



2020
**ANNUAL
REPORT**

TABLE OF CONTENTS

Contacts	4
Board of managers	4
Citizen advisory committee.....	6
Technical advisory committee	7
Employees and consultants	9
Introduction	11
2020 Summary	12
Administration & Planning	14
Annual Communication	15
SARS-CoV2 response Plan	15
Biennial solicitation of interest proposals	15
Evaluation of capital improvement program.....	15
Status of local plan adoption and implementation	17
Financial Status	17
2020 Annual Audit	17
2020 Annual Budget	17
10-Year Management Plan.....	19
2021 Workplan.....	19
Regulatory program	23
Aquatic invasive species	24
Lake Vegetation Management	26
Lotus Lake.....	26
Red Rock Lake.....	26
Mitchell Lake	27
Lake Riley.....	27
Chloride.....	28
District Floodplain risk assessment	29
Groundwater Conservation	32
Incentive Program	33
Watershed Stewardship Grant program	34
Educator Mini-Grants	35
Action Grants	35
Repair & Maintenance Fund.....	35
Condition of our lakes and streams.....	36
Education & outreach.....	40
Volunteer program.....	41
Local leaders program	42

Youth outreach program	43
Continuing education.....	44
Communications program.....	45
Opportunity Projects.....	47
St. Hubert Opportunity Project	47
Preserve Association Opportunity Project	47
Stormwater Ponds: University of Minnesota	48
Wetlands	49
Bluff Creek Watershed.....	51
Bluff Creek Tributary Restoration Project.....	51
Chanhassen High School.....	52
Wetland restoration at pioneer trail and t.h. 101	53
Purgatory Creek Watershed.....	54
Purgatory Creek Berm – Eden Prairie	55
Lotus Lake Alum	55
Silver Lake Water Quality Project.....	55
Scenic Heights School Forest Restoration.....	56
Hyland Lake In-lake Phosphorus Load	57
.....	57
Duck Lake Partnership	58
Mitchell Lake Subwatershed Assessment	59
Riley Creek Watershed.....	60
Lake Riley Alum Treatment	60
Lake Susan Park Pond	60
Rice Marsh Lake Alum Treatment.....	61
Rice Marsh Lake water quality improvement project	61
Lower Riley Creek Restoration.....	62
Middle Riley Creek.....	64
Upper Riley Creek.....	65
Lake Riley and Rice Marsh Lake Subwatershed Assessment	65

CONTACTS

The RPBCWD is governed by a five-person board of managers, advised by a Citizens Advisory Committee (CAC) and Technical Advisory Committee (TAC), and its daily operations are carried out by a team of employees and consultants. Contact information for each is listed below. Any questions pertaining specifically to this annual report may be directed to Terry Jeffery at tjeffery@rpbcwd.org

BOARD OF MANAGERS

The board of managers are listed by their position, and with their appointing county and term end-date noted. Four managers are appointed by the Hennepin County Commissioners and one by the Carver County Commissioners. They serve three-year terms. In 2020, managers Pedersen and Ward were reappointed.



Members of the public are encouraged to attend any of the meetings. Board meetings are posted on the District's website under "what is happening. Due to the COVID pandemic, Board meetings have been moved to zoom. Board meeting links and meeting minutes can be found at <http://rpbcwd.org/library/board-agendas-packets-minutes>

President (right)

Dick Ward - Hennepin 7/31/23
8625 Endicott Trail
Eden Prairie, MN 55347
Home: (612) 759-9150
Email: dickward@rpbcwd.org

Vice President (middle)

Dorothy Pedersen – Hennepin 7/31/23
6155 Ridge Road
Shorewood, MN 55331
Home: (952) 933-2141
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Treasurer (far right)

Jill Crafton - Hennepin 7/31/21
10351 Decatur Avenue South
Bloomington, MN 55438
Home: (952) 944-5583
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Secretary (left)

David Ziegler - Hennepin 7/31/22
16729 Baywood Terr.
Eden Prairie, MN 55346
Home: (952) 905-1889
Email: dziegler@rpbcwd.org

Manager (far left)

Larry Koch – Carver 7/31/21
471 Bighorn Drive
Chanhassen, MN 55317
Home: (612) 210-5001
Email: lkoch@rpbcwd.org

CITIZEN ADVISORY COMMITTEE

The CAC is a volunteer advisory board comprised of community members. As representatives of citizen interests, members support the district's board of managers in their mission to protect, manage, and restore water resources. They provide recommendations to aid decision making, communicate concerns from the public, and help educate the community. The board of managers annually appoints members to the CAC. The 2020 CAC members were:

<i>Chair</i> Lori Tritz Eden Prairie	<i>Member</i> Samir Penkar Eden Prairie	<i>Member</i> Kim Behrens Minnetonka	<i>Member</i> Pete Iverson Eden Prairie
<i>Vice-Chair</i> Sharon McCotter Chanhassen	<i>Member</i> Scott Bryan Chanhassen	<i>Member</i> Vanessa Nordstrom Chanhassen	<i>Member</i> Terry Jorgenson Eden Prairie
<i>Secretary</i> Marilynn Torkelson Eden Prairie	<i>Member</i> Barry Hofer Eden Prairie	<i>Member</i> Joan Palmquist Eden Prairie	<i>Member</i> Heidi Groven Chanhassen
<i>Member</i> Jim Boettcher Chanhassen	<i>Member</i> Matt Lindon Eden Prairie	<i>Member</i> Jan Neville Eden Prairie	<i>Member</i> Michelle Frost Eden Prairie

To contact members of the CAC, email CAC@rpbcwd.org

Members of the public are encouraged to attend any of the meetings. The CAC meetings are posted on the District's website under "what is happening". Due to the COVID pandemic, CAC meetings have been moved to Zoom. CAC information and meeting minutes can be found at <http://rpbcwd.org/about-watershed/cac-meeting-materials>

TECHNICAL ADVISORY COMMITTEE

The technical advisory committee (TAC) includes representatives of cities, counties, state, and other agencies. Agencies represented on the committee vary from the Metropolitan Council to the Minnesota Department of Natural Resources, and local cities. They provide technical advice on district projects and programs, including its regulatory program. The board of managers annually appoints members to the TAC. The 2020 TAC members were:

<i>Name and position</i>	<i>Organization</i>	<i>Address</i>
Steve Christopher <i>Board Conservationist</i> (651) 296-2633	Board of Water and Soil Resources	520 Lafayette Road North Saint Paul, MN 55155
Matt Lindon <i>Citizen Advisor</i>	Citizen Advisory Committee	9026 Belvedere Drive Eden Prairie, MN 55347
Paul Moline (952) 361-1825	Carver County	Government Center 600 East Fourth Street Chaska, MN 55318
Mike Wanous <i>Administrator</i> (952) 466-5230	Carver County Soil & Water Conservation District	11360 Highway 212, Suite 6, Cologne, MN 55322
Bryan Griudl/Steve Gurney <i>Water Resources Engineer</i> (952) 563-4867	City of Bloomington	1700 West 98 th Street Bloomington, MN 55431
Rena Clark/ Jason Wedel <i>Water Resources Coordinator/ Public Works Director</i> (952) 227-1168/ (952) 227-1169	City of Chanhassen	7700 Market Boulevard P.O. Box 147 Chanhassen, MN 55317
Matt Clark <i>City Engineer</i> (952) 448-9200	City of Chaska	One City Hall Plaza Chaska, MN 55318
Robert Bean Jr. <i>Water Resources Engineer</i> (952) 448-8838 x2607	City of Deephaven (Bolton & Menk, Inc.)	2638 Shadow Lane, Suite 200 Chaska, MN 55318
Leslie Stovring/ Patrick Sejkora <i>Water Resources Coordinator/ Water Resource Engineer</i> (952) 949-8327	City of Eden Prairie	8080 Mitchell Road Eden Prairie, MN 55344
Leslie Yetka/Sarah Schwieger <i>Water Resources Engineering Coordinator</i> (952) 939-8233	City of Minnetonka	14600 Minnetonka Boulevard Minnetonka, MN 55343

Bill Alms (763) 231-4845	City of Shorewood (WSB Engineering)	701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416
Karen Gallas <i>Land & Water Unit</i> (612) 348-2027	Hennepin County	701 Fourth Ave S, Suite 700, Minneapolis, MN 55415
Linda Loomis <i>District Administrator</i> (763) 545-4659	Lower Minnesota River Watershed District	6677 Olson Memorial High- way Golden Valley, MN 55427
Joe Mulcahy <i>Water Resources</i>	Metropolitan Council	390 North Robert Street St. Paul, MN 55101
Lucas Youngsma/ Taylor Huinker <i>Area Hydrologist</i> (651) 259-5790	Minnesota Department of Natural Resources	1200 Warner Road St. Paul, MN 55106
Jordan Donatelle <i>Watershed Division</i> (651) 757-2837	Minnesota Pollution Con- trol Agency	520 Lafayette Rd. N. St. Paul, MN 55155
Melissa Jenny/Ryan Malterud <i>Senior Project Manager</i> (651)290-5286	US Army Corps of Engi- neer	St. Paul District Regulatory Branch 180 Fifth Street East, Suite 700 St. Paul, Minnesota 55101- 1678

Other staff members from agencies or local government units are welcome to join us at our meetings.

EMPLOYEES AND CONSULTANTS

The watershed district employed six full time staff and two temporary staff members in 2020.



Left to right: B Lauer, Josh Maxwell, Claire Bleser, Mat Nicklay, Terry Jeffery, Zach Dickhausen, Amy Bakkum, Maya Swope, not pictured Tim Toavs

Administrator

Claire Bleser, PhD
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Water Resource Coordinator

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Education and Outreach Coordinator

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Water Resources Technician

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Permit and Soil Technician

Mat Nicklay
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Administrative Assistant

Amy Bakkum
abakkum@rpbcwd.org
952-607-6026

During 2020, the District contracted with the following consultants to provide engineering, legal, accounting, and auditing services.

District engineer

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4300 Market Pointe Drive, 200
Edina, MN 55435
Telephone: (952) 832-2755
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Accounting

Nancy Martinson, Redpath and Company
4810 White Bear Parkway
White Bear Lake, MN 55110
Telephone: (651) 426-5844
Email: pmoeller@hlbtr.com

Legal

Louis Smith, Smith Partners PLLP
Old Republic Title Building
400 Second Avenue South, Suite 1200
Minneapolis, MN 55401
Telephone: (612) 344-1400
Facsimile: (612) 344-1550

Auditing

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5201 Eden Avenue Ste 250
Edina, MN 55436
Telephone: (952) 715-3011
Email: justin.nilson@aemcpas.com

INTRODUCTION

When it rains, water that falls on the landscape follows a natural path downstream to a waterbody or watercourse. This area of land is the body's watershed. Anything that happens within a watershed impacts the lakes, creeks, wetlands, or ponds it feeds. Watershed districts are special units of government with boundaries based on watersheds and are charged with protecting and improving our communities' water resources.

The Riley-Purgatory-Bluff Creek Watershed District (District), organized by Citizen Petition, was established on July 31, 1969, by the Minnesota Water Resources Board acting under the authority of the Minnesota Watershed Act of 1955.

Watershed districts are led by district residents and water professionals who focus on managing local water resources. Districts partner with local communities to identify top priorities and plan, implement, and

manage efforts, which protect and improve local water resources. Watershed districts educate and engage residents in protecting and improving local water resources, and the efforts they undertake benefit the quality and quantity of water in local, as well as downstream watersheds and communities.

Even though the District is mostly developed, prior to settlement, the District was covered predominantly by oak forest interrupted by wet prairie and marsh. Small areas of upland deciduous forest covered the far western part of the watershed, while river bottom forest occupied the south boundary of the watershed along the Minnesota River. Areas of maple-basswood forest and oak forest remain adjacent to the lower reaches of Bluff Creek and Riley Creek and are some of the District's unique features.

The following report is a summary of District activities in 2020.

2020 SUMMARY

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 2020 work-plan. The map below highlights the locations of projects, cost-share grants, data collection, and education and outreach activities.

The summary has nine sections:

Administration & Planning

Regulatory

Aquatic Invasive Species

Incentive Program

Data Collection

Education & Outreach

Bluff Creek Watershed

Purgatory Creek Watershed

Riley Creek Watershed

Who are we?

The Riley Purgatory Bluff Creek Watershed District (RPBCWD) is a local unit of government tasked with protecting, managing, and restoring the water resources within its boundaries. It is funded through property tax levies.

RPBCWD is led by a five-member board of managers. The managers meet the first Wednesday of the month, 7 p.m. at the District office or, beginning April 2020, virtual meetings are posted to the RPBCWD website: rpbcwd.org.

Contact us

rpbcwd.org
info@rpbcwd.org
 952-607-6026

Project Highlight

The Duck Lake Partnership

Beginning in 2019, the District embarked on a project in partnership with the City of Eden Prairie and the community of the Duck Lake sub-watershed. Without the help of our residents this project would not have come to fruition. The District invited each household in the sub-watershed, searching for interested partners who would be willing to take action for clean water. Of the over 300 letters sent out, 102 replied, roughly 1/3 of the sub-watershed!

The District outlined four different ways for residents to take action: planting a tree, installing a rain barrel, installing a rain garden, and installing a prototypical downspout rain garden box. Over the course of 2019 and into 2020, the District partnered with Duck Lake area residents to plant 40 trees and installed 52 rainbarrels. Two rain gardens were installed as well as 10 exciting rain garden downspout planters. 82 properties took part in a project which successfully engaged 24 percent of the sub-watershed.

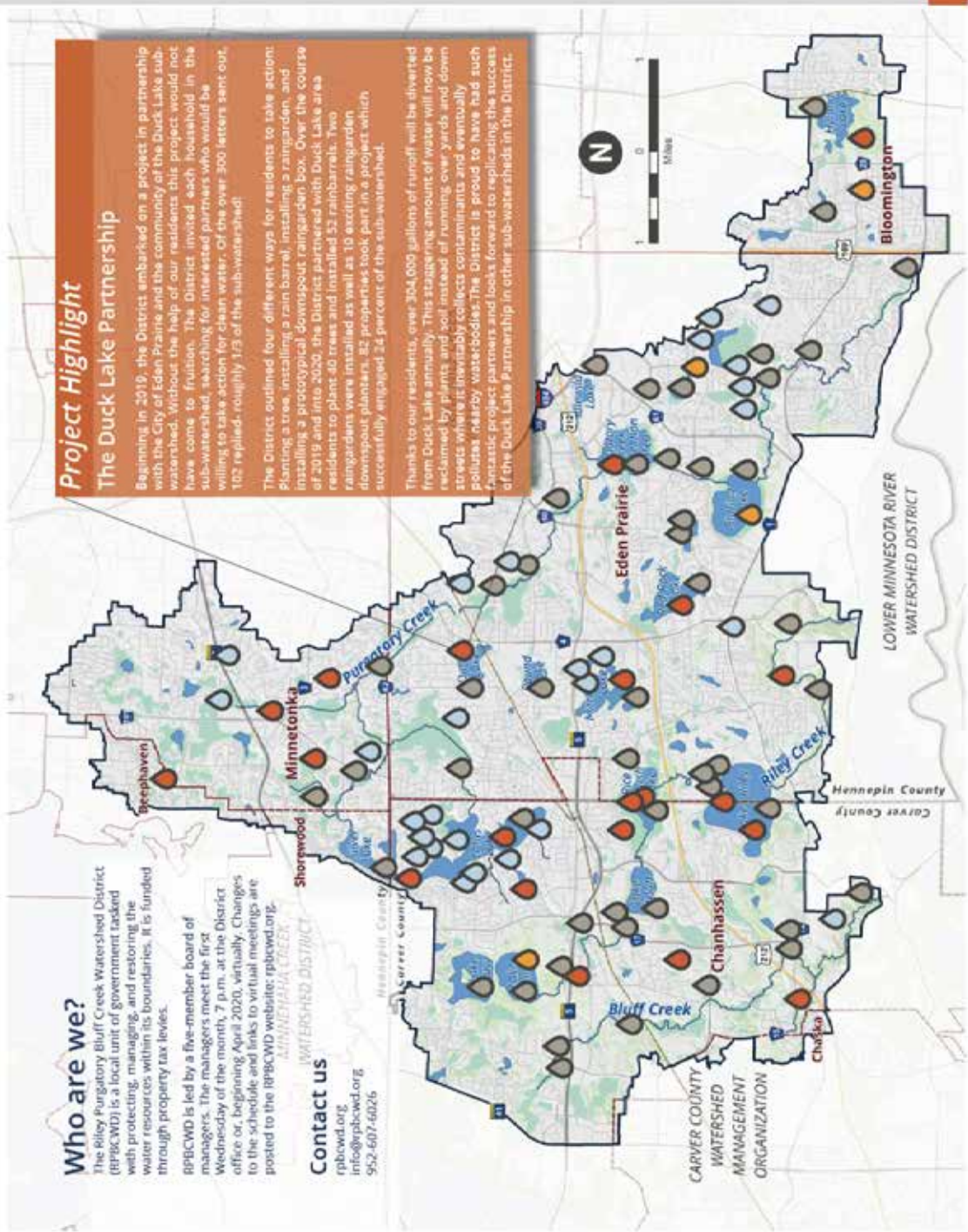
Thanks to our residents, over 304,000 gallons of runoff will be diverted from Duck Lake annually. This staggering amount of water will now be reclaimed by plants and soil instead of running over yards and down streets where it inevitably collects contaminants and eventually pollutes nearby waterbodies. The District is proud to have had such fantastic project partners and looks forward to replicating the success of the Duck Lake Partnership in other sub-watersheds in the District.

Where have we been?

In each of its three watersheds, RPBCWD uses a One-Water management strategy. Rather than focus on a single water body at a time, the strategy looks at the watershed as a whole. It begins with collecting data on the health of the waters, followed by identifying solutions, and finally prioritizing & implementing projects, working together in partnerships whenever possible. We host and collaborate on educational events to engage the public, and award cost share grants to support water quality projects in the community. RPBCWD's permit program also plays an important role by reviewing projects from other entities to make sure they do not degrade our waters.

With three creeks, over a dozen lakes, and seven cities, there are many things to do and places to be in the watershed. Explore the map to discover where we've been this year.

-  Projects
-  Cost Share
-  Water Quality Monitoring
-  Workshops, Events, Outreach



ADMINISTRATION & PLANNING

The District's administration and planning efforts are integral to achieve the goals set by the RPBCWD Plan and the Board of Managers. Effective execution of RPBCWD projects, programs, and other strategies requires sound fiscal management, adequate staff capacity and expertise, and planning efforts that are informed by past performance and data collection, and adaptable to an evolving future.

ANNUAL COMMUNICATION

Every year, the District creates and distributes an annual communication. This publication contains general watershed district information, highlights from the year, and ways that the community can engage in the District's work.

This year, the annual communication was a 4-page document. The Annual Communication was sent out electronically to the District's mailing list. These were also sent to local leaders, placed at local gathering spaces like city centers and libraries, and handed out at community events.

A copy of the communication can be found at:

<http://rpbcwd.org/library/annual-reports-and-communications/>

SARS-COV2 RESPONSE PLAN

In an effort to do our part to ensure public health, the District developed a Covid response plan based upon information from the MN Department of Health and the Centers for Disease Control. This plan can be found on the District website here: [RPBCWD Response to Covid-19 \(Coronavirus\) :: Riley Purgatory](#)

It must be noted that RPBCWD observed all mandates and any photographs of people without masks were taken before March of 2020.

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, engineering, and legal service in 2019. The District retained Redpath and Company as its accountant. Abdo, Eick and Meyers conducted the District's annual financial audit. Smith Partners, PLLP was retained as the District's legal counsel. BARR Engineering was selected as District Engineer. Included in our pool of consultants were Wenck Associates, Limnotech, SRF, HDR, ISG, Houghton Engineering Inc and HTPO. Next solicitation will be issued in 2021. The next solicitation of services will be in 2021.

EVALUATION OF CAPITAL IMPROVEMENT PROGRAM

As part of the District's development of the 2018 10-year management plan, the District has evaluated and prioritized all District capital improvement projects. Out of 175 projects identified, the District with input from our partners was able to identify 34 projects to be implemented within the next 10 years beginning in 2018. One new project, Lake Riley Alum, was identified for the 2020 year in addition to completing projects that were active in 2019. Please find below the status of the projects:

	Anticipated Substantial Completion	Status of Project 2020 Year End
Bluff Creek		
Bluff Creek Tributary	2020	Substantially Complete Ongoing Vegetation Establishment Period
Chanhassen High School	Completed 2019	Collaborating with the ISD 112
Wetland Restoration at Pioneer	2022	Feasibility completed Design 20% Completion
Riley Creek		
Lake Riley - Alum Treatment	2020	Second Alum Dose Complete Monitoring
Lake Susan Water Quality Improvement Phase 2 *	Completed 2019	Completed
Rice Marsh Lake in-lake Phosphorus Load	Completed 2018	Monitoring
Rice Marsh Lake Water Quality Improvement Phase 1	2021	Feasibility Complete Substantially Complete
Riley Creek Restoration (Reach E and D3)	2020	Ongoing Vegetation Establishment Period
Lake Riley & Rice Marsh Lake Subwatershed Assessment	2020	90% completion Ecological Enhancement Plan 90% Complete
Upper Riley Creek Stabilization	Delayed to 2022	Collaborating with the city of Chanhassen
Middle Riley Creek*	2021	Design 60% Complete
St. Hubert Water Quality Project*	2021	Design 60% Complete
Purgatory Creek		
Lotus Lake Kerber Pond Ravine	2020	Feasibility Complete Design 60% Complete
Purgatory Creek Rec Area-berm/retention area - feasibility/design	2021	Collaborating with the City of Eden Prairie
Lotus Lake in-lake Phosphorus Load Control	Completed 2018	Monitoring
Silver Lake Restoration	2021	Design 90% Complete
Scenic Heights	2020	Completed

Hyland Lake in-lake Phosphorus Load Control	2019	Completed
Mitchell Lake Subwatershed Assessment	2020	90% completion
Duck Lake Watershed Load	2021	Substantially Complete Ongoing Vegetation Establishment Period

*As to date all projects identified in the 10-Year Plan for 2020 are implemented or in the process to be implemented. St Hubert Catholic School Water Quality Project was added as part of the District's opportunity project. Middle Riley Creek Restoration was moved up from 2025 as the District's has a willing and financial partner (Bear Path Golf Course) ready to move on the restoration in 2021.

STATUS OF LOCAL PLAN ADOPTION AND IMPLEMENTATION

The District has received and approved all Local Surface Water Management Plans. The Cities of Eden Prairie, Minnetonka and Chanhassen all indicated their desire to assume regulatory responsibility of RPBCWD rules. Chanhassen did provide some language to update local controls for review but has not yet provided an adequate revision of local controls to demonstrate “equally protective.” Therefore, RPBCWD will continue to administer the 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, Eick and Meyers 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.

2020 ANNUAL AUDIT

The 2020 Audited Financial Report may be found on our website at: <http://rpbcwd.org/library/annual-report-communications>

2020 ANNUAL BUDGET

The District adopted its 2020 Annual Budget in September 2019. The 2020 Annual Budget as revised through December 31, 2021 and actual receipts and expenses for 2020 are set forth in the following table.

	2020 Budget	Fund Transfers	Revised 2020 Budget	Current Month	Year-to-Date	Year-to-Date Percent of Budget
REVENUES						
Plan Implementation Levy	\$3,703,000.00	-	\$3,703,000.00	1,787,541.27	\$3,703,882.09	100.02%
Market Value Credit	\$0.00	-	\$0.00	35.39	69.90	—
Permit	25,000.00	-	25,000.00	3,050.00	65,340.15	261.36%
Grant Income	346,719.00	-	346,719.00	-	75,950.00	21.91%
Investment Income	75,000.00	-	75,000.00	(21,371.63)	29,893.13	39.86%
Past Levies	3,699,097.00	-	3,699,097.00	-	-	0.00%
Miscellaneous Income	-	-	-	385.00	4,173.84	—
Reimbursements	-	-	-	3,200.00	122,404.05	—
Partner Funds	612,698.00	-	612,698.00	-	-	0.00%
TOTAL REVENUE	\$8,461,514.00	-	\$8,461,514.00	\$1,772,840.03	\$4,001,713.16	47.29%
EXPENDITURES						
Administration						
Accounting and Audit	\$42,000.00	-	\$42,000.00	\$3,828.74	\$49,707.09	118.35%
Advisory Committees	5,000.00	-	5,000.00	405.56	743.04	14.86%
Insurance and bonds	20,000.00	-	20,000.00	(7,064.00)	11,223.00	56.12%
Engineering Services	109,000.00	-	109,000.00	8,694.00	94,823.69	86.99%
Legal Services	84,000.00	-	84,000.00	8,634.62	102,911.95	122.51%
Manager Per Diem/Expense	20,000.00	-	20,000.00	3,160.19	19,480.80	97.40%
Dues and Publications	14,000.00	-	14,000.00	(1,316.67)	10,959.33	78.28%
Office Cost	150,000.00	-	150,000.00	2,341.95	152,360.21	101.57%
Permit Review and Inspection	135,000.00	-	135,000.00	7,715.84	165,084.41	122.28%
Permit and Grant Database	39,900.00	-	39,900.00	-	23,500.00	58.90%
Professional Services	-	-	-	-	14,234.50	—
Recording Services	17,000.00	-	17,000.00	-	10,614.48	62.44%
Staff Cost	600,000.00	-	600,000.00	37,820.61	497,946.27	82.99%
Subtotal	\$1,235,900.00	-	\$1,235,900.00	\$64,220.84	\$1,153,588.77	93.34%
Programs and Projects						
District Wide						
10-year Management Plan	\$5,000.00	-	\$5,000.00	\$2,693.30	\$16,589.56	331.79%
AIS Inspection and early response	85,000.00	-	85,000.00	50,106.00	52,912.46	62.25%
Cost-share	398,723.00	-	398,723.00	8,209.05	141,988.05	35.61%
Data Collection and Monitoring	192,000.00	-	192,000.00	16,444.70	203,130.01	105.80%
Community Resiliency	63,130.00	-	63,130.00	438.00	27,071.57	42.88%
Education and Outreach	123,000.00	-	123,000.00	7,790.80	106,166.14	86.31%
Plant Restoration - U of M	58,762.00	-	58,762.00	11,245.37	37,149.24	63.22%
Repair and Maintenance Fund *	267,730.00	-	267,730.00	-	55,189.58	20.61%
Wetland Management*	165,685.00	-	165,685.00	18,546.50	54,436.82	32.86%
Groundwater Conservation*	179,750.00	-	179,750.00	185.85	305.85	0.17%
Lake Vegetation Implementation	125,937.00	-	125,937.00	4,312.35	42,854.23	34.03%
Opportunity Project*	287,501.00	-	287,501.00	-	13,666.29	4.75%
Stormwater Ponds - U of M	79,985.00	-	79,985.00	-	32,820.96	41.03%
Hennepin County Chloride Initiative	114,830.00	-	114,830.00	-	21,859.46	19.04%
Lower Minnesota Chloride Cost-Share	217,209.00	-	217,209.00	-	-	0.00%
Subtotal	\$2,364,242.00	-	\$2,364,242.00	\$119,971.92	\$806,140.22	34.10%
Bluff Creek						
Bluff Creek Tributary*	\$65,037.00	-	\$65,037.00	\$13,569.00	\$69,785.91	107.30%
Wetland Restoration at Pioneer	308,674.00	-	308,674.00	4,399.30	93,389.14	30.25%
Subtotal	\$373,711.00	-	\$373,711.00	\$17,968.30	\$163,175.05	43.66%
Riley Creek						
Lake Riley - Alum Treatment*	\$305,000.00	-	\$305,000.00	-	\$257,114.74	84.30%
Lake Susan Water Quality Improvement - Phase 2	-	-	-	-	278.83	—
Rice Marsh Lake in-lake phosphorus load	60,568.00	-	60,568.00	624.58	14,931.84	24.65%
Rice Marsh Lake Water Quality Improvement Phase 1	300,000.00	-	300,000.00	-	15,852.50	5.28%
Riley Creek Restoration (Reach E and D3)	1,773,623.00	-	1,773,623.00	22,396.39	1,959,724.76	110.49%
Lake Riley & Rice Marsh Lake Subwatershed Assessment	29,961.00	-	29,961.00	-	33,851.77	112.99%
Upper Riley Creek Stabilization	1,100,000.00	(250,000.00)	850,000.00	4,658.50	47,974.52	5.64%
Middle Rice Creek	-	268,900.00	268,900.00	1,034.00	76,537.65	28.46%
Lake Ann Wetland Restoration	150,000.00	(100,000.00)	50,000.00	-	-	0.00%
St. Hubert Water Quality Project	-	100,000.00	100,000.00	1,810.98	59,291.79	59.29%
Subtotal	\$3,719,152.00	\$18,900.00	3,738,052.00	\$30,524.45	\$2,465,558.40	65.96%
Purgatory Creek						
Purgatory Creek Rec Area - Berm/retention area - feasibility/design	\$50,000.00	-	\$50,000.00	-	\$15,101.28	30.20%
Lotus Lake in-lake phosphorus load control	104,106.00	-	104,106.00	-	24,880.41	23.90%
Silver Lake Restoration - Feasibility Phase 1	255,931.00	-	255,931.00	6,410.50	48,723.36	19.04%
Scenic Heights	55,459.00	-	55,459.00	-	3,418.50	6.16%
Hyland Lake in-lake phosphorus load control	1,388.00	-	1,388.00	-	-	0.00%
Duck Lake watershed load	125,422.00	-	125,422.00	1,097.50	93,301.99	74.39%
Michell Lake Subwatershed Assessment	46,203.00	-	46,203.00	-	52,071.47	112.70%
Lotus Lake Kerber Pond	30,000.00	-	30,000.00	-	15,620.50	52.07%
Subtotal	\$668,509.00	\$0.00	\$668,509.00	\$7,508.00	\$253,117.51	37.86%
Reserve	\$100,000.00	(\$18,900.00)	81,100.00	-	-	0.00%
TOTAL EXPENDITURE	\$8,461,514.00	\$0.00	\$8,461,514.00	\$240,193.51	\$4,841,579.95	57.22%
EXCESS REVENUES OVER (UNDER) EXPENDITURES	\$0.00	\$0.00	\$0.00	\$1,532,646.52	(\$839,866.79)	

*Denotes Multi-Year Project - See Table 2 for details

10-YEAR MANAGEMENT PLAN

In 2018, the District’s 10-year management plan was adopted. This was preceded by a 2-year process that involved data acquisition, analysis, and prioritization, along with input from stakeholders like city and state organizations, and our community. The plan guides all the District’s actions, from monitoring to water quality projects, over a 10-year period. The 2021, workplan is set forth below:

2021 WORKPLAN

<i>Administration</i>	
Accounting and Audit	<p>Coordinate with Accountant for the development of financial reports.</p> <p>Coordinate with the Auditor.</p> <p>Continue to work with the Treasurer to maximize on fund investments.</p>
Internal Policies	<p>Revise Governance Manual, review bylaws and manuals, as necessary. Begin review of Personnel Handbook.</p> <p>Work with Board to develop communication plan.</p>
Advisory Committees	<p>Engage with the Technical Advisory Committee on water conservation, chloride management and emerging topics.</p> <p>Engage with the Citizen Advisory Committee on water conservation, annual budget, and emerging topics.</p> <p>Facilitate recruitment of CAC members for 2022.</p>
Employee Management	<p>Hire Outreach Manager, Education and Outreach Coordinator, Water Resources Technician, Administrator, and interns as necessary.</p> <p>Conduct performance reviews.</p> <p>Coordinate with Payroll Officer.</p> <p>Maintain cohesive and efficient workplace environment.</p> <p>Update personnel handbook incorporating best management practices.</p>
Municipal Interactions	<p>Engage with Municipalities to raise awareness and increase partner participation in District led projects.</p>
Office Management	<p>Maintain office and manage staff safely during COVID pandemic.</p>
Insurance and Safety	<p>Maintain District Insurance and Employee Safety Program.</p>
Regulatory Program	<p>Ensure permitting database is functioning.</p> <p>Engage Technical Advisory Committee and Citizen Advisory Committee on possible rule changes.</p> <p>Implement and review regulatory program.</p>

<i>District Wide</i>	
Aquatic Invasive Species	<p>Review AIS monitoring program.</p> <p>Develop and implement Rapid Response Plan as appropriate.</p> <p>Coordinate with LGUs and keep stakeholders aware of AIS management activities.</p> <p>Manage and maintain the aeration system on Rice Marsh Lake as per the Riley Chain of Lakes Carp Management Plan.</p> <p>Keep abreast in technology and research in AIS.</p>
Cost-Share	<p>Review applications and recommend implementation.</p> <p>Continue to increase stewardship base.</p>
Data Collection	<p>Continue Data Collection in permanent sites.</p> <p>Identify monitoring sites to assess future project sites.</p> <p>Review updates to the field CRAS analysis.</p> <p>Develop shoreline health index.</p>
Community Resiliency	<p>Coordinate maintenance of Hydrology and Hydraulics Model – and build higher resolution.</p>
Education and Outreach	<p>Implement Education & Outreach Plan, review at year end.</p> <p>Manage partnership activities with other organizations.</p> <p>Coordinate Public Engagement with District projects.</p>
Groundwater Conservation	<p>Manage Water Conservation Grant Program</p> <p>Engage with the Technical Advisory Committee to identify potential projects.</p> <p>Develop Water Conservation Education Program.</p>
Lake Vegetation Management	<p>Depending on the specific lake, work with the University of Minnesota or an Aquatic Plant Biologist, Cities of Chanhassen and Eden Prairie, lake associations and residents, as well the Minnesota Department of Natural Resources on potential treatment.</p> <p>Implement herbicide treatments as needed.</p> <p>Secure DNR permits and contract with herbicide applicator.</p> <p>Lakes the District is monitoring for treatment include: Lake Susan, Lake Riley, Lotus Lake, Mitchell Lake, Red Rock Lake and Staring Lake.</p> <p>Develop Lotus Lake vegetation management plan.</p> <p>Work with Three Rivers Park District for Hyland Lake.</p>
Opportunity Projects	<p>Assess potential projects as they are presented to the District.</p>

Total Maximum Daily Load	Continue partnering with Minnesota Pollution Control Agency on the Watershed Restoration and Protection Strategies (WRAPS) work within the District. Seek input from the Technical Advisory Committee.
Repair and Maintenance Grant	Develop and formalize grant program.
University of Minnesota	Review and monitor progress on University of Minnesota grant which supports stormwater pond research relating to the monitoring of ponds for release of TP and potential use of Alum or iron for treatment Support Dr. John Gulliver and Dr. Ray Newman research and coordinate with local partners. Keep the managers informed as to progress in the research. Identify next management steps.
Watershed Plan	Update as necessary.
Wetland Management	Identify potential restoration/rehabilitation wetlands and wetlands requiring protection. Build on the work from 2020.
<i>Bluff Creek One Water</i>	
Chanhasen High School Re-use	Continue to monitor system.
Wetland Restoration and Flood Mitigation	Continue design for restoration. Begin restoration efforts.
Bluff Creek Tributary Restoration	Finalize restoration. Continue vegetation establishment efforts
Bluff Creek R5 Restoration	Conduct feasibility study. Develop cooperative agreement with the City of Chanhasen. Order Project. Begin design.
<i>Riley Creek One Water</i>	
Lake Riley Alum	Continue to monitor.
Lake Susan Improvement Phase 1	Continue to monitor spent lime treatment facility.
Lake Susan Improvement Phase 2	Continue to monitor system.
Lower Riley Creek Stabilization	Complete restoration and monitor. Continue vegetation establishment efforts.
Rice Marsh Lake Alum Treatment	Continue to monitor.

Rice Marsh Lake Watershed Load Project 1	Conduct Design and implement water quality project. Develop cooperative agreement with City of Chanhasen.
Lake Riley and Rice Marsh Lake subwatershed Assessment	Continue working on project. Complete reporting requirements.
Upper Riley Creek	Develop cooperative agreement with the City of Chanhasen. Order project. Start design.
<i>Purgatory Creek One Watershed</i>	
Duck Lake Raingarden Project	Complete Duck Lake Partnership Agreement. Continue vegetation establishment efforts.
Hyland Lake Internal Load control	Monitor Hyland Lake Alum application. Coordinate with Three Rivers Park District and the City of Bloomington.
Lotus Lake – Internal Load Control	Continue Monitoring.
Silver Lake Restoration	Implement restoration project.
Scenic Heights	Continue Monitoring.
Mitchell Lake Subwatershed	Continue working on project. Complete reporting requirements.
Lotus Lake- Kerber pond	Coordinate with the City of Chanhasen on project timeline.
<i>Professional Services</i>	
Presentations	Present District findings at local, regional, and national conferences.
MAWD	Participate and Represent the District.
North American Lake Management Society	Participate and Represent the District.
Watershed Partners	Participate and Represent the District.
TC-WaMODOG	Participate and Represent the District.



REGULATORY PROGRAM

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 throughout the District.

The District's Board of Managers adopted the regulatory program on November 5 of 2014 and implementation of the regulatory program went into effect in January of 2015. In response to stakeholder comments, the District has modified the regulatory program in 2018 and 2019. A summary of the modifications can be found on the District's website here. [Permits :: Riley Purgatory \(rpbcwd.org\)](https://www.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 with the 2018 revisions) which can be viewed in detail on the District's website at <http://rpbcwd.org/permits>

Since the District reinstated its regulatory program in 2015, 406 permit applications have been submitted to the District, including 73 for the 2020 calendar year. A permit database has been developed for use in 2021 which will allow staff to easily view and track permits, escrows, fees, inspections, and violations.

In 2020, there were twenty-three (23) permit applications that were approved by the RPBCWD Board of Managers. In addition, another thirty-seven (37) were approved administratively as set forth in District policy. These included eighteen (18) permits for work on existing single-family lots of record, fifteen (15) issued to municipalities or local road authorities, and four (4) to commercial properties.

There was one request for variance from District rules in 2020. This was a variance from the floodplain rule. This variance was denied by the Board of Managers. There were two after-the-fact applications for violation of the District's regulatory program in 2020. One permit was issued. This permit was for work that triggered Rule C: Erosion Prevention and Sediment Control. The other, a request to rip-rap a shoreline, was denied.

AQUATIC INVASIVE SPECIES

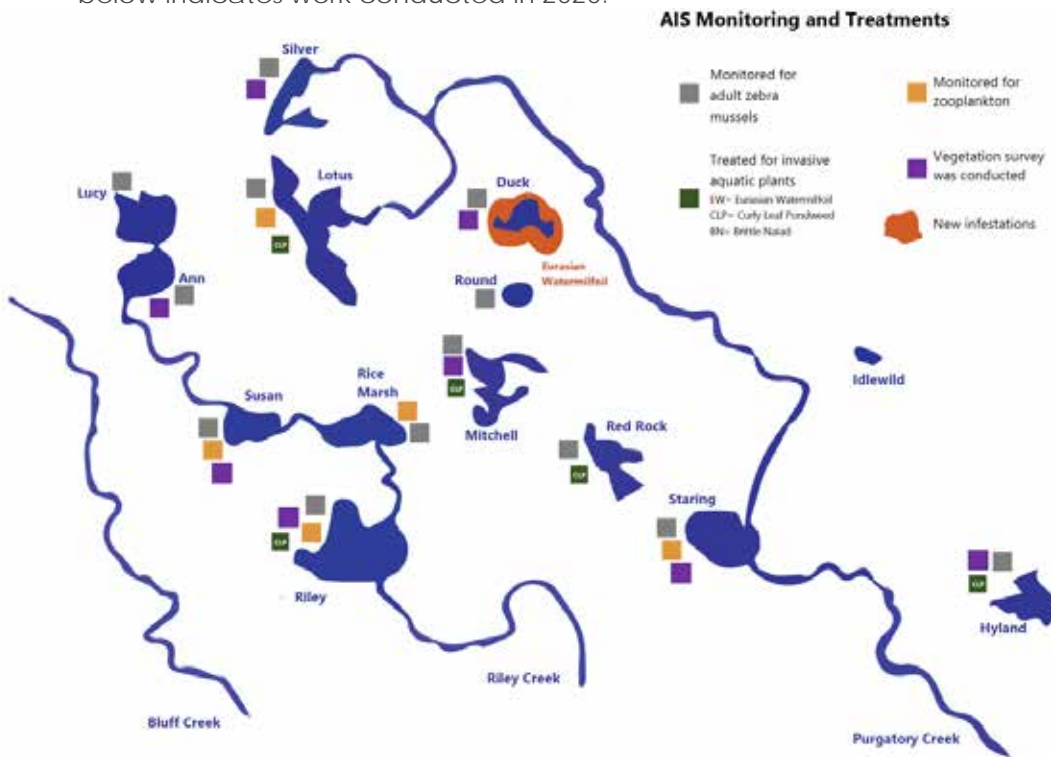
The District understands the importance of AIS monitoring, inspections, and preventions. The District also recognizes that it is more cost effective to prevent an infestation than to restore a resource after an AIS has established itself. The District made a commitment to fund prevention practices such as the Adopt a Dock program. This is particularly important as some property owner activities may increase lake vulnerability to AIS infestations. At the same time, they can be the best on-going eyes of observation. The AIS program supports AIS inspections, monitoring and rapid responses to a new infestation. More information on aquatic invasive species can be seen in the 2020 Water Resources Report at <http://rpbcwd.org/library/annual-report-communications>



AQUATIC INVASIVE SPECIES

Inspecting and implementing early response to protect and maintain the ecology of water resources.

The District understands the importance of AIS monitoring, inspections, and preventions. The District also recognizes that it is more cost effective to prevent an infestation than to restore a resource after an AIS has established itself. The AIS program is to help support AIS inspections in both the City of Chanhassen and Eden Prairie, AIS monitoring and rapid responses to a new infestation. The graphic below indicates work conducted in 2020.



Symbols indicate zebra mussel monitoring plates and/or monthly public boat launch scans (grey), zooplankton and phytoplankton sampling conducted (orange), herbicide treatments occurred (green), point intercept vegetation surveys (purple). The orange outline around a lake indicates a new AIS found. All lakes received juvenile mussel sampling; none were found by the District except in Lake Riley.

The District manages carp in the Riley Creek Watershed with the use of our aeration unit on Rice Marsh Lake, stocking Blue Gill, and carp sampling. We are currently identifying a solution for Purgatory Creek.

Don't Forget!

Clean, Drain, Dry



Help keep our waters safe from these invaders by pulling the plug, wiping it clean and letting it dry.

LAKE VEGETATION MANAGEMENT

In 2020, the District conducted herbicide treatments on aquatic invasive species on Lotus Lake, Mitchell Lake, Red Rock Lake, and Lake Riley.

Lake Vegetation Management



Lotus Lake

As part of a restoration effort post-carp removal and after the alum treatment, the District has been monitoring and targeting herbicide treatments for curlyleaf pondweed. In 2020, the District conducted one herbicide treatment on Lotus Lake totaling 12.8 acres for curlyleaf pondweed. The treatment is part of an effort to restore the native vegetation post carp removal and management. The District will continue to monitor and assess the need for herbicide treatments for this invasive species. The District will be surveying the aquatic plant community to determine if there is a need to treat in 2021.



Red Rock Lake

Red Rock Lake is classified as a shallow lake by the Minnesota Pollution Control Agency. In 2015, the District along with the city of Eden Prairie completed a public engagement process to develop a plant management plan for Red Rock Lake. Part of the plan identified the need for managing curlyleaf pondweed and as such the District has taken leadership in managing for this invasive plant. Thirteen acres were treated for curlyleaf pondweed. The District will be surveying the aquatic plant community to determine if there is a need to treat in 2021.



Mitchell Lake

Mitchell Lake is classified as a shallow lake by the Minnesota Pollution Control Agency. To promote the health of a native plant population the District has taken leadership in managing for curlyleaf pondweed. Thirteen acres were treated for curlyleaf pondweed. The District will be surveying the aquatic plant community to determine if there is a need to treat in 2021.



Lake Riley

As part of a restoration effort post-carp removal and after the alum treatment, the District has been monitoring and targeting herbicide treatments for curlyleaf pondweed. In 2020, the District conducted one herbicide treatment on Lake Riley totaling 16 acres for curlyleaf pondweed. The treatment is part of an effort to restore the native vegetation post carp removal and management. The District will continue to monitor and assess the need for herbicide treatment

for this invasive species. The District will be surveying the aquatic plant community to determine if there is a need to treat in 2021.

CHLORIDE

The District is the fiscal agent and project lead partnering with area Water Management organizations for two chloride initiatives: Hennepin County Chloride Initiative (HCCI) and the Lower Minnesota Chloride Grant. Both programs target chloride pollution. The first phase of the HCCI gathered input from applicators to understand barriers and needs from the industry.

In 2019, the HCCI used a mixed-methods approach, combining qualitative data gathered from stakeholder interviews and quantitative data gathered through an online survey. Interviews were conducted with 12 private salt applicators in and around Hennepin County. Quantitative data were collected through a self-administered online survey distributed initially to 369 winter maintenance professionals and distributed further using snowball sampling. Findings will be finalized and published in a white paper in 2021.

HCCI partners met virtually throughout 2020 to discuss next steps and explore possibilities for the usage of HCCI funds. Possible examples include a commercial chloride management plan template and the implementation of best management practices for chloride reduction. The group will continue to meet throughout 2021 to gather feedback from partners.



The Lower Minnesota Chloride Reduction Grant was officially launched 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 usage by that organization. Some examples include pavement temperatures sensors which would allow for more effective chloride application or outfitting currently owned trucks with new segmented plow blades in order to reduce snow and ice. The group will continue to meet throughout 2021 to assess effectiveness and review applications.



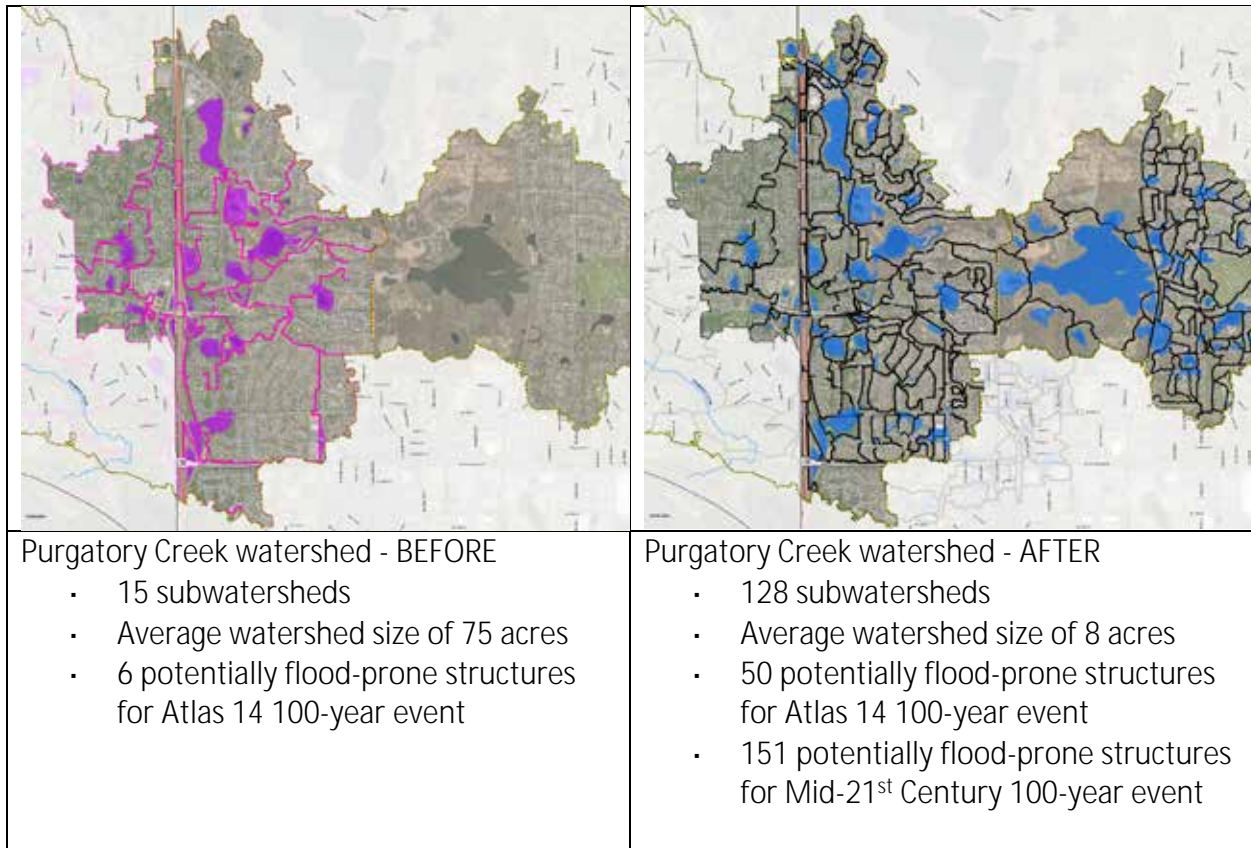
DISTRICT FLOODPLAIN RISK ASSESSMENT

In 2020, the District continued working with the City of Bloomington to incorporate more detailed information in the Purgatory Creek and Hyland Lake subwatershed hydrologic and hydraulic models and develop a framework to prioritize future evaluation of flood-risk reduction projects. The framework includes six criteria for prioritizing flood-prone areas:

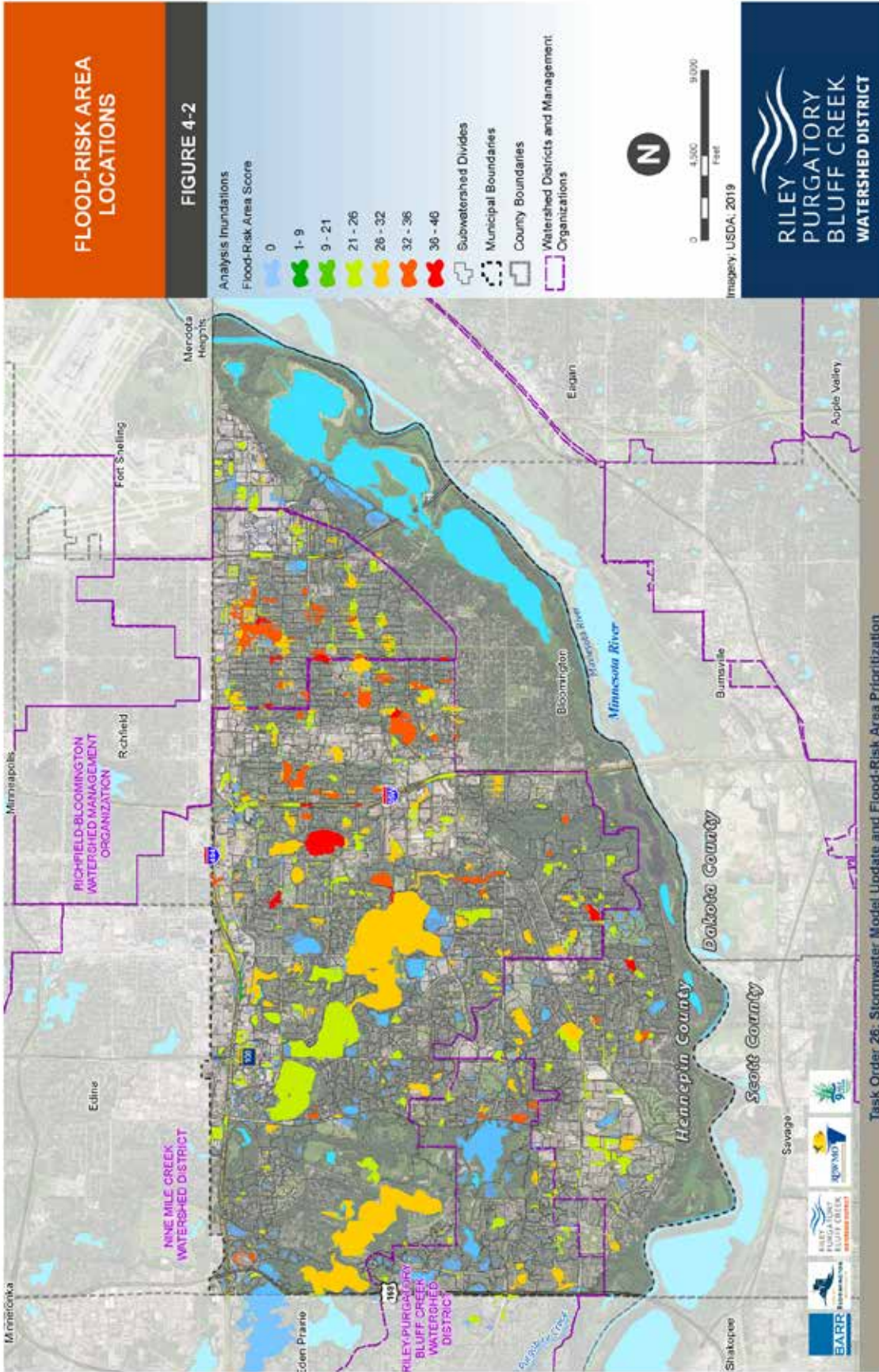
- Number of impacted structures
- Frequency of flooding
- Social vulnerability index
- Project efficiency
- Multiple benefits
- Critical Infrastructure

The partnership was expanded to include the Nine Mile Creek Watershed District (NMCWD) and the Richfield Bloomington Water Management Organization (RBWMO) to facilitate the extension of the prioritization framework across those portions of Bloomington. A total of 2,301 flood-risk areas were evaluated throughout the City of Bloomington. Areas with higher scores indicate locations that are a higher priority to mitigate flood-risk.

The prioritization framework can be used as one tool to determine where to begin with further evaluation of flood-risk mitigation projects. This provides the RPBCWD, NMCWD, RBWMO, and City of Bloomington a methodology to compare potential benefits of food-risk mitigation projects and prioritize how to invest limited resources for mitigating flood-risk. The information was presented at the 2020 Water Resources Conference and at the Minnesota Association of Watershed Districts Annual Conference. To consistently apply the framework throughout RPBCWD, the District began coordinating with the City of Eden Prairie to partner and expand the analysis to the RPBCWD portions of the city.



In 2021, the District will continue to apply the prioritization framework throughout the watershed by partnering with the City of Eden Prairie. The District will also continue to identify partnership opportunities with member cities to add detail to the stormwater model to identify flood-risk areas that are not adjacent to the creeks.



GROUNDWATER CONSERVATION

In the spring of 2020, the District officially launched the Groundwater Conservation Program. After extensive stakeholder engagement, the District decided to approach groundwater conservation with a three-pronged approach. The district provided grant funding to five out of seven cities in our District to support the formation of water efficient technology rebate programs. 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 third component of the program is a smart water meter pilot program. This program has been launched in collaboration with the City of Minnetonka. All components have been successfully launched and are actively supporting the conservation of groundwater within the District and beyond.



GROUNDWATER
CONSERVATION
GRANTS FOR CITIES



EDUCATION
COLLABORATIVE



SMART METER PILOT
PROGRAM

INCENTIVE PROGRAM

The District has four incentive programs. The Watershed Stewardship Grant Program funds and supports community projects that protect, improve, and raise awareness about water resources. The Educator Mini-Grant provide funds to educators to engage their students in an activity relating to our water resources. The Action Grant program provides small grants for team projects and activities that help protect clean water. The repair and maintenance funds are available to help cover some of the normal and routine maintenance cost of municipalities.

2020 Annual Report Grants – Summary Tables

Watershed Stewardship Grant Program

Distribution and status of grants by category

Category	Project Status			Quantity
	<i>In progress</i>	<i>Stalled</i>	<i>Completed</i>	
Residential	11	1	10	22
Non-profit (e.g. HOA)	2	0	5	7
Local government	1	0	0	1
Total	14	1	15	30

Distribution of grants by location (city)

Location	Quantity
Chanhassen	10
Chaska	1
Eden Prairie	16
Minnetonka	3
Total	30

Educator Mini-Grant Program

School name	Grant Award	Purpose	Impact
Eden Lake Elementary	\$250	Winter clothing for outdoor activities	45 students
Eden Lake Elementary	\$250	Winter clothing for outdoor activities	140 students
Eden Lake Elementary	\$250	Binoculars	18 students



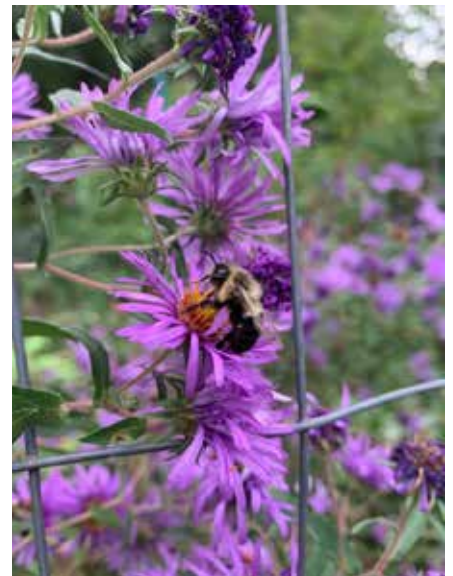
WATERSHED STEWARDSHIP GRANT PROGRAM

Funding and support for community projects that protect, improve, and increase awareness of stewardship solutions for water resources.

The Watershed Stewardship Grant Program, formerly known as The Cost-Share Program, provides 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 2020, the Watershed District's Watershed Stewardship Grant Program funded 30 projects, including habitat restorations, invasive species removals, shoreline buffers, infrastructure upgrades, and a rain garden. 720,000 square feet of native habitat was restored.

District staff adapted the program to ensure that staff, consultants, and residents remained safe from the Covid-19 pandemic while still getting potential grantees the technical advice they need. The Watershed Stewardship Grant Program has been growing exponentially since 2018, more than doubling the number of grants awarded each year.



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 only received three applications for mini-grants in 2020. The approved grants included requests to purchase a set of binoculars to observe wildlife around a lake behind a school. Other requests were for winter gear including gloves, jackets, snow pants and boots to enable students to comfortably explore outdoors during cold winter months. In total, an estimated 200 students benefited from grants awarded by the District.



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 received no applications for action grants in 2020.

REPAIR & MAINTENANCE FUND

In 2020, no funds were requested by cities for the repair and maintenance of stormwater infrastructure.

CONDITION OF OUR LAKES AND STREAMS

Data Collection

Improving and maintaining the quality of our lakes and streams is the District's primary goal. To do so, the District understands that data collection and decisions based on sound science are critical to achieving this goal. Because of the dynamic and ever-changing nature of the water resources, the District operates an extensive lake and stream management program. This program captures annual conditions of the District's water bodies to improve the District's understanding and inform sound decision making in order to best protect and enhance the surface and ground-water resources in the District. Generally, the program includes:

- Data Collection (monitoring)
- Analysis (e.g., research, studies, etc.)

The Riley Purgatory Bluff Creek Watershed District (RPBCWD) had a successful water quality sampling season in 2020, completing a full year of sample collection and data analysis. This effort was made possible through multiple partnerships with municipalities and organizations based within the watershed. The results from the 2020 sampling effort are presented in this report.

2020 LAKE SUMMARY

During the 2020 monitoring season, 13 lakes and two high value wetlands were monitored throughout the District. Regular water quality lake sampling was conducted on each lake approximately every two weeks throughout the growing season (June-September). In addition to regular lake sampling, the District monitored water levels on each lake, assessed carp populations on seven waterbodies, and collected zooplankton and phytoplankton populations in five lakes. Staff were able to remove 201 common carp from the Purgatory Creek Recreation Area during the spring spawning run in attempt to reduce overall carp numbers in the system. The District also monitored public access points and analyzed water samples for the presence of zebra mussels in these 14 waterbodies. Zebra mussel veligers and adults were first found on Lake Riley in 2018. Their populations continued to grow throughout Lake Riley in 2020. Water samples processed for eDNA tested positive for the presence of zebra mussels on Lotus Lake in 2020. The MNDNR first added Lotus Lake to the Infested Waters List for zebra mussels in 2019 based upon observation of veligers and and desiccated adults. In 2020, eDNA tests were positive for Lotus Lake. No adults were observed in 2020. A second application of alum was applied to Lake Riley in 2020. Herbicide treatments for curly leaf pondweed were carried out on Lotus, Mitchell, Riley, Hyland, and Red Rock Lakes for curly leaf pondweed.

In 2020, Lake Ann, Lake Lucy, Lake Riley, Rice Marsh Lake, Hyland Lake, Round Lake, and Duck Lake met all three MPCA standards. The Riley Chain of Lakes showed improvement since

2019 with Lake Lucy meeting all standards in 2020. Lake Riley had the highest recorded summertime secchi disk average (4.64 m) since data collection began in the 1970s. Rice Marsh Lake continued to meet all standards following the alum treatment which occurred in 2018. Lake Susan did not meet the TP and Chl-a standard. Silver Lake of the Purgatory Chain of Lakes met all standards in 2018, but similarly to 2019, did not meet standards, with increases in both Chl-a and TP levels in 2020. Lotus, Mitchell, and Red Rock Lakes had reduced water quality in 2020, failing to meet all three water quality standards. Hyland Lake had excellent water quality in 2020, which can be attributed to the alum treatment in 2019. Idlewild and McCoy high value wetlands did not meet the TP standard and Staring Lake improved slightly by meeting the TP standard in 2020. All lakes met the proposed nitrate/nitrite water quality standard and chloride standard.

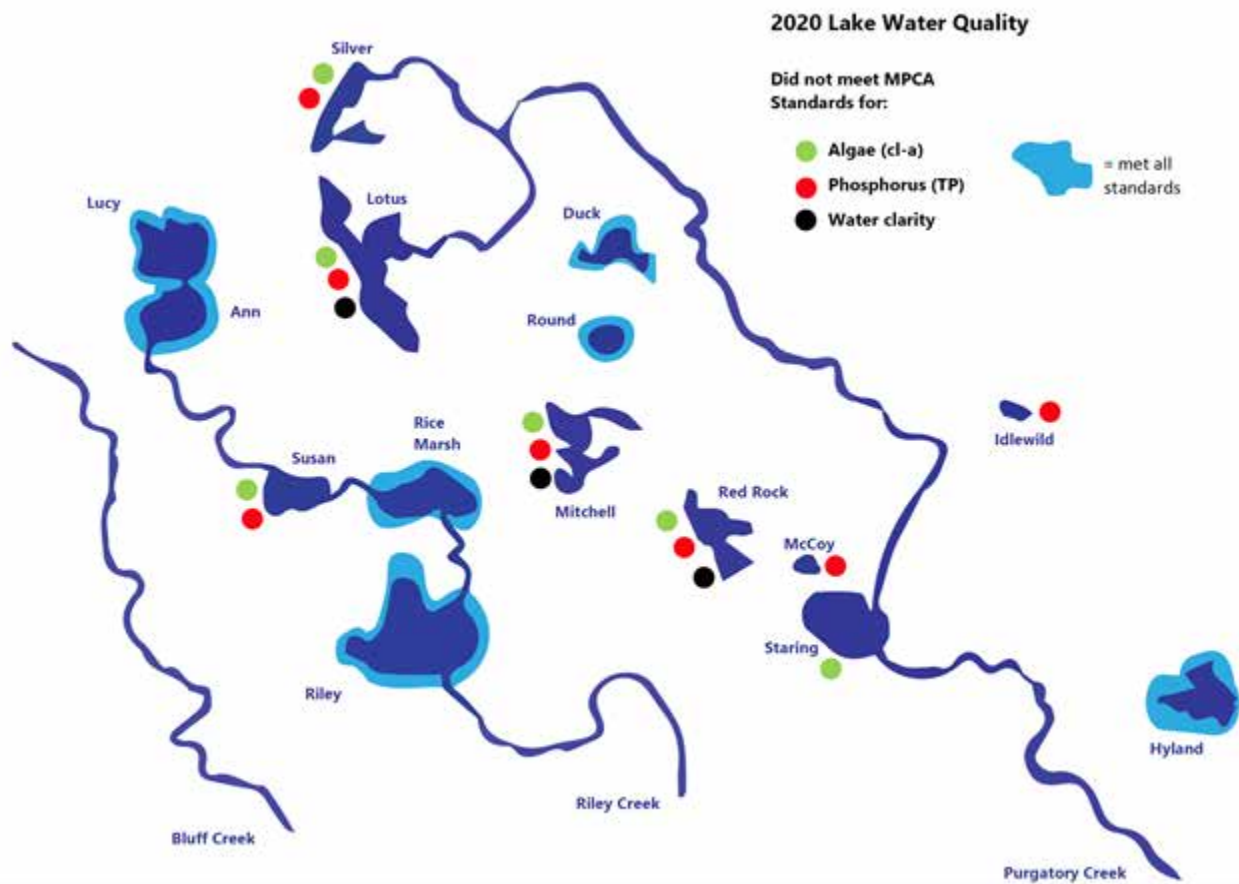


Figure i 2020 Lake Water Quality

Summary of the lake water quality data collected in 2020 by the Riley Purgatory Bluff Creek Watershed District as compared to the Minnesota Pollution Control Agency Water Quality Standards. Chlorophyll-a (green), Total Phosphorus (orange), and Secchi Disk depth (black) during the growing season (June-September) for both 'deep' lakes or lakes >15 ft deep and < 80% littoral area (Lake Ann, Lotus Lake, Lake Riley, and Round Lake), and 'shallow' lakes or lakes <15 ft deep and >80% littoral area (Duck Lake, Hyland Lake, Lake Idlewild, Lake Lucy, Lake McCoy, Mitchell Lake, Red Rock Lake, Rice Marsh Lake, Staring Lake, Lake Susan, and Silver Lake). The corresponding dots next to each lake indicate which water quality standard was not met and lakes surrounded by blue met all water quality standards.

2020 STREAM SUMMARY

In 2020, the District and its partners collected water quality samples and performed data analysis at 23 different sampling sites along Riley Creek (six sites), Bluff Creek (six sites), and Purgatory Creek (twelve sites). During the 2020 creek monitoring season (April-September) water chemistry and turbidity were regularly measured at the 18-regular water quality creek monitoring sites every two weeks. Water samples were collected to assess nutrient (TP, OP, CL, and Chl-a) and total suspended sediment (TSS) concentrations. Creek flow was calculated from velocity measurements taken at consistent creek cross sections at each water quality monitoring location. Staff deployed automated sampling units on upper Bluff Creek to assess pollutant loads and the potential for restoration projects. The District collected macroinvertebrates at all five Bluff Creek regular water quality monitoring sites in 2020. The lower sections of Purgatory Creek and uppermost reach of Bluff Creek were assessed and updated using the Creek Restoration Action Strategy (CRAS) evaluation. Overall, most stream sections scored by the CRAS were similar to years past, with the exception of Reach 2 of Purgatory Creek where reduced water quality trends negatively impacted scores.

Regular creek sampling sites R5 and R3 met all MPCA water quality standards assessed in 2020 (Figure ii), down from 4 sites in 2019 (P3, P4, P5 and R3). The overall number of water quality standard impairments increased from 2019 to 2020; Bluff Creek had ten (previously nine), Riley Creek had six (previously seven), and Purgatory Creek had eleven (previously seven). Once again, TP was the water quality standard causing the most impairments in 2020 with nine of the 18 sites not meeting the standard (summer average <0.1 mg/L). TSS impairments decreased from seven impairments in 2019 to six 2020. Bluff Creek remained the stream with the most impaired water quality for its size, as previously seen between 2015-2019. The impairments included TP across all sites, as well as TSS across three sites, DO at B5, and a fish impairment at B1. All sites met the pH water quality limits in 2020 (< 9 su and >6 su). Unlike in 2015-2018, P2 met the Chl-a standard (summer average <18 ug/L), and no other site exceeded the standard. Macroinvertebrate impairments by the MPCA included lower Purgatory and Riley Creek.

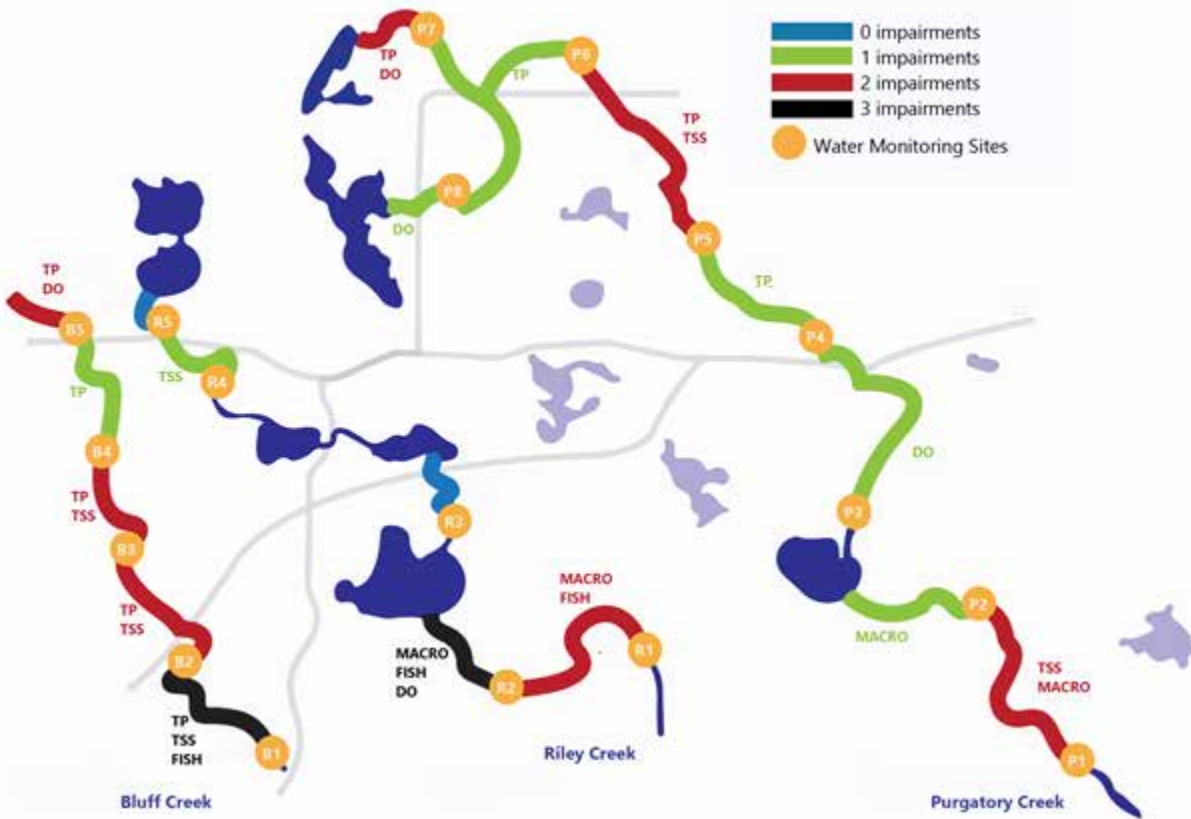


Figure ii 2020 Stream Water Quality

Summary of stream water quality data collected on Bluff Creek, Riley Creek, and Purgatory Creek in 2020 by the Riley Purgatory Bluff Creek Watershed District as compared to the Minnesota Pollution Control Agency (MPCA) Water Quality Standards. A total of 18 water monitoring locations (orange circles) were sampled and information gathered from the individual sites were applied upstream to the next monitoring location. The summer season (April-September) eutrophication and total suspended solids water quality standards used in this assessment included: Dissolved Oxygen (DO) daily minimum > 4 mg/L, average Total Phosphorus (TP) < 0.1 mg/L, Total Suspended Solids (TSS) < 10% exceedance of 30 mg/L limit, average Chlorophyll-a (CHLA) < 18 ug/L, average pH < 9 su and > 6 su. The corresponding labels next to each stream section indicate which water quality standard were not met.

The full text of the report can be found at:

<http://rpbcwd.org/library/annual-reports-and-communications/>

EDUCATION & OUTREACH

Community-scale problems require community-scale actions, and water quality is an issue that affects and belongs to everyone. The District's education and outreach (E&O) programs aim to fulfill its clean water objectives by fostering a community of stewards.

The goal of these programs is to improve water quality by leveraging the power of an engaged community to effect meaningful change. To accomplish this, the E&O programs strive to increase awareness, grow stewardship, and build capacity to achieve a shared goal of protecting clean water.

In 2020, the District continued implementation of the E&O Plan, though the program was heavily impacted by the Covid-19 pandemic. District staff worked diligently to move events and gatherings to an online space. The following pages describe the District's E&O programs and major activities in 2020.



VOLUNTEER PROGRAM

Fostering stewardship and growing capacity through fun, impactful volunteer opportunities.

The watershed district’s volunteer program supports its mission to protect, manage, and restore waters resources by engaging community members in stewardship opportunities. The district strives to create meaningful experiences for volunteers, while growing its own capacity to protect clean water. The 2020 program encountered unique difficulties presented by the Covid-19 pandemic. In order to keep staff and volunteers safe, in person events were cancelled after March 2020. However, several projects were adapted to be conducted safely in accordance with Covid-19 protocols– Adopt a Dock, Service Learners, and a tree giveaway.

Adopt a Dock



Adopt a Dock is a citizen science initiative. Lakeshore residents monitor for aquatic invasive species.

Tree Giveaway



Staff built a gravel bed tree nursery at our office and helped over 100 trees grow deep roots over the summer. This increases the odds of tree success once they are planted in the ground.

Service Learners



Service learners are college students or other community members who gain first-hand experience at the district through volunteering.

In 2020, the watershed district’s volunteer program engaged community members through three different opportunities and four events:

112



Trees given away

34



AIS plates distributed



LOCAL LEADERS PROGRAM

Engaging and supporting appointed, elected, and informal leaders in the shared work of protecting clean water.

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 (Nonpoint source Education for Municipal Officials), presentations to city councils and commissions, and watershed tours or workshops.

Due to the Covid-19 pandemic, the District was not able to engage with local leaders in 2020.



YOUTH OUTREACH PROGRAM

Creating meaningful childhood experiences connected to water resources to inspire the next generation of water stewards.

The youth outreach program seeks to create meaningful childhood experiences connected to water resources and increase understanding and stewardship of water resources in children and their families. In 2020, the ways in which the District engages youth had to change with the emergence of the Covid-19 pandemic. Although staff were able to carry out activities such as school visits and community fairs in the first couple months of the year, after March, engagement moved online. Staff worked to develop tools for teachers to use in virtual teaching as well as activities for children to engage with while staying safe at home. (All photos taken prior to March 2020.)

Educator Mini-Grants



The mini-grant program offers funding to educators for projects or activities related to water resources. Three projects were approved for funding in 2020 including proposals for binoculars and winter gear.

Online Engagement



As school moved online, The District shifted our attention to supporting educators in their efforts to teach about the outdoors and water resources using online tools. We also promoted the online version of Junior Watershed Explorer Activity Book.

Community Events



The district seeks out and responds to requests to present at youth and family events. In 2020 staff attended multiple events such as a climate action fair and the Lake Ann Feb Fest.

In 2020, the watershed district's youth outreach program engaged children and their families by:

3 
mini-grant projects

 217
directly engaged

6 
activities & events



CONTINUING EDUCATION

Educational opportunities for community members to grow their water resource and best practices knowledge.

The District offers continuing education which may take many forms. In 2020, the District adapted the Continuing Education program to function within the midst of a pandemic. Though some events were held in person in the first months of the year, we shifted towards the use of webinars and online trainings.

Webinars



The District offers trainings and other opportunities for residents interested in creating healthier landscapes. In 2020, the District held several online webinars ranging in topic from lakeshore management, soil health, ecosystem services and more!

Turf & Winter Maintenance Training



Through District funding and through a Minnesota Pollution Control Agency Grant, the District offers certification trainings for turfgrass and winter maintenance professionals. In 2020, the District hosted two smart salting workshops for winter maintenance professionals and one smart salting workshops for property managers.

MN Landscape Association



Staff set up a booth in partnership with the Hennepin County Chloride Initiative to directly engage with winter snow and ice professionals. Data collected from a survey hosted at the booth was used to inform the Initiative's next steps.

In 2020, the watershed district's continuing education program served the community through:

 **237**
participants



11
Trainings & events



COMMUNICATIONS PROGRAM

Engaging the public through diverse communication methods from event tabling to social media and publications.

The communication program encompasses both passive and active communications. Active communications include direct connections between district staff and representatives, and the community. Passive communications include press releases and advertisements with both traditional and social media, as well as print materials and interpretive signage. The district also continuously maintains and updates a website (rpbcwd.org), which hosts a variety of resources including permit and grant information, a calendar of events, news releases, board meeting information, ways to get involved, and more. The Communications program provided our most valuable channel for engagement in the midst of the Covid-19 pandemic.

Annual Communication



Each year, the district prepares and distributes a communication about the work it does in the community.

Fact sheets



Water quality fact sheets tell the story of each lake and creek in the watershed. They were distributed in print and online.

Media



Electronic newsletters and press releases are written throughout the year. Social media platforms are also utilized. In 2020, staff published 94 social media posts.

Postcards and Direct Mailings



The District utilizes direct mailings and postcards to provide residents with information and updates regarding projects near them. In 2020 staff sent over 600 postcards.

In 2020, the watershed district's communications program engaged the community and raised awareness through:

94 
Social Media Posts

600+ 
Postcards sent

Green Corps Update

The Minnesota GreenCorps program is a statewide initiative, coordinated by the Minnesota Pollution Control Agency, to preserve and protect Minnesota’s environment while training a new generation of environmental professionals. The program places AmeriCorps members with host organizations around the state to assist communities and local governments in addressing a variety of statewide needs including reducing water runoff and improving water quality. Members serve for eleven months and work towards specific goals with the help of their host site supervisor.

In 2019-2020, the watershed district hosted its first GreenCorps member, Amy Bakkum. Member Bakkum’s workplan focused on stormwater best management practices and finding ways to engage the community around them. A community fair was planned for Spring 2020, where residents could sign up to “adopt” storm drains, learn about best management practices, and take-home native grasses and flowers to establish in their own yards. Due to the Covid-19 pandemic, this in-person event was cancelled, and the project adapted.

After consulting with partners, a design was created for an on-site gravel bed tree nursery. Utilizing the limited space surrounding the District office, Member Bakkum installed 15 aluminum tanks which housed 125 tree saplings through the spring and summer of 2020. Residents of the District were sent direct mailers encouraging them to “adopt” a tree sapling to take home in the fall after the roots could grow strong. Along with over 100 tree saplings, District residents were also sent home with native grass and flower seeds. Amid a global pandemic, the District found a way to safely put down roots and engage the community around stormwater best management practices.

This project, dubbed the Silver Lake Water Quality Improvement Project for its focus on that region of the District, has permanently increased the District’s capacity for residential stormwater management. Trees will be housed again in 2021 with plans for expansion.



OPPORTUNITY PROJECTS

PRESERVE ASSOCIATION OPPORTUNITY PROJECT

In the fall of 2019, The Preserve Association in the city of Eden Prairie approached the watershed district to discuss water quality projects on their campus. The Preserve Association represents 1,693 units and 187 acres of common property. Preserve Association Staff and District Staff have worked together to prioritize projects and have identified next steps. The District continues to work with the Preserve Association in their restoration effort.

ST. HUBERT OPPORTUNITY PROJECT

In 2018, District staff were contacted by St. Hubert Catholic School in Chanhassen about the possibility of partnering on a rain garden at the school. Initial consultation identified the potential for multiple best management practices on the site. With the adoption of the District's 10 Year Plan (the Plan) in July of 2018, the Opportunity Projects program was created specifically to address previously unidentified projects and partnerships. A storm-water retrofit of the school campus was identified as a potential project for this program. The District and school stakeholders worked together to identify potential Best Management Practices that would meet District goals.

In April 2019, SRF published a memo (St. Hubert Catholic School Opportunity Projects, April 2019) which identified projects that would reduce runoff volume and rate (Goal WQuan2), improve water quality (WQual 1), ecological biodiversity (WQual 3), educational opportunities and aesthetics of the property. Four project areas with multiple practices were identified.

In Fall of 2019, the District adopted a plan amendment to incorporate the St Hubert Opportunity Project in its 10-Year Plan.

In 2020, the design reached 60% completion with implementation expected in 2021.

STORMWATER PONDS: UNIVERSITY OF MINNESOTA

Stormwater ponds are the most commonly used method for controlling pollutants, such as phosphorus, which are found in stormwater runoff. Phosphorus pollution is the primary component influencing eutrophication in freshwater resources. Excess phosphorus can lead to increased algal growth, turbid water, and loss of biodiversity and desirable aquatic habitat. Urban watersheds, like the Riley-Purgatory-Bluff Creek Watershed, typically export 5 to 20 times the amount of phosphorus than less developed watersheds due to an increase in the amount of impervious cover (streets, sidewalks, and driveways) and surface runoff for a watershed (Athayde et al. 1983, Dennis 1985). Potential sources of phosphorus pollution in the Riley Purgatory Bluff Creek Watershed District include stormwater runoff, sediment erosion, grass clippings, lawn fertilizer, and pet waste.



In 2018, the District partnered with the University of Minnesota and the Cities of Bloomington, Chanhassen, Eden Prairie, Minnetonka, and Shorewood to further investigate how stormwater ponds were functioning through intensive monitoring and soil analysis. Three ponds were selected, and iron filings were applied in winter 2020. It is anticipated that iron filings will be applied in 2021 as well. The District will continue to monitor in 2021 to test the efficacy of the treatment and increase our understanding of stormwater ponds to improve their function.



CITY OF
SHOREWOOD



WETLANDS

In 2020, the District focused wetland assessment efforts to those areas in Hennepin County south of MN T.H. 5 (figure 1). A total of 400 wetlands were assessed using the Minnesota Routine Assessment Method (MnRAM). In addition, metrics for Rapid Floristic Quality Assessment (Rapid FQA) were recorded for several-dozen of these wetlands. Staff is in the process of assigning wetland management classifications to these wetlands. The assignment of classifications for wetlands assessed in 2020 will be completed in 2021.

The District utilized the Microsoft Excel version of the MnRAM 3.2 digital worksheet to assess and catalogue wetlands in 2020. Barr and RPBCWD updated the Microsoft Access version of MnRAM for the District and it has been used since late fall of 2020. During site visits, staff confirmed the presence of the wetland, physical and geographical characteristics, and completed those portions of the MnRAM 3.2 Excel worksheet which require site assessment. During site visits, staff observed the extent of a wetland and the surrounding/nearby 100-year inundation extents based upon the RPBCWD flood risk assessment model. Staff observed for indications of human influence on the wetland such as structures, hydrologic alterations, presence of fragmentation or barriers to animal migration.

If wetland indicators (hydrology, soil, vegetation) were present and readily identifiable in areas not indicated in the wetland database, staff either labeled the area for future investigation to confirm the presence of a wetland, or assessed the area if evidence was strong enough. These areas are added to the RPBCWD Wetland Database with an approximation of the wetland extents. These assessments and confirmation of wetlands do not constitute a wetland delineation and do not represent a legally defensible wetland boundary. Representative photographs are taken of all wetland areas assessed. Photographs are also taken of unique characteristics of the wetland such as drain tile, outlet structures, rare or unique flora and fauna, etc.

The District's use of MnRAM to assess known/observed wetlands within its boundaries is allowing for the creation and development of a watershed-specific catalogue of wetlands. This catalogue provides more accurate wetland information that may not be available or complete with larger wetland inventories, such as (but not limited to): greater knowledge of wetland extent; more accurate vegetative community diversity designations; wetland impacts and degradation; identification of previously unidentified wetlands; infrastructure risks; use and usage potential. MnRAM, along with other assessment tools, is the basis guide for development and use of the RPBCWD wetland restoration prioritization tool. The use of MnRAM also provides support for the RPBCWD's regulatory program and implementation of WCA.

Towards the end of the 2020 field season, District staff incorporated Rapid FQA methods into District MnRAM field assessments. Rapid FQA utilizes a limited plant list of more commonly found wetland species. The MPCA has developed a Rapid FQA calculator in Excel to automatically calculate a floristic quality index (FQI). In 2020, wetlands in which Rapid FQA was conducted, District staff followed these sampling methods while on-site conducting MnRAM assessments. Staff did however utilize the full FQA plant species, and therefore could not utilize the Rapid FQA calculator, which also only contains the reduced plant list. FQI

for these wetlands are being calculated and will be finalized in 2021. Moving forward, staff will complete additional survey methods based on Floristic Quality Assessments for MN wetlands in order to obtain focused, quantitative plant community/habitat data.

Inventory and assessment will focus efforts in 2021 to those areas in Deephaven, Shorewood, Minnetonka and that portion of Eden Prairie north of MN T.H. 5 in 2021. See figure 1 below. This is an aggressive schedule. It is probable that the inventory will extend into the 2022 field season.

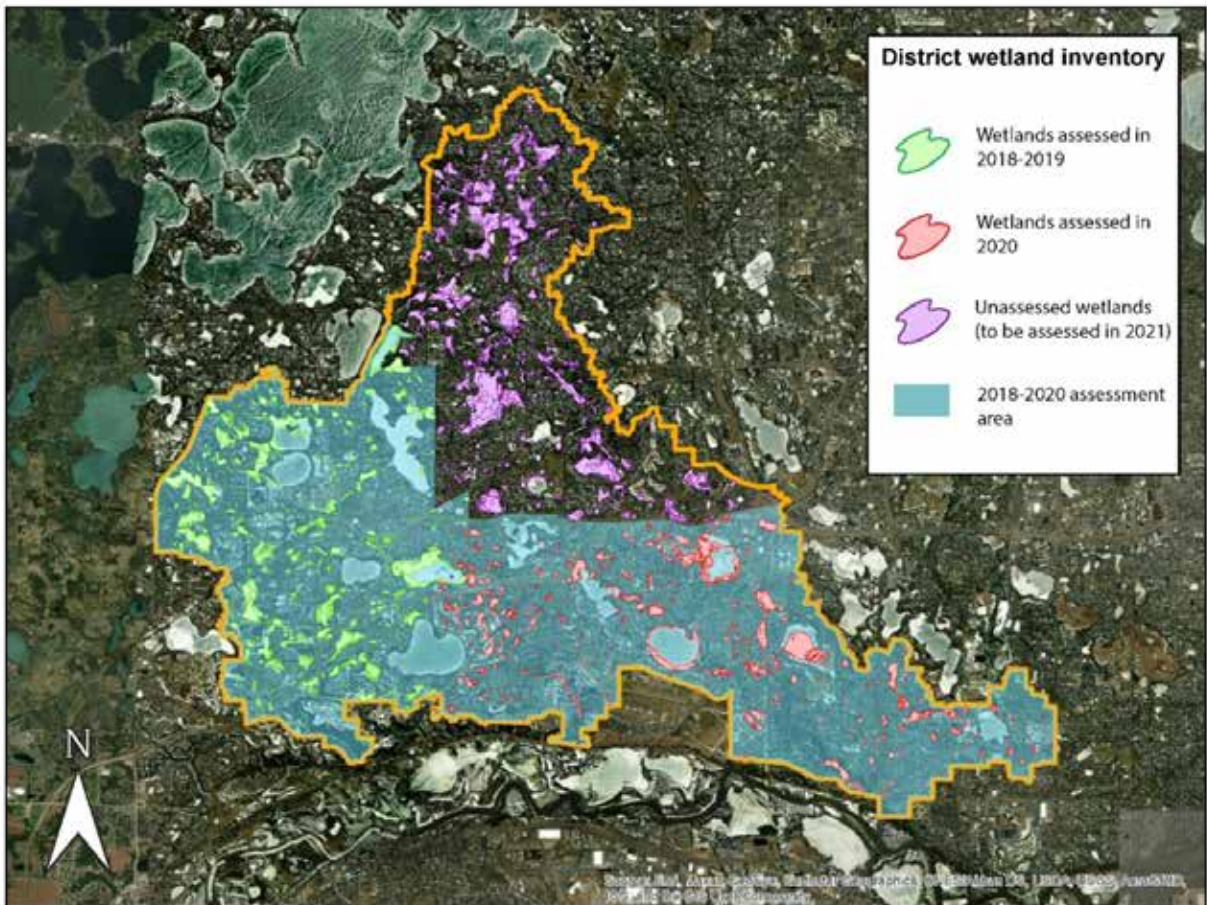


Figure 1 – District wetland assessment/inventory progress

BLUFF CREEK WATERSHED

The District is actively engaged in three projects in the Bluff Creek Watershed:

- Bluff Creek Tributary Restoration Project
- Chanhassen High School Reuse Project
- Wetland at Pioneer Trail

BLUFF CREEK TRIBUTARY RESTORATION PROJECT



In 2017, the District conducted a feasibility study and began design of the Bluff Creek Tributary Restoration Project. The site is located between Audubon Rd and Highway 212. The reach is approximately 1400 ft. The vision for this project is to provide an ecologically diverse stream reach that significantly reduces streambank erosion and provides diverse habitat layers. Presently, the upper part of the reach has significant erosion. It is not as severe in the lower half of the reach, but the channel is incised and disconnected throughout the floodplain. The project will provide greater stream depth variability, more channel bed substructure types, and varied channel velocities. The project will reduce erosion and improve water quality while also improving natural stream habitat for aquatic organisms. Providing better floodplain connectivity for Bluff Creek also enhances surrounding riparian habitat. By establishing a stable stream corridor, the project will also address the Minnesota Pollution Control Agency's (MPCA's) identified turbidity impairment within this section of Bluff Creek. The project was delayed but started Fall of 2019. Completion of stabilization occurred in 2020. During 2021, vegetation establishment activities will continue.



CHANHASSEN HIGH SCHOOL

The District partnership with the city of Chanhasseen and Eastern Carver County School District designed a stormwater reuse project for irrigation at Chanhasseen High School in 2017. The goal of implementing the project was to reduce groundwater consumption, reduce discharge rates, volumes, and pollutants to Bluff Creek (an MPCA impaired water), and increase the public awareness of stormwater reuse and groundwater conservation.



According to irrigation meter records, the school campus purchases an average of 3.8 million gallons (MG) of groundwater annually from the city of Chanhasseen's domestic water supply to irrigate about 11 acres of green space (athletic fields and areas around the school building). This is equivalent to six Olympic-size swimming pools being filled annually or an average weekly irrigation rate at Chanhasseen High School is 0.57 inches per week between May through September.

Through a partnership between the RPBCWD, city of Chanhasseen and Independent School District 112, a stormwater reuse system could effectively irrigate nearly 75% of the green space on the high school campus by using 16% of the annual watershed runoff. The reuse system would meet 51% of the total school campus annual irrigation demand by using stormwater from a stormwater pond on the school campus to irrigate the north side of the high school campus (8.2 acres) through the irrigation system. The stormwater irrigation system will decrease the demand for groundwater at the high school athletic fields and grounds, with the potential for improvements and expansion in the future to meet additional demands.

The system was completed in 2019. Certain issues with the ultraviolet treatment system resulted in less use of the system than was anticipated. In 2020, the UV treatment system was corrected and the system was used on a more consistent basis. The RPBCWD was working with ISD 112 to install remote telemetry but this effort was postponed with the SARS-CoV2 pandemic.



ey P.



District

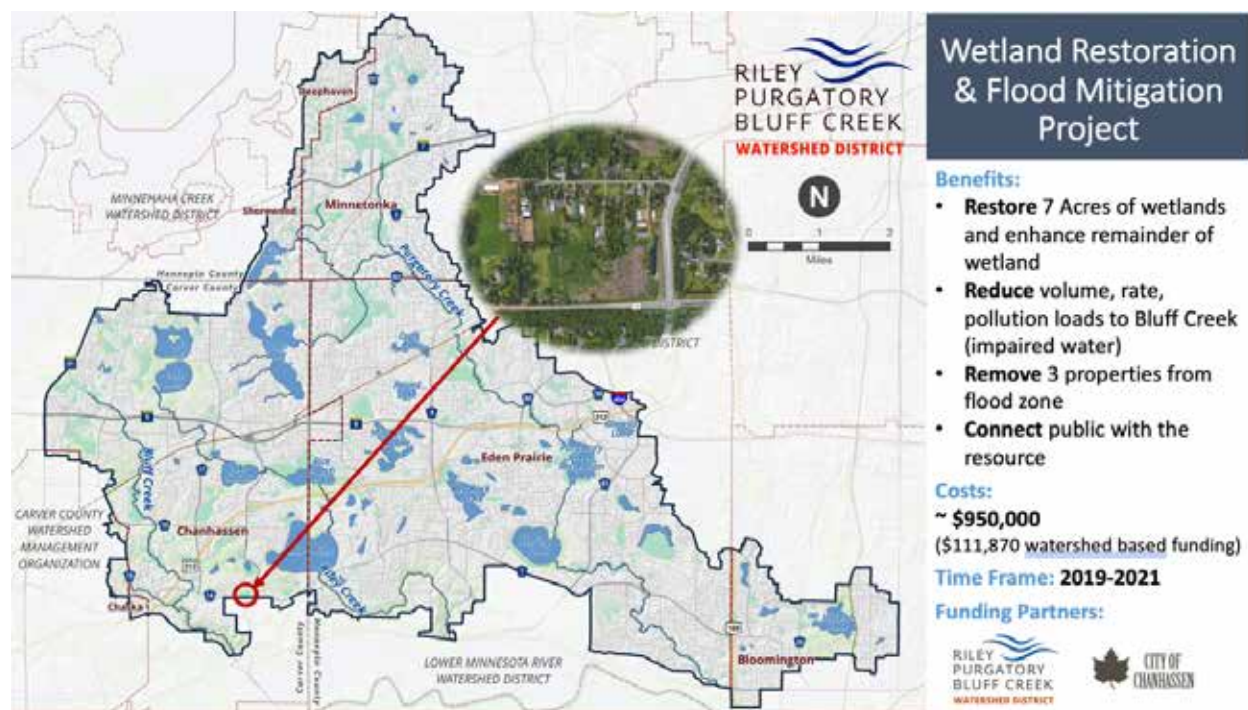


WETLAND RESTORATION AT PIONEER TRAIL AND T.H. 101

In 2019, the District was awarded a targeted watershed grant to:

- Restore 7 acres of wetland
- Reduce volume, rate, pollution loads to Bluff Creek
- Remove three flood-prone structures
- Connect the public with the resource

All three parcels were purchased in fee title to remove the flood prone structures from the flood-plain using a flood hazard mitigation grant from the Minnesota Department of Natural Resources (MNDNR) as well as funds from the City of Chanhassen and the RPBCWD. Two parcels were purchased by RPBCWD and the third by the city of Chanhassen. Staff is working with Chanhassen on the transfer of the property to RPBCWD for restoration purposes. The homes have been removed from the three properties although the septic systems still need to be removed from 730 and 750 Pioneer Trail. The feasibility study was conducted in early 2020. Design effort began in 2020 and will continue into 2021. Construction is anticipated to begin in late-summer and early-fall 2021.





PURGATORY CREEK WATERSHED

The District is actively engaged in two projects in the Purgatory Creek Watershed:

- Purgatory Creek Berm
- Lotus Lake Alum
- Silver Lake Restoration
- Scenic Heights
- Hyland Lake in-lake Phosphorus Load Control
- Duck Lake Watershed Load
- Mitchell Lake Subwatershed Assessment

PURGATORY CREEK BERM – EDEN PRAIRIE

The District with the City of Eden Prairie, worked together in 2020 on plans to repair the berm and improve the overflow structure in Purgatory Creek Park. The location is a very popular trail system, and the breach location is currently being utilized for common carp removal. This work will continue in 2021.

LOTUS LAKE ALUM

In 2018, the District completed an alum treatment on Lotus Lake. In 2020, the District continued monitoring the lake post-treatment.

SILVER LAKE WATER QUALITY PROJECT

The 2017 UAA update identified the Silver Lake subwatershed SiL_2 as a targeted location within the Silver Lake watershed to reduce the phosphorus loading and improve the water quality

This site presents several design and maintenance challenges including drainage patterns, tree canopy, and topography. The UAA suggests that an iron enhanced sand filtration system treating discharge from Pleasantview Road and Ridge Road would be approximately 0.4 acres at the surface with the potential to reduce the annual phosphorus loading to Silver Lake by 6.3 pounds. The District completed a feasibility study and, in early meetings with Chanhassen Parks and Natural Resources, determined that work should occur in channel to minimize tree loss.



Figure SiL 1 - Location of SiL 2 in relation to Silver Lake

The project was ordered in 2020 which was followed by the development of a cooperative agreement with the City of Chanhassen. Detailed design started in 2020 and will be completed in 2021. Project construction is anticipated in 2021.

The project was ordered in 2020 which was followed by the development of a cooperative agreement with the City of Chanhassen. Detailed design started in 2020 and will be completed in 2021. Project construction is anticipated in 2021.

SCENIC HEIGHTS SCHOOL FOREST RESTORATION

A project to restore a healthy ecosystem that promotes clean water and creates habitat in the Purgatory Creek watershed

Summary

In 2017, RPBCWD joined with Scenic Heights Elementary School and other partners to embark on a project to restore the forested outdoor center on the school grounds. Invasive species like garlic mustard and buckthorn had outcompeted native plants in the forest, and erosion was a problem. Over the past fifteen years volunteers worked to try to control invasive species, plant natives, and tackle erosion. This restoration partnership builds on the community's good work to care for the forest and the watershed that it is a part of.

Site work began in the winter of 2018 with the removal of woody invasive plants. This dramatically opened the site, clearing space for what will be native prairie, oak savanna, and forest edge habitat. The eroded gully that allows stormwater to flow to the pond was restored, and invasive plants were continually treated to prevent re-establishment. In the fall of 2018, volunteers planted over 100 native trees and shrubs. In 2019, vegetation management as well as several volunteer planting events continued. Vegetation management also occurred during 2020 and the project was completed at the end of 2020.





HYLAND LAKE IN-LAKE PHOSPHORUS LOAD

In 2019, the District partnered with Three Rivers Park District to apply Alum to Hyland Lake. Three Rivers Park District will continue to monitor Hyland Lake in 2021



DUCK LAKE PARTNERSHIP

The Watershed District's 2018 Watershed Management Plan identified the need for a phosphorus load reduction project in the Duck Lake watershed. As this area is mostly residential, the District needed to look to our community members to become project partners. The District envisioned a range of actions residents could take to be a part of a community-level partnership to help protect Duck Lake.

The District kicked off the project in 2019, with a community meeting where residents learned about the project's goals and timeline. In winter and spring of 2019, the District conducted outreach to engage residents in the project and to sign homeowners up to plant a raingarden, install a rain barrel, plant a tree, or host a downspout planter. In partnership with the City of Eden Prairie, the district was able to work with contractors to have trees installed in the spring of 2019. Interested residents also received rain barrels in the spring of 2019.

In the spring of 2020, the District worked with contractors to install downspout planters and raingardens for residents.

Project Numbers

Residents on 82 properties installed or committed to at least one of the best managements practices (BMPs) identified for the project.

- 2 households installed raingardens
- 10 households hosted downspout planters
- 52 rain barrels distributed
- 40 trees installed

24.3% of all households in the subwatershed are participating!



MITCHELL LAKE SUBWATERSHED ASSESSMENT

The Riley-Purgatory-Bluff-Creek Watershed District and the City of Eden Prairie are working together to implement projects to remove Mitchell Lake from the impaired waters list. A primary objective in the RPBCWD's plan is to identify opportunity projects based on emerging science and additional assessment. One key emerging issue is to evaluate potential internal phosphorous loading within stormwater ponds in the lakes' subwatersheds. The adaptive management strategy will target opportunity projects to assess the contribution of internal loading in storm water ponds, an emerging issue in urban stormwater systems. This project will also use updated pond data from the City's intensive pond inspection program to identify other phosphorus reduction opportunities. The proposed assessment will quantify formerly undocumented P loading to Mitchell Lake with the goal of protecting it. The project began in 2019 and the District anticipates completion in 2021.



RILEY CREEK WATERSHED

The District is actively engaged in three projects in the Riley Creek Watershed:

- Lake Riley Alum
- Lake Susan Park Pond
- Rice Marsh Lake Alum
- Rice Marsh Lake Water Quality Improvement
- Lower Riley Creek Restoration
- Middle Riley Creek
- Upper Riley Creek Restoration
- Lake Riley and Rice March Lake Subwatershed Assessment

LAKE RILEY ALUM TREATMENT

In 2015, the District implemented an alum treatment on Lake Riley to manage internal phosphorus loads coming from the lake's bottom. In 2019, the District continued monitoring and began the evaluation of the second dosing of alum was applied in 2020.



LAKE SUSAN PARK POND

The Riley Purgatory Bluff Creek Watershed District (RPBCWD) in partnership with the City of Chanhassen, conducted a study of watershed treatment and stormwater reuse enhancement alternatives at the Lake Susan Park Pond in March 2017, building upon the Lake Susan and Rice Marsh Lake Use Attainability Analysis (UAA) prescribed by the 1996 RPBCWD Water Management Plan (i.e. District Plan) completed in 1999. The updated Lake Susan UAA recommended remedial measures to improve the lake's water quality and was completed in July 2013.

The 2013 UAA Update included several near-term projects in the Lake Susan implementation plan, including construction of an iron-enhanced sand filtration system at Lake Susan Park Pond and modifying the pond to increase dead pool storage by one foot. The 2017 Engineer's Report for the project evaluated several conceptual design combinations for water quality improvement and stormwater reuse. The recommended alternative included water quality treatment through use of an iron enhanced sand filter (IESF) and stormwater reuse through irrigation of an adjacent ballfield.



The project provides water quality treatment at Lake Susan Park Pond through use of an IESF and stormwater reuse through irrigation of an adjacent ballfield. It also includes erosion protection at the outlet of Lake Susan Park Pond to Riley Creek. The filtration system is located along the south side of Lake Susan Park Pond, in an area formerly used as an archery range to minimize impacts to upland vegetation.

The District completed the project in 2019. In 2020 the District continued monitoring the project and working with the City of Chanhassen to refine the system operations. Financial partners include the State of Minnesota and the City of Chanhassen.



RICE MARSH LAKE ALUM TREATMENT



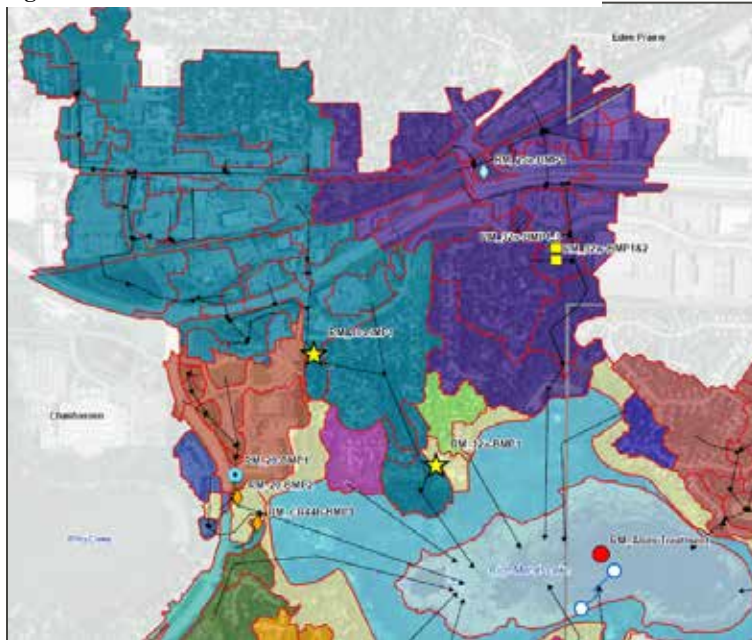
In 2018, the District implemented an alum treatment in Rice Marsh Lake to manage internal phosphorus loads coming from lake bottom. The District continues to monitor the treatment and assess effectiveness.

RICE MARSH LAKE WATER QUALITY IMPROVEMENT PROJECT

The 2016 Rice Marsh Lake and Lake Riley Use Attainability Analysis Update identified the Rice Marsh Lake subwatershed RM_12a (shown in teal) as a targeted location within the Rice Marsh Lake watershed to reduce the phosphorus loading and improve the water quality of Rice Marsh Lake. Based on its project prioritization process that quantitatively considered project benefits and feasibility constraints using nine benefit categories and a total benefit, the District incorporated implementation of a best management practices in subwatershed RM_12a into its 2018 Plan.

A feasibility study for the project was completed in 2020. At the December 9, 2020 meeting of the RPBCWD Board of Managers, a public hearing was held to solicit public input on the proposed project. Ordering, design, and construction of the project is anticipated in 2021.

Figure RM 1 - Location of subwatershed RM 12a



LOWER RILEY CREEK RESTORATION

The Lower Riley Creek Restoration is a multi-year project that began in 2017. This section of the creek is severely eroded, incised and has many bank failures. Reach E, a section of the creek, has a deeply incised channel. As such, floods flows are concentrated in and near the main channel. This confinement results in faster flows and increases erosion potential. Site D3 is a ravine feature that conveys intermittent runoff from several residential lots to Riley Creek via a storm sewer outfall near the start of the ravine. Past agricultural practices and current runoff from the residential lots has resulted in an increase of both volume and runoff rate to the ravine. The increased volume and rate are exacerbated by the steep channel slope of the ravine. The existing storm sewer outlet includes riprap and geotextile, which has failed, resulting in further erosion near the storm sewer outlet. The invert of the ravine is actively eroding because the flows are highly confined by tall banks, resulting in the creation of several large scarps.

The vision for this project is to provide an ecologically diverse stream reach that significantly reduces streambank erosion, provides diverse habitat layers, and enhances the public’s access and their understanding of why stable stream systems are important. This project will reduce erosion and improve water quality while also improving natural stream habitat for aquatic organisms. Providing better floodplain connectivity for Lower Riley Creek also enhances surrounding riparian habitat. By establishing a stable stream corridor, the Project will also address the Minnesota Pollution Control Agency’s (MPCA’s) identified turbidity. The Project’s location in the Riley Creek Conservation Area provides opportunities for interpretive signage and future programming to educate the public on the importance of diverse stream corridors.

The District with the Lower Minnesota River Watershed District and the City of Eden Prairie are financially contributing to this project. The project was completed in 2020.



LOWER MINNESOTA RIVER
WATERSHED DISTRICT



MIDDLE RILEY CREEK

In 2019, Bearpath Golf Course approached the District with the idea of working together in the restoration of Middle Riley Creek. The 10-Year Plan scheduled this project to commence 2025. However, thanks to the commitment of the Bearpath Golf and Country Club to assist with funding, work began in 2020. It is anticipated that the project will be completed in 2021.



UPPER RILEY CREEK



The Upper Riley Creek project was identified for restoration for 2019-2021. The feasibility analysis was put on hold in 2019 while the City of Chanhasseen completed their hiring process of a Water Resources Coordinator and Public Works Director. The district developed the Upper Riley Corridor Enhancement Plan in 2020 with design/permitting anticipated in 2021/2022 followed by construction in 2022/ 2023. The City of Chanhasseen has indicated a willingness to be a financial partner.



LAKE RILEY AND RICE MARSH LAKE SUBWATERSHED ASSESSMENT

The Riley-Purgatory-Bluff-Creek Watershed District and the City of Eden Prairie are working together to implement projects to remove Lake Riley and Rice Marsh Lake from the impaired waters list. A primary objective in the RPBCWD's plan is to identify opportunity projects based on emerging science and additional assessment. One key emerging issue is to evaluate potential internal phosphorous loading



within stormwater ponds in the lakes' subwatersheds.

The adaptive management strategy will target opportunity projects to assess the contribution of internal loading in storm water ponds, an emerging issue in urban stormwater systems. This project will also use updated pond data from the City's intensive pond inspection program to identify other phosphorus reduction opportunities. The proposed assessment will quantify formerly undocumented P loading to Rice Marsh Lake and Lake Riley with the goal of protecting a previously completed in-lake sediment inactivation treatment and bolster an improving water quality history which has positioned Lake Riley on the verge of being delisted from the MPCA 303d list. Anticipation end of this project is 2021.

