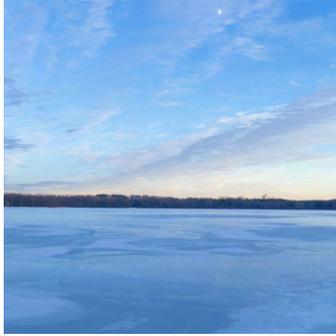


Annual Report 2021



* 2021 Photo Contest entry

Message from the Administrator

Well, we made it. I think we all have those moments where we ask, "When was that?" Months and years blur together, but we all still did what we needed. I have been in awe of the resiliency of our community leaders, grassroots organizations, and citizen champions during this period.

Throughout all of this, some great things have happened. The Board of Managers has reaffirmed their dedication to the mission of RPBCWD as Managers Crafton and Koch both were reappointed for another three years. We also saw our staff knowledge grow with the addition of Eleanor Mahon and Liz Forbes. But, most importantly, we continued to protect your water resources.

The RPBCWD found a new partner in the Bearpath Golf and Country Club community when we worked together to stabilize two sizeable sections of Riley Creek near holes 12, 13, and 16. St. Hubert Catholic School also showed their dedication to water resource protection when they partnered with us to install a tree trench, a rain garden, and stabilize a gully discharging into Rice Marsh Lake. The RPBCWD also completed the work in lower Riley Creek in a partnership with the City of Eden Prairie and began work on another project on Rice Marsh Lake in collaboration with the City of Chanhassen.

Speaking of Chanhassen, the RPBCWD is exploring options for education and recreation partnership opportunities on the land the city preserved around Lake Ann. The RPBCWD is also looking to stabilize the final priority reach of Riley Creek in collaboration with Chanhassen. 2022 should also see some work in the Lotus Lake watershed as we look at ravines that require stabilization.

We will continue to offer training and volunteer opportunities as well as stewardship grants for water resource protection. If you would like to get involved, please contact Terry Jeffery or Liz Forbes. As always, thank you for your support and your assistance as we all do our part to protect the lakes, streams, and wetlands within and downstream of RPBCWD.

Sincerely,



Terry Jeffery
Interim District Administrator
tjeffery@rpbcd.org
952-807-6885



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Land Acknowledgment

We acknowledge that we are on ancestral and contemporary Očhéthi Šakówiŋ land that was stolen from the Waŋpékhute Dakota tribe in the 1851 Treaty of Mendota. We recognize these tribal nations as the original stewards of the land, water, and natural resources within the District, and we honor the importance of protecting the culturally significant resources of this land.

INTRODUCTION

Overview

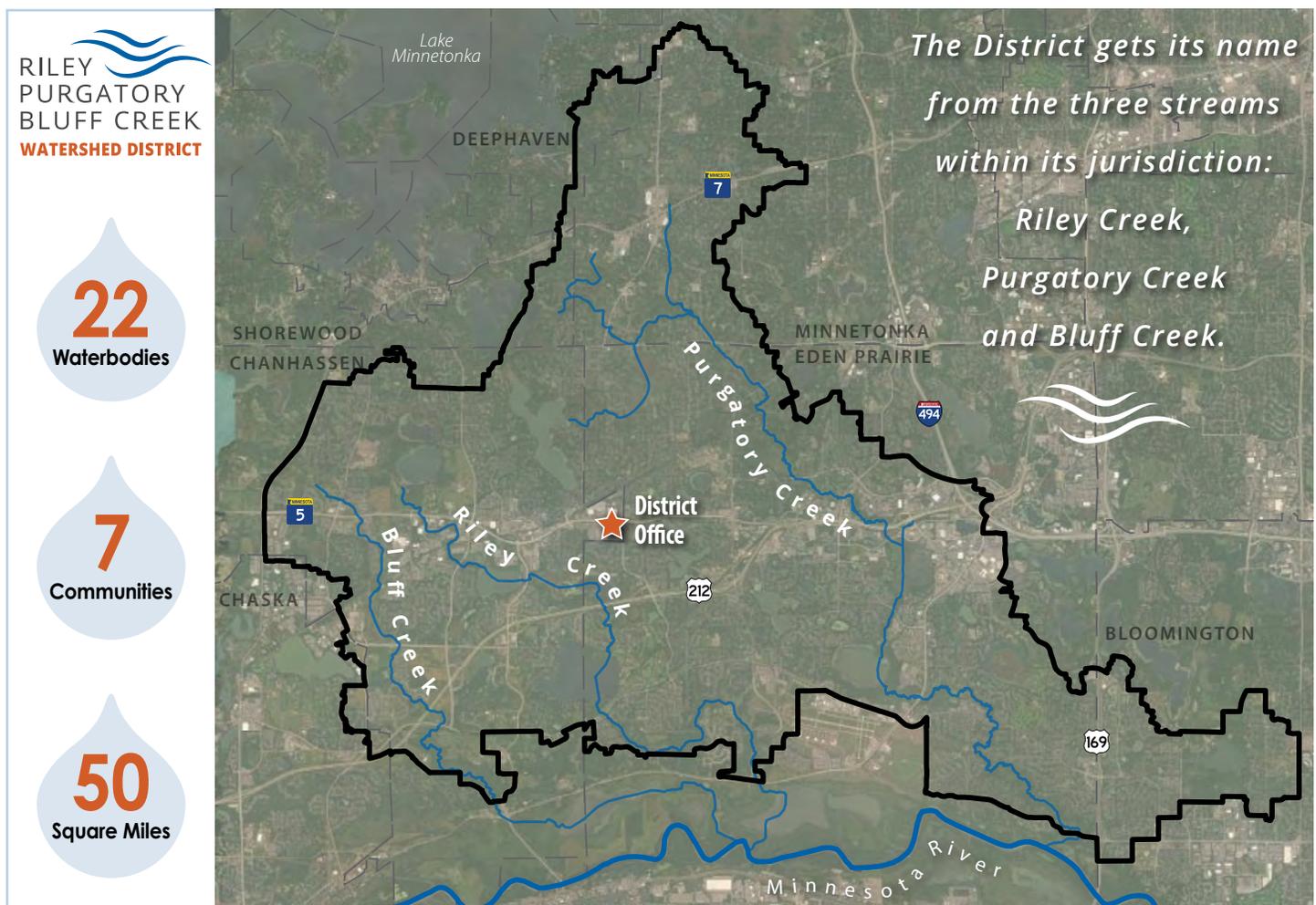
The Riley Purgatory Bluff Creek Watershed District (RPBCWD or the District) is a local government unit established on July 31, 1969, to protect, manage, and restore water resources. It encompasses some 50 square miles of land that drains into any of the three creeks in its name. The District includes parts of seven cities (Bloomington, Chanhassen, Chaska, Deephaven, Eden Prairie, Minnetonka, and Shorewood) and two counties (Carver and Hennepin).

The District is led by five managers (four appointed by the Hennepin County Commissioners and one by Carver) each serving three-year terms directing District activities. The District partners with these local communities and residents to identify issues affecting the water resources and to prioritize

projects and regulations to address these issues. In addition, the District works to educate and engage community members regarding the protection of the District's water resources.

Report Purpose

The purpose of the annual report is to fulfill the requirements set forth in [Minnesota Statutes Chapter 103D.351](#), which requires watershed districts to file an annual report with the Board of Soil and Water Resources and the Department of Natural Resources. Metropolitan watershed districts are required to follow reporting requirements set forth in [MR 8410.0150](#).

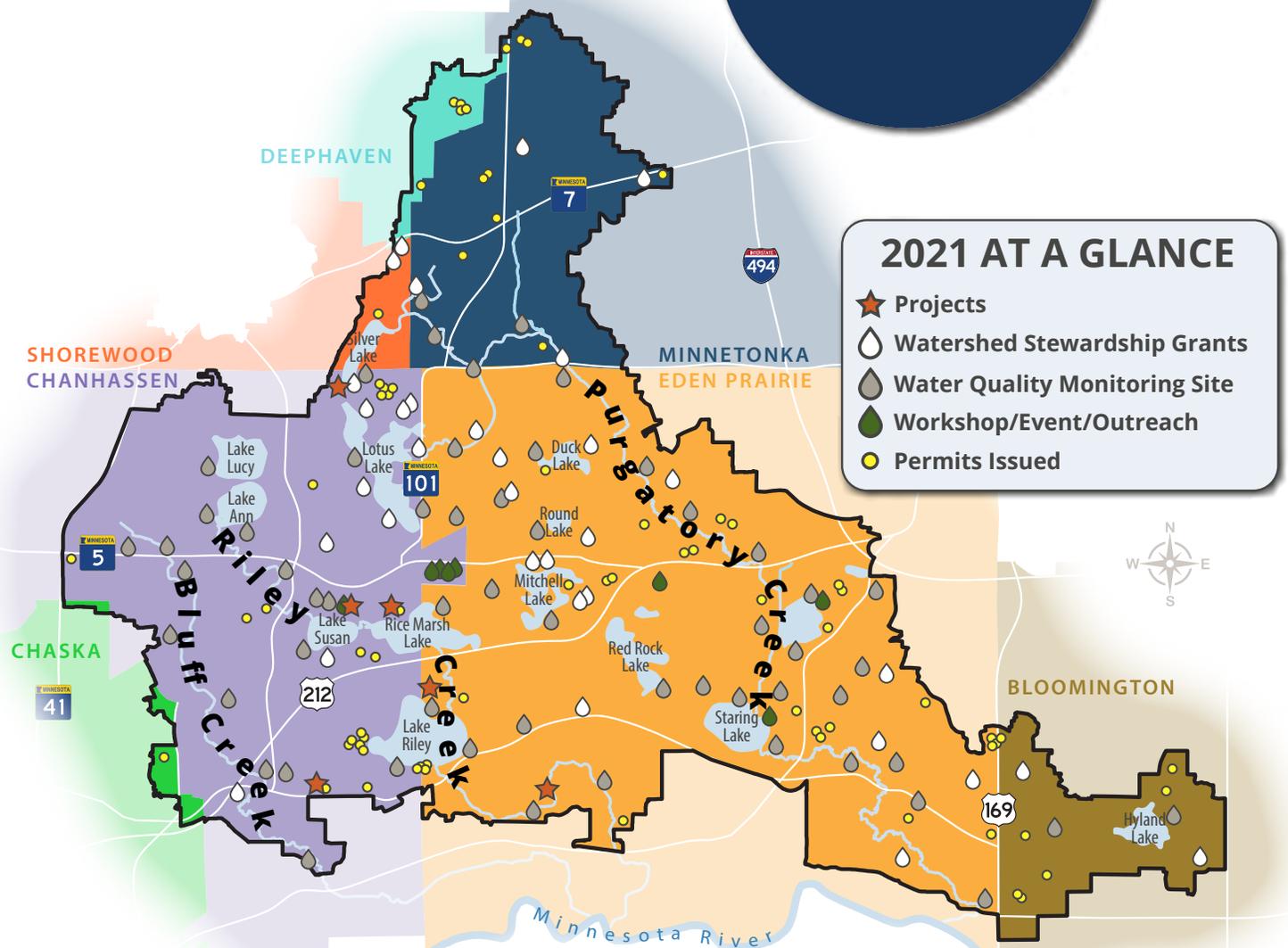
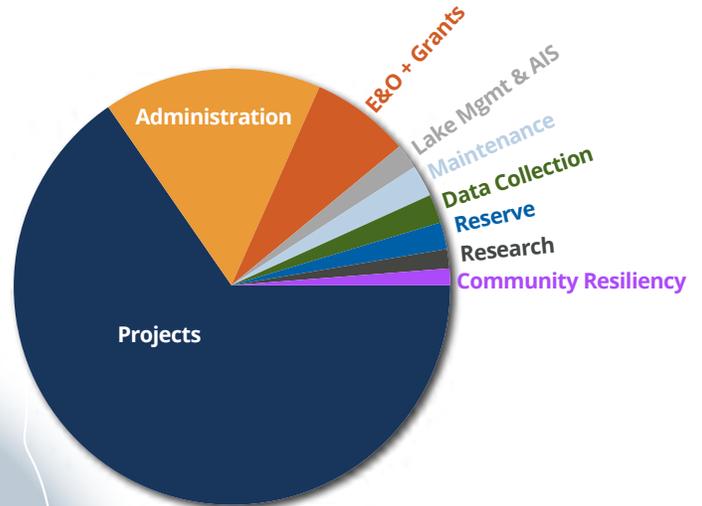


District tax dollars at work

The activities of the Riley Purgatory Bluff Creek Watershed District is funded through property tax levies. We thank our community for their part in financing our mission of protecting, managing, and restoring our freshwater resources.

The 2021 levy was \$3,680,000, and the complete 2021 budget, including funds from previous levies, was \$7,558,007. The funds were used for projects, as well as administration, maintenance, research, lake and creek monitoring, aquatic invasive

species management (AIS), education and outreach (E&O) and grant funding, community resiliency, and a reserve fund for emergencies.



Governance

The District is governed by a five-person board of managers. Two independent committees, the Citizens Advisory Committee (CAC) and Technical Advisory Committee (TAC), provide advice and comment to the Board as required by [MN Statute 103D.331](#). Daily operations are carried out by a team of employees and consultants led by the District's administrator.



Board Meetings

First Wednesday of the month at 7 p.m.*

* Schedule changes posted on website, rpbcwd.org/calendar

Workshops scheduled at 5 p.m. as needed.

Due to COVID, meetings held virtually until further notice.

Board of Managers

Four managers are appointed by the Hennepin County Commissioners and one by the Carver County Commissioners. They serve three-year terms. In 2021, Manager Crafton and Manager Koch were reappointed.



Member
Larry Koch

Term ends 7/31/2024
471 Bighorn Drive
Chanhassen, MN 55317
lkoch@rpbcwd.org
Appt. by Carver County

Secretary
David Ziegler

Term ends 7/31/2022
16729 Baywood Terr.
Eden Prairie, MN 55346
dziegler@rpbcwd.org
Appt. by Hennepin County

Vice President
Dorothy Pedersen

Term ends 7/31/2023
6155 Ridge Road
Shorewood, MN 55331
dpedersen@rpbcwd.org
Appt. by Hennepin County

President
Dick Ward

Term ends 7/31/2023*
8625 Endicott Trail
Eden Prairie, MN 55347
dickward@rpbcwd.org
Appt. by Hennepin County
*Resigned effective 12/31/2021

Treasurer
Jill Crafton

Term ends 7/31/21
10351 Decatur Avenue S
Bloomington, MN 55438
jcrafton@rpbcwd.org
Appt. by Hennepin County

Staff

Terry Jeffery
Interim Administrator
tjeffery@rpbcwd.org

Amy Bakkum
Office Administrator
abakkum@rpbcwd.org

Zach Dickhausen
Water Resources Tech II
zdickhausen@rpbcwd.org

Liz Forbes
Grant Program Coordinator
lforbes@rpbcwd.org

Eleanor Mahon
Education & Outreach Coordinator
emahon@rpbcwd.org

Josh Maxwell
Water Resources Coordinator
jmaxwell@rpbcwd.org

Mat Nicklay
Natural Resources Coordinator
mnicklay@rpbcwd.org

Contact RPBCWD

18681 Lake Drive East
Chanhassen, MN 55317

info@rpbcwd.org

952-607-6512



Front (L-R): Liz Forbes, Amy Bakkum, Eleanor Mahon, Josh Maxwell
Back (L-R): Mat Nicklay, Terry Jeffery, Zach Dickhausen

Consultants

<p> District Engineer</p> <p>Barr Engineering Co. Attn: Scott Sobiech, CFM, PE 4300 Market Pointe Drive, Suite 200, Edina, MN 55435 (952) 832-2755, ssobiech@barr.com</p>	<p> Accounting</p> <p>Redpath and Company, Ltd. Attn: Nancy Martinson 4810 White Bear Parkway, White Bear Lake, MN 55110 (651) 426-5844, pmoeller@hlbtr.com</p>
<p> Legal</p> <p>Smith Partners PLLP Attn: Louis Smith 250 S Marquette Ave, Ste 250, Minneapolis, MN 55401 (612) 344-1400</p>	<p> Auditing</p> <p>Abdo, Eick and Meyers Attn: Justin Nilson 5201 Eden Avenue Ste 250, Edina, MN 55436 (952) 715-3011, justin.nilson@aemcpas.com</p>

Citizen Advisory Committee

The Citizen Advisory Committee (CAC) are community volunteers that advise the Board of citizen interests. The CAC is required to meet at least once a year.

Members

- | | |
|-------------------------------------|--------------------|
| Heidi Groven (<i>Chair</i>) | Pete Iverson |
| Jim Boettcher (<i>Vice Chair</i>) | Terry Jorgensen |
| Andrew Aller | Sharon McCotter |
| Rodey Batiza | Jan Neville |
| Kim Behrens | Marilynn Torkelson |
| Michelle Frost | Jeff Weiss |
| Sam Griffin | Jessica Willey |

Meetings: Third Monday of the month, 6 p.m.*
* Schedule changes posted at rpbcd.org/CAC



To reduce risk of spreading COVID-19, CAC meetings were virtual in 2021. Links to virtual meetings are available on the District website.

Technical Advisory Committee

The Technical Advisory Committee (TAC) includes representatives of cities, counties, and government agencies. They provide technical advice on projects and programs to the District. The board of managers annually appoints members to the TAC. Staff from agencies or local government units are welcome to join us at our meetings.

- | | | |
|--|--|--|
| Steve Christopher
<i>Board of Water & Soil Resources</i> | Matt Clark
<i>City of Chaska</i> | Linda Loomis
<i>Lower Minnesota River Watershed District</i> |
| Matt Lindon
<i>Citizen Advisor</i> | Robert Bean Jr.
<i>City of Deephaven</i> | Joe Mulcahy
<i>Metropolitan Council</i> |
| Paul Moline
<i>Carver County</i> | Leslie Stovring/Dave Modrow
<i>City of Eden Prairie</i> | Wes Pearce-Saunders/
Tayler Huinker
<i>Minnesota Department of Natural Resources</i> |
| Mike Wanous
<i>Carver County Soil & Water Conservation District</i> | Sara Schweigert
<i>City of Minnetonka</i> | <i>Minnesota Pollution Control Agency</i> |
| Bryan Gruidl
<i>City of Bloomington</i> | Robert Bean Jr.
<i>City of Shorewood</i> | <i>US Army Corps of Engineers</i> |
| Joe Seidl
<i>City of Chanhassen</i> | Karen Gallas
<i>Hennepin County</i> | |

ADMINISTRATION & PLANNING

Annual Communication

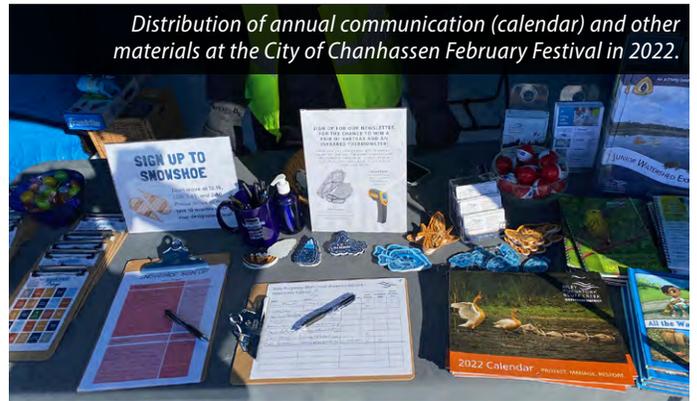
Every year, the District distributes an annual communication. It contains general information, annual highlights, and ways the community can engage in the District's work. The 2021 Annual Communication was distributed as a calendar. Essential information was sent out electronically via the District newsletter. Printed copies were distributed to local leaders, public spaces such as city centers and libraries, and handed out at community events.



Find our newsletters at rpbcbd.org/subscribe



Download the [2021 Annual Communication](#)



Distribution of annual communication (calendar) and other materials at the City of Chanhassen February Festival in 2022.

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

2022 Calendar PROTECT. MANAGE. RESTORE.

Front cover

Restoring wetlands on Pioneer Trail

In September of 2021, preparations began at the site of a wetland and upland habitat restoration project on seven acres of land owned by the Riley Purgatory Bluff Creek Watershed District. The goal of the project is to restore the land's hydrology to a near pre-development state and reduce runoff to nearby Bluff Creek. Upon completion, the project will improve water quality in Bluff Creek through decreased phosphorus and sediment loading, regulate hydrology through increased floodwater detention, and provide habitat for wildlife and pollinators through diverse native plantings.

This project is made possible through funding from Minnesota's Clean Water Fund and with the help of our partners at the Minnesota Board of Soil and Water Resources, Minnesota Department of Natural Resources, and the City of Chanhassen.



St. Hubert Opportunity Project

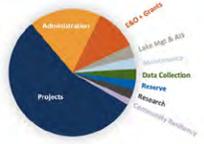
In 2019, the District began exploring a potential stormwater retrofit of the St. Hubert Catholic School grounds. Four project areas were identified: A retrofit of the parking lot median to incorporate a tree trench to collect water from the adjacent parking lot, a retrofit of an existing playground to incorporate underground storage of stormwater runoff from the school roof, the repair of a storm sewer inlet and eroded gully featuring native plants and a rain garden, and the restoration of a turf grass parcel into a native prairie.

The project broke ground in June of 2021 and was substantially completed before the new school year began; the remaining component being the planting and three-year establishment period of the native prairie. The changes made to the St. Hubert campus are expected to treat runoff across 3.6 acres, keeping over 400 pounds of suspended solids and nearly two pounds of phosphorus out of the Rice Marsh Lake watershed each year.

Your tax dollars at work

The Riley Purgatory Bluff Creek Watershed District is funded through property tax levies. We want to thank our community for their part in our mission of protecting, managing, and restoring our freshwater resources.

The 2021 levy was \$3,680,000, and the complete budget including funds from previous levies, was \$7,558,007. These funds have gone to projects like these, as well as towards administration, maintenance, research, lake and creek monitoring, aquatic invasive species management (AIS), education and outreach (E&O) and grant funding, community resiliency, and a reserve fund for emergencies.



Follow along with us!

Subscribe to our newsletter at rpbcbd.org/subscribe, or find us on social media @rpbcbd.

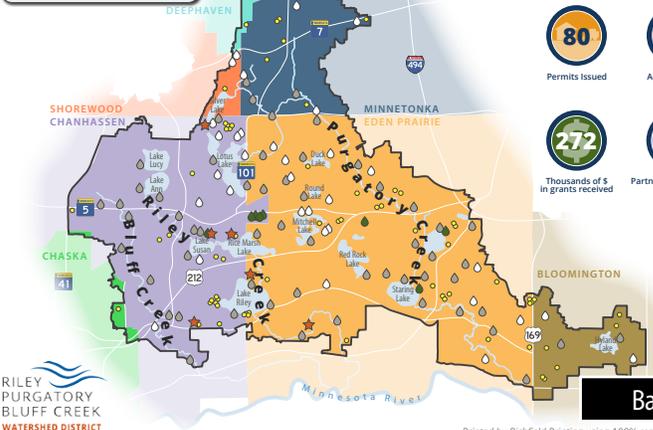


DISTRICT OFFICE:
18681 Lake Drive East
Chanhassen, MN 55317

CONTACT INFO:
952-607-6512
info@rpbcbd.org
www.rpbcbd.org

2021 AT A GLANCE

- ★ Projects
- ★ Watershed Stewardship Grants
- ★ Water Quality Monitoring Site
- ★ Workshop/Event/Outreach
- ★ Permits Issued



RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Back cover

Printed by Richfield Printing using 100% renewable energy.

Managers, Staff & Consultants

Board of Managers

The Riley Purgatory Bluff Creek Watershed District Board of Managers meets on the first Wednesday of each month at 7:00 p.m. Meetings will be held virtually until further notice. Changes to the schedule are posted on the District website rpbcbd.org.

Board of Managers: Name, city of residence, term expiration date



Staff

Terry Jeffery Interim Administrator 952-607-6585	Amy Bakum Office Administrator 952-607-6026	Liz Forbes Grant Program Coordinator 952-607-6481
Josh Maxwell Water Resources Coordinator II 952-607-4686	Zach Dickhauser Water Resources Technician II 952-607-6036	Eleanor Mahon Education & Outreach Coordinator 952-687-1346
Mat Nicklay Natural Resources Coordinator 912-791-9085		

Consultants

Scott Soblich District Engineer Barr Engineering 952-832-2755	Smith Partners PLLP Legal Advisor 612-344-1400
---	---

Cover image by Rajendran Thiagarajan, Purgatory Creek

51 Years of Watershed Protection

The Riley Purgatory Bluff Creek Watershed District was established on July 31, 1969. The District is a local government unit charged with protecting, managing, and restoring water resources. It encompasses all the land that drains into any of the three creeks in its name. At about 50 square miles, it includes parts of seven cities (Bloomington, Chanhassen, Chaska, Deephaven, Eden Prairie, Minnetonka, and Shorewood), and two counties (Carver and Hennepin).

The District is led by residents and water professionals. Five managers (four appointed by the Hennepin County Commissioners and one by Carver) serve three-year terms directing District activities. The District partners with local communities to identify top priorities and plan, implement, and manage efforts to protect clean water. The District works to educate and engage community members in this stewardship. Watershed activities are funded through property tax levies.

From the Administrator

Well, we made it. I think we all have those moments where we ask, "When was that?" Months and years blur together, but we all still did what we needed. I have been in awe of the resiliency of our community leaders, grassroots organizations, and citizen champions during this period. Throughout all of this, some great things have happened. The Board of Managers has reaffirmed their dedication to the mission of RPB/CWD as Managers Crafton and Koch both were reappointed for another three years. We also saw our staff knowledge grow with the addition of Eleanor Mahon and Liz Forbes. But, most importantly, we continued to protect your water resources.

The RPB/CWD found a new partner in the Bearpath Golf and Country Club community when we worked together to stabilize two sizeable sections of Riley Creek near holes 12, 13, and 16. St. Hubert Catholic School also showed their dedication to water resource protection when they partnered with us to install a tree trench, a rain garden, and stabilize a gully discharging into Rice Marsh Lake. The RPB/CWD also completed the work in lower Riley Creek in a partnership with the City of Eden Prairie and began work on another project at Rice Marsh Lake in collaboration with the City of Chanhassen.

Speaking of Chanhassen, the RPB/CWD is exploring options for education and recreation partnership opportunities on the land the city preserved around Lake Ann. The RPB/CWD is also looking to stabilize the final priority reach of Riley Creek. In collaboration with Chanhassen, 2022 should also see some work in the Lotus Lake watershed as we look at ravines that require stabilization.

We will continue to offer training and volunteer opportunities as well as stewardship grants for water resource protection. If you would like to get involved, please contact Terry Jeffery or Liz Forbes. As always, thank you for your support and your assistance as we all do our part to protect the lakes, streams, and wetlands within and downstream of RPB/CWD.

Sincerely,
Terry Jeffery
Interim District Administrator

Page 2

COVID-19 Response

The health and safety of staff, contractors, volunteers, and residents is of the utmost importance to the District. We continue to adapt our COVID-19 response to best meet the needs of the moment.

In an effort to do our part to ensure public health, the District developed a [COVID-19 response plan](#) based upon information from the Minnesota Department of Health and the Centers for Disease Control.



Visit our website to view the [COVID-19 District Action Plan](#).

Biennial Solicitation of Interest Proposals

Under Minnesota Statutes §103B.227, subd 5, the District must issue a biennial solicitation for legal, technical, and other professional services. The District issued a formal solicitation for accounting, auditing, banking, engineering, and legal services in 2021. Solicitations were printed in local and state publications and circulated online. The District retained Redpath and Company as its accountant. Abdo was named as the District's auditing consultant. The 4M fund via PMA and U.S. Bank was selected as the District's investment bank. Barr Engineering was selected as District engineer. Included in the District's pool of engineering consultants was EOR Resources, SRF Consulting, Houston Engineering, and ISG. The next solicitation of services will be issued in 2023.



Leopard Frog by Sharon McCotter (2021 photo content entry).

10-Year Management Plan

In 2018, the District's 10-year Watershed Management Plan was adopted. The plan guides all the District's actions, from monitoring to water quality projects, over a 10-year period. The plan can be found at rpbcwd.org/10yearplan.

Components of the 10-Year Plan

[Table of Contents](#)

[Executive Summary](#)

[Chapter 1 | Introduction](#)

[Chapter 2 | Watershed Issue Identification and Assessment](#)

[Chapter 3 | Goals and Strategies](#)

[Chapter 4 | Project Prioritization Process](#)

[Chapter 5 | Land and Water Resource Inventory](#)

[Chapter 6 | Bluff Creek Watershed](#)

[Chapter 7 | Purgatory Creek Watershed](#)

[Chapter 8 | Riley Creek Watershed](#)

[Chapter 9 | Implementation - The Next 10 Years](#)

[Chapter 10 | Evaluation](#)

[Chapter 11 | References](#)

Appendices

[Appendix A: Public and Stakeholder Participation](#)

[Appendix B: Education and Outreach Plan](#)

[Appendix C: Goals and Strategies Tied to Stakeholder Input](#)

[Appendix D: Envision Credits and Criteria](#)

[Appendix E: Capital Improvements Implementation Process](#)

[Appendix F: Example Water Resources Report](#)

[Appendix G: Draft Report Card](#)

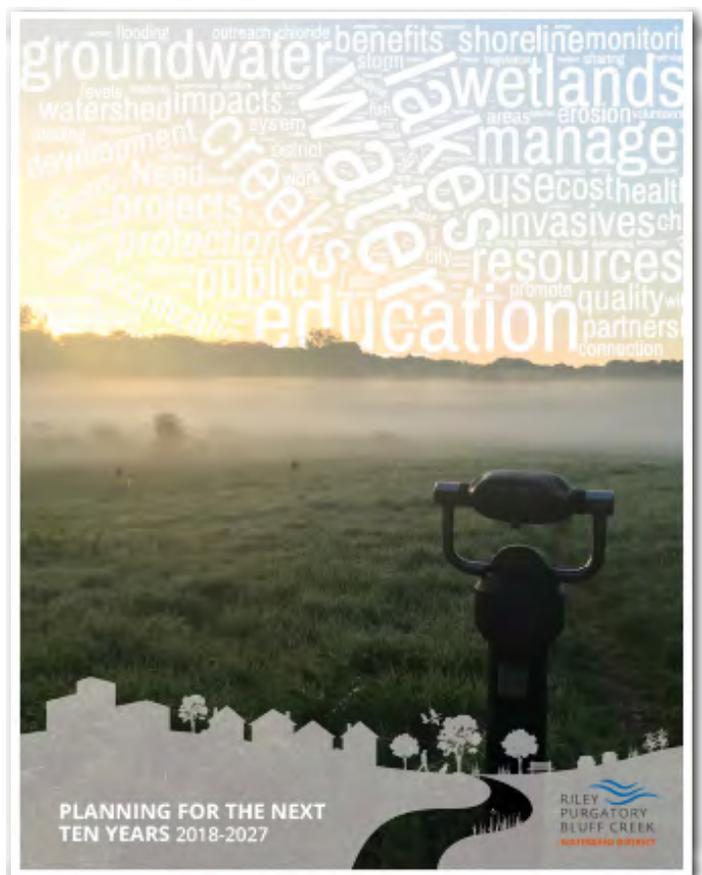
[Appendix H: BWSR Approval and RPBCWD Adoption](#)

Amendments

[Cost-share amendment \(3-6-19\)](#)

[St Hubert Catholic School Opportunity Project \(10-2-19\)](#)

Public Engagement Process for the Plan



Each year, a District Workplan is developed to guide implementation of the 10-Year Watershed Management Plan. The workplan can be viewed in the next section of this report.

Capital Improvement Program Update

To updated the District's [10-year Watershed Management Plan](#), the District worked in 2018 to evaluate and prioritize its capital improvement projects. Of the 175 projects identified, the District, with input from partners, identified 34 projects to be implemented during the next 10 years beginning in 2018. One new project, Lake Riley Alum Treatment, was identified and added later. The table below provides a summary of the status of the District's Capital Improvement Program as of the end of 2021.

Capital Improvement Project Name	Anticipated Substantial Completion	Status at end of 2021
BLUFF CREEK		
Bluff Creek Tributary	2020	Substantially complete; ongoing vegetation establishment
Bluff Creek Reach 5	2024	Feasibility study 90% complete
Chanhassen High School	Completed 2019	Collaborating with ISD 112
Wetland Restoration at Pioneer Trail	2022	Construction 80% complete; vegetation install in 2022
RILEY CREEK		
Like Riley Alum Treatment (second)	Completed 2020	Post-treatment monitoring
Lake Susan Water Quality Improvement Phase 2	Completed 2019	Completed
Rice Marsh Lake In-lake Phosphorus Load Control	Completed 2018	Monitoring
Rice Marsh Lake Water Quality Improvement Phase I	2022	Construction 75% complete; vegetation install in 2022
Riley Creek Restoration (Reach E and D3)	2020	Substantially complete; ongoing vegetation establishment
Lake Riley and Rice Marsh Lake Subwatershed Assessment	Completed 2021	Assessment completed
Upper Riley Creek Stabilization	Delayed to 2023	Ecological enhancement plan complete; design in 2022
Middle Riley Creek Restoration	2022	Earthwork complete; vegetation to be installed in 2022
St. Hubert Water Quality Project	2021	Substantially complete; ongoing vegetation establishment
PURGATORY CREEK		
Lotus Lake Kerber Pond Ravine	2020	Feasibility complete
Purgatory Creek Recreation Area - Berm/Retention Area feasibility and design	2022	Design 60% complete; collaborating with City of Eden Prairie
Lotus Lake In-lake phosphorus Load Control	Completed 2018	Monitoring
Silver Lake Water Quality Improvement Project	2022	Substantially complete; ongoing vegetation establishment
Scenic Heights	2020	Completed
Hyland Lake In-lake phosphorus Load Control	2019	Completed
Mitchell Lake Subwatershed Assessment	Completed 2021	Assessment completed
Duck Lake Watershed Load	2021	Substantially complete; ongoing vegetation establishment

Local Plan Adoption & Implementation

The District has received and approved Local Surface Water Management Plans for all cities within the District as required under the District's regulatory program. The District will continue to administer its regulatory program in all municipalities.

Financial Status

The District's fund balance and financial status are included in the District's Annual Audit. The Annual Audit is included as Appendix D to this report. The District's audited financial report was prepared by Abdo, a certified public accounting firm. As required by Minnesota Rules §8410.0150, subp. 2, the Audited Financial Report includes classification and reporting of revenues and expenditures, a balance sheet, an analysis of changes in final balances, and all additional statements necessary for full financial disclosures.

2021 Audit

Upon its completion in late spring of 2022, the 2021 Audited Financial Report may be found on our website at rpbcd.org/annualreport.



2021 Budget

The District adopted its 2021 Annual Budget in September 2020 and revised through December 2021. The 2021 Annual Budget as revised through December 31, 2021, and actual receipts and expenses for 2021 are set forth in the following table.

REVENUES					
Item	2021 Budget	Fund Transfers (None)	Revised 2021 Budget	Actual spent to date (Dec 2021)	Year to Date % of Budget
Plan Implementation Levy	3,575,000,000	-	3,575,000,000	3,559,662.09	99.57%
Permit Fees	25,000	-	85,603.38	204,688.17	307.82%
Grant Income	272,580	-	272,580	36,433.00	13.37%
Investment Income	30,000	-	30,000	692.85	2.31%
Miscellaneous Income	-	-	-	1,331.84	---
Past Levies (Carry Over)	3,204,427	-	3,204,427	-	0.00%
Partner Funds	451,000	-	451,000	2,000.00	0.44%
TOTAL REVENUE	\$7,558,007	-	\$7,558,007	\$3,651,159.58	48.31%

EXPENDITURES					
ADMINISTRATION					
Item	2021 Budget	Fund Transfers (None)	Revised 2021 Budget	Actual spent to date (Dec 2021)	Year to Date % of Budget
Audit	15,000	-	15,000	14,400.00	96.00%
Accounting (and Audit)	31,000	2,742.75	31,000	33,742.75	100%
Advisory Committees	7,000	-	7,000	-	0.00%
Insurance and Bonds	18,000	7,034.00	25,034	25,034.00	100%
Engineering Services	112,000	25,234.56	137,234.56	137,234.56	100%
Legal Services	84,000	2,329.49	86,329.49	86,329.49	100%
Manager Per Diem/Expense	30,000	304.16	30,304.16	27,304.16	100%
Dues and Publications	16,000	-	16,000	11,191.00	69.94%
Office Cost	190,000	(39,980.46)	190,000	142,859.05	96.23%
Permit Review and Inspection	140,000	-	140,000	204,688.17	146.21%
Permit and Grant Database	-	27,500.00	27,500	27,500.00	100%
Professional Services	10,000	2,335.50	12,335.50	12,335.50	100%
Recording Services	15,000	-	15,000	13,515.00	90.10%
Staff Cost	802,054	(27,500)	802,054	451,196.09	59.68%
SUBTOTAL	\$1,470,054	\$0	\$1,534,792	\$1,187,329.77	77.36%

Continues on next page

PROGRAMS AND PROJECTS					
Item	2021 Budget	Fund Transfers (None)	Revised 2021 Budget	Actual spent to date (Dec 2021)	Year to Date % of Budget
District Wide					
10-Year Management Plan	10,000	-	10,000	6,676.30	66.76%
ALS Inspection and early response	85,000	-	85,000	45,842.25	53.93%
Cost-Share/Stewardship Grant	346,735	-	346,735	190,158.03	54.84%
Data Collection and Monitoring	193,000	-	193,000	256,599.87	132.95%
Community Resiliency	111,058	-	111,058	88,640.50	79.81%
Education and Outreach	100,834	-	100,834	71,022.84	70.44%
Plant Restoration - U of M	61,613	-	61,613	21,650.48	35.14%
Repair and Maintenance Fund	212,540	(113,000)	99,540	570.00	0.57%
Wetland Management	111,248	-	111,248	77,683.26	69.83%
Groundwater Conservation	229,444	-	229,444	450.00	0.20%
Lake Vegetation Implementation	83,083	-	83,083	38,754.13	46.65%
Opportunity Project	317,480	(217,000)	100,480	-	0.00%
Stormwater Ponds- U of M	67,164	-	67,164	36,719.00	54.67%
Hennepin County Chloride Initiative	92,971	-	92,971	12,380.00	13.32%
Lower Minnesota Chloride Cost-Share	217,209	-	217,209	9,618.32	4.43%
SUBTOTAL	\$2,239,379	(\$330,000)	\$1,909,379	\$856,764.98	44.87%
Bluff Creek					
Bluff Creek Tributary	7,251	-	7,251	172.00	2.37%
Wetland Restoration at Pioneer	665,285	-	665,285	264,427.91	39.75%
Bluff Creek B5 by Galpin Blvd	140,000	-	140,000	18,911.42	13.51%
SUBTOTAL	\$812,536	-	\$812,536	\$283,511.33	34.89%
Riley Creek					
Lake Riley Alum Treatment	62,885	-	62,885	-	0.00%
Rice Marsh Lake in-lake phosphorus load	45,636	-	45,636	11,093.31	24.31%
Rice Marsh Lake Water Quality Improvement Phase 1	634,147	-	634,147	552,920.45	87.19%
Riley Creek Restoration (Reach E and D3)	107,047	-	107,047	34,735.21	32.45%
Upper Riley Creek Stabilization	902,025	-	902,025	31,365.06	3.48%
Middle Riley Creek	192,363	352,000	544,363	399,547.45	73.40%
Lake Ann Wetland Restoration	50,000	(50,000.00)	-	-	---
St. Hubert Water Quality Project	147,063	-	147,063	347,637.69	236.39%
SUBTOTAL	\$2,141,166	\$302,000	\$2,443,166	\$1,377,299.17	56.37%

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Item	2021 Budget	Fund Transfers (None)	Revised 2021 Budget	Actual spent to date (Dec 2021)	Year to Date % of Budget
Purgatory Creek					
Purgatory Creek Rec Area-Berm/retention area- feasibility/design	34,899	113,000	147,899	\$9,355.15	6.33%
Lotus Lake in-lake phosphorus load control	79,225	-	79,225	-	0.00%
Silver Lake Restoration: Feasibility Phase 1	207,208	-	207,208	157,790.97	76.15%
Scenic Heights	92,040	(85,000)	7,040	2,983.00	42.37%
Hyland Lake in-lake phosphorus load control	20,000	-	20,000	-	0.00%
Duck Lake watershed load	32,120	-	32,120	9,197.30	28.63%
Lotus Lake Kerber Pond	14,380	-	14,380	-	0.00%
Duck Lake Partnership	235,000		235,000	-	0.00%
SUBTOTAL	\$714,872	\$28,000	\$714,872	\$179,326.42	24.14%
RESERVE	\$180,000		\$180,000		0.00%
TOTAL EXPENDITURES	\$7,558,007		\$7,558,007	\$3,884,231.67	51.39%

2021 Work Plan

Each year, the watershed district creates a work plan with goals and objectives for its projects and programs. The plan is a guide for the year, and a way to track progress. This summary describes the District’s accomplishments toward fulfilling its 2021 work plan.

ADMINISTRATION	Description
Accounting, Audit & Budget	<ul style="list-style-type: none"> • Coordinate with Accountants for the development of financial reports • Coordinate with the Auditor • Continue to work with the Treasurer to maximize on fund investments
Administration	<ul style="list-style-type: none"> • Administrator activities
Annual Report & Communication	<ul style="list-style-type: none"> • Compile, finalize and submit an annual report to agencies
BWSR	<ul style="list-style-type: none"> • Discuss Targeted Watershed Grant distribution
DEI	<ul style="list-style-type: none"> • Incorporate Diversity, Equity, and Inclusion (DEI) into District programs as appropriate
Human Resources	<ul style="list-style-type: none"> • General human resources
Internal Policies	<ul style="list-style-type: none"> • Work with Governance Manual and Personnel Committees to review bylaws and manuals as necessary
Advisory	<ul style="list-style-type: none"> • Engage with the Technical Advisory Committee on water conservation, chloride management and emerging topics. • Engage with the Citizen Advisory Committee on water conservation, annual budget, and emerging topics
Local SWMP	<ul style="list-style-type: none"> • Administer local Stormwater Management Program (SWMP)
MAWD	<ul style="list-style-type: none"> • Minnesota Association of Watershed Districts
DISTRICT WIDE	Description
Regulatory Program	<ul style="list-style-type: none"> • Review regulatory program to maximize efficiency • Engage Technical Advisory Committee and Citizen Advisory Committee on possible rule changes. • Implement a regulatory program
Aquatic Invasive Species (AIS)	<ul style="list-style-type: none"> • Review AIS monitoring program • Develop and implement Rapid Response Plan as appropriate • Coordinate with local government units (LGUs) and keep stakeholders aware of AIS management activities • Manage and maintain the aeration system on Rice Marsh Lake. • Riley Chain of Lakes Carp Management • Purgatory Chain of Lakes Carp Management • Review AIS inspection program • Keep abreast of technology and research in AIS • Zebra mussel adult and veliger monitoring
Cost Share	<ul style="list-style-type: none"> • Schedule and coordinate site visits • Review applications and recommend implementation • Evaluate program
Data Collection	<ul style="list-style-type: none"> • Continue Data Collection at permanent sites • Watershed Outlet Monitoring Program (WOMP) • Identify monitoring sites to assess future project sites • Water Level Sensors
District Hydrology & Hydraulics Model	<ul style="list-style-type: none"> • Coordinate maintenance of Hydrology and Hydraulics Model • Coordinate model update with LGUs if additional information is collected • Partner and implement with the City of Bloomington on Flood Evaluation and Water Quality Feasibility
Education and Outreach	<ul style="list-style-type: none"> • Implement Education & Outreach Plan, review at year end • Manage partnership activities with other organizations • Coordinate Public Engagement with District projects

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Groundwater Conservation	<ul style="list-style-type: none"> • Work with other LGUs to monitor, assess, and identify gaps • Engage with the Technical Advisory Committee to identify potential projects • Develop a water conservation program (look at Woodbury model)
Lake Vegetation Management	<ul style="list-style-type: none"> • Work with the University of Minnesota or Aquatic Plant Biologist, cities of Chanhassen and Eden Prairie, lake associations, and residents as well as the Minnesota Department of Natural Resources on potential treatments. • Implement herbicide treatment as needed on monitored lakes (Susan, Riley, Lotus, Mitchell, Red Rock, Staring) • Secure DNR permits and contracts with herbicide applicators • Schedule regularly point intercept surveys • Work with Three Rivers Park District for Hyland Lake
Opportunity Projects	<ul style="list-style-type: none"> • Assess potential projects as they are presented to the District
Total Maximum Daily Load (TMDL)	<ul style="list-style-type: none"> • Continue working with the Minnesota Pollution Control Agency on the Watershed Restoration and Protection Strategies (WRAPS) • Engage the Technical Advisory Committee
Repair & Maintenance Grant	<ul style="list-style-type: none"> • Develop and formalize grant program.
University of Minnesota	<ul style="list-style-type: none"> • Review and monitor progress on University of Minnesota grant • Support Dr. John Gulliver and Dr. Ray Newman research and coordinate with local partners • Keep the managers abreast to progress in the research • Identify next management steps
Watershed Plan	<ul style="list-style-type: none"> • Review and identify needs for amendments.
Wetland Conservation Act (WCA)	<ul style="list-style-type: none"> • Administer WCA within the Cities of Shorewood and Deephaven • Represent the District on Technical Evaluation Panel throughout the District
Wetland Management	<ul style="list-style-type: none"> • Assess known existing wetlands, identify previously unknown wetlands, identify wetlands for potential restoration/rehabilitation and wetlands requiring additional protection
Hennepin County Chloride Initiative (HCCI)	<ul style="list-style-type: none"> • Phase 2: Develop market research to target homeowner associations and worship centers on how to incorporate reduced salt use in their winter maintenance
Lower Minnesota Chloride Cost-Share Program	<ul style="list-style-type: none"> • The Lower Minnesota River Watersheds are coming together to offer cost-share grants
BLUFF CREEK WATERSHED	Description
Bluff Creek Tributary Restoration	<ul style="list-style-type: none"> • Implement and finalize restoration • Monitor Project
Wetland Restoration at Pioneer Trail/Hwy 101	<ul style="list-style-type: none"> • Remove 3 properties from flood zone, restore a minimum 7 acres and as many as 16 acres of wetlands, connect public with resources, reduction of volume, rate, pollution loads to Bluff Creek
RILEY CREEK WATERSHED	Description
Lake Riley Alum Treatment	<ul style="list-style-type: none"> • Continue monitoring of Lake
Lake Susan Improvement Phase 2	<ul style="list-style-type: none"> • Collect data from functioning iron-enhanced sand filter and reuse system
Lake Susan Spent Lime	<ul style="list-style-type: none"> • Yearly startup and monitoring
Lower Riley Creek Stabilization	<ul style="list-style-type: none"> • Finalize plant establishment and remove temporary erosion prevention and sediment control BMPs • Continue Public Engagement for project and develop signage for restoration
Rice Marsh Lake Alum Treatment	<ul style="list-style-type: none"> • Analyze sediment cores for second alum dosing
Rice Marsh Lake Watershed Load Project 1	<ul style="list-style-type: none"> • Executed cooperative agreement with Chanhassen • Implemented project
Upper Riley Creek	<ul style="list-style-type: none"> • Develop cooperative agreement with the City of Chanhassen • Order project and begin design.
Middle Riley Creek	<ul style="list-style-type: none"> • Implement project • Work with Bearpath Golf and Country Club to develop education and outreach program

St. Hubert Water Quality Project	<ul style="list-style-type: none"> • Develop curriculum to be used with teachers and students at St. Hubert • Establish native vegetation and monitor soil development, water quality/quantity benefits, and ecological changes.
PURGATORY CREEK WATERSHED	Description
Purgatory Creek Recreation Area (PCRA) Berm	<ul style="list-style-type: none"> • Work with City to determine next steps
Duck Lake Water Quality Project	<ul style="list-style-type: none"> • Close out project
Lotus Lake Internal Load Control	<ul style="list-style-type: none"> • Analyze sediment cores for second alum dosing
Scenic Heights	<ul style="list-style-type: none"> • Close out project
Silver Lake Restoration	<ul style="list-style-type: none"> • Execute cooperative agreement with Chanhassen • Implement project • Develop and install signage

2022 Budget & Workplan

The District adopted its 2022 Annual Budget in September 2021 and revised through December 2021. For a description of goals, see section 3 of the [10-Year Plan](#).

Administration & Overhead			
Title	Budget	Description	Goals
Administration and Overhead	\$1,575,581	Consultant fees: engineering, legal, IT, HR, Accounting, etc	Admin 1, Reg 1
		Staff compensation	Admin 1
		Rent & utilities	Admin 1
		Permit Review and Inspections	Admin 1, Reg 1
		Advisory committees and manager per diem	Admin 1, Plan 1
District Wide Initiatives & Projects			
Title	Budget	Description	Goals
10-Year Management Plan	\$80,000	Review and evaluate regulatory program for improved efficiency	Plan 1
		Review and evaluate project prioritization metrics	Plan 1
		Facilitate meetings of TAC, CAC, and other stakeholders	Plan 1
AIS Inspection and Early Response	\$68,000	Partner with municipalities and counties to provide watercraft inspections at launches	Wqual 1, Wqual 3
		Provide capacity and mechanics for rapid response to newly discovered aquatic invasive plant populations	Wqual 1, Wqual 3
Cost-share/Stewardship Grant	\$260,000	Provide financial incentive to private landowners to implement best management practices on their properties	EO 1, Wqual 1, Wqual 3
		Provide financial assistance to municipalities to implement and incorporate best management practices into facilities management and capital projects	EO 1, Wqual 1, Wqual 3
		Provide technical assistance to landowners concerning erosion prevention, sediment control, and surface water management.	EO 1, Wqual 1, Wqual 3
Data Collection and Monitoring	\$213,000.00	Collect hydraulic, hydrologic, and water quality data on District lakes and streams	DC 1
		Monitor and assess near bank scour and escarpment erosion	DC 1
		Maintenance of Watershed Outlet Monitoring Program (WOMP) stations	DC 1
		Monitor flow rates and volumes as well as water quality parameters in areas identified as potential locations for BMPs	DC 1
		Assist lake associations and municipalities in the development of lake management plans	DC 1
Community Resiliency	\$130,000.00	Develop high resolution hydraulic and hydrologic model throughout the District	Plan 2
		Develop flood risk mapping for various climate change scenarios	Plan 2
		Partner with municipalities and local road authorities to identify and address community resilience practices and projects	Plan 2

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Education and Outreach	\$100,000	Work with local schools and other youth organizations to provide educational programs and curriculum pertaining to surface water management	EO 1
		Develop and disseminate information through written formats, website development, social media platforms, etc	EO 1
		Recruit, engage, and supervise volunteer groups	EO 1
		Engage in partnerships such as the Minnesota Water Steward program and the Hennepin County Chloride Initiative	EO 1
		Partner with municipalities to fulfill their MS4 requirements	EO 1
Plant Restoration - U of M	\$50,000	Partner with faculty and students at the University of Minnesota to gather data on aquatic vegetation management and restoration.	Wqual 1, Wqual 3
Repair and Maintenance Fund	\$100,000	Maintenance of best management practices initiated by the District	Admin 1
Wetland Management*	\$157,000	Assess all wetlands within the District utilizing the MN Rapid Assessment Methodology	Wqual 2
		Perform Floristic Quality Assessments on all District wetlands	Wqual 2
		Develop metrics for the assessment of functions and values that can be improved or restored throughout the District for water quality, erosion prevention, sediment control, habitat provision, biodiversity, community resilience.	Wqual 2, Wquan 1
		Develop and maintain GIS database of wetland function and values	Wqual 2, Wqual 1
Groundwater Conservation*	\$220,000	For the purpose of aiding cities in programs aimed at reduction of potable water supply use.	Ground 1
Lake Vegetation Implementation	\$76,000	Perform point intercept surveys	Wqual 1, Wqual 3, Data 1
		Perform aquatic invasive species surveys	Wqual 1, Wqual 3, Data 1
		Perform turion counts	Wqual 1, Wqual 3, Data 1
Opportunity Project*	\$250,000	Funds dedicated to capital projects brought forward by stakeholders not currently identified in the 10-year plan. **Will require plan amendment when implemented.	Admin 1, Plan 1
Stormwater Ponds - U of M	\$20,000	Finalization of the research done by the UofM SAFL on performance of stormwater pond and potential treatment.	Plan 1, DC 1, Wqual 1
Hennepin County Chloride Initiative	\$90,000	CWIP grant to be used by partners to address chloride use in Hennepin County	Plan 1, DC 1, Wqual 1
Lower Minnesota Chloride Cost-Share	\$195,000	CWIP grant to be used by partners to address chloride use in the Lower MN River Watershed basin	Plan 1, DC 1, Wqual 1
SUBTOTAL	\$2,009,000		

Bluff Creek Watershed Initiatives and Capital Projects

Title	Budget	Description	Goals
Bluff Creek Tributary*	\$5,000	Last year of maintenance for vegetation establishment and punchlist items in restored Bluff Creek tributary	Wqual 1
Wetland Restoration at Pioneer	\$478,933	Removal of three homes from floodplain of large wetland complex	Plan 2, Wquan 1
		Restoration of seven acres of hydrologically altered wetland.	Wquan 1, Wqual 2, Wqual 3
		Flood storage, rate control, and stream protection for Bluff Creek	Wqual 1, Wqual 2, Plan 2
Bluff Creek B5 by Galpin	\$120,000	Feasibility and design of creek restoration in upper Bluff Creek near headwaters	Wqual 1
		Evaluation of headwater wetland for restoration, flood storage, and habitat restoration.	Wqual 1, Plan 1, Plan 2,
SUBTOTAL	\$603,933		

Riley Creek Watershed Initiatives and Capital Projects

Title	Budget	Description	Goals
Lake Riley - Alum Treatment*	\$20,000	Sediment coring.	Wqual 1, DC 1
Rice Marsh Lake in-lake phosphorus load	\$26,000	Sediment coring.	Wqual 1, DC 1
Rice Marsh Lake Water Quality Improvement	\$228,000	Installation of two inline manufactured treatment devices	Wqual 1, DC 1
		Construction of bioinfiltration practice	Wqual 1, DC 1
		Restoration of prairie area as well as soils correction for data collection of efficacy as treatment practice	Wqual 1, DC 1
Lower Riley Creek Restoration	\$78,000	Final plant establishment and punchlist item completion for stabilization of lower Riley Creek	Wqual 1, Wqual 3
Upper Riley Creek Restoration	\$1,447,000	Feasibility, design, and construction of upper Riley Creek from TH 5 to Lake Susan.	Wqual 1, Wqual 3
Middle Riley Creek Restoration	\$61,000	Final plant establishment and punchlist item completion for stabilization of middle Riley Creek	Wqual 1, Wqual 3
St Hubert Water Quality Project	\$46,000	Final plant establishment and punchlist item completion for stabilization of St Hubert Water Quality Project	Wqual 1, EO 1
SUBTOTAL	\$1,906,000		

Purgatory Creek Watershed Initiatives and Capital Projects

Title	Budget	Description	Goals
Purgatory Creek Rec Area- Berm	\$225,000	Partnership with Eden Prairie to repair of berm for flood control, water treatment, and recreational access.	Wqual 1, Wqual 3, Plan 2
Lotus Lake in-lake phosphorus load control*	\$80,000	Dosing calculations for future alum treatment. Will be carry over to next year	Wqual 1, Wqual 3
Silver Lake Water Quality BMP	\$46,000	Final vegetation establishment and punch list items for project that installed iron enhanced sand filter ditch checks and channel stabilization	Wqual 1
Scenic Heights	\$4,058	Final closeout of forest restoration and stormwater management project in partnership with Minnetonka Public Schools	Wqual 1, EO 1
Hyland Lake in-lake phosphorus load control	\$20,000	Sediment coring and dosing calculations for second alum treatment	Wqual 1, Wqual 3, DC 1

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Duck Lake Watershed Load	\$25,000	Planting of biofiltration features constructed in 2021 throughout the Duck Lake Watershed.	Wqual 1, E0 1
Lotus Lake Kerber Pond Ravine	-	Partner with Chanhassen to stabilize tributary to Lotus	Wqual 1, Plan 1
Duck Lake Road Partnership	\$235,000	Partnership with Eden Prairie to reconnect fragmented Duck Lake, protect lacustrian wetland areas and provide flood storage.	Wqual 1, Plan 1, Plan 2
Lotus Lake Watershed Improvement Project	\$325,000	Design and feasibility	Wqual 1, DC 1
SUBTOTAL	\$960,058		
RESERVE	\$23,000		
TOTAL EXPENDITURES	\$7,077,572		

*Denotes multi-year project



Monarch Butterfly feeding on native wildflowers near Bluff Creek by Jillyse Wangerin (2021 photo content entry).

REGULATORY PROGRAM UPDATE

Regulation plays an important role in preventing and mitigating water resource issues. The regulatory program sets standards that must be met by entities that develop or otherwise disturb land within the District. The regulatory program is intended to provide for consistent protections for water resources from development pressures throughout the watershed.

The District's Board of Managers adopted the regulatory program on November 5, 2014, and implementation of the regulatory program went into effect in January 2015. In response to stakeholder comments, the District modified the regulatory program in 2018 and 2019. A summary of the modifications can be found on the District's website at rpbcwd.org/permits. The regulatory program assures that there are consistent protections for water resources from development pressures throughout the watershed.

The program includes thirteen rules, A-N, (rule I was eliminated in 2018 revisions). The rules are available on the permit page of the District website.

Permits

Since the District reinstated its regulatory program in 2015, 495 permit applications have been submitted to the District, including 89 for the 2021 calendar year. In 2021 District staff began using MS4Front permit management software and database which allows staff to easily view and track permits, escrows, fees, inspections, and violations.

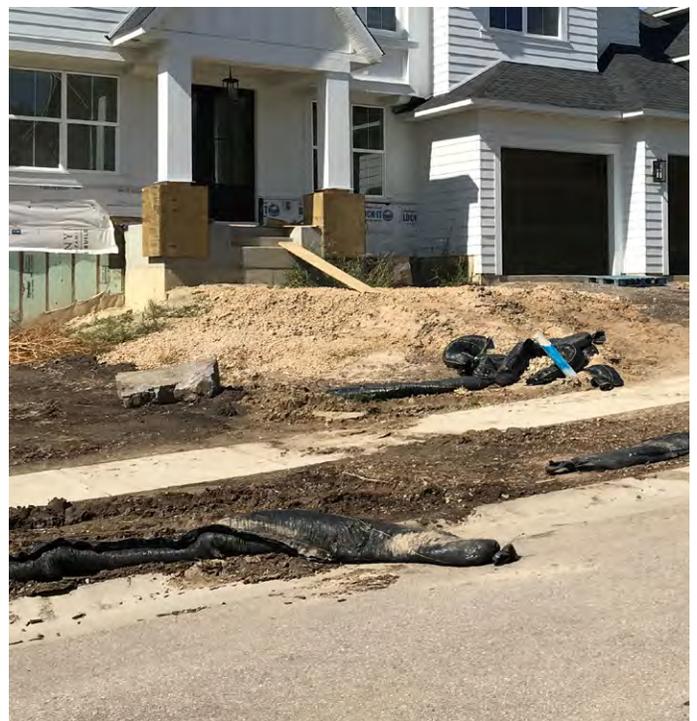
In 2021, there were 27 permit applications that were approved by the RPBCWD Board of Managers. In addition, another 24 were approved administratively as set forth in District policy. These included nine permits for work on existing single-family lots of record, 30 issued to municipalities or local road authorities, and 24 to commercial properties.



In 2021, the District was responsible for administration of regulations throughout the District as no municipalities adopted ordinances equally protective of the resources.



District staff inspect project sites and direct permit holders to take corrective actions as needed to protect water quality. The image above shows a silt fence violation (failure) at a site in 2021.



The image above shows poor perimeter maintenance at a construction site.

Variances

In 2021, a total of seven requests for variances from District rules were submitted and approved by the Board of Managers:

- Three requests for variances from the stormwater management rule (Rule J) for the Duck Lake Road improvement project (Permit number 2021-016). These requests pertained to wetland protection, discharge rate, and treatment of off-site run-on criteria.
- Two requests for variances to the wetland and creek buffers rule (Rule D) for the Middle Riley Creek Stabilization and Bearpath Golf Course Renovation project (permit number 2021-017). These requests pertained to buffer widths and monumentation criteria.
- One request was for a variance from the floodplain management and drainage alterations rule (Rule B) for the Welters Way/Purgatory Creek

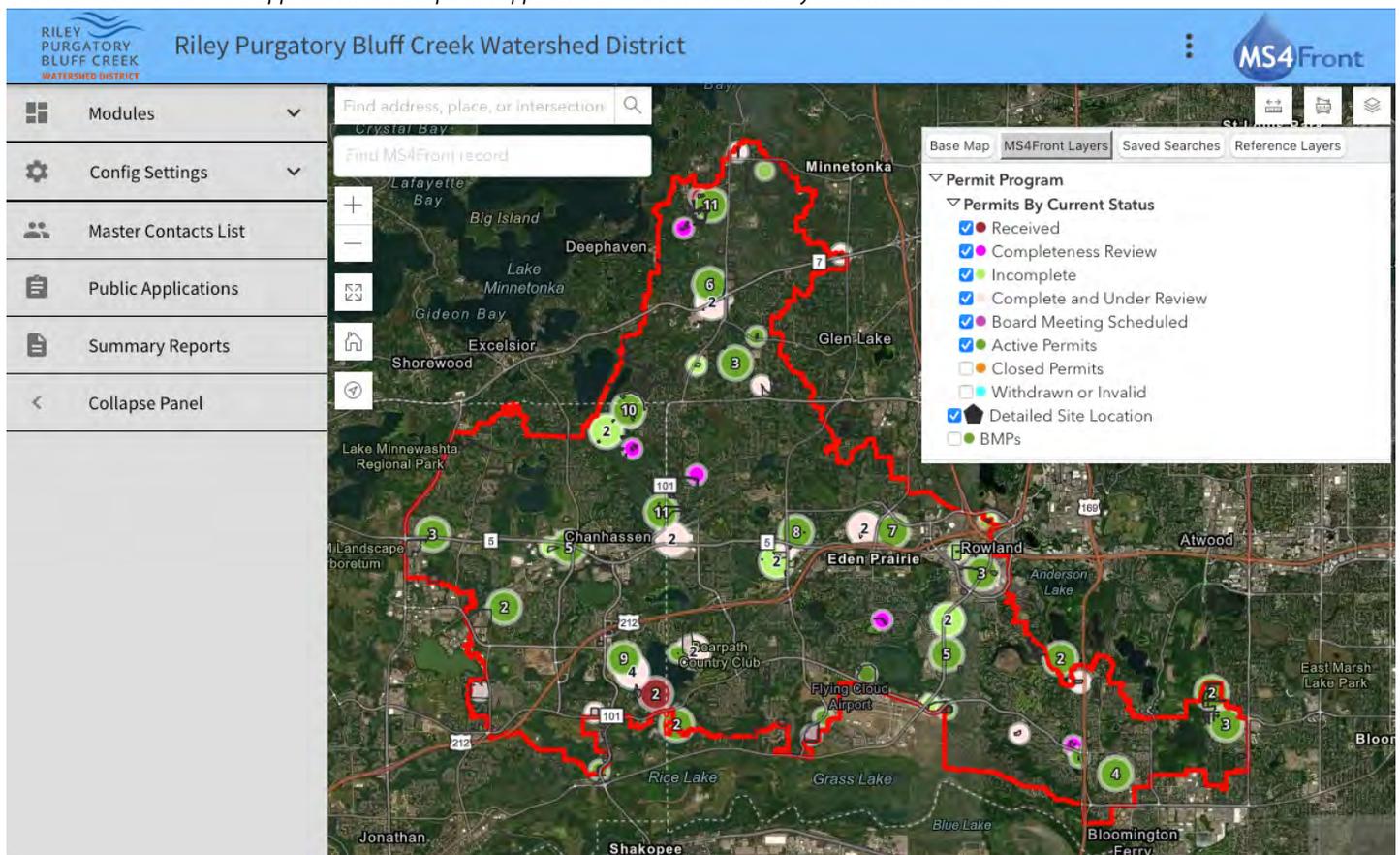
Slope Stabilization Project (permit number 2020-073). The request pertained to the provision of compensatory storage criteria.

- One request was for a variance from the wetland and creek buffers rule (Rule D) for the Minnetonka High School Einer Anderson Field Improvements project (permit number 2020-068). The request pertained to the buffer widths criteria.

Violations

During 2021 there were 5 locations where work was conducted without a permit from RPBCWD. The district continues to work with the property owners to rectify these conditions and as such the Board of Managers has not pursued formal violation notices or enforcement action as indicated in Rule N.

RPBCWD uses the MS4Front application to track permit applications. The district boundary is shown as a red line.



FLOOD RISK ASSESSMENT

In 2021, the District partnered with the City of Eden Prairie to incorporate more detailed information in the Riley Creek and Purgatory Creek subwatershed hydrologic and hydraulic models and to develop a framework to prioritize future evaluation of flood-risk reduction projects. The initial framework includes six criteria identified by the Technical Advisory Committee for prioritizing flood-prone areas but may be modified to address flood-prone areas identified within Eden Prairie:

- Number of impacted structures
- Frequency of flooding
- Social vulnerability index
- Project efficiency
- Multiple benefits
- Critical Infrastructure

The evaluation is partially funded with a grant from the Minnesota Pollution Control Agency (MPCA). The evaluation will include thousands of areas throughout Eden Prairie. Areas with higher scores indicate locations that are a higher priority to mitigate flood-risk. Work in 2021 included revisions to the stormwater models to incorporate additional detail. In 2022, updated model results will be validated, and models will be used to identify flood-prone areas within Eden Prairie.

The prioritization framework can be used as a tool to determine where to begin with further evaluation of flood-risk mitigation projects. This provides the RPBCWD and City of Eden Prairie a methodology to compare potential benefits of flood-risk mitigation projects and prioritize how to invest limited resources for mitigating flood risk.

In 2022, the District will continue to identify partnership opportunities with member cities to add detail to the stormwater model to identify flood-risk areas not adjacent to the creeks.



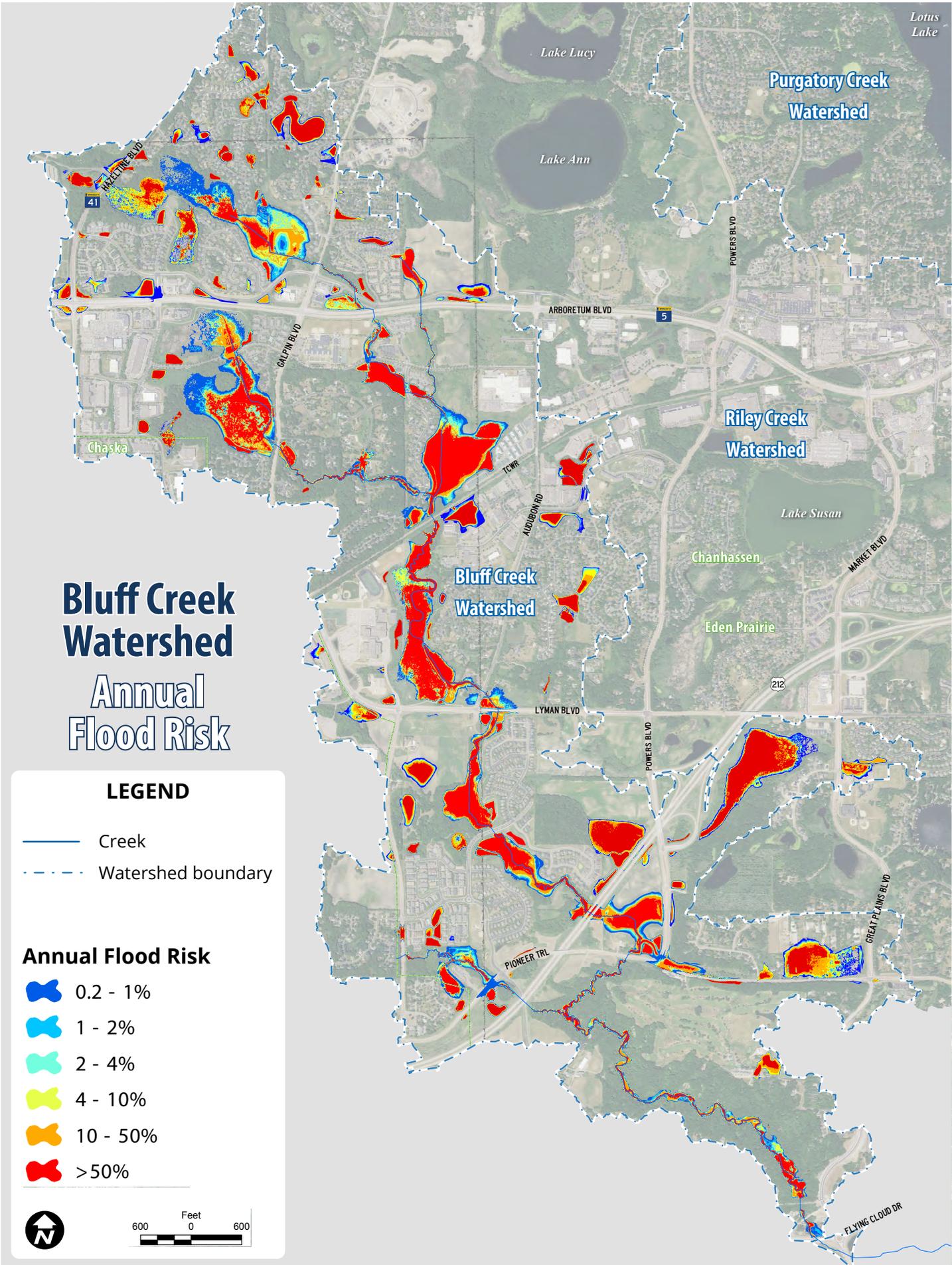
Trail closure due to flooding in 2014 near Lake Ann.



High water on Purgatory Creek in 2018.



Wetlands play an important role in reducing flood risk.



Bluff Creek Watershed

Annual Flood Risk

LEGEND

- Creek
- Watershed boundary

Annual Flood Risk

- 0.2 - 1%
- 1 - 2%
- 2 - 4%
- 4 - 10%
- 10 - 50%
- >50%

Riley Creek Watershed Annual Flood Risk

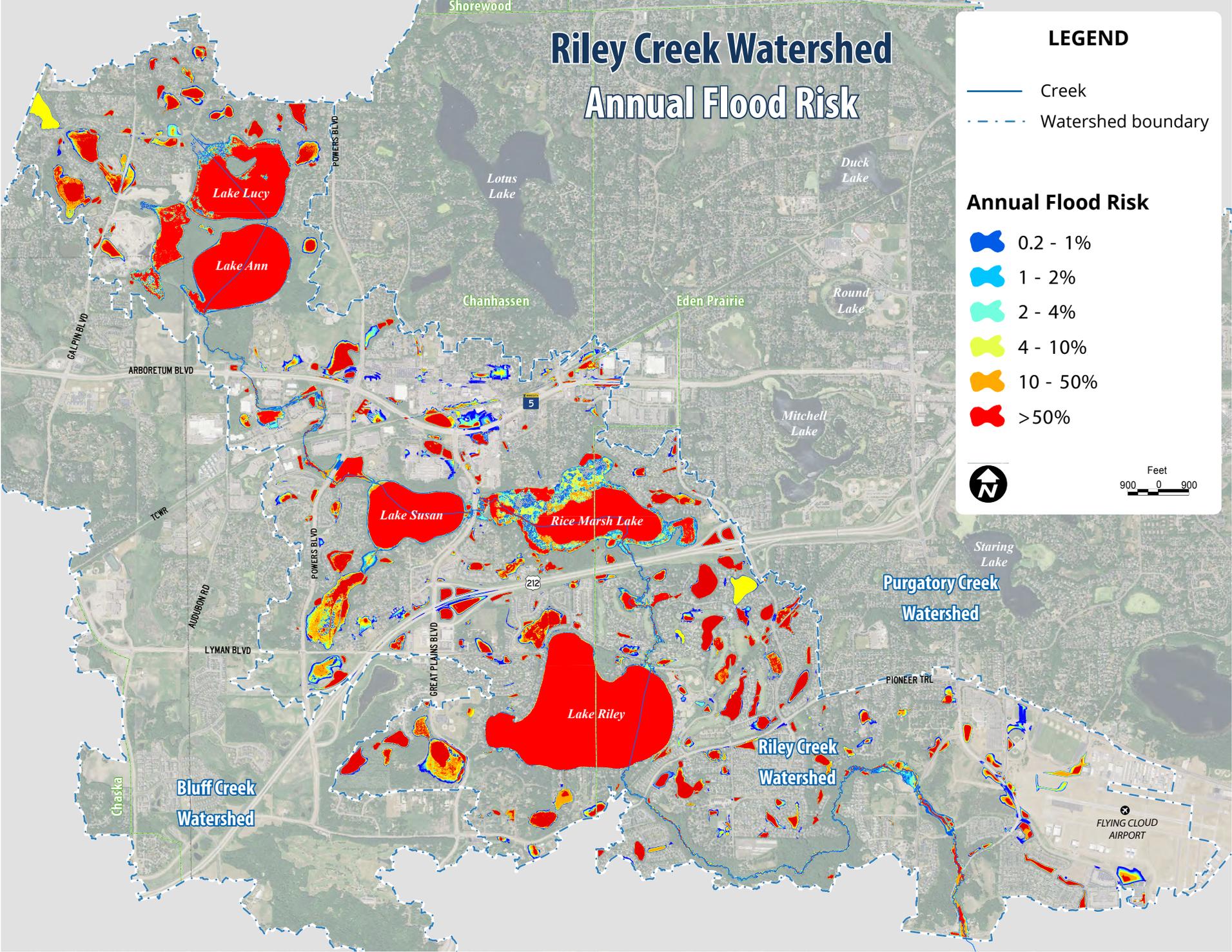
LEGEND

- Creek
- - - Watershed boundary

Annual Flood Risk

- 0.2 - 1%
- 1 - 2%
- 2 - 4%
- 4 - 10%
- 10 - 50%
- >50%

Feet
900 0 900



Purgatory Creek Watershed - NORTH

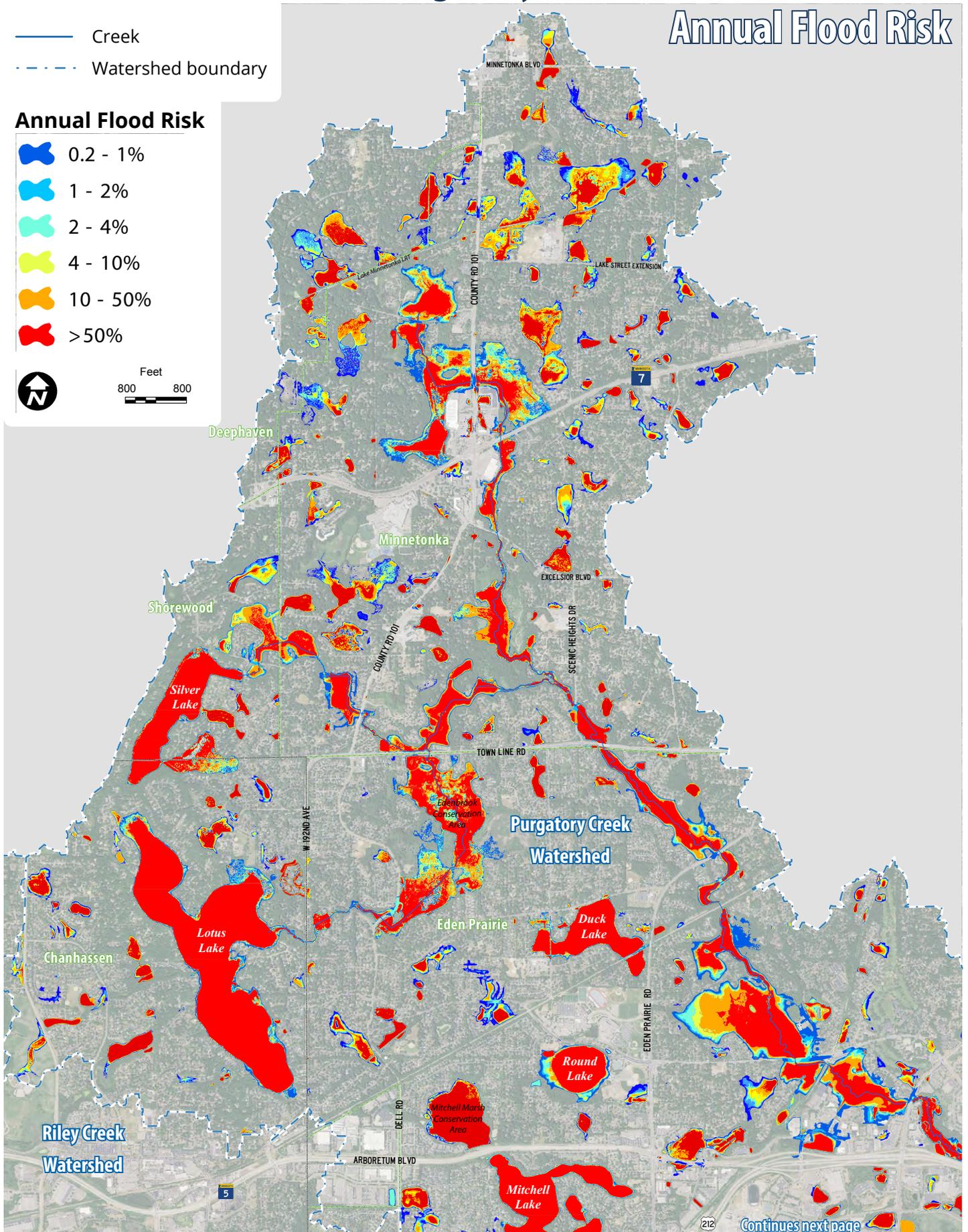
Annual Flood Risk

LEGEND

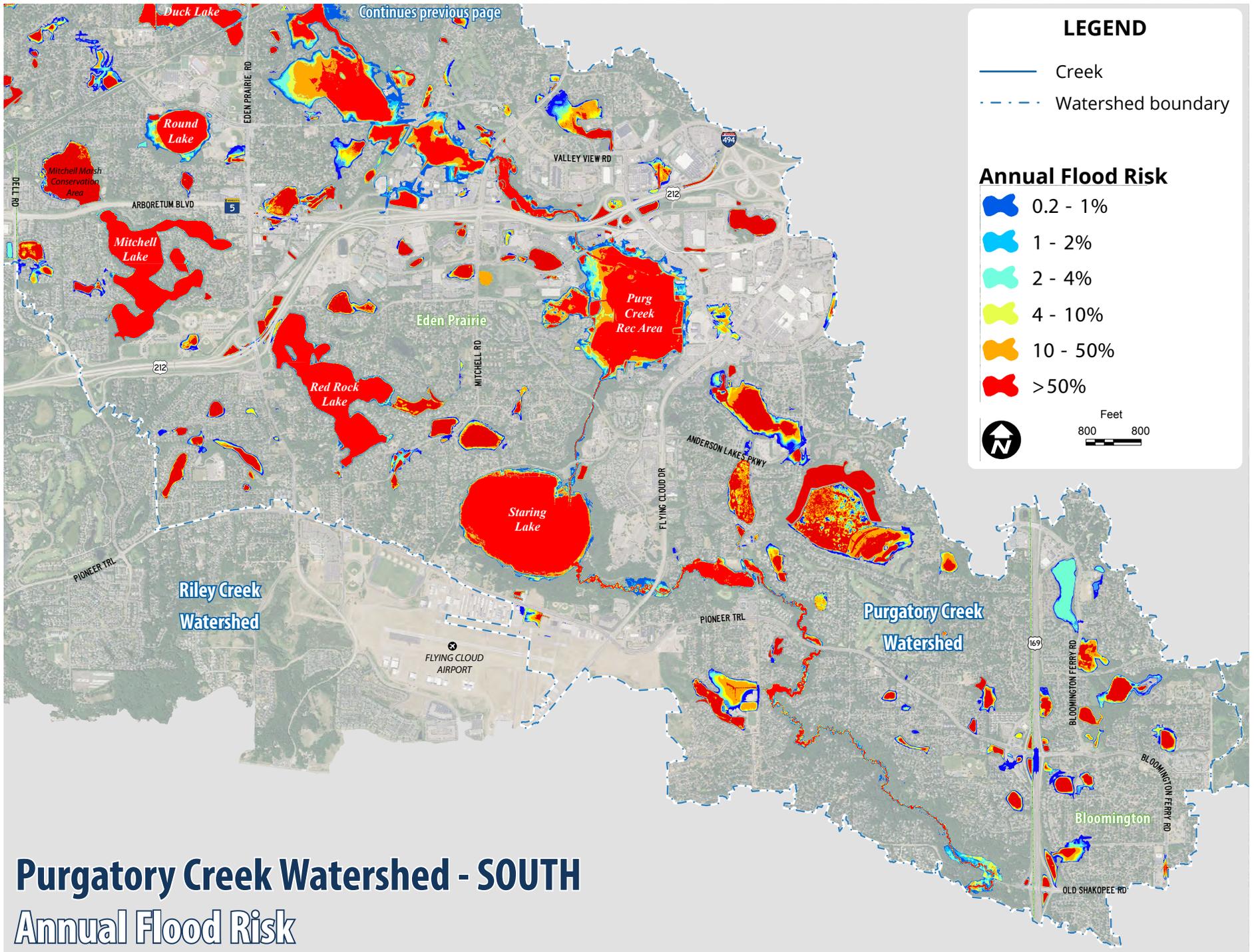
-  Creek
-  Watershed boundary

Annual Flood Risk

-  0.2 - 1%
-  1 - 2%
-  2 - 4%
-  4 - 10%
-  10 - 50%
-  >50%



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CHLORIDE REDUCTION INITIATIVES

The District is the fiscal agent and project lead partnering with area water management organizations for two chloride reduction initiatives: the Hennepin County Chloride Initiative (HCCI) and the Lower Minnesota Chloride Grant. Both programs target chloride pollution and are supported by a Watershed-Based Implementation Funding grant from the Board of Soil and Water Resources (BWSR). The grant from BWSR runs through the end of 2022.

Hennepin County Chloride Initiative

The first phase of the Hennepin County Chloride Initiative (HCCI) gathered input from applicators to understand barriers and needs from the industry. The [final report](#) is available on the District website.

The second phase of the initiative was development of site winter maintenance management plan templates. The templates were completed in 2021 and housed on the Minnesota Pollution Control Agency [statewide chloride resources webpage](#) under "Site winter maintenance management plan templates."

The third phase began in 2021 with completion scheduled in 2022. In this final phase, HCCI is working with a marketing firm to develop chloride reduction messaging and materials for property managers.

Lower MN Collaborative Chloride Reduction Grant

The Lower Minnesota Collaborative kicked off the Chloride Reduction Grant in 2020. This grant offers financial support and resources for businesses and local government units for tools and practices which

reduce, directly or indirectly, chloride use by that organization.

In 2021, one project was funded and completed. The City of Chaska purchased segmented plow blades to retrofit four primary plow vehicles. Operators estimated that the new blades will reduce salt use by 20-25 percent while still maintaining the same level of service.

The collaborative includes RPBCWD, Nine Mile Creek Watershed District, Lower Minnesota River Watershed District, and Richfield-Bloomington Watershed Management Organization. The group continues to meet and solicit applications. Two additional Chloride Reduction Grant applications (for a combined total of \$37,000) were pending final approval and a few other inquiries were received by the end of 2021. Below is a summary of grant funding status:

Chloride Reduction Grant Budget Summary

Funds distributed in 2021	\$9,618
Balance remaining	\$187,590



One of the segmented snowplow assemblies purchased by the City of Chaska in 2021 with cost-share funds from the Chloride Reduction Grant.

GROUNDWATER CONSERVATION

In spring 2020, the District launched the Groundwater Conservation Program. After extensive stakeholder engagement, the District decided to approach groundwater conservation with a three-pronged approach:



Groundwater Conservation Grants for Cities

The District is providing cost-share funding to five out of seven cities in our District to support the formation of water efficient technology rebate programs. Final reports are due from cities in summer 2022.



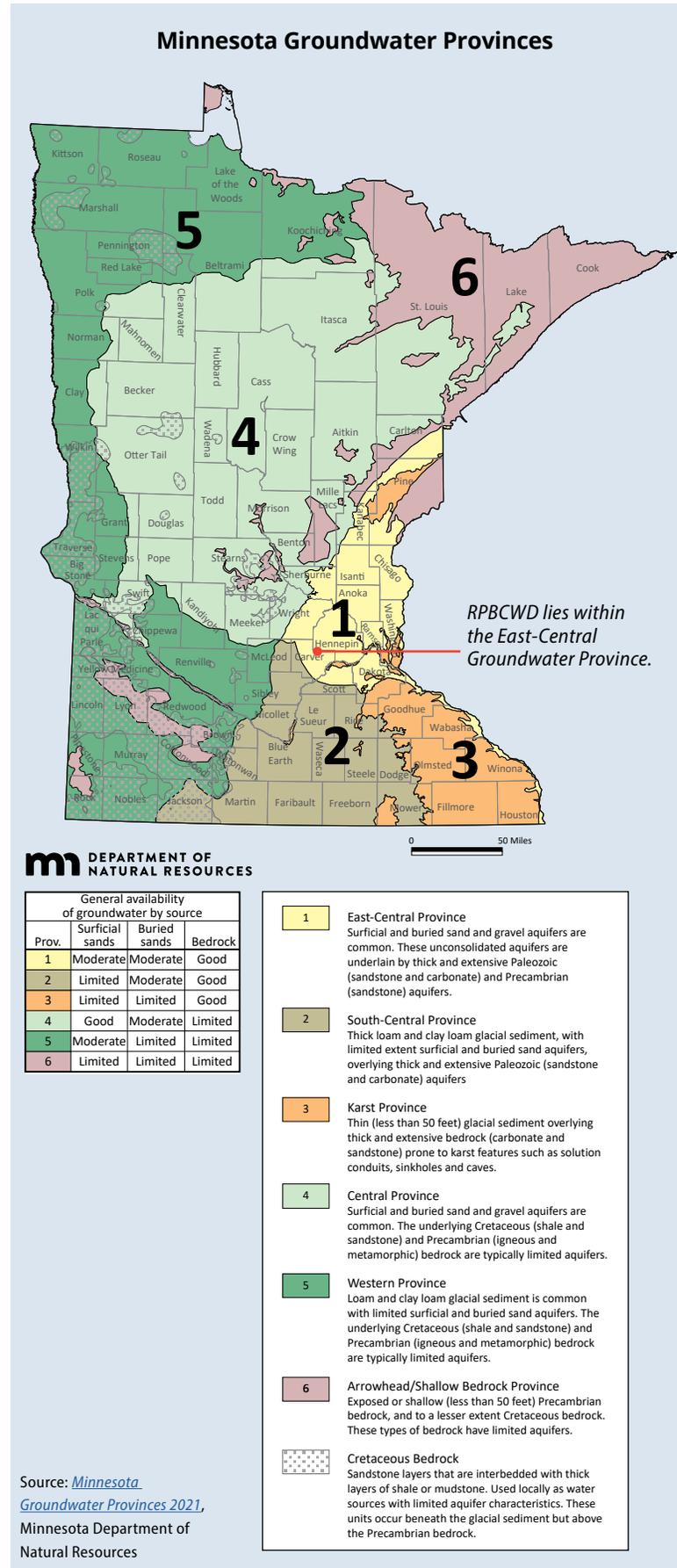
Education Collaborative

The District in collaboration with Nine Mile Creek Watershed District is spearheading an education collaborative. The main goal of this group is to provide city partners with educational materials that can accompany rebate programs. The effort was paused in 2021 due to staff turnover and will resume in 2022.



Smart Meter Pilot Program

The third component of the program is a smart water meter pilot program launched in collaboration with the City of Minnetonka. By the end of 2021, the City had purchased 50 smart meters. The pilot program wraps up mid-2022.



INCENTIVE PROGRAMS

Educator Mini-Grants

The District supports educators in their efforts to connect their students with our water resources. The Covid-19 Pandemic presented a set of unique difficulties for educators. Consequently, the District did not receive any applications for mini-grants in 2021.

Action Grants

Action grants are small, simple grants for projects to protect clean water. They are designed to help members of the community install fun, easy projects as a way to grow awareness throughout within communities in our watershed. The COVID-19 pandemic made it difficult for groups to work collaboratively on projects, a hallmark of the program. The District did not receive any applications for action grants in 2021.

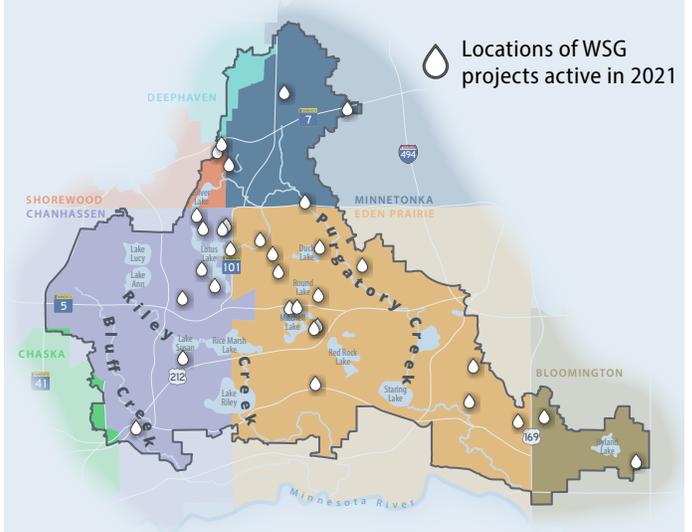
Watershed Stewardship Grants

The Watershed Stewardship Grant (WSG) Program provides cost-share and technical assistance for projects that protect and conserve water resources. Ideal projects increase public awareness of the vulnerability of local water resources and solutions to improve them.

In 2021, staff managed cost-share grants for 35 projects at various stages. Of these, 15 were initiated in 2020 and 20 were initiated in 2021.

Potential WSG applicants are required to begin an application with a site visit. In 2021, 85 site visits were requested with 77 site visits performed (eight requests not fulfilled due to ineligibility or the requester's lack of response). The initial or "kick off" site visits are typically

Active Watershed Stewardship Grantees in 2021



Who were the grantees?

Homeowners	27
Non-profits	7
Municipality	1



Where were they from?

Eden Prairie	19
Chanhassen	9
Minnetonka	3
Bloomington	2
Shorewood	2



What kind of project did they do?

Habitat restorations	17
Native plantings	5
Shoreline restorations	6
Rain gardens	3
Combination	3

performed by Seth Ristow with the Carver County Soil and Water Conservation District (SWCD). This ongoing partnership provides opportunity for district residents to discuss their project ideas with someone experienced in implementing a variety of best management practices including habitat restoration, erosion control, and rain gardens.

Of the 77 initial site visits in 2021, 32 resulted in submission of new grant applications with 21 of those resulting in executed cost-share agreements. Only one application was rejected outright due to lack of information from applicant. Eleven other applications remain on hold due to applicant request or lack of response.

Twenty-three WSG projects were completed in 2021 with total cost-share reimbursement of \$104,890. Before reimbursement, grantees must schedule and pass a project inspection (Carver County SWCD). The grantee must also submit a project report consisting of a summary description, photographs, and receipts before reimbursement is considered by grant coordinator. Grantees are required to maintain projects and submit reports for several years after installation.

At the end of 2021, 12 projects remained active with completion anticipated in 2022. The pending reimbursement for these project totals about \$80,000 (almost half of this is earmarked for a single large municipal stormwater project).

A general overview of activities in 2021 is provided in the table below. For an explanation of the WSG process with tasks performed by grantees and staff, please see the "Task Timeline" on the next page.

2021 WSG Activities	Quantity
Site visits performed	77
Grant applications submitted	32
Executed grant agreements	21
Projects completed (executed 2020 or 2021)	23

Some WSG cost-share projects installed in 2021.

Pax Christi woodland habitat restoration



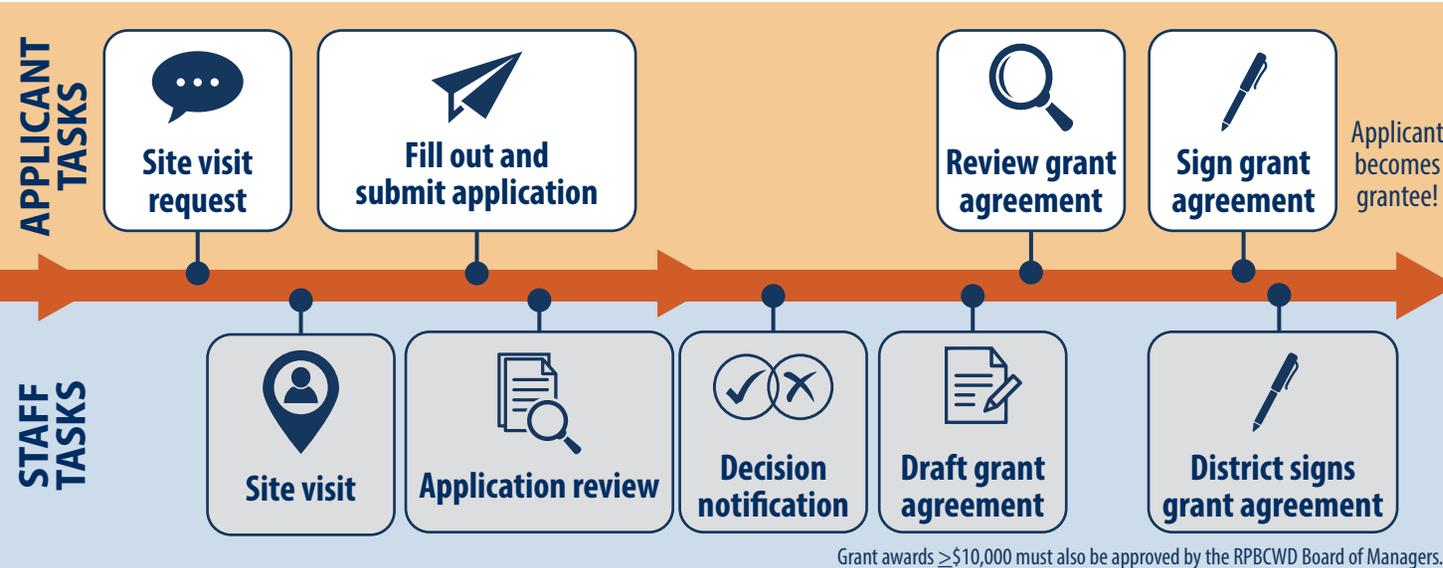
Mosman shoreline restoration



Ullmann hillside habitat restoration

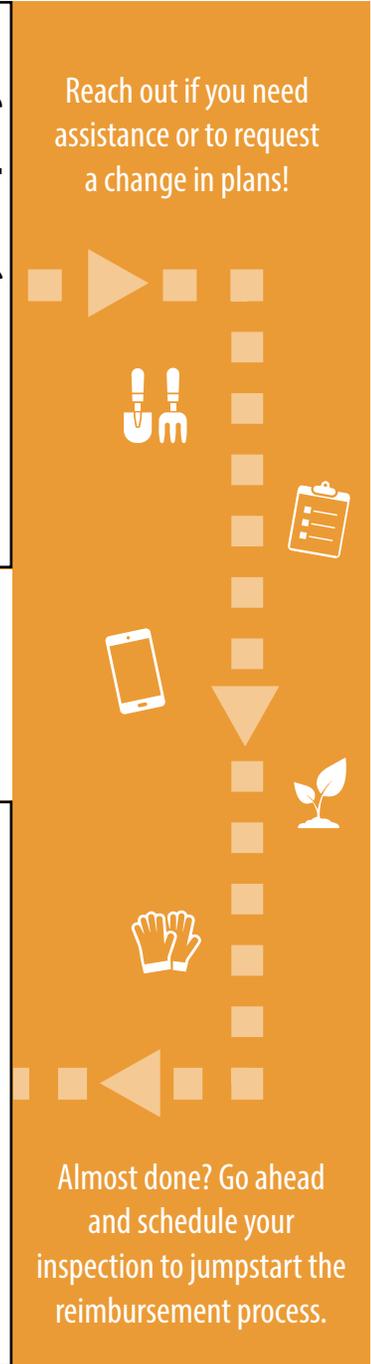


BEGIN
Part 1: Application

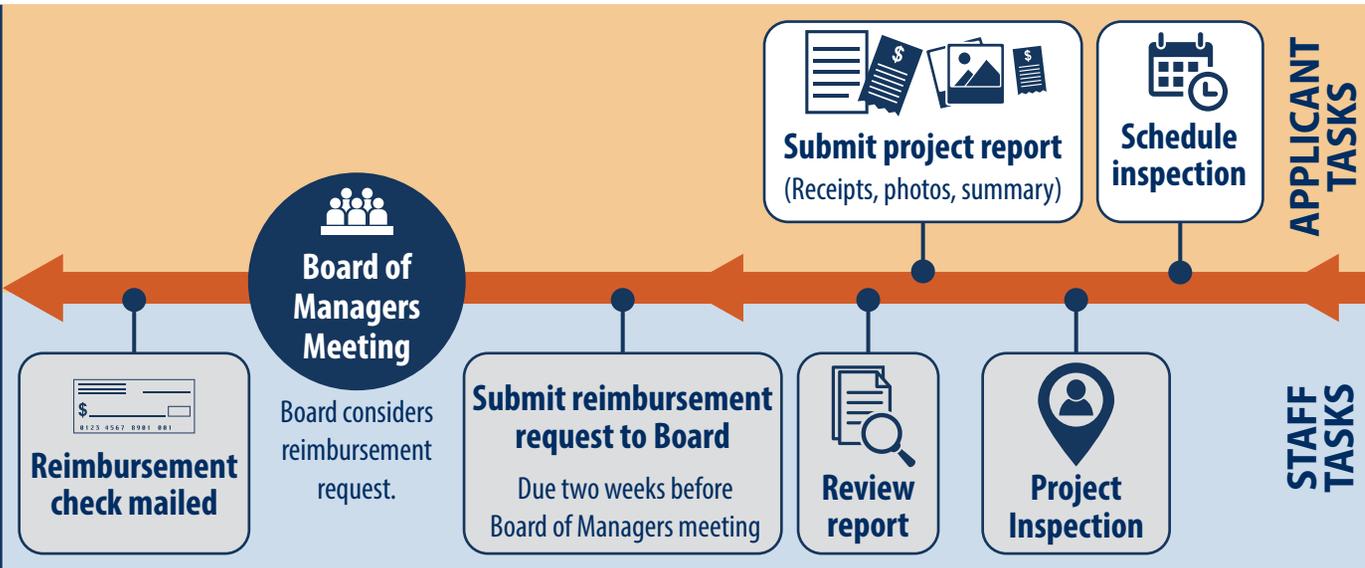


Grant awards \geq \$10,000 must also be approved by the RPBCWD Board of Managers.

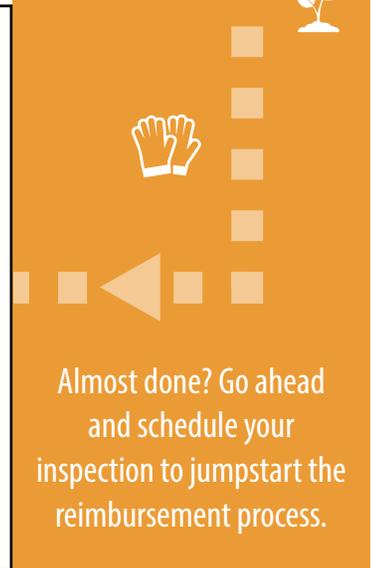
Part 2: Build your project



Grantee reimbursed
After reimbursement: Annual check-ins from grantees for 5 years



Part 3: Reimbursement



EDUCATION & OUTREACH

There are many ways to have an impact on clean water, and we can't do it alone. The District's Education & Outreach program aims to support the goals outlined in the 10-Year Plan by fostering an engaged community and offering opportunities for involvement.

The District's commitment to community engagement continued in 2021 despite the challenges presented by COVID-19. This section explores the ways the Education & Outreach program continued to provide opportunities for stewardship and build a network of engaged residents.

Events

Tree Giveaway

The gravel beds outside our office spent the summer growing saplings and shrubs so that their roots could grow dense and hardy. While in a gravel bed, a sapling will grow at its normal rate above ground, but below ground will form a fibrous root system that will give it an advantage when it's eventually planted in the ground. Planting trees provides a full range of ecosystem services and is an excellent way to minimize stormwater runoff. In total, RPBCWD gave away 64 saplings to community members to plant on their properties.



Cycle the Creek

Cycle the Creek is the District's annual bike tour along one of the three creeks that give us our name. In the Fall of 2021, 15 riders joined us for a 6-mile ride along Purgatory Creek, making stops along the way to learn about the District's ongoing efforts to keep it clean.



Photo Contest

RPBCWD held a photo contest from June-October, with the winning photographs being featured in our 2021 Annual Communication. 24 photographers submitted 112 photographs of natural scenes found within the boundaries of our district, and judging was completed by staff and the Citizen Advisory Committee.



Photo of Bald Eagle at Purgatory Creek Recreation Area by Debby Bluem (2021 photo contest submission).

Volunteer Program

Adopt-a-Drain

In 2021, 32 new participants adopted 77 storm drains within the Riley Purgatory Bluff Creek Watershed District, preventing 2,450 pounds of debris from entering our waterways. Led by Hamline University, Adopt-a-Drain allows individuals, businesses and organizations to adopt a storm drain in their neighborhood and pledge to keep it clear of leaves and debris throughout the year. Participants track their impact by logging the amount of debris cleared into an online portal. Homeowners who have adopted drains then receive small yard signs they can place near their drains, educating their neighbors about their positive impact on clean water. Across all of Minnesota, the Adopt-a-Drain program kept 144,391 pounds of debris out of waterways in 2021.

Adopt-a-Dock

Adopt-a-Dock is a citizen science initiative where lakeshore residents monitor for aquatic invasive species. In 2021, 31 participants used passive plate samplers to monitor for zebra mussels on Duck, Lucy, Lotus, Mitchell, Red Rock, Riley, and Silver lakes.

Service Learners

Service learners are college students or other community members who gain first-hand experience at the district through volunteering. In 2021, seven service learners from the University of Minnesota contributed over 140 hours to the District.



Photo courtesy of Adopt-a-Drain.org

Local Leaders Program

This effort offers educational programming, provides resources, and creates effective tools to assist and enable community leaders to make informed decisions regarding water resources. It may include activities such as participating in the University of Minnesota Extension's NEMO program (Non-point source Education for Municipal Officials), presentations to city councils and commissions, and watershed tours or workshops. Due to Covid-19, the District did not implement the program in 2021.

Youth Outreach

Although most youth events and classroom visits were unable to take place in 2021 due to the COVID-19 pandemic, staff was able to continue its partnership with the Eden Prairie Outdoor Center. In fall 2021, 204 fourth grade students met with RPBCWD staff at the Outdoor Center, where they tested the lake's dissolved oxygen and chloride levels and learned how their personal actions impact the health of our lakes (images below). Students and district staff will return in the winter and spring of 2022 to see how water test results change through the seasons.



Continuing Education

Smart Salting Trainings

In 2021, RPBCWD hosted four Smart Salting trainings led by the Minnesota Pollution Control Agency. A total of 85 city staff, property managers, business staff, and winter maintenance professionals came together to learn how to reduce salt use while still maintaining a high level of safety and service. Participants learned of the hidden costs of salt use and the permanent environmental impacts of chloride pollution, were taught sustainable and efficient maintenance strategies, and were given resources to help fund smart salting practices, manage liability issues, and empower their staff and visitors to understand and participate in their smart salting measures. At the end of the training, attendees had the option to complete an online test to become Smart Salting Certified, adding their names to a list of certified individuals in Minnesota.



How not to salt. Overuse of winter salt corrodes infrastructure, wastes money, and pollutes lakes, rivers and streams.

Communications Program

The District's communication efforts encompass the various ways to convey our message of protecting and restoring our water resources to our community.

Annual Communication

In compliance with [Minnesota Statute §103B.227, subdivision 4](#), the District created and distributed an Annual Communication. The 2021 Annual Communication took the form of a 2022 Calendar, and included general district information, updates on projects, and ways community members can help improve our water resources. 2,000 copies of the Annual Communication were sent to local leaders, distributed to city halls, libraries, and community centers across the District, and handed out at community events. For more information, see the Administration & Planning section of this report.

Newsletters

Electronic newsletters are sent quarterly to mailing list subscribers who opt-in for district updates. Subscribers can also opt to receive emails for volunteer opportunities and board meeting notices. Due to staff turnover, spring and summer newsletters were not distributed. A summary of fall and winter newsletter is provided below.

Newsletter Summary

Issue	Recipients	Opens	Link clicks
Fall (Sept 2021)	483	177	27
Winter (Dec 2021)	492	190	9

Lake Fact Sheets

Fact sheets for each lake were updated with previous year's water quality data. The fact sheets were made available on the website, in the office's front vestibule, and upon request.

Mailings

The District utilizes direct mailings to provide residents with information and project updates. In 2021 staff sent over 800 postcards.

Purpose of mailing	Number mailed
Lotus Lake invasive plant treatment notification	143 postcards
Lake Susan invasive plant treatment notification	21 postcards
Lake Riley invasive plant treatment notification	88 postcards
Red Rock Lake invasive plant treatment notification	96 postcards
Mitchell Lake invasive plant treatment notification	45 postcards
Encourage natural shoreline to residents on Lotus, Riley and Susan lakes	278 postcards
Promote Smart Salting training for property managers	136 postcards



Social Media

The District currently posts content on three social media platforms including Facebook, Instagram and Twitter under the username @rpbcwd.

Platform	Posts in 2021	New followers in 2021	Total followers by end of 2021
Twitter	6 tweets	16	252
Instagram	19 posts	78	416
Facebook	49 posts	52	308

Follow us at
@rpbcwd

RileyPurgBluff WD @RPBCWD · Aug 23, 2021

Join us and the @MnPCA on 9/21 for a course on how to integrate science with practical winter maintenance while minimizing impacts on the environment.



eventbrite.com
MPCA Smart Salting for Parking Lots and Sidewalks
This 5-hour course will help you learn how to integrate science with practical winter maintenance techniques.



rpbcwd
St. Hubert Catholic School



11 likes

rpbcwd Staff visited St. Hubert Catholic School today to check out the future site of the St Hubert Opportunity Project. Four areas of the campus will be retrofitted to include better stormwater management practices, such as tree trenches and rain gardens. This area will be the site of a prairie restoration project

#raingarden #prairie #nativeplants #stormwater #environmentaleducation #chanhassen
June 8, 2021

rpbcwd
Lotus Lake



Liked by liz4bz and 27 others

rpbcwd Staff has had a busy morning electrofishing on Lotus Lake! Intern Abby nabbed this impressive Carp.

Common Carp are an invasive species that were intentionally introduced to the Midwest on the late 1800's as game fish. They spawn rapidly and can be detrimental to the health of our lakes. These bottom-feeders stir up phosphorus-rich sediments while prowling for food in the lake bed, making the phosphorus available as food for algae.

rpbcwd



Liked by liz4bz and 19 others

rpbcwd You get a tree! You get a tree! Everybody gets a tree!

The gravel beds outside our office have been hard at work growing over 100 trees and shrubs, and we want to give them to you! Planting trees on your property provides a full range of ecosystem services, and are an excellent way to minimize stormwater runoff.

Learn more and reserve a tree at the link in bio.

rpbcwd · Follow



14 likes

rpbcwd Science experiment or New Year's Eve party lighting? Maybe both!

Our office is aglow with the light from these fluorescent grow lights, which are incubating turions, the primary reproductive structure of the invasive curly-leaf pondweed, collected from Lake Mitchell. To assess the turion viability of the lake, turion samples were separated by sprouted or unsprouted. Unsprouted turion samples spent a month in refrigeration to replicate fall conditions of Minnesota lakes and to break their dormancy. All remaining unsprouted turions are now being treated with replicated spring/summer conditions by receiving 14 hours of light per day from these growing lamps. After 3 months of this incubation, we will be able to calculate the final turion viability of Lake Mitchell by finding the proportion of total turion samples that sprouted. Tracking a lake's turion

rpbcwd
Purgatory Creek



Liked by liz4bz and 10 others

rpbcwd We love seeing what you discover in our watershed! Rajendran Thiagarajan captured this Great Blue Heron grabbing a Pumpkinseed Sunfish for lunch on Purgatory Creek.

Have you taken a photo of a natural scene within the District bounds? Show us! Our photo contest is open through October at the link in bio.

rpbcwd



How to care for my lawn in a drought?

53 views · Liked by liz4bz

rpbcwd When it comes to our lawns, we want them to be healthy and thriving – but it turns out that we may be doing more harm than good with our lawn care practices. Following these tips will not only help your lawn survive a drought, but will help establish your lawn to better withstand the next period of water stress.

Read more at the link in our bio.

#drought #lawncare #water #grass #lawn #minnesota

rpbcwd



Liked by liz4bz and 31 others

rpbcwd Happy Tuesday! This green treefrog was spotted cooling off in water collected from a rain barrel over the weekend.

In addition to providing baths for frogs, rain barrels help to minimize the amount of runoff traveling across your property and promote water reuse. You can use the water collected from a rain barrel to water a garden or irrigate your lawn.

Riley Purgatory Bluff Creek Watershed District
About 8 months ago

A story on MPR yesterday discussed the growing number of lakes in Minnesota infested with zebra mussels.

"Early detection offers the best chance of managing zebra mussels and other invasive species – and preventing them from spreading to other lakes," said Megan Weber, an educator with the University of Minnesota Extension and the Minnesota Aquatic Invasive Species Research Center. Thank you to our Adopt-a-Dock volunteers who monitor our lakes for signs of zebra mussels.



MPRNEWS.ORG
Invasive zebra mussels found in more Minn. lakes
About 3 percent of Minnesota lakes are infested with zebra mussels, altho...

Water Quality Monitoring

The water quality monitoring program supports the District's 10-year Water Management Plan to remove waterbodies from the Impaired Waters list maintained



Staff downloads lake level sensor data.

by the Minnesota Pollution Control Agency (MPCA). Data collected during the field season (April-September) helps determine sources of water quality impairments and provides information needed to design and install improvement projects.

For a deeper dive into the details, download the *2021 Water Resources Report* on rpbcmd.org.

What's that abbreviation?

Abbreviation	What it stands for	What it indicates
Chl-a	Chlorophyll-a	Level of algae growth
CL	Chloride	Level of salt pollution
DO	Dissolved oxygen	Oxygen level of water
TP	Total phosphorus	Level of all phosphorus
TDP	Total dissolved phosphorus	Level of all available phosphorus
OP	Ortho phosphorus	Level of biologically available phosphorus
TSS	Total suspended solids	Level of silt/sediment suspended in water



Staff collect lake water samples in bottles to send off for lab testing.

How was water quality data collected in the District in 2021?

Method	Description	Data collected	Number of sites/units	Purpose
Regular bi-weekly sampling	On a bi-weekly basis at set locations, staff record data on-site and collect samples for lab testing. In streams, staff use a meter to measure a flow rate. In lakes, staff use a Secchi disk to measure clarity. <i>Waterbody types: Streams, lakes, high-value wetlands</i>	TP, OP, CL, Chl-a, TSS Water flow rate (streams)	Streams: 18 sites Lakes: 13 sites Wetlands: 2 sites	Consistent sampling locations allow comparison from year-to-year and of trends over time.
Automated sampling units	In-stream unit collects continuous data. Unit also collects water samples during storm events. <i>Waterbody types: Streams</i>	Continuous: Water level, temperature, flow rate Storm events: TP, OP, Chl-a, TDP, TSS	Streams: 4 units	Units moved as needed to collect data before implementation of improvement projects.
Enviro DIY units	In-stream unit collects data every 15 minutes. Data uploaded and available to anyone at monitormywatershed.org <i>Waterbody types: Streams, lakes, stormwater ponds, BMPs</i>	Water level, temperature, conductivity, turbidity	Streams: 5 units Lakes: 8 units	Units moved as needed to collect baseline data and data for hydraulic/hydrology modeling.
Lake level sensors	In-lake unit collects continuous data. <i>Waterbody types: Lakes, high-value wetlands</i>	Water level	Lakes: 7 sensors	Collect lake level data.
WOMP stations	In-stream unit collects continuous data. Unit also collects water samples during storm events. <i>Waterbody types: Streams</i>	Nitrogen, chloride, TSS, TP, OP, Chl-a, E coli	3 stations	Permanent stations owned by Metropolitan Council to monitor water quality trends.

Stream Status

In 2021, staff collected and analyzed water samples every two weeks, April through September, to determine average water quality of streams.

The District monitors streams for six impairment categories defined by the MPCA. When a measured value does not meet the standard, the stream is designated as impaired for the category. In 2021, the number of impairments for Bluff and Purgatory creeks dropped slightly, but rose significantly for Riley Creek. In Riley Creek, stagnation of low water levels increased TP impairment and lowered DO levels. The table on the right shows a comparison between 2021 and the previous year. The map below shows the number impairments by stream monitoring segment.

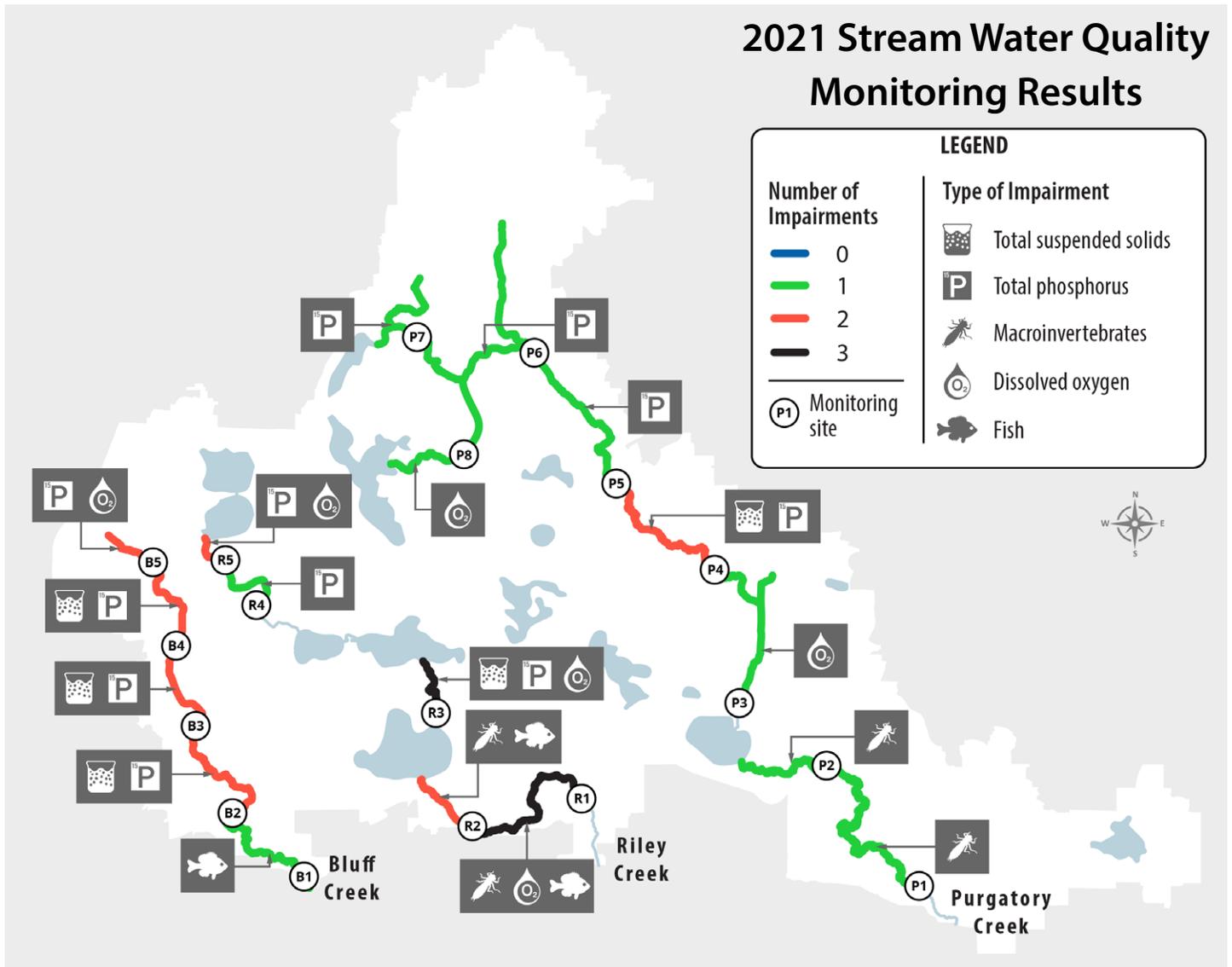


Looking for more details?

Download the
2021 Water Resources Report
online at rpbcd.org/annualreport.

Stream name	Impairments per year	
	2020	2021
Bluff Creek	10	9
Riley Creek	6	11
Purgatory Creek	11	9
TOTAL	27	29

2021 Stream Water Quality Monitoring Results



Creek Restoration Action Strategy (CRAS)

The RPBCWD developed the Creek Restoration Action Strategy (CRAS) to prioritize creek reaches, sub-reaches, or sites, in need of stabilization and/or restoration. The District identified eight categories of importance for project prioritization:

- Infrastructure risk
- Erosion and channel stability
- Public education
- Ecological benefits
- Water quality
- Project cost
- Partnerships
- Watershed benefits

These categories were scored using methods developed for each category based on a combination of published studies and reports, erosion inventories, field visits, and scoring sheets from specific

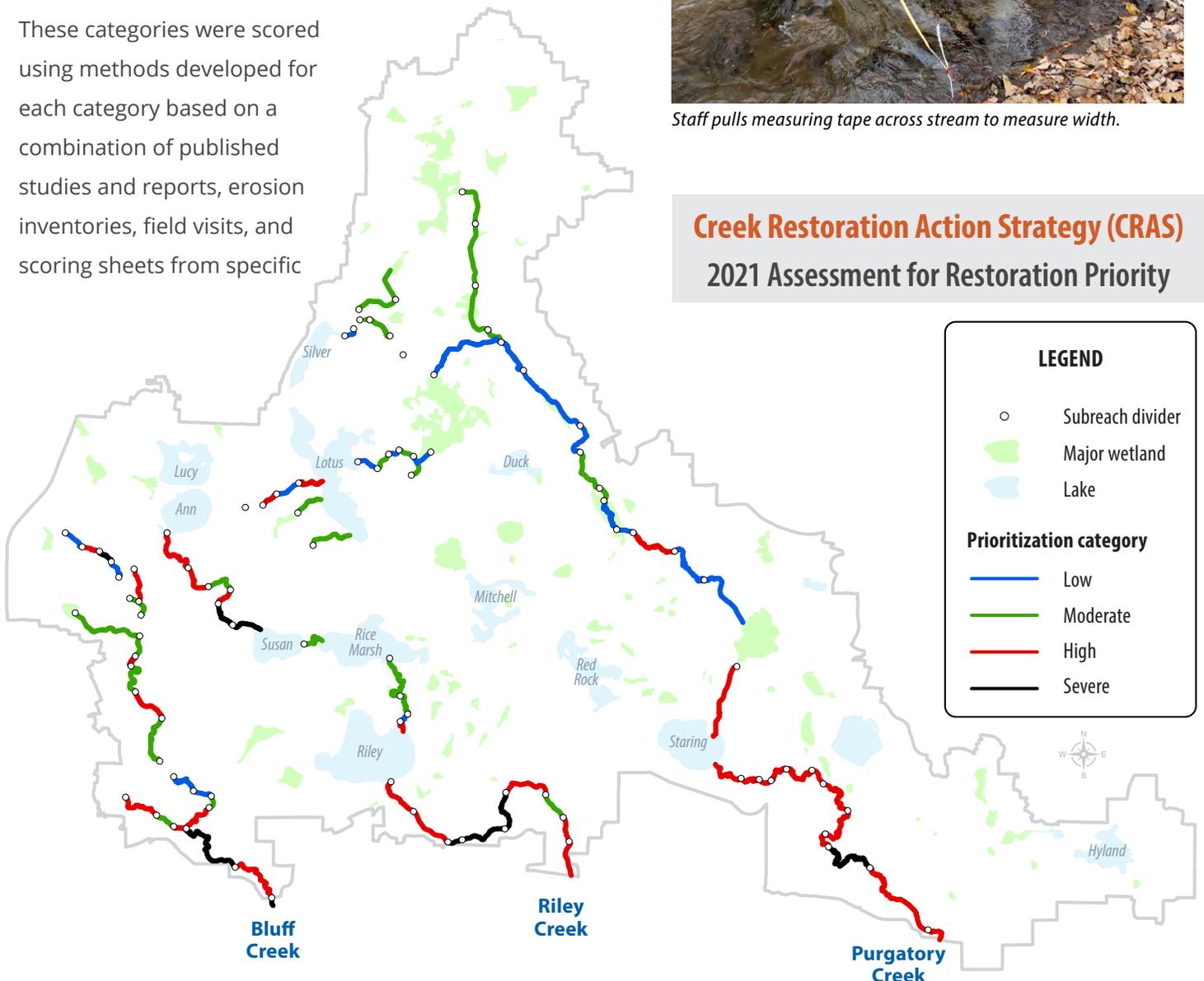
methodologies. Final tallies of scores for each category, using a two-tiered ranking system, were used to prioritize sites for restoration/remediation.

More information on CRAS can be found on the District website rpbcwd.org.



Staff pulls measuring tape across stream to measure width.

Creek Restoration Action Strategy (CRAS) 2021 Assessment for Restoration Priority



2021 Lake Summaries

During the 2021 monitoring season, 13 lakes and two high-value wetlands were monitored in the District. Regular water quality lake sampling was conducted on each lake approximately every two weeks throughout the growing season (June-September).

In 2021, Lake Ann, Lake Lucy, Lake Riley, Rice Marsh Lake, Silver Lake, Round Lake, Duck Lake, and Lake Idlewild met all three MPCA standards. Overall, water quality improved in 2021 and all lakes met the MPCA water clarity standard. The Riley Chain of Lakes 2021 water quality remained relatively unchanged from 2020. Lake Riley had the highest recorded summertime Secchi disk average (4.82 m) since data

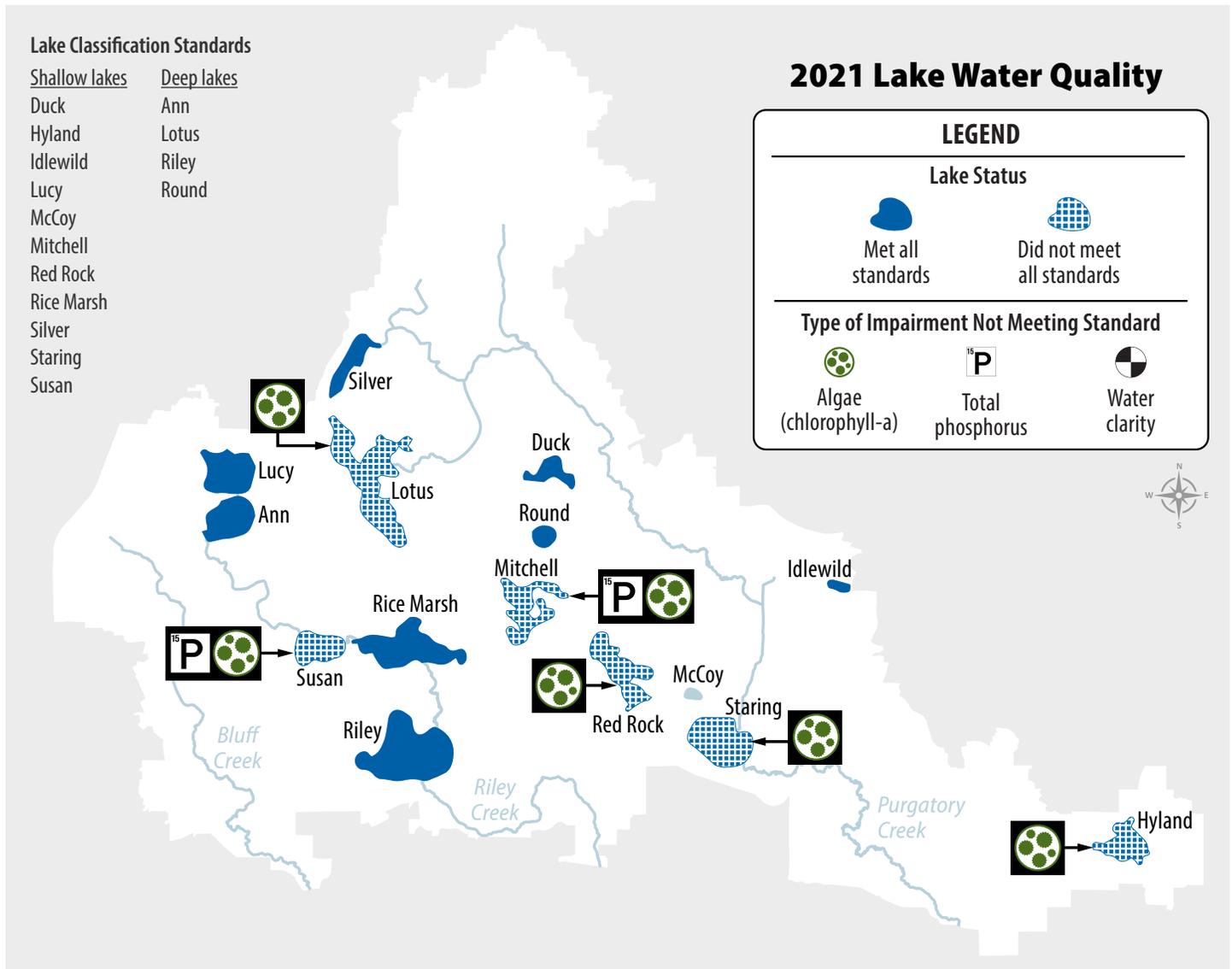


Looking for more details?

Download the
2021 Water Resources Report
online at rpbcd.org/annualreport.

collection began in the early 1970s. Rice Marsh Lake continued to meet all standards following the alum treatment which occurred in 2018. Like 2020, Lake Susan did not meet the TP and Chl-a standard in 2021. Phytoplankton sampling in July and August captured historically high and potentially toxic levels of blue-green algae (cyanobacteria) in Lake Susan.

Mitchell Lake improved from 2020 by meeting the water clarity standard while still not meeting the Chl-a



and TP although concentrations decreased. Silver Lake and Lake Idlewild of the Purgatory Chain of Lakes improved and met all standards in 2021. Hyland Lake had improved water quality in 2020 and 2021 which likely can be attributed to the alum treatment in 2019 but failed to meet the Chl-a standard in 2021. Both Red Rock Lake and Lotus Lake did not meet any of the MPCA standards in 2020 but improved to meeting all but the Chl-a standard in 2021. All lakes met the proposed nitrate/nitrite water quality standard and chloride standard.

In addition to regular sampling, the District monitored water levels on lakes, assessed carp populations on seven waterbodies, and sampled zooplankton and phytoplankton populations in five lakes.

Staff were able to remove 2,177 pounds of Common Carp (*Cyprinus carpio*) from the District in 2021. The majority of these fish (1,930 pounds) were removed from the Purgatory Chain of Lakes.

The District also monitored public access points and analyzed water samples for the presence of zebra mussels in 14 lakes. In 2021, zebra mussel veligers and adults were found only in Lake Riley (first recorded in 2018). In Lotus Lake, water samples processed in 2021 tested positive for the presence of environmental DNA (eDNA) from zebra mussels.

In 2021, point intercept surveys were conducted on Hyland (TRPD), Susan, Red Rock, McCoy (by City of Eden Prairie), Idlewild, Staring, and Riley lakes. In spring 2021, herbicide treatments were applied on Lotus, Mitchell, Riley, Susan, and Red Rock for the invasive aquatic plant, Curly-leaf Pondweed (*Potamogeton crispus*).

2021 AIS Monitoring and Treatments

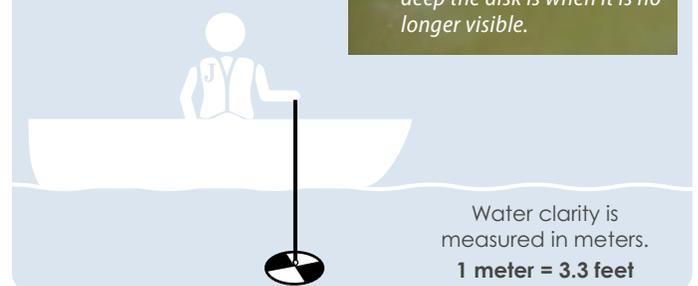
Lake name	Adult zebra mussel monitoring	Zooplankton & phytoplankton monitoring	Point-intercept vegetation survey	Invasive aquatic plant treatment
Ann	✓			
Duck	✓			
Hyland	✓		✓	
Idlewild			✓	
Lotus	✓	✓		✓
Lucy	✓			
McCoy			✓	
Mitchell	✓			✓
Red Rock	✓		✓	✓
Rice Marsh		✓		
Riley	✓	✓	✓	✓
Round	✓			
Silver	✓			
Staring	✓	✓	✓	
Susan	✓	✓	✓	✓

How Water Clarity is Measured

A Secchi disk is a simple tool for measuring how deep sunlight penetrates into a lake's water column. The measurement indicates how much fine sediment, algae, and other suspended particles are in the water. Reduced water clarity may be harmful to aquatic plants and animals.



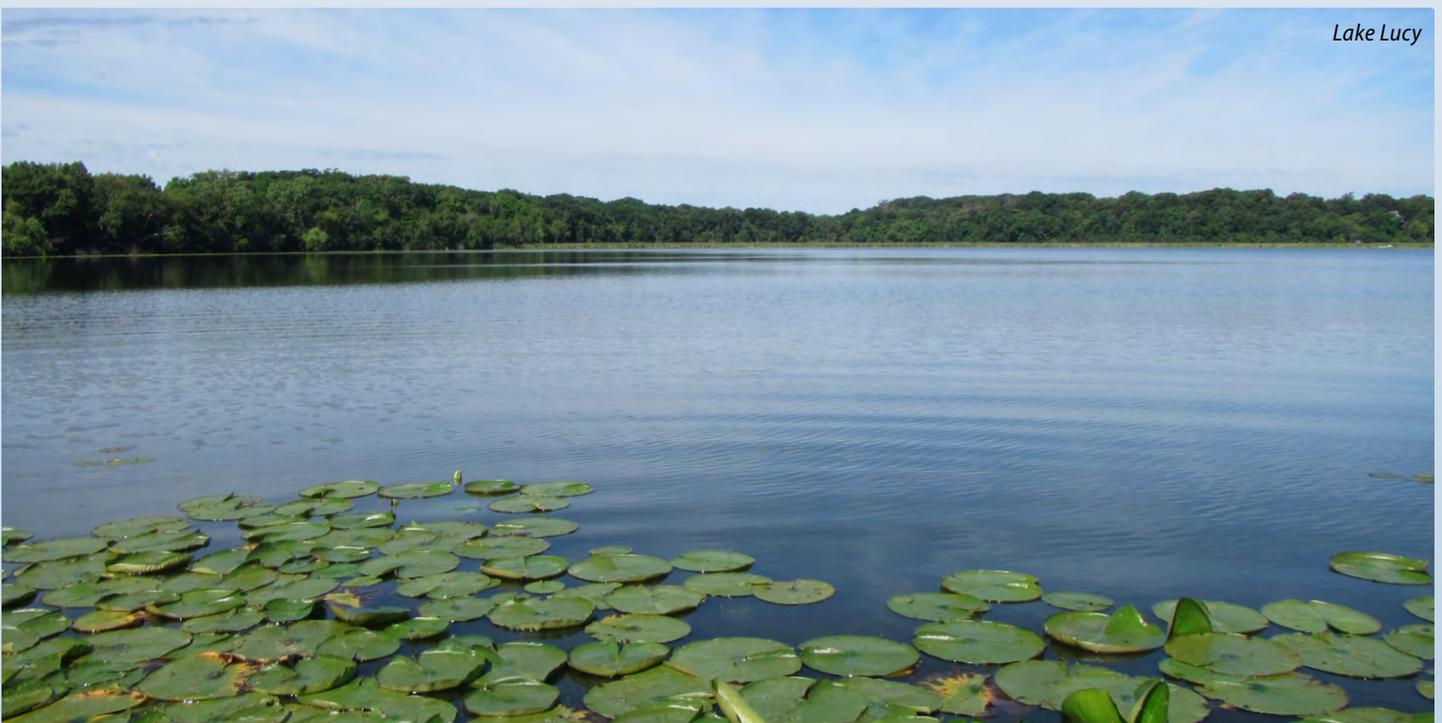
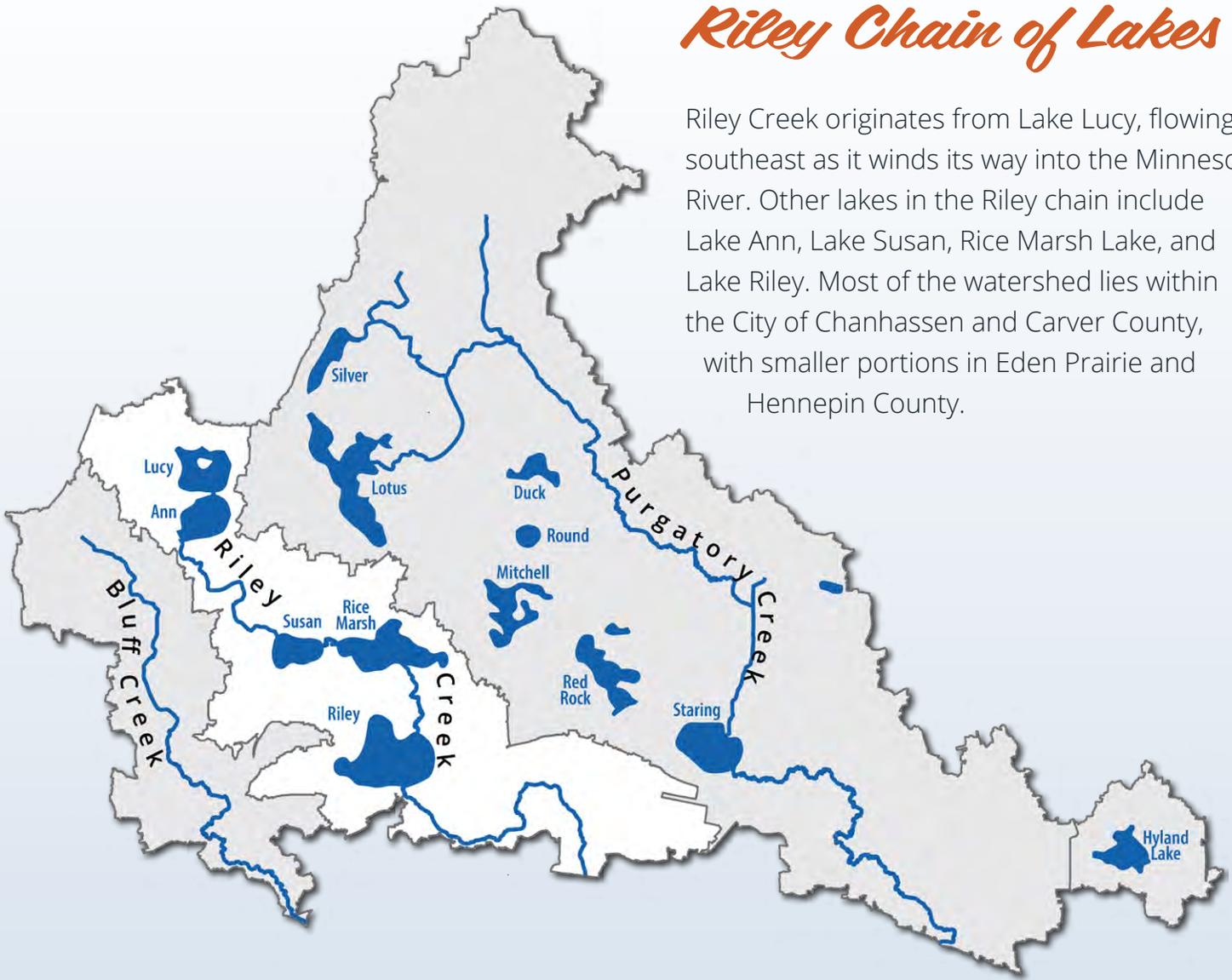
Staff member lowers a Secchi disk into a lake to measure water clarity. The tape measure attached to the disk indicates how deep the disk is when it is no longer visible.



Water clarity is measured in meters.
1 meter = 3.3 feet

Riley Chain of Lakes

Riley Creek originates from Lake Lucy, flowing southeast as it winds its way into the Minnesota River. Other lakes in the Riley chain include Lake Ann, Lake Susan, Rice Marsh Lake, and Lake Riley. Most of the watershed lies within the City of Chanhassen and Carver County, with smaller portions in Eden Prairie and Hennepin County.



Lake Lucy

Lake Ann

Total Phosphorus

Lake Ann has no significant historical trend in average TP concentrations. The lake has consistently achieved the MPCA standard for deep lakes. In 2021, the TP level for Lake Ann was 0.023 mg/L.

Chlorophyll-a

There is no significant historical trend for chlorophyll-a in Lake Ann. In 2021, the lake had an average chlorophyll-a reading of 8.3 µg/L, which achieved the MPCA standard for deep lakes by a strong margin.

Water clarity

Since data collection began on Lake Ann in the early 1970s, the average Secchi disk depth has consistently met the MPCA deep lake standard (1.4 meters) across all years including 2021 (3.4 meters). This is an increase from 2020, which had an average Secchi reading of 2.4 meters.

Fish

As part of the District's common carp management plan, Lake Ann was electrofished to estimate the adult carp biomass within the lake. No adults were captured in 2021. Very few or no carp have been captured since 2008 when monitoring began.



Lake Ann in late winter.

Characteristics

Lake Ann

Size	119 acres
Average depth	16.8 feet
Max depth	40 feet
MPCA lake classification	Deep lake
Impairment listing	Mercury
Common fish	Bluegill, Northern Pike, Largemouth Bass, Yellow Perch, Pumpkinseed Sunfish
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Common Carp, Brittle Naiad



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Deep Lakes
Total Phosphorus (mg/L)	0.025 ★	0.023 ★	< 0.04
Chlorophyll-a (µg/L)	8.1 ★	8.3 ★	< 14
Secchi (meter)	2.6 ★	3.4 ★	> 1.4

Lake Lucy

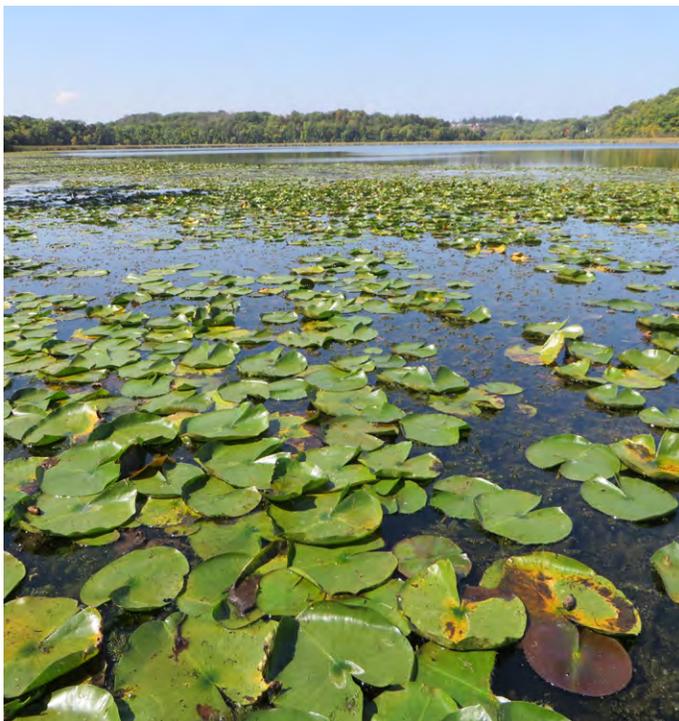
Total Phosphorus

Since 1972, there has been no significant trend in the average TP concentrations, however the last few years have had declining levels. Historically, Lake Lucy average TP concentrations have been primarily above the shallow lake MPCA standard of 0.06 mg/L. In 2021, the average TP concentration of Lake Lucy was 0.036 mg/L, which met the MPCA shallow lake standard.

Chlorophyll-a

Similar to TP, there has been no significant trend in the average chlorophyll-a concentrations in Lake Lucy. However the last few years have seen declining levels. Lake Lucy's average chlorophyll-a concentrations were 14 µg/L, meeting the MPCA standard for shallow lakes (< 20 µg/L).

Native water lilies on Lake Lucy provide abundant habitat for aquatic wildlife such as ducks and fish.



Water Clarity

Since 1972, there has been no significant trend in average water clarity readings in Lake Lucy. At 1.9 meters, the average water clarity reading for 2021 met the MPCA standard for shallow lakes.

Characteristics

Lake Lucy

Size	88 acres
Average depth	6.5 feet
Max depth	20 feet
MPCA lake classification	Shallow lake
Impairment listing	Mercury
Common fish	Bluegill, Northern Pike, Yellow Bullhead, Black Crappie, Pumpkinseed Sunfish
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Common Carp



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.060 ★	0.036 ★	< 0.06
Chlorophyll-a (µg/L)	29.0	14.0 ★	< 20
Secchi (meter)	1.4 ★	1.9 ★	> 1.0

Rice Marsh Lake

Total Phosphorus

Since 1972, average TP concentrations have declined which were further reduced by the first dose of the alum treatment which occurred in the fall of 2018. In 2021, the average TP was 0.037 mg/L which well below the shallow lake MPCA standard of 0.06 mg/L.



Rice Marsh Lake received an alum treatment in 2018. Alum limits the availability of phosphorus in lakes to control algae growth & improve water clarity.

Chlorophyll-a

From 2005 through 2018, average chlorophyll-a levels in Rice Marsh Lake have been near the MPCA shallow lake standard of 20 µg/L. In 2021, Rice Marsh met the MPCA standard, measuring 10.9 µg/L.

Water Clarity

Since 1972, average Secchi disk depths have increased over time which were further increased by the first dose of the alum treatment which occurred in the fall of 2018. In 2021, the average Secchi disk depth was 2.6 meters which well above the shallow lake MPCA standard of 1 meter.

Winterkill

Rice Marsh Lake has had consecutive winterkills (depleted oxygen levels) the past few years limiting native fish survival. The District stocked 800 bluegill into the lake in 2021 to limit the potential of Common Carp reproducing.



Arrowhead (*Sagittaria sp.*) is a native wetland plant with broad pointed leaves found along the shore of Rice Marsh Lake.

Characteristics

Rice Marsh Lake

Size	83 acres
Average depth	5 feet
Max depth	11 feet
MPCA lake classification	Shallow lake
Impairment listing	Not listed
Common fish	Bluegill, Northern Pike, Black Crappie, Yellow Bullhead, Pumpkinseed Sunfish
Invasive species	Curly-leaf Pondweed, Purple Loosestrife, Common Carp



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.118	0.037 ★	< 0.06
Chlorophyll-a (µg/L)	33.0	10.9 ★	< 20
Secchi (meter)	1.7 ★	2.6 ★	> 1.0

Lake Riley

Total Phosphorus

Following the second dose of the alum treatment in May of 2020, Lake Riley continues to have the lowest summertime average TP concentrations across all lakes sampled in the District (2020 -0.0178 mg/L; 2021 0.016 mg/L).



Lake Riley received alum treatments in 2016 and 2020. Alum limits the availability of phosphorus in lakes to control algae growth & improve water clarity.

Chlorophyll-a

Similar to TP, the alum treatment in 2020 on Lake Riley has led to the lowest summer chlorophyll-a average across all lakes sampled in 2021 at 2.3 µg/L (2.8 µg/L in 2020).

Water Clarity

Lake Riley had the highest summer Secchi disk average depth for all lakes sampled in 2021 and the average was the highest recorded since 1971 on the lake at 4.82 meters.

Sediment

Sediment cores on Lake Riley were collected in late fall to look at post alum treatment factors to assess the effectiveness of the alum treatment. Alum is used to reduce the internal loading of a lake by trapping phosphorus in the lake sediments and has largely been effective in Lake Riley.

Zebra Mussels

In 2018 Zebra Mussels were estimated at 4 mussels per plate and the population appears to have maxed out at 2,623 mussels per plate in 2020. In 2021 zebra mussels were found on all plates deployed ranging



Characteristics

Lake Riley

Size	297 acres
Average depth	23 feet
Max depth	49 feet
MPCA lake classification	Deep lake
Impairment listing	Mercury & nutrients
Common fish	Bluegill, Northern Pike, Yellow Perch, Yellow Bullhead, Black Crappie
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Zebra Mussels



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Deep Lakes
Total Phosphorus (mg/L)	0.038 ★	0.016 ★	< 0.04
Chlorophyll-a (µg/L)	23.2	2.3 ★	< 14
Secchi (meter)	2.1 ★	4.8 ★	> 1.4

in number from 1,583 mussels to 4,930 mussels/plate. This indicates a robust population that is well established across the lake. The reduction in 2021 indicates a partial collapse in the zebra mussel population that should cycle up and down in the future similar to what was seen in other populations.

Fish

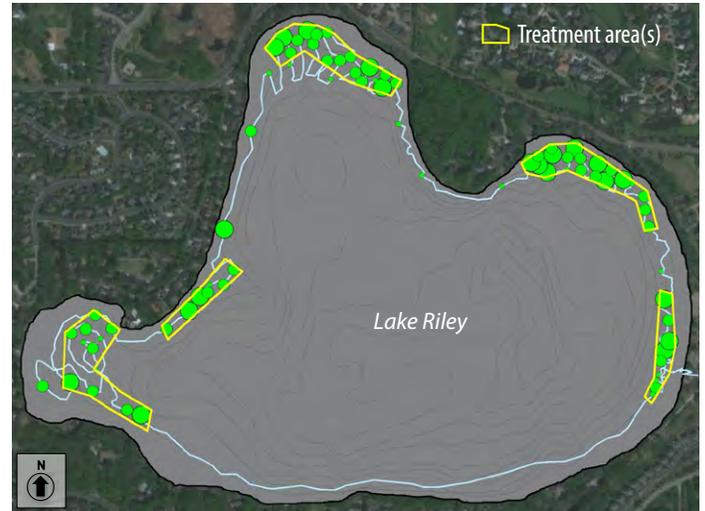
As part of the District's Common Carp management plan, Lake Riley had trap nets deployed to assess carp reproduction. No young-of-year carp were captured signaling no to very little recruitment occurred in 2021.

Plants

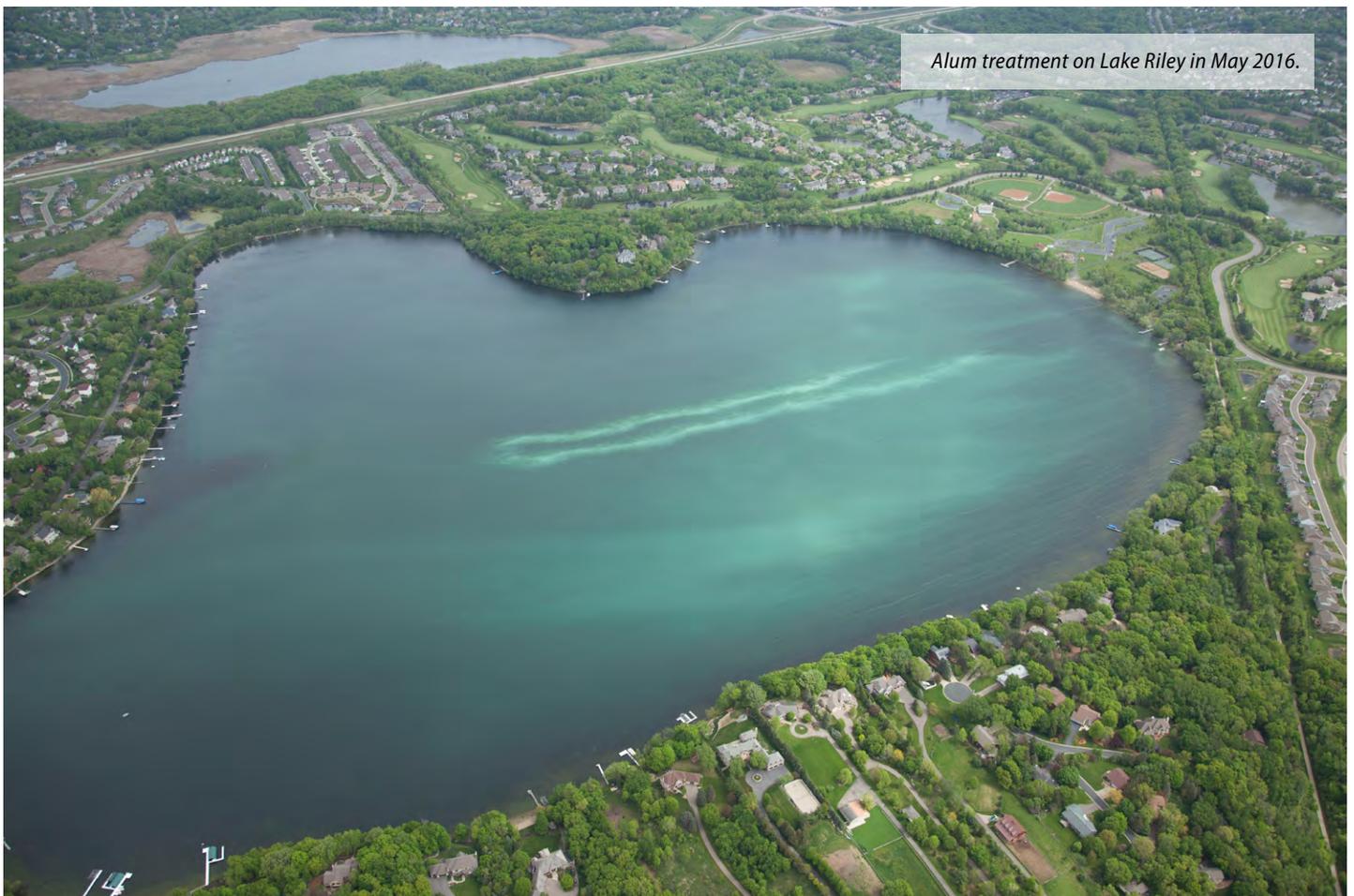
In the early spring of 2021, an herbicide treatment was performed on 22.3 acres of Lake Riley to suppress Curly-leaf Pondweed.

In 2021, a point intercept plant survey was conducted on Lake Riley to track aquatic vegetation populations.

Overall, 10 different plant species were recorded in August. Coontail (*Ceratophyllum demersum*), Slender Naiad (*Najas gracillimia*), and non-native Eurasian Water Milfoil (*Myriophyllum spicatum*) were the most abundant species sampled.



RPBCWD had a permit from MnDNR in 2021 for herbicide control of Curly-leaf Pondweed, an invasive aquatic plant growing in the lake. The size of the treatment area was limited by permit requirements and consisted of 22.3 acres as outline in yellow on the map. Treatment focused on locations with the highest density of Curly-leaf Pondweed.



Lake Susan

Total Phosphorus

Since 1972, there has been no significant trend in the average TP concentrations. Lake Susan average TP concentrations have been consistently above the shallow lake MPCA standard of 0.06 mg/L including in 2021 (0.072 mg/L).

Chlorophyll-a

Historically, there has been no significant trend in the average chlorophyll-a concentrations in Lake Susan. Average chlorophyll-a concentrations have never met the shallow lake MPCA standard of 20 µg/L since monitoring began in 1971. In 2021, average chlorophyll-a concentrations were on the higher end of the historical range at 69 µg/L.

Water Clarity

Since 2013, average Secchi disk depths have just met the MPCA shallow lakes standard of 1 meter. Lake Susan average Secchi disk depth in 2021 met the standard at 1.04 meters.

Sediment

Sediment cores on Lake Susan were collected in late fall to look at factors that would help us apply aluminum sulfate (alum) more effectively in the future. Alum is used to reduce the internal loading of a lake by trapping phosphorous in the lake sediments. An alum treatment for Lake Susan is in the District's 10-Year Watershed Management Plan.

Fish

As part of the District's Common Carp management plan, Lake Susan had trap nets deployed to assess carp reproduction. No young-of-year carp were captured signaling no to very little recruitment occurred in 2021. Lake Susan had the highest number of bluegills

(*Lepomis macrochirus*) captured in 2021, averaging 68.8 fish per net. Bluegill help suppress the carp population through egg predation.

Lake Susan Park Pond, which is directly upstream of Lake Susan, was also electrofished and trap netted. These methods yielded 38 young-of-year and an adult biomass estimate of 243.1 kg/ha. In the past

Characteristics

Lake Susan

Size	88 acres
Average depth	10 feet
Max depth	17 feet
MPCA lake classification	Shallow lake
Impairment listing	Mercury & nutrients
Common fish	Bluegill, Black Crappie, Northern Pike, Black Bullhead, Yellow Bullhead
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Common Carp, Brittle Naiad



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.081	0.072	< 0.06
Chlorophyll-a (µg/L)	49.3	69.0	< 20
Secchi (meter)	1.1 ★	1.0 ★	> 1.0

LSPP presented a management opportunity within the Riley Chain of Lakes as carp moved into the pond where they are more easily captured due to its shallowness and limited area for movement. Although the pond was suspected to be deep enough to prevent winterkill, data from 2021 suggests that a winterkill may have occurred and Common Carp were able to use LSPP as a nursery. District staff are considering a temporary spring barrier to prevent carp migration into the pond.

Plants

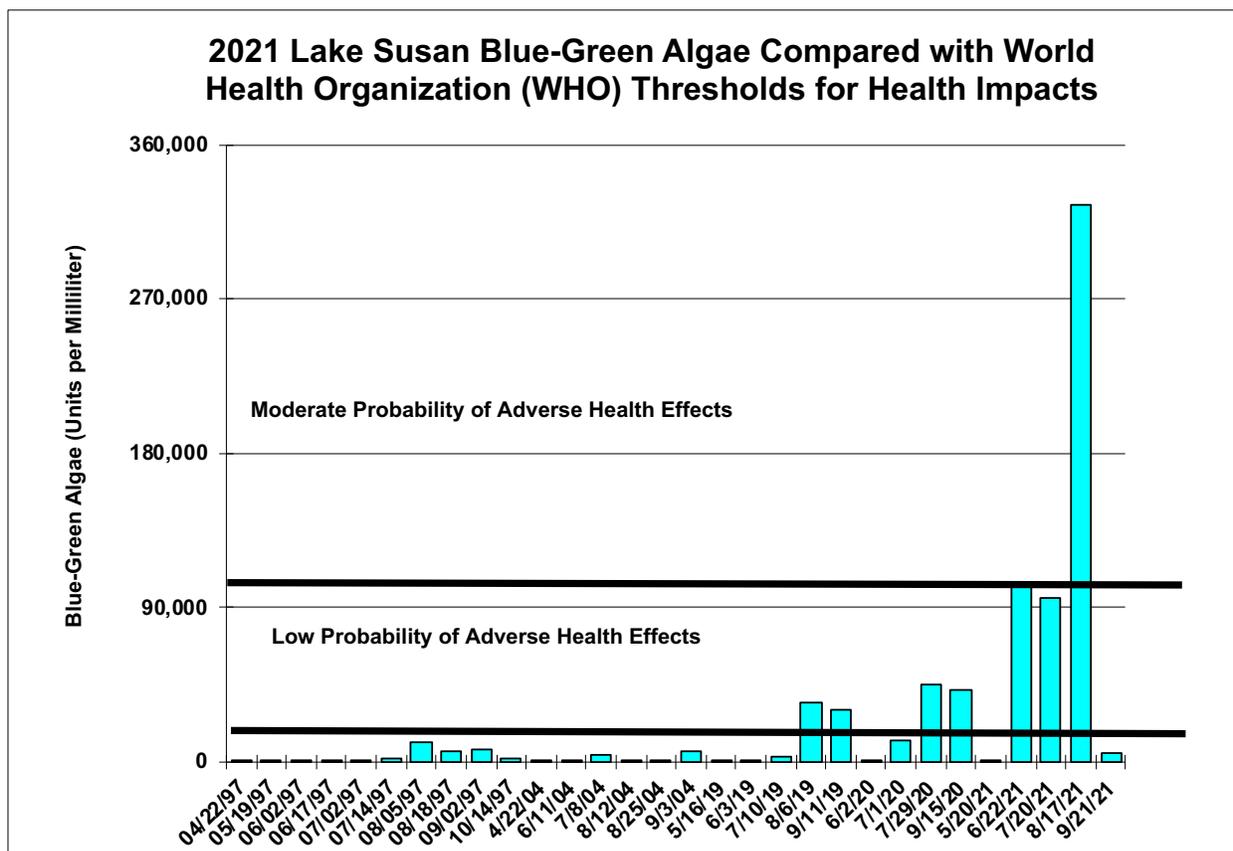
In early spring of 2021, an herbicide treatment was carried out on 8.64 acres of Lake Susan to suppress Curly-leaf Pondweed. In 2021, a point intercept plant survey was conducted to track aquatic vegetation populations. Overall, 11 species were found; Coontail, White Water Lily (*Nymphaea odorata*), and Star Duckweed (*Lemna trisulca*) were the most abundant species.

Spent Lime Treatment System

In 2016, the District constructed an innovative spent lime filtration system to reduce the amount of phosphorus entering Lake Susan from a large wetland located southwest of the lake. In 2021, 22 samples collected from the treatment system showed an average TP reduction of 41%, down from a 62% reduction in 2020. The extremely high TP levels in the wetland may be overloading the treatment system.

Phytoplankton

Lake Susan blue-green algae numbers during July and August exceeded the World Health Organization (WHO) threshold for moderate probability of adverse health effects. This threshold indicates that blue-green algal toxins may be high enough to cause adverse health effects. Although the presence of toxin-producing algae are present in Lake Susan, the concentration of toxins cannot be known unless samples are collected. Staff will continue monitoring Lake Susan to identify health concerns. See table below for blue-green algae levels over time.



Purgatory Chain of Lakes

Purgatory Creek originates from multiple waterbodies including Silver and Lotus lakes. Its branches merge near Edenbrook Conservation Area, where the stream continues its flow southeast toward the Minnesota River. The Purgatory Creek watershed encompasses portions of several cities including Deephaven, Minnetonka, Shorewood, Eden Prairie, Chanhassen, Eden Prairie, and Bloomington.



Duck Lake

Duck Lake

Total Phosphorus

For the past 10 years Duck Lake TP average concentrations have mostly been below the shallow lake MPCA standard (0.06 mg/L). In 2021, the average TP concentration was 0.045 mg/L.

Chlorophyll-a

Historically average chlorophyll-a levels in Duck Lake have been consistently below the MPCA shallow lake standard (20 µg/L), including in 2021 (15.2 µg/L).

Water Clarity

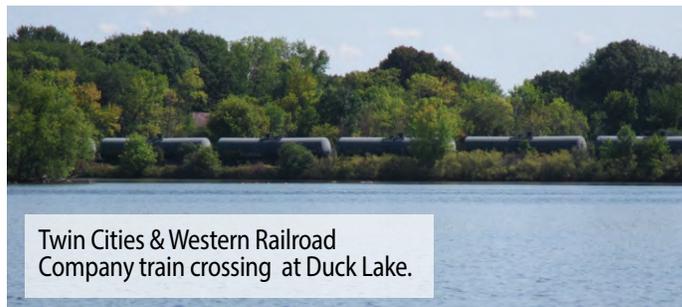
Before 2011, Duck Lake never met the Secchi disk MPCA standard for shallow lakes (1 meter). After 2011, most Secchi disk averages met the standard and were often to the lake bottom. The average Secchi disk depth in 2021 was 1.7 meters.

Winterkill

Duck Lake has had consecutive winter fish kills (caused by depleted oxygen levels) the past few years limiting native fish survival.

Plants

In 2021, the City of Eden Prairie conducted a point-intercept survey on Duck Lake to track aquatic plant populations. Overall, seven species were found during the survey. The most common species included Coontail, Canada Waterweed (*Elodea canadensis*), and Flat-stem Pondweed (*Potamogeton zosteriformis*).



Twin Cities & Western Railroad Company train crossing at Duck Lake.

Characteristics

Duck Lake

Size	41 acres
Average depth	3.4 feet
Max depth	8 feet
MPCA lake classification	Shallow lake
Impairment listing	Not listed
Common fish	Bluegill, Black Crappie, Black Bullhead, Largemouth Bass, Green Sunfish
Invasive species	Curly-leaf Pondweed, Purple Loosestrife, Eurasian Watermilfoil, Goldfish



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.059 ★	0.040 ★	< 0.06
Chlorophyll-a (µg/L)	15.6 ★	15.2 ★	< 20
Secchi (meter)	1.8 ★	1.7 ★	> 1.0

Hyland Lake

Total Phosphorus

Three years have passed since Hyland Lake's first alum treatment. The lake continues to meet the MPCA standard for TP (0.06 mg/L) with concentrations just below the standard in 2021 at 0.058 mg/L. Historically, TP concentrations were much higher than the standard.



Hyland Lake received an alum treatment in 2019. Alum limits the availability of phosphorus in lakes to control algae growth & improve water clarity.

Chlorophyll-a

Hyland Lake met the MPCA standard for chlorophyll-a (20 µg/L) in 2020 (15.8 µg/L), however it failed to meet the standard in 2021 (31.1 µg/L). Following the alum treatment in the spring of 2019, chlorophyll-a concentrations have been significantly reduced compared to historical concentrations.

Water Clarity

Hyland had reduced water clarity measuring 2.05 m in 2020 to 1.14 meters in 2021. Hyland still achieved the MPCA standard of 1 meter for shallow lakes.

Plants

In 2021, a point intercept plant survey was conducted on Hyland Lake by Three Rivers Park District to track aquatic vegetation populations. Overall, nine species total were found in the survey. The most common species were Muskgrass (*Chara* spp.), Narrow Pondweed (*Potamogeton* spp.), and Coontail.

Turions are the primary reproductive structures of invasive Curly-leaf Pondweed and may survive for five or more years in lake sediment. A turion survey in Hyland Lake in 2021 showed an increase in the number of Curly-leaf Pondweed turions. An increase in

turions in 2020 as well indicates a robust population, likely due to improved water clarity after the 2019 alum treatment.



Three Rivers Park District provides the majority of water quality and plant survey data for Hyland Lake. They also lead efforts on invasive plant treatments and alum applications.

Characteristics

Hyland Lake

Size	84 acres
Average depth	7.5 feet
Max depth	12 feet
MPCA lake classification	Shallow lake
Impairment listing	Nutrients
Common fish	Bluegill, Black Crappie, Walleye, Black Bullhead, Largemouth Bass
Invasive species	Curly-leaf Pondweed



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.094	0.058 ★	< 0.06
Chlorophyll-a (µg/L)	57.2	31.1	< 20
Secchi (meter)	1.1 ★	1.1 ★	> 1.0

Lotus Lake

Total Phosphorus

Lotus Lake has no significant trend in TP, however the 2021 average TP concentration (0.029 mg/L) was below the MPCA deep lake standard (0.04 mg/L).



Lotus Lake received an alum treatment in 2018. Alum limits the availability of phosphorus in lakes to control algae growth & improve water clarity.

Chlorophyll-a

There is no significant historical trend for chlorophyll-a in Lotus Lake, although levels have reduced since the 2018 alum treatment. In 2021, Lotus Lake did not meet the average MPCA chlorophyll-a deep lake standard (14 µg/L) measuring 25.3 µg/L.

Water Clarity

Since 2018, the average Secchi disk depth has consistently met the MPCA deep lake standard (1.4 meters) across most years including in 2021 (1.5 meters). Prior to 2018, Secchi depths were generally below the standard.

Fish

As part of the District's Common Carp management plan, Lotus Lake was electrofished to estimate adult carp biomass. In 2021, the carp biomass estimate was 32 kg/ha in Lotus Lake, which is the lowest biomass estimate to date and well below the damaging levels of 100 kg/ha.

Zebra Mussels

No zebra mussel adults or veligers were found in Lotus Lake in 2021. The 2021 eDNA results indicated a positive hit for the deep-water area near the boat launch only. Lotus Lake has tested positive for eDNA since its listing in 2019.

Plants

In the early spring of 2021, an herbicide treatment was carried out on 22.8 acres on Lotus Lake to suppress Curly-leaf Pondweed and Eurasian Watermilfoil.

Characteristics

Lotus Lake

Size	248 acres
Average depth	16 feet
Max depth	31 feet
MPCA lake classification	Deep lake
Impairment listing	Mercury & nutrients
Common fish	Bluegill, Yellow Bullhead, Walleye, Black Crappie
Invasive species	Eurasian Watermilfoil, Common Carp, Brittle Naiad, Curly-leaf Pondweed



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Deep Lakes
Total Phosphorus (mg/L)	0.051	0.029 ★	< 0.04
Chlorophyll-a (µg/L)	34.8	25.3	< 14
Secchi (meter)	1.4 ★	1.5 ★	> 1.4

Mitchell Lake

Total Phosphorus

Mitchell Lake TP concentrations have decreased since 1972. In 2021, the lake was above the MPCA shallow lake standard for TP at 0.067 mg/L.

Chlorophyll-a

For the past 10 years, chlorophyll-a levels have sat near the MPCA benchmark for chlorophyll-a, measuring 33.83 µg/L in 2021.

Water Clarity

Mitchell Lake average water clarity has no significant historical trend. It achieved the MPCA shallow lake standard in 2021 at 1.13 meters.

Plants

In early spring 2021, an herbicide treatment was performed on 12.8 acres of Mitchell Lake to suppress Curly-leaf Pondweed. An autumn turion survey was also completed by staff to track Curly-leaf Pondweed reproduction. A turion is the primary reproductive structure of the plant and may survive for five or more years in lake sediment. The 2021 survey results showed a decreased number of turions from 2017, indicating herbicide treatments have been effective in reducing reproduction.

The Mitchell Lake Aquatic Vegetation Management plan was updated in 2021. The purpose of reviewing the lake vegetation management plan is to evaluate progress in achieving long-term vegetation management goals and improve strategies aimed at protecting the lake's beneficial uses and ecological values.



For the last few years, the City of Eden Prairie has collected water quality data for Mitchell Lake.



A Curly-leaf Pondweed turion found during a survey on Lake Mitchell in fall 2021. A turion is a type of reproductive bud of some plants.

Characteristics

Mitchell Lake

Size	124 acres
Average depth	5.3 feet
Max depth	19 feet
MPCA lake classification	Shallow lake
Impairment listing	Mercury
Common fish	Bluegill, Black Bullhead, Black Crappie, Northern Pike, Pumpkinseed
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Purple Loosestrife



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.074	0.067	< 0.06
Chlorophyll-a (µg/L)	34.4	33.8	< 20
Secchi (meter)	1.2 ★	1.1 ★	> 1.0

Red Rock Lake

Total Phosphorus

Red Rock Lake TP concentrations have no significant historical trend. In 2021, the average reading measured 0.051 ug/L, which was below the MPCA shallow lake standard for TP (0.06 mg/L),



For the last few years, the City of Eden Prairie has collected water quality data for Red Rock Lake.

Chlorophyll-a

Red Rock Lake chlorophyll-a concentrations have no significant historical trend but was above the MPCA shallow lake standard for chlorophyll-a (20 µg/L) in 2021 measuring 28.3 µg/L.

Water Clarity

Similar to TP and chlorophyll-a, Red Rock Lake average Secchi Disk Depth has no significant historical trend but achieved the MPCA shallow lake standard (1 meter) in 2021 measuring 1.5 meters.

Plants

In the early spring of 2021, an herbicide treatment was carried out on 13.04 acres on Red Rock Lake to suppress Curly-leaf Pondweed.

In 2021, a point intercept plant survey was conducted Red Rock Lake to track aquatic vegetation populations. Overall, 15 different plant species were found during the survey. Coontail, Small Pondweed, and White Water Lily were the most abundant species.

The Red Rock Aquatic Vegetation Management plan was updated in 2021. The purpose of reviewing the lake vegetation management plan is to evaluate progress in achieving long-term vegetation management goals and improve strategies aimed at protecting the lake's beneficial uses and ecological values.

Characteristics

Red Rock Lake

Size	121 acres
Average depth	4.7 feet
Max depth	19 feet
MPCA lake classification	Shallow lake
Impairment listing	Mercury
Common fish	Bluegill, Northern Pike, Pumpkinseed, Yellow Perch
Invasive species	Curly-leaf Pondweed



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.065	0.051 ★	< 0.06
Chlorophyll-a (µg/L)	29.9	28.3	< 20
Secchi (meter)	1.4 ★	1.5 ★	> 1.0

Round Lake

Total Phosphorus

Round Lake has no significant trend in TP, however since the alum treatment in 2012 the average TP concentrations have been more consistently below the MPCA deep lake standard (0.04 mg/L). In 2021, Round Lake the average TP concentration was 0.03 mg/L.



For the last few years, the City of Eden Prairie has collected water quality data for Round Lake.



Round Lake received alum treatments in 2012 and 2018. Alum limits the availability of phosphorus in lakes to control algae growth & improve water clarity.

Chlorophyll-a

Since the alum treatment in the fall of 2012, Round Lake average chlorophyll-a concentrations have consistently been below the MPCA deep lake standard for chlorophyll-a (14 µg/L). In 2021, the average chlorophyll-a concentration was 10.3 µg/L.

Water Clarity

Since the alum treatment in 2012, the average Secchi disk depth has stabilized around 2.3 meters. In 2021, the average Secchi disk depth was 1.7 meters, which is below the deep lake MPCA standard of 1.4 meters.



The land surrounding Round Lake is managed as a park by the City of Eden Prairie (map from City of Eden Prairie).

Characteristics

Round Lake

Size	30 acres
Average depth	11 feet
Max depth	37 feet
MPCA lake classification	Deep lake
Impairment listing	Mercury & perfluorooctane
Common fish	Bluegill, Yellow Bullhead, Black Bullhead, Black Crappie
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Brittle Naiad, Common Carp



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Deep Lakes
Total Phosphorus (mg/L)	0.043	0.030 ★	< 0.04
Chlorophyll-a (µg/L)	13.5 ★	10.3 ★	< 14
Secchi (meter)	2.2 ★	1.7 ★	> 1.4

Silver Lake

Total Phosphorus

No significant historical trend exists for average TP concentrations in Silver Lake. 2021 is only the second time since 1996 that the shallow lake MPCA standard (0.06 mg/L) was met (0.046 mg/L).

Chlorophyll-a

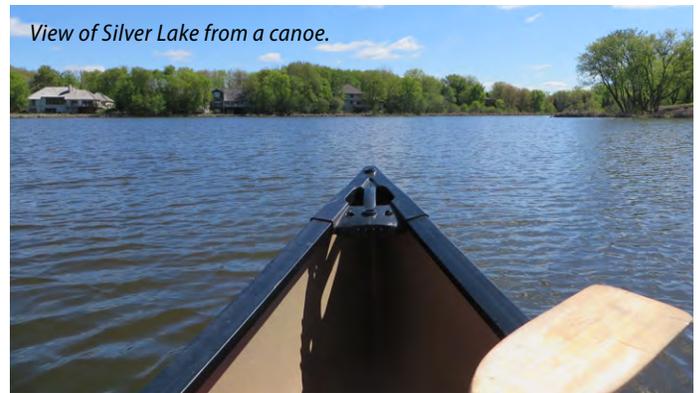
Historically average chlorophyll-a levels in Silver Lake have been declining. In 2021, the average concentration was 17.1 µg/L which is below the MPCA shallow lake standard (20 µg/L).

Water Clarity

Since 2017, Silver Lake has met the Secchi disk MPCA standard for shallow lakes (1 meter) including in 2021 (1.6 meters). From 1996 to 2017, Silver Lake did not meet the standard.



Wild Rice (Zizania palustris) grows in Silver Lake and provides a high protein source of food for waterfowl.



View of Silver Lake from a canoe.

Characteristics

Silver Lake

Size	71 acres
Average depth	5 feet
Max depth	14 feet
MPCA lake classification	Shallow lake
Impairment listing	Not listed
Common fish	Black Bullhead, Fathead Minnow, Central Mudminnow
Invasive species	Curly-leaf Pondweed, Purple Loosestrife



Water Quality by the Numbers

★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.095	0.046 ★	< 0.06
Chlorophyll-a (µg/L)	46.9	17.1 ★	< 20
Secchi (meter)	1.1 ★	1.6 ★	> 1.0

Staring Lake

Total Phosphorus

Since carp removals began in Staring Lake in 2013, Total Phosphorus concentrations have steadily declined and have met the MPCA water quality standard of 0.06 mg/L 4 out of the last 5 years. The 2021 average concentration was 0.04 mg/L.

Chlorophyll-a

Staring Lake chlorophyll-a concentrations have been consistently above the MPCA standard for Chl-a (20 µg/L) including in 2021 when it was 21.5 µg/L. There is no significant trend in the data.

Water Clarity

Since carp removals began in Staring Lake in 2013, the average Secchi disk depths have increased, and the lake has been at or above the MPCA water quality standard of 1 meter for the past 5 years. Staring Lake had improved water clarity from 2020 to 2021 measuring 1 meter and 1.5 meters respectively.

Fish

As part of the District's Common Carp management plan, Staring Lake was electrofished to estimate adult carp biomass. Adult carp biomass estimates have been decreasing in Staring Lake since management began in 2011. In 2021, Common Carp biomass estimates were reduced to 36 kg/ha, well below the damaging level of 100 kg/ha. The fish captured consisted of individuals from the 2014/2015-year class, which was the last major recruitment year for carp in the system.

Staring Lake also had trap nets deployed to assess carp reproduction. Only one young-of-year carp was captured, signaling that very little recruitment occurred in 2021.

In 2021, the Upper Purgatory Creek Recreation Area (UPCRA) carp biomass estimate was below the

threshold (100 kg/ha) at 54 kg/ha. This is a positive sign because since 2016, the UPCRA has exceeded the biomass estimate threshold. Trap netting yielded no young-of-year carp and had the most diverse fish population with 12 different species captured in 2021. UPCRA had the lowest bluegill abundance with only 19.5 bluegills/net captured which is unfortunate since bluegills suppress carp populations via egg predation.

Characteristics

Staring Lake

Size	166 acres
Average depth	7 feet
Max depth	16 feet
MPCA lake classification	Shallow lake
Impairment listing	Mercury & nutrients
Common fish	Bluegill, Black Crappie, Black Bullhead
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Brittle Naiad, Common Carp



Water Quality by the Numbers

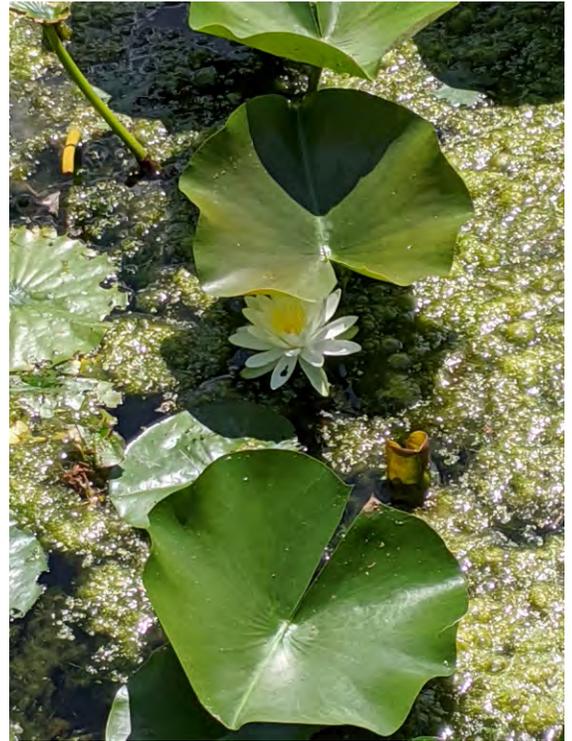
★ = Standard met

Water Quality Parameter	Historical average	2021 average	MPCA standard: Shallow Lakes
Total Phosphorus (mg/L)	0.084	0.042 ★	< 0.06
Chlorophyll-a (µg/L)	40.2	21.5	< 20
Secchi (meter)	0.96	1.5 ★	> 1.0

Backpack electrofishing and block nets were primarily used to remove Common Carp this spring in Purgatory Creek upstream and downstream of the fish barrier between the Purgatory Creek Recreation Area and Staring Lake. In total, 511 carp were removed at a weight of 1,732 pounds.

Plants

In 2021, a point intercept plant survey was conducted Staring Lake to track aquatic vegetation populations. Since achieving low carp densities in 2015, aquatic plants have significantly increased in density from 10 to 20% occurrence to over 90% occurrence in 2021. Coontail, Eurasian Watermilfoil, and White Water Lily were the most abundant species found.



White Water Lily growing in Staring Lake.

Fishing pier at Staring Lake.



Wetland Assessment

Overview

In 2021, the District assessed 173 wetlands using the Minnesota Routine Assessment Method (MnRAM) for wetlands and the Rapid Floristic Quality Assessment (FQA). Focus areas were in Hennepin County, north of State Highway 5, primarily in Eden Prairie (Figure 1). Staff also assessed shoreline wetlands on four lakes (Lucy, Ann, Red Rock, Round) and several wetlands along the lower reaches of Riley Creek.

Of 173 wetlands visited, 148 had not been previously assessed. The other 25 wetlands were assessed previously and revisited for quality assurance/quality control (QA/QC) and to add FQA. These wetlands were located in the watersheds of upper Bluff Creek, Lake Ann, Lake Lucy, and Lotus Lake.



Figure 1. Wetland assessment areas by year.

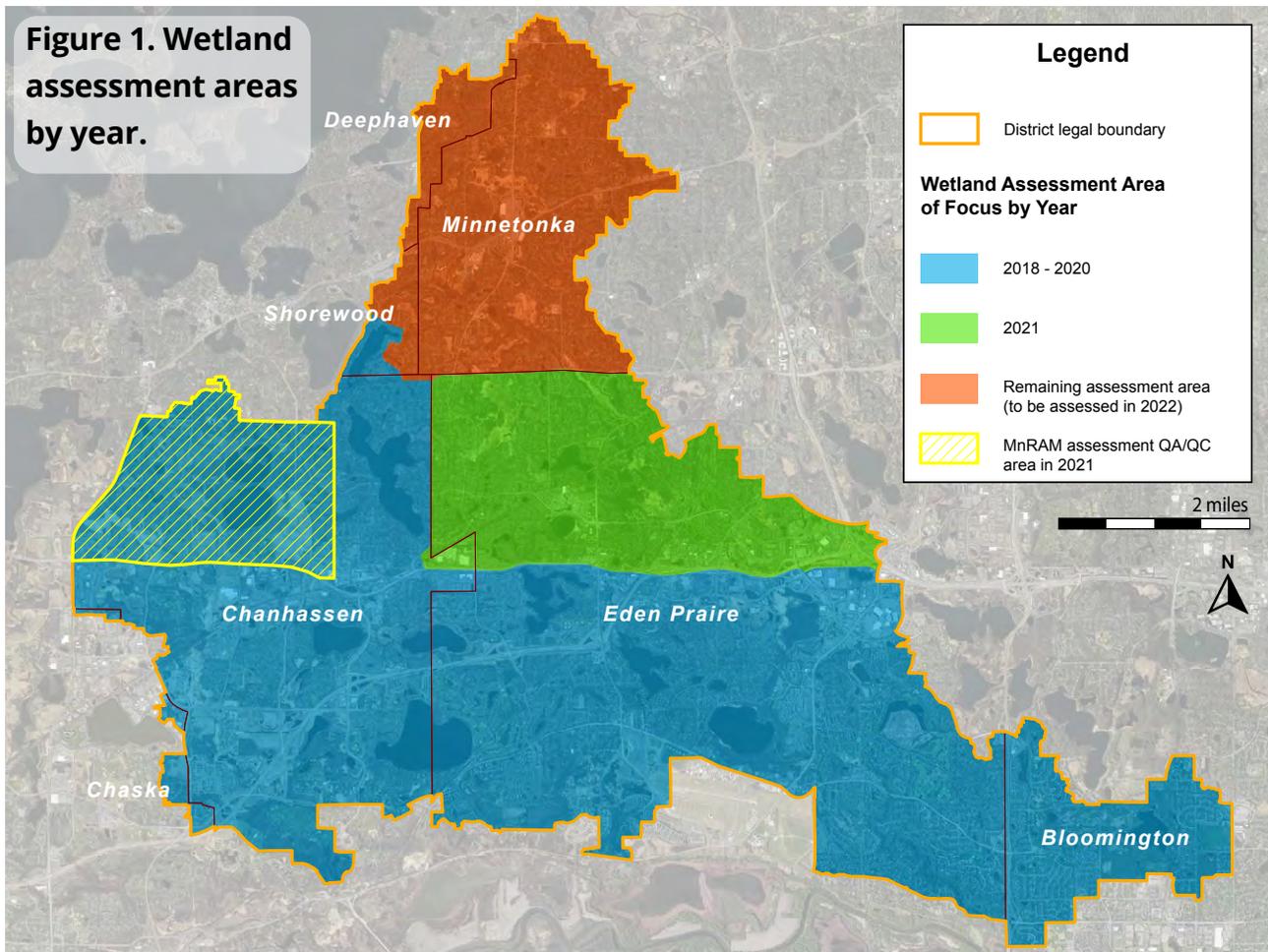
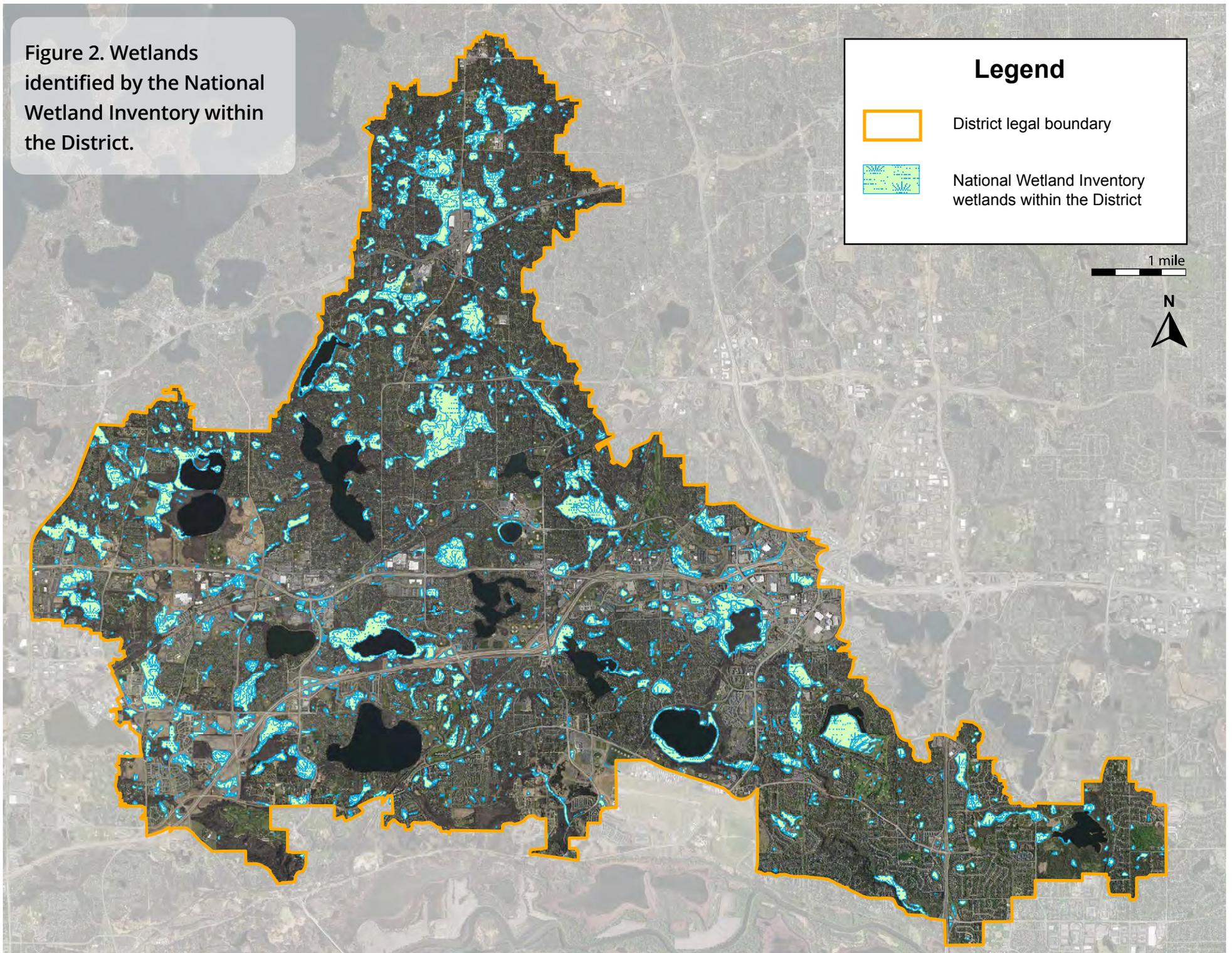


Figure 2. Wetlands identified by the National Wetland Inventory within the District.



Methods

Minnesota Routine Assessment Method (MnRAM)

The Minnesota Routine Assessment Method (MnRAM) for Evaluating Wetland Functions was developed by an interagency working group to assess wetlands following passage of the Minnesota Wetland Conservation Act in 1991. It is a systematic way of documenting wetland functions and characteristics such as size, water depth, soils, topography, vegetation type, buffer widths, wildlife habitat, and human impacts including structures, wetland alterations, and wildlife migration barriers.

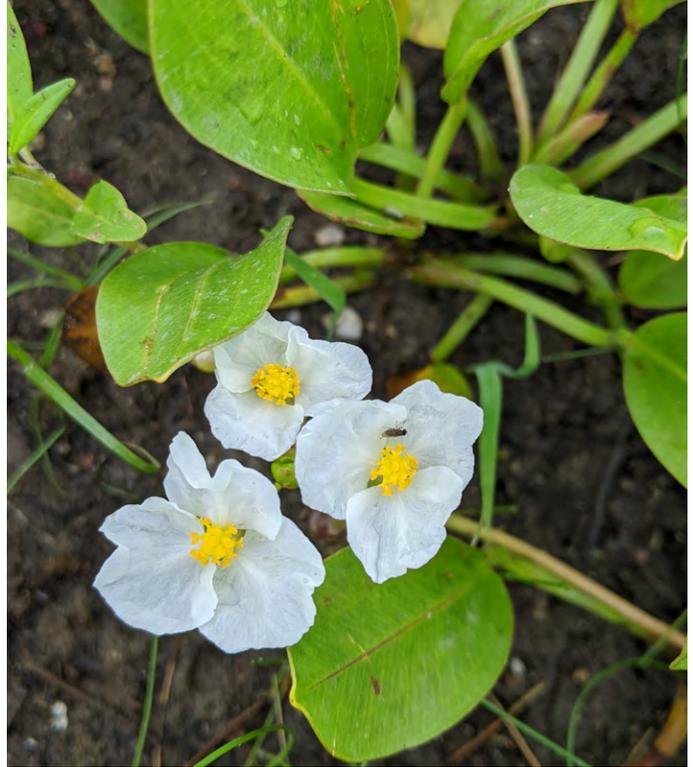
During wetland site visits, staff assess the site, fill out the MnRAM worksheet, and document the site with photographs. If staff observe indications of a potential wetland, they perform an initial assessment of approximate boundary or note the site for future investigation.

Through MnRAM wetland assessment, staff are building a detailed catalogue of wetlands within the District. The catalogue supplements standard state and federal wetland inventories by including details such as greater knowledge of wetland extent, more accurate vegetative community designations, record of wetland impacts and degradation, and infrastructure risks. Figure 2 shows the extent of wetlands within the District based on National Wetland Inventory (NWI) data.

Floristic Quality Assessment (FQA) for Minnesota Wetlands

Developed by the Minnesota Pollution Control Agency (MPCA), the Rapid Floristic Quality Assessment (FQA) for wetlands provides an ecological assessment approach based on plant habitat requirements and/or tolerance for disturbance. The approach is based on a C-value assigned to each plant species by Minnesota

During assessments, staff document wetlands with photographs. Shown below is Northern Water Plantain (*Alisma triviale*).



Wetland Assessment Methods

MnRAM

Rapid, qualitative assessment used to identify wetland functions. Combines data and observations gathered from a site visit and remote sensing data. This data produces ratings for assessed wetland functions.

This method asks:

What are the characteristics of the wetland as a whole?

FQA

Vegetation-based ecological condition assessment. Sites are assessed for diversity and abundance of plant species. The higher a site scores, the closer it is to a natural condition and the more sensitive it is to disturbance.

This method asks:

What plant species grow in the wetland? How abundant are they?

botanical experts. The higher the C-value, the more sensitive a plant is to site conditions and disturbance. C-values of plants within a given community are used to calculate a floristic quality index (FQI). The greater the FQI, the closer a plant community is to a natural state.

FQA compliments MnRAM by providing a quantitative assessment of the makeup and quality of plant communities within a wetland. When used together, FQA and MnRAM data sets provide a much more comprehensive metric to assess wetlands. RPBCWD first began FQA at the end of the 2020 field season. In 2021, FQA was part of all wetland assessments.

Wetland Management Classification

To advance the wetland assessment program, District staff are developing an assessment and management methodology based on ecosystem services to prioritize wetland rehabilitation, protection, and creation. Staff are currently focusing on five ecosystem services: nutrient cycling, community resilience, biodiversity, habitat, and recreation/cultural resources.

Metrics have been developed for each of these services, which, along with data gathered from MnRAM and FQA assessments, determine the assignment of District management classifications to wetlands. These classifications include low, medium, high, or exceptional value wetlands. Management efforts to promote functions and services and to restore, protect, and create wetlands are prioritized on wetlands with higher classification values. Vegetated buffer rules are also set based on these classifications.

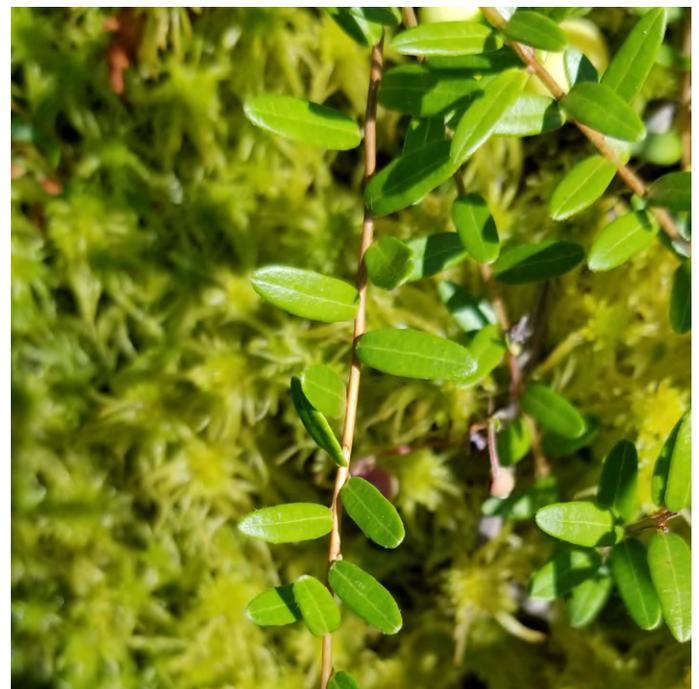
To date, staff have conducted assessments on 855 wetlands within the District. Of these, 685 have been assigned classification values (figure 3).

Distribution of wetland classifications in the District.

Classification	Quantity
Exceptional	35
High	89
Medium	418
Low	143
Unclassified	170
TOTAL	855

Wetland Assessment in 2022

The majority of inventory and assessment efforts in 2022 will be focused in Deephaven, Shorewood, Minnetonka, and the small remaining portion of wetlands in the northwest corner of Eden Prairie. See figure. MnRAM assessments for the majority of wetlands within the District should be complete by the end of 2022. Staff will continue to complete Rapid FQA and update plant community metrics, as well as conduct QA/QC assessments upon completing the first round of MnRAMs for all wetlands. The District is currently evaluating and developing more quantitative assessment tools to be used in further evaluating higher priority wetlands.



Large Cranberry (Vaccinium macrocarpon) in floating sphagnum moss bog located within the Riley Creek Watershed.

Wetland Classification Continuum

Assigning management classification to wetlands provides input for prioritization of restoration efforts. These classifications are based on FQA data and MnRAM functional categories which include:

- Vegetation diversity/integrity
- Habitat structure
- Amphibian habitat
- Fish habitat
- Shoreline protection
- Cultural/recreational/educational value
- Stormwater/urban sensitivity
- Wetland water quality
- Characteristic hydrology
- Flood/stormwater attenuation
- Commercial use
- Downstream water quality

See Figure 3 on the next page for an overview of wetlands that have been classified within the District.



Exceptional Value

Wetland has large buffer area or buffers shoreline. High plant diversity. Little or no alteration of soils and plants. Water quality is good. Provides fish and/or amphibian habitat. Significant recreational, educational and/or cultural value.



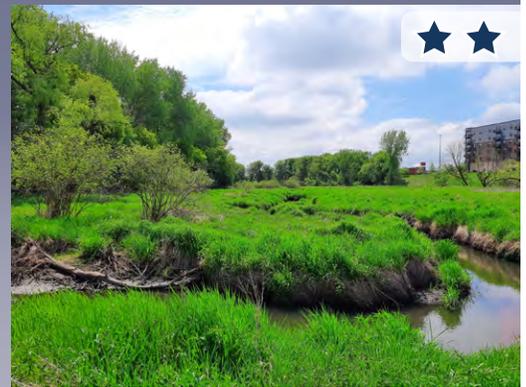
High Value

Wetland with buffer or provides buffer for shoreline. Provides floodwater attenuation. Better to good water quality. Water deep enough to provide overwintering amphibian habitat. May provide fish habitat. Moderate plant diversity.



Medium Value

Wetland may have been excavated or serve as stormwater pond. Low plant diversity. Minimal educational, aesthetic, or recreational opportunity. Deeper water may provide overwintering wildlife habitat.

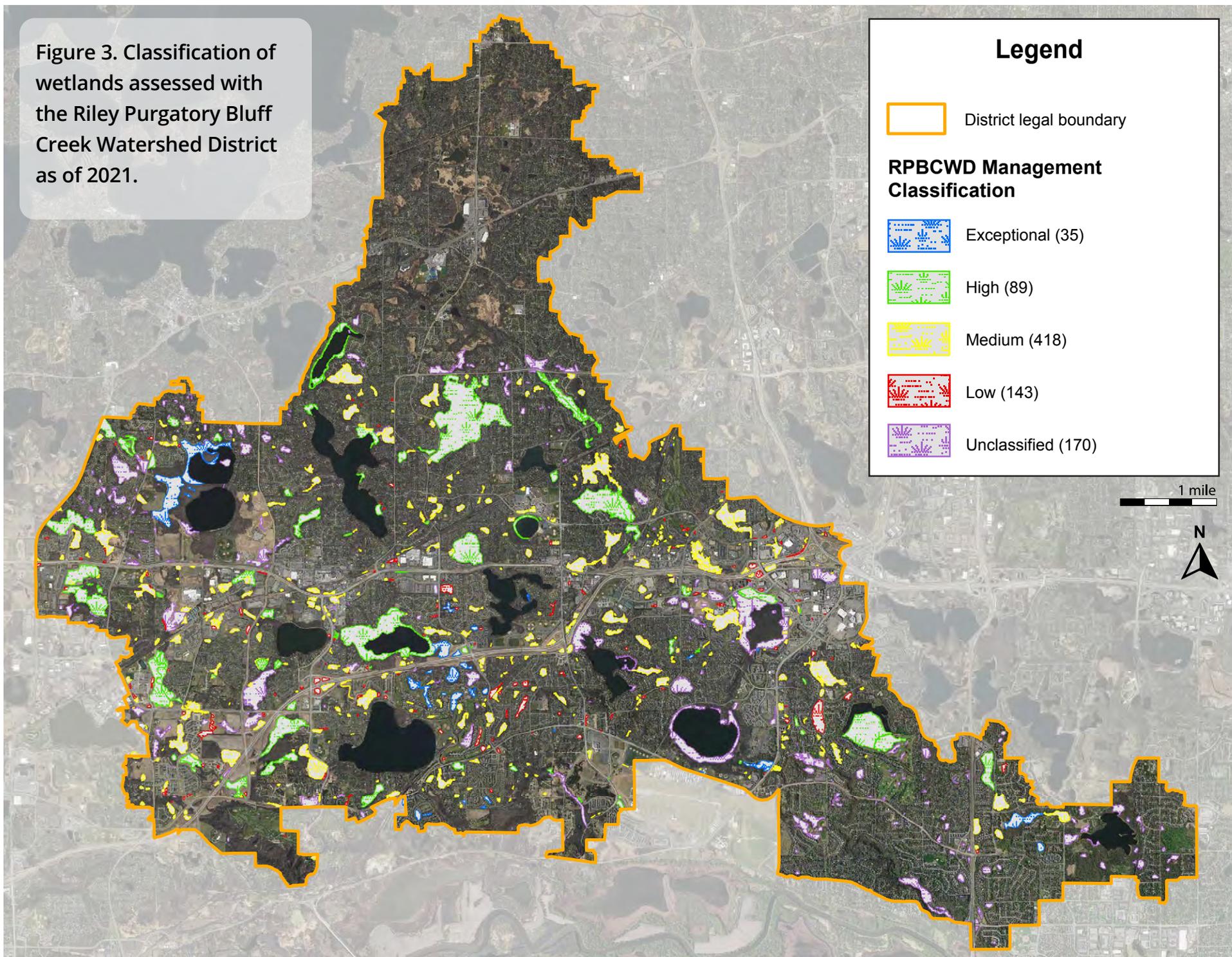


Low Value

Associated with agricultural or high-intensity land use. Very low species diversity and dominated by invasive species. Poor water quality, usually due to high inputs of untreated stormwater runoff. Has alteration or excavation. Little or no recreational or cultural value.



Figure 3. Classification of wetlands assessed with the Riley Purgatory Bluff Creek Watershed District as of 2021.



PROJECTS

Capital Improvement Projects

SILVER LAKE WATER QUALITY IMPROVEMENT PROJECT

Silver Lake is classified as a shallow lake, which has an MPCA standard for total phosphorus (TP) less than or equal to 60 µg/L. Silver Lake has only met this standard in 2017. The District set a goal for chlorophyll-a (Chl-a) at or below 20 µg/L, and Silver Lake has not met this standard in any year tested. Based upon the [2017 Use Attainability Analysis](#), TP loads to Silver Lake need a reduction of 16% or 179 pounds.

The [Feasibility Report for the Silver Lake Subwatershed SiL_2 Water Quality Improvement Project](#) identified five potential best management practices to treat the contributing watershed. Installation of a drop manhole structure with sump, channel reshaping, and installation of an iron-enhanced sand ditch check was selected to minimize cost, disturbance to the natural area, and potential utility conflicts. Based on estimates, the project will remove 2.6 to 4.7 pounds of TP per year.

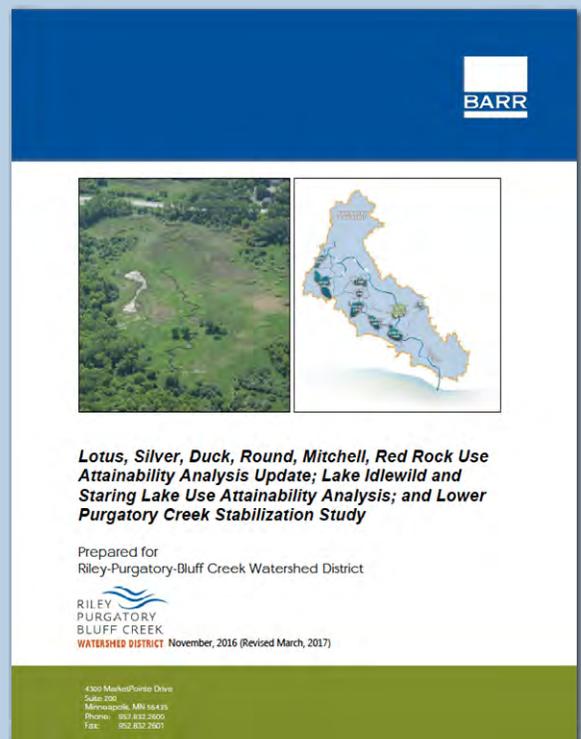
During the feasibility study, the engineer's opinion of project cost ranged from \$98,000 to \$183,000. The awarded bid was for \$127,977. Additional erosion was noted just beyond the construction limits and a change order was authorized to extend the curb and gutter and repair the eroded area for \$4,111, bringing total project cost to \$132,088. Funding for the project came from the RPBCWD levy with change order paid for by the City of Chanhassen. The City also partnered by donating land for the project and committing to long-term maintenance of the sump manhole and iron-enhanced sand filters.

The project was substantially completed in November of 2021 although three years of vegetation maintenance remains to be completed.



What is a UAA?

A Use Attainability Analysis (UAA) is a structured scientific assessment of the factors affecting the attainment of uses specified in Section 101(a)(2) of the Clean Water Act (sometimes called the "fishable/swimmable uses"). Factors considered include the physical, chemical, biological, and economic use removal criteria.



RICE MARSH LAKE WATER QUALITY IMPROVEMENT PROJECT

Rice Marsh Lake is classified as a shallow lake. The MPCA standard for TP is $\leq 60 \mu\text{g/L}$. The average growing season total phosphorus in 2010 was $115 \mu\text{g/L}$ with a peak of $130 \mu\text{g/L}$. In 2014 the average TP load concentration was $107 \mu\text{g/L}$ with a peak of $134 \mu\text{g/L}$. The [2016 UAA](#) found that 44% (712 pounds) of the load was from watershed runoff, 35% was from internal loading, and 19% originated from upstream lakes. To meet water quality goals, TP loading must be reduced by 41% or 681 pounds.

Rice Marsh Lake has a contributing local watershed of 883 acres. The selected subwatershed (RM_12) accounts for approximately 232 of those acres including the highly urbanized town center of Chanhausen, which has minimal treatment. The area accounts for loading of one pound per acre or 232 pounds of TP. The next largest contributing subwatershed (RM_33) accounts for 169 pounds. Most other subwatersheds are in the single digits.

The [Feasibility Report for the Rice Marsh Lake Subwatershed RM_12a Water Quality Improvement Project](#) evaluated seven different potential best management practices with one of these, manufactured treatment devices (MTD) looking at 14 different products. After meeting with Chanhausen staff of the Parks and Recreation Department and evaluating other site constraints such as the Metropolitan Council Interceptor Sewer Line, it was decided to go with an MTD. The Kraken® Filter by Bio Clean was the preferred option as it was modeled to have the best removal efficiencies at between 52 and 59 pounds/year as well as handle the flows.

At the feasibility stage, the engineer's opinion of cost for the project ranged from \$456,000 to \$854,000. The awarded bid was for \$594,830. Funding for the project came from the RPBCWD levy. Chanhausen paid for installation of the curb cut rain garden during their road project and to have an existing storm sewer

manhole adjusted and refurbished. The City also donated land for the project and partnership with Chanhausen is in the form of their donation of land and their committed to long-term maintenance of the area and the MTDs.

Two filters were installed in series in November 2021. In spring 2022, another raingarden will be installed, a significant portion of the park outside of the playing fields will have soil corrections, and part of this area will be planted as a native prairie.



Kraken® filters were installed in November 2021.

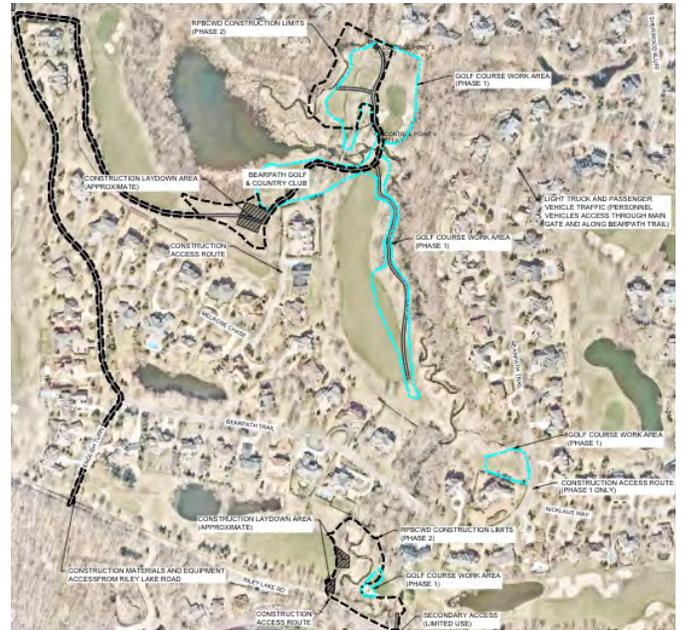
MIDDLE RILEY CREEK STABILIZATION PROJECT

The District partnered with the Bearpath Golf and Country Club and the Bearpath Homeowners Association on this project. The goal of the project, described in the [feasibility report](#), was to create an ecologically diverse stream corridor and significantly reduce streambank erosion and sediment deposition into Riley Creek. In conjunction, the project needed to maintain the aesthetics and playability of the original Jack Nicklaus-designed golf course.

Riley Creek is impaired for both aquatic life (2002) and aquatic recreation (2002 and 2018). The receiving water, Lake Riley, is impaired for aquatic consumption, aquatic life, and aquatic recreation due to mercury, Fish IBI, and nutrients. Downstream, the Minnesota River is impaired for aquatic life and aquatic consumption.

Portions of this reach, known as R3 (extends from Rice Marsh Lake to Lake Riley), were analyzed using the Bank Assessment for Non-Point Source Consequences of Sediment (BANCS) model, which is comprised of two erosion estimation tools. Based upon the Bank Erosion Hazard Index portion of the BANCS, these reaches rated as “high.” By stabilizing Sub-Reaches E and D3, engineers estimate the project will reduce total suspended solids (TSS) by 16,640 pounds per year and total phosphorus (TP) by 8.3 pounds per year.

At the feasibility stage, the engineer’s opinion of cost for the project ranged from \$504,000 to \$819,000. The awarded bid was for \$439,582. Funding for this project came from the RPBCWD levy and the Bearpath Golf and Country Club. As of November 2021, the channel was realigned, all stabilization practices such as riffles, root wads, and vegetated reinforced soil slope (VRSS) were installed, and the flood plain area has been temporarily stabilized. Additional vegetation establishment will take place in the spring of 2022 with an additional three years of maintenance for buffer establishment.



Re-meandering and bank stabilization of Riley Creek within Bearpath Golf and Country Club in November 2021.

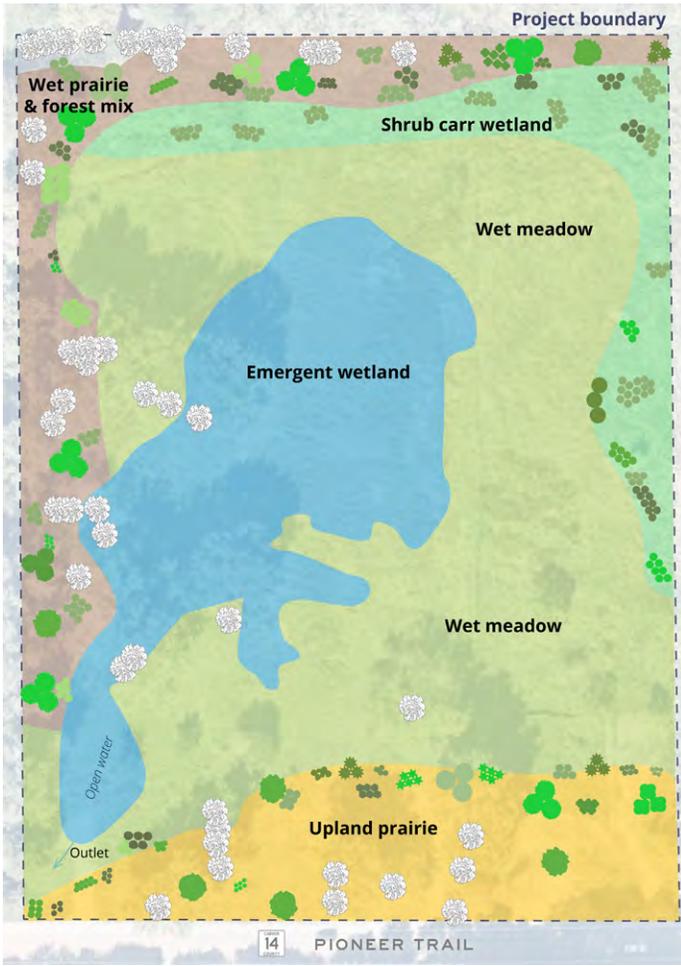
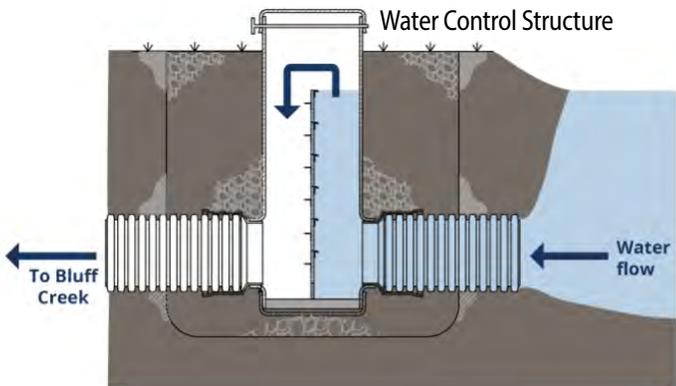
RESTORING WETLANDS ALONG PIONEER TRAIL

Initiated as a flood hazard mitigation project, the project evolved into a wetland restoration project. The City of Chanhassen and the RPBCWD purchased three houses that were constructed in an historic wetland and experienced regular flooding. The structures were removed from the property, either by home movers or demolition, and their appurtenances also removed. Upon removal of the homes, RPBCWD commissioned a [Feasibility Report – Pioneer Trail Wetland Restoration Project](#), to determine what ecological, flood protection, and stream protection benefits could be garnered from restoring the wetland on these three properties. The feasibility report looked at two outlet configurations for hydrologic and hydraulic control as well as two conceptual plans for habitat restoration.

At the feasibility stage, the engineer’s opinion of cost for the selected options ranged from \$400,000 to \$650,000. The awarded bid was for \$295,098. Funding for the project came from the RPBCWD levy, the City of Chanhassen, a Minnesota Department of Natural Resources Flood Hazard Mitigation Grant, and Watershed Based Funding Grant from the State of Minnesota. As of November 2021, the outlet structure was installed, and earthwork was completed. Invasive species were treated as well. No cover crop was planted as a second treatment will occur in the spring of 2022. Instead, the area was temporarily stabilized with certified weed-free straw mulch.



Project site before restoration.



Habitat restoration plan for Pioneer Trail wetland project.

DUCK LAKE ROAD PARTNERSHIP

For many years, Duck Lake Road has divided Duck Lake into two separate bodies of water. The separation negatively impacts water quality and wildlife habitat and causes frequent flooding of roadway. In 2019, the City of Eden Prairie approached the District to partner in reconstruction of Duck Lake Road, including construction of a bridge to replace the section of road dividing the lake.

The project will replace approximately 235 feet of two-lane roadway with a bridge and pedestrian improvements. Environmental benefits include restoration of the shoreline and about 7,000 square feet of the lake bed, removal of habitat fragmentation, and improved floodplain impacts by increasing the water storage volume of the lake.

Total project cost is approximately \$4.7 million over five years with the District providing up to \$1.175 million in support. The project will be constructed entirely on city property, and the city will own and maintain Duck Lake Road and its right-of-way when the project is complete.

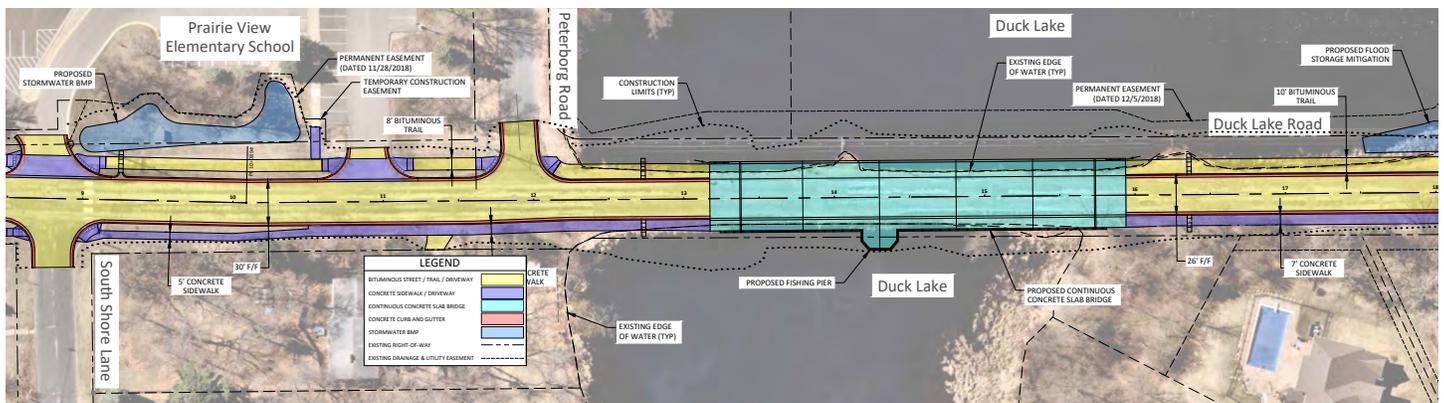
Project construction began in 2021 with substantial completion expected in late 2022. For more information, check out the City of Eden Prairie [Duck Lake Road Improvement Project webpage](#).



A double row of yellow silt curtains in the water protect the lake from the Duck Lake Road construction zone (fall 2021).



Covering exposed soils during road work reduces the risk of erosion into Duck Lake (fall 2021).



Portion of project plan showing bridge (City of Eden Prairie graphic).

Opportunity Projects

St. Hubert Opportunity Project

This project was a public/private partnership between the RPBCWD, the St Hubert Catholic School, and the Carver County Soil and Water Conservation District (SWCD). The project germinated from a school staff member wishing to install a raingarden for her classroom. It was noticed that a deeply incised gully had formed tributary to Rice Marsh Lake. The project evolved to address the gully, install a rain garden, install a tree trench, restore 0.6 acres of fallow land to prairie, as well as make some drainage improvements on the site. In addition to the water quality benefits, RPBCWD staff are working with staff at St Hubert to develop curriculum to turn the prairie into a living classroom. The school and RPBCWD are also working with a class at the University of Minnesota to study soil health and vegetation establishment at the site.

A [memorandum of conceptual design](#) was prepared to communicate conceptual design options, approximate costs, as well as benefits and limitations of specific practices. The preliminary opinion of cost ranged from \$204,000 to \$277,000. The awarded bid was for \$290,964.00. Funding is from the RPBCWD levy, St Hubert Parish Council, the State of MN Watershed Based Implementation Fund, and Carver County SWCD. The project was substantially completed in August of 2021. Three years of maintenance remains on the prairie, rain garden, and tree trench.



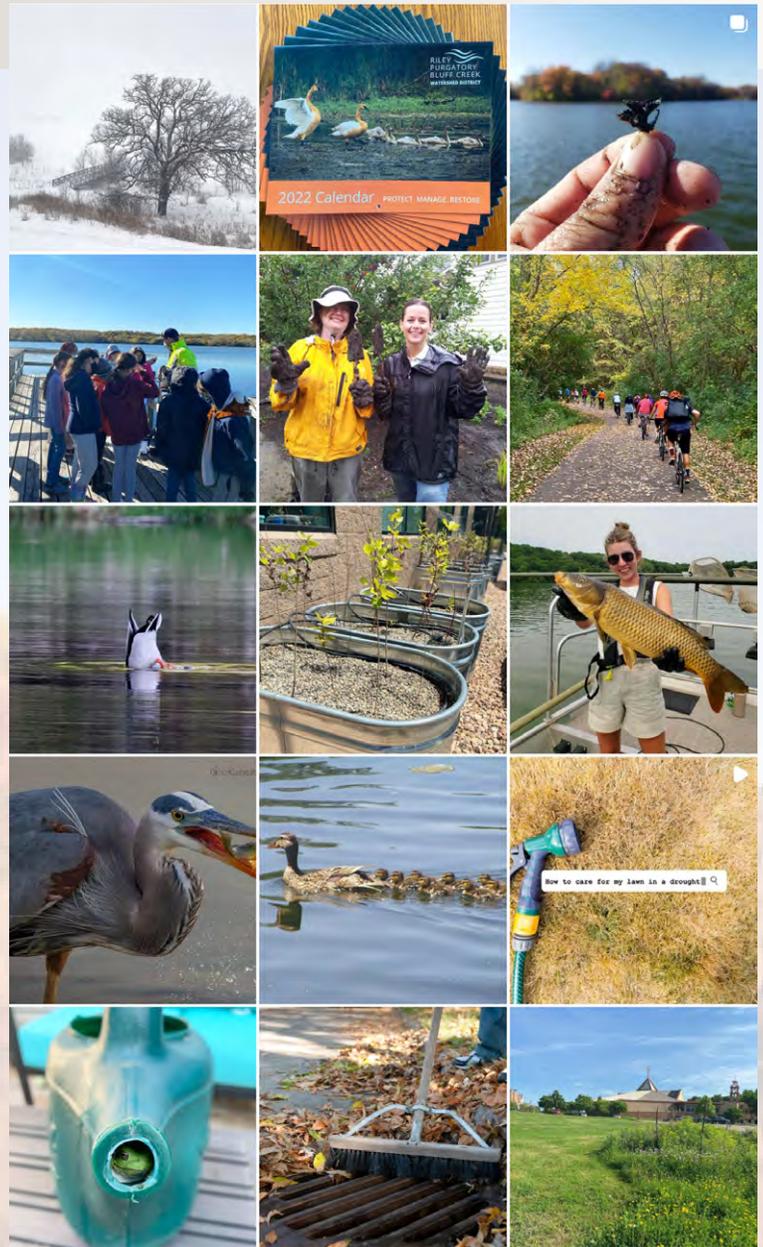
Photos taken during the installation of the St. Hubert Opportunity Project.

LOOKING FORWARD

Hello, 2022!

In the new year we look forward to wrapping up projects and beginning new ones, welcoming back seasonal staff, reinvigorating education and outreach programs impacted by the pandemic, and continued collaboration with community partners.

We hope to see you out and about in the watershed!



Instagram posts from the District (@rpbcwd) in 2021



Regular and seasonal staff, August 2021

Front: Oliva Holstine, Liz Forbes, Aimi Dickel, Abby Tekiela, Eleanor Mahon
Back: Tim Toavs, Jared Fladebo, Mat Nicklay, Terry Jeffery, Amy Bakkum, Zach Dickhausen, Josh Maxwell

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

protect. manage. restore.

APPENDICES

Acronyms used in District materials

ACEC	American Council of Engineering Companies
AIS	Aquatic Invasive Species
APWA	American Public Works Association
ASCE	American Society of Consulting Engineers
BFE	Base Flood Elevation
BMP	Best Management Practices
BWSR	Board of Water and Soil Resources
CAC	Citizens Advisory Committee
CIP	Capital Improvement Program
CRAS	Creek Restoration Action Strategy
CWA	Clean Water Act
CWF	Clean Water Fund
DWSMA	Drinking Water Supply Management Area
E&O	Education and Outreach
FEMA	Federal Emergency Management Agency
FIS	Flood Insurance Study
GIS	Geographic Information Systems
IAP2	International Association of Public Participation
IDDE	Illicit Discharge Detection and Elimination
LID	Low Impact Development
LGU	Local Government Unit
LOMA	Letter of Map Amendment
LVMP	Lake Vegetation Management Plan
MAWD	Minnesota Association of Watershed Districts
MBS	Minnesota Biological Survey
MCES	Metropolitan Council Environmental Services
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MnRAM	Minnesota Routine Assessment Methodology
MLCCS	Minnesota Land Cover Classification System
MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
MRCC	Midwestern Regional Climate Center
MS4	Municipal Separate Storm Sewer System
MSHA	Minnesota Stream Habitat Assessment
MSL	Mean Sea Level
MSP	Minneapolis-St. Paul International Airport
MUSA	Metropolitan Urban Service Area
NAPP	National Aerial Photography Program
NFIP	National Flood Insurance Program
NHIS	Natural Heritage Information System

NPDES	National Pollutant Discharge Elimination System
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Natural Resources Inventory
NURP	Nationwide Urban Runoff Program
NWI	National Wetland Inventory
OHWL	Ordinary High Water Level
PAHs	Polycyclic Aromatic Hydrocarbons
PRAP	Performance Review and Assistance Review
PWI	Public Waters Inventory
RCL	Riley Chain of Lakes
RPBCWD	Riley Purgatory Bluff Creek Watershed District
RWI	Restorable Wetlands Inventory
SHPO	State Historic Preservation Office
SSTS	Subsurface Sewage Treatment Systems
SSURGO	Soil Survey Geographic dataset
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TP-40	Technical Paper 40
TP-49	Technical Paper 49
TSS	Total Suspended Solids
UAA	Use Attainability Analysis
UMN	University of Minnesota
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USDA	United States Department of Agriculture
USGS	United States Geologic Survey
VIC	Voluntary Investigation and Cleanup
WCA	Wetland Conservation Act
WHPP	Wellhead protection plan
WMO	Watershed Management Organization
WOMP	Watershed Outlet Monitoring Program
WRAPS	Watershed Restoration and Protection Strategy
WSTMP	Wetland Status and Trends Monitoring Program
YOY	Young of the Year

District Plan Implementation Report Card

PRAP Level II Review

Part 2-Performance Standards

2010

METRO WATERSHED DISTRICT PERFORMANCE STANDARDS

LGU Name: _____

Performance Area	Performance Standard	Level of Review	Rating	
	<ul style="list-style-type: none"> ★ High performance (optional) standard ■ Basic practice or statutory requirement (see instructions for explanation of standards) 	<ul style="list-style-type: none"> I Annual Compliance II BWSR Staff Review & Assessment (1/5 yrs) 	Yes, No, or Value	
			YES	NO
Administration	■ Activity report: annual, on-time	I	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Financial report & audit completed on schedule	I	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Drainage authority buffer strip report submitted	I	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	■ Rules: date of last revision or review	II	9/4/19	
	■ Personnel policies: written and reviewed/updated within last 5 yrs	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Data practices policy: reviewed/updated within last 5 yrs	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Manager appointments: current and reported	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Consultant RFP: within 2 yrs for legal, engineering, accounting	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Administrator on staff	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Board training: orientation & cont. ed. plan and record for each board member	II	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	★ Staff training: orientation & cont. ed. plan and record for each staff person	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Operational guidelines exist and current	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Public drainage records: meet modernization guidelines	II	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Planning	■ Watershed management plan: up-to-date	I	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ City/twp. local water plans not yet approved	II	0%	
	■ Capital Improvement Program: reviewed every 2 yrs	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Plan goals and objectives guide annual budgeting	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Execution	■ Engineer Reports: submitted for DNR & BWSR review	II	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	■ Total expenditures per year (past 10 yrs)	II	attach table	
	■ Project & program \$ expended/total \$ expended (past 5 yrs)	II	%	
	★ Water quality trends tracked for priority water bodies	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Watershed yield trends monitored / reported	II	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Communication & Coordination	■ Website: contains annual report, financial statement, board members, contact info, watershed mgmt plan	I	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Functioning advisory committee(s): recommendations on projects, reports, 2-way communication with Board	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	■ Communication piece: sent within last 12 months	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Website: contains meeting notices, agendas & minutes; updated after each board mtg; additional content	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Obtain stakeholder input: within last 5 yrs	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Track outcomes for public I & E plan objectives	II	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	★ Coordination with County Bd and City/Twp officials by managers or staff	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	★ Partnerships: cooperative projects/tasks with neighboring districts, counties, soil and water districts, non-governmental organizations	II	<input checked="" type="checkbox"/>	<input type="checkbox"/>

* district in operating under 103B. Engineer Reports submission to DNR & BWSR for review required for petitioned projects