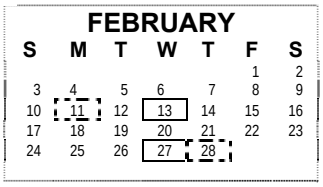
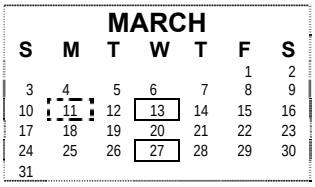
RCWD
RICE CREEK WATERSHED DISTRICT





RCWD BOARD OF MANAGERS WORKSHOP

Thursday, February 28, 2019, 1:00 p.m.

Rice Creek Watershed District Conference Room
4325 Pheasant Ridge Drive NE, Suite 611, Blaine, Minnesota

NOTE: The District is testing an effort to make the Board of Managers meeting more widely accessible to the public. If you are interested in listening to this meeting by phone, please contact Theresa Stasica at tstasica@ricecreek.org or 763-398-3070 by 4:30 p.m., February 25, 2019.

Agenda

ITEMS FOR DISCUSSION (times are estimates only)

1:00 Draft 2020 Watershed Management Plan Review

- Review Draft Chapter 4: Implementation Plan

Notice pursuant to Board-approved WMP Update Participation Plan

If a Board Member is unable to attend this workshop, communication about meeting materials must be sent directly to the District Administrator and District Project Manager by **February 25, 2019** for direct distribution to the Board of Managers, without any District staff engagement or interpretation on those comments. Managers must refrain from distributing comments directly to the other Board members.

MEMORANDUM
Rice Creek Watershed District

Date: **February 20, 2019**
To: **RCWD Board of Managers**
From: **Kyle Axtell, RCWD Water Resource Specialist**
Subject: **Draft 2020 Watershed Management Plan Review – Chapter 4**

The District Engineer has begun the process of preparing draft sections of the upcoming watershed plan update, based on feedback received from the Board, Staff, CAC and TAC during the recent strategic direction process. Draft versions of a portion of our new Chapter 4 (Implementation Plan) have been prepared for Board review, after initial input from District staff. The CAC and TAC have not yet reviewed this draft section.

Staff expects considerable discussion on this section of the watershed plan and is planning for additional workshops to get through the discussion on this section. For this first workshop, we intend to focus on the two tables found inside the plan section to start. Board members will note that there are various new programs and projects that are being proposed in consideration of the organization's activities and direction over the last 4-5 years. **Budget estimates shown are only estimates for discussion purposes**, although the totals are relatively consistent with previous data shown to the Board during the strategic direction process. There are various assumptions built in to the numbers. It is also important to know that the staff is not proposing that actual ad valorem levies be increased to support the full budget estimates shown in the draft plan section. The numbers consider ALL possible funding sources, from ad valorem to water management districts, external grants and other State funding sources, and funding from partner organizations.

This is where the rubber meets the road, so to speak! Staff looks forward to an engaged, thorough and candid discussion about the Board's wishes for the next ten years.

HOMEWORK: *Thoroughly review the draft documents in advance of the workshop. Bring questions and comments to the February 28 workshop for discussion with the Board and WMP team.*

4. Implementation Plan

The RCWD implementation plan is composed of three main elements: 1) administration; 2) implementation programs; and 3) capital improvement projects (CIPs). Together, these elements work together to guide activities of the District for the duration of this Plan.

4.1 Administration

District administration includes office operations, office administration and support, maintaining a staff complement capable of implementing the District's programs and providing technical assistance and support to stakeholders, and the execution of the duties and responsibilities of the Board of Managers.

4.2 Implementation Programs

Implementation programs are designed to implement the District's mission and make progress towards established measurable goals. The programs, their operational aspects, and various associated projects (which are not capital improvement projects) are summarized within this section. The programs described are funded by ad valorem levy through the District's general fund and are used to establish the District's annual budgets and financial commitments. A list of existing implementation programs with approximate annual budget ranges is presented within **Table 4-1**.

Table 4-1: Approximate annual budget by implementation program

Implementation Program	*Estimated Annual Budget Range: Low*	*Estimated Annual Budget Range: High*	*Planned No. of Years for Expenditure*
Public Drainage System Inspection, Maintenance and Repair	$600,000	$800,000	Annual
Trunk System and Natural Waterway Management	$0	$10,000	Annual
District Facilities Operations and Maintenance	$20,000	$40,000	Annual
Stormwater Master Planning	$20,000	$30,000	Annual
Information Management Program	$80,000	$150,000	Annual
District-Wide Modeling Program	$50,000	$90,000	Annual
Water Quality Grant Program	$200,000	$300,000	Annual
Carp and Curly Leaf Pondweed Management Program	$200,000	$300,000	Annual
Mini-Grants Program	$0	$10,000	Annual
Surface Water Monitoring and Management Program	$400,000	$600,000	Annual
Groundwater Management and Reuse Assessment Program	$25,000	$40,000	Annual

Implementation Program	*Estimated Annual Budget Range: Low*	*Estimated Annual Budget Range: High*	*Planned No. of Years for Expenditure*
Local Plan Review Program	$0	$50,000	Three years (2027-2029)
Subwatershed Stormwater Retrofit Assessments for Targeted BMP Implementation	$0	$30,000	Annual
Municipal Capital Improvements – Early Coordination Program	$10,000	$20,000	Annual
Boundary Management Program	$15,000	$25,000	Annual
Rule Revision / Permit Guidance	$30,000	$60,000	Annual
Permit Review Program	$700,000	$1,000,000	Annual
Permit Inspection Program	$100,000	$250,000	Annual
Preapplication Early Coordination Program	$50,000	$100,000	Annual
Water Communication and Outreach	$150,000	$200,000	Annual
Master Water Steward Program	$30,000	$50,000	Annual
Watershed Plan Maintenance	$0	$200,000	Three years (2027-2029)
Total	**$2,680,000**	**$4,355,000**	

4.2.1 Public Drainage System Inspection, Maintenance and Repair Program

Issues Addressed

- Minnesota Statute 103E Public Drainage Systems: System Maintenance, Repair, and Management Approach

There are three main purposes of this implementation program. The first objective of this program is to inspect, maintain and the public drainage systems within the RCWD. The response to deficiencies noted by the drainage inspector and requests for maintenance are completed through this program, as is the preparation of an annual inspection report. This program includes completing technical analyses and related activities associated with maintenance requests and recommendations, the completion of repair reports, and repair of the drainage system. Extensive repairs requiring regulatory engagement are not addressed by this program, but rather by Capital Improvement, as discussed in **Section 4.3.**

Secondly, this program aims to create accessible and accurate records for efficient management, maintenance, and repair of the District's approximately 120 miles of public drainage systems. Specifically, the Public Drainage System Inspection, Maintenance, and Repair Program functions to 1) maintain historic information pertaining to the public drainage systems in an accessible, publicly searchable, and organized electronic format, 2) archive new drainage system records as they are created; 3) maintain a geospatial database identifying structures, conditions and repairs with respect to the alignment of the system; and 4) identify and maintain the record of the as-constructed and subsequently improved condition.

Lastly, this program serves to pursue multipurpose drainage projects as a means of accomplishing efficient public drainage system management while accruing water quality and ecological benefits. Multipurpose drainage management projects target critical pollution source areas to reduce erosion and sedimentation, reduce peak flows and flooding, and improve water quality, while protecting 103E public drainage system efficiency and reducing drainage system maintenance. The Hansen Park Comprehensive Water Management Project, completed in September of 2018, is an excellent example of a multipurpose drainage management

project. The project included a series of water quality and flood control enhancements to an existing dam and pond in New Brighton's Hansen Park. The District anticipates using this program to pursue similar projects in the future, aimed at water quality and drainage management.

Example Activities (TBD)

Estimated Annual Funding: $600,000 - $800,000

4.2.2 Trunk Conveyance System and Natural Channel Management Program

Issues Addressed

- Other Drainage Systems: Management of Non-103E Systems

The purpose of this program is to inspect, analyze, and implement actions impacting natural channels and the trunk conveyance system within the District. The Public Drainage Inspector is responsible for inspecting the trunk conveyance system and natural channels per the Public Drainage System Inspection Policy and the Natural Channel Maintenance Policy. The Public Drainage Inspector also completes a spring flood inspection at critical known problem locations, where ice and debris collect within the trunk conveyance system.

The RCWD Natural Channel Maintenance Policy was developed to specify actions related to maintaining these systems. Maintenance activities performed by the District as part of the Trunk Conveyance System and Natural Channel Management Program aim to address issues that have a significant hydraulic impact to the waterway. Examples include, but are not limited to, the removal of fallen trees, debris jams, and beaver dams.

Example Activities (TBD)

Estimated Annual Funding: $0 - $10,000

4.2.3 District Facilities Operations and Maintenance Program

Issues Addressed

- District Facilities: Management of District Facilities

The District Facilities Operations and Maintenance Program addresses the need to inspect and maintain District facilities. The locations of District facilities are shown in **Figures 3-3** and **3-4**. Examples of District facilities include, but are not limited to, sedimentation basins, water control structures, lake outlet structures, wetland banking sites, water reuse irrigation projects, stream restoration and stabilization projects, storm sewer diversions, and iron-enhanced sand filters. Example maintenance activities provided as part of this program include sediment dredging projects (e.g. Long Lake inlet, Locke Lake, Oasis Pond, and Hansen Park), structural repairs, preserving access to facilities through easements, and managing vegetation through mowing and herbicide treatment. Larger-scale construction activities that do not fall under this program will be implemented through the Maintenance of District Facilities Capital Improvement Program (**Section 4.3.15**).

Important aspects of this program include maintaining an inventory of District facilities and archiving documentation which will become part of a long-term record, assessing work that has been done and what repairs are needed, and developing inspection, operation and maintenance plans and procedures. To clarify the

District's authorities to access these sites for inspection and maintenance, this program also includes the development and negotiation of easements and access agreements to memorialize these authorities. This program is intended to result in a system that supports the long-term management of records and information concerning District facilities and the completion of management activities in a deliberate and efficient manner.

Example Activities (TBD)

Estimated Annual Funding: $20,000 - $40,000

4.2.4 Stormwater Master Planning

Issues Addressed

- Flooding: Addressing Existing Flooding Issues
- Flooding: Modeling and Mapping

The Stormwater Master Planning Program is designed to support the development of large-scale regional projects aimed at addressing current and future stormwater quantity and quality management within the District. Within this program, the District collaborates with interested municipalities by providing technical and/or financial support to develop regional stormwater management plans. When finished, these plans will identify potential regional flood storage areas, assisting with general stormwater and public drainage system planning efforts.

Example Activities (TBD)

Estimated Annual Funding: $20,000 - $30,000

4.2.5 Information Management Program

Issues Addressed

- Flooding: Modeling and Mapping
- Communications and Outreach: Resources for Adequate Outreach
- Regulatory: Permitting and Enforcement
- Collaborations: Collaborations with Local, State, and Federal Partners
- Collaborations: Collaborations with Private Partners

The RCWD protects its investment in data collection and processing by managing, archiving, and displaying data through a variety of media, including geospatial (GIS) web browsers. This data can then be shared with District partners and/or the general public as determined by the Board of Managers.

The Information Management Program includes several related GIS and data-base activities. The RCWD Public GIS Viewer is a web-based interactive map which hosts a variety of geospatial data useful to permit applicants, agency partners, and other interested parties in developing their projects. This data includes hydrographic features, topographic data, aerial imagery, parcel data, soils information, and regulatory

boundaries. The RCWD also manages a GIS-integrated permit and project database which tracks a variety of data regarding each permit application District project while facilitating the streamlining and automation of workflows in the regulatory and cost-share programs.

The District web site is and will continue to be regularly updated to make information including meetings, schedules, and operations more accessible to the public and other stakeholders. The District is enhancing old databases and developing new data bases to better manage the large amounts of information that has been and is being collected. The information includes streamflow, water quality data, field surveys, GIS data, and District-wide modeling. The goal is to ensure that these data bases will efficiently house long-lasting, accessible data that are and will be important assets as the District continues to grow.

Example Activities (TBD)

Estimated Annual Funding: $80,000 - $150,000

4.2.6 District-Wide Modeling Program

Issues Addressed

- Flooding: Impacts of Land Use Changes on Downstream Rate and Volume
- Flooding: Modeling and Mapping

The District-Wide Modeling Program is focused upon developing information needed as input to create or maintain existing hydrologic, hydraulic, and water quality models to address resource issues, design projects, and evaluate landscape-scale conditions within the District. The program also establishes modeling and maintenance needs. By clearly identifying and articulating the modeling needs, goals and objectives, and application purposes, the District can reasonably ensure selection, use, and maintenance of the proper model(s).

The primary models developed and maintained by the District include:

- Hydrology & hydraulics models (with detail focused on the public drainage and trunk conveyance systems);
- Future conditions (planned land-use) hydrology and hydraulics models;
- Lake level frequency analysis; and
- Urban water quality models.

As part of the District-Wide Modeling Program, the District will complete maintenance of their modeling products to ensure the continued value of the models and their results. This maintenance includes scheduled updates to models (per the District Wide Modeling Program Maintenance Policy) to reflect changing infrastructure and land use, correcting deficiencies and errors, and adding new detail and data where and when it becomes available. Following updates, model results are uploaded to the District's GIS Viewer to provide accessibility for users.

Example Activities (TBD)

Estimated Annual Funding: $50,000 - $90,000

4.2.7 Water Quality Grant Program

Issues Addressed

- Water Quality Management: Accelerated Sedimentation
- Water Quality Management: Nutrient Enrichment, Algae, and Cultural Eutrophication
- Collaborations: Collaborations with Private Partners

The Water Quality Grant Program assists landowners with the implementation of Best Management Practices (BMPs) or clean water projects aimed at improving the quality of surface waters within the District. Installing a raingarden, stabilizing erosion problems along shoreline, restoring degraded wetlands, installation of agricultural practices, and installing pervious pavers are some of the practices that may be eligible for this program. Utilizing District-wide ad valorem levy, the Board of Managers make a varying fund amount available each year to fund projects within the program. Project funding and implementation guidelines are reviewed and approved annually by the Board of Managers.

Applications are reviewed and prioritized by the District's Staff and Citizen Advisory Committee who make recommendations to the Board of Managers. The Board holds final approval authority for all applications. The program utilizes a partnership with the Soil and Water Conservation Districts of Anoka and Washington Counties, and Ramsey County Parks and Recreation - Soil and Water Conservation Division, to provide technical assistance to residents interested in implementing water quality improvement projects on their property. Interest in this program should be directed to the county Conservation District where the project is located or to the RCWD for a project located within the Hennepin County portion of the RCWD.

Example Activities (TBD)

Estimated Annual Funding: $200,000 - $300,000

4.2.8 Carp and Curly-leaf Pondweed Management Program

Issues Addressed

- Water Quality Management: Aquatic Invasive Species (AIS)

The purpose of this program is to manage the water quality of District surface water resources through prevention, management, and reduction of the common carp (*Cyprinus carpio*) and curly-leaf pondweed (*Potamogeton crispus*). This program manages carp through the *Rice Creek Watershed District Common Carp Management Plan* and system-specific plans, such as the Long Lake / Lino Chain of Lakes System Carp Management Plan. Curly-leaf pondweed is managed through matching funds to lake associations for herbicide treatments, procuring permits, and managing herbicide contractors. These two AIS are of particular concern in the RCWD due to their scientifically-substantiated negative impacts to surface water quality.

Example Activities (TBD)

Estimated Annual Funding: $200,000 - $300,000

4.2.9 Mini-Grants Program

Issues Addressed

- Water Quality Management: Nutrient Enrichment, Algae, and Cultural Eutrophication
- Communications and Outreach: Education Opportunities
- Collaborations: Collaborations with Private Partners

The RCWD Mini-Grant Program provides eligible applicants with small grants (up to $500 per year) to implement projects that can justifiably improve water quality in the watershed. A primary objective of this grant program is to provide educational value from implemented projects, so community members can become engaged in water resource stewardship and learn from projects on the ground.

Example Activities (TBD)

Estimated Annual Funding: $0 - $10,000

4.2.10 Surface Water Quality Monitoring and Management Program

Issue Addressed

- Water Quality Management: Surface Water Monitoring
- Water Quality Management: Accelerated Sedimentation
- Water Quality Management: Nutrient Enrichment, Algae, and Cultural Eutrophication

The Surface Water Quality Monitoring and Management Program is focused on developing robust District monitoring information to implement projects, programs and activities to maintain, restore and/or enhance the conditions of lakes and streams. District monitoring efforts are guided through the Monitoring Program Plan, executed by the Lake and Stream Specialist. The District has a stream and lake monitoring network that continues to be refined to maintain relevance to current water quality concerns. The RWCD, in cooperation with several partners, assesses water quality trends to drive activities and projects aimed at protecting, maintaining and improving District water quality. These monitoring programs use various indicators of water quality to characterize the general health of lakes and streams including, but not limited to, the amount of nutrients (phosphorus and nitrogen), algae (i.e., chlorophyll-a), and the clarity of the water (measured by suspended sediment and Secchi-disk depth). Water temperature, dissolved oxygen, specific conductance, and pH are also measured throughout the water column.

Counties continue to be an important partner for lake quality and water level monitoring. In addition to local partners, the DNR works closely with the District for lake vegetation and fisheries management, and stream channel restoration. The USGS has also established a stream flow monitoring gage on the main stem of Rice Creek that is operated year-round. The District also supports the Citizen Assisted Monitoring Program (CAMP), which is managed by the Metropolitan Council. This network of volunteers monitors many lakes across the District, collecting water samples approximately twice monthly to analyze phosphorus, nitrogen, and chlorophyll-a. The volunteers also note the water temperature, Secchi-disk depth, and make general observations about the lake. The District also participates in a volunteer biological monitoring effort called the Stream Health

Evaluation Program (SHEP), which is run by the Friends of the Mississippi River. This stream monitoring program is designed to collect reliable and accurate biological stream health data in accordance with strict MPCA monitoring protocols.

Several other organizations monitor District lakes and share the data with the RCWD. The Ramsey County Environmental Services Division monitors several lakes for nutrient and chemical composition. By working cooperatively, more information is collected in any given year, allowing the District to focus on management plans and more specialized research projects.

The Monitoring Program Plan is updated biannually, establishing monitoring goals and objectives, describing program organization, and identifying data quality objectives. It includes standard operating procedures for sample collection and quality assurance and management procedures characterizing laboratory quality assurance objectives. The Monitoring Program Plan also identifies physical locations where monitoring occurs. Data collected from these monitoring locations is needed for assessing long-term trends and calibrating hydrologic, hydraulic and water quality models. Further, site-specific monitoring may occur to determine the water quality/quantity mitigation effectiveness of installed District projects. The physical locations can include boundaries between cities where maximum flows between communities need to be monitored and controlled to prevent flooding.

Example Activities (TBD)

Estimated Annual Funding: $400,000 - $600,000

4.2.11 Groundwater Management and Reuse Assessment Program

Issues Addressed

- Water Quality Management: Surface Water / Groundwater Interactions
- Collaborations: Collaborations with Local, State, and Federal Partners

The Groundwater Management and Reuse Assessment Program provides technical assistance to governmental entities that manage groundwater. This assistance includes RCWD staff review of county groundwater plans, well head protection plans, and source water protection plans, to provide feedback on how these plans correlate to District resource management. Since portions of these plans are referenced in District rules, the District archives mapping and GIS layers for purposes of permit reviews. This program also provides feasibility assessments to identify and study future potential stormwater reuse project areas.

Example Activities (TBD)

Estimated Annual Funding: $25,000 - $40,000

4.2.12 Local Plan Review Program

Issue Addressed

- Collaborations: Collaborations with Local, State, and Federal Partners

The purpose of the Local Plan Review Program is to review local plans including local water management plans and comprehensive plans prepared by the District's member cities, and to participate in the associated planning processes. The process used by the RCWD for the review and approval of local water management plans and comprehensive plans prepared by these cities is described in **Chapter 6**.

Example Activities (TBD)

Estimated Annual Funding: $0 - $50,000

4.2.13 Subwatershed Stormwater Retrofit Assessments for Targeted BMP Implementation Program

Issues Addressed

- Collaborations: Collaborations with Local, State, and Federal Partners
- Flooding: Addressing Existing Flooding Issues
- Water Quality Management: Accelerated Sedimentation
- Water Quality Management: Nutrient Enrichment, Algae, and Cultural Eutrophication

The goal of subwatershed stormwater retrofit assessments is to maximize the use of limited financial resources by identifying and prioritizing the most effective projects for targeted implementation efforts. These assessments have historically been led by local soil and water conservation districts and focus primarily on water quality improvement practices and projects while also seeking out opportunities for local and regional flood storage. The assessments serve as a local implementation guide focused on a single lake for the District and other municipalities located within that subwatershed. Financial partnerships for these assessments typically involve providing matching funds to a conservation district to combine with other sources of external grant revenue.

Example Activities (TBD)

Estimated Annual Funding: $0 - $30,000

4.2.14 Municipal Capital Improvements- Early Coordination Program

Issues Addressed

- Collaborations: Collaborations with Local, State, and Federal Partners

The Municipal Capital Improvement – Early Coordination Program has been a successful yearly program which provides funds to work with cities, and other local and state agencies to identify voluntary capital improvement opportunities for water quality and water quantity conservation. Projects identified may be stand-alone efforts or proposed in conjunction with municipal road reconstruction or other related redevelopment efforts. This program aims to work with municipalities to access funds from the District's Water Quality Grant Program (4.2.7) and Stormwater Management Capital Improvement Program (4.3.6).

Example Activities (TBD)

Estimated Annual Funding: $10,000 - $20,000

4.2.15 Boundary Management Program

Issues Addressed

- Collaborations: Collaborations with Local, State, and Federal Partners

The legal RCWD boundary has had several changes and corrections to address discrepancies between hydrologic boundaries and political boundaries. As introduced in **Section 1**, there have been five changes to the legal RCWD boundary from 2013-2019, including:

- 2013-2014: Eastern boundary correction with Browns Creek Watershed District;
- 2015-2016: Northern boundary correction with Sunrise River Watershed Management Organization;
- 2014-2017: Northeastern boundary correction with Comfort Lake-Forest Lake Watershed District;
- 2015-2018: Southeastern boundary correction with Valley Branch Watershed District.; and,
- 2018-2019: Eastern boundary correction with Browns Creek Watershed District.

The purpose of the Boundary Management Program is to review and, as necessary, correct the RCWD legal boundary as additional topographic and survey data becomes available and as development along the boundary occurs. The goal of this program is to promote the most accurate understanding of the hydrologic boundary and best alignment with the RCWD legal boundary to facilitate sound resource management.

Example Activities (TBD)

Estimated Annual Funding: $15,000 - $25,000

4.2.16 Rule Revision / Permit Guidance

Issues Addressed:

- Regulatory: District Rules
- Regulatory: Permitting and Enforcement
- Collaborations: Collaborations with Local, State, and Federal Partners

The purpose of this program includes completing periodic review, evaluation, and modification of the District rules and to propose amendments to those rules to the Board of Managers. Periodic updates to the rules are needed to adapt to evolving research and understanding of water quantity and quality issues related to land-use changes. Input from local, state, and federal partners is critical in this process as it identifies alignment between the needs of permit applicants and the protection of District resources.

The District administers its rules and Minnesota's Wetland Conservation Act through a permitting program. One key to efficient permit administration is data sharing and housing the permitting process online. The Rule

Revision/ Permit Guidance Program facilitates the development and maintenance of an online geospatial data sharing platform targeted to providing information needs for District permit applicants and an electronic means of permit submittal. This program also provides updates to District permit guidance documents which provide details and examples of how District rules are applied to projects and how applications are reviewed by District staff.

Example Activities (TBD)

Estimated Annual Funding: $30,000 - $60,000

4.2.17 Permit Review Program

Issues Addressed

- Regulatory: District's Role as WCA Authority
- Regulatory: Permitting and Enforcement
- Flooding: Impacts of Land Use Changes on Downstream Rate and Volume
- Water Quality Management: Accelerated Sedimentation
- Minnesota Statute 103E Public Drainage Systems: System Maintenance, Repair, and Management Approach

The purpose of this program is to implement the rules of the District through the receipt and review of permit applications and issuance of permits, to ensure that regulated projects fully demonstrate compliance with District rules. Following permit issuance, the District checks that construction occurred consistent with the approved plans and per permit stipulations and conditions. Should work be deemed to be out of compliance, an enforcement process guides subsequent engagement by the District and correction of inadequacies.

The Permit Review Program includes the annual audit of the permit review process for the City of Hugo and City of Circle Pines, which have assumed regulatory enforcement authority for several District rules. The purpose of these audits is to evaluate the Cities' proper administration of the rules.

In addition to the District's regulatory permit process, the Permit Review Program includes review of and compliance with the MPCA NPDES MS4 General permit, as it is an MS4 entity.

Example Activities (TBD)

Estimated Annual Funding: $700,000 - $1,000,000

4.2.18 Permit Inspection Program

Issues Addressed

- Regulatory: Permitting and Enforcement

The purpose of this program is to enforce the rules of the District through inspection of permitted projects. District inspection staff complete this effort by periodically visiting each site, confirming that work is completed per the approved plans and permit conditions, and communicating observed non-compliant items to the permittees. District inspection staff also participate in project meetings and provide clarification of District requirements as needed. The intent of the program is to achieve voluntary compliance with permit requirements. However, the District may initiate enforcement measures if compliance is not achieved within the required timeframe of the permit. Inspection staff are also responsible for permit close out processes and release of surety to the permit applicant after final compliance has been verified.

Example Activities (TBD)

Estimated Annual Funding: $100,000 - $250,000

4.2.19 Preapplication Early Coordination Program

Issues Addressed

- Regulatory: District's Role as WCA Authority
- Regulatory: Permitting and Enforcement
- Collaborations: Collaborations with Private Partners
- Collaborations: Collaborations with Local, State, and Federal Partners
- Minnesota Statute 103E Public Drainage Systems: Stakeholder Outreach on Drainage System Roles and Expectations

The District administers its rules and the state WCA through a permitting program. One key to efficient permit administration is open and clear communication with project applicants and their agents. The purpose of the Preapplication Early Coordination Program is to facilitate this communication with applicants.

RCWD provides and encourages voluntary meetings and communication with prospective permit applicants and their consultants prior to permit application and/or project design to address potential concerns with RCWD rules and permit requirements. The intent of these meetings is to increase communication, decrease compliance efforts and costs, and implement the permitting program efficiently and without undue delay.

Example Activities (TBD)

Estimated Annual Funding: $50,000 - $100,000

4.2.20 Water Communication and Outreach Program

Issues Addressed

- Communications and Outreach: Resources for Adequate Outreach
- Communications and Outreach: Education Opportunities

- Collaborations: Collaborations with Local, State, and Federal Partners
- Minnesota Statute 103E Public Drainage Systems: Stakeholder Outreach on Drainage System Roles and Expectations

The Water Communication and Outreach Program includes a variety of activities such as the development of educational materials, newsletters and annual reports, coordination of volunteer activities, and public speaking events about District activities. Also included are general media campaigns, involvement in the East Metro Water Resource Education Program, Blue Thumb and Metro Watershed Partners, citizen and local government unit surveys, and municipal training. One component of this program is to create new or leverage existing materials to encourage installation of small-scale BMPs on private property, and to ensure they are adequately maintained.

In recent years, the District has initiated twice yearly city/county partner meetings to discuss issues and programs impacting the District and its partners. Through these efforts, the District has been able to better engage its partners to understand needs and increase collaboration. One purpose of this program is to continue these meetings to facilitate communication between the District and its partners and better accomplish the District's mission.

Example Activities (TBD)

Estimated Annual Funding: $150,000 - $200,000

4.2.21 Master Water Steward Program

Issues Addressed

- Communications and Outreach: Education Opportunities
- Collaborations: Collaborations with Private Partners

Master Water Stewards is a program that certifies and supports community leaders who work to implement pollution prevention projects that educate community members, reduce pollutants from stormwater runoff and allow more water to soak into the ground before running into storm sewer systems. The District continues to be an active partner within this program, which also includes Freshwater Society and other participating cities, watershed management organizations, and non-profits.

The purpose of the Master Water Steward Program is to utilize trained volunteers to enhance the District's implementation of projects, programs, and other activities. As part of the Master Water Steward Program, the RCWD provides an intensive training for selected individuals who are interested in partnering in future water management stewardship projects within the District.

Example Activities (TBD)

Estimated Annual Funding: $30,000 - $50,000

4.2.22 Watershed Plan Maintenance Program

Issues Addressed

- *All*: Administration

This WMP is intended to summarize and prioritize District issues, set measurable goals, and identify focused implementation activities, projects, and programs to guide the District over the next ten years. While this plan has the best intentions for accuracy and comprehension, unforeseen issues, priorities, activities, and projects will undoubtably emerge and require updates to the plan. The purpose of the Watershed Plan Maintenance Program is to proactively budget resources to plan for these changes, so the District is positioned to respond when WMP maintenance or amendments are necessary. This program will also facilitate strategic planning, plan writing, and outreach related to the development of the next generation of the WMP.

Example Activities (TBD)

Estimated Annual Funding: $0 - $200,000

4.3 Capital Improvement Projects

According to MS 103B.241, the District may levy a tax to pay for projects identified in an approved and adopted plan necessary to implement the purposes of water management programs, defined in MS 103B.201. The proceeds of any tax levied for this purpose are deposited in a separate fund and expended only for the identified plan projects. The District may accumulate the proceeds of levies as an alternative to issuing bonds to finance improvements.

The plan projects, herein "capital improvement projects, or CIPs," for this WMP are specifically identified within **Table 4-2**, shown within **Figure 4-[Forthcoming Based on District Feedback],** and summarized in the following sections. The estimated cost for projects identified varies in quality and should be considered suitable for planning purposes only. To fund its capital improvement projects, the District will seek out grants and other external sources of funding when possible, and otherwise will use District sources of funds as described in **Section 5** as well as contributions of project. Budget amounts in **Table 4-2** anticipate use of these funding sources collectively.

In addition to plan capital improvement projects identified in **Table 4-2**, the District has been identified as a project funding partner in many of its member Cities' approved local water management plans. These projects may be considered for implementation by the RCWD Board through this WMP, where they fit within the District's CIP list below. The City projects are summarized within **Appendix [City CIP List]**.

Table 4-2: Proposed Capital Improvement Projects for the Rice Creek Watershed District 2020-2029

Capital Improvement	*Proposed Implementation Year Begin*	*Proposed Implementation Year End*	*Estimated Average Annual Budget**	*Total Estimated Budget**
Anoka County Ditch 53-62 Repair	2020	2024	$375,000	$1,500,000
Anoka Ramsey Judicial Ditch 1 Repair	2022	2027	$100,000	$500,000
Anoka Washington Judicial Ditch 3 Repair	2020	2028	$375,000	$3,000,000
Ramsey County Ditch 4 Repair	2021	2025	$275,000	$1,100,000
Anoka County Ditch 15 / Judicial Ditch 4 Stormwater Master Planning and Implementation	2020	2030	$300,000	$3,000,000

Capital Improvement	*Proposed Implementation Year Begin*	*Proposed Implementation Year End*	*Estimated Average Annual Budget**	*Total Estimated Budget**
Stormwater Management Cost Share	2020	2030	$500,000	$5,000,000
Ramsey County Ditches 2,3, and 5 Basic Water Management Project	2020	2030	$2,000,000	$20,000,000
Bald Eagle Lake Water Management Project	2020	2030	$200,000	$2,000,000
Clear Lake Water Management Project	2020	2030	$50,000	$500,000
Anoka Chain of Lakes Water Management Project	2020	2030	$400,000	$4,000,000
Silver Lake Water Management Project	2020	2030	$25,000	$250,000
Golden Lake Water Management Project	2020	2030	$50,000	$500,000
Southwest Urban Lakes Implementation	2020	2030	$200,000	$2,000,000
Regional Water Management Partnership Projects	2020	2030	$250,000	$2,500,000
Maintenance of District Facilities	2020	2030	$500,000	$5,000,000
Middle Rice Creek Water Management Project	2020	2030	$100,000	$1,000,000
Lower Rice Creek Water Management Project	2020	2030	$200,000	$2,000,000
		Total	***$5,900,000***	***$53,850,000***

** Funding of budgeted items anticipated from all potential sources, including, but not limited to, ad valorem, Watershed Management Districts, and grants.*

4.3.1 Anoka County Ditch 53-62 Repair

Anoka County Ditch (ACD) 53-62 is a public drainage system that serves as the outlet for an eastern portion of the City of Blaine and a portion of Circle Pines. The system discharges into Golden Lake. Land development in the contributing drainage area to ACD 53-62 has and continues to add additional runoff volume to the drainage system, straining the capacity of the system for smaller rainfall events. In addition, prior to 2014 very little maintenance had occurred along the system, enabling sediment to further challenge the capacity of the system. In 2014 and 2017, the District completed extensive repairs along the entire lengths of Branches 1 and 2, respectively. These repairs included tree removal, excavation of accumulated sediment, and replacement of culverts.

The Main Trunk and Branches 5 and 6 of ACD 53-62 have a similar need for extensive repair to restore capacity and function to the public drainage system. Current deficiencies include lack of access due to tree growth; deadfall and other vegetative obstructions; sediment accumulation; deteriorated and/or improperly placed culverts; and eroded banks. Due to the scale of repairs required, repair of each branch will likely be completed as an individual project. As with repairs to Branches 1 and 2, repairs to the Main Trunk, Branch 5, and Branch 6 will be funded through a combination of Water Management District charges, direct billing to road authorities (for culvert replacement under public roadways) and District-wide (ad valorem) funds (see **Section 5**).

4.3.2 Anoka Ramsey Judicial Ditch 1 Repair

Anoka Ramsey Judicial Ditch 1 (ARJD 1) drains a southern portion of Blaine and northern portion of Mounds View before flowing into Rice Creek. The contributing drainage area to ARJD 1 is nearly entirely developed and has been for some time. Historic development has not only increased runoff volume to the system but has also resulted in modifications to the system that have decreased capacity (e.g. weirs in the open channel) and/or created challenges for future maintenance (e.g. buildings adjacent to or on top of piped portions of the system).

Portions of the ARJD 1 drainage system have undergone extensive repair, including the Main Trunk in 1986. The District reconstructed a portion of Branch 4 to restore the outlet for the branch. However, other branches of the system have experienced very limited maintenance and are need of extensive repair. An engineer's report completed in 2013 (*Anoka Ramsey Judicial Ditch 1 Historical Review)* described deficiencies noted along the ARJD 1 drainage system, including vegetative obstructions, deteriorated culverts, and sediment accumulation. Most of these deficiencies were identified along Branches 1 and 2. The repair of ARJD 1 will focus on addressing these deficiencies on Branches 1 and 2 but may include repairs that address other known concerns along the drainage system. Funding for the project will be through Water Management District Charges, direct billing to road authorities (for culvert replacement under public roadways) and District-wide (ad valorem) funds (see **Section 5**).

4.3.3 Anoka Washington Judicial Ditch 3 Repair

The Anoka Washington Judicial Ditch 3 (JD 3) public drainage system is in the Cities of Centerville, Hugo, and Lino Lakes and discharges via Clearwater Creek to Peltier Lake. As the outlet for a rapidly developing portion of the District, JD 3 receives an increasing volume of runoff and has seen additional crossings over the system constructed. Development has also resulted in ponds being constructed in-line with the system, outlet control structures placed along the system, and several wetland banks sited adjacent to the system. While benefiting stormwater management of adjacent neighborhoods, these facilities also have added complexity to inspection and maintenance of the drainage system.

Varying topography, soil types, and land use along the system have resulted in differing deficiencies along the system, though nearly the entire drainage system is in need of extensive repair. Branches 1, 2, 3, & 4 and the portion of the Main Trunk upstream of Interstate Highway 35E (I-35E) exhibit the reduced efficiency of a relatively flat drainage system which has experienced little maintenance since it was originally constructed. Deficiencies in these portions of the drainage system include poor access, vegetative obstructions, sediment accumulation, and deteriorating and/or misplaced culverts. The portion of the Main Trunk downstream of I-35E, however, has a much steeper grade with a less significant amount of accumulated sediment, but instead exhibits scoured and sloughing banks due to channel velocities and less stable (sandy) soils. Necessary repairs in this portion of the drainage system primarily include stabilization and/or reconstruction of ditch banks, and construction of best management practices to reduce channel velocities. Reducing erosion in this portion of the drainage system will substantially decrease sediment and phosphorus delivery to Peltier Lake.

Because of the extent and varied nature of necessary repairs, the work will be completed in at least three separate phases: 1) Branch 3 and the Main Trunk upstream of I-35E; 2) Branches 1, 2, and 4; and 3) the Main Trunk downstream of I-35E. Since JD 3 is defined as a trunk conveyance system, funding of project work will be through District-wide (ad valorem) funding and through direct billing to road authorities (for reconstruction of culverts under public roadways). Repairs aimed at stabilizing the lower Main Trunk and reducing channel velocities, scour and erosion may also be eligible for state water quality grant funding due to associated nutrient and sediment loading reductions for Peltier Lake.

4.3.4 Ramsey County Ditch 4 Repair

Ramsey County Ditch 4 (RCD 4) is in the Cities of Arden Hills and Roseville and serves as the outlet for one of the most densely developed portions of the District. The system discharges first to Little Lake Johanna and

then shortly downstream to Lake Johanna. RCD 4 has been extensively modified from its original condition in conjunction with development of the surrounding landscape, including replacement of portions of open channel with storm sewer piping, realignment, construction of an impoundment (Oasis pond) and armoring of the open channel. Urbanization and changing precipitation patterns have led to increased channel velocities and erosion-prone banks and bends in the channel requiring repeated maintenance and resulting in increased downstream sediment delivery.

An extensive repair of the RCD 4 open channel is required to facilitate access, restore capacity, and reduce the need for future maintenance. Components of the repair include tree removal, sediment excavation, re-sloping and stabilization of channel banks, and velocity-reducing best management practices. Funding for the project will be through Water Management District Charges, and District-wide (ad valorem) funds (see **Section 5**). Repairs aimed at stabilizing the open channel and reducing channel velocities may also be eligible for state water quality grant funding due to associated nutrient and sediment loading reductions for Little Lake Johanna and Lake Johanna.

4.3.5 Anoka County Ditch 15 / Judicial Ditch 4 Stormwater Master Planning and Implementation

Anoka County Ditch 15 (ACD 15) and Anoka/Washington Judicial Ditch 4 (JD 4) are two interconnected public drainage systems that serve as an outlet for the Cities of Columbus and Forest Lake. The system discharges to Upper Rice Creek before it flows into Peltier Lake. Recent repairs to the Main Trunk of JD 4, including the Browns Preserve project, have restored function to the outlet of these drainage systems. However, planned development of the lands utilizing ACD 15 and JD 4 as an outlet will require a stormwater conveyance system with a capacity and alignment that is likely not provided by the current components of ACD 15 and JD 4. Further, to meet District and State stormwater management rules, detention and retention facilities will be required for each development, which can decrease the area of developable land particularly if regional planning is not completed in advance.

Maximizing the acreage and value of developable land will require the development of stormwater master plans for the land currently using ACD 15 and JD 4 as an outlet. Since the projected land use configuration is critical in determining the alignment and size of stormwater management facilities, the Cities of Columbus and Forest Lake will lead the development of stormwater master plans for ACD 15 and JD 4, respectively. These plans will evaluate multiple scenarios to determine the most cost-effective alignment and sizing of both conveyance and detention system required to meet District rules. The preferred alternatives may require the realignment, partial abandonment, impoundment, or transfer of authority of portions of the public drainage systems.

Following the development of the stormwater master plans, the Cities and District may collaborate on multiple projects that implement the recommendations of the plans. These projects may include construction of ponds, storm sewers, ditches, infiltration features, and other best management practices. Funding of project components required to meet District rule requirements will be borne by the landowners benefitting from those components, via a City stormwater charge, Watershed Management District charge, or ad valorem funds (see **Section 5**).

4.3.6 Stormwater Management Cost Share

The need to manage excess runoff and its effects, including the potential to cause flooding, degrade water quality and diminish opportunities for groundwater recharge, is the purpose of this capital improvement program. The Stormwater Management Cost Share Program is a grant program which funds capital improvements constructed by counties, cities (see list of potential projects in **Appendix XX**), townships, school districts, libraries, and other entities, to enhance water quality, alleviate flooding issues, or increase groundwater recharge. The intent of the program is to provide financial assistance to District partners for structural solutions that result in the control of stormwater runoff beyond what is required by District rules, especially when

opportunities are associated with redevelopment, linear projects like street and utility improvements, and storm sewer improvement projects.

Grants dollars are available only for best management practices not being implemented to comply with District rules, (i.e. projects that either are not regulated by District Rule C, or projects that provide benefits above-and-beyond Rule C permit requirements). Each year, the District's Board of Managers will establish a slate of guidelines to govern the application process, review criteria and funding distribution for this program. Funding for the project will be provided by District-wide (ad valorem) funds (see **Section 5**).

4.3.7 Ramsey County Ditches 2, 3 and 5 Basic Water Management Project

Ramsey County Ditches 2, 3, and 5 (RCD 2, 3, and 5) are public drainage systems managed by the District that drain stormwater runoff from approximately 5,300 acres of urban land within Ramsey County. The lands drained by RCD 2, 3, and 5 lie almost entirely within the Cities of New Brighton, St. Anthony, and Roseville. The public drainage system conveys stormwater runoff from urban catchments downstream to Pike Lake and Long Lake and ultimately to the Mississippi River via Rice Creek.

An extreme rainfall event on July 16, 2011 heightened the awareness of flooding and flood risk along the RCD 2, 3 and 5 public drainage systems. The consequences of this event prompted Cities to evaluate the adequacy of their existing stormwater conveyance and management facilities. Cities recognize that certain components of stormwater management facilities are the responsibility of the Cities, some belong to the RCWD, and some are shared between the Cities and the RCWD.

In August of 2013, the City Councils of New Brighton and St. Anthony each passed a resolution petitioning the RCWD to undertake a Basic Water Management Project to develop a comprehensive stormwater management plan. The City of Roseville joined the partnership with approval of an amended petition by all three cities in June 2014 (see **Appendix XX**). The comprehensive stormwater management plan is expected to result in recommendations to the District Board of Managers and respective City Councils for a water management project, or a series of projects, to address stormwater management, flood damage reduction, and water quality enhancement within the drainage area of RCD 2, 3 and 5.

The project as outlined in the petitions includes four phases. Phase 1 of the project (completed in June 2014) established project goals and objectives, technical design criteria, a flood prone area inventory and project siting to provide direction on development of the comprehensive plan. Phase 2 began in June 2018, and entails the development of the regional, comprehensive stormwater management and flood damage reduction plan that identifies capital improvements or other actions that will be further analyzed and considered. Following the development of this plan, Phase 3 will develop implementation timelines and cost allocations. Phase 4 concludes the process with implementation and construction of one or more project components.

Project funding is anticipated to be derived from several sources including municipal contributions, the RCD 2,3 and 5 Water Management District (see **Section 5.X)**, District-wide (ad valorem) funds, local City contributions, State water quality grant funding (e.g. the Clean Water Fund grant program), and State legislative appropriation. Due to the scale of the flooding and water quality issues and associated projects to address this issue, it is imperative to the success of the project that the State has a significant role in funding the project.

4.3.8 Bald Eagle Lake Water Management Project

This capital improvement project is intended to address the issue of lake water quality and water level management for Bald Eagle Lake. Bald Eagle Lake is a 1,012-acre lake in portions of Ramsey, Washington, and Anoka Counties. Bald Eagle Lake has been the subject of a Lake Management Plan (LMP) sponsored by the Bald Eagle Area Association in partnership with other organizations. The Bald Eagle Lake LMP was completed in June 2003 and later revised in November 2004. More recently, a TMDL study was completed in

2009, expanding beyond the LMP that identifies water quality issues that impact the lake; the stormwater management, watershed and in-lake factors contributing to those issues; and potential projects necessary to remedy the issues.

Based upon the available water quality monitoring information and technical analyses, more than 60% of the total phosphorus within Bald Eagle Lake comes from the internal release from sediments. An alum treatment was conducted in 2014 and 2016 as a means to reduce the internal release of phosphorus from sediment, along with other watershed activities identified in the TMDL.

In 2016, the Ramsey Conservation District completed an Urban Stormwater Retrofit Analysis for the South Bald Eagle Lake watershed. This analysis identified several opportunities that aim to address external nutrient loading to the lake. Practices that address external loading will be critical to the long-term success of the alum treatments and will provide mitigation toward the remaining 40% of nutrient loading to Bald Eagle Lake. In 2019, the District was awarded a BWSR Clean Water Fund grant to aid in establishing an iron-enhanced sand filter on Ramsey County Ditch 11 to treat urban stormwater runoff flowing to the lake from portions of downtown White Bear Lake. This project is scheduled to be implemented in 2020-2021.

Funding for the project will be provided by grants, District-wide (ad valorem) funds, although some funding may be provided by the Bald Eagle Lake Water Management District (see **Section 5**).

4.3.9 Clear Lake Water Management Project

Clear Lake, located in the City of Forest Lake, is the headwaters of Rice Creek. The purpose of this capital improvement project is to correct existing stormwater runoff, erosion, and sediment problems which are contributing excess nutrients to Clear Lake and causing physical damage to public rights of way in the project area.

In 2012, the Clear Lake Diagnostic Study was completed to better understand the lake's watershed dynamics, and to identify opportunities to reduce nutrient loading to the lake. The City of Forest Lake also completed the TH61 Aesthetics and Water Quality Improvements Planning Study in 2012. As a result of these studies, a 2015 cooperative effort with the City of Forest Lake led to the installment of a series of BMPs to benefit Clear Lake water quality. The District anticipates further participation in projects to address water quality in Clear Lake including but not limited to ditch realignment, floodplain reconnection, iron-enhanced sand filters, tree trenches, stormwater ponds, stormwater reuse facilities, and common carp management. These projects may be accomplished directly by the District or through technical and financial collaboration with the City of Forest Lake, Forest Lake Area Schools, and/or the Clear Lake Association.

4.3.10 Anoka Chain of Lakes Water Management Project

The issue addressed in this capital improvement project is degraded water quality in Peltier and Centerville Lakes and the rest of the Chain of Lakes. These lakes are in the cities of Lino Lakes and Centerville in Anoka County. Two TMDLs to address excess nutrients in Peltier and Centerville Lakes and the remaining Chain of Lakes were initiated in 2007 and completed in 2013. The TMDL and Implementation Plan documents have identified a number of possible improvement projects for each lake, including, but not limited to, a backflow preventer to ensure a one-way flow of water from Centerville Lake into Peltier Lake. Further, in 2009, the Anoka Conservation District completed a Subwatershed Stormwater Retrofit Assessment for the Rice Lake Subwatershed. This assessment targeted cost-effective practices for phosphorus load removal to the lake, arriving at five practices for district prioritization.

In 2017, the District completed a drawdown of Peltier Lake as a pilot project to reduce the abundance of curly-leaf pondweed, an exotic invasive aquatic plant known to contribute to excessive phosphorus levels during the peak summer algae production season. Future drawdowns of Peltier Lake may be a critical component of the capital improvement project. The RCWD, in conjunction with its project partners, will need to prioritize actions

identified in the Implementation Plans and subsequently implement these actions and other regional BMP's including stormwater reuse projects. Funding of project components is anticipated to be derived from municipal funding, District-wide ad valorem funding, and State water quality grants.

4.3.11 Silver Lake Water Management Project

This capital improvement project aims to address degraded water quality in Silver Lake, a 75-acre basin located in Anoka and Ramsey Counties. An excess nutrient TMDL was approved for Silver Lake in 2010, with the Implementation Plan approval occurring in 2011. As outlined in the Implementation Plan, the Silver Lake watershed is fully developed with minimal existing water quality treatment, and limited opportunities are available to reduce external loading. Small, incremental nutrient load reductions are possible through retrofits as redevelopment occurs and through the implementation of BMPs throughout the subwatershed. Examples of BMPs include increasing ponding and filtration in the Silver Lake watershed using regional ponding, rain gardens, native plantings, and reforestation; retrofit detention ponds; encouraging shoreline restoration; and educating property owners about proper fertilizer use and low-impact lawn care practices. Additional implementation strategies could also include in-lake reductions of phosphorus loading through strategies such as fisheries management and in-lake alum treatments. Funding for this capital improvement project includes District-wide ad valorem and municipal funds.

4.3.12 Golden Lake Water Management Project

Golden Lake is a 57-acre basin that flows into Rice Creek below the Rice Creek Chain of Lakes. In 2009, an excess nutrient TMDL was approved for Golden Lake. The TMDL outlined implementation strategies to pursue, including a water quality pond in Circle Pines just north of the Golden Lake inlet, a potential alum treatment, lake drawdown, and vegetation management.

In an effort to identify specific opportunities to mitigate nutrient loading to Golden Lake, the Anoka Conservation District completed a Stormwater Retrofit assessment for the Golden Lake Subwatershed in 2011. This assessment led to construction of an iron-enhanced sand filter pond retrofit in the City of Blaine in 2015. Further, several additional retrofit approaches were identified in a variety of locations, including maintenance of, or alterations to, existing stormwater infrastructure, residential curb-cut rain gardens, and permeable pavement. The purpose of this capital improvement project is to further pursue such opportunities to reduce nutrient loading to Golden Lake, while also considering the lake's internal phosphorus load. Funding for this capital improvement project include District ad valorem and municipal funds.

4.3.13 Southwest Urban Lakes Implementation Project

Since its inception, the RCWD has received numerous inquiries for assistance for improving the water quality of degraded urban lakes in the southwest portion of the watershed. These reports came from homeowners and lake associations on lakes that experienced decades of concentrated urban runoff, contributing toward flooding and side-effects of nutrient loading. This capital improvement project encompasses actions taken to manage hydrology within the southwest part of the watershed in order to reduce runoff volume, manage flooding and address the degraded water quality of surface water resources that results from excess runoff within a developed urban area. This capital improvement project is generally identified within the individual management action plans contained within the report titled *Southwest Urban Lakes Study* dated April 2009. The Southwest Urban Lakes Study assessed the water quality of 24 lakes in the southwest portion of the RCWD, particularly in relation to state water quality standards, and resulted in the development of management action plans for each lake. These data and other metrics together inform the current management plans enacted by the RCWD to improve water quality, manage flooding, and improve wildlife quality for lakes throughout the southwest portion of the RCWD. This study serves as the TMDL for seven basins in this portion of the District: Island Lake, North Basin; Island Lake, South Basin; Little Lake Johanna; Long Lake, South Basin; Moore Lake, East; Pike Lake; and Lake Valentine.

Each management action plan establishes a list of projects for further investigation Over 200 potential retrofit BMPs as well as activities to manage carp are identified in the management action plans. A further feasibility assessment is needed for many of the projects before the District proceeds with implementation. Also, alternative BMPs using newer technologies may be considered. For example, the use of iron-enhanced sand filters to remove excess dissolved phosphorus from stormwater runoff was not originally contemplated in the Southwest Urban Lakes Study but has since shown to be a cost-effective option as either a stand-alone project type or when used as a retrofit to other previously constructed or contemplated projects. The RCWD intends to pursue implementation of iron-enhanced sand filters in conjunction with its implementation of the Southwest Urban Lakes Study. Stormwater reuse irrigation projects are another modern project type that will allow for runoff volume management in this urbanized area of the watershed.

The Southwest Urban Lakes Implementation project is anticipated to be funded by District ad valorem funds, local (municipal) funding, and State water quality grant funding.

4.3.14 Regional Water Management Partnership Projects

Although several TMDLs have been completed for lakes and streams throughout the RCWD, the majority of District resources are not the focus of a TMDL. For these resources, preservation and enhancement of water quality remains a priority for the District. The District and its municipal and county partners have opportunities to address this issue either through stand-alone projects or augmentation to planned infrastructure projects. One key to implementing these projects is early coordination with these District partners to recognize opportunities and begin assessing the feasibility and effectiveness of these concepts. Particularly, implementation of stormwater reuse projects identified in City Local Water Management Plans (**Appendix XX**) and identified as "feasible" in the RCWD 2017 Reuse Assessment (RCWD, 2017) will be addressed through this Capital Improvement Program. Further, implementation of projects identified in a 2017 Southeast White Bear Lake Stormwater Retrofit analysis completed by the Washington Conservation District will be targeted through Regional Water Management Partnership funds.

Funding for this capital improvement project will likely be through District ad valorem funds, municipal funding, and State water quality grant funding.

4.3.15 Maintenance of District Facilities

The RCWD owns and operates several structures and property that are components of District-led projects designed to control flooding and improve water quality throughout the District, as summarized in **Section 3.3.3**. To preserve their function, the District completes routine maintenance and inspection of these facilities through the District Facilities Maintenance Program as described in **Section 4.1.2.5.** However, some facilities require more extensive repairs that are of a scale and nature consistent with a capital improvement project.

Two of the District Facility repairs that are known to be of a substantial capital scale are dredging of the Long Lake and Locke Lake Sediment Basins, which capture sediment from Middle Rice Creek and Lower Rice Creek, respectively. Periodic dredging is necessary to maintain the effectiveness of these sediment basins. How often dredging is required is dependent on the frequency and magnitude of rainfall events within the District. Dredging of each basin requires facilitation of access, siting for dewatering operations, off-site hauling, and extensive regulatory coordination. The cost of maintenance of these and other District Facilities is provided through Watershed Management District and ad valorem funding.

4.3.16 Middle Rice Creek Water Management Project

The issue addressed by this capital improvement project is the degraded condition of a trunk conveyance system, Middle Rice Creek, which flows from Baldwin Lake to Long Lake in southern Anoka County and northern Ramsey County. The Middle Rice Creek corridor flows through six suburban communities with the riparian corridor nearly entirely publicly owned. As the surrounding landscape was settled, much of the stream

was straightened to increase flow efficiency. However, this straightening led to channel instability, disconnection of floodplain, and more rapid delivery of sediment downstream to Long Lake.

The Middle Rice Creek capital improvement project is identified in the Middle Rice Creek Assessment and Stabilization Feasibility Study dated June 13, 2008 and prioritizes the restoration and re-meandering of more than 16,000 feet of Middle Rice Creek. Re-meandering efforts at two locations along Middle Rice Creek have been completed to date. The capital improvement project will complete restoration of remaining locations in the feasibility study and will address sediment and water volume loads from outfalls into Middle Rice Creek. Further, in 2018, the RCWD, Ramsey County, and the City of Arden Hills completed a Green Infrastructure and Stormwater Reuse Feasibility study for the Rice Creek Commons area. Because much of Rice Creek Commons drains to Middle Rice Creek, recommendations generated in this study will be addressed through the Middle Rice Creek Water Management Capital Improvement Project. Funding for this capital improvement project is anticipated to be provided through District-wide ad valorem funding, county and municipal funding, and State water quality grant funding.

4.3.17 Lower Rice Creek Water Management Project

Lower Rice Creek, which flows from Long Lake to Locke Lake, is almost entirely in public ownership and connects several city and county parks. Lower Rice Creek is the primary water source for Locke Lake which currently experiences heavy sediment loading and is at risk of becoming impaired due to elevated total suspended solids. Streambank stabilization along Lower Rice Creek has been identified in District research as the primary means to reduce sedimentation to Locke Lake, and reduce the frequency of required dredging of the Locke Lake Sedimentation Basin.

The recent Phase 4 assessment of Lower Rice Creek in September 2018 identified several stabilization and restoration activities that can be implemented as stand-alone projects or in combination to improve water quality in Locke Lake prior to release to the Mississippi River. These restoration efforts will decrease bank erosion, thereby reducing sediment and nutrient loading to Locke Lake and the Mississippi River, while improving habitat in Lower Rice Creek for fish and invertebrates. The assessment also concluded that decreasing early flows to Lower Rice Creek will reduce channel velocities and, consequently, sediment loading. This capital improvement project includes best management practices in the direct watershed to Lower Rice Creek downstream of Long Lake, designed to reduce runoff rates and volumes. In 2019, the District was awarded a BWSR Clean Water Fund grant to begin bank stabilization work on a stretch of Lower Rice Creek. This project is scheduled to be implemented in 2020-2021.

In 2013, the Anoka Conservation District completed a Stormwater Retrofit analysis for Moore Lake, which is within the Lower Rice Creek portion of the District. This analysis assessed several stormwater retrofit approaches within the subwatershed to mitigate phosphorus and suspended solid loading to the lake. Approaches identified include; maintenance of existing treatment practices, residential curb-cut rain gardens; new stormwater ponding opportunities; permeable pavement; hydrodynamic separators; and stormwater re-direction. These approaches to Moore Lake water quality mitigation will be addressed through the Lower Rice Creek Water Management Capital Improvement Project.

Funding for this capital improvement project is anticipated to be provided through District ad valorem funding, municipal funding, State water quality grant funding, and Lower Rice Creek Water Management District funding (see **Section 5**).

4.4 Work Plan Process

Note: Text within this section will be updated with new Implementation Table (under development)

4.5 Operation and Maintenance

Note: Text within this section will be updated with new Implementation Table (under development)

4.6 Evaluation Process

The District plans to periodically evaluate progress toward accomplishing the goals within this WMP by assessing metrics and the extent that action items within the RCWD are completed. The District's efforts from 2010 to 2018 have been well-characterized in BWSR's Level II Performance and Assistance Program (PRAP) report. The PRAP will continue to be used as a means of evaluating implementation progress.

Periodically evaluating success provides the Board of Managers with a mechanism to evaluate progress and make the necessary adjustments needed for improvement. Efforts over the past decade restored public drainage system function, decreased flooding, stabilized stream banks through stream restoration, reduced sediment loading into lakes, and expanded education efforts for multiple program areas. These successes now form the basis for the RCWD to expand collaboration efforts with local and state partners to achieve RCWD goals.