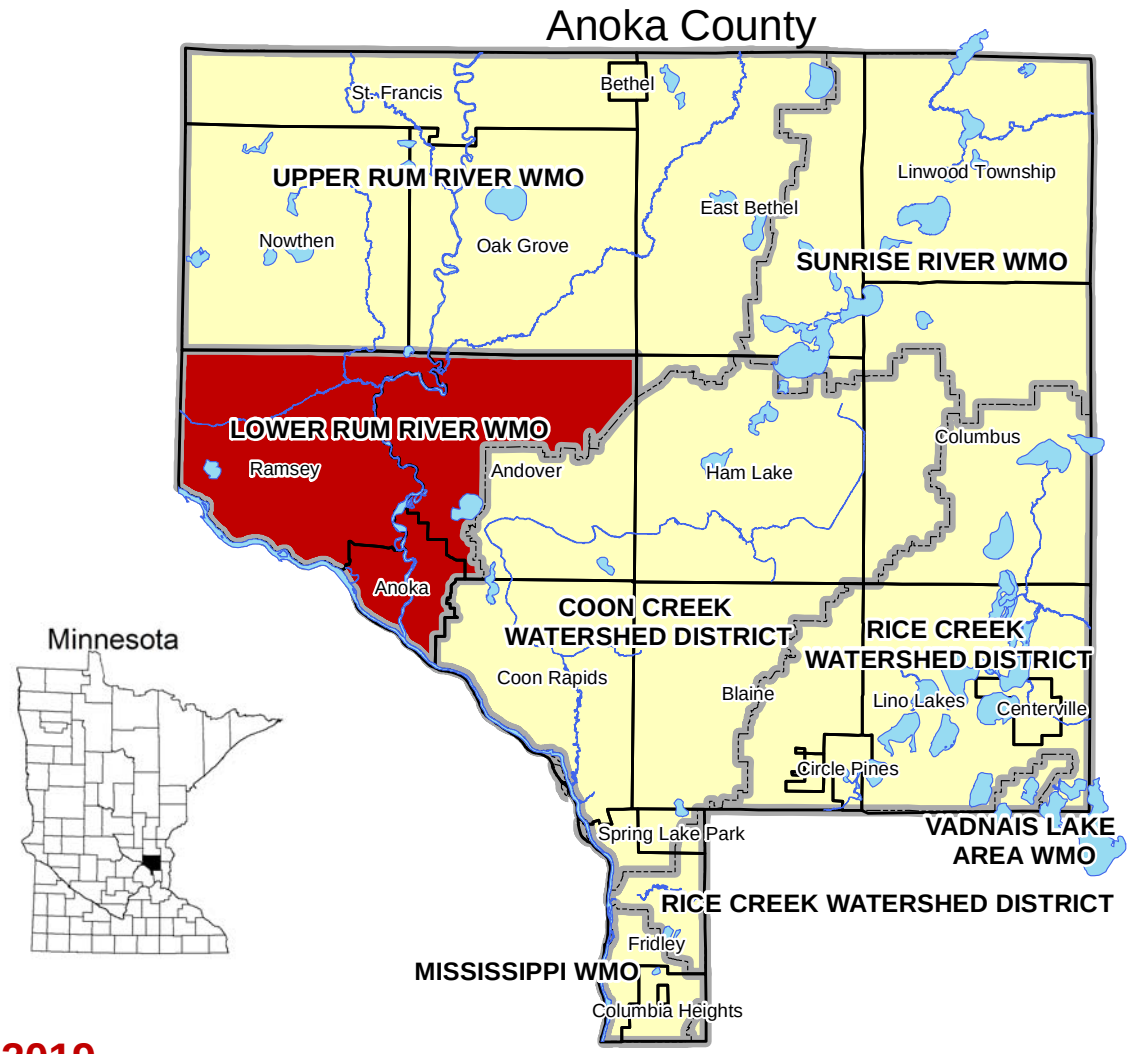
2018 Annual Report

Lower Rum River

Watershed Management Organization

Andover – Anoka – Ramsey



April 11, 2019

Intentionally Blank

Table of Contents

Lower Rum River Watershed Management Organization
2015 First Avenue
Anoka, MN 55303
www.LRRWMO.org

I. Introduction

This report has been prepared to meet the annual watershed management organization reporting requirements of Minnesota Rules 8410.0150. The report is intended to fulfill 2018 reporting requirements.

The Lower Rum River Watershed Management Organization (LRRWMO) is a joint powers organization under Minnesota Statutes, Section 471.59. It is comprised of the cities of Anoka and Ramsey, and portions of Andover. Board members are appointed by the member cities. The organization's direction is laid out in its watershed management plan and the member municipalities' local water plans. The LRRWMO meets every month on the third Thursday at 8:30 am at the Anoka City Hall.

Rum River in Andover and Ramsey

II. Activity Report

a. Current Board Members

CITY OF ANDOVER

Todd Haas (Chair)
1685 Crosstown Blvd NW
Andover, MN 55034
763.755.5100
t.haas@andovermn.gov

Mike Knight (Alternate)
4660 175th Ave NW
Andover, MN 55304
763.421.9247
cm.knight@andovermn.gov

CITY OF ANOKA

Elizabeth Barnett (Treasurer)
1625 South 2nd Ave
Anoka, MN 55303
612-718-8433
elizabethbarnett@ci.anoka.mn.us

Mark Freeburg (Alternate)
2015 1st Ave N
Anoka, MN 55303
763.421.9244
markfreeburg@ci.anoka.mn.us

CITY OF RAMSEY

Debra Musgrove (Vice Chair)
7550 Sunwood Dr NW
Ramsey, MN 55303
763.208.6729
dmusgrove@ci.ramsey.mn.us

Mark Kuzma (Alternate)
7550 Sunwood Dr NW
Ramsey, MN 55303
763.576.4366
mkuzma@ci.ramsey.mn.us

Lake Itasca, City of Ramsey

b. Day to Day Contact

The day to day contact person for the LRRWMO who can answer questions about the organization is:

Todd Haas, Chair
1685 Crosstown Blvd NW Andover, MN 55034
phone 763.755.5100 email t.haas@andovermn.gov

c. Employees and Consultants

The LRRWMO does not employ staff, but does utilize consulting services. A description of contracted services is listed below:

Consultant/Partner	Contact	Work Description
Anoka Conservation District	Jamie Schurbon Water Resource Specialist 1318 McKay Dr NW, #300 Ham Lake, MN 55304 763-434-2030 ext. 12 jamie.schurbon@anokaswcd.org	• Water quality and hydrologic monitoring, and special studies. • Website maintenance. • Administer the WMO's cost share grant program. • Public outreach. • Assistance preparing annual reports to BWSR. • Assistance reviewing local water plans.
Barr Engineering	Bob Obermeyer Senior Water Resources Engineer 4700 West 77th St Minneapolis, MN 55435-4803 952-832-2857 bobermeyer@barr.com Greg Williams Senior Water Resources Engineer 4700 West 77th St Minneapolis, MN 55435-4803 952-832-2945	• Permit reviews. • Technical and engineering guidance. • Assistance reviewing local water plans. • Watershed management plan update.
City of Anoka Finance Department	Brenda Smith, Finance Director 2015 First Ave North Anoka, MN 55303-2270 763-576-2773 lyager@ci.anoka.mn.us	• Deputy Treasurer.
Kennedy & Graven	Troy Gilchrist 470 Pilsbury Center Minneapolis, MN 55402	• Legal services.

Consultant/Partner	Contact	Work Description
	612-337-9214	
Timesaver Off Site Secretarial Service	Carla Wirth 28601 Hub Dr Madison Lake, MN 56063 612-251-8999 Timesaver02@aol.com	• Administrative secretary. • Recording secretary for meetings.

d. Solicitations for Services

Minnesota Statutes 103B.227 require watershed management organizations to solicit bids for professional services at least once every two years. Most recently, in 2018 the LRRWMO solicited proposals for watershed management plan update services. Only one proposal was received, from Barr Engineering. The LRRWMO favorably viewed this proposal and Barr's past performance for the LRRWMO, and selected this firm.

e. Water Quality Trends

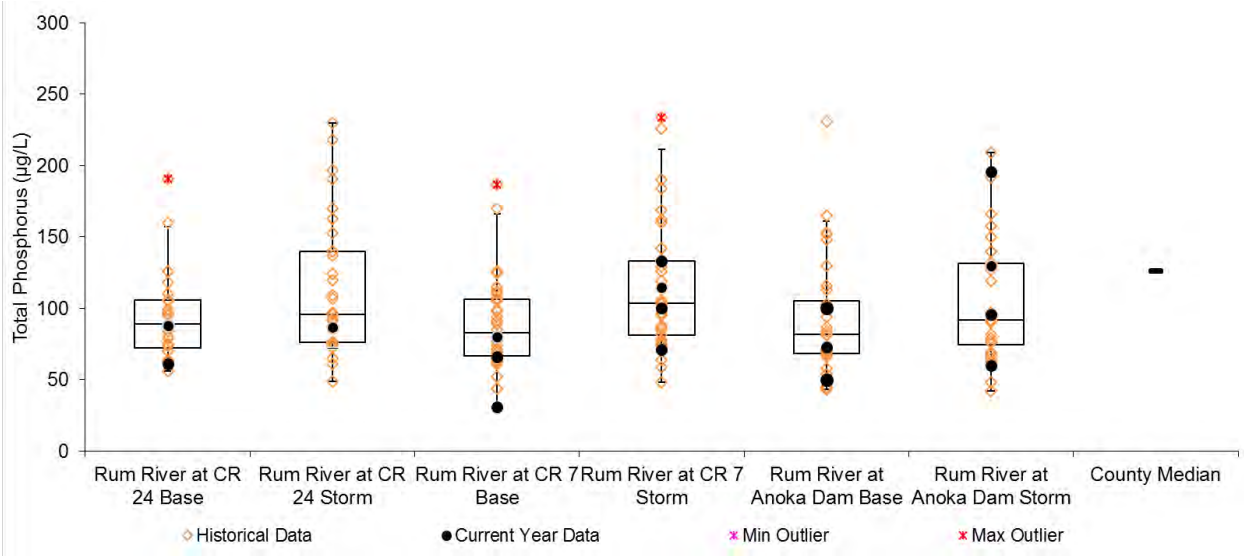
The LRRWMO has a long-term water quality monitoring program that includes most larger stream and recreational lakes in the watershed. Waterbodies are monitored either periodically or annually on a predetermined schedule customized to each waterbody. The monitoring serves to identify problems and responses to management, detect trends and track longitudinal changes.

While a long-term statistical trend for the Rum River has not been found in the LRRWMO's analysis for its reach of the river, there is a general observation of long-term water quality improvement for the entire river. An analysis for the Rum River WRAP project, which covers the whole watershed found that at the Pleasant Street bridge in Anoka there had been a 51% decline in total phosphorus in the years 1953 to 2010.

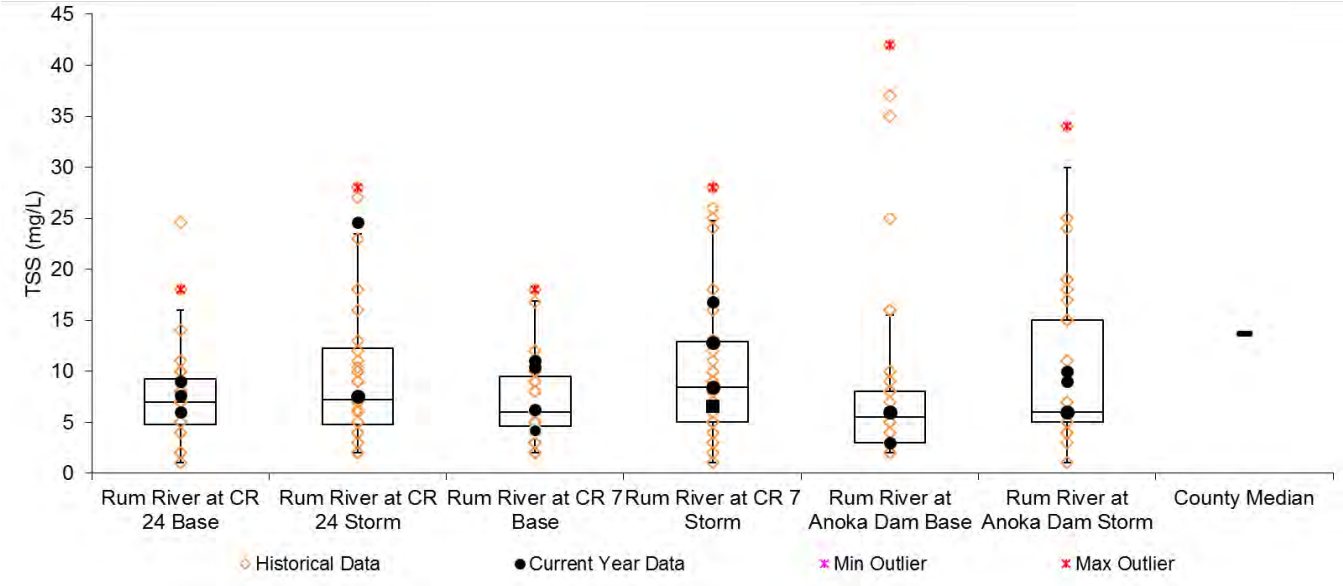
The LRRWMO also takes special interest in how the Rum River's water quality changes longitudinally, particularly within its jurisdictional boundary. The Rum River is monitored most years near where it enters and exits the LRRWMO. The figure below provides data for phosphorus and suspended solids and **Appendix D** provides detailed results for many additional parameters. Phosphorus and suspended solids are similar when comparing water entering and leaving the LRRWMO. This is encouraging, because this reach includes many developed and developing areas which could contribute these pollutants, and the LRRWMO's permitting program is designed to limit pollutant increases from these sources. The LRRWMO will continue efforts to improve water quality in its jurisdiction.

Water quality of the river does change in other areas outside the LRRWMO. Water monitoring farther upstream has been sporadic, most recently occurring in 2013-2014. There are water quality declines that generally occur within the Isanti County reaches of the river, which has the most agriculture and impaired waterbodies draining to the lake (see figure below).

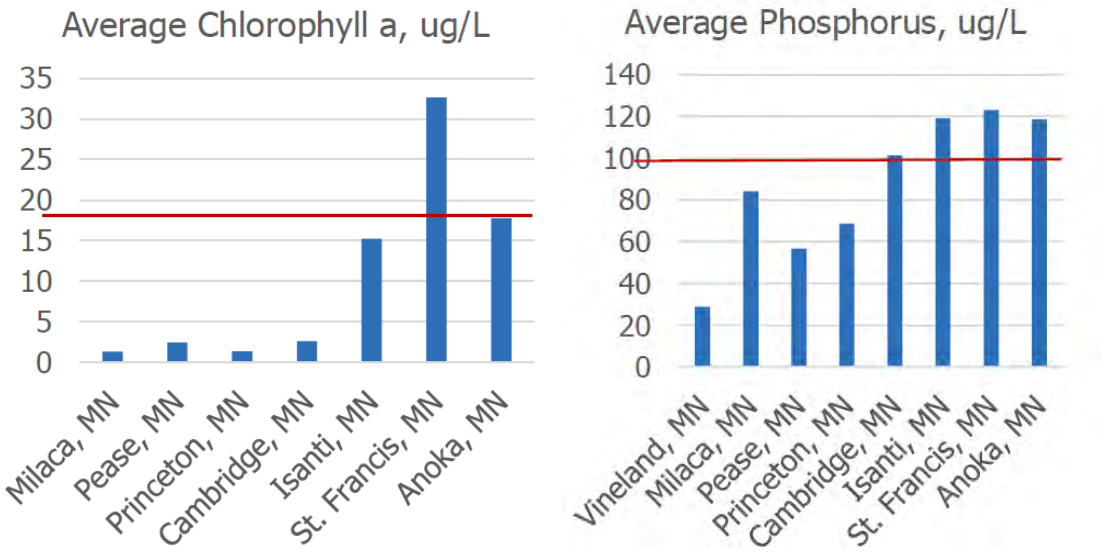
Rum River total phosphorus during baseflow and storm conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentile (floating outer lines).



Total suspended solids during baseflow and storm conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Whole Watershed Longitudinal Rum River Water Quality Changes (graphic from RESPEC for the Rum River WRAP).



In addition to statistical trend tests, it is often useful to examine graphs of water quality data to look for apparent trends that are not yet statistically significant and may or may not be real. These observations, combined with other knowledge about the waterbody (new invasive species, land use changes, etc) can guide management. For this purpose, **Appendix D** presents a variety of detailed water monitoring results.

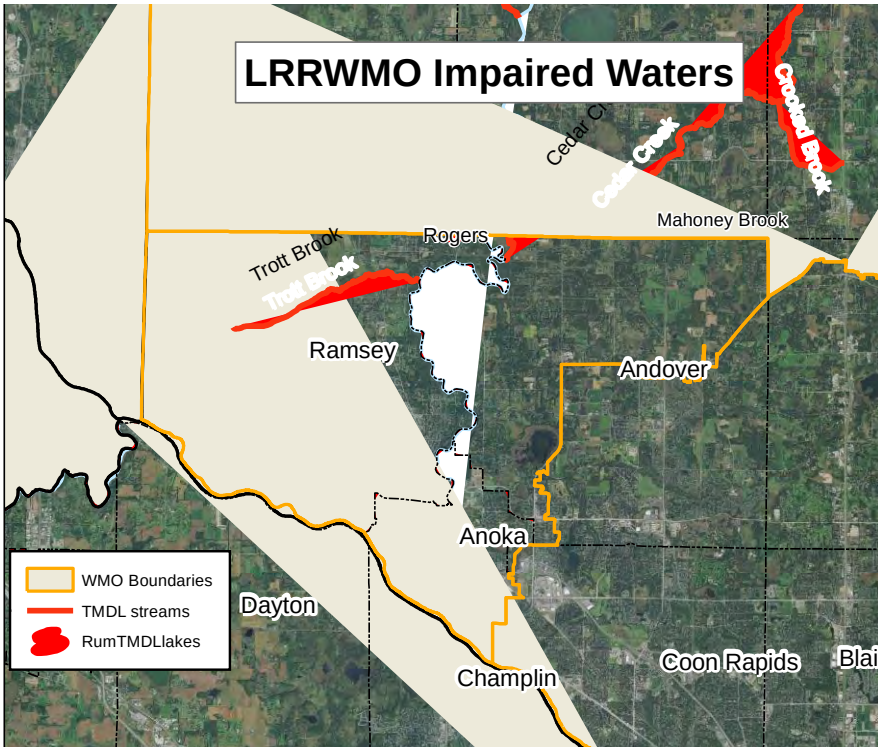
Additional water quality data is available online. Annual watershed monitoring reports are available on the LRRWMO website (www. LRRWMO.org). All water quality data collected by the LRRWMO is on the MN Pollution Control Agency's EQuIS database, which is accessible through their website.

f. Impaired Waters

Two impaired waters are of relevance to the LRRWMO: Trott Brook and Mahoney Brook. Neither has an apparent water quality trend. Trott Brook originates in Sherburne County outside the LRRWMO but much of its length is in the LRRWMO. Mahoney Brook's subwatershed is partly within the LRRWMO, but the impaired reach of the stream is not.

Impaired Waterbodies

(note: Rogers Lake was removed from the impaired waters list after production of this map in 2016.)



Trott Brook, a tributary to the Rum River, was added to the State impaired waters list in 2015 for impaired biota (fish and macroinvertebrates) and low dissolved oxygen. A TMDL was done only for the oxygen impairment in 2016 and approved in 2017 as part of the Rum River Watershed TMDL report (available on the Minnesota Pollution Control Agency website). That study found low oxygen is the likely cause of the biotic impairments. Causes of low oxygen include nutrients (phosphorus), decomposing organic matter (sediment oxygen demand and decomposition in surrounding ditched wetlands) and others. Low oxygen occurs under all flows (low to high), indicating the problem is not runoff-driven. Overall, a 50% reduction of oxygen demand is needed to meet water quality standards. Management strategies may include wetland restorations and nutrient reduction BMPs.

Mahoney Brook was added to the State impaired waters list in 2015 for an impaired biota (fish). The impaired stream reach is not in the LRRWMO, but begins at the LRRWMO boundary and flows north. Presumably, a future TMDL for the impaired reach would include pollutant allocations for the upstream portions of the watershed in the LRRWMO. Draft analysis for the Rum River WRAPS project have concluded that low dissolved oxygen, excess phosphorus and habitat are all stressors to the biological community.

Rogers Lake was on the State impaired waters list until 2016. In 2016 it was determined that this waterbody met the definition of a wetland, and lake water quality standards were not appropriate. Rogers Lake is half in the LRRWMO and half in the URRWMO. It is small (~42 acres), shallow (< 4ft) and has no public access. Illegal herbicide applications at the lake may have played a role in switching the lake back and forth between turbid open water and clean water with dense macrophytes. The City of Ramsey, where most shoreline homes are located, has taken a lead role in educating landowners about lakes management.

g. Evaluation of Watershed Plan Implementation

The current LRRWMO Watershed Management Plan was approved by the Minnesota Board of Water and Soil Resources (BWSR) in late 2011 and adopted by the LRRWMO on January 19, 2012. Implementation began that same year. The plan contains a detailed schedule of tasks that the LRRWMO should accomplish each year in order to realize its goals. **Appendix B** is a table that shows tasks planned for each year in the watershed management plan, as well as responsible parties. It details which tasks were planned and completed.

The LRRWMO deviated from its work plan in the following ways in recent years:

Change	Removed Trott Brook water quality and hydrology monitoring.
Reason	The LRRWMO Watershed Plan's monitoring schedule states the goal of monitoring Trott Brook is to determine its impairment status and calculate a TMDL. Trott Brook was extensively monitored in 2013-14 as part of the Rum River WRAP and that data is being used for TMDL calculation. MPCA has informed us that additional data would not be used for the TMDL because it is complete. No management actions have since occurred that might lead to a change in condition.
Change	Removed Rogers Lake water quality monitoring.
Reason	Rogers Lake was monitored by the LRRWMO in the early and mid-2000's. It was found to be impaired, then removed from the impaired waters list because it does not meet the definition of a lake. The LRRWMO decided to discontinue monitoring of this lake because it has no public access and no outlet (to impact downstream waters).
Change	Added Sunfish Lake water quality monitoring.
Reason	Sunfish Lake was being monitored by the Anoka Ramsey Community College, but the college discontinued this work and had not been submitting their data to state databases. The waterbody has a growing importance in the community with the development of a shoreline park and homes.
Change	Did not monitor groundwater levels or trends.
Reason	Groundwater monitoring is best done at a regional level. The MN DNR has taken the lead.
Change	Did not monitor the Rum River at the Anoka Dam.
Reason	Metropolitan Council monitors this site and makes the data available to the LRRWMO.
Change	Added production of a brochure about the LRRWMO, programs and water resources.
Reason	The board felt the need to have distributable materials for public events and public places such as city hall lobbies.

h. Status of Ordinances and Local Plan Implementation

All LRRWMO member cities local water plans were required to be updated for consistency with the LRRWMO Watershed Management Plan within two years of WMO plan adoption in January 2012. The status of each is summarized in the table below.

To track member cities' progress on local plan implementation, the LRRWMO requires a brief annual report from each city and provides a template for this report. In addition to serving as a reporting tool, we hope that the template serves as a "to do" list for our cities. These reports are available upon request, and are summarized in the table below.

Status of city local water plans and some recent accomplishments toward plan implementation.

City of Andover	
Submitted 2018 annual report to LRRWMO?	Yes
Ordinances and Local Water Plan Status	Andover's Local Water Plan was approved by the LRRWMO May 21, 2015. The city has all of the ordinances required by the LRRWMO.
Some Recent Implementation Accomplishments	• Street sweeping completed annually. • Educational outreach in 2018 reached about 3300 households. Outreach efforts included newsletters, public service announcements on storm water quality were broadcast on local television, and information provided at the North Suburban Home Show. Overall, educational outreach covered the topics of wetland protection BMPs, controlling invasive species, water conservation, yard waste management, pet waste disposal, and groundwater quality and protection. • New and reconstructed street projects were completed in 2018. When feasible catch basin sumps were installed in storm sewers to collect sediment. • Water control structures and stormwater treatment basins are inspected every five years and maintenance action is taken as needed. • Illicit discharge detection and elimination program. • Andover is actively inspecting its outfalls into the Rum River and other public waters. Records are maintained in city GIS software. • Periodic inspections of erosion control at construction sites. • Management of natural preserves called Martin's Meadows, Maple View, Dalske and Northwoods Preserve continue. Efforts underway include prairie establishment, buckthorn control, and scenic overlook site stabilization. • Habitat improvement projects such as Kelsey Round Lake Park are ongoing and include 15 acres of buckthorn control and establishing a 35 acre native prairie.

City of Anoka	
Submitted 2018 annual report to LRRWMO?	Yes
Ordinances and Local Water Plan Status	The City of Anoka's local water plan was approved by the LRRWMO May 21, 2015. The city has all of the ordinances required by the LRRWMO.
Some Recent	• Street sweeping.

Implementation Accomplishments	• Inspected water level controls and basins every 5 years. • The Public Service Department performed infrastructure repairs, removed sediment from treatment structures and cleaned storm sewers and catch basins • Illicit discharge detection and elimination program. • Constructed 42 catch basins on city projects in 2018. • Constructed a regional storm storage pond for flood storage. • Installed one rain garden. • Removed invasive species along the Rum River. • Educational outreach including 2 newsletter articles, 1 brochure, 4 website postings, and Arbor Day tree program and use of social media. Topics included controlling invasive species, water conservation, hazardous waste disposal, and yard waste management. The audience was 7,000 residents. • Installation of stormwater treatment associated with street reconstruction projects annually. • Anoka manages stormwater activities to ensure no net increase in volume, rate, sediment or nutrient loading. • Annual outfall inspections and repair as needed. • River corridor reforestation and bank stabilization with native seedlings. • Continue to plan projects to control buckthorn. • Approved erosion and sediment control and wetland ordinances in 2017.
City of Ramsey	
Submitted 2018 annual report to LRRWMO?	Yes
Local Water Plan Status	The City of Ramsey's local water plan was approved by the LRRWMO September 17, 2015. Ramsey has all of the ordinances required by the LRRWMO.
Some Recent Implementation Accomplishments	• Annual street sweeping. • Implementing a five year plan for inspecting stormwater ponds. • Illicit discharge detection and elimination program. • Public Works cleaned ditches and culverts identified during inspection. • Reached 9,500 households in 2016 with 4 newsletter articles and posted information on the county's "Know the Flow" website. Topics of education efforts included wetland protection, controlling invasive species, water conservation, hazardous waste disposal, yard waste management, and pet waste disposal.

i. Public Outreach

The LRRWMO and its member cities do regular public outreach and education projects. These include:

- **WMO website**, including general information about the organization, the watershed management plan, meeting agendas and minutes, water monitoring results, profiles of WMO projects, access to mapping and data access tools, and others.

- **Web videos** – To bolster the content of the website the LRRWMO creates web videos. They include:

2012	About the LRRWMO
2013-14	Water conservation
2014-15	Wetland regulation, correcting riverbank erosion

- **Newsletter articles** – Articles are prepared by the LRRWMO and printed in member city newsletters. Copies of several of these articles are provided in **Appendix C**.

- **Public officials meetings** – Approximately every 5 years the LRRWMO hosts a dinner meeting for local officials. The purpose is to educate elected officials about the role of the WMO, discuss upcoming projects, and consider the overall direction of the WMO. These meetings were last held in 2008, 2013 and 2017.

- **Bi-annual river float with city officials and staff** – Every other year the WMO Board, along with city staff and officials, float the Rum or Mississippi River. The trip is an opportunity to inspect for violations or problems, as well as share an appreciation of the river with decision-makers. A float was last done in August 2017 on the Rum River from the County Road 7 bridge (top of the LRRWMO) to the Anoka Dam (near the bottom of the LRRWMO).

LRRWMO and city officials toured the Rum River in August 2017

- **A wetland education series –** From 2013 to 2020 the LRRWMO is conducting a six-part education program about wetlands. The purpose is to improve public understanding of wetland values and rules. It includes on-line resources, property owner packets, newsletters, signage near public wetlands, workshops for elected officials, and local events exhibits.

  In 2013 the LRRWMO produced a map about wetland regulation and mailed it to over 2,000 landowners who own land with or adjacent to wetlands. Each brochure included a custom neighborhood level map.

  We also created a one-stop-shop of wetland regulatory information website in 2013. This was done on the Anoka Conservation District's website so it could serve parts of our communities that are not in the LRRWMO, as well as surrounding areas.

  In 2014 two newsletter articles and one web video were produced.

  In 2015, 30 wetland interpretive signs of four different designs were produced. In early 2016 the member cities installed the signs along trails and other prominent areas near wetlands or shoreline.

  Cities continued wetland education outreach including providing educational materials in city halls.

j. Permits, Variances, and Enforcement Actions

The LRRWMO's 2018 permit activity is summarized in the table below.

Permit Name	Permit #	City	Summary
South Street Addition	#2017-33	Anoka	The project proposed a 4-lot, 1.4-acre redevelopment residential subdivision located between Washington Street and South Street, west of 8th Avenue. Stormwater is to be provided by an underground system to meet the LRRWMO storm water management requirements.-**Project approved.**
Ramsey Elementary School	#2017-34	Ramsey	34-acre undeveloped site located at 16961 Nowthen Boulevard. Four wetlands identified on the site. No wetland impacts are proposed. Stormwater management to be provided by an on-site basin, to be lined and used for irrigation of approximately 9.2 acres. **Project was approved.**
Rum River Prairie	#2018-01	Ramsey	25 lot, 80+ acre single family residential subdivision. Stormwater to be directed to one of four basins constructed on the site. Low floor elevations to be a minimum of two feet above back-to-back Atlas 14 100-year frequency flood elevations of Basins 1, 2 and 4. Homes adjacent to basin 3 are two feet above a single Atlas 14 storm event. Volume retention of 25,773 cubic feet is to be provided from the 7.1 acres of proposed impervious area. – **Project was approved.**
Affinity at Ramsey	#2018-02	Ramsey	4-story, 175 unit senior apartment facility to be located on a vacant lot in the northwest corner of Sunwood Drive N.W. and Center Street N.W. The site is within a Drinking Water Supply Management Area (DWSMA) where volume retention through infiltration is not allowed. The City of Ramsey has committed to provide the required 8,911 cubic feet of volume retention and "dead-storage" of 15,655 cubic feet for water quality outside of the well head protection area. Rate control is to be provided on-site. Compliance by the city of Ramsey is to be provided by 2020. –**Project was approved.**

Permit Name	Permit #	City	Summary
Bunker Lake Boulevard and Puma Street Improvements	#2018-03	Ramsey	Street and utility reconstruction. 1.03 acres of new impervious area that is subject to the LRRWMO stormwater management requirements. With the limited area within the roadway right-of-way available for stormwater management, the City has committed to provide 10,019 cubic feet of volume retention and 12,640 cubic feet of "dead-storage" volume for water quality management in a future regional basin. Compliance by the City of Ramsey is to be provided by 2019. – **Project was approved.**
Cole Addition	#2017-20	Ramsey	6-lot, 2.7 acre site single-family residential subdivision to be located east of the intersection of 168th Lane N.W. and Kamacitic Street N.W. A rainwater garden located in the back-yard area of the lots is to provide stormwater management for compliance with LRRWMO criteria. – **Project was approved.**
White Pine Wilderness 4th Addition	#2018-04	Andover	14-lot continuation of the overall White Pine Wilderness subdivision. Stormwater management approved for the overall development in 2014. Low floor elevations stipulated for the lots adjacent to the two on-site wetlands. –**Project was approved.**
Anoka County Solar	#2018-05	Ramsey	13,872 solar panels proposed on the 18.6 acre site located at 11469 Llama Street N.W. The site is currently being used for agricultural purposes. On-site stormwater management provided through infiltration of runoff beneath each panel. – **Project was approved.**
COR Infiltration Basin Construction	#2018-06	Ramsey	Documentation submitted by Ramsey on their obligation of providing volume retention for 13 projects approved by the LRRWMO through infiltration is prohibited because of site constraints. Extension of the completion of construction of the COR infiltration basin until September 30, 2019. – **Project was approved.**
Lehn/Russel Rum River Property	#2018-07	Andover	Wetland boundary and type. – **Project was approved.**
TC Homes	#2018-08	Andover	Wetland boundary and type. – **Project was approved.**
Peterson Farms – Phase 1	#2018-09	Andover	24 single family residential lots on 43 acres of the overall 400 acre site. Nine stormwater basins within the Phase 1 area to provide stormwater management to comply with the LRRWMO requirements. – **Project was approved.**

Permit Name	Permit #	City	Summary
Estates at Cedar Ridge	#2018-10	Andover	Wetland boundary and type, incidental wetland determination, sequencing analysis and wetland replacement plan. – **Project was approved.**
Minor Plan Amendment – Andover Storm Water Management Plan	#2018-11	Andover	Approve minor amendment to the Andover Storm Water management Plan that is consistent with the LRRWMO's Third Generation Storm Watershed Management Plan.
Brookfield East	#2018-12	Ramsey	Wetland boundary and type – **Project was approved.**
Bunker Lake Industrial Park #3	#2018-13	Ramsey	61,000 square foot building within the Bunker Lake Business Park. Mass grading and utilities to serve the site installed in 2017. 2/3 of the site tributary to a regional basin 1/3 of the site tributary to a proposed on-site basin. The regional basin and on-site basin provide the volume retention, rate control and water quality management required to comply with the LRRWMO storm water requirements – **Project was approved.**
Cottages at The COR	#2018-14	Ramsey	40 detached single family residential homes to be located on a 4.3 acre site at Ramsey Boulevard and Bunker Lake Boulevard. Site within DWSMA therefore volume retention through infiltration not allowed. City of Ramsey to provide 6,897 cubic feet of volume within a regional basin to be constructed. Rate control and water quality management to be provided within a downstream regional basin within the COR. Volume retention to be provided by the City by September 30, 2019. – **Project was approved.**
Kwik Trip	#2018-15	Anoka	Project proposes convenience store, car wash and fueling station located on a 4.1 acre site at 7th Avenue and Buchanan Street. MPCA prohibits volume retention by infiltration on fuel distribution sites. City of Anoka to provide the 8,095 cubic feet of volume retention using excess retention volume available from 4 city projects. Water quality and rate control to be provided on-site by a constructed lined basin to comply with LRRWMO requirements. – **Project was approved.**
Shady Tree Cottages	#2018-16	Ramsey	Wetland boundary and type. – **Project was approved.**
1565 167th Avenue N.W.	#2018-17	Andover	Two 60-day extensions were approved by the LRRWMO for wetland boundary and type determination.

Permit Name	Permit #	City	Summary
Lazy Days RV	#2018-18	Ramsey	30,240 square foot service center building constructed on 5.7 acres of an 11 acre vacant lot located along Armstrong Boulevard south of T.H. 10. Stormwater management provided with basins constructed as part of the Armstrong Boulevard and T.H. 10 reconstruction – Permit #2014-11.
Elk River Loop Pipe Repair Dig	#2018-19	Ramsey	WCA No-loss request. – **Project was approved.**
Ramsey Surface Water Management Plan	#2018-20	Ramsey	The Ramsey Surface Water Management Plan was submitted to the LRRWMO for review and comment. Four comments were provided for inclusion in the Plan.
Anoka Infiltration Credits	#2018-22	Anoka	Submission of four city projects that did not require a permit from the LRRWMO however provided stormwater management having excess volume retention credits to be banked. The credits are to be used for future projects where volume retention cannot be provided on-site because of site constraints. **Project was approved** based on as-builts for the areas submitted showing the volume retention credits available.
Riverdale Drive Trunk Sewer and Watermain Extension	#2018-23	Ramsey	Erosion and sediment permit required for the project. The project consists of 2,600 lineal feet of 18-inch sanitary sewer and 2,600 lineal feet of ductile iron pipe watermain. No new impervious area therefore stormwater management is not required. – **Project was approved.**

k. 2019 Work Plan

Planned 2019 activities are listed in the table below. Most routine administrative tasks are excluded.

Task	Purpose	Description	Locations or Action	Cost
Lake Level Monitoring	To understand lake hydrology, including the impact of climate or other water budget changes. These data are useful for regulatory, building/development, and lake management decisions.	Weekly water level monitoring in lakes by volunteers. All are available on the Minnesota DNR website using the "LakeFinder" feature (www.dnr.mn.us.state \lakefind\index.html).	Itasca Lake Round Lake Sunfish Lake Rogers Lake	$1,240
Lake Water Quality Monitoring	To detect water quality trends and diagnose the cause of changes.	May through September lake water quality monitoring conducted every two weeks and including total phosphorus, chlorophyll-a and transparency.	Round Lake	$1,825
Stream Water Quality Monitoring	To detect water quality trends and diagnose the cause of changes. Rum River monitoring is done where the river enters and leaves the LRRWMO.	Eight water samples are taken throughout the open water season. Parameters tested include total phosphorus, total suspended solids, turbidity, conductivity, dissolved oxygen, chloride, and others. Hydrology data is provided by the USGS station near St. Francis for the Rum River.	Rum River at CR7	$1425
Rum River Invertebrate Biomon-itoring	To assess overall river health. To provide a hands-on educational experience to high school students.	Facilitated by the ACD, science classes from Anoka High School assess aquatic insect populations. Students will collect macroinvertebrate samples, identify them, and calculate indices of river health. Anoka Conservation District staff provide instruction, oversight, and write a final report. This monitoring has been conducted for more than 10 years.	Rum River at Bunker Lake Blvd	$900
Reference Wetland Hydrology Monitoring	The ACD maintains a network of 18 reference wetlands throughout the county. These data aid in understanding of water conditions in wetlands, surficial water table changes, and trends. It is useful for regulatory determinations (for example, is a dry area actually a wetland, or are all wetlands dry right now?) and resolving water level disputes. Each reference wetland has been monitored for more than 10 years, providing a long term record.	Install and maintain a WL40 electronic water level monitoring device at the edge of reference wetlands. These devices measure water levels every four hours.	AEC Ref Wtld Rum Central Ref Wtld Lake Itasca Trails Ref Wtld	$1,950

Task	Purpose	Description	Locations or Action	Cost
LRRWMO Website	To increase awareness of the URRWMO and its programs. The website also provides tools and information that helps users better understand water resources issues in the area. The website serves as the URRWMO's alternative to a state-mandated newsletter.	Maintain and update the WMO website with current information about the organization, and meeting minutes and agendas. Web videos developed by the LRRWMO are also featured on the website.	http://www.lrrwmo.org	$865
Newsletter articles	To increase public awareness of water resources and the LRRWMO.	Two newsletter articles will be produced and printed in city newsletters.	Watershed-wide	$1,120
Brochure about the LRRWMO	To increase public awareness of water resources and the LRRWMO.	The LRRWMO will produce a brochure about their organization, programs and local water resrouces.	Watershed-wide	$600
Prepare Annual Report to State Auditor	To provide transparency and accountability of organization operations.	An annual financial report and online reporting of WMO finances though the State Auditor's SAFES website is completed by the LRRWMO's Deputy Treasurer.	Watershed-wide	$0
Prepare Annual Report to BWSR	To provide transparency and accountability of organization operations.	Produce an annual report of WMO activities and finances that satisfies Minnesota Rules 8410.0150.	Watershed-wide	$850
Permitting Program	To ensure water quality and hydrology are properly taken into consideration during construction projects.	The LRRWMO permitting program targets land disturbance activities.	Watershed-wide	variable
Cost Share Grants for Water Quality Improve-ment	To improve water quality in lakes, rivers, and streams.	These grants offer incentives for a water quality improvement projects. Typical projects include erosion correction, lakeshore restoration, and rain gardens. The Anoka Conservation District provides administration.	Offer grants	$2,000
LRRWMO Watershed Management Plan Update	To plan for the next 10 years.	The LRRWMO will finalize a new 10-year watershed management plan in spring 2021. Work began in early 2019.	Watershed-wide	

The LRRWMO deviated from its watershed management plan for 2019 in the following ways:

Change Removed 2018 water quality monitoring of the Rum River at the Anoka Dam.

Reason: Metropolitan Council monitors this site and makes the data available to the LRRWMO.

Change Did not monitor groundwater levels or trends.

Reason Groundwater monitoring is best done at a regional level. The MN DNR has taken the lead.

Change Removed Rogers Lake water quality monitoring.

Reason This lake was declared impaired, but was delisted in 2016 because it meets the definition of a wetland not a lake. This waterbody is a low priority for the LRRWMO because of its small size, limited recreational capacity, lack of public access and because it has no outlets and therefore its water quality does not threaten high priority waterbodies downstream.

III. Financial and Audit Report

a. 2018 Financial Summary

See Appendix A.

b. Fund Balances

See Appendix A.

c. Financial Audit Documentation

A 2018 financial audit has not yet been completed, but will be provided to the State by the City of Anoka once complete.

d. 2019 Budget

At its January 2019 meeting the LRRWMO Board approved the 2019 budget shown below.

RESOLUTION # 2019-01

RESOLUTION OF THE LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION (LRRWMO) FOR ADOPTING THE BUDGET FOR YEAR 2019

BE IT RESOLVED by the Board of the Lower Rum River Watershed Management Organization of Minnesota as follows:

1. The budget for the LRRWMO the year 2019 hereby approved and adopted with appropriations for each of the various activities as follows:

REVENUE:	
Assessments	
Andover	$ 11,659
Anoka	$ 9,348
Ramsey	$ 20,993
	$ 42,000
Permits	$ 35,000
Grants	$ 1,500
Interest earnings	$ 750
TOTAL REVENUES	$ 79,250
EXPENDITURES:	
Engineering	$ 7,000
Permit Review	$ 28,000
Legal	$ 4,000
Financial Services	$ 2,400
Secretarial Services	$ 9,100
Postage, Copying, etc.	$ 1,600
Insurance	$ 2,150
LRRWMO Plan update/Reserve	$ 25,000
Web Site maintenance/upgrade	$ 1,045
Annual Report	$ 850
Build Fund to Match Future Grants	$ 2,000
Wetland education (2 city newsletter articles)	$ 1,120
Lake Level Monitoring	$ 1,240
Lake Water Quality Monitoring	$ 1,800
Stream Water Quality Monitoring	$ 1,405
Steam Biomonitoring w/ students	$ 900
Wetland Monitoring	$ 1,950
10% Match for Anticipated Watershed Based Funding	$ 11,835
Miscellaneous	$ 10,000
TOTAL	$ 113,395
NET INCOME	$ (34,145)

Intentionally Blank

Appendix A:
2018 Financial Report

Intentionally Blank

LOWER RUM RIVER WATER MANAGEMENT ORGANIZATION

ANNUAL FINANCIAL REPORT

For the Year Ended January 31, 2019

Prepared by the Deputy Treasurer

Brenda Smith
With assistance from Andrea Worcester, Finance Account Clerk

LOWER RUM RIVER WATER MANAGEMENT ORGANIZATION

Annual Financial Report

Year Ended January 31, 2019

TABLE OF CONTENTS

Lower Rum River Water Management Organization Board

Appointed Officials

January 31, 2019

Todd Haas, Chair

Mark Kuzma, Vice Chair

Elizabeth Barnett, Secretary and Treasurer

Administrative

Carla Wirth, Time Savers — Administrative Secretary
Brenda Smith, City of Anoka — Deputy Treasurer

LOWER RUM RIVER WATER MANAGEMENT ORGANIZATION

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED JANUARY 31, 2019

1. NATURE OF THE ORGANIZATION

Lower Rum River Water Management Organization (the "Organization") is a watershed management organization that has been created to fulfill the requirements and purposes of Minnesota Statutes 103B.201 to 103B.251. The purpose of such an organization as defined by Minnesota Statute 103B.201 is to "Protect, preserve and use natural surface and ground water storage and retention systems in order to (a) reduce to the greatest practical extent the public capital expenditures necessary to control excessive volumes and rate of runoff, (b) protect and improve surface and ground water quality, (c) prevent flooding and erosion from surface flows, (d) promote ground water recharge, (e) protect and enhance fish and wildlife habitat and water recreational facilities, and (f) secure the other benefits associated with the proper management of surface and ground water."

The cities of Andover, Anoka, Coon Rapids, and Ramsey formed the Organization by executing a joint powers agreement in accordance with Minnesota Statute 103B.211, dated July 15, 1985. In July 2014 the joint powers agreement was amended removing Coon Rapids. Coon Rapids joined the Coon Creek Watershed District.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accompanying summary of significant accounting policies is presented to assist the reader in understanding the Organization's financial statements. The financial statements are representations of the Organization's Board, which is responsible for the integrity and objectivity of the financial statements. The following is a summary of the more significant accounting policies:

A. Measurement Focus, Basis of Accounting, and Financial Statement Presentation

The financial statements are reported using the "economic resources" measurement focus and the accrual basis of accounting. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the principal ongoing operations. The principal operating revenue of the Organization is charges to customers for permits. Operating expenses for the Organization include engineering services, administrative expenses, and related river, stream, and wetland monitoring, conservation, and compliance expenses. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

B. Cash and Cash Equivalents

Cash balances are invested to the maximum extent possible. For the purposes of the statement of cash flows, the Organization considers all highly liquid investments with a maturity of three months or less when purchased to be "cash equivalents."

C. Investments

Investments are reported at fair value.

D. Income Taxes

As a joint powers watershed management organization, the Organization is exempt from both federal and Minnesota income taxes. Accordingly, no provision for income taxes is included in these financial statements.

E. Receivables and Payables

Receivables represent outstanding reimbursements from permit holders for work already completed and paid for by the Organization and grants for activity completed but not received as of the end of current fiscal year. Payables are recorded for services completed for the Organization but unpaid as of the end of the current fiscal year. Deposits represent amounts owed to permit holders at year-end for services yet to be done.

F. Budgetary Information

Budgetary information is derived from the annual operating budget and is presented using the accrual basis of accounting, which is the same basis of accounting the Organization uses in preparation of its financial statements. The budgeted amounts presented include any amendments made.

G. Use of Estimates

The preparation of financial statements in accordance with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenditures during the reporting period. Actual results could differ from those estimates.

H. Subsequent Events

Subsequent events have been evaluated through April 15, 2019, which is the date the financial statements were available to be issued.

3. CASH AND INVESTMENTS

The Organization follows state statute guidelines for investment purposes. The state statute allows for investments in United States securities, state and local government general obligation securities rated "A" or better by a national bond rating agency, state and local government revenue securities rated "AA" or better by a national bond rating agency, commercial paper rated in the highest quality category by two national rating agencies and that mature in 270 days or less, certificates of deposit, bankers acceptance, and repurchase agreements.

The Organization is invested in the Minnesota Municipal Money Market Fund (4M Fund). The 4M Fund is an external investment pool not registered with the Securities and Exchange Commission (SEC) that follows the same regulatory rules of the SEC under rule 2a7. The City's investment in the 4M Fund is measured at the net asset value per share provided by the pool, which is based on amortized cost method that approximates fair value.

(a) Interest Rate Risk

Interest rate risk is the risk that the fair value of investments will be adversely affected by a change in interest rates. The Organization does not have a formal investment policy related to interest rate risk. As of January 31, 2019, the Organization had the following investments and maturities:

Investment type:	**Fair Value**	**Less Than One Year**
External investment pool	$ 252,589	$252,589

(b) Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Credit risk is measured using credit quality ratings of investments in debt securities as described by nationally recognized rating agencies such as Standard & Poor's and Moody's.

The following table lists the credit quality ratings, per Moody's and/or Standard & Poor's, of the Organization's investments as of January 31, 2019:

3. CASH AND INVESTMENTS

(b) Credit Risk (Continued)

Investment type:	**Fair Value**	**Unrated**
External investment pool	$ 252,589	$252,589

(c) Custodial Credit Risk

Custodial credit risk is the risk that, in the event of the failure of a counterparty, the Organization will not be able to recover the value of the investments, collateral securities, or deposits that are in the possession of the counterparty. The Organization does not have a formal policy related to custodial credit risk of investments or deposits. At January 31, 2019, all of the Organization's investments are insured and registered and are held by the counterparty's agent in the Organization's name.

4. REVENUES

Assessments From Participating Cities:

Member cities are assessed on an annual basis for estimated Organization costs by motion of the Organization's governing board. Administrative and planning costs are apportioned by a formula, taking into account both valuation and gross area equally. Projects and improvement costs are charged to the benefiting properties by a formula adopted by the Organization's governing board. Member city assessments for administrative and planning costs were as follows:

Year Ended January 31, 2019

Andover	$11,659
Anoka	9,348
Ramsey	20,993
	$42,000

Permits:

The Organization issues permits for construction to cover the costs associated with the review of grading, drainage, and erosion control plans of the projects to improve overall water quality. The Organization earns $100 for administrative costs for each permit it processes. A deposit is received upon application of the permit. The deposit is used to cover the administration costs and all professional services incurred to complete the permit process. Any remaining deposit excess is refunded upon issuance of the permit.

5. RISK MANAGEMENT

The Organization participates in a public entity risk pool to mitigate its exposure to these risks. Liability coverages are provided through a pooled self-insurance plan with other cities. The Organization has a $250 deductible per occurrence for its coverage.

LOWER RUM RIVER WATER MANAGEMENT ORGANIZATION
STATEMENT OF NET POSITION
JANUARY 31, 2019

Assets		
Current assets:		
Cash and investments	$	252,589
Accounts Receivable		237
Prepaid		2,918
Total assets	$	255,744
Liabilities		
Current liabilities:		
Accounts payable	$	2,843
Deposits		59,657
Total current liabilities		62,500
Net Position		
Unrestricted		193,245
Total liabilities and net position	$	255,744

See accompanying notes to financial statements.

LOWER RUM RIVER WATER MANAGEMENT ORGANIZATION

STATEMENT OF REVENUES, EXPENSES, AND CHANGE IN NET POSITION - BUDGET AND ACTUAL
YEAR ENDED JANUARY 31, 2018

	Original and Final Budget	Actual	Variance From Budget Positive (Negative)
Operating revenues:			
Assessments from participating cities	$ 40,000	$ 40,000	$ -
Permits:			
Service fees	6,000	2,200	(3,800)
Engineering fees	24,000	28,078	4,078
Intergovernmental	1,000	18,628	17,628
Miscellaneous	-	183	183
Total operating revenues	71,000	89,089	18,089
Operating expenses:			
Engineering fees:			
Permits	24,000	20,018	3,982
Administrative	6,000	6,508	(508)
Legal and professional fees	6,400	2,648	3,752
Insurance	2,100	2,418	(318)
Secretarial services and supplies	9,500	9,602	(102)
Projects	34,765	31,245	3,520
Other	10,000	5,408	4,592
Total operating expenses	92,765	77,846	14,919
Operating income	(21,765)	11,243	33,008
Nonoperating revenues:			
Interest income	750	4,452	3,702
Change in net position	$ (21,015)	15,696	$ 36,711
Net position at beginning of year		177,549	
Net position at end of year		$ 193,245	

See accompanying notes to financial statements.

LOWER RUM RIVER WATER MANAGEMENT ORGANIZATION

STATEMENT OF CASH FLOWS
YEAR ENDED JANUARY 31, 2018

Increase (decrease) in cash and cash investments:		
Cash flows from operating activities:		
Received from member cities	$	40,000
Received from customers		49,089
Payments to suppliers for goods and services		(77,846)
Net cash provided by operating activities		11,243
Cash flows from investing activities:		
Investment earnings		4,452
Net increase in cash and investments		15,696
Cash and investments at beginning of year		236,893
Cash and investments at end of year	$	252,589
Reconciliation of operating income to net cash provided by operating activities:		
Operating income	$	15,696
Changes in operating assets and liabilities:		
Accounts receivable		1,603
Prepaid		(2,918)
Accounts payable		(3,245)
Deposits		108
Total adjustments		(4,452)
Net cash provided by operating activities	$	11,243

See accompanying notes to financial statements.

Appendix B: Implementation of Watershed Management Plan Summary

Intentionally Blank

Key to Symbols X = Task completed Empty box = task planned but not yet completed Black box = Task not planned for that entity or at that time.

EDUCATION	2013						2014						2015						2016						2017						2018						2019						2020						2021					
Task	ACD	Andover	Anoka	Coon Rapids	LRRWMO	Ramsey	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other
a. **Newsletter** - Distribution of education material biannually, fostering water quality management practices in Community newsletters, specifically addressing wetland regulation from time to time.	WMO hires ACD to write newsltr articles that cities print																																																		
"X" when completed -- April	X	X	X	X	X	X		X	X	X	X			X	X	X	X			X	X	X	X			X	X	X	X			X	X	X	X															
"X" when completed -- August	X	X	X	X	X	X		X	X	X	X			X	X	X	X			X	X	X	X			X	X	X	X			X	X	X	X															
b. **Website** - Maintain and expand the WMO website for water resource management. In 2013 add wetland regulatory info. The WMO website will be linked to the Cities' websites.	Website overhauled.						Addition of wtld regulatory info on website																																														
"X" when completed	X	X	X	X	X	X	X			X			X			X			X			X			X			X			X			X			X			X									
c. **Volunteer Monitoring** - Solicit volunteers for water quality monitoring – Citizen Assisted Monitoring Program (CAMP)	Done- comm. College monitoring Sunfish Lk																																																	
"X" when completed	X			X			X			X			na			na			na			na			na			na			na			na			na													
d. **City Local Water Plan Education Program** - Member communities shall develop a public education program as part of their local plan development. May include newsltrs, door hangers, catch basin stenciling, cable TV, etc																																																		
"X" when completed		X	X		X			X	X	X				X	X	X				X	X	X				X	X	X				X	X	X															
e. **Wetland Education -** Develop a general information packet and neighborhood specific information regarding water resource management, including wetlands.	Completed by ACD for WMO																																																	
"X" when completed	X			X			X			X																																									
e. **Continued Wetland Education** - Continue the distribution of the information packet to new property owners through the Cities' new resident packet information																																																		
"X" when completed													X			X			X			X			X			X			X			X															

EDUCATION	2013						2014						2015						2016						2017						2018						2019						2020						2021					
Task	ACD	Andover	Anoka	Coon Rapids	LRRWMO	Ramsey	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other
f. **Wetland Ed Signage** - Design up to 30 wetland interpretive signs to educate the general public about the function and value of wetlands. WMO makes signs, cities post them in public areas adjacent to wetlands, preferably along trails.																																															
"X" when completed													X	X	X	X	X	X																														
g. **Local Officials Workshop** - Conduct local official workshops for elected and appointed officials. Should specifically include info about wetland regulation.	Spring LRRWMO dinner mtg																								Spring LRRWMO dinner mtg																							
"X" when completed					X																							X																			
Hi. **Local Events Exhibit - design** - Design and develop informational materials or display for local events exhibit to educate the public about function and values of wetlands, wetland regulations.																																															
"X" when completed																X																															
h.ii **Local Events Exhibit - display-** Display the information created in the task above at local events such as home shows, city environmental events, etc																									Ramsey business expo						Displays in Ramsey city hall																	
"X" when completed																		X										X																			

PLANNING, REPORTING AND ADMIN	2013						2014						2015						2016						2017						2018						2019						2020						2021					
Task	ACD	Andover	Anoka	Coon Rapids	LRRWMO	Ramsey	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other
a. **City Reports to WMO** - Member communities shall submit an annual status report by February 1 that describes the status of local plans and implementation of LRRWMO policies																																																
"X" when completed		X	X	X		X		X	X	X				X	X	X				X	X	X				X	X	X				X	X	X														
b. **Annual Reporting to State**. Submit annual reports to BWSR and the State Auditor.	ACD was hired to prepare reports for WMO																														To be done in April 2019						To be done in April 2020											
"X" when completed	X			X			X			X			X			X			X			X			X			X																				
c. **LRRWMO Plan Update** – 4th Generation Plan																																																
"X" when completed																																																	
d. **City Local Water Plans** - Member communities shall update their local water resource management plans to be consistent with the WMO plan. WMO must review and approve local plans.	CR left WMO. Andover given extension, Ramsey underway																																															
"X" when completed								X	X	X																																							
e. **WMO Plan Review** - LRRWMO will annually review its Watershed Management Plan to ensure it reflects current goals																																																
"X" when completed		X						X						X						X						X						X															
f. **JPA** - Update LRRWMO Joint Powers Agreement, which expires 1/1/2015							Completed 9/2014						Done																																							
"X" when completed								X	X	X	X			X	X	X	X																																	
g. **Solicit Bids** - LRRWMO will solicit bids for professional services (solicit proposals for work to occur in the following year)								11 and 12 2014 selected engineer and attorney													Reviewed bids and selected providers at 11-17-16 mtg													Preparing a RFP for watershed plan update.																							
"X" when completed										X												X												X														

WATER MONITORING AND IMPROVEMENT	2013						2014						2015						2016						2017						2018						2019						2020						2021					
Task	ACD	Andover	Anoka	Coon Rapids	LRRWMO	Ramsey	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other
a. **Volunteer Monitoring** - Solicit volunteers for water quality monitoring – Citizen Assisted Monitoring Program (CAMP)	Done- comm. College monitoring Sunfish Lk																																																
"X" when completed	X			X			X			X			na			na			na			na			na			na			na			na			na												
b. **Professional Water Monitoring** - LRRWMO will work with the ACD with water quantity and quality programs. See separate sheet of planned LRRWMO monitoring and/or table 9 in watershed plan.	On track with monitoring plan.						On track with monitoring plan. Deleted some sites being monitored by MPCA.																																														
"X" when completed	X			X			X			X			X			X			X			X			X			X			X			X			X												
c. **Anoka Dam** - LRRWMO will work with member cities in the maintenance and control of the Rum River Dam							City of Anoka working on resolution accepting dam responsibilities.												Passed resolution clarifying Anoka owns and maintains, and LR pd Anoka $6,000 for dam assessment.																																			
"X" when completed		X	X		X	X																																											
d. **Groundwater** - LRRWMO will develop and implement a plan to track groundwater levels	Task is better done by regional entities. No WMO action.						DNR is doing this task.						DNR is doing this task.						DNR is doing this task. City staff assisting w Co Hydro geo atlas review																																			
"X" when completed			X					na	X					na	X					na	X					Na	X					Na	X					Na	X											
e. **Grant Matching Fund** - LRRWMO will develop/build a fund to match future grants for projects																																																
"X" when completed			X						X						X						X						X						X						X									

REGULATION	2013						2014						2015						2016						2017						2018						2019						2020						2021					
Task	ACD	Andover	Anoka	Coon Rapids	LRRWMO	Ramsey	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other	ACD	Andover	Anoka	Ramsey	LRRWMO	Other
a. **City Wetland Protection BMPs** - Member communities shall develop and implement wetland protection BMPs included in local Water Resource Plan. Should be consistent with WMO wetland standards. Cities are expected to adopt an ordinance.							Underway in each community via local water planning. Ordinance adoption comes after plan approval.						Ramsey adopted wetland ordinance 5/2016																																										
"X" when completed							X									X																																		
b. **City Erosion Ordinance** -Member communities shall adopt an erosion control ordinance				Coon Rapids is done (T. Haas 9/6/13)			Local water planning underway. Ordinance updates come after plan approval.																		Anoka approved their erosion control and wetland ordinances 8-2017.																													
"X" when completed				X			X									X									X																								
c. **City Floodplain Ordinance** - Member communities shall adopt, at a minimum, floodplain ordinances conforming to MN Rules 6120.5000				Coon Rapids is done (T. Haas 9/6/13).			Cities are awaiting local water plan completion and FEMA map updates																																										
"X" when completed				X			X	X								X																																	

Appendix C:
Newsletter Articles

Intentionally Blank

Seasonal Reminders from Public Services

The Streets Department is busy sweeping leaves to prevent blocking catch basins and the storm sewer system. It is illegal to sweep, rake, or blow leaves or snow from your property into the street. Please remember that storm drains provide a direct route for pollutants on streets to flow into our rivers, streams, and lakes. "Only Rain Down The Drain."

Winter Policies for a Safer Season

The Public Services Department asks for your help to keep the sidewalks near your home open for pedestrian traffic. After a 2-inch snowfall, we will assist with the removal of snow from the walks as quickly as possible.

If a fire hydrant is located near your home, the Water Department requests residents clear a small path to the hydrant after a snowfall for easier location in emergencies. The Water Department will widen the area as time allows.

The Streets Department is responsible for clearing the roadways. The City uses the "2-inch rule" to warrant full plowing operations. In the event of a 2-inch or greater snowfall, City crews will plow all the streets in town. Snowplow crews have difficulty moving around cars parked or stranded on the street. Any car left in the street will be towed at the owner's expense, plus the owner will receive a ticket for blocking the street.

It is unlawful to push, shovel, blow, or place snow onto public streets or walks. Equipment operators and personnel have been instructed to contact the Police Department if they observe residents or businesses doing so.

Think **safety first**! Please do not build "snow forts" in the snow banks along the streets. They are dangerous, especially when the plow operators are plowing and moving snow.

After plowing, salt and/or sand is applied to major intersections or as needed to control icing problems. Residents may call the Streets Department (763-576-2922) if severe icing problems develop due to sun polishing or glazing of hard packed snow.

While every effort is made to avoid damage to adjacent areas, the City will not be liable for damage to obstacles such as posts, shrubs, sprinkler heads, or ornaments placed within the City right-of-way. The City assumes liability for mailboxes damaged during plowing operations **ONLY** when it is determined that the plowing unit made direct contact with a mailbox. In general, the right-of-way extends to the house side of sidewalks or 11 to 14 feet from the curb where there is no sidewalk. Delineating the curb with wood laths just behind the curb helps operators and may reduce damage to the boulevard. Wood laths should be four feet long with the top four-to-six inches painted fluorescent orange. They are available at lumber retailers.

Garbage and recycling containers must be placed behind the curb, not in the streets. To avoid postal interruption, clear an area in front and on each side of your mailbox.

Don't take the plowed-in driveways personally! To efficiently plow streets, the plows must maintain a constant speed and blades cannot be lifted for driveways. Thank you.

If you have questions, please call:

763-576-2922 - Snow removal or icing on streets
763-576-2980 - Sidewalks

Buckthorn Identification & Removal Workshop

Help improve our landscapes and learn about healthy ecosystems! Learn how to identify two invasive buckthorns and other invasive species, compare them to desirable Minnesota native trees and shrubs, and learn how to effectively treat and remove them. Common and glossy buckthorns are native to Eurasia and were introduced to North America as ornamental plants. In Minnesota, buckthorn lacks natural controls like insects and disease that would slow their growth. Buckthorn and other invasive plants out-compete native plants for nutrients, light and moisture and can form dense stands that degrade wildlife habitat and are hard for humans to traverse.

- At this workshop, Anoka Conservation District (ACD) staff will help you identify several woodland invasive species, compare them to look-alikes, and will lead an outdoor hands-on demonstration of removal techniques. Dress for the weather.
- The workshop is on Wed., September 19th from 6-8 p.m. at Springbrook Nature Center in Fridley, 100 85th Ave NE. Please RSVP to Carrie at ACD via email: **carrie.taylor@anokaswcd.org** or call 763-434-2030 ext. 19.

Lower Rum River Watershed Management Organization

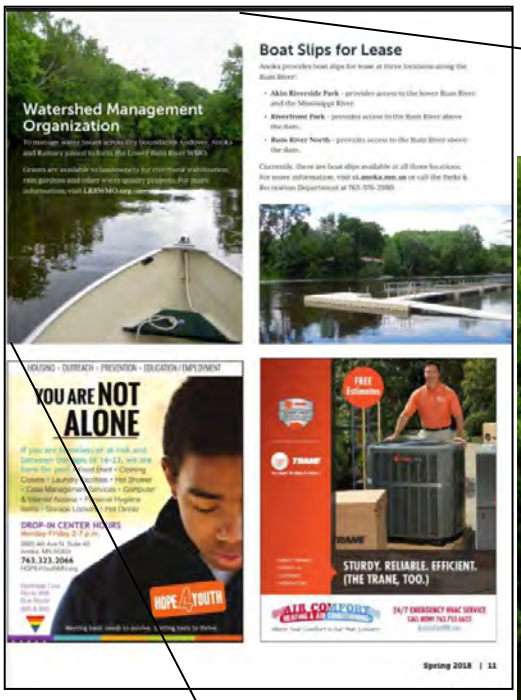
For information about the Lower Rum River Watershed Management Organization visit **LRRWMO.org**. The LRRWMO is a joint powers organization formed by the cities of Anoka, Andover and Ramsey. The group meets the third Thursday of the month at 8:30 a.m. in the committee room of Anoka City Hall to discuss storm and surface water issues. Meetings are open to the public.

Green Haven Golf Course

Some of the best golfing weather is yet to come. Fall golfing is characterized by some of the best playing conditions of the year. Cooler temps and less heat allow the fairways and greens to be in peak condition. Although we get some cool days in the fall we always seem to have some perfect days with light winds and low humidity. Also, check out Tavern at Green Haven, our new bar and restaurant offering delicious lunches and dinners, including Friday night all-you-can-eat crab legs and a prime rib special on Saturday nights. For more information, visit **greenhavengolfcourse.com**

Ride Northstar Train to MN Vikings Home Games

The Northstar Line offers service to all pre-season and regular-season MN Vikings home games, and there are over 2,700 free Park & Ride spaces at Northstar stations. Trains serve Target Field Station, where customers can connect with METRO Blue or Green lines for fast, frequent service straight to the new U.S. Bank Stadium. Transfers from Northstar to METRO trains are easy and FREE. Visit **metrotransit.org** or call Metro Transit at 612-373-3333 for help planning your trip. Northstar fares are lowest on Sundays or check out the Northstar Family Pass for the biggest savings for your crew.



Watershed Management Organization

To manage water issues across city boundaries Andover, Anoka and Ramsey joined to form the Lower Rum River WMO.

Grants are available to landowners for riverbank stabilization, rain gardens and other water quality projects. For more information, visit **LRRWMO.org**.

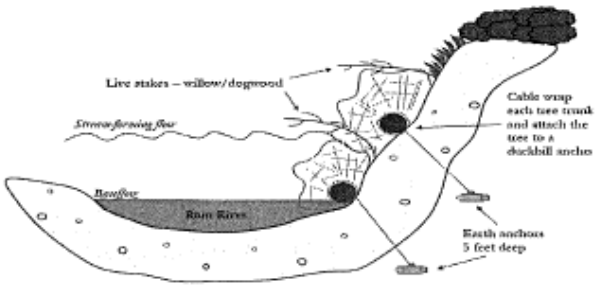
(FROM THE 2018 CITY OF ANDOVER MAY-JUNE NEWSLETTER

RUM RIVER STREAMBANK STABILIZATION GRANTS AVAILABLE TO LANDOWNERS

CLEAN WATER LAND & LEGACY AMENDMENT

Landowners on the Rum River have access to funding to address riverbank erosion with a unique method – cedar tree revetments. Properly installed revetments protect property, help improve the river's water quality and provide fish habitat.

Contact Carrie Taylor at the Anoka Conservation District (763-434-2030 ext. 19; Carrie.Taylor@anokaswcd.org) for more info.



Cross-Section: Typical along revetment location

CLEAN WATER STARTS AT HOME: LAWN CARE

Did You Know
Your lawn care can prevent water pollution?

Tips from the Pros

• Leave the clippings as you mow! Grass can use the nutrients. Piles of bagged grass break down too slowly and can create erosion and mosquito breeding sites.

• While mowing, blow the clippings onto your lawn and off the street, driveway, and sidewalk. Sweep up any residual clippings from these impervious surfaces.

• Mow at 3 inches! Adjust your mower to keep grass 3 inches high. Taller lawns use less water, handle heat stress better and compete with weeds better. Consider getting a no-mow or low-mow grass seed mix for a low-maintenance lawn.

These simple practices will help minimize water pollution and conserve water. Please do your part; every bit helps!

Clean Streets, Clean Water

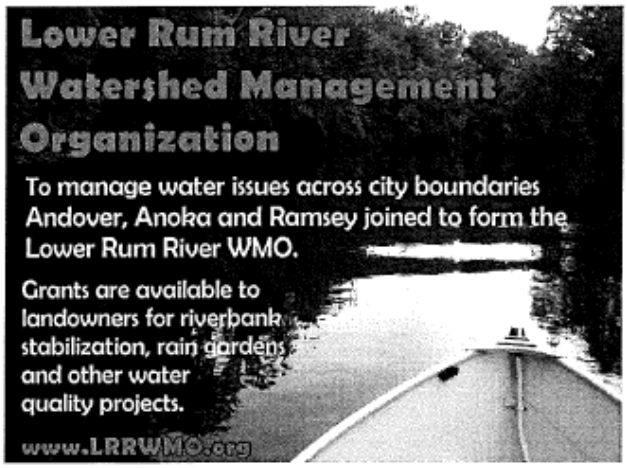
For more information contact Kameron Kytonen, Andover Natural Resources Technician, (763) 767-5137 or Coon Creek Watershed District: (763) 755-0975 www.cooncreekwd.org

ASH INJECTION PROGRAM

You may be eligible for a discount through the City Program to save your Ash trees:

Emerald Ash Borer (EAB) was found in the City of Andover back in August of 2016. It is likely to continue to spread and kill untreated ash trees. Therefore, the City is taking a proactive approach to try and protect valuable trees on public and private property and slow the spread of the insect. Thus, the City has once again hired a contractor who will offer a discounted rate for injecting eligible ash trees.

For more information on this program and on EAB, go to Andover's website:
www.andovermn.gov and click on the links "Your Government" "Natural Resources" "EAB."




Maddie Rooney, Andover's hometown hero, was welcomed on March 24th, after winning a gold medal as the goalie for the women's USA hockey team.

FROM THE 2018 CITY OF ANDOVER July/August NEWSLETTER

INAUGURAL CITY-WIDE MEDALLION HUNT KICKS OFF ANDOVER FAMILY FUN FEST!

The Andover Family Fun Fest is excited to announce the first ever City-wide medallion hunt! Thanks to our sponsor, Premier Banks, a cash prize of $500 will be awarded to the winner, along with bragging rights of finding the inaugural medallion!

In the week leading up to the Andover Family Fun Fest, beginning Saturday, July 7th, a clue will be posted **each** morning on our Facebook page by 9:00 a.m., as well as the Andover City website by noon. The daily clues will go until Friday, July 13th or until the medallion has been found.

We hope you and your families will get out to the great parks of Andover, enjoy the summer weather and just maybe snatch that medallion!

For more details and complete rules for the medallion hunt, please visit www.andovermn.gov > Andover Family Fun Fest and follow us on Facebook.

PESTICIDES & OUR WATER DON'T MIX

Green lawns are a sure sign of summer, but if you maintain your lawn with synthetic pesticides (herbicides, insecticides or fungicides), you can pollute our water!

This happens because any pesticide applied to your lawn can be washed off by rain, running into street storm drains and then waterbodies. Pollution control methods such as stormwater ponds clean up this water but weren't designed to remove pollutants like synthetic pesticides.

Here are some tips on how to keep pesticides out of water (and save money!):

1. Only apply pesticides when no rain is forecasted for the next 48 hours.
2. Don't use weed & feed; spot treat weeds instead.
3. Buy the smallest amount of pesticides you need. If you can't use them up, store them so they don't freeze. Take old or once-frozen pesticides to the Anoka County Household Hazardous Waste Facility (763-324-3400).
4. Consider not using synthetic pesticides. The Environmental Association for Great Lakes Education (EAGLE) has a great factsheet on natural lawn care basics (www.eagleaction.wordpress.com).

For more information, contact Britta at Coon Creek Watershed District (763-755-0975). Funding provided by the Minnesota Department of Health via the Clean Water, Land, and Legacy Amendment.

CROSSTOWN BOULEVARD NW SUMMER ROAD CLOSURE

Beginning Monday, July 16th, Crosstown Boulevard NW will be closed from Bluebird Street NW, over to Prairie Road NW, then north to 161st Avenue NW for an asphalt overlay.

Detours will be posted. Turn lanes and bypass lanes will be added at Yellow Pine Street NW and Avocet Street NW to improve safety.

If you have any questions regarding this project, please contact Dave Berkowitz or Jason Law in the Andover Engineering Department at (763) 755-5100.

CROSSTOWN BOULEVARD NW TRAIL CONSTRUCTION

A new trail segment along the east side of Crosstown Boulevard NW from 140th Avenue NW south to Bunker Lake Boulevard NW is planned for construction beginning this summer. This trail segment will complete a trail loop that will make a full connection that includes Crosstown Boulevard NW, Bunker Lake Boulevard NW and Hanson Boulevard NW.

The trail consists of a paved section and a boardwalk that will be constructed along the wetland located in the northeast corner of Crosstown Boulevard NW and Bunker Lake Boulevard NW. The paved trail section will begin construction late summer and the boardwalk segment will be constructed between October 2018 and March 2019.

Contact Dave Berkowitz at (763) 767-5133 or d.berkowitz@andovermn.gov if you have questions regarding this project.

Ramsey Street Sweeping

Street sweeping is one of the core services of the City of Ramsey Public Works Department. City-wide sweeping is performed spring and fall. Spring sweeping is the most critical because of the ice control sand spread over the winter. If the sand is not swept up before spring rains start, it washes into the natural waterways and eventually damages that environment. Fall sweeping is done to pick up dead leaves and any other loose material that may have accumulated on the roadway over the summer. If you have questions about sweeping, or any other maintenance concerns, please contact the Public Works Superintendent, Grant Riemer at 763-433-9863 or griemer@cityoframsey.com.

The Draw Summer Event Series

The Ramsey Foundation in partnership with the City of Ramsey, invites YOU to the eighth year of The Draw Summer Event Concert Series hosted at The Draw park and amphitheater, located in The COR. This community gathering takes place every Thursday night 6:30 to 8:00 pm from June 14 to August 23, and is paired with Art in the Park classes for kids ages 5 – 15 on select dates. Performances include a variety of genres from Roadhouse Blue and The Beatles to the '70s and rock 'n' roll.

To learn more, please contact Mark Riverblood, Parks & Asst. Public Works Superintendent at mriverblood@cityoframsey.com or 763-433-9853.

Ramsey Police Department Citizen's Academy

Academy Dates: September 12th – October 24th, 2018
Day/Time: Wednesdays, 6:00 – 9:30 pm
Application Deadline: August 10, 2018

The Ramsey Police Citizen's Academy is an intensive and interactive hands on seven-week course. Each evening class lasts approximately three (3) hours. The goal of the academy is to develop positive police/community relationships and expose participants to information and experiences that demonstrate the City's police operations.

This academy is an opportunity to increase communication and ongoing information sharing with participants, and reduce misunderstandings regarding police operations. Ramsey Police Officers encourage participants to share their ideas on how to control and prevent crime in the community. In return, they hope participants will use their experiences in the academy to educate others.

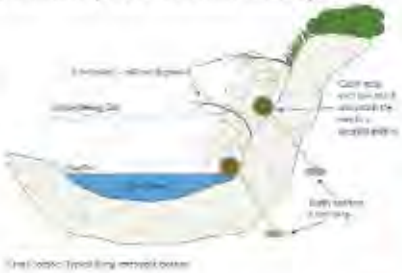
Ramsey's Officers are looking forward to working with and getting to know citizens outside of their normal law enforcement work environment. If you are willing to make a commitment and become an involved citizen, we encourage you to accept this invitation to apply for the Ramsey Police Citizen's Academy. We would love to have you help make Ramsey a better place in which to live and work.

To download an application packet please visit www.cityoframsey.com/citizenacademy.

Rum River Streambank Stabilization - Grants Available to Landowners

Landowners on the Rum River have access to funding to address riverbank erosion with a unique method – cedar tree revetments. Anoka Conservation District in partnership with Isanti Soil and Water Conservation District has secured funding from the MN Department of Natural Resources as part of the Clean Water, Land and Legacy Amendment.

Cedar tree revetments are a low cost, but effective, means to address minor bank erosion before it gets worse. It's not appropriate for major bank erosion, such as on outside bends of the river. The technique involves cable-anchoring cut cedar trees alongside the bank. Their dense branches and naturally rot-resistant wood provide many years of bank armoring. In doing so, they protect property, help improve the river's water quality and provide fish habitat.



Residents interested in having their riverbank evaluated for a cedar tree revetment should contact Carrie Taylor at the Anoka Conservation District (763-434-2030 ext. 19; Carrie.Taylor@anokaswcd.org). Installation of revetments will occur in summer and fall 2018. Most projects cost $5,000-$10,000. Landowners must provide 10% of that amount; the remainder is grant-funded.

New in Town?

If you are a new resident of the City of Ramsey, please contact the City to establish a City services account in your name. All residential properties within the City are charged for three basic City services (recycling, priority street lighting and storm water management) on a quarterly basis. Your property may also be charged for water and sewer if it is connected to those City systems. It is the responsibility of the property owner to ensure the account for their property is up to date. Call us today at 763-576-4343 or visit www.cityoframsey.com/utility-billing to make any necessary changes to the property's account.

The City provides a new resident packet full of useful City information and local contact numbers. Please call, go online, or visit the Municipal Center to pick up a new resident packet. The Municipal Center is located at 7550 Sunwood Drive NW and hours of operation are Monday through Friday 8:00 am to 4:30 pm. You can download a copy of the new resident packet from the City's website at www.cityoframsey.com under "How do I...?".

Attention: City Water Customers - Odd/Even Day Sprinkling Ban

To reduce peak water usage in areas served by the municipal water system, the City of Ramsey has implemented odd/even day sprinkling, pursuant to City Code, Section 58-118. The sprinkling restrictions will be in effect from May 29 until September 4, 2018.

Residents may water their lawns on odd numbered days if their address ends in an odd number and on even numbered days if their address ends in an even number.

The sprinkling restriction includes no watering between 10:00 am and 8:00 pm since a significant amount of water is lost due to evaporation during the hottest times of the day. Homeowners with automated systems are strongly encouraged to program their irrigation systems to operate after 10:00 pm. This minimizes evaporation and lessens peak demand on the municipal water system.

The only exception to these sprinkling restrictions is for new sod or seeded areas. These areas may be watered every day for two (2) weeks to establish root growth, but not between 10:00 am and 8:00 pm.

In addition to the residential sprinkling restrictions, the City has an irrigation policy that is specific to townhome, multi-family residential and commercial connections to the municipal water supply requiring that:

- All irrigation systems must have an approved backflow device
- All irrigation systems must include a rain sensor device to prevent irrigation systems from operating during rain events

If you have any questions, please contact Utilities Supervisor John Nelson at 763-433-9861 or jnelson@cityoframsey.com.

Well Water Wise Week May 7 - May 11, 2018

The Anoka County Community Health and Environmental Services Department will be accepting well water samples Monday through Thursday, 8:00 am to 4:15 pm, and Friday before noon during "*Well Water Wise Week*".

Test kits are available in the Building Inspections Division at the City of Ramsey Municipal Center, located at 7550 Sunwood Drive NW, office hours are 8:00 am - 4:30 pm.

Submit Water Sample to:
Community Health & Environmental Services
Anoka County Government Center
2100 Third Avenue N
Suite 600
Anoka, MN 55303

A laboratory fee of $30.00 will be charged for a sanitary analysis test of total coliform bacteria and nitrate-nitrogen.

In addition to testing for nitrate-nitrogen and the presence of coliform bacteria, the CHES Department can also provide analyses for arsenic, lead, fluoride, iron, chloride, and total hardness.

Lastly, test kits are available year round. Pick up a kit at the City of Ramsey Municipal Center, and submit your water sample to the Community Health & Environmental Services on Mondays from 8:00 am – 4:15 pm and Tuesday from 8:00 am – 12:00 noon.

If you have any questions about water well testing please contact, Anoka County Community Health and Environmental Services at 763-324-4260. For more information on the importance of well water testing go to the City website at cityoframsey.com/228/utilities.

Savvy About Stormwater Video Contest

The Anoka Conservation District is hosting a "Savvy About Stormwater" Video Contest. Create a one to six minute video to inform and educate people about rural and/or urban stormwater runoff and the impacts it has on our infrastructure, natural resources, and quality of life for a chance to win $600!

Three video categories means three opportunities to win! Students in grades 7-12 or students ages 21 and under who are enrolled in a college or university program are eligible to enter. Contestants must live and/or go to school in Anoka County. Submissions close on Monday, June 4th at 11:59 pm.

For more details, visit anokaswcd.org or contact Emily Johnson at Emily.johnson@anokaswcd.org.

Help Keep Stormwater Ponds Clean (and Odor-Free)

The City of Ramsey uses over 200 stormwater ponds to capture and treat stormwater runoff before it enters rivers, lakes, and wetlands. Stormwater ponds hold runoff for up to several weeks, allowing pollutants and sediment to settle to the bottom, and allowing the clean water to evaporate, infiltrate into the ground, or to discharge to natural water bodies. Routine activities like mowing, fertilizing and irrigating can have significant impacts on water quality in stormwater ponds.

As the City continues to grow, impervious surfaces such as streets, driveways, and rooftops will replace natural vegetation, resulting in more runoff and less infiltration into the ground. Stormwater runoff, which collects sediment and pollutants from impervious surfaces, drains into catch basins and ditches along the edges of streets, which convey the runoff to stormwater ponds.

Pollutants, including grass clippings, leaves, excess fertilizer and other chemicals, can negatively affect stormwater ponds. Excess nutrients, primarily nitrogen and phosphorous, are found in fertilizers, grass clippings, and leaves, and encourage growth of algae and algal blooms which are considered unattractive and can emit foul odors. More importantly, certain algae, such as blue-green algae (cyanobacteria), can present a serious health threat to humans and pets when ingested.

Stormwater ponds are located throughout the City. Stormwater enters ponds through a network of ditches and underground pipes, known as a storm sewer system. Routine yard maintenance can have a direct impact on downstream stormwater ponds. Here are some simple actions everyone can take to help reduce algae and odors:

- Before fertilizing, test your soils to determine which nutrients are deficient, if any. Use phosphorous-free fertilizer, which is a state law with few exceptions, and follow label directions. Sweep granules from driveways, sidewalks, and streets back into the yard. Remember, what the lawn doesn't absorb will be washed into the storm sewer system and ultimately into stormwater ponds.
- Keep grass clippings and leaves off roads. As grass and leaves decompose, they produce phosphorous, which will be carried by runoff to catch basins and discharged into stormwater ponds.
- If you live adjacent to a stormwater pond or other water body, consider establishing a buffer of native plants along the edge. Buffer strips help slow down runoff and strip excess nutrients and pollutants from stormwater before it enters the pond.
- Pick up pet waste and properly dispose of it.
- Adjust downspouts to discharge runoff into the yard rather than onto sidewalks or driveways, and consider installing a rain garden downstream from the downspout to help promote infiltration of runoff before it enters the storm sewer system. Better yet, install rain barrels to capture runoff from downspouts and store it for irrigation between rain events.

Please call 763-433-9820 with questions or concerns about a stormwater pond in your neighborhood.

Rum River Streambank Stabilization – Grants Available to Landowners

Landowners on the Rum River have access to funding to address riverbank erosion with a unique method – cedar tree revetments. Anoka Conservation District, in partnership with Isanti Soil and Water Conservation District, has secured funding from the MN Department of Natural Resources as part of the Clean Water, Land and Legacy Amendment.

Cedar tree revetments are a low cost, but effective, means to address minor bank erosion before it gets worse. It's not appropriate for major bank erosion, such as on outside bends of the river. The technique involves cable-anchoring cut cedar trees alongside the bank. Their dense branches and naturally rot-resistant wood provide many years of bank armoring. In doing so, they protect property, help improve the river's water quality and provide fish habitat.

Residents interested in having their riverbank evaluated for a cedar tree revetment should contact Carrie Taylor at the Anoka Conservation District, 763-434-2030 ext. 19, or email carrie.taylor@anokaswcd.org. Installation of revetments will occur in summer 2018. Most projects cost $5,000-$10,000. Landowners must provide 10% of that amount; the remainder is grant-funded.

Are You an Entrepreneur at Heart?

Need a trusted advisor? A business consultant? Money to start or expand your business? The Open to Business program offers FREE one-on-one counseling with a business advisor. The program also offers assistance in identifying financial resources. For more information, call 763-438-7315, or email info@opentobusinessmn.org.

Driver Improvement Classes for 55+

The Ramsey Lions are offering to Ramsey and Nowthen residents a chance to take Driver Improvement Classes. Classes will be held at the Ramsey Municipal Center, Alexander Ramsey Room, 7550 Sunwood Drive NW, Ramsey, MN. For more information and to sign up for classes, please call St. Cloud University at 1-888-234-1294 or visit www.mnsafetycenter.org.

4 Hour Refresher Class (Repeat Student)
Thursday, May 3, 2018
4:30 – 8:30 pm
and
Wednesday, June 6, 2018
4:30 - 8:30 pm

Library Focus: Free Summer Reading Program

Jump into MELSA's "Summer at Your Library" for fun and learning, June 1 - August 8 at Anoka County Libraries, with free activities for children and teens to read, explore, and connect.

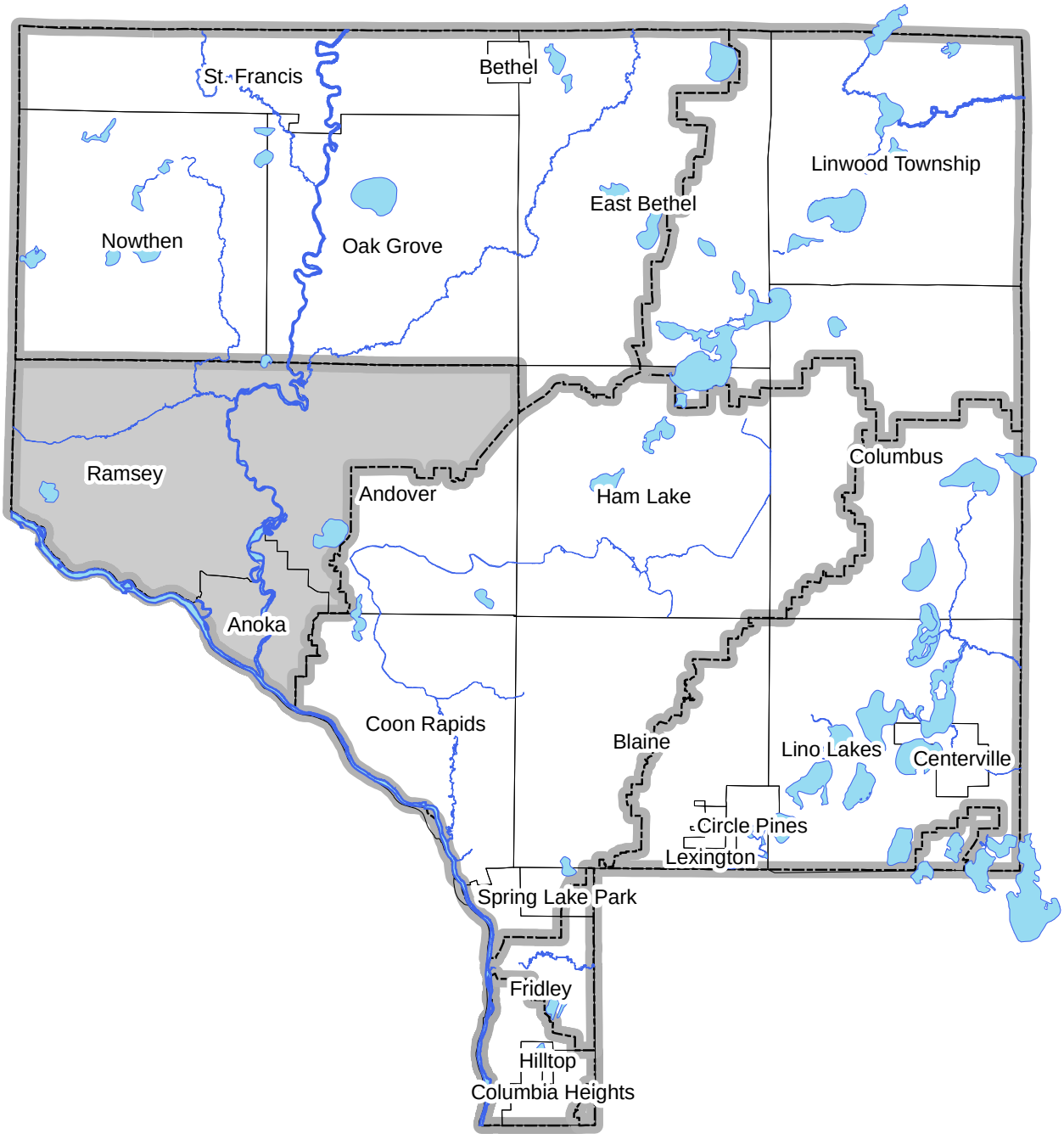
Children and teens may also participate in three activities that especially promote reading and responding to books. First, submit a "Read Write Draw" form about a book you read to earn a book to keep—one per person, limited supply. Second, enter "Read It! Rate It!" forms for additional books read, which go into weekly drawings for prizes, like Bunker Beach and State Fair passes. Finally, teens and kids can pay off their fines by reading books through the library's "Read Down." For details and select registrations, contact Rum River Library, 4201 6th Ave. NW, Anoka, 763-324-1520, or anokacountylibrary.org.

Appendix D:
2018 Work Results

Intentionally Blank

Excerpt from the
2018 Anoka Water Almanac

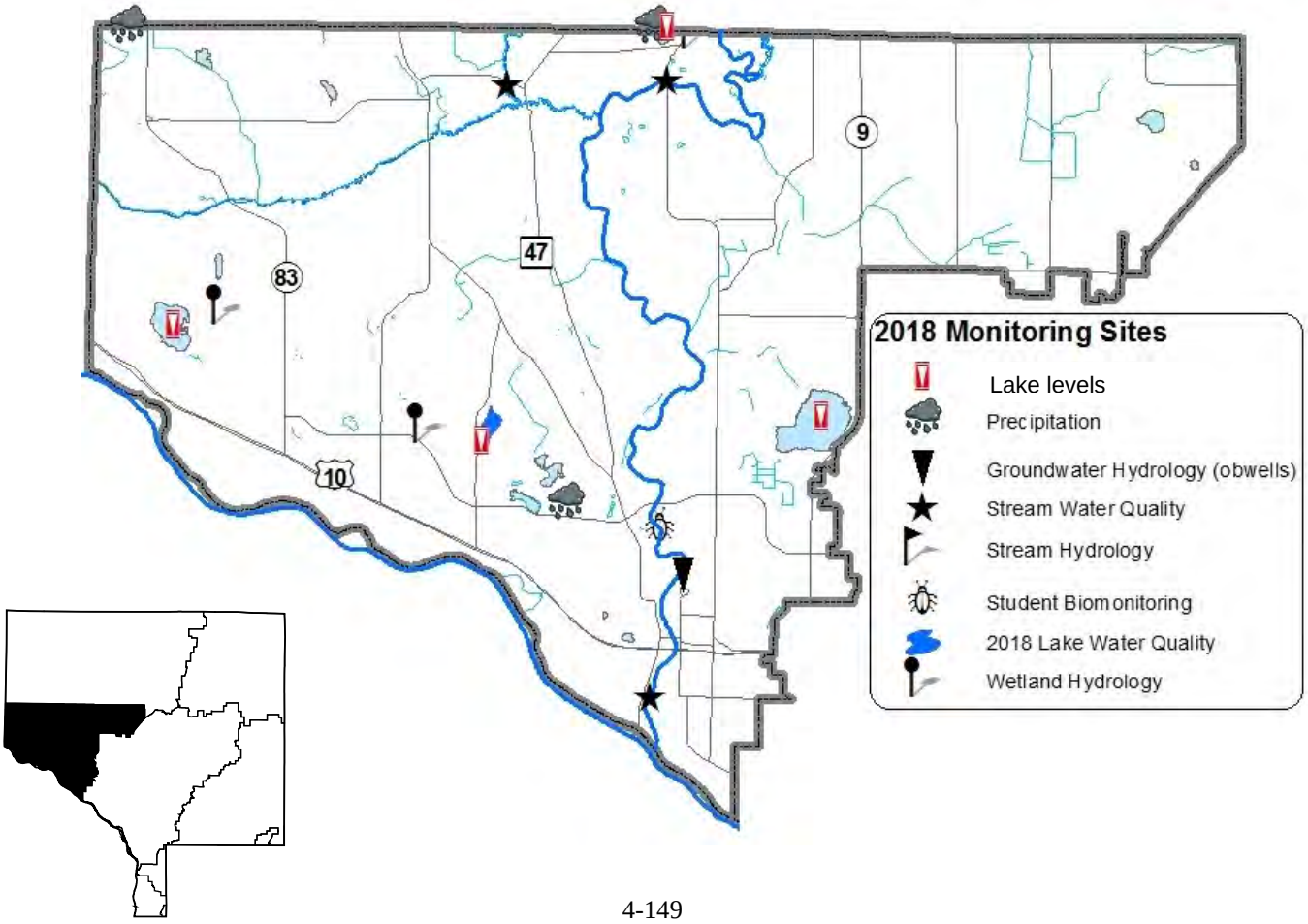
Chapter 4: Lower Rum River Watershed



Prepared by the Anoka Conservation District

Chapter 4: Lower Rum River Watershed

Table of Contents



Lake Level Monitoring

Partners: LRRWMO, ACD, MN DNR, volunteers

Description: Weekly water level monitoring in lakes. The past five and twenty-five years of data are illustrated below, and all historical data are available on the Minnesota DNR website using the "LakeFinder" feature (www.dnr.mn.us.state\lakefind\index.html).

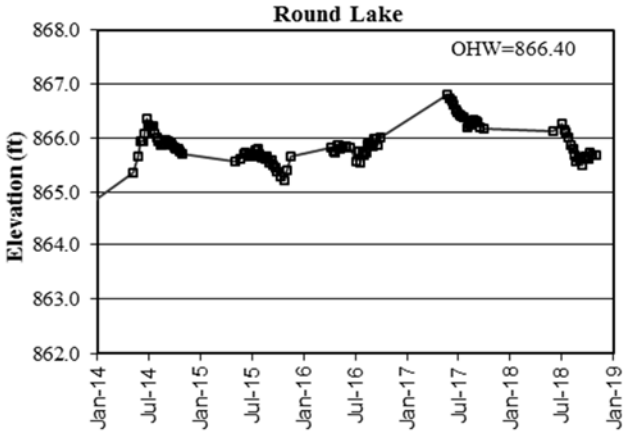
Purpose: To understand lake hydrology, including the impacts of climate or other water budget changes. These data are useful for regulatory, building/development, and lake management decisions.

Locations: Round, Rogers, Itasca, and Sunfish/Grass Lakes

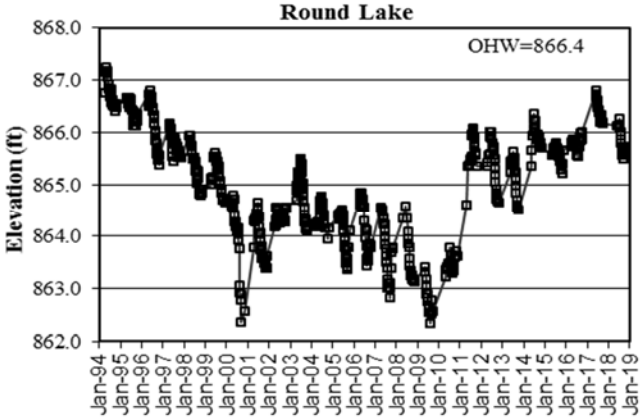
Results: Lake levels were measured by volunteers throughout the 2018 open water season. Lake gauges were installed and surveyed by the Anoka Conservation District and MN DNR. 2018 levels were generally lower than 2017 levels. All lakes followed the expected pattern of high levels in the spring with declining levels through summer. Sunfish Lake appears to be rising over the past 25 years, and Round Lake has almost rebounded to its 1994 levels after dropping almost five feet through 2010.

All lake level data can be downloaded from the MN DNR website's Lakefinder feature. Ordinary High Water Level (OHW), the elevation below which a DNR permit is needed to perform work, is listed for each lake on the corresponding graphs below.

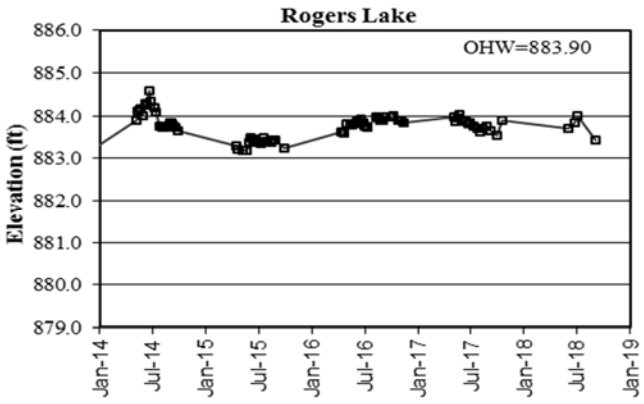
Round Lake Levels – last 5 years



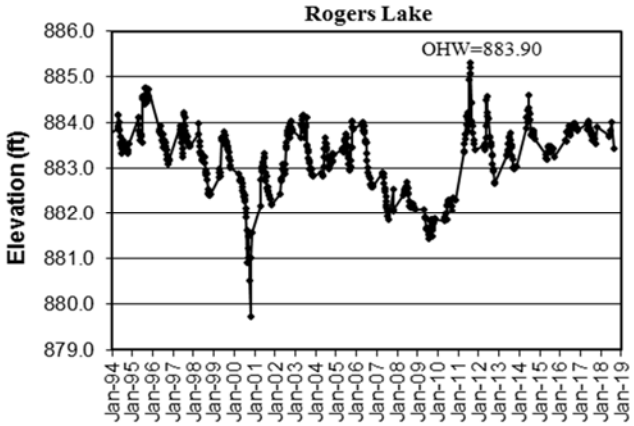
Round Lake Levels – last 25 years



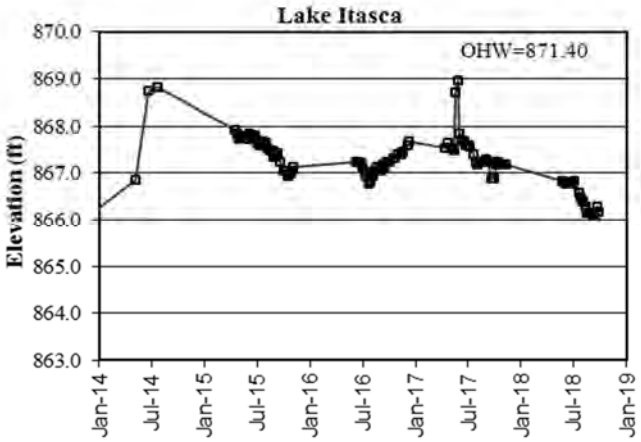
Rogers Lake Levels – last 5 years



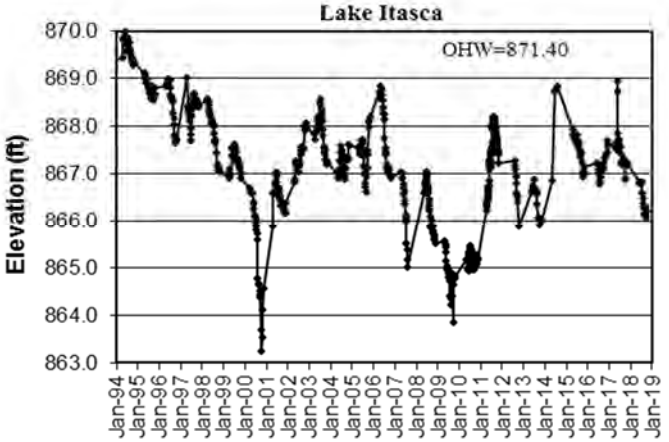
Rogers Lake Levels – last 25 years



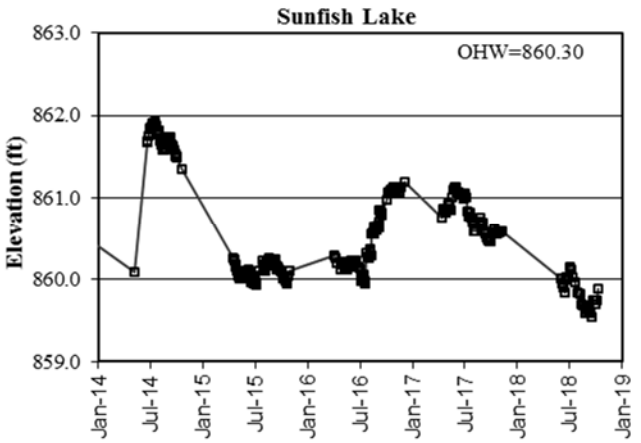
Itasca Lake Levels – last 5 years



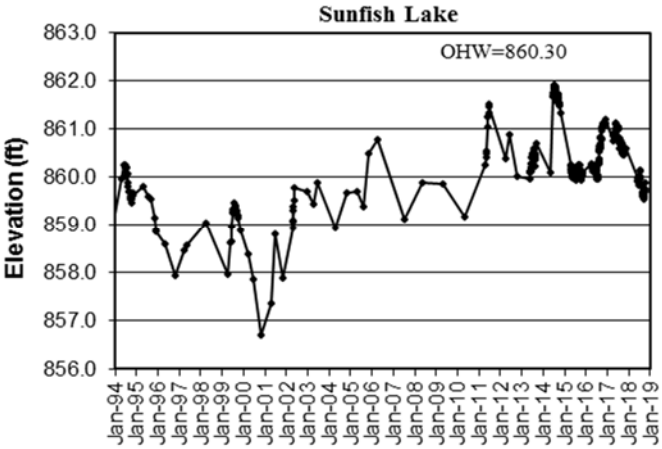
Itasca Lake Levels – last 25 years



Sunfish/Grass Lake Levels – last 5 years



Sunfish/Grass Lake Levels – last 25 years



Lake Water Quality

Partners: ACD, LRRWMO, Anoka County Ag Preserves Program

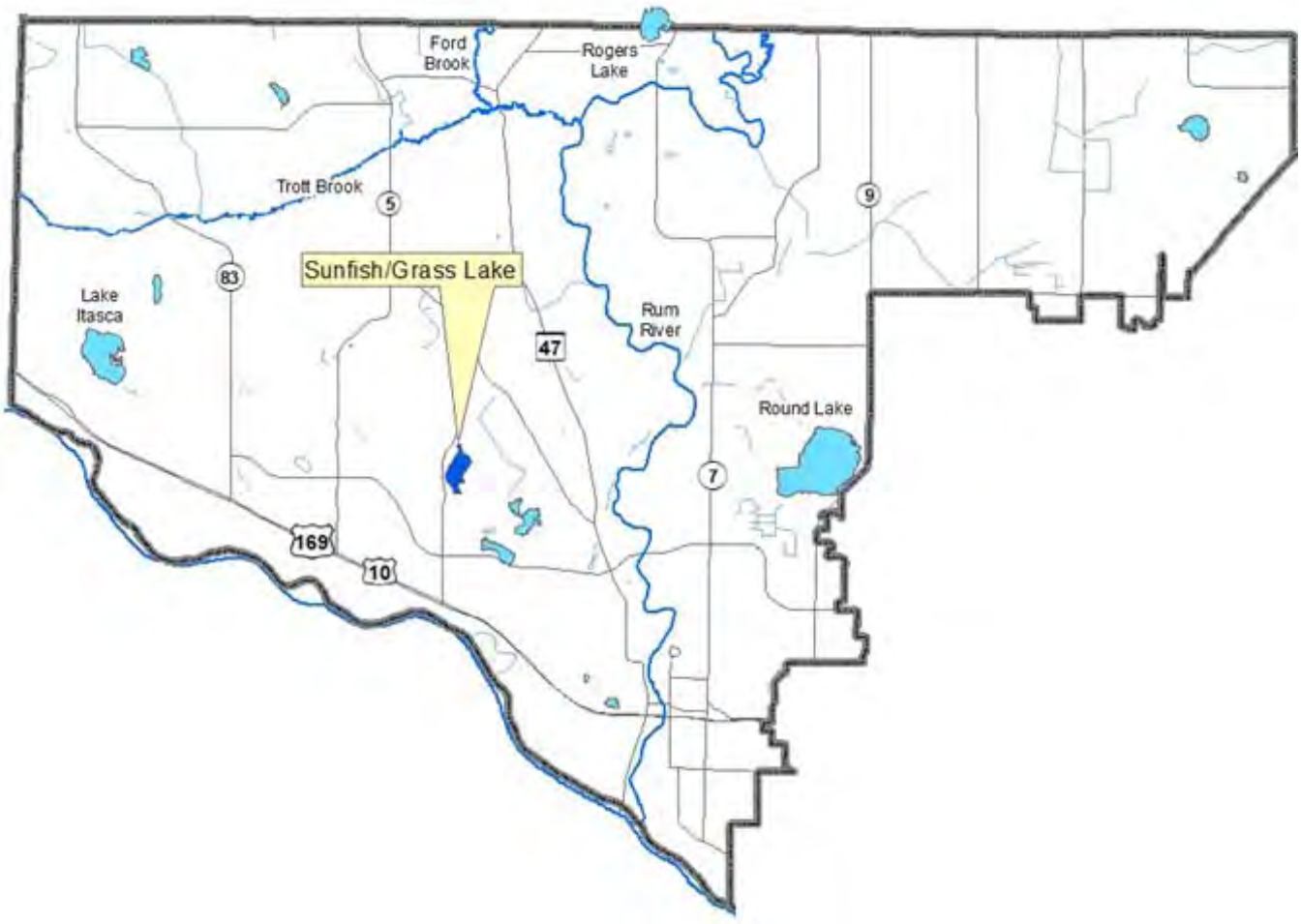
Description: May through September, every-other-week, monitoring is conducted for the following parameters: total phosphorus, chlorophyll-a, Secchi transparency, dissolved oxygen, turbidity, temperature, conductivity, pH, and salinity.

Purpose: To detect water quality trends and diagnose the cause of changes.

Locations: Sunfish/Grass Lake

Results: Detailed data for each lake are provided on the following pages, including summaries of historical conditions and trend analysis. Previous years' data are available from the ACD. Refer to Chapter 1 for additional information on lake dynamics and interpreting the data.

LRRWMO Lake Water Quality Monitoring Sites



Sunfish/Grass Lake

City of Ramsey, Lake ID #02-0113

Background

Sunfish/Grass Lake is located in the City of Ramsey in southwestern Anoka County. It is a small lake with a surface area of 35 acres. The lake does not have a public boat landing, but can be accessed through Sunfish Lake Park on the west side of the lake. The park has a fishing pier and kayaks, which can both be used by the public. The lake is quite shallow with floating leaf, emergent, and submergent aquatic vegetation throughout. A very small portion of the shoreline is developed with most of the lake being surrounded by park or wooded land.

2018 Results

Sunfish/Grass Lake has not been extensively monitored in the past. 2018 was the third year in which the Anoka Conservation District (ACD) monitored the lake as part of the regular lake sampling efforts. The lake was previously monitored by ACD in 2016 and 2017 with four additional years of monitoring through the MPCA Citizen Lake Monitoring Program (CLMP) with varying degrees of intensity.

In 2018 Sunfish Lake's water quality was good compared with other lakes in this region (NCHF Ecoregion), receiving an overall B letter grade. Total phosphorus (TP), Chlorophyll-a (CL-a) and Secchi readings were all better than state water quality standards, but not as good as some previous years at this lake. The average total phosphorus concentration in 2018 of 33 µg/L was up from 16.6 µg/L in 2017. The average chlorophyll-a concentration of 8.09 µg/L is the highest on record. In previous years chlorophyll-a ranged from 3.1 to 7.1 µg/L. Secchi depth was obscured by vegetation on 7 of 10 sampling occasions (≥4 ft.) on the other 3 occasions it varied from 2.3 to 6.9 ft.

Trend Analysis

There is not yet enough data for a trend analysis of any parameter.

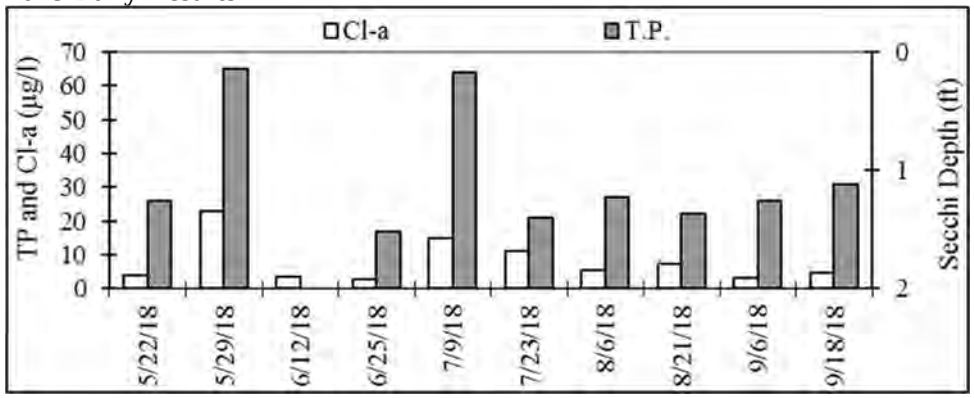
Discussion

Grass Lake looks to be in good health, returning to a B grade after receiving an overall A letter grade in 2017 and receiving B grades in each of the previous three years monitored for each parameter since 2012. This letter grade would likely be further substantiated if Secchi readings were not limited by the depth of the lake. Total phosphorus and chlorophyll-a concentrations remain well below state water quality standards for shallow lakes.

Sunfish/Grass Lake

City of Ramsey, Lake ID #02-0113

2018 Daily Results



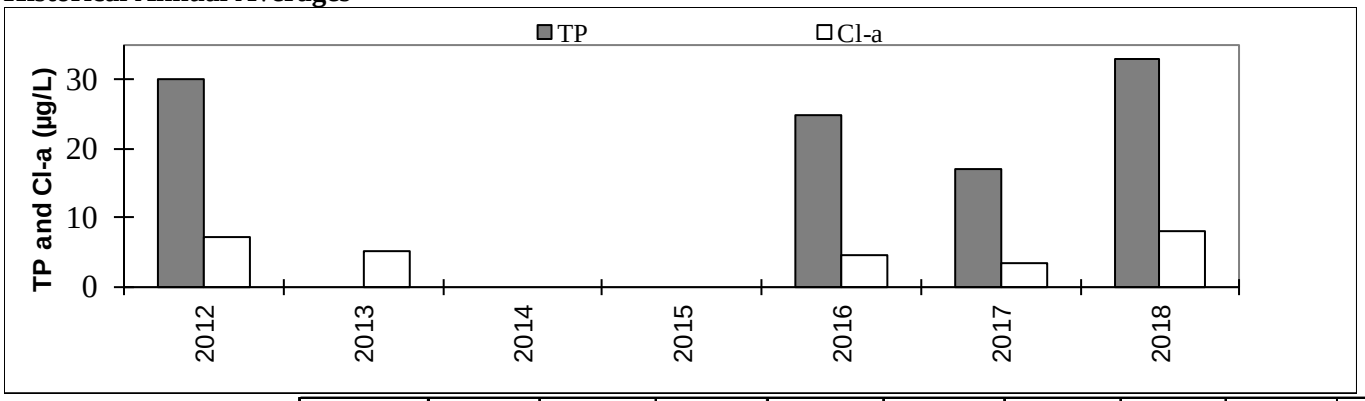
2018 Median Results

pH		7.97
Specific Conductivity	mS/cm	0.455
Turbidity	NTU	2.05
D.O.	mg/l	8.55
D.O.	%	1.02
Temp.	°F	75.9
Salinity	%	0.2
Cl-a	µg/L	5.2
T.P.	µg/l	26.0
Secchi	ft	>3

Historical Report Card

Year	TP	Cl-a	Secchi	**Overall**
2012	B	A	C	**B**
2013		A	C	**B**
2014				
2015				
2016	C	A	n/a	**B**
2017	A	A	n/a	**A**
2018	C	A	n/a	**B**
State Standards	60 µg/L	20 µg/L	>3.3 ft	

Historical Annual Averages



Due to Secchi transparency exceeding lake depth or being obscured by vegetation in recent years, it was not included on the graph (for recent years) or in the overall grade.

Date:			5/22/2018	5/29/2018	6/12/2018	6/25/2018	7/9/2018	7/23/2018	8/6/2018	8/21/2018	9/6/2018	9/18/2018			
Time:			12:45	14:02	14:40	15:42	16:27	14:15	15:10	14:15	14:13	14:08			
	Units	R.L.*											Average	Min	Max
pH		0.1	9.39	9.38	8.02	8.28	8.00	7.94	7.78	7.48	7.22	7.12	8.06	7.12	9.39
Specific Conductivity	mS/cm	0.01	0.317	0.308	0.990	0.411	0.463	0.515	0.432	0.450	0.460	0.474	0.482	0.308	0.990
Turbidity	NTU	1	2.1	5.5	0.0	8.0	1.2	1.2	0.3	2.0	31.0	7.0	6	0	31
D.O.	mg/l	0.01	12.05		8.35	8.58	8.67	10.11	8.52	6.48	6.15	3.1**	8.61	6.15	12.05
D.O.	%	1	139.4%		98.5%	92.0%	110.4%	128.8%	105.3%	77.3%	68.1%	36.8%**	102%	68%	139%
Temp.	°C	0.1	19.55	28.91	21.80	26.43	28.80	26.50	25.05	23.75	22.27	21.99	24.5	19.6	28.9
Temp.	°F	0.1	67.2	84.0	71.2	79.6	83.8	79.7	77.1	74.8	72.1	71.6	76.1	67.2	84.0
Salinity	%	0.01	0.16	0.15	0.49	0.20	0.22	0.25	0.21	0.22	0.22	0.23	0.24	0.15	0.49
Cl-a	ug/L	1	4.00	23.10	3.56	3.03	15.00	11.20	5.62	7.48	3.09	4.8100	8.09	3.0	23.1
T.P.	mg/l	0.005	0.026	0.065		0.017	0.064	0.021	0.027	0.022	0.026	0.031	0.033	0.017	0.065
T.P.	ug/l	5	26	65		17	64	21	27	22	26	31	33	17	65
Secchi	ft		>4	2.3	6.9	3	>4	>4.5	>4	>4	>4.33	>4		2.3	6.9
Secchi	m		>1.21	0.7	2.1	0.9	>1.21	>1.22	>1.21	>1.21	>1.3	>1.21	0.0	0.7	2.1
Physical			1	2	1	1	1	1		1	1	1	1.1	1.0	2.0
Recreational			2	2	1	2	3	2		2	2	2	2.0	1.0	3.0

*reporting limit

** excluded from calculations due to likely inaccuracy

Stream Water Quality - Chemical Monitoring

Partners: MPCA, ACD, LRRWMO

Description: The Rum River and several tributary streams were monitored in 2018. The locations of river monitoring include the approximate top and bottom of the Lower Rum River Watershed Management Organization (WMO) and at the top of the Upper Rum River WMO. Tributaries in the Upper Rum River WMO were monitored simultaneously with Rum River monitoring for greatest comparability near their outfalls into the river. Monitoring at the bottom of the Lower Rum River WMO was completed by the Metropolitan Council (Met Council) below the dam in Anoka. Collectively, these data allow for an upstream to downstream water quality comparison within Anoka County, as well as within each watershed organization. It also allows us to examine whether the tributaries degrade Rum River water quality.

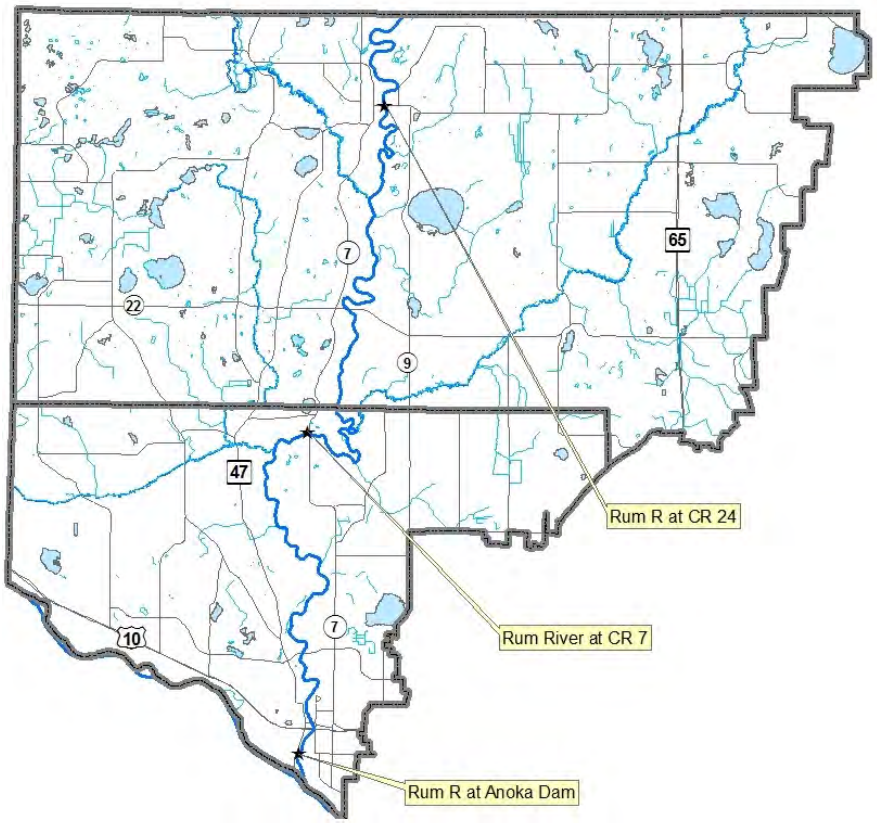
Monitoring by Anoka Conservation District occurred in May through October for each of the following parameters: total suspended solids, total phosphorus, Secchi tube transparency, dissolved oxygen, turbidity, temperature, specific conductivity, pH, and salinity. Metropolitan Council monitoring occurred weekly March to October and semi-monthly November to February. The Met Council monitors all the parameters listed above, plus several more. Met Council monitoring data can be found on their Environmental Information Management Systems (EIMS) website (**https://eims.metc.state.mn.us/**). Data from both sources are summarized in this report.

Purpose: To detect water quality trends, diagnose and identify the source of any problems, and guide management.

Locations: Rum River at County Road 24 (ACD)
Rum River at County Road 7 (ACD) Rum River at Anoka Dam (Met Council)

Results: Results are presented on the following pages.

2018 Rum River Monitoring Sites



Stream Water Quality Monitoring

RUM RIVER

Rum River at Co. Rd. 24 (Bridge St), St. Francis	STORET Site ID = S000-066
Rum River at Co. Rd. 7 (Roanoke St), Ramsey	STORET Site ID = S004-026
Rum River at Anoka Dam, Anoka[1]	STORET Site ID = S003-183

[1]monitored by the Metropolitan Council

Years Monitored

At Co. Rd. 24 – 2004, 2009-2011, 2014-2018

At Co. Rd. 7 – 2004, 2009- 2011, 2014-2018

At Anoka Dam – 1996-2011(MC WOMP), 2015-2018

Background

The Rum River is one of Anoka County's highest quality and most valuable water resources. It is designated as a state scenic and recreational river throughout Anoka County, north of the county fairgrounds in Anoka. It is used for boating, tubing, and fishing. Much of western Anoka County drains to the Rum River. Subwatersheds that drain to the Rum include Seelye Brook, Ford Brook, and Cedar Creek (reported in the Upper Rum River WMO section of this Water Almanac) and Trott Brook.

The extent to which Rum River water quality improves or is degraded within Anoka County has been unclear. The Metropolitan Council has monitored water quality at the Rum's outlet to the Mississippi River since 1996. This water quality and hydrologic data is well suited for evaluating the river's water quality just before it joins the Mississippi River. Monitoring elsewhere has occurred only in more recent years. Water quality changes might be expected from upstream to downstream because land use changes dramatically from rural residential in the upstream areas of Anoka County to suburban in the downstream areas.

Methods

In 2004, 2009-2011, and 2014-2018 monitoring was conducted to determine if Rum River water quality changes in Anoka County, and if so, generally where changes occur. The data is reported for all sites together for a more comprehensive analysis of the river from upstream to downstream.

In 2018 the river was monitored during both storm and baseflow conditions by grab samples. At County Road 24 (farthest upstream) only four samples were taken due to lower funding levels. At County Road 7, eight water quality samples were taken; half during baseflow and half following storms. These two sites were monitored by the Anoka Conservation District. At the Anoka Dam the river was monitored by the Metropolitan Council using a different schedule.

Monitoring was conducted during both baseflow and storm conditions. Storms were generally defined as one-inch or more of rainfall in 24 hours, or a significant snowmelt event combined with rainfall. In some years, particularly drought years, smaller storms were sampled because of a lack of larger storms. All storms sampled were significant runoff events.

Key water quality parameters were monitored at all sites. Parameters tested with portable meters included pH, specific conductivity, turbidity, temperature, salinity, and dissolved oxygen. Parameters tested by water samples sent to a state-certified lab included total phosphorus and total suspended solids, as well as chloride at Rum River at County Road 7. Additional parameters were monitored at the Anoka Dam by the Metropolitan Council.

Water levels or flow was observed during each water quality sampling. The Metropolitan Council monitoring station at the Anoka Dam includes automated equipment that continuously tracks water levels and calculates flows. Water level and flow data for other sites were obtained from the US Geological Survey, who maintains a hydrological monitoring site at Viking Boulevard.

The purpose of this report is to make an upstream to downstream comparison of Rum River water quality. It includes only parameters tested at all sites in 2018. It does not include additional parameters tested at the Anoka Dam or additional monitoring events at that site. For that information, see Metropolitan Council reports at https://eims.metc.state.mn.us/. All other raw data can be obtained from the Anoka Conservation District, and is also available through the Minnesota Pollution Control Agency's EQuIS database, which is available through their website (https://www.pca.state.mn.us/data/environmental-quality-information-system-equis).

Results Summary

This report includes data from 2018 and an overview of previous year's data. The following is a summary of results.

- Specific conductivity and chlorides are measured as representatives of dissolved constituents. Specific conductivity in the Rum River is lower than other Anoka County streams. Specific conductivity increases mildly downstream, though it is slightly lower at the furthest downstream site compared to the mid-county site. Average specific conductivity for sites tested in 2018 from upstream to downstream was 0.266, 0.282, and 0.269 mS/cm, respectively.
- Chlorides were tested at Rum River at C.R. 7 where it averaged 14 mg/L, which is low. As development continues in all parts of the Rum River watershed, efforts to prevent future problems should include minimizing road deicing salt use and utilizing new water softening technology. Other streams near the Rum River do have significant high chlorides problems.
- Phosphorus in the Rum River in recent years has been near the State water quality standard of 100 µg/L at all sampled sites. Sites exceeded the standard on three single sampling occasions in 2018, once during baseflow, and twice after a storm event. 2018 total phosphorus in the Rum River in 2018 averaged 78.8, 83.3, and 86.0 µg/L at sampled sites from upstream to downstream. This year total phosphorus increased slightly compared to the low values of 2017. The minimal increase from upstream to downstream is overall a good thing as it points to relatively small phosphorus contributions occurring in Anoka County. However, because small increases in phosphorus could cause the Rum River to exceed State standards and be declared "impaired," preventing phosphorus increases should be a focus of watershed management.
- Suspended solids and turbidity generally remained at acceptable levels in the Rum River and are lower than most other Anoka County streams. Average turbidity peaked at the mid-county site Rum River at C.R. 7 where average turbidity was 19.3 NTU. From upstream to downstream in 2018 turbidity averages were 7.2, 19.43, and 3.85 NTU, respectively. TSS levels were low in the Rum River compared to other Anoka County streams averaging 10.94, 10.1, and 5.54 mg/L from upstream to downstream. The low turbidity and TSS levels at the downstream site are likely due to settling in the pool created by the dam at Anoka. Though suspended solids remain well under state impairment thresholds in the Rum, turbidity does show a moderate increase during storm events, and stormwater runoff mitigation should be a focus of management efforts, especially as other pollutants may be associated with suspended solids.
- pH returned to more typical levels in 2018 in the Rum River after being elevated on some occasions in 2017. pH should remain between 6.5 and 8.5 to support aquatic life and meet State water quality standards. On one occasion in May 2017, all three sampled sites exceeded pH 9. However, this year there were no examples of pH exceeding 9, in fact the highest pH recorded was 8.46, within the range required to meet state standards. This decrease in pH both on average and overall is good, but concern remains because there have been a number of spikes in pH over 8.5 in recent years. pH levels over 9 are quite alkaline for natural waterways. There are a variety of potential factors leading to temporary spikes in pH, including discharge of high nutrient and algae waters to the river from lakes or wetlands. pH should continue to be monitored in the Rum River in the future.
- Dissolved oxygen remained above the state standard of 5 mg/L in 2018 and previous monitored years, however the lowest recorded level occurred this year. The lowest concentration recorded at any of the three sites in 2018 was 5.64 mg/L at Rum River at C.R. 7 compared to 6.89 mg/L at Rum River at Anoka Dam in 2017.

Below the data are presented and discussed for each parameter in greater detail. Management recommendations will be included at the conclusion of this report. The Rum River is an exceptionally important waterbody, and its protection and improvement should be a high priority.

Specific Conductivity

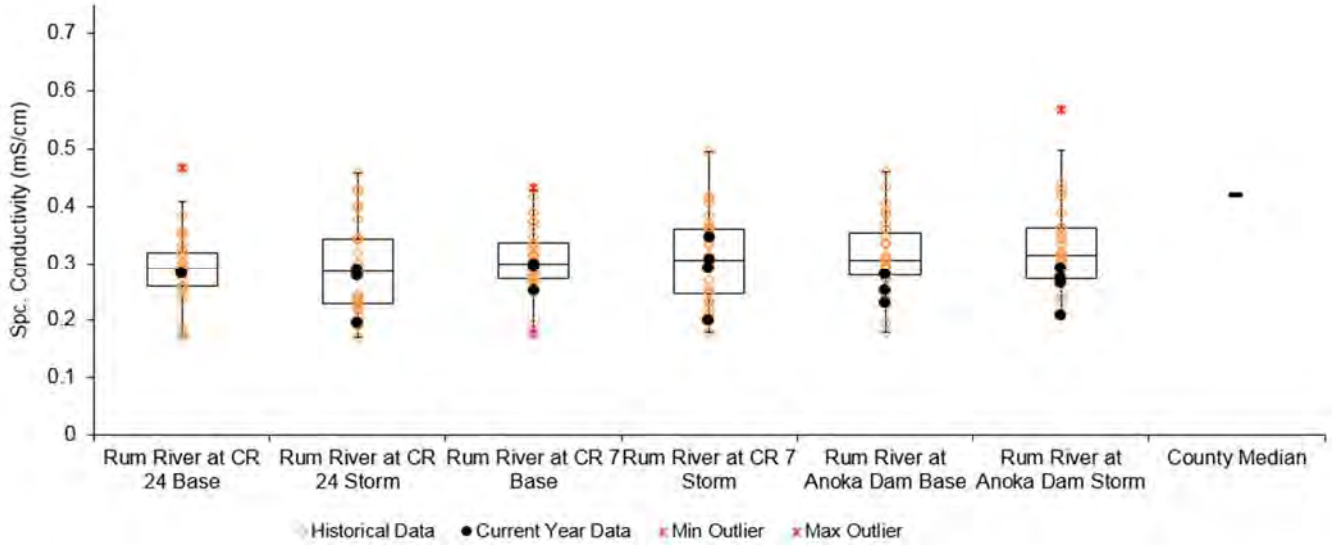
Specific conductivity and chlorides are measures of dissolved pollutants. Dissolved pollutant sources include road runoff and industrial chemicals, among many others. Metals, hydrocarbons, and road salts, as well as other pollutants are often of concern in a suburban environment. Specific Conductivity is the broadest measure of dissolved pollutants we use. It measures electrical Specific Conductivity of the water; pure water with no dissolved constituents has zero Specific Conductivity.

Specific conductivity is acceptably low in the Rum River, in the past it has shown a consistent pattern of increasing downstream (see figure below) and is usually higher during baseflow conditions. Average specific conductivity from upstream to downstream in 2018 (all conditions) did not meet these expectations with readings of 0.266 mS/cm, 0.282 and 0.269 mS/cm, respectively. All three sites are lower than the historical median for 34 Anoka County streams of 0.420 mS/cm and. The 2018 maximum observed specific conductivity in the Rum River was 0.347 mS/cm at County Road 7 during storm conditions. During storm flows there is a statistically significant trend of increasing specific conductivity from upstream to downstream when averaged over the last 5 years.

Specific conductivity is lower on average during storm events (especially at the upstream sites), suggesting that stormwater runoff contains fewer dissolved pollutants than the surficial water table that feeds the river during baseflow. High baseflow specific conductivity has been observed in most other nearby streams as well. This occurrence has been studied extensively, and the largest cause has often been found to be road deicing salts that have infiltrated into the shallow aquifer. Water softening salts and geologic materials also contribute, but to a lesser degree.

In years past, specific conductivity has increased from upstream to downstream and that is the expected trend. During baseflow, this increase from upstream to downstream likely reflects greater road densities and deicing salt application. That this pattern is not seen this year could be due to precipitation or runoff differences, or the timing of sampling. Additionally, the below the dam specific conductivity readings were atypical in 2018 in that specific conductivity was higher during storm than baseflow events, though modestly higher at that, averaging 0.279 mS/cm during storms and 0.254 mS/cm during baseflow.

Specific Conductivity during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

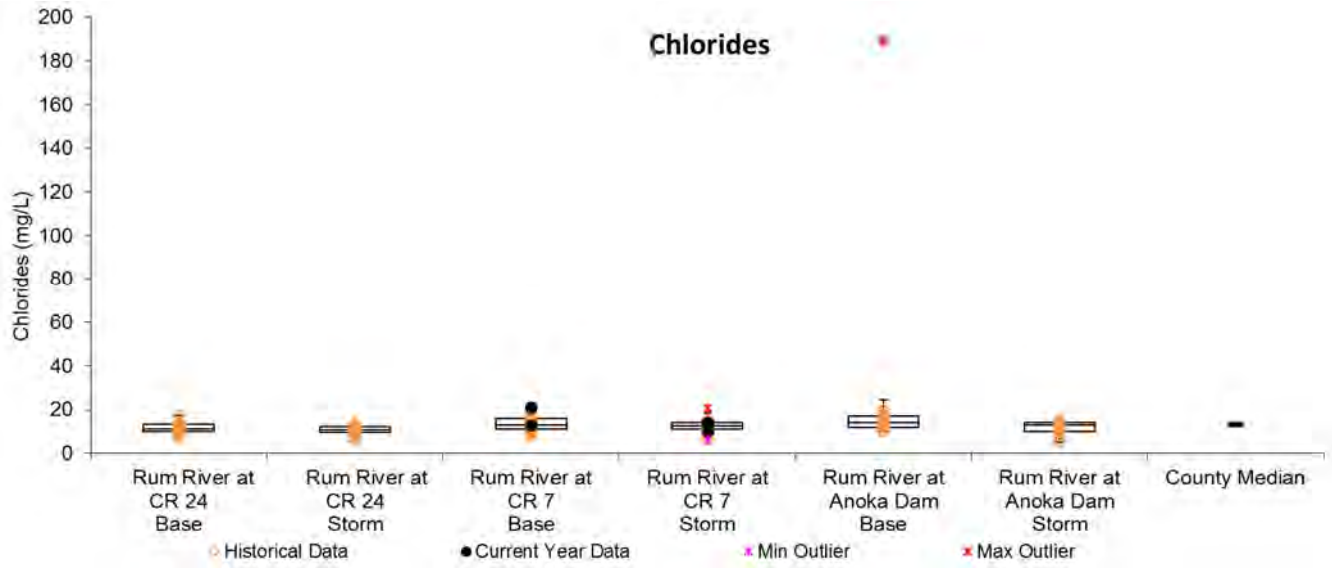


Chlorides

Chlorides are the measure of chloride salts, the most common of which are road de-icing chemicals and those used in water softening. Chlorides can also be present in other pollutant types, such as wastewater. These pollutants are of greatest concern because of the effect they can have on the stream's biological community. They can also be of concern because the Rum River is upstream from the Twin Cities drinking water intakes on the Mississippi River. Specific Conductivity data, reported above, is partially a reflection of chlorides with higher specific conductivity corresponding to higher chlorides, generally.

In 2018 water samples for chloride analysis were taken from the Rum River at CR7. At this location average chloride was 14.7 mg/L for all events and 14.2 and 15.0 mg/L for storms and base flow conditions, respectively. This reflects the typical trend seen in specific conductivity of greater dissolved pollutants during baseflow conditions and likely reflects infiltration of road salts into the shallow aquifer. This information could be of greater value if chloride sampling occurred at all sites sampled in the Rum River watershed and, additionally, if samples were taken after snowfall events and corresponding specifically to snowmelt.

Chlorides during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Total Phosphorus

Phosphorus is one of the most common pollutants in this region, and can be associated with urban runoff, agricultural runoff, wastewater, and many other sources. It causes excessive algal growth and a number of other associated problems for aquatic life and recreation. Rum River total phosphorus is near State impairment thresholds.

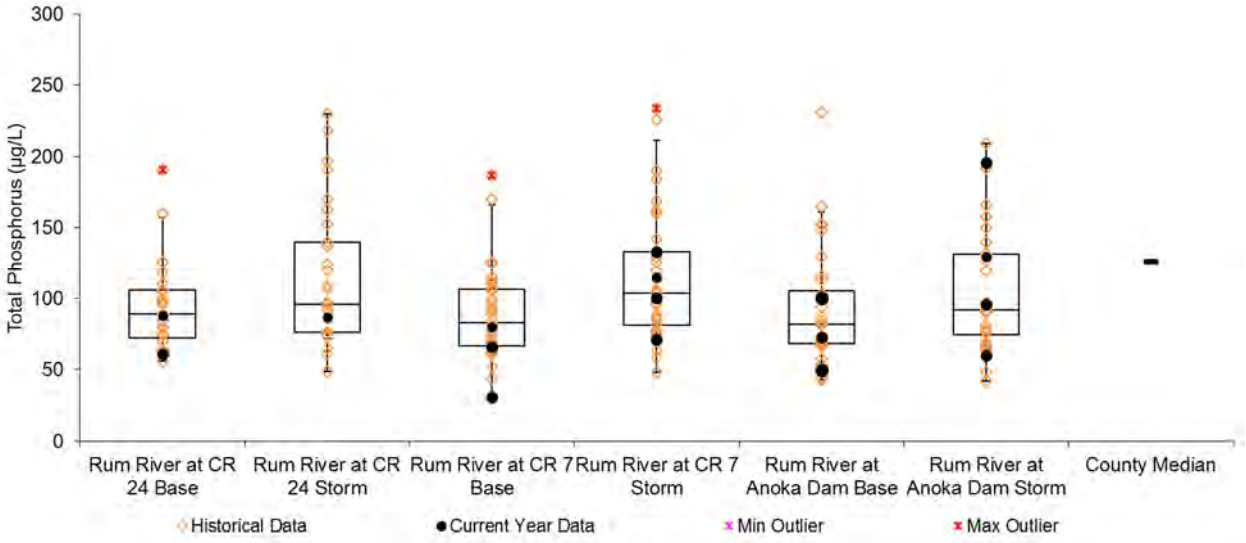
The average phosphorus concentration in 2018 increased from upstream to downstream and approached State standards for impairment. At the three monitored sites phosphorus from upstream to downstream was 78.8, 83.3 and 86.0 µg/L, respectively. The watershed becomes increasingly suburbanized in the lower reaches.

In 2018, as in many years pre-2016, total phosphorus was close to exceeding State water quality standards. Four samples among the three sites combined in 2018 yielded total phosphorus concentrations over the State standard of 100 µg/L. Of those, two occurred on July 2nd at the mid-county and downstream sites after significant rainfall.

Because the Rum River is close to exceeding State water quality standards for phosphorus, monitoring should be continued in the future, and every effort should be made to prevent phosphorus increases which may result in the

Rum River being designated as “impaired” for nutrients. Future upgrades to wastewater treatment plants throughout the Rum River watershed may offer phosphorus reductions. At the same time, development should include robust stormwater treatment to not just keep nutrient loading to the river the same, but reduce it. Reductions will be necessary to offset likely increases from land use changes, more intense precipitation events, upstream ditch cleaning and other factors.

Total Phosphorus during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentile (floating outer lines).



Turbidity and Total Suspended Solids (TSS)

Turbidity and total suspended solids (TSS) are two different measurements of solid material suspended in the water. Turbidity is measured by the refraction of a light beam passed through a water sample and is most sensitive to large particles. Total suspended solids are measured by filtering solids from a water sample and weighing the filtered material. The amount of suspended material is important because it affects transparency and aquatic life, and because many other pollutants, such as phosphorus, are attached to particles. Many stormwater treatment practices such as street sweeping, sumps, and stormwater settling ponds target sediment and attached pollutants. In 2018, median turbidity and total suspended solids in the Rum River were lower than the historical median for Anoka County streams.

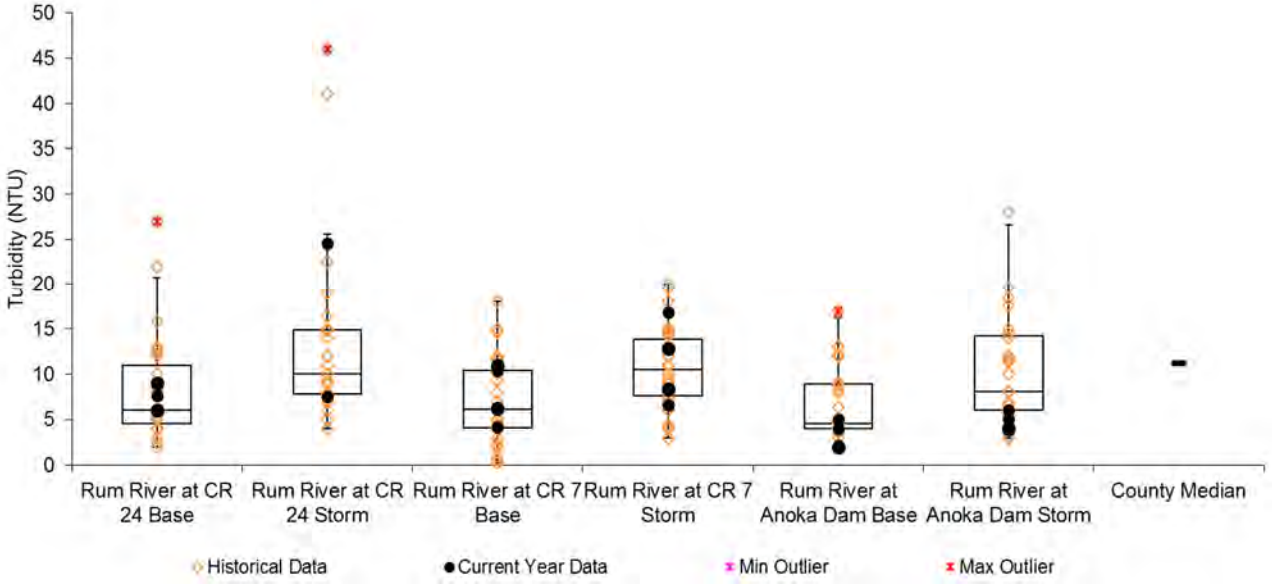
In the Rum River, turbidity is generally low but increases during storms. There is substantial variability (see figure below). There is no clear change in turbidity or suspended solids upstream to downstream. The average turbidity, in 2018 (storms and baseflow) for each site moving upstream to downstream was 7.2, 19.4, and 3.85 NTU. The historical median for Anoka County streams is 11.2 NTU. Turbidity was elevated on a few occasions, especially during and after storm events. Over the last 5 years there is a statistically significant increase in turbidity from upstream to downstream during baseflow conditions and also for all samples. This likely reflects the effect of increased erosion and contribution of sediments in the more developed southern portion of the county.

Average TSS results (all conditions) in 2018 for sites moving upstream to downstream were 10.94, 10.1, and 5.54 mg/L. These are all lower than the Anoka County stream median for TSS of 13.66 mg/L. It is also lower than State water quality standards. The State threshold for TSS impairment in the Rum River is 10% of samples April 1-September 30 exceeding 30 mg/L TSS. The highest concentration recorded in 2018 was 24 mg/L. ACD has not collected a sample in the Rum River over 30 mg/L TSS since May of 2010.

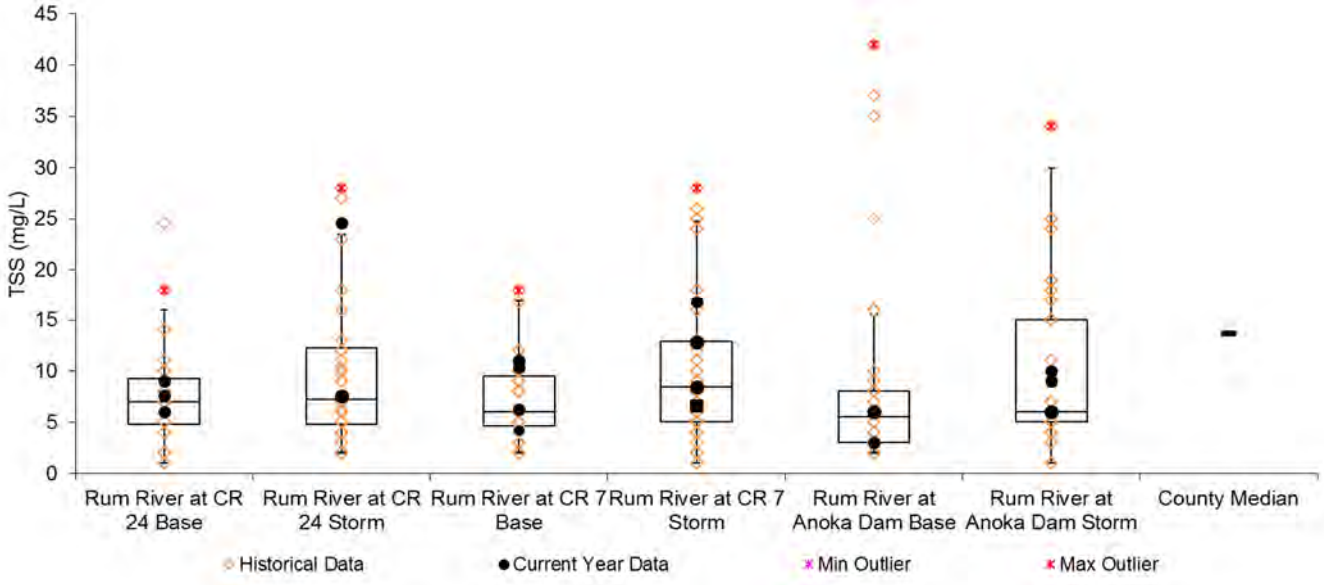
Suspended solids can come from within and outside of the river channel. Sources on land include soil erosion, road sanding, and others. Riverbank erosion and movement of the river bottom also contributes to suspended solids. A moderate amount of this "bed load" is natural and expected.

Though the Rum River remains well under the impairment threshold for TSS, rigorous stormwater treatment should occur as the Rum River watershed continues to be developed or the collective pollution caused by many small developments could seriously impact the river, especially given that stormwater carries many pollutants in addition to suspended sediments. Bringing stormwater treatment up to date in older developments is also important.

Turbidity during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Total Suspended Solids during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



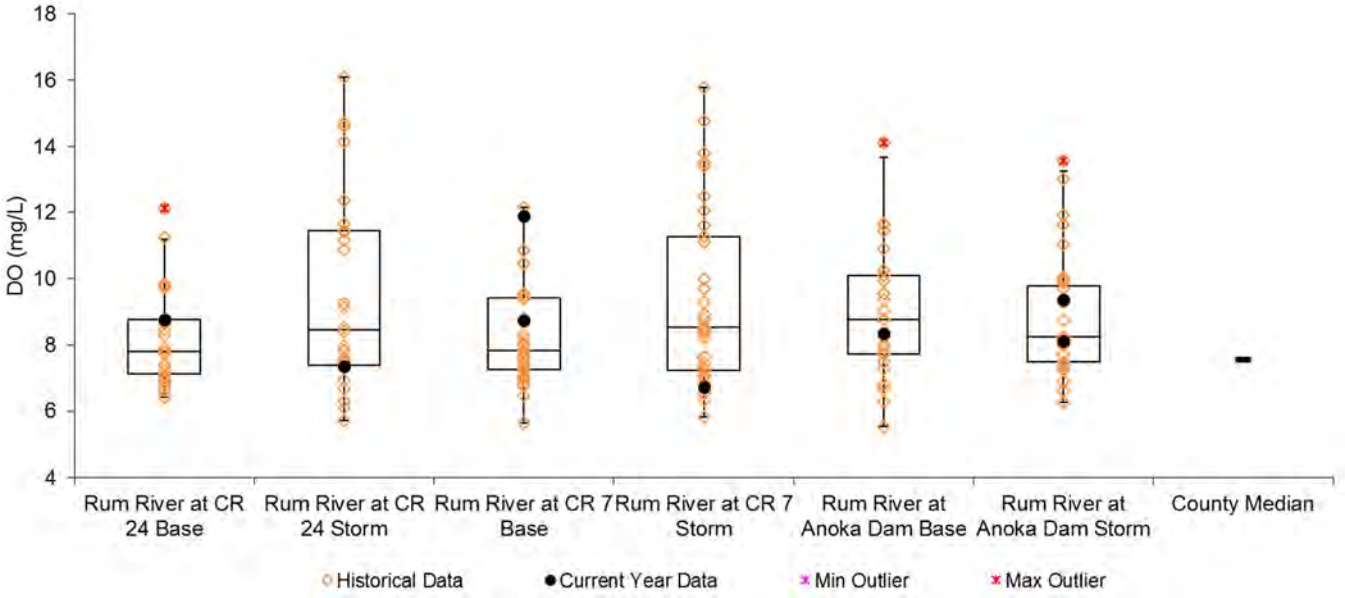
Dissolved Oxygen

Dissolved oxygen is necessary for aquatic life, including fish. Organic pollution causes oxygen to be consumed during decomposition. If oxygen levels fall below the state water quality standard of 5 mg/L, aquatic life begins to suffer. A stream is considered impaired if 10% of observations are below this level in the last 10 years. Dissolved oxygen levels are typically lowest in the early morning because of decomposition consuming oxygen at night without offsetting oxygen production by photosynthesis. In 2018, dissolved oxygen in the Rum River was always above 5 mg/L at all monitoring sites.

The lowest dissolved oxygen observed in the Rum River in 2018 was 5.64 mg/L. This is only the fifth time that a dissolved oxygen reading below 6 has occurred in the Rum River throughout the monitoring record, with the 3 most recent previous readings occurring during a single storm in 2011 when dissolved oxygen dipped below six at all three sites. The low dissolved oxygen result this year was recorded at base flow during July when water temperatures were above 77° F. Warm water holds less oxygen, therefore this low reading is likely a result of low water on a hot day, rather than pollution.

Decreases in dissolved oxygen may result from an increase in the level of nutrients in the stream. Making sure that phosphorus and nitrogen inputs to the stream are maintained or lowered is important for healthy dissolved oxygen levels. The principle sources of these nutrients are fertilizer and wastewater.

Dissolved Oxygen during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).

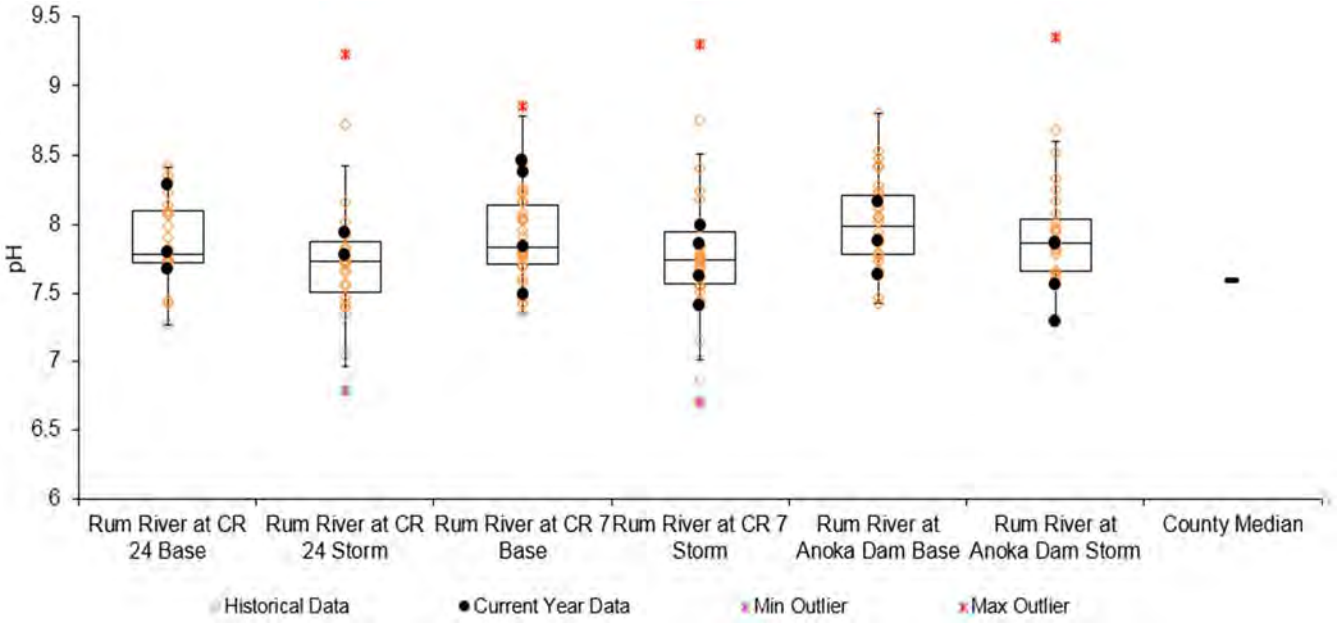


pH

pH refers to the acidity of the water. The Minnesota Pollution Control Agency's water quality standard is for pH to remain between 6.5 and 8.5. The Rum River is generally within this range, but has exceeded 8.5 on rare occasions in the past. In recent years (2015, 2017) however, exceedances of 8.5 have been commonplace at all sites. In 2017, pH levels over 9 were recorded at all three sites after a storm event on 5/18/2017. Exceedances were recorded in 2015 after a spring storm in March at the lower two sampling sites as well as at the Anoka Dam during baseflow conditions in July. This year saw a positive change with no events exceeding 8.5.

There are a variety of potential factors leading to temporary spikes in pH. It is, however, disconcerting that spikes over 8.5 seem to be happening more frequently in recent years, although it is a positive development that they did not occur this year. pH should continue to be monitored in the Rum River in the future to see if the spikes get worse or become even more common.

pH during Baseflow and Storm Conditions. Orange diamonds are historical data from previous years and black circles are 2018 readings. Box plots show the median (middle line), 25th and 75th percentile (ends of box), and 10th and 90th percentiles (floating outer lines).



Summary and Recommendations

In general, the Rum River's water quality is good. However, there is typically a slight increase in specific conductivity moving downstream, phosphorus levels are near state water quality standards, and pH spikes over 8.5 have been more frequent in recent years, although they did not occur this year. The river is in need of protection now to avoid more difficult and costly restoration becoming a necessity later.

Relative changes in 3 water quality parameters in tributaries and the Rum River moving upstream to downstream. Plus/minus signs indicate difference relative to Rum River at CR 24 (top of the county).

	Specific Conductivity	Total Suspended Solids	Total Phosphorus
	Difference Relative to Rum R. at CR 24		
Rum River @ CR 24	0.266 mS/cm	10.94 mg/L	78.8 µg/L
Seelye Brook @ CR 7	+	-	+
Cedar Creek @ CR 9	+	+	+
Rum River @ CR 7	+	-	+
Ford Brook @ CR 63	+	+	+
Rum River @ Anoka Dam	=	-	+

In addition to comparing water quality in the Rum River upstream to downstream, water quality was also compared between Rum River tributaries and the Rum River main stem. For specific conductivity, total suspended solids, and total phosphorus the Rum river had better water quality than the tributaries, except when TSS results at Rum River at CR 24 and Seelye Brook at CR 9 were compared. Based on these results the tributaries sampled are likely reducing water quality in the Rum River. Many of the tributaries experience frequent exceedances of state standards, especially for total phosphorus. This is important since the Rum River is already nearing exceedance of total phosphorus standards and the tributaries are likely contributing to this problem. Moving forward it is important to continue to monitor and protect both the Rum River and its tributaries in order to prevent further decline in water quality potentially leading to water quality impairments in the Rum.

Protection of the Rum River should continue to be a high priority for local officials. Large population increases are expected to continue in the Rum River's watershed within Anoka County. This continued development has the potential to degrade water quality unless carefully planned and managed with the river in mind. Specifically, new development should follow stormwater standards designed to at least maintain, and preferably reduce, phosphorus

discharge to the river. Road deicing locally, which has become more sophisticated in recent years, should focus on minimizing salt application while keeping roads safe.

Development pressure is likely to be especially high near the river because of its scenic and natural qualities. Local ordinances to preserve the scenic nature of the river do exist, and enforcement is key. Additionally, preservation of riparian parcels with high natural resources quality should be considered with easement or fee title acquisition.

Watershed-wide (Mille Lacs Lake to the Anoka Dam) coordination of Rum River management is especially active currently. A Watershed Restoration and Protection Strategies (WRAPS) was completed in 2017. It is a scientific study that identifies recommended management strategies. A “One Watershed, One Plan” (1W1P) in 2019-2020 offers multi-county planning. This plan will prioritize and coordinate action. After completion of the 1W1P a new state funding source will become available – Watershed Based Funding – to implement water quality improvement projects.

Stream Water Quality – Biological Monitoring

Partners: LRRWMO, ACD, Anoka High School

Description: This program combines environmental education and stream monitoring. Under the supervision of ACD staff, high school science classes collect aquatic macroinvertebrates from a stream, identify their catch to the family level, and use the resulting numbers to gauge water and habitat quality. These methods are based upon the knowledge that different families of macroinvertebrates have different water and habitat quality requirements. The families collectively known as EPT (Ephemeroptera, or mayflies; Plecoptera, or stoneflies; and Trichoptera, or caddisflies) are generally pollution intolerant. Other families can thrive in low quality water. Therefore, a census of stream macroinvertebrates yields information about stream health.

Purpose: To assess stream quality, both independently as well as by supplementing chemical data.
To provide an environmental education service to the community.

Location: Rum River behind Anoka High School, south side of Bunker Lake Blvd, Anoka

Results: Results for each site are detailed on the following pages.

Tips for Data Interpretation

Consider all biological indices of water quality together rather than looking at each alone, because each gives only a partial picture of stream condition. Compare the numbers to county-wide averages. This gives some sense of what might be expected for streams in a similar landscape, but does not necessarily reflect what might be expected of a minimally impacted stream. Some key numbers to look for include:

Families — Number of invertebrate families. Higher values indicate better quality.

EPT — Number of families of the generally pollution-intolerant orders Ephemeroptera (mayflies), Plecoptera (stoneflies), Trichoptera (caddisflies). Higher numbers indicate better stream quality.

Family Biotic Index (FBI) — An index that utilizes known pollution tolerances for each family. Lower numbers indicate better stream quality.

FBI	Stream Quality Evaluation
0.00-3.75	Excellent
3.76-4.25	Very Good
4.26-5.00	Good
5.01-5.75	Fair
5.76-6.50	Fairly Poor
6.51-7.25	Poor
7.26-10.00	Very Poor

Population Attributes Metrics

% EPT: This measure compares the number of organisms in the EPT orders (Ephemeroptera - mayflies: Plecoptera - stoneflies: Trichoptera - caddisflies) to the total number of organisms in the sample. A high percent of EPT is good.

% Dominant Family: This measures the percentage of individuals in the sample that are in the sample's most abundant family. A high percentage is usually bad because it indicates low evenness (one or a few families dominate, and all others are rare).

Biomonitoring

RUM RIVER

Behind Anoka High School, Anoka
STORET SiteID = S003-189

Last Monitored

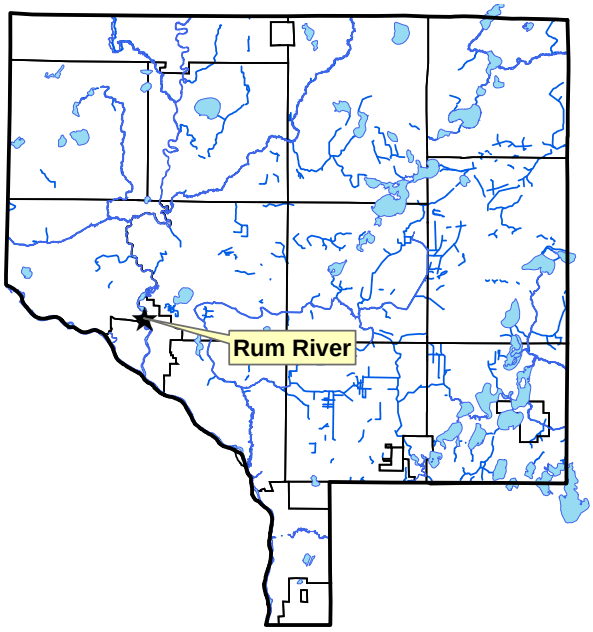
By Anoka High School in 2018

Monitored Since

2001

Student Involvement

Over 100 students in 2018, over 1,200 total since 2001



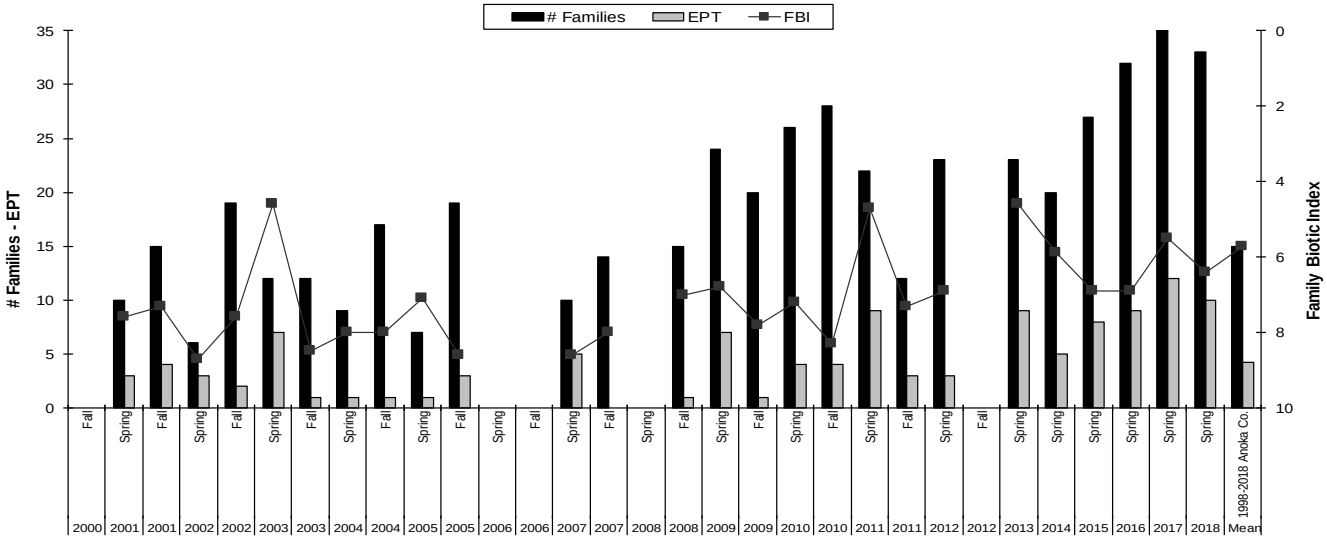
Background

The Rum River originates from Lake Mille Lacs, and flows south through western Anoka County where it joins the Mississippi River in the City of Anoka. In Anoka County the river has both rocky riffles (northern part of county) as well as pools and runs with sandy bottoms. The River's condition is generally regarded as excellent. Most of the Rum River in Anoka County has a state "scenic and recreational" designation. The sampling site is near the Bunker Lake Boulevard bridge behind Anoka High School. Most sampling has been conducted in a backwater rather than the main channel.

Results

Anoka High school classes monitored the Rum River in spring of 2018 with Anoka Conservation District (ACD) oversight. The results for spring 2018 were better than previous years with the exception of last year (2017) which had the best results on record. Students collected 33 different families of invertebrates at this site, the second most since 2001. 10 unique families of the most sensitive taxa (Ephemeroptera, Plecoptera, and Trichoptera; EPT), were collected in 2018. The last three years of monitoring at this site (2016, 2017, and 2018) are the best three years on record. Additionally, results for family biotic index, number of families, and number of EPT taxa are all much better than the countywide mean over 21 years of data collection in numerous streams.

Historical Biomonitoring Results for Rum River behind Anoka High School



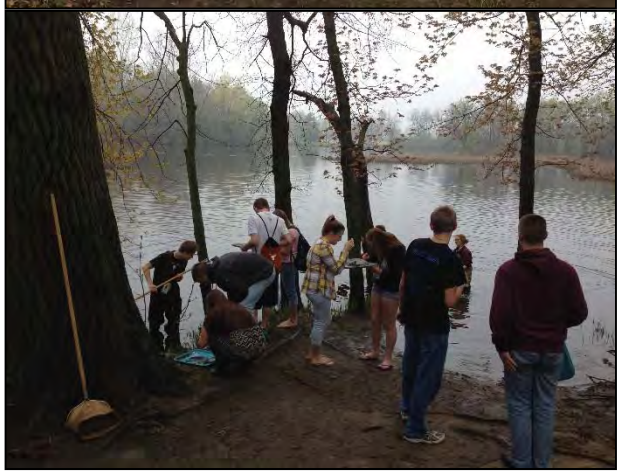
Biomonitoring Data for the Rum River behind Anoka High School - Most Recent Five Years

Year	2014	2015	2016	2017	2018	Mean
Season	Spring	Spring	Spring	Spring	Spring	1998-2018 Anoka Co.
FBI	5.90	6.90	6.90	5.50	6.40	5.7
# Families	20	27	32	41	33	15.0
EPT	5	8	9	12	10	4.3
Date	20-May	11-May	17-May	15-May	14-May	
sampling by	AHS	AHS	AHS	AHS	AHS	
sampling method	MH	MH	MH	MH	MH	
Mean # individuals	350	767	3363	1439	1648	
# replicates	4	2	1	2	3	
Dominant Family	Siphlonuridae	Siphlonuridae	Siphlonuridae	Pelecypoda	Siphlonuridae	
% Dominant Family	33.4	69.3	74.9	26.6	48.1	
% Ephemeroptera	57.8	78.9	78.7	14.9	65.1	
% Trichoptera	0.1	1.4	0	0.1	0.1	
% Plecoptera	0.5	0	0.4	26	1.9	
% EPT	58.4	80.3	79.1	41	67.1	

Discussion

Both chemical and biological monitoring indicate the good quality of this river. Habitat is ideal for a variety of stream life, and includes a variety of substrates, plenty of woody snags, riffles, and pools. Water chemistry monitoring done at various locations on the Rum River throughout Anoka County found that water quality is also good. Both habitat and water quality decline, but are still good, in the downstream reaches of the Rum River where development is more intense and the Anoka Dam creates a slow moving pool.

Historically, biomonitoring near Anoka was conducted mostly in a backwater area that, during periods of low water level, has a mucky bottom and does not receive good flow. During those conditions the area was unlikely to be occupied by families which are pollution intolerant. Recent monitoring has included sampling the main channel during an extremely low water level condition, followed by multiple years of very high water levels. The main channel and higher water levels offer opportunities for a more diverse habitat. These changes in sampling likely explain the apparent improvement in the invertebrate community in recent years.



Wetland Hydrology

Partners: LRRWMO, ACD

Description: Continuous groundwater level monitoring at a wetland boundary. Countywide, the ACD maintains a network of 23 wetland hydrology monitoring stations.

Purpose: To provide understanding of wetland hydrology, including the impacts of climate and land use. These data aid in delineation of nearby wetlands by documenting hydrologic trends including the timing, frequency, and duration of saturation.

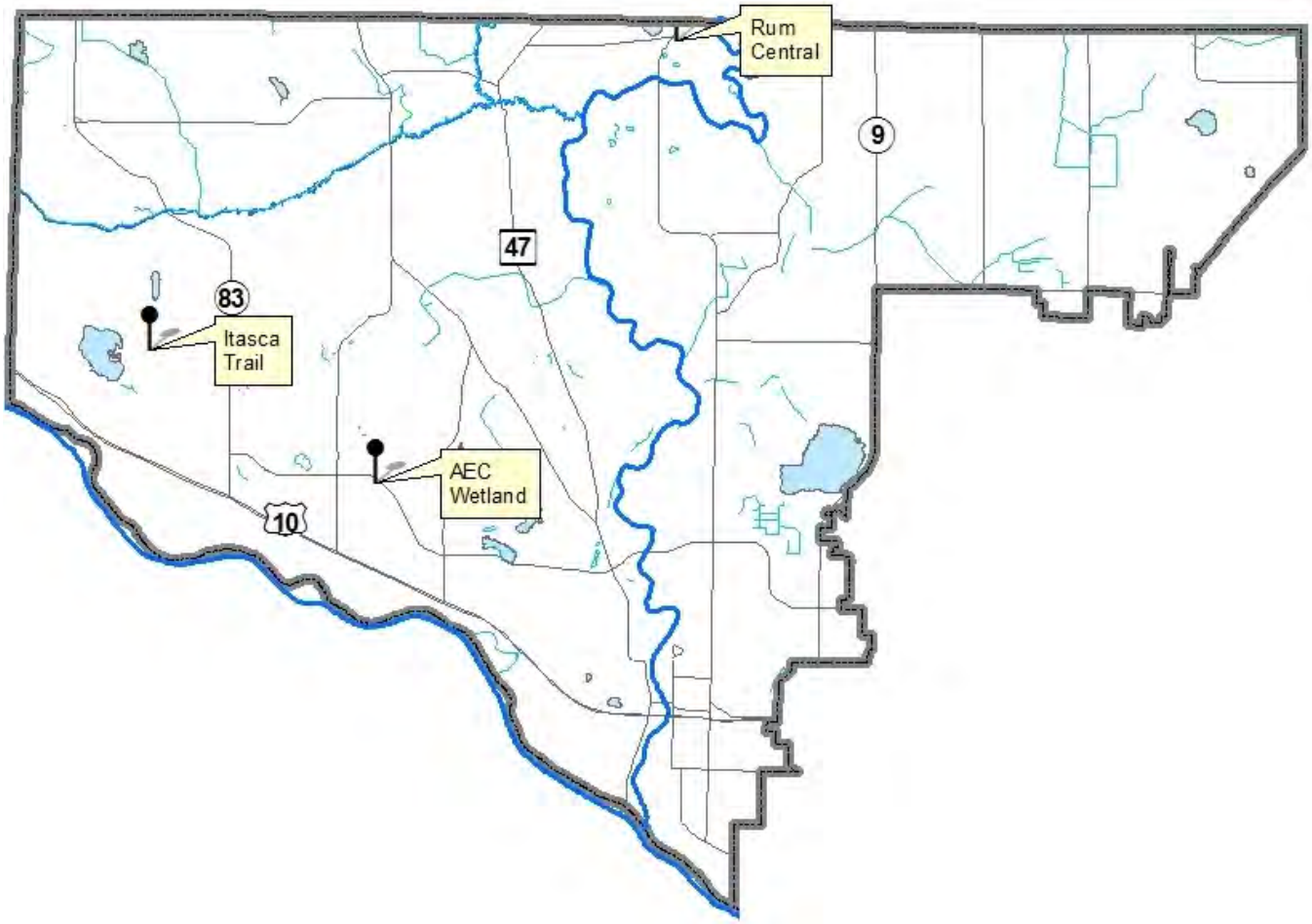
Locations: AEC Reference Wetland, Connexus Energy Property on Bunker Lake Blvd, Ramsey

Rum River Central Reference Wetland, Rum River Central Park, Ramsey

Lake Itasca Trail Reference Wetland, Lake Itasca Park, Ramsey

Results: Depicted on the following pages.

Lower Rum River Watershed Wetland Hydrology Monitoring Sites



Wetland Hydrology Monitoring

AEC REFERENCE WETLAND

Cottonwood Park, adjacent to Connexus Energy Offices (formerly Anoka Electric Coop), Ramsey

Site Information

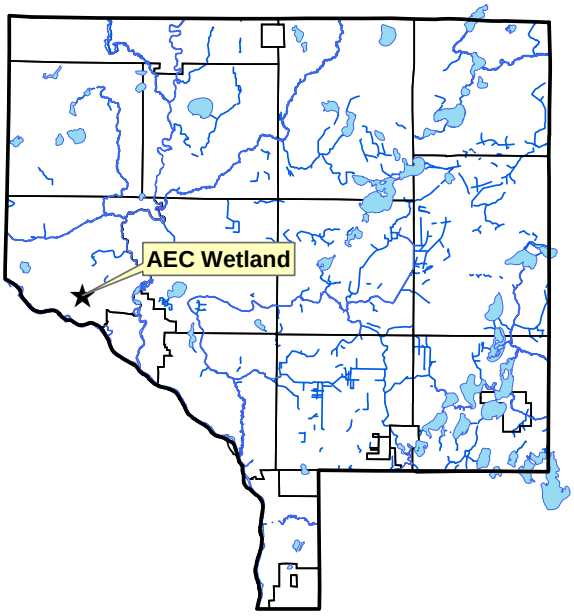
Monitored Since: 1999

Wetland Type: 3

Wetland Size: ~18 acres

Isolated Basin? No, probably receives storm water

Connected to a Ditch? No



Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-15	10yr2/1	Sandy Loam	-
Bw	15-40	10yr3/2	Gravelly Sandy loam	-

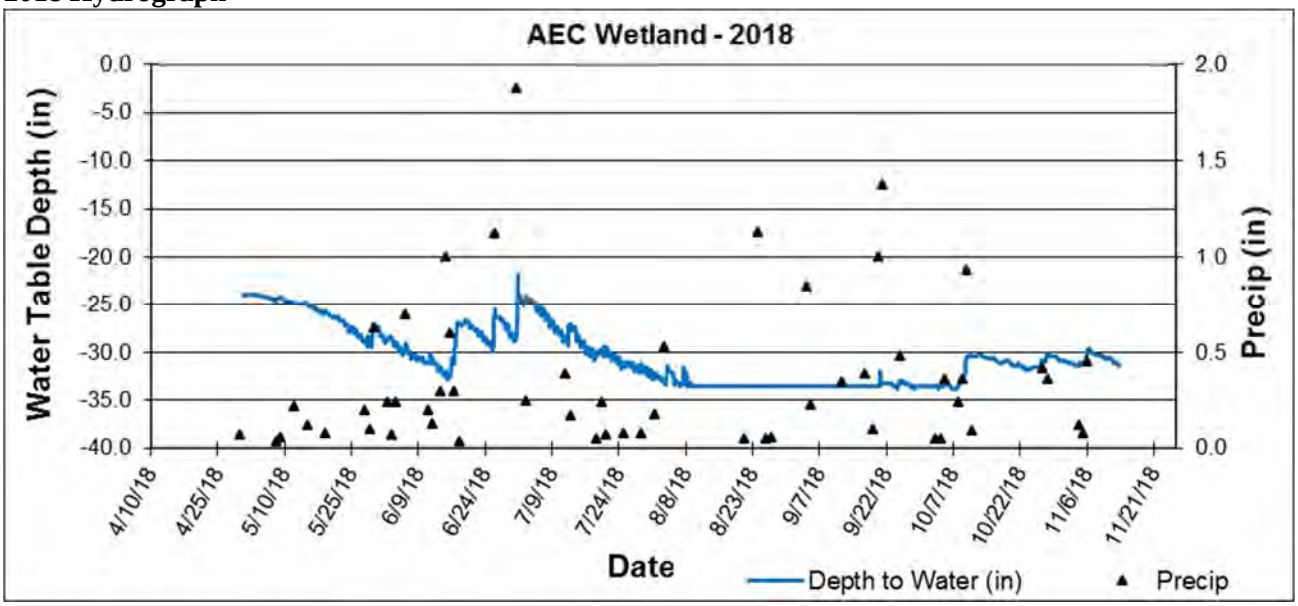
Surrounding Soils: Hubbard coarse sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Populus tremuloides	Quaking Aspen	30
Salix bebbiana	Bebb Willow	30
Carex Spp	Sedge undiff.	30
Solidago canadensis	Canada Goldenrod	20

Other Notes: Well is located at the wetland boundary.

2018 Hydrograph



Wetland Hydrology Monitoring

RUM RIVER CENTRAL REFERENCE WETLAND

Rum River Central Regional Park, Ramsey

Site Information

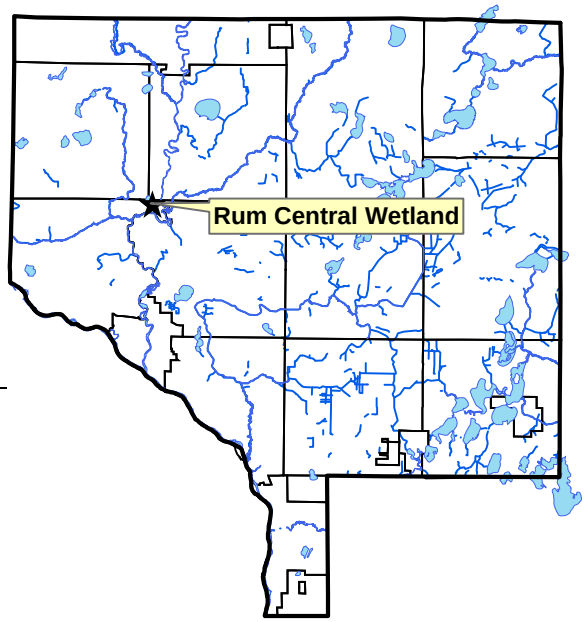
Monitored Since: 1997

Wetland Type: 6

Wetland Size: ~0.8 acres

Isolated Basin? Yes

Connected to a Ditch? No



Soils at Well Location:

Horizon	Depth	Color	Texture	Redox
A	0-12	10yr2/1	Sandy Loam	-
Bg1	12-26	10ry5/6	Sandy Loam	-
Bg2	26-40	10yr5/2	Loamy Sand	-

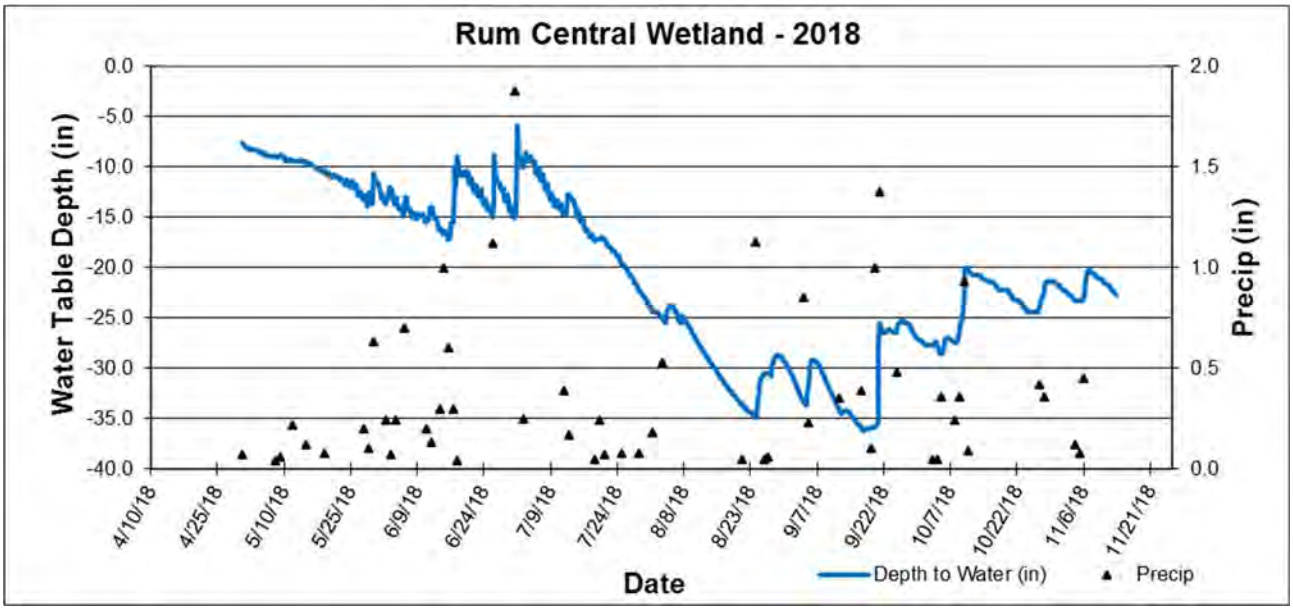
Surrounding Soils: Zimmerman fine sand

Vegetation at Well Location:

Scientific	Common	% Coverage
Phalaris arundinacea	Reed Canary Grass	40
Corylus americanum	American Hazelnut	40
Onoclea sensibilis	Sensitive Fern	30
Rubus strigosus	Raspberry	30
Quercus rubra	Red Oak	20

Other Notes: Well is located at the wetland boundary.

2018 Hydrograph



Wetland Hydrology Monitoring

LAKE ITASCA TRAILS REFERENCE WETLAND

Lake Itasca Trails Park, Ramsey

Site Information

Monitored Since: 2013

Wetland Type: 2/6

Wetland Size: ~10 acres

Isolated Basin? Yes

Connected to a Ditch? No

Surrounding Soils: Hubbard coarse sand

Soils at Well Location:

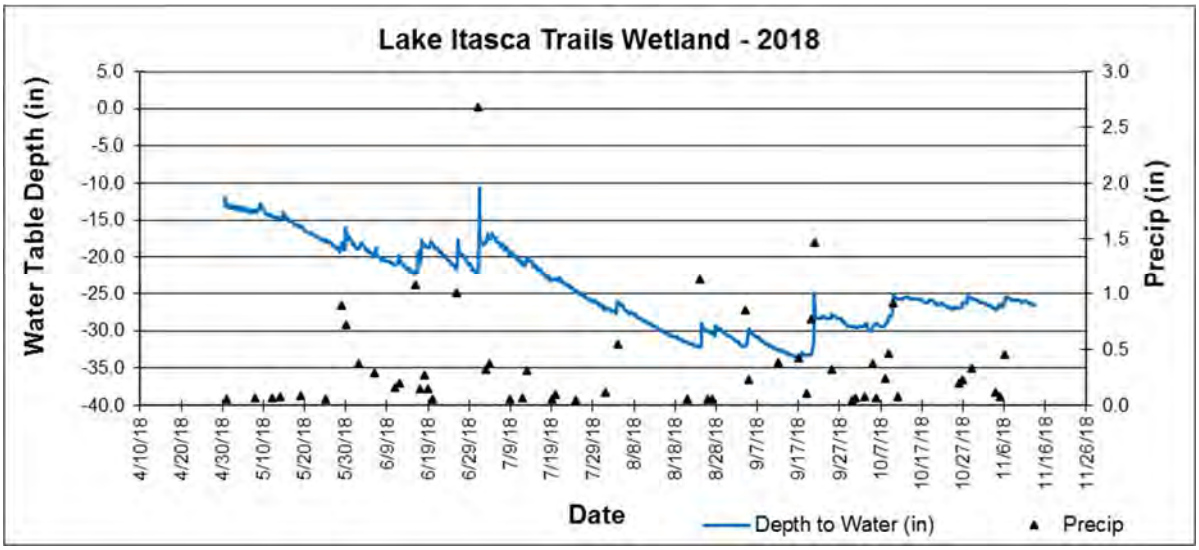
Horizon	Depth	Color	Texture	Redox
A1	0-12	10yr2/0	Mucky sand	-
A2	12-20	10ry2/1	Sand	-
B1	20-36	10yr4/1	Sand and fine gravel	-
B2	36-48	10yr6/1	Sand and fine gravel	-

Vegetation at Well Location:

Scientific	Common	% Coverage
Carex stricta	Hummock Sedge	80
Phalaris arundinacea	Reed Canary Grass	20
Salix sp.	Willow	20
Rubus sp.	Bristle-berry	5

Other Notes: Well is located about 10 feet east and about 6 inches downslope of the wetland boundary. DNR Public Water Wetland 2-339.

2018 Hydrograph



Water Quality Grant Fund

Partners: LRRWMO, ACD

Description: The LRRWMO provides cost share grants for projects on either public or private property that will improve water quality, such as repairing streambank erosion, restoring native shoreline vegetation, or rain gardens. This funding is administered by the Anoka Conservation District. Projects affecting the Rum River are given the priority because it is viewed as an especially valuable resource.

Purpose: To improve water quality in lakes, streams and rivers by correcting erosion problems and providing buffers or other structures that filter runoff before it reaches the water bodies.

Results: Projects reported in the year they are installed.

LRRWMO Cost Share Fund Summary

2006 LRRWMO Contribution	+	$1,000.00
2008 Expense – Herrala Rum Riverbank stabilization	-	$ 150.91
2008 Expense – Rusin Rum Riverbank stabilization	-	$ 225.46
2009 LRRWMO Contribution	+	$1,000.00
2009 Expense – Rusin Rum Riverbank bluff stabilization	-	$ 52.05
2010 LRRWMO Contribution	+	$ 0
2010 LRRWMO Expenses	-	$ 0
2011 LRRWMO Contribution	+	$ 0
2011 Expense - Blackburn Rum riverbank	-	$ 543.46
2012 LRRWMO Contribution	+	$1,000.00
2012 Expense – Smith Rum Riverbank	-	$1,596.92
2013 LRRWMO Contribution	+	$1,000.00
2013 Expense – Geldacker Mississippi Riverbank	-	$1,431.20
2014 LRRWMO Contribution	+	$2,050.00
2015 LRRWMO Contribution	+	$1,000.00
2015 Expense – Smith Rum Riverbank	-	$ 533.65
2016 LRRWMO Contribution	+	$1,000.00
2016 Expense – Brauer Rum Riverbank	-	$1,150.00
2018 LRRWMO Contribution	+	$1,000.00
2018 Expense – Rum River Revetments	-	$2,000.00
Fund Balance		**$3,366.35**

Rum River Bank Stabilizations

Partners: LRRWMO, URRWMO, ACD, MN DNR Conservation Partners Legacy Grant Program, Lessard-Sams Outdoor Heritage Council grant, landowners

Description: 12 riverbank stabilization projects were installed on the Rum River in Anoka and Isanti Counties in 2018. At these sites, cedar tree revetments and willow stakes were used to stabilize eroding banks. The projects were installed with labor from Conservation Corps Minnesota (CCM) work crews. Funding for the 4 revetments installed in Anoka County came from the Conservation Partners Legacy Grant Program from the Outdoor Heritage Fund, a Clean Water Fund CCM crew labor grant, the URRWMO and LRRWMO, and landowner contributions. Funding for 4 additional revetments in Isanti County came from the Lessard-Sams Outdoor Heritage Council, a Clean Water Fund CCM crew labor grant and landowner contribution.

Purpose: To stabilize areas of riverbank with mild to moderate erosion, in order to reduce sediment loading in the Rum River, as well as to reduce the likelihood of a much larger and more expensive corrective project in the future.

Location: Rum River Central Regional Park, 8 residential properties in Anoka County, City of Isanti, and 2 residential properties in Isanti County.

Results: Stabilized 2,223 linear feet of riverbank on the Rum River in Anoka and Isanti Counties.

Rum River Bank Erosion Inventory

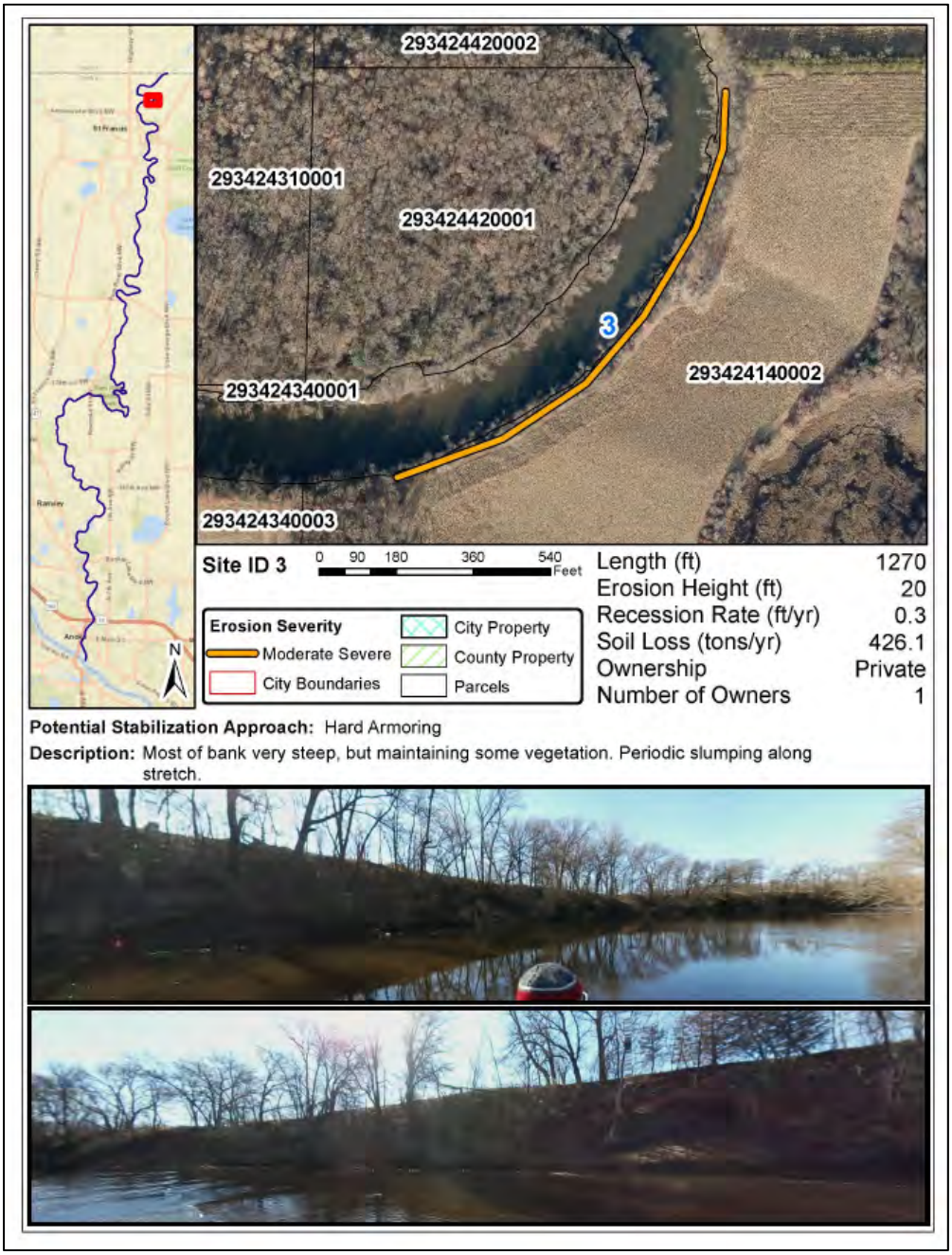
Partners: ACD

Description: The Anoka Conservation District (ACD) prepared an inventory of Rum River bank erosion using 360° photos of the riverbanks of the Rum throughout Anoka County. The photos are available through Google Maps using the Street View feature. An inventory report identifying 80 stretches of riverbank with moderate to very severe erosion is available on ACD's website. Estimated project cost and annual sediment load reduction to the river were calculated.

Purpose: To identify and prioritize riverbank stabilization sites and be used by ACD and other entities to pursue grant funds to restore or stabilize eroding stretches of Rum Riverbank.

Location: Rum River conveyance throughout Anoka County

Results: Inventory of 80 stretches of moderate to very severe erosion on banks of the Rum River.



Anoka Rain Gardens

Partners: LRRWMO, ACD, grant from Metropolitan Council

Description: In 2015 and 2016 a stormwater retrofit analysis (SRA) was done on selected areas in the Cities of Ramsey and Anoka. Many potential projects were modeled and a cost-benefit analyses performed. Subsequently, in 2017 and 2018 cost-effective projects were installed. In 2017 two rain gardens were installed in Anoka. In 2018 one more rain garden was installed. This rain garden is the first in Anoka County to utilize Focal Point technology. Focal Point uses a special media to rapidly filter large amounts of stormwater in a small project footprint. It was used in 2018 due to a higher water table and trees limiting available space at an otherwise ideal project location. Funding was from Clean Water Funds through the Anoka Conservation District (ACD) and a Metropolitan Council Grant to the Lower Rum River WMO. ACD managed the project.

Purpose: To improve water quality in the Rum and Mississippi Rivers.

Location: Selected areas in the Cities of Ramsey and Anoka.

Results: Two rain gardens were installed in 2017 and one more was installed in 2018. The 2018 project is shown below.

Pre-project

Completed project without plants
(to be planted in spring 2019)

Newsletter Articles

Partners: LRRWMO, ACD

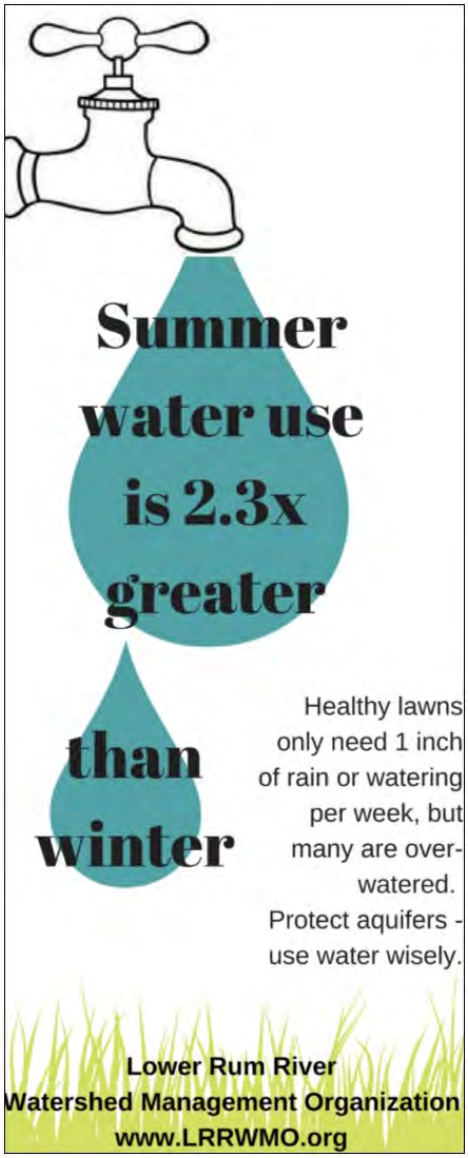
Description: The Lower Rum River Watershed Management Organization (LRRWMO) contracts the Anoka Conservation District (ACD) to create public education materials. The LRRWMO is required to distribute an annual publication under State Rules. This requirement is met through newsletters or infographics in city newsletters. This method ensures wide distribution at minimal cost.

Purpose: To improve public understanding of the LRRWMO, its functions, and accomplishments.

Location: Watershed-wide

Results: In 2018, the Anoka Conservation District (ACD) drafted three newsletter infographics and sent them to cities for inclusion in their newsletters. Two of the 2018 infographics focus on reducing water wasted during lawn irrigation. The third focuses on keeping curbside gutters clean as they are conveyances to rivers and lakes.

2018 Newsletter Infographics



LRRWMO Website

Description: The Lower Rum River Watershed Management Organization (LRRWMO) contracts the Anoka Conservation District (ACD) to design and maintain a website about the LRRWMO and the Lower Rum River watershed. The website has been in operation since 2003.

Purpose: To increase awareness of the LRRWMO and its programs. The website also provides tools and information that helps users better understand water resources issues in the area.

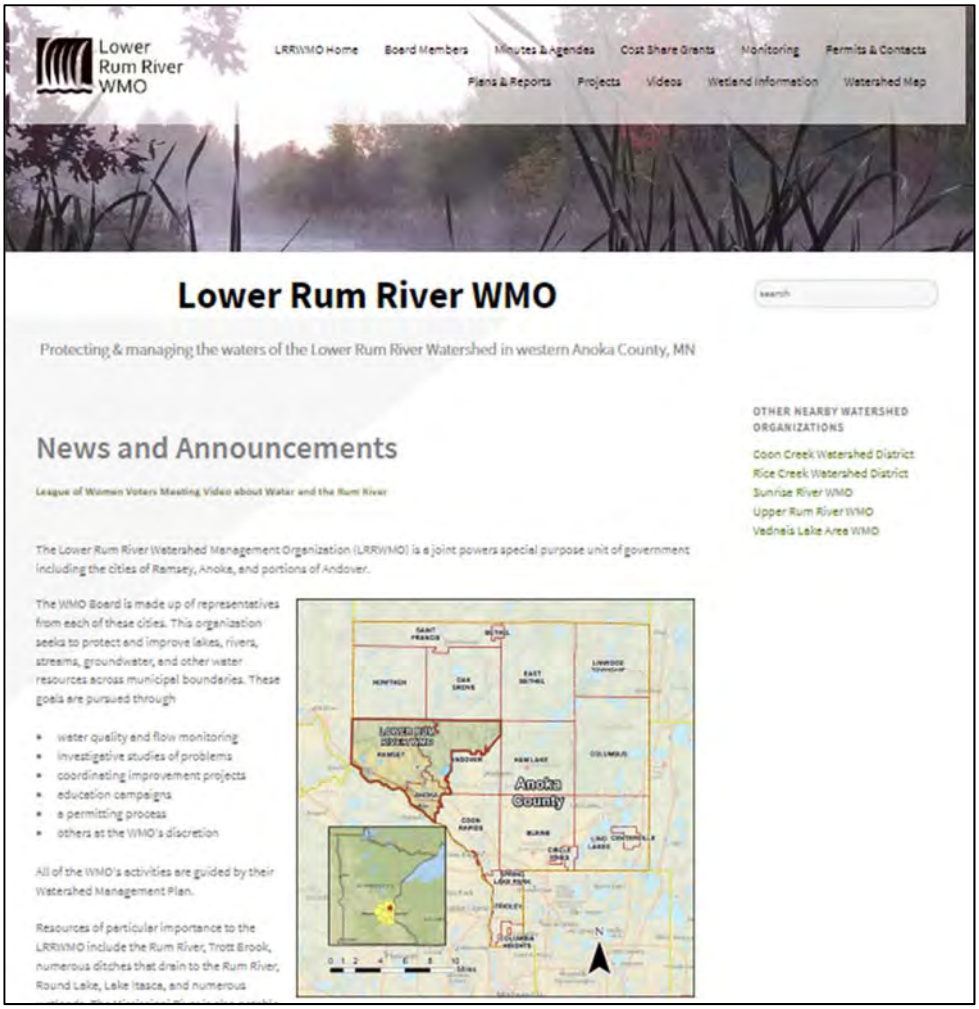
Location: LRRWMO.org

Results: In 2018 a new LRRWMO website was developed. The previous website was >10 years old and there were problems with website security. The Anoka Conservation District developed a template website and finalized it with URRWMO Board input. The new website includes:

- Directory of board members,
- Meeting minutes and agendas,
- Watershed management plan and annual reports,
- Descriptions of work that the organization is directing,
- Highlighted projects,
- Informational videos,
- Maps of the URRWMO.

The website is regularly updated throughout the year.

LRRWMO Website Homepage



Financial Summary

The ACD accounting is organized by program and not by customer. This allows us to track all of the labor, materials and overhead expenses for a program. We do not, however, know specifically which expenses are attributed to monitoring which sites. To enable reporting of expenses for monitoring conducted in a specific watershed, we divide the total program cost by the number of sites monitored to determine an annual cost per site. We then multiply the cost per site by the number of sites monitored for a customer.

Lower Rum River Watershed Financial Summary

		Monitoring & Inventory									Planning & Land Protection					Technical Assistance						Resource Improvement Projects						Administrative Assistance			Outreach					
Lower Rum River Watershed	Total	Volunteer Precip	DNR Groundwater Wells	Wetland Levels	Lake Levels	Lake Water Quality	Stream Water Quality	Biomonitoring	Inventory - Rum River Erosion	Water Resources Almanac	Anoka Sandplain Partnership	1W1P Rum River	Wetland Resto Opportunities	Land Prot/Resto Strategies	Land Protection Outreach	Landowner Tech. Asst.	Project Profiles	BMP Maintenance & Inspection	WCA Enforcement	Wetland Consultation	Wetland Restoration and Banking	Anoka Nat. Pres. Restoration	Cooperative Weed Management	Rum River Revets	Rum River Stabilization Site 4	LRRWMO Retrofits	Mississippi River Park Park Stabilization	LRRWMO Admin/Reporting/Website	WCA Implementation	Watershed Based Funding Coordination	Video Development	Brochures & Displays	Web Blog	Web Story Map	LRRWMO Educ/Newsletter	Anoka County Outreach Program
Revenues																																				
LRRWMO	30345			1950	1200	1800	1365	900																		18135		3875						1120	
State - Other	11066		70																				1845						9152						
MPCA																																				
DNR OHF	6462																							6462											
DNR CPL																																				
BWSR - Service Grant	19958										1049		1064	375		955	300	651							12412				2190	311	591	58			
BWSR - Project Grant	24472																								22214										2258
Metro ETA & NPEAP	22212															84									13648	8480									
Regional/Local	29273					92																		23075			6106								
Anoka Conservationi District	12533								95	746	152	736		26	111	983		50	337	2927	250	879	9					1515	3369	6		60	14	183		87
County Ag Preserves/Projects	21200					269		633																	20297										
Service Fees	4866														362								219	4263					22						
TOTAL	182387		70	1950	1200	2162	1365	1533	95	746	1201	736	1064	401	473	2021	300	701	337	2927	250	879	2073	33801	68571	26614	6106	5390	12542	2196	311	651	73	183	1120	2344
Expenses-																																				
Personnel Salaries/Benefits	83879	122	152	1155	779	1660	350	1271	96	1026	1009	728	899	347	400	1765	269	562	298	2442	218	818	1534	21537	11967	9163	5930	3927	8249	1859	73	507	55	167	914	1631
Overhead	9750	16	20	133	89	199	41	166	8	137	141	67	135	41	59	208	35	70	39	338	31	85	171	2447	1444	1026	534	471	921	276	11	74	5	19	147	144
Vehicle/Mileage	1570	2	2	29	19	39	7	22	2	8	8	14	5	4	3	37	2	11	6	33	2	16	33	433	192	215	107	90	162	22	1	7	1	2	2	30
Project Direct - Supplies	11439	1		20	2	376	182								9			50		50			350	2414	1850	1547		840	3388	6	224	60	11			58
Project Direct - Capital	101					78	23																													
Project Direct - Installation	73131																							5809	52591	14731										
TOTAL	179870	142	174	1338	889	2353	604	1459	106	1171	1159	808	1039	392	470	2011	307	693	342	2864	250	919	2088	32640	68044	26682	6571	5329	12720	2163	310	647	73	188	1063	1863

Recommendations

- **Continue to install projects identified in the stormwater retrofitting studies for the Cities of Anoka and Ramsey.** Projects have been identified and ranked that would improve stormwater runoff before it is discharged to the Rum or Mississippi River. Metropolitan Council grant funds were used to construct three projects in 217-2018. Additional cost-effective projects exist, however landowner willingness and buried utilities are obstacles in many areas.
- **Engage with upstream entities creating a collaborative Rum River One Watershed, One Plan** (1W1P). As the receiving entity at the bottom of the watershed for all water flowing downstream, it is especially important to collaborate on, and prioritize, projects on a watershed scale to ensure the greatest overall benefit to the river. 1W1P planning happens in 2019-2020.
- **Implement the MPCA Rum River WRAPP (Watershed Restoration and Protection Plan).** This WRAPP was an assessment of the entire Rum River watershed. It outlines regional priorities and management strategies, and attempts to coordinate them across jurisdictions. It should be especially useful as the Lower Rum River WMO updates its 10-year watershed management plan beginning in 2019.
- **Maintain or reduce Rum River phosphorus.** Phosphorus levels are close to State water quality standards. It may be appropriate to review development and stormwater discharge ordinances to ensure phosphorus does not increase in coming years.
- **Implement groundwater conservation measures** throughout the watershed and promote them metro-wide. Depletion of shallow groundwater is a concern region-wide.
- **Continue surveillance water monitoring** at a frequency sufficient to detect changes and trends.
- **Consider chloride sampling at all sites on a rotating basis.** Chloride sampling has not been done in recent years. Conductivity levels are rising in the entire county, and this may be due to chlorides.
- **Consider supporting a Rum riverbank stabilization grant application** that the Anoka Conservation District and Anoka County are considering pursuing from the Lessard-Sams Outdoor Heritage Council.
- **Use the photo inventory of Rum Riverbanks collected by the ACD to identify stabilization projects.** Photos are viewed using the "StreetView" function in GoogleMaps.