities must anticipate, plan for and adapt to the potential effects of climate change.
Research & Data Collection	Support research to develop Sand Plain-specific climate change models to foster a sustainability/vulnerability analysis handbook on climate change impacts.

Kyle Axtell

From: Connie Fortin <connie@fortinconsulting.com>
Sent: Friday, March 02, 2018 9:59 AM
To: Gael Zembal; brooke.asleson@state.mn.us; naiadconsulting@gmail.com; Claire Bleser; Darren Lochner; Abby Moore; rachel.olmanson@state.mn.us; Patraw, Rick ; Angie Hong; Jessica Bromelkamp; Sage Passi; erica sniegowski; Kyle Axtell; Richard Axler; Melissa Barrick
Subject: funding for salt reduction efforts

Hello
After yesterday's training class/discussions I got to thinking about how nice it was that more watersheds and other organizations are providing funding opportunities to help reduce salt use. I have been stewing on this for awhile and wanted to share my thoughts with you.

Providing equipment for winter maintenance pro's will move them faster to reduce salt use. If you don't provide equipment I think they will still move in this direction because it will save them time/$ and the trend is strongly in this direction. (the ball is moving!)

Areas where we have little to no momentum right now:

1. We have very little $ or energy directed to installing various lower salt pavements (flexible, nonstick, porous, heated, rougher, darker...many options exist) How do we get them into our communities. Instead of infiltration requirements for new development how about low salt pavements for new development or redevelopment. This is ultimately a better solution for us.
2. We have very little $ or energy directed towards policy changes. Require truth in labeling on de-icers (like fertilizers, herbicides or food products). Require certification for anyone applying salt in your jurisdiction. Don't allow applicators in your jurisdiction to charge for chemicals used for winter maintenance (remove the incentive to over apply), explore possibility of repeal ban on studded tires (do studded tires create more problems for us than salt, or encourage the use of winter non-studded tires, work from home during storm policy, lower winter speed limits?). Would be nice to fund some of these initiatives.
3. We have very little $ or energy directed to innovations to remove salt from water. This is ultimately a better solution for us

When you are setting up your funding and rules consider how we can get movement into areas where there is very little movement today. I appreciate all of the energy and interest you all have shown on reducing salt use. We are on our way!!!

Connie Fortin
Fortin Consulting Inc.
215 Hamel Road
Hamel MN 55340
763-478-3606
Celebrating 22 years!

BOARD OF WATER AND SOIL RESOURCES

April 23, 2018

RCWD Board of Managers,
% Kyle Axtell (transmitted via email)
Rice Creek Watershed District
4325 Pheasant ridge Drive NE #611
Blaine, MN 55449

Re: RCWD Watershed Management Plan 10 Year Update
BWSR Upfront Input Letter

Dear Managers:

Thank you for this opportunity to provide up-front input to your plan development process. This will be an excellent opportunity for both newer and longer term Managers to gain a common understanding of the water management issues and priorities that they will be addressing over the next 10-yrs of implementing their Watershed District (WD) plan. A good starting place is the BWSR guidance for updating metro watershed management plans (see attached). This document can also be found on the BWSR website at:
http://www.bwsr.state.mn.us/planning/metro/metro_watershed_plan_update_guide.pdf.

The WD will be preparing the plan update in accordance with Minnesota Rule 8410 (http://www.bwsr.state.mn.us/planning/metro/MR_8410_July_13_2015.pdf) and Minnesota Statute 103B (https://www.revisor.mn.gov/statutes/?id=103B) which give the WD both the responsibility and authority to:

(1) protect, preserve, and use natural surface and groundwater storage and retention systems;
(2) minimize public capital expenditures needed to correct flooding and water quality problems;
(3) identify and plan for means to effectively protect and improve surface and groundwater quality;
(4) establish more uniform local policies and official controls for surface and groundwater management;
(5) prevent erosion of soil into surface water systems;
(6) promote groundwater recharge;
(7) protect and enhance fish and wildlife habitat and water recreational facilities; and
(8) secure the other benefits associated with the proper management of surface and ground water.

Based on my past experience with both writing and reviewing WD Plan updates by far the most cost effective and successful plans are those in which the WD Managers take personal ownership in the development and subsequent implementation of the plan. Managers will want to start by asking themselves what they want their watershed to look like in ten years (or longer) and then strive for a plan that accomplishes that vision.

In general the key components of Metro Watershed Plans are: a) a comprehensive inclusive and interactive development process during which significant effort is put into proactively identifying watershed issues/problems and priorities (note issues can vary from the need to restore impaired waters to the need to protect valued resources from threats such as development and other land use changes); b) Measurable goals that produce measurable results addressing the prioritized issues; and c) a comprehensive prioritized implementation section that addresses plan funding, and also coordinates the activities of the WD with the other stakeholders and other entities managing water and land resources in the watershed. Additional details on these key components are provided on the BWSR website at http://www.bwsr.state.mn.us/planning/keycomponents.html.

A few specific plan items that I want to call your attention to are identified below:

- *Inclusive Plan Development (Issue Identification and Prioritization) Process:*

  - The proposed plan development process and timeline **must be submitted to BWSR for approval**. The process should also identify what steps the WD will take if the first try does not generate the desired participation and input. In order to have the new plan approved before the existing plan expires on May 26, 2020 the WD should plan on submitting the 60-day review draft plan by about August 2019, at the latest, to allow time to adequately address comments received prior to submitting for the final 90-day review and approval process.

  - After requesting the early input from review agencies and other stakeholders, the WD should complete a detailed gap analysis, defining activities and regulations in the watershed relative to the requirements of MN Rule 8410, MN Statute 103B and local needs. Some questions to ask include: Who's doing what? What are the cities' requirements related resource protection? What is missing? Who is/will take the lead for each? Who will fund? The WD needs to provide effective oversight for the WD required activities done primarily by the cities.

  - Complete a detailed self-assessment of the WD's success in implementing the previous plan and meeting the goals set in that plan. A good starting place would be to review recommendations from the 2018 Level II PRAP currently being completed with the WD by BWSR. Also consider the annual evaluations contained in the WD's annual reports. Another suggestion is that the WD compare the current plan's 10-yr implementation program budget against the WD's corresponding annual income and the actual annual expenditures on implementation items. If the WD's annual expenditures for each of these items is significantly out of balance (on a percent basis) the WD should determine why and make changes as needed in the new plan. For example, if the 10-yr implementation program budget is significantly greater than actual expenditures it would indicate the WD had a problem implementing its previous plan. Another useful exercise is to compare WD expenditures per tax base with that of other Metro MWO's and WD's to help determine if the WD's tax burden on residents is reasonable.

  - As required by State law, there needs to be a mechanism to gain LGU/citizen/public/other stakeholder input in the identification of issues and potential solutions during the plan update process and beyond. Be sure to document the process followed in obtaining input, assessing the input and identifying priority issues.

  - Be sure to include stakeholders such as: sporting groups, farm groups, and other conservation/environmental groups focused on the WD's high valued resources. These groups will provide opportunities for potential partners that can assist in both identifying priority issues and implementing identified projects. The stakeholder partnerships may also provide a funding source to leverage WD funds.

- The WD should make use of the available TMDL reports that have been completed for WD lakes and streams when identifying and prioritizing WD issues.

- *Measurable Goals:* The WD will need to set clear measurable goals with specific implementation items and measurable results. The plan will need to identify the procedure the WD will follow for evaluating the progress in meeting the established goals, which must be done a minimum of every two years. When writing both goals and implementation actions use positive action verbs like "can", "shall", "will", rather than passives verbs like "encourage", "promote", "support", "recommend", and "whenever possible".

  - The various TMDLs that have been completed for WD lakes and streams will be useful in helping the WD establish water quality goals for the next 10-years.

  - Goals will need to address both impaired waters as well as the protection of high value resources found in the WD.

- *Implementation Actions (refer to Rule 8410 for additional requirements):*

  - Prioritized Implementation Program (Capital Improvement Program). The implementation program should be clear in identifying what implementation actions the WD will accomplish in the next ten years regardless of whether or not they receive any new grant funding. The WD could then include additional, prioritized implementation activities that would be implemented if grant funds for implementation of higher priority projects are obtained.

  - If the WD is delegating implementation activities to the member LGU's the activity still needs to be clearly defined in the plan so the LGU knows what it is required to do. The process the WD will follow to provide oversight of the LGU implementation activities, including what steps the WD will take if the LGU is found to not be implementing those activities, needs to be defined in the WD Plan.

  - Include a procedure to evaluate progress on implementation activities a minimum of every two years.

  - Define the WD's process for evaluating implementation of local water plans including what actions the WD will take if the local water plans are not being implemented.

  - Define what entity is responsible for inspection, operation and maintenance of water resource management facilities in the WD. Include procedures the WD will follow to ensure these responsibilities are met if the WD is not the responsible party.

  - If the WD has or proposes an incentive type program it needs to be defined in the plan (the plan can also include a reference to WD website for more detailed information on the program).

  - The WD Plan will need to address the impacts of the new Atlas 14 precipitation data on planning activities and WD standards. Related to this, it is recommended that the WD consider the need to improve the resiliency of WD resources and public infrastructure to adapt to potential climate change related issues.

Please invite me to both CAC/Public Input and TAC meetings. My priority will be the TAC meetings but I will try to attend some of the other CAC/Public input meetings to help me better understand the issues in the WD. I can also be available to help out at some of the CAC/Public Input meetings if needed.

Sincerely,

Daniel A. Fabian, P.E.
BWSR Central Region BC

Attachment:

cc: Kevin Bigalke, BWSR, (via email)
State Review Agencies and MNDOT (via email)

- Jeanne Daniels, MNDNR
- Kate Drewry, MNDNR
- John Freitag, MDH
- Jeff Berg, MDA
- Judy Sventek, METC
- Juline Holleran, MPCA
- Beth Neuendorf, MNDOT

Kyle Axtell

From: Berg, Jeffrey (MDA) <jeffrey.berg@state.mn.us>
Sent: Tuesday, May 22, 2018 2:00 PM
To: Kyle Axtell; Phil Belfiori
Cc: Fabian, Dan (BWSR)
Subject: RE: Notification of Rice Creek WD WMP Update Initiation

Greetings Kyle and Phil,

Thanks for the opportunity to provide early input as you start to update the 10 year RCWD Plan.

Here are some Minnesota Department of Agriculture (MDA) issues you may want to include:

On the right side of this webpage is MDA's list of priority concerns: https://www.mda.state.mn.us/protecting/waterprotection/waterplanning.aspx

In addition, when working with the ag. community the Minnesota Agricultural Water Quality Certification Program is a great program to address water quality. Consider: https://www.mda.state.mn.us/awqcp

If groundwater quality is a priority issue, the MDA has developed the Nitrogen Fertilizer Management Plan to address groundwater impacts from nitrogen fertilizer. See: http://www.mda.state.mn.us/chemicals/fertilizers/nutrient-mgmt/nitrogenplan/nfmpabout.aspx

Let me know if you have any specific agriculture related questions.

Good luck with the watershed plan update.

Let me know questions or comments.

Regards,

Jeff
Water Policy Specialist
Pesticide and Fertilizer Management Division
DEPARTMENT OF AGRICULTURE
www.mda.state.mn.us/
625 Robert Street North, St. Paul, MN 55155
651 201 6338

From: Kyle Axtell [mailto:KAxtell@ricecreek.org]
Sent: Friday, March 23, 2018 2:29 PM
To: Daniels, Jeanne M (DNR) <jeanne.daniels@state.mn.us>; Drewry, Kate (DNR) <kate.drewry@state.mn.us>; Freitag, John (MDH) <john.freitag@state.mn.us>; Berg, Jeffrey (MDA) <jeffrey.berg@state.mn.us>; Judy.Sventek@metc.state.mn.us; Holleran, Juline (MPCA) <juline.holleran@state.mn.us>; Fabian, Dan (BWSR) <dan.fabian@state.mn.us>

Cc: Phil Belfiori <PBelfiori@ricecreek.org>; Theresa Stasica <TStasica@ricecreek.org>
Subject: Notification of Rice Creek WD WMP Update Initiation

TO: METRO WATERSHED MANGEMENT PLAN STATE AGENCIES REVIEW ROSTER

The attached notice letter was mailed to the State review agencies on February 15, 2018. It has come to the RCWD's attention that one or more State agency review staff members may not have received the mailed notice. Please accept this email and attachment as a formal notice that the Rice Creek Watershed District is planning to undertake development of a new ten-year watershed management plan. Consequently, the RCWD is **extending the initial input period through May 22, 2018**, which is 60 days from today. Additional hard copies of this notice will not be issued. If you are able to provide the RCWD with the information requested by the original deadline of April 20, 2018, it would be greatly appreciated.

Please let me know if you have additional questions about this notice.

Sincerely,

Kyle Axtell
Water Resource Specialist / Project Manager
Rice Creek Watershed District
4325 Pheasant Ridge Dr. NE #611
Blaine, MN 55449-4539
P: (763) 398-3072
F: (763) 398-3088
E: kaxtell@ricecreek.org

Please consider following the RCWD on Facebook

DEPARTMENT OF NATURAL RESOURCES

MNDNR Central Region
Division of Ecological and Water Resources
1200 Warner Road, St. Paul, MN 55106

Date: 05/21/2018

Phil Belfiori
Administrator
Rice Creek Watershed District
4325 Pheasant Ridge Drive NE #611
Blaine, MN 55449

Re: DNR Resource Assessment Letter – Rice Creek Watershed District WMP

Phil:

This is an exciting time for Rice Creek Watershed District as work begins on the organization's next generation Watershed Management Plan (WMP). This process allows time to review and update past goals, strategies, and actions, and to think through watershed district plans for the next ten years. To aid in this process, DNR has compiled this resource assessment letter to provide up-to-date information on DNR's priority issues for the watershed, DNR's water management goals, DNR-Watershed District partnership opportunities, and useful data available through DNR that can help support watershed district planning, program management, and project development/design. The following narrative is divided into topics relevant to watershed resource management and included under each topic are DNR recommended actions.

I will be participating on the Technical Advisory Committee for Rice Creek Watershed District's WMP plan preparation process. If you have questions regarding the content of this letter or would like to discuss individual topics or recommendations further, please do not hesitate to contact me. I look forward to working with the Rice Creek Watershed District on your next generation WMP and on future public waters projects.

Sincerely,

Jenifer L Sorensen

Jenifer Sorensen. East Metro Area Hydrologist
DNR Central Region, 1200 Warner Road, St. Paul, MN 55106
651-259-5754; jenifer.sorensen@state.mn.us

CC: Dan Fabian, BWSR Board Conservationist; Dan Lais, Central Region EWR Manager; Jeanne Daniels, Central Region EWR South District Supervisor; Kate Drewry, DNR Hydrologist; TJ Debates, DNR Area Fisheries Supervisor; Nick Proulx, DNR Clean Water Specialist; Becky Horton, DNR Regional Environmental Assessment Ecologist; Keegan Lund, DNR Invasive Species Specialist; Scott Noland, DNR Area Wildlife Supervisor; Michelle Martin, DNR Forestry Specialist

General watershed management strategies

DNR recommended Action: DNR recommends that the following general watershed management strategies be a part of your watershed management plan (WMP):

- Keep water where it falls by protecting and restoring wetlands, ensuring water courses are connected to their floodplains, and managing stormwater runoff with rate control and volume reduction standards.
- Protect and create buffers of native perennial vegetation along watercourses and water bodies.
- Reduce the flow of water volume and nutrients through ditches and drainage systems.
- Design culverts and bridges to retain floodplain functions and bank stability on natural channels and other drainage systems.
- Support land use planning and practices that protect, restore, and enhance priority ecological resources.
- Maintain and enhance perennial vegetation including protection of working forest lands.
- Promote conservation practices on agricultural lands and drainage systems.
- Use water efficiently and implement conservation measures that further reduce water demand.

Tool to help integrate goals and strategies across a watershed

As Rice Creek Watershed District begins the WMP update process, it's important that water resource issues and goals be addressed not as independent prescriptions, but as integrated activities strategically applied toward the improvement of the entire watershed system. DNR's Watershed Health Assessment Framework approach uses a five component framework (hydrology, biology, connectivity, geomorphology, and water quality) to address the interdependent nature of ecological systems that operate within a watershed. Placing the goals and actions identified by the District into this framework may help to:

- Evaluate watershed district goals and actions in the context of the five aspects of watershed health.
- Identify gaps between goals and actions.
- Prioritize chosen actions effectively.
- Examine the potential for unintended consequences.

DNR Recommended Action: Use the Watershed Health Assessment Framework interactive online map and downloadable data sets to help refine and organize the WMP within the context of a comprehensive watershed landscape.

DNR water management goal: groundwater sustainability

DNR continues to manage the state's groundwater resources to meet sustainability goals set out in statute. Through the establishment of the North & East Metro Groundwater Management Area Plan, DNR is prioritizing groundwater sustainability and expanding its resources dedicated to managing groundwater resources in Ramsey and Washington Counties and portions of Anoka and Hennepin Counties.

DNR Recommended Action: DNR recommends that Rice Creek Watershed District staff have a working knowledge of DNR's N&E Metro GWMA Plan and that the Watershed District's WMP reflect some of the key objectives and actions in the plan, including:

- Increase communication about the risks of overuse and degradation of groundwater resources and promote water conservation.
- Maintain and enhance aquifer recharge
- Maintaining and enhancing quality of water recharging aquifers in the N&E Metro GWMA
- Increased coordination of monitoring activities between organizations with water management responsibilities
- Increased coordination of communication activities between organizations with water management responsibilities
- Improve coordination on studies of specific trout streams in the N&E Metro GWMA. DNR recommends that our organizations work together to complete studies of the effects of groundwater appropriations on trout streams.

DNR water management goal and opportunity for DNR-Watershed District partnerships: stream and lake bank stabilization and restoration

DNR's underlying philosophy regarding stream management is that streams are self-forming and self-maintaining systems. When they are artificially manipulated (e.g. structures placed in-stream for various purposes), there can be negative impacts to channel stability. Channel stability is defined as a stream's ability to transport water and sediment from its watershed, while maintaining its dimension, pattern and profile, over time, without either aggrading or degrading. Alterations in pattern, dimension, or profile of a stream can lead to an increase in stream bank erosion, increased turbidity, embedded sediments, and a general reduction in biological productivity. DNR encourages Rice Creek Watershed District to continue to consider these stream dynamics when planning new steam maintenance or restoration projects.

DNR Recommended Action: Outline a process for identifying when a public waters work permit will be necessary for stream bank stabilization and erosion control projects within the Watershed District and develop an early review process for projects to establish early and continued communication on stream restoration projects. Contact Jenifer Sorensen, area hydrologist (jenifer.sorensen@state.mn.us; 651-259-5754) for public waters permitting coordination. As potential stream bank stabilization and restoration projects arise, contact clean water specialist Nick Proulx (651-259-5850; nick.proulx@state.mn.us) for technical input on potential solutions and designs.

DNR's Restore Your Shore website provides information on implementing shoreland restoration and protection projects, including innovative approaches for solving lakeshore problems, creating plant lists suitable for your site area, and a step-by-step guide for implementing a lakeshore project. The Aquatic Habitat Restoration Grant Program offers opportunities for watershed districts to cost-share with DNR to restore shoreline habitat in ways that demonstrate good shoreland stewardship.

DNR Recommended Action: Participate in the Aquatic Habitat Restoration Grant Program where possible. As potential shoreline projects arise, contact John Hiebert, DNR's lake habitat consultant (john.hiebert@state.mn.us; 651-259-5212) for technical input on potential solutions and designs. The DNR and Rice Creek Watershed District should outline a process for identifying when a public waters work permit will be necessary for lakeshore restoration and stabilization projects within the Watershed District and develop an early review process for projects to establish early and continued communication on lakeshore projects. Contact Jenifer Sorensen, area hydrologist (jenifer.sorensen@state.mn.us; 651-259-5754) for public waters permitting coordination.

DNR water management goal: properly functioning stream sediment transport and fish passage

Improperly installed and designed road and trail crossings are one of the larger threats to the ecological health of Minnesota's stream networks. Dams and improperly installed culverts impede downstream sediment transport in streams and impede the ability of aquatic organisms to move up and down streams. This is one of the major contributors to the decline of species diversity and aquatic ecosystem health in rivers and streams. Common types of barriers include: velocity barriers (caused by too steep a slope or undersized structures), jump barriers (i.e. perched culverts), turbulence barriers (which create high concentrations of air bubbles in water which diminish the ability of fish to swim), lack of substrate, debris as a barrier, and low water barriers.

DNR recognizes the value in simulating the in-stream conditions when designing culvert slope, size (diameter), and channel alignment, as well as the benefits of burying culverts to allow sediment transport and fish passage during most flows (Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001). The US Forest Service has written an extensive manual on their stream simulation design approach.

DNR Recommended Action: Review the design of new culvert installations with fish and sediment transport in mind. Culvert size, shape, and elevation should be designed to simulate the dimension, pattern, and profile of the local channel.

DNR water management goal: promote installation of floodplain culverts

Floodplain culverts are additional culvert(s) set under a road or trail crossing, to allow additional flood flow to remain in the adjacent natural floodplain of a stream instead of being confined to the main culvert or bridge, as is often found in traditional culvert design. Floodplain culverts are set at a slightly higher elevation than the main crossing's structure. When a stream and its floodplain are connected, water is able to flow above the banks and disperse excess velocity and sediment across the adjacent floodplain.

DNR Recommended Action: When reviewing and permitting culvert and bridge installations and other crossings, promote the installation of floodplain culverts. Floodplain culverts provide the following benefits: minimize bank erosion, improve water quality by protecting the natural beneficial functions of floodplains, reduce road maintenance costs, and reduce the risk of damage to roads from flooding.

DNR water management goal: maximize the public value of public drainage systems

Long term use of drainage practices, such as ditching and wetland drainage, have made it more efficient to farm in naturally wet areas, but this has also changed drainage patterns, increased bank erosion and sedimentation, altered flow rates and volumes, and adversely impacted surface water quality and flooding. Ditching and wetland drainage practices have also affected aquatic habitat and wildlife. Channelization and ditching of streams removes much of the complex in-stream habitat such as riffles and pools. Draining of wetlands changes their hydrology and ability to support aquatic plants, which in turn negatively impacts aquatic wildlife.

As land within the Rice Creek Watershed District continues to be converted from agriculture to residential use, there will be additional opportunities to apply natural channel design principles that mimic naturally functioning stream channels. As the public ditch authority, Rice Creek Watershed District can position itself to take advantage of these possible opportunities for multi-purpose management of these water resources.

For more information on streambank stabilization and restoration, please utilize DNR's Stream Habitat Program's online resources (Understanding Our Streams and Rivers, Streambank Erosion and Restoration, The Value and Use of Vegetation, and Stream Restoration: Toe Wood-Sod Mat). Contact clean water specialist Nick Proulx (651-259-5850; nick.proulx@state.mn.us) for technical input on potential solutions and designs.

DNR Recommended Action: DNR recommends that, as agricultural drainage benefits decline, Rice Creek Watershed District prioritize selected public ditches where the Watershed District can increase its emphasis on the application of natural channel design principles. Restoring the water and sediment transport functions in these systems will provide monetary savings by decreasing maintenance needs and will also increase habitat quality. DNR recommends the following two alternatives be applied as appropriate:

- For a low cost and low technical assistance option, stop maintaining ditches in selected locations. Likely areas to target for this option include wetland complexes with a ditch running through them, and locations where a ditch is no longer serving its purpose and access is difficult. Over time, this option allows for a channel to be created inside a ditch or for sediment to aggrade enough to reconnect a channel to its floodplain.
- The active management option includes creating multi-stage channels (two-stage ditches or more depending on space) or implement a stream restoration project using natural channel design principles. Areas to target would include land in public ownership where design elements won't be compromised by ownership restrictions and might also allow for educational opportunities.

DNR water management goal: aquatic invasive species

Aquatic invasive species (AIS) pose a significant threat to Minnesota's lakes and rivers and continue to be a high priority issue for DNR. Aquatic invasive plants such as Eurasian watermilfoil and curly-leaf pondweed form thick vegetative mats on the water surface, limiting recreational opportunities and often negatively affecting water quality. Both the control of existing AIS and the prevention of new infestations are important efforts in terms of AIS management.

In most cases, eradication of invasive aquatic plants is not an option. Therefore, herbicide treatments are generally used to target abundant beds of invasive plants that may create a recreational nuisance. In most cases, the use of herbicides on lakes classified as Natural Environment (NE) lakes is not appropriate, and mechanical means (e.g. commercial aquatic plant harvester) may be a management option.

DNR Recommended Action: The establishment of both aquatic and terrestrial invasive species is a major threat to the ecological functions of both wetland and upland plant communities. Include plans to combat invasive species and best management practices (BMPs) in watershed project plans and designs. Promote education of the public on the control and spread of invasive species – public awareness efforts targeting riparian property owners (lakeshore owners) are needed to increase overall compliance with AIS laws. DNR will continue to support local efforts to educate the public in AIS prevention and encourage local units of government to take a leadership role. For more information on the AIS Program, contact Keegan Lund (keegan.lund@state.mn.us; 651-259-5828), invasive species specialist.

DNR water management goal: in-lake water quality treatment considerations

In-lake lakewide chemical treatment should be attempted only after external sources of nutrients are reduced. Alum treatment, an in-lake nutrient management technique, is designed in general to be used one time to manage historical internal reservoirs of nutrients in a lake once external sources of nutrients are reduced. This treatment method is not meant to be applied repeatedly as a method to meet water quality goals because of the potential to negatively affect aquatic communities.

DNR Recommended Action: Before deciding to attempt alum treatment, please consider using the framework developed by the Prior Lake – Spring Lake Watershed District for evaluating whether and when alum treatment of a lake is appropriate. The framework is a series of questions with parameters for evaluation, that relate to internal and external phosphorus loading, rough fish, aquatic vegetation, cost, and water quality. Additional DNR recommendations include:

- Alum treatment should be considered to address the historical internal reservoirs of nutrients only after external sources of nutrients have been addressed.
- Alum treatments need to be timed to minimize fish management impacts as well as other non-target organisms such as benthic invertebrates.
- Complete pre- and post-treatment assessments to document the amount and duration of the alum treatment response.
- Due to potential non-target impacts, consider completing pre- and post-treatment assessments of benthic invertebrates and amphibians.
- Take into consideration factors that could disrupt the alum layer, thus reducing the length of time you would expect water quality benefits, such as wind fetch, carp and/or other benthic feeding fish species, recreational activities, and shallow basins in general.
- When considering alum treatment on a lake, coordinate with the Minnesota Pollution Control Agency and DNR's area fisheries supervisor, TJ Debates (651-259-5770; timothy.debates@dnr.state.mn.us).

DNR water management goal: minimum impact design standards for stormwater management

One of the primary drivers of degraded water quality and habitat in streams, lakes and wetlands is nutrient and sediment laden runoff from surrounding commercial, residential, and agricultural land uses. Minimum Impact Design Standards (MIDS) were developed by the Minnesota Pollution Control Agency to minimize stormwater runoff, minimize the amount of pollution reaching lakes, rivers, and streams, and to recharge groundwater. The development of MIDS is based on low impact development (LID), an approach to storm water management that mimics a site's natural hydrology as the landscape is developed.

DNR Recommended Action: Support the incorporation of MIDS (and the LID approach) into future development and redevelopment in the watershed and consider adopting MIDS standards.

DNR water management goal and opportunity for DNR-Watershed District partnerships: fisheries

Bald Eagle Lake and White Bear Lake are two of the top quality fishing lakes in the Metro area, and as a result, these lakes receive a lot of fishing pressure. DNR plans to continue fisheries management in the Rice Creek Watershed District area as it has in the past. Both Bald Eagle Lake and White Bear Lake have diverse fisheries

and are managed by DNR for walleye and muskellunge. Otter Lake, Peltier Lake, and Centerville Lake, are three of the shallow, turbid lakes that are part of the Rice Creek Chain of Lakes. These lakes also have a high variety of fish (northern pike, bluegill, crappie, bass) and are managed by DNR for walleye and muskellunge (stocked). For more information and coordination on fisheries management projects, please contact area fisheries supervisor TJ DeBates (timothy.debates@state.mn.us; 651-259-5770).

New northern pike fishing regulations were implemented in March 2018 for inland lakes and are designed to restore pike populations for better harvest opportunities of fish sized up to about 28 inches. Lakes in the north part of the Metro have too many small pike and the objective of the new regulations are to allow more harvest of abundant small pike and shift the population's size structure over time to more medium-sized pike. More information can be found on DNR's Northern Pike Zones website.

Shallow lakes and the shallow water (littoral) zone, characterized by aquatic plants and shallow depth (less than 15 feet) provide the most important wildlife habitat areas in lakes and wetlands. This habitat has been impacted over time by water quality degradation, altered watersheds, modified outlets, urban development, intensive agriculture, and exotic species. DNR's Shallow Lakes Program works to protect and enhance wildlife habitat on shallow lakes and provides DNR-Watershed District partnership opportunities on individual projects.

DNR Recommended Action: Participate in the Shallow Lakes Program where possible. Contact wildlife lake specialist Peter Borash (peter.borash@state.mn.us; 320-223-7870), when considering a rough fish eradication project on a lake to improve native fish populations and restore native vegetation.

Opportunity for DNR-Watershed District partnerships: Conservation Partners Legacy Grant Program

The Conservation Partners Legacy (CPL) Grant Program funds conservation projects that restore, enhance, or protect forests, wetlands, prairies and habitat for fish, game, and wildlife. The types of projects funded under this grant program include prairie restoration, river restoration, lake habitat enhancement, wildlife habitat restoration, floodplain forest restoration, bluff prairie restoration, fish barrier installation, buckthorn removal, fish passage restoration, and others.

DNR Recommended Action: Participate in the Conservation Partners Legacy (CPL) Grant Program where possible. To learn more about this grant program, contact the CPL Grant Program coordinator (LSCPLGrants.DNR@state.mn.us; 651-259-5233).

Consideration of plant communities, rare species, and special features

Information on the biology, distribution, ecology, habitat use, conservation, and management of rare species of interest is available in the DNR's Rare Species Guide. The locations of state-listed species maintained in the Rare Features Database are considered sensitive information and is protected under the Minnesota Data Practices Act. This information is only available through a Natural Heritage Information System (NHIS) data request or by license agreement, and should be used for internal planning purposes only.

The NHIS is continually updated as new information becomes available and will include current records and surveys. An NHIS review is considered valid if performed within one year of project implementation. The NHIS data request form, used to obtain a NHIS review, and the license agreement form to enter into a license agreement with DNR to receive the Rare Features Database as a GIS data file are both available online.

Questions regarding the NHIS should be directed to endangered species review coordinator Lisa Joyal (lisa.joyal@state.mn.us, 651-259-5109).

DNR Recommended Action: DNR recommends using assessment data of watershed characteristics and natural resource features when completing long-range watershed planning efforts. The assessment of watershed characteristics and natural resource features is valuable for evaluating landscape functions and guiding land management decisions. These assessments provide important information on a landscape's integrity and its ability to provide benefits to ecosystems. For example, assessment data can be used to examine how projects will improve or affect flora and fauna, determine the cumulative impacts of land use, make regional scale land use decisions, and to balance land use development and natural resource protection.

DNR Recommended Action: The presence of rare species can be an indication of the health of a watershed, and plant and animal diversity helps landscapes to maintain important watershed functions. DNR recommends that the Rice Creek Watershed District's WMP include goals and policies to address how rare species and habitat will be protected.

DNR data layers have been developed that are helpful in watershed planning. These are free and available to the public from the Minnesota Geospatial Commons. Some key data layers include:

- DNR managed lands such as Scientific and Natural Areas, Wildlife Management Areas, and Aquatic Management Areas
- DNR native plant communities
- Trout waters
- Karst features
- Calcareous fens
- Minnesota Biological Survey (MBS) Sites of Biodiversity Significance
- Central Region Regionally Significant Ecological Areas (CRRSEA) – The purpose of this data is to inform regional scale land use decisions, especially as it relates to balancing development and natural resource protection.
- Regionally Significant Ecological Areas and Regional Ecological Corridors – Identifies potential habitat movement corridors that may be important for wildlife connections.

DNR Recommended Action: DNR encourages the use of site-appropriate native plants for shoreline stabilization, buffers, and erosion control for all watershed projects. These species provide important stabilization and erosion control functions, have the greatest chance of establishment success, and contribute to biodiversity of landscape vegetation. Query the DNR's Restore Your Shore Native Plant Encyclopedia for a list of plants tailored to specific site characteristics.

DNR Recommended Action: DNR recommends the establishment of native grassland and herbaceous plant communities in the place of mowed turf grasses on watershed and highway projects as a means to support native insect pollinator communities. Interest in pollinators has grown since the term Colony Collapse Disorder appeared in 2006. This phrase refers to the puzzling disappearance of honey bees from their hives. While this disorder does not affect native pollinators, many of the challenges that face honey bees also affect native insects, including pesticide use, habitat loss, pathogens, parasites, climate change, and invasive species. DNR has developed a Best Management Practices Guide for restoring and enhancing native plant community habitat for native insect pollinators.

Forest management considerations

Forested riparian areas are very important to water resources and provides for plant diversity, wildlife and fish habitat, nutrient, sediment, and water interception and storage, and recreational opportunities. The Minnesota Forest Resource Council's *Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers, and Resources Managers* is a valuable resource for managing riparian forests.

Greenway corridors (linear open spaces connecting recreational, cultural, and natural areas) provide intrinsic environmental and recreational benefits. They also provide economic benefits to communities in which they are located and are important to the well-being of communities.

DNR Recommended Action: DNR recommends that Rice Creek Watershed District create a map showing greenway corridors to be included in the next generation WMP and use this mapping to prioritize land preservation efforts, vegetation management (such as buckthorn eradication), and vegetation restoration.

DNR Recommended Action: The Minnesota Forest Legacy Program protects environmentally important private forests threatened by conversion to non-forest uses. DNR recommends that Rice Creek Watershed District learn more about the program by exploring the program's website and contacting program coordinator Dick Peterson (richard.f.peterson@state.mn.us; 507-333-2012). Forests within the active forest legacy area of the Lower St. Croix River (which includes most of your Watershed District's area) are eligible for the program. Encourage private landowners with these environmentally important forests to participate in the program. If accepted to the program, federal and local matching funds can be used to purchase development rights and conservation easements to keep key forest areas intact and continuing to provide forest benefits.

DNR Recommended Action: The Forest Stewardship Program helps woodland owners (with at least 20 acres) manage their woods through advice, education, cost-share programs, and Woodland Stewardship Plans. DNR recommends that Rice Creek Watershed District learn more about the program by exploring the program's website and encourage private landowners to participate in the program.

DNR Recommended Action: Hire a staff person at the local government level to address forest management (including restoration), and whose job is dedicated to helping private forest landowners with maintaining forest cover (and the corresponding water quality benefits that forests provide).

Emerald Ash Borer (EAB) is a nonnative invasive insect that kills ash trees and is a serious invasive tree pest. EAB is currently impacting communities in Rice Creek Watershed District and will continue to do so during the Watershed District's next 10-year plan cycle. In the Metro area, a quarantine has been placed on a number of counties including Anoka, Ramsey, and Washington Counties, to help slow the spread of EAB to new areas. It is spread through transported firewood. Minnesota has the highest volume of ash trees in the United States.

Communities should start planning for EAB's arrival and take action now to reduce the sudden financial burden that comes with EAB. More information can be found on DNR's EAB website.

DNR Recommended Action: DNR recommends that an inventory of ash forest resources in the Rice Creek Watershed District be completed and a plan developed for combating EAB. Contact forest health specialist Brian Schwingle (brian.schwingle@state.mn.us; 651-259-5821) for more information on mitigating the impacts from this and other forest insects and diseases.

Kyle Axtell

From: Zadak, Chris (MPCA) <chris.zadak@state.mn.us>
Sent: Friday, March 23, 2018 2:14 PM
To: Kyle Axtell
Subject: RCWD Watershed Mgnt Plan--Initial comments

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Kyle:

The Minnesota Pollution Control Agency (MPCA) has received your request for initial comments on your upcoming watershed plan revision. We have the following comments:

Goal setting. To the extent possible we would like to see a quantitative accounting of what you intend/hope to accomplish over this 10-year plan cycle *relative to what is ultimately needed or desired*. Specifically, for several waterbodies you have TMDLs in which we have jointly invested much time and resources. In many cases these TMDLs (and perhaps your own studies) provide the overall load reduction needed (e.g., pounds of phosphorus) to reach water quality targets. Thus, it would be useful to specify how much of the total needed load reduction that you estimate will be addressed during the 10-year plan cycle. For example, how much of the overall 400 pounds of phosphorus needed reduction, say, for such-and-such lake will/may be addressed in the next ten years? 100%? 25%? 2%? This information allows one to tell how effective the actions will be, how cost-effective the actions are and/or for how long it will take to reach the ultimate targets. While some waterbodies may not have specific load reductions established, you may have other quantitative measures to use to gauge progress or to measure against: water quality concentration, percentage of overall needed acres/stream miles restored, etc.

Progress tracking. On a related matter, given its leadership role in the watershed it would be appropriate for RCWD to go beyond accounting for only its own initiated projects and also track the reductions done among all the parties subject to wasteload allocations relative to the needed reductions. This need not be an involved undertaking as this may be accomplished with a spreadsheet or simple database approach. Further, MS4s should already be tracking their own progress for MPCA annual reporting purposes so it should mainly be a matter of requesting and managing this data.

Thank you!

Chris Zadak
MPCA
Watershed Division | East Central Watershed Section
520 Lafayette Rd. N. | St. Paul | MN 55155
Direct: 651-757-2837 | Toll free: 800-657-3864

April 18, 2018

Mr. Kyle Axtell, Water Resource Specialist/Project Manager
Rice Creek Watershed District
4325 Pheasant Ridge Dr. NE #611
Blaine, MN 55449-4539

RE: Information request for Rice Creek Watershed District's Watershed Management Plan Update

Dear Mr. Axtell:

I am providing information as requested for the preparation of the District's Watershed Management Plan update.

The direction and policy that follows comes from the Council's *Thrive MSP 2040* Regional Development Framework and the *2040 Water Resources Policy Plan*, both of which can be found on the Council's web page (www.metrocouncil.org).

In particular, the *2040 Water Resources Policy Plan* (Policy Plan) includes policies and strategies to achieve the following goal:

> *To protect, conserve, and utilize the region's groundwater and surface water in ways that protect public health, support economical growth and development, maintain habitat and ecosystem health, and provide for recreational opportunities, which are essential to our region's quality of life.*

The Policy Plan takes an integrated approach to water supply, water quality, and wastewater issues. This approach moves beyond managing wastewater and stormwater only to meet regulatory requirements by viewing wastewater and stormwater as resources, with the goal of protecting the quantity and quality of water our region's needs now and for future generations.

The Policy Plan includes policies and strategies to:

- Maximize regional benefits from regional investments in the areas of wastewater, water supply and surface water management and protection.
- Pursue reuse of wastewater and stormwater to offset demands on groundwater supplies.
- Promote greater collaboration, financial support, and technical support in working with partners to address wastewater, water quality, water quantity and water supply issues.
- Promote the concept of sustainable water resources through collaboration and cooperation, with the region taking steps to manage its water resources in a sustainable way with goals of:
  - ✓ Providing an adequate water supply for the region
  - ✓ Promoting and implementing best management practices aimed at protecting the quality and quantity of our resources
  - ✓ Providing efficient and cost effective wastewater services to the region
  - ✓ Efficiently addressing nonpoint and point sources pollution issues and solutions, and,

- ✓ Assessment and monitoring of lakes, rivers, and streams to direct adequate management, protection, and restoration of the region's valued water resources.

The updated watershed management plan should include policies related to the protection of area water resources with these strategies in mind with the end goal of water sustainability.

In addition to being consistent with the Council's new policy plans, the plan also needs to include quantifiable and measurable goals and policies that address water quantity, water quality, recreation, fish and wildlife, enhancement of public participation, groundwater, wetlands, and erosion issues.

Council staff will be looking for the plan to address the issues and problems in the watershed and include projects or actions and funding to address the issues and problems. At a minimum the watershed should address:

1. Any problems with lake and stream water quality and quantity including information on impaired waters in the watershed and the WMO's role in addressing the impairments,
2. Flooding issues in the watershed,
3. Storm water rate control issues in the watershed,
4. Impacts of water management on the recreation opportunities,
5. Impact of soil erosion problems on water quantity and quality,
6. The general impact of land use practices on water quantity and quality
7. Policies and strategies related to monitoring of area water resources
8. Policies and strategies related to use of best management practices
9. Issues concerning the interaction of surface water and groundwater in the watershed
10. A list of the requirements for local surface water management plans
11. Erosion and sediment control standards and requirements
12. Volume reduction goals at least as restrictive as requirements in the NPDES construction general permit.
13. Capital improvement plan with itemized list of actions, estimated costs, and timeline.
14. Specifics on long-term maintenance of projects identified in the capital improvement plan, including identification of entities responsible for funding and conducting maintenance, as well as how long-term maintenance will be documented.

The Council has monitoring data from within the past 10 years for the following waterbodies: Reshanau, Sunset, Fish, Little Johanna, Karth, Long, Pine Tree, Loch Ness, George Watch, White Rock, Oneka, Langton, Baldwin, Golden, Pike, Valentine, Lost, Centerville and Clear Lakes and Priebe and Forest Ponds. This lake data can be downloaded from the Council's EIMS website (https://eims.metc.state.mn.us), or you can contact Terrie O'Dea (Terrie.O'Dea@metc.state.mn.us) to request lake data.

The following lakes within the District are on the Council's Priority Lakes List:
Clear, Peltier, Johanna, Bald Eagle, Josephine, Turtle, Rice, White Bear, Otter, Centerville, and Oneka. More detail on the criteria used for inclusion on the list is in the 2040 Water Resources Policy Plan,

which can be found on the Council's web page (http://www.metrocouncil.org/Wastewater-Water/Planning/2040-Water-Resources-Policy-Plan.aspx).

The Council webpage also has 2040 land use information for all of the communities in the watershed.

Please feel free to me call at 651-602-1033 with questions about my comments or for any assistance I can provide during the plan preparation.

Sincerely,

Emily Resseger
Principal Environmental Scientist, Water Resources
Metropolitan Council – Environmental Services
651-602-1033
emily.resseger@metc.state.mn.us

Washington County

Department of Public Health and Environment

Lowell Johnson
Director

David Brummel
Deputy Director

MEMORANDUM

Date: April 10, 2018

To: Kyle Axtell, Rice Creek Watershed District (RCWD)

From: Stephanie Souter, Senior Planner, Public Health and Environment

Copy (via email):
Patricia Prenier, President, RCWD
John Waller, Manager, RCWD
Phil Belfiori, Administrator, RCWD
Molly O'Rourke, Administrator, Administration
Lowell Johnson, Director, Public Health and Environment
Dave Brummel, Deputy Director, Public Health and Environment
Jessica Collin-Pilarski, Senior Planner, Public Health and Environment

Washington County Department of Public Health and Environment (PHE) would like to thank the Rice Creek Watershed District (RCWD) for requesting input on the development of their next generation Watershed Plan.

PHE reviewed how the current RCWD plan addresses groundwater. Your existing plan recognizes the complicated and dynamic nature of groundwater within the watershed. It also recognizes declining groundwater and its potential effect on groundwater dependent resources. The existing plan also recommends implementing strategies of the county's Groundwater Plan.

The county adopted an updated Groundwater Plan in September 2014. PHE requests that during watershed plan development, RCWD updates the language in the plan to refer to the new Washington County Groundwater Plan 2014-2024. PHE also requests the RCWD consider strategies from the groundwater plan and identifies opportunities to partner with the county and others on groundwater projects. Some example strategies are listed below, that RCWD may consider including or referencing in their plan. Please refer to the full county plan for additional strategies.

- GW Plan strategy 3.2.7 Partner with the WCD, WMOs and businesses to collaborate on ways to reduce water use and increase water reuse.
- GW Plan strategy 4.2.6 Collaborate with LGUs, the WCD and WMOs to identify and preserve regional recharge areas.
- GW Plan strategy 4.2.9 Encourage the use of low impact stormwater management tools in areas where practices can be safely placed.
- GW Plan strategy 4.2.11 Work with LGUs, the WCD and WMOs to implement water conservation practices as a tool to help steady the water balance between surface and groundwater.

It was noted at the February 28, 2018 RCWD partner meeting that groundwater was not identified in any of the proposed management "categories" presented by watershed staff. We encourage RCWD to consider how groundwater fits into those identified categories, or whether it should be its own. PHE looks forward to working with the RCWD, as the watershed plan is updated, on finding opportunities for collaboration and partnership.