

# Excerpt from the 2020 Water Almanac *Chapter 4: Lower Rum River Watershed*



Prepared by the Anoka Conservation District



# Chapter 4: Lower Rum River Watershed

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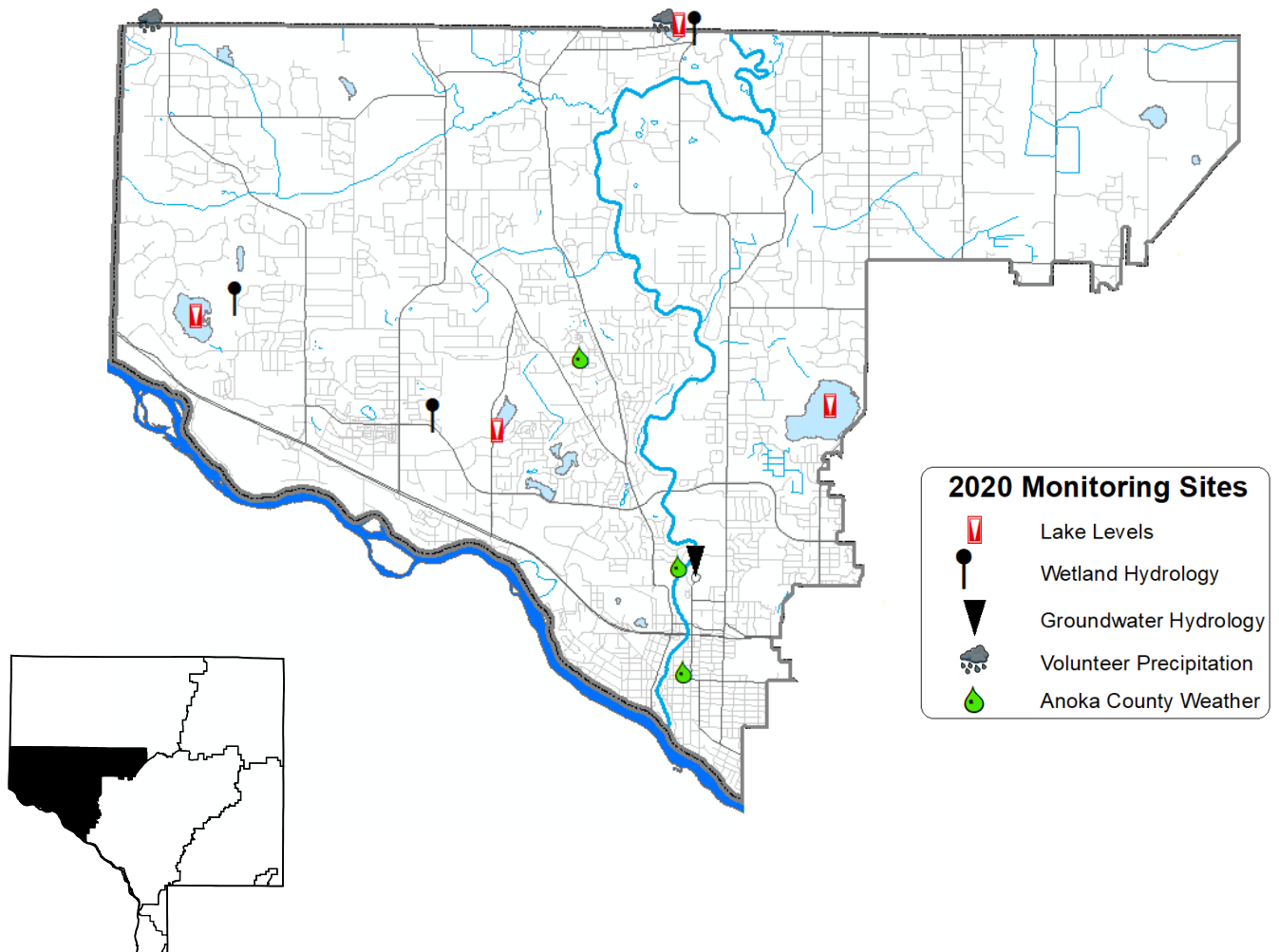
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# Lake Level Monitoring

**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](http://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.

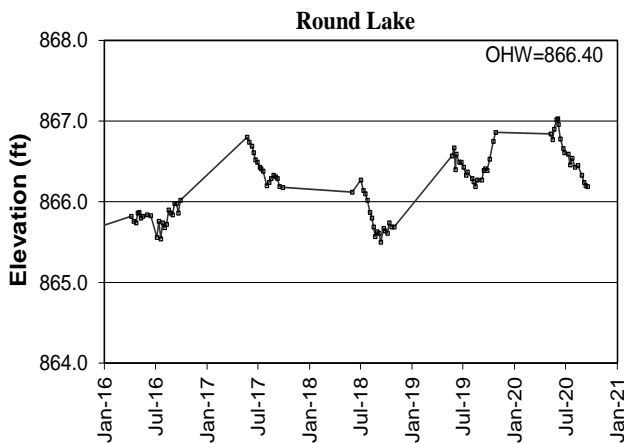
**Locations:** Round, Rogers, Itasca, and Sunfish/Grass Lakes

**Results:** Lake levels were measured by volunteers throughout the 2020 open water season. Lake gauges were installed and surveyed by the Anoka Conservation District and MN DNR. In 2020, lake levels started near average and declined throughout the season. The rebound often seen in the fall was not observed. This is likely due to infrequent rain events throughout the season and the lowest annual total precipitation since 2012.

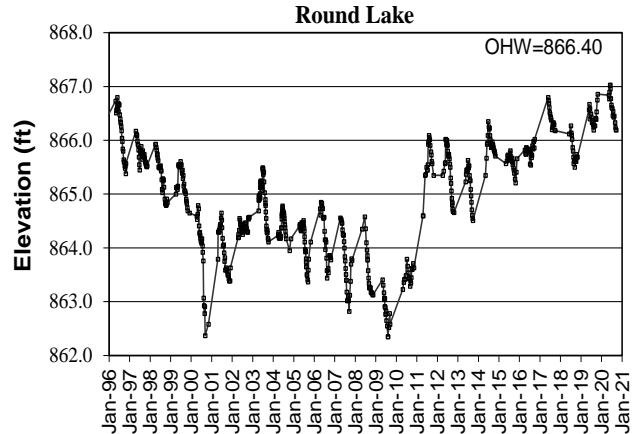
Rogers Lake reached its lowest water level since 2015, while Lake Itasca had its highest average level since 2006. Sunfish Lake appears to be rising over the past 25 years with all of 2020 staying above the OHW (860.01). Round Lake has rebounded to the levels it had in the mid-nineties after dropping almost five feet 1996-2010. In 2020 Round Lake reached its highest level since 1986 (867.03).

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.

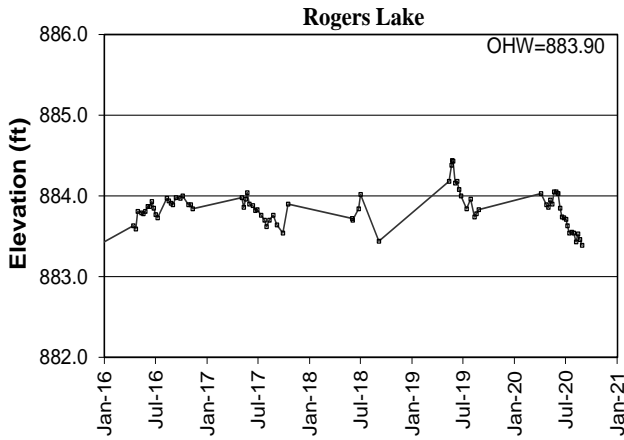
Round Lake Levels – last 5 years



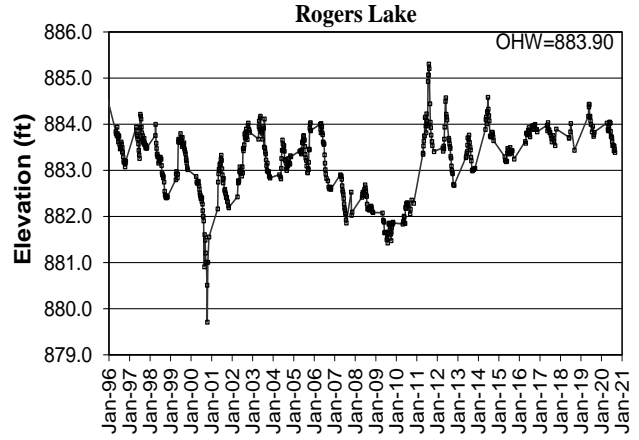
Round Lake Levels – last 25 years



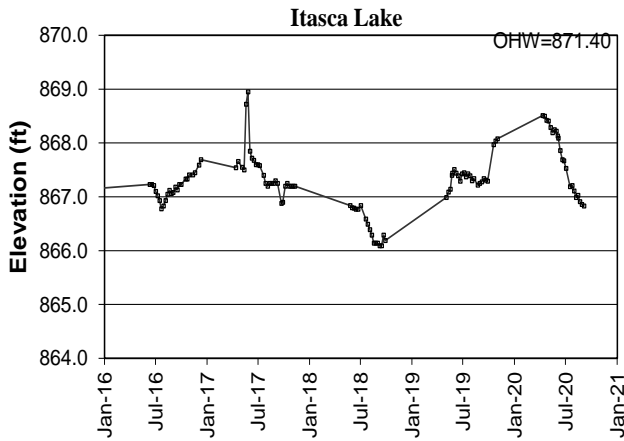
**Rogers Lake Levels – last 5 years**



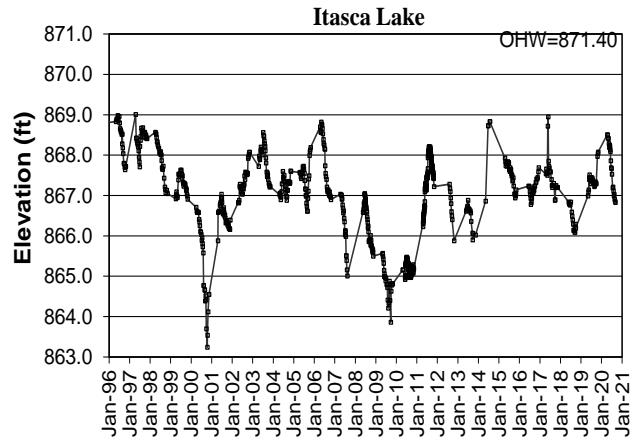
**Rogers Lake Levels – last 25 years**



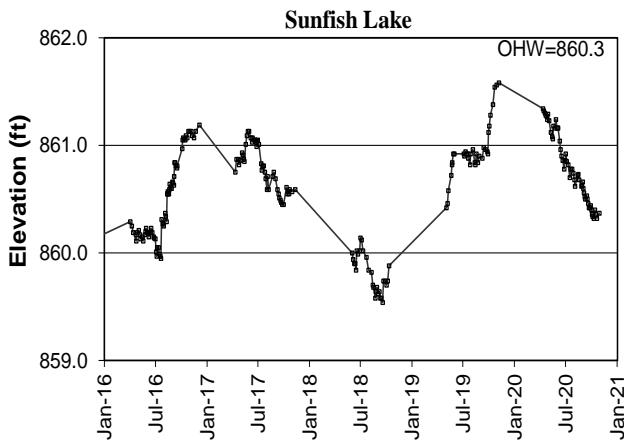
**Itasca Lake Levels – last 5 years**



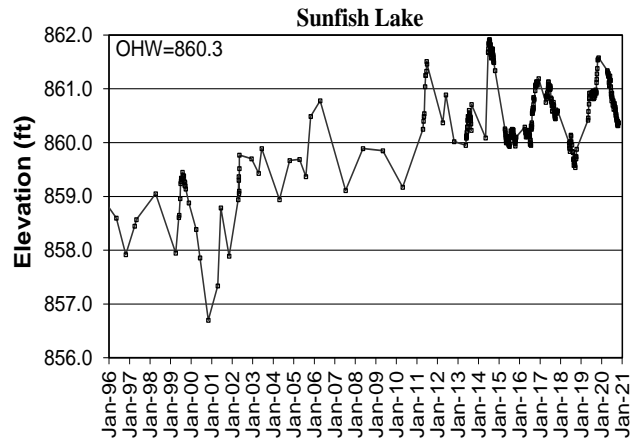
**Itasca Lake Levels – last 25 years**



**Sunfish/Grass Lake Levels – last 5 years**



**Sunfish/Grass Lake Levels – last 25 years**



Lake Itasca	Year	Average	Min	Max
	2016	867.19	866.78	867.69
	2017	867.47	866.88	868.95
	2018	866.45	866.09	866.84
	2019	867.41	866.99	868.08
	2020	867.72	866.83	868.51

Rogers Lake	Year	Average	Min	Max
	2016	883.85	883.59	884.00
	2017	883.81	883.54	884.04
	2018	883.74	883.44	884.02
	2019	884.08	883.74	884.44
	2020	883.76	883.39	884.05

Round Lake	Year	Average	Min	Max
	2016	865.81	865.54	866.02
	2017	866.42	866.18	866.80
	2018	865.80	865.50	866.27
	2019	866.45	866.19	866.86
	2020	866.61	866.19	867.03

Sunfish/ Grass Lake	Year	Average	Min	Max
	2016	860.48	859.95	861.19
	2017	860.79	860.45	861.13
	2018	859.81	860.14	860.14
	2019	860.94	860.42	861.58
	2020	860.80	860.32	861.34

# Wetland Hydrology

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**Partners:** LRRWMO, ACD

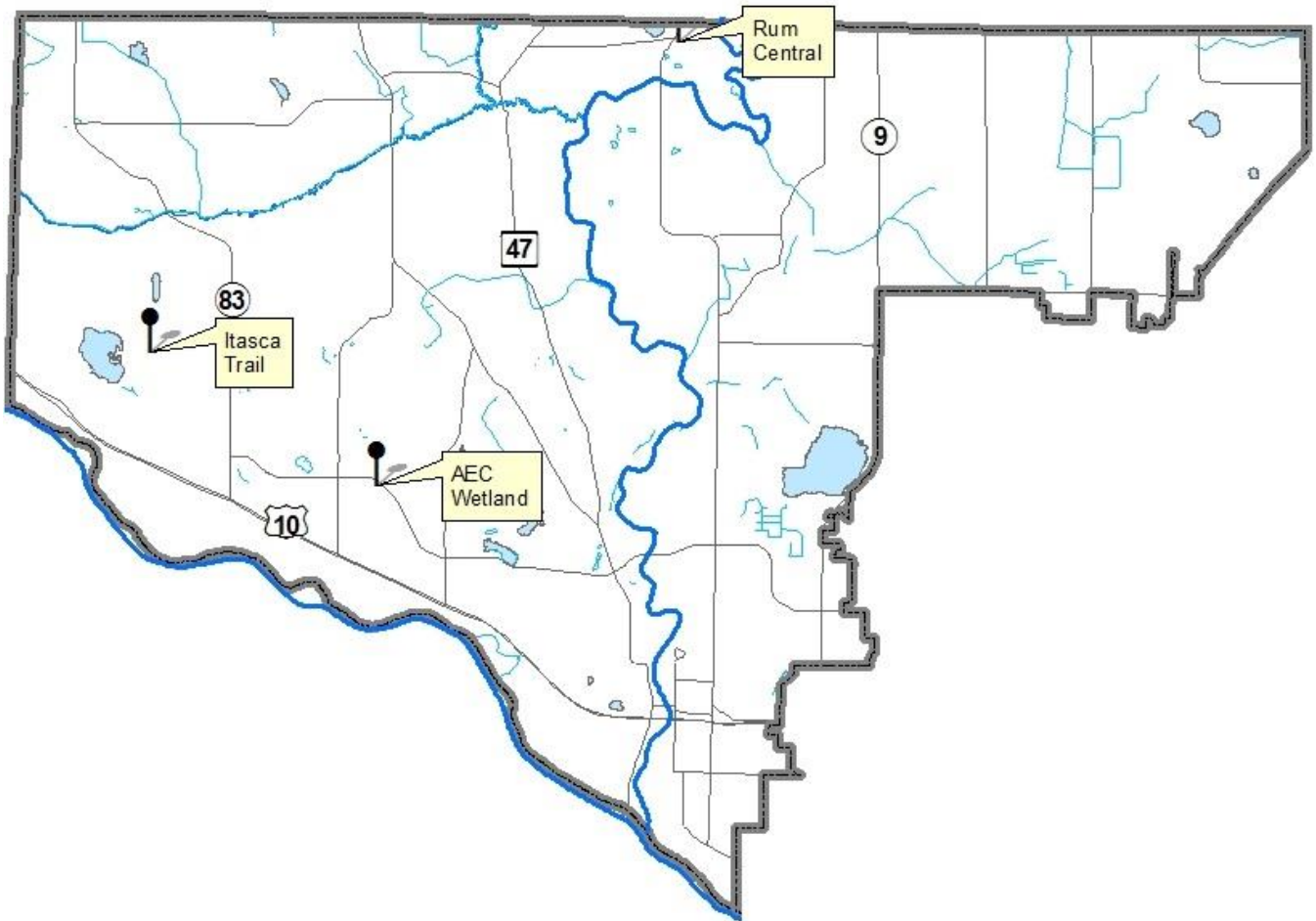
**Description:** Continuous groundwater level monitoring at a wetland boundary. Countywide, the ACD maintains a network of 23 wetland hydrology monitoring stations.

**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



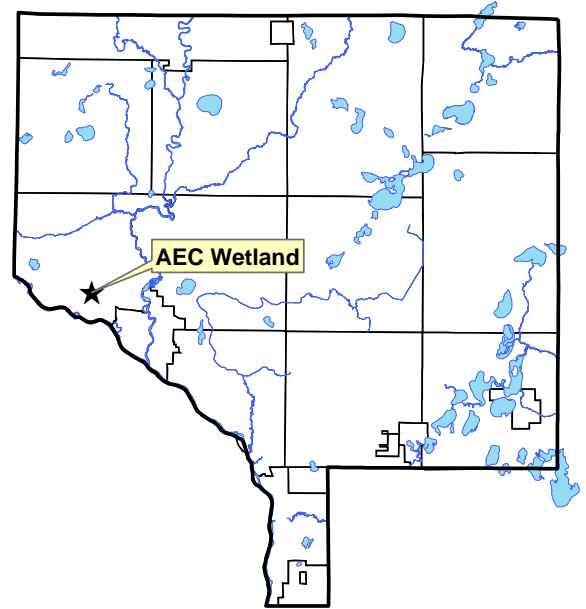
# Wetland Hydrology Monitoring

## 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	-

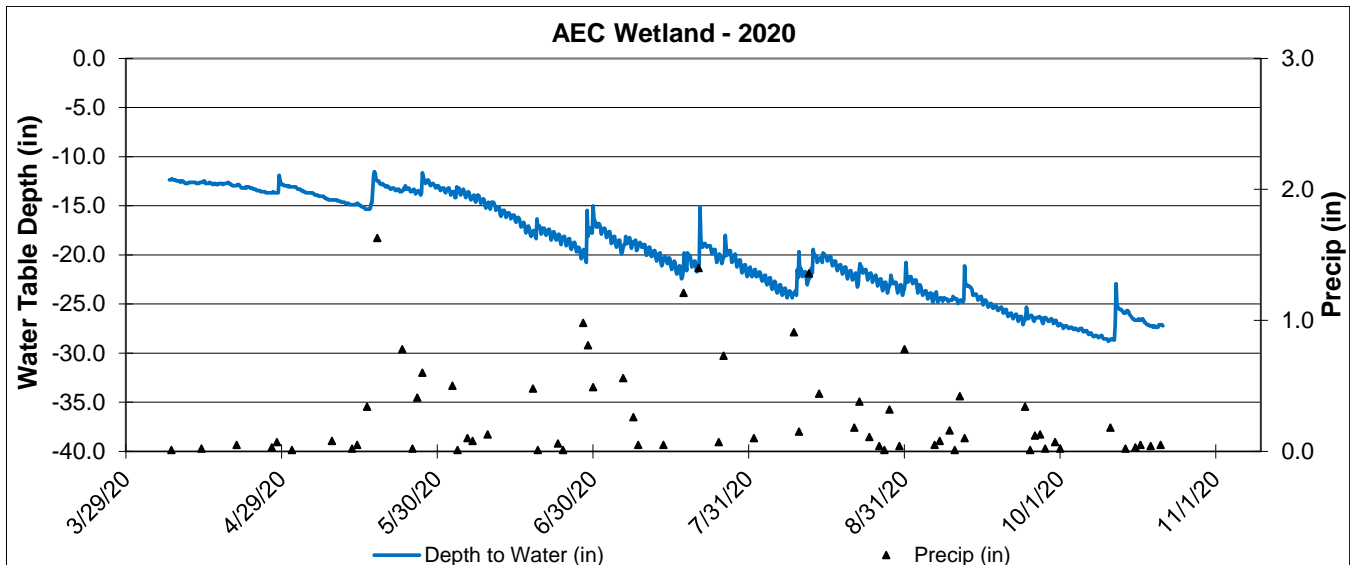
**Surrounding Soils:** Hubbard coarse sand

### 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.

### 2020 Hydrograph





# Wetland Hydrology Monitoring

## RUM RIVER CENTRAL REFERENCE WETLAND

Rum River Central Regional Park, Ramsey

### Site Information

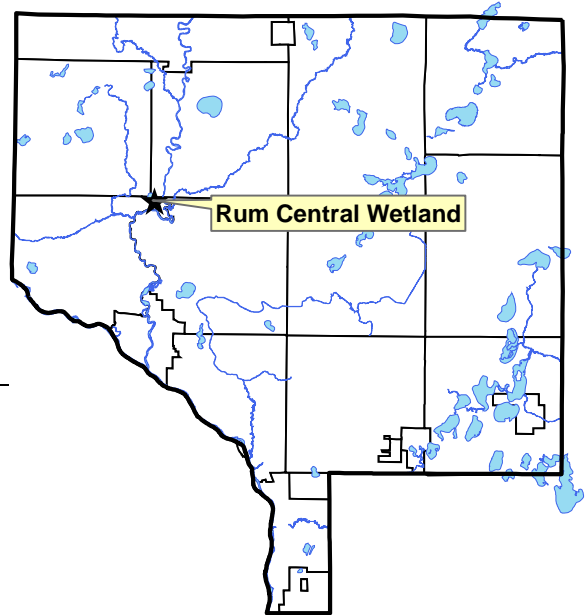
**Monitored Since:** 1997  
**Wetland Type:** 6  
**Wetland Size:** ~0.8 acres  
**Isolated Basin?** Yes  
**Connected to a Ditch?** No  
**Soils at Well Location:**

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

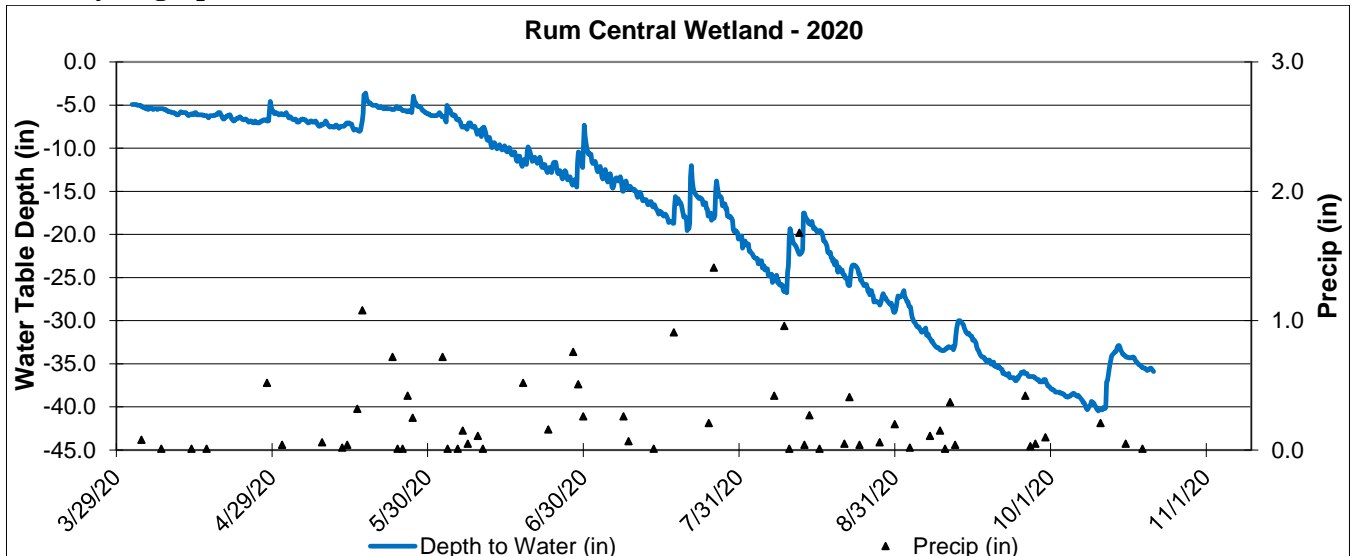
### Vegetation at Well Location:

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



**Other Notes:** Well is located at the wetland boundary.

### 2020 Hydrograph



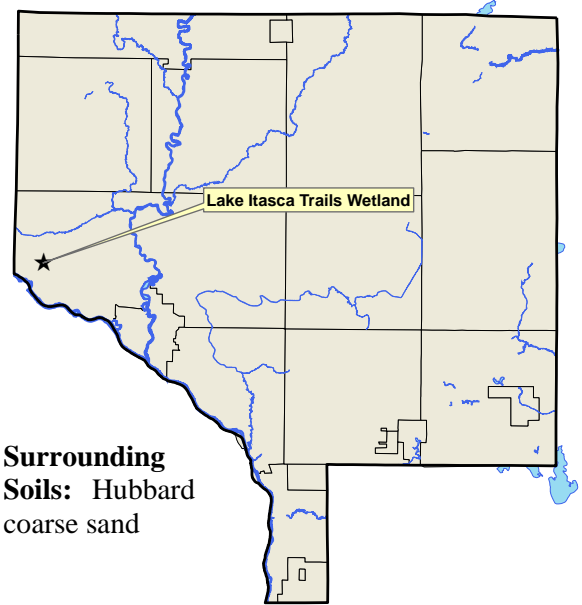
# Wetland Hydrology Monitoring

## 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  
**Soils at Well Location:**



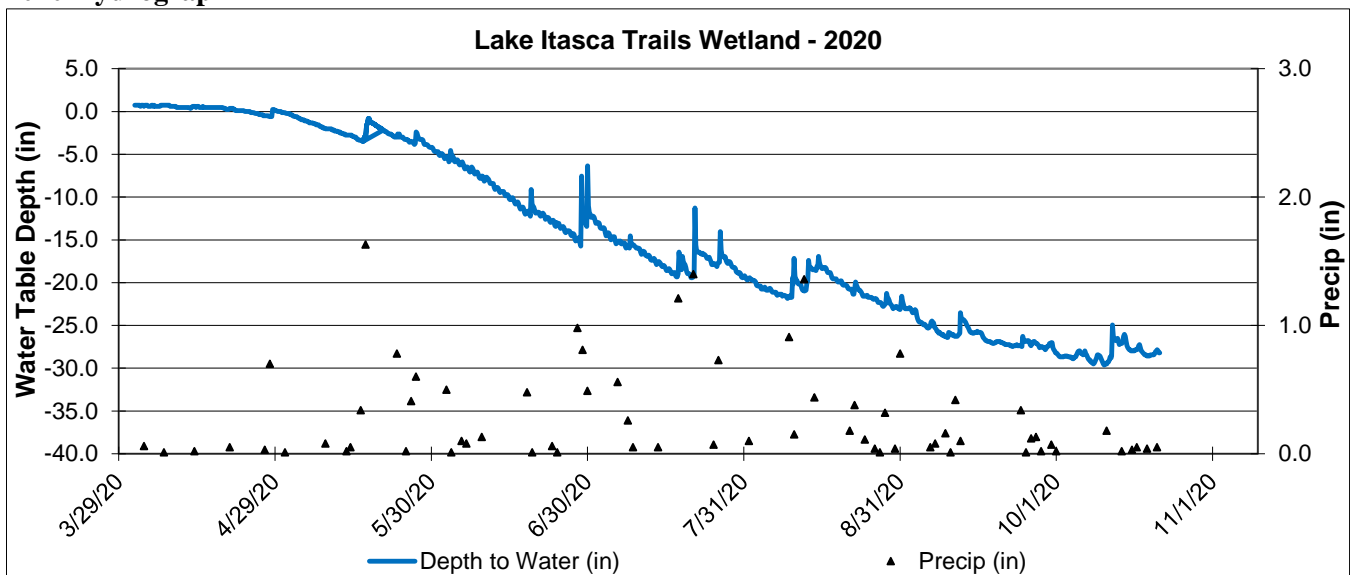
Horizon	Depth	Color	Texture	Redox
A1	0-12	10yr2/0	Mucky sand	-
A2	12-20	10ry2/1	Sand	-
B1	20-36	10yr4/1	Sand and fine gravel	-
B2	36-48	10yr6/1	Sand and fine gravel	-

### 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.

### 2020 Hydrograph



## Water Quality Grant Fund

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**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.

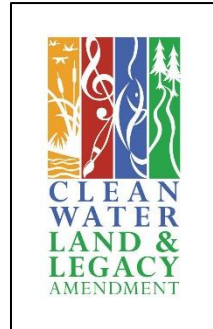
### LRRWMO Cost Share Fund Summary

2006 LRRWMO Contribution	+	\$1,000.00
2008 Expense – Herralá 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
2013 LRRWMO Contribution	+	\$1,000.00
2013 Expense – Geldacker Mississippi Riverbank	-	\$1,000.00
2014 LRRWMO Contribution	+	\$2,050.00
2006-14 Expense – Smith Rum Riverbank stabilization	-	\$ 2,561.77
2015 LRRWMO Contribution	+	\$1,000.00
2016 LRRWMO Contribution	+	\$1,000.00
2016 Expense – Brauer Rum Riverbank	-	\$1,150.00
2018 LRRWMO Contribution	+	\$2,000.00
2014-16 Expense – Anoka rain garden plants	-	\$ 916.59
2019 LRRWMO Contribution	+	\$2,000.00
2020 LRRWMO Contribution	+	\$2,000.00
<b>Fund Balance</b>		<b>\$7,449.76</b>

# Rum River Bank Erosion Grants

**Partners:** ACD, Anoka County Parks, LRRWMO, URRWMO

**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. ACD used this inventory to apply for grant funding for stabilization projects to correct some of these eroding banks. These applications, and matching money from Anoka County and the Rum River WMOs resulted in \$1.4 Million to be used over the next three years for stabilization projects. This funding comes from the Outdoor Heritage Fund (OHF) and Clean Water Fund (CWF) of the Clean Water Land and Legacy Amendment.



**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. \$1.4 Million has been secured in grant and matching funds to implement stabilization projects.

Phase 1 - Rum River Wildlife and Fisheries Habitat Enhancement Through Bioengineering

**PROJECT JUSTIFICATION**

- Rum River bank stabilization projects are recommended in the 2017 Rum River Watershed Restoration and Protection Strategy (WRAPS) report by state and local agencies and stakeholders.
- The Anoka Conservation District (ACD) identified 80 eroding stretches totaling seven miles of riverbank.
- Critical riparian-littoral transitional habitat is missing along these seven miles, and 7,838 tons of sediment is delivered to the river annually, smothering habitat for mussels, invertebrates, and spawning fish.
- LSOHC, CPL, and Clean Water Fund grants will be pursued to address sites based on scale and severity.
- Two phases are planned for LSOHC requests for Rum River habitat-building bioengineering projects in Anoka County over five years. Additional requests with upstream partners may be possible in the future.

**PROJECT SUMMARY**

- Stabilization and habitat enhancement of four to eight sites over three years during Phase 1 with \$952,200 LSOHC -OHF funds
- Enhanced opportunity for fishing, hunting, and recreation on a key public water resource
- Project partners: ACD, Anoka County, and landowners
- Support from: Upper Rum River WMO, Lower Rum River WMO, and MN Waterfowl Association

**LONG-TERM STRATEGY**

- Anoka County approved \$442,000 in grant match over the next five years.
- Future LSOHC requests will be made for additional habitat building bioengineering projects.
- Clean Water Fund grants will be pursued for projects requiring substantial hard armoring.
- CPL funds will be pursued for smaller projects addressable by cedar tree revegetment projects.

**PROJECT BENEFITS**

- Habitat enhancement (up to three acres) for game fish, waterfowl, and non-game wildlife
- Reconnection of fragmented riparian habitat along up to a half mile of riverbank
- Water quality and clarity improvement downstream by reducing up to 750 tons of sediment annually
- Projects will protect both public and private land currently being lost to erosion.
- Wildlife-friendly approaches will be developed or tested to advance bioengineering practices for wildlife benefit.

**BIOENGINEERING**

- Relies on natural materials to stabilize banks while providing transitional habitat that is traversable by wildlife
- May include light grading and toe armor, native plants, woody materials, and rock vanes
- Stabilizes soils to prevent sediment loading to river, improving water quality, fish spawning beds, and mussel habitat
- Reconnects currently fragmented riparian-littoral habitat along the river

**MINNESOTA'S RUM RIVER**

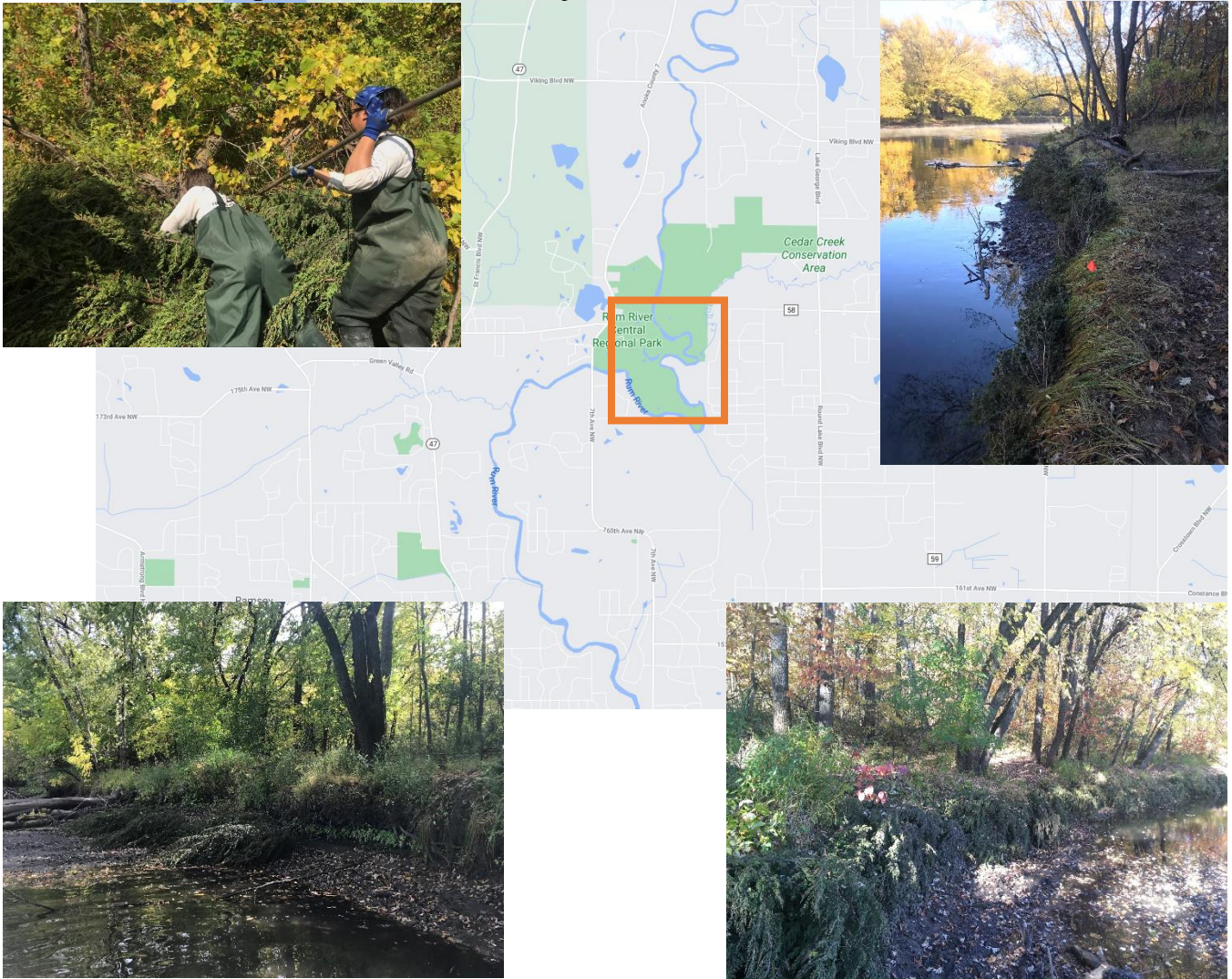
- State Outstanding Resource Value Water
- State Wild, Scenic, and Recreational River
- State Water Trail
- World-class smallmouth bass fishery
- Key reach for Species in Greatest Conservation Need (SGCN); Several mussels, Blanding's turtle

Application illustration for the Lessard-Sams Outdoor Heritage Council to do Rum River stabilization projects utilizing bioengineering approaches. The LSOHC recommended funding these projects at \$816,000 over the next three years, which will be matched with \$205,000 in local funds from Anoka County and the Upper and Lower Rum River WMOs.

# Rum River Bank Stabilizations

- Partners:** ACD, Conservation Corps MN, Anoka County Parks, landowners
- Description:** One large-scale riverbank stabilization project was installed on the Rum River in 2020. A cedar tree revetment practice was used to stabilize 650 linear feet of eroding bank. The project was installed with labor from Conservation Corps Minnesota (CCM) work crews and ACD staff. Funding for the revetment project came from the Conservation Partners Legacy Grant Program and a Clean Water Fund CCM crew labor grant.
- 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 much larger and more expensive corrective projects in the future.
- Location:** Rum River Central Regional Park
- Results:** Stabilized 650 linear feet of riverbank on the Rum River within Rum Central Regional Park

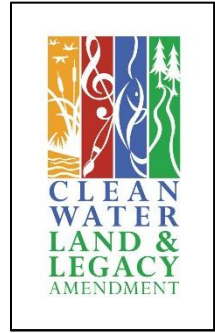
## 2020 Rum Central Regional Park Revetment Project



# Anoka High School Campus Groundwater Conservation Plan (CGCP)

**Partners:** Anoka High School staff, ACD

**Description:** For this project, the Metro Conservation Districts (MCD) is working to provide groundwater conservation planning protocols to member districts for implementation on large-acreage, public campuses (e.g. public schools and government facilities). These areas are targeted due to their educational benefits, likelihood of stakeholder buy in and implementation, magnitude of potential impact, and opportunity for school district-wide implementation. Funding for the project is provided by a Clean Water Fund grant. The grant recipient is MCD and Anoka Conservation District is serving as the grant host.



**Purpose:** To identify all possible groundwater conservation practices on the Anoka High School Campus and rank them by cost-effectiveness for prioritization of installation.

**Location:** Anoka High School Campus – Anoka, MN

**Results:** The Campus Groundwater Conservation Planning (CGCP) protocol was implemented on the Anoka High School Campus in 2020 for the purpose of identifying and ranking water conservation project opportunities. Of the 224 projects identified for conserving municipal water, 113 have an estimated payback period shorter than their estimated lifespan, which makes them feasible from a financial perspective. Implementation of these 113 potential water conservation projects would result in an annual reduction in water use of 1,502,297 gallons, which corresponds to a reduction of \$7,968.18 in annual costs associated with water and energy.

Payback Period Criteria	Number of Projects	Installation Cost (\$)	Savings (Water + Energy) over Life of Projects (\$)	Net Savings (Water + Energy) over Life of Projects (\$)	Annual Water Savings (gallons)	Water Savings over Life of Projects (gallons)	Cost per 1,000 gallons saved over Life of Projects
< 1 year	11	\$550.00	\$7,813.52	\$7,263.52	154,672	1,394,568	\$0.39
< 2 years	29	\$2,850.00	\$20,991.01	\$18,141.01	415,828	3,809,687	\$0.75
< 5 years	79	\$15,450.00	\$57,051.68	\$41,601.68	1,132,321	10,799,304	\$1.43
All projects with positive net savings (\$)	113	\$26,950.00	\$75,656.59	\$48,706.59	1,502,297	14,470,805	\$1.86
All projects, including negative net savings (\$)	224	\$47,750.00	\$82,445.16	\$34,695.16	1,636,702	15,687,024	\$3.04



# Anoka Rain Gardens

**Partners:** City of Anoka, ACD

**Description:** The City of Anoka completed a street resurfacing project in the 38<sup>th</sup> Lane neighborhood in summer of 2020. The City hired ACD to design three rain gardens in this neighborhood which were installed in conjunction with the street resurface project. This neighborhood already contained two rain gardens that were performing well, and protecting water quality in the Rum River by treating stormwater that was otherwise piped through the storm sewer system to the river. Collectively, these new rain gardens will remove about 76% of the pollutant load from 4.7 acres in this neighborhood. Design work was completed in January of 2020, and installation took place during the summer.

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

**Location:** 38<sup>th</sup> Lane Neighborhood, Anoka

**Results:** Three rain gardens were designed and installed in 2020.

## Map of installed and previously installed rain gardens



# 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 2020, the Anoka Conservation District (ACD) drafted two newsletter infographics and sent them to cities for inclusion in their newsletters. The two brief articles are shown below.

## 2020 Newsletter Articles

### Lower Rum River Watershed Management Organization

#### MEDIA RELEASE

Contact person: [Jamie Schurbon](mailto:jamie.schurbon@anokaswcd.org), 763-434-2030 ext. 21  
Date: April 17, 2020

#### Local Watershed Organization Tackles Riverbank Erosion

Riverbank erosion causes problems for both property owners and the river's health. Recent inventories of Rum and Mississippi of river conditions found dozens of stretches of eroding riverbank in Anoka County. The Lower Rum River Watershed Management Organization (LRRWMO) and its partners will soon begin work to correct a number of those eroding riverbanks.

Grants totaling \$2M have been secured from the MN Board of Water and Soil Resources, [Lessard-Sams Outdoor Heritage Council](#), and the MN DNR. All these funding sources get money from the Clean Land, Water and Legacy Amendment passed by voters in 2008. Grants for Rum Riverbank stabilization projects are being received by the Anoka Conservation District in collaboration with the LRRWMO, Upper Rum River WMO, The Nature Conservancy and Anoka County Parks. Grants for Mississippi River Community Park in Anoka are being received by the City of Anoka in collaboration with the LRRWMO. Work begins in 2020, with most construction in 2021.

Stabilizing even just 10 eroding riverbanks will decrease sediment entering the river by over 750 tons. That sediment makes the water brown, carries nutrients and other pollutants, and smothers fish spawning habitat. Every project will include habitat improvements in and next to the water.

*[This paragraph is optional – cut if required to fit available space]* Riverbank erosion varies in size and type of solution. Amongst locally eroding riverbanks, some are tall banks of bare, collapsing sand. These locations, including Mississippi River Community Park require re-grading, rock or other robust engineering to fix. Other eroding riverbanks are just a few feet tall. These can be corrected with “softer” materials such as armoring with cut cedar trees and planting for long-term stability. In either case, work is done with an eye toward improving habitat.

The Lower Rum River Watershed Management Organization is a special purpose unit of government made up of three cities: Andover, Anoka and Ramsey. Its purpose is to manage the area's waters, particularly those that flow across city boundaries. More information is at [www.LRRWMO.org](http://www.LRRWMO.org).

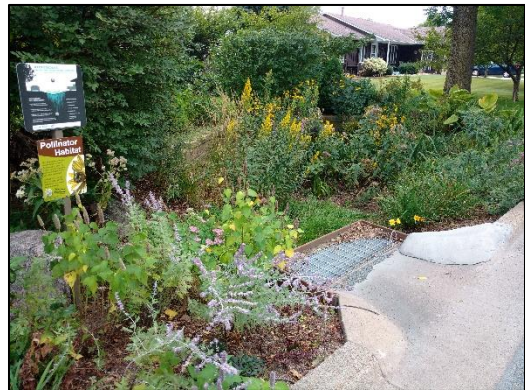
Photos below are also provided as separate image files.

### Grants for water quality projects

The Lower Rum River Watershed Management Organization is offering small grants to residents wishing to do projects that will benefit lakes, streams and groundwater. Common project types are lakeshore stabilization or vegetation buffers, rain gardens, and streambank stabilization. Applications are accepted on a first-come, first-serve basis. Commonly, grant awards are for \$500 to \$3,000 or 50-75% of the project cost, however every project is considered on its own merits.

Applications are accepted through the Anoka Conservation District, which hosts several grant programs in an effort to be a one-stop-shop. The Anoka Conservation District also offers free technical help to residents wishing to address a water quality or habitat issue. Applications are found at [www.AnokaSWCD.org/financial-support.html](http://www.AnokaSWCD.org/financial-support.html) or contact Jamie Schurbon ([jamie.schurbon@anokaswcd.org](mailto:jamie.schurbon@anokaswcd.org) or 763-434-2030 ext. 21).

Funding provided by the Lower Rum River Watershed Management Organization (LRRWMO). The LRRWMO is a joint effort of the cities of Anoka, Andover and Ramsey.





# 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.

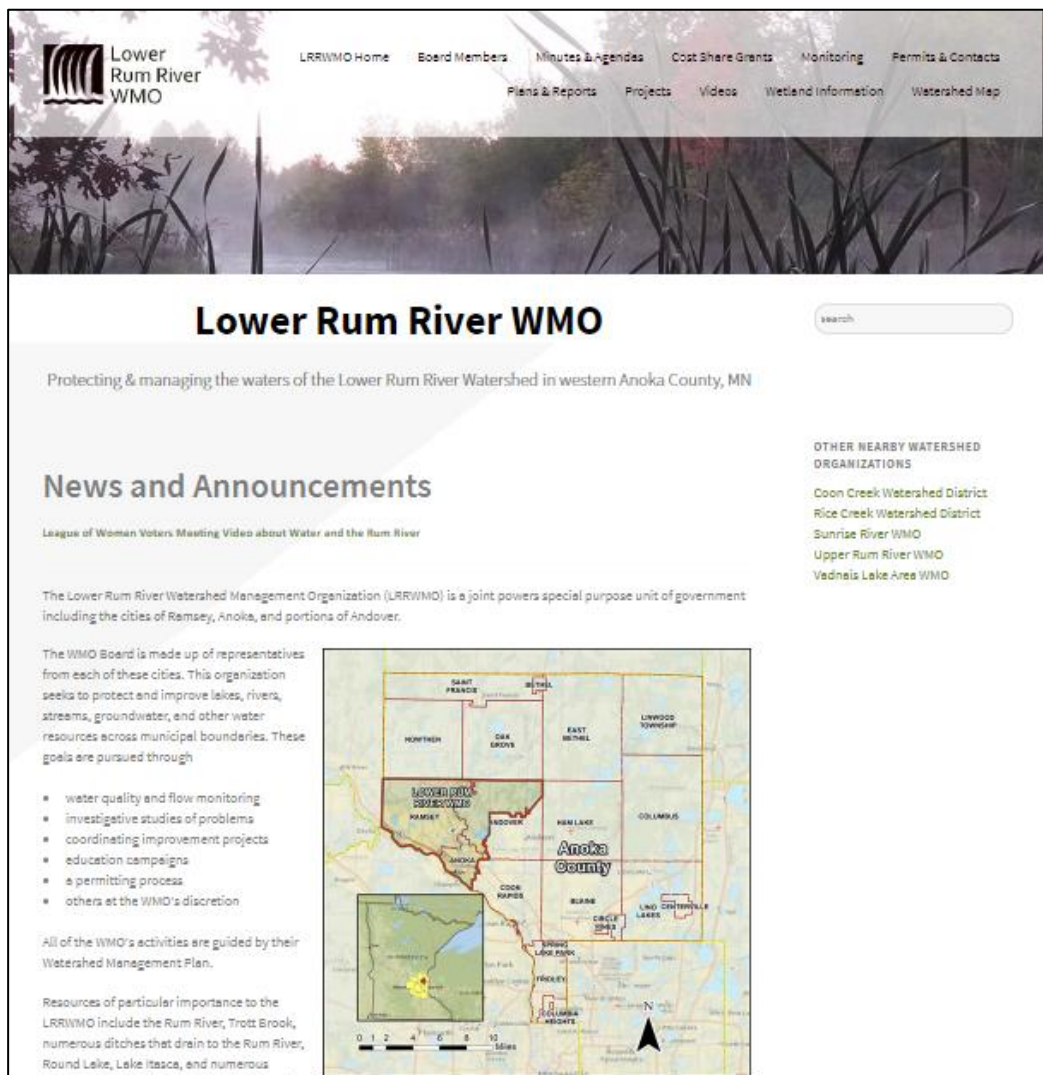
**Purpose:** To increase awareness of the LRRWMO and its programs. The website also provides tools and information that helps users better understand water resources issues in the area.

**Location:** LRRWMO.org

**Results:** In 2020 the LRRWMO’s new website, which was launched in 2018, was maintained. The 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 LRRWMO.

## LRRWMO Website Homepage



## Recommendations

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- **Install projects identified the new LRWRMO Watershed Management Plan**, currently under review. New non-competitive State Watershed Based Funding may be used for these projects, as well as competitive grants.
- **Continue to install projects identified in the stormwater retrofit 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 2017-2018. Three more projects were installed by the City of Anoka and ACD in 2020. Additional cost-effective projects exist.
- **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 benefitting the river. 1W1P development continues through 2021.
- **Implement the MPCA Rum River WRAPP (Watershed Restoration and Protection Plan)**. This WRAPP included an assessment of the entire Rum River watershed. It outlines regional priorities and management strategies, and attempts to coordinate them across jurisdictions. The primary project type identified in Anoka County is the stabilization of eroding banks along the Rum River.
- **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.
- **Continue chloride sampling at all sites on a rotating basis**. Chloride sampling was conducted at County Road 7 in 2018 and 2019. Because this pollutant can have such a profound impact on aquatic life and drinking water, continuing to periodically include it in the monitoring regime is prudent.