RILEY PURGATORY BLUFF CREEK
WATERSHED DISTRICT

2019 ANNUAL REPORT

50 Years of protecting, managing and restoring water resources!

TABLE OF CONTENTS

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.

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 2019, manager Ziegler was reappointed.

President (right)
Dick Ward - Hennepin 7/31/20
8625 Endicott Trail
Eden Prairie, MN 55347
Home: (612) 759-9150
Email: dickward@rpbcwd.org

Vice President (middle)
Dorothy Pedersen – Hennepin 7/31/20
6155 Ridge Road
Shorewood, MN 55331
Home: (952) 933-2141
Email: dpedersen@rpbcwd.org

Treasurer (far right)
Jill Crafton - Hennepin 7/31/21
10351 Decatur Avenue South
Bloomington, MN 55438
Home: (952) 944-5583
Email: jcrafton@rpbcwd.org

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
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 2019 CAC members were:

Chair
Lori Tritz
Eden Prairie

Vice Chair
Sharon McCotter
Chanhassen

Secretary
Anne Deuring
Minnetonka

Member
Jim Boettcher
Chanhassen

Member
Marilynn Torkelson
Eden Prairie

Member
Scott Bryan
Chanhassen

Member
Barry Hofer
Eden Prairie

Member
Matt Lindon
Eden Prairie

Member
Daryl Kirt
Chanhassen

Member
Dennis Kopfmann
Chanhassen

Member
Joan Palmquist
Eden Prairie

Member
Paul Bulger
Eden Prairie

Member
Pete Iverson
Eden Prairie

Member
Jan Neville
Eden Prairie

Member
Samir Penkar
Eden Prairie

Member
Ali Tuttle
Chanhassen

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

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 2019 TAC members were:

Name and position	*Organization*	*Address*
Steve Christopher *Board Conservationist* (651) 296-2633	Board of Water and Soil Resources	520 Lafayette Road North Saint Paul, MN 55155
Matt Lindon *Citizen Advisor*	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 *Administrator* (952) 466-5230	Carver County Soil & Water Conservation District	11360 Highway 212, Suite 6, Cologne, MN 55322
Steve Segar *Water Resources Engineer* (952) 563-4867	City of Bloomington	1700 West 98th Street Bloomington, MN 55431
Renae Clark/ Jason Wedel *Water Resources Coordinator/ Public Works Director* (952) 227-1168/ (952) 227-1169	City of Chanhassen	7700 Market Boulevard P.O. Box 147 Chanhassen, MN 55317
Matt Clark *City Engineer* (952) 448-9200	City of Chaska	One City Hall Plaza Chaska, MN 55318
Robert Bean Jr. *Water Resources Engineer* (952) 448-8838 x2607	City of Deephaven (Bolton & Menk, Inc.)	2638 Shadow Lane, Suite 200 Chaska, MN 55318
Leslie Stovring/ Patrick Sejkora *Water Resources Coordinator/ Water Resource Engineer* (952) 949-8327	City of Eden Prairie	8080 Mitchell Road Eden Prairie, MN 55344

Sarah Schwieger *Water Resources Engineering Coordinator* (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 *Land & Water Unit* (612) 348-2027	Hennepin County	701 Fourth Ave S, Suite 700, Minneapolis, MN 55415
Linda Loomis *District Administrator* (763) 545-4659	Lower Minnesota River Watershed District	6677 Olson Memorial High-way Golden Valley, MN 55427
Joe Mulcahy *Water Resources*	Metropolitan Council	390 North Robert Street St. Paul, MN 55101
Jennie Skancke/ Jason Spiegel *Area Hydrologist* (651) 259-5790	Minnesota Department of Natural Resources	1200 Warner Road St. Paul, MN 55106
Chris Zadak *Watershed Division* (651) 757-2837	Minnesota Pollution Con-trol Agency	520 Lafayette Rd. N. St. Paul, MN 55155
Melissa Jenny/Ryan Malterud *Senior Project Manager* (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 employs five full time staff and two temporary staff members.

Left to right: B Lauer, Josh Maxwell, Claire Bleser, Mat Nicklay, Terry Jeffery, Zach Dickhausen, Amy Bakkum (GreenCorps Member), and Maya Swope

Administrator
Claire Bleser, PhD
cbleser@rpbcwd.org
952-687-1348

Water Resource Coordinator
Josh Maxwell
jmaxwell@rpbcwd.org
952-607-6486

Watershed Planning Manager
Terry Jeffery
tjeffery@rpbcwd.org
952-807-6885

Water Resource Technician
Zach Dickhausen
zdickhausen@rpbcwd.org
952-607-6036

Education and Outreach Coordinator
Maya Swope
mswope@rpbcwd.org
952-687-1348

Education and Outreach Assistant
B Lauer
blauer@rpbcwd.org
952-607-6481

Water Resources Assistant
Mat Nicklay
mnicklay@rpbcwd.org

MN Greencorps Member
Amy Bakkum
abakkum@rpbcwd.org
952-607-6026

The District also contracts with consultants to provide engineering, legal, accounting, and auditing services.

District engineer
Scott Sobiech, BARR Engineering Co
4300 Market Pointe Drive, 200
Edina, MN 55435
Telephone: (952) 832-2755
Facsimile: (952) 832-2601
Email: ssobiech@barr.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

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

Auditing
Justin Nilson, Abdo, Eick and Meyers
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) 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 mange 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.

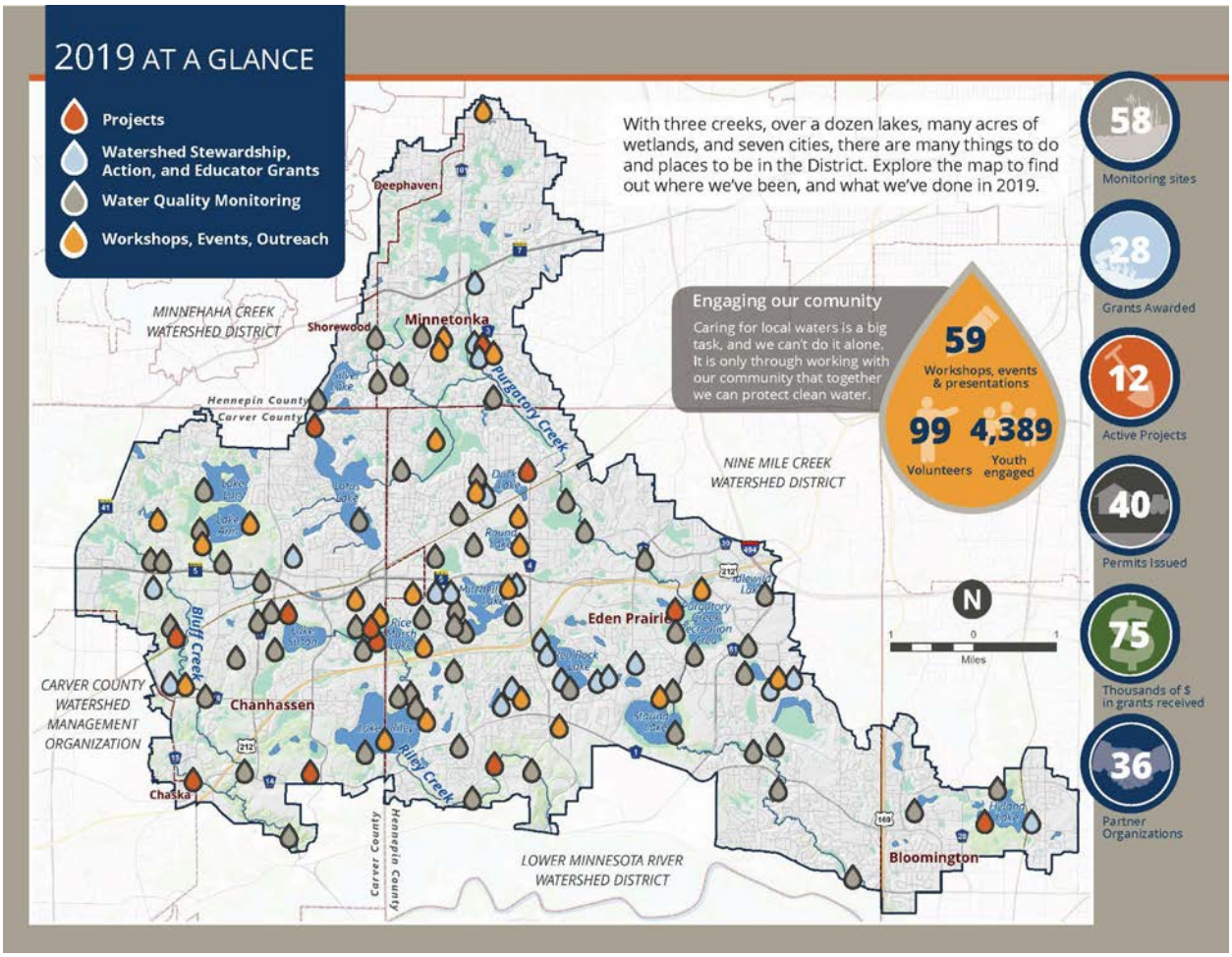
Even though the District is mostly developed, prior to settlement, the District was covered predominantly by oak forest interrupted by wet prairie and marsh. Small areas of upland deciduous forest covered the far western part of the watershed, while river bottom forest occupied the south boundary of 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 2019.

2019 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 2018 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



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 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 12-month calendar. Approximately 2500 copies were distributed. These were 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/

Managers, Staff & Consultants

Board of Managers

The Riley Purgatory Bluff Creek Watershed District Board of Managers meets on the first Wednesday of each month, 7:00 pm, at the District Office: 18681 Lake Drive East, Chanhassen. Any changes to the schedule are posted on the District website: rpbcwd.org.

Left to right	Term expires
Larry Koch (Chanhassen)	July 2021
David Ziegler (Eden Prairie)	July 2022
Dorothy Pederson (Shorewood)	July 2020
Dick Ward (Eden Prairie)	July 2020
Jill Crafton (Bloomington)	July 2021

Staff

Dr. Claire Bleser
Administrator
952-607-6512

Terry Jeffery
Project & Permit Manager
952-807-6885

Maya Swope
Education & Outreach Coord.
952-687-1348

Josh Maxwell
Water Resource Coord.
952-607-6486

Zach Dickhausen
Water Resource Tech.
952-607-6036

B Lauer
Education & Outreach Asstnt.
952-607-6481

Mat Nicklay
Water Resource Asstnt.
952-687-1018

Amy Bakkum
MN GreenCorps Member
952-607-6026

Consultants

Scott Sobiech
District Engineer
Barr Engineering
952-832-2755

Smith Partners PLLP
Legal Advisor
612-344-1400

Cover image by Eric Toft, Mitchell Lake.

50 Years of Watershed Protection

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

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

A Year of Exploration and Celebration

Throughout 2019, the District celebrated its 50th anniversary with a series of opportunities for our community to explore and celebrate local water resources.

In February, we partnered with Three Rivers Park District and the City of Chanhassen to lead a snowshoeing adventure at the Lake Ann Winter Festival. In June, we worked with local nonprofit Let's Go Fishing to host free boat rides on Lake Riley. August brought our large anniversary celebration, and a chance to highlight and thank the many members of our community who have worked to protect, manage, and restore water resources. In September, we biked 50 miles through the District to celebrate 50 years, and hosted an 8-mile family-friendly ride.

Each season, the District partnered with local artist Kari Jo Johnson for a community art project designed by Kari Jo and painted by more than 150 members of the community.

Coming together for a healthier Duck Lake

In 2019, the District and the City of Eden Prairie began implementing a community project to engage residents who live in Duck Lake's watershed to take action to protect clean water. The goal of the project was to help 25% of homes in the lake's watershed get involved by installing raingardens, trees, rain barrels, and raingarden-in-a-box planters. These best management practices work together to help capture and filter polluted stormwater before it reaches Duck Lake.

Residents received letters and postcards inviting them to participate, and many responded positively. So far, 39 trees have been installed and 52 rainbarrels have been given to residents. The District and the City will work with contractors to install rain gardens and downspout planters in 2020.

Thank you to all of the members of this community who stepped up and took action to help protect Duck Lake. It takes all of us to protect and manage a healthy landscape!

Photography Contest

Many of the photos in this calendar were taken by members of the community and submitted to our 50th anniversary photography contest. The Citizen Advisory Committee and staff reviewed the photos, and voted to have their favorites featured in this calendar.

Empowering Businesses To Protect Clean Water

One of the many types of continuing education opportunities the District offered in 2019 was a series of Smart Salting Trainings. These trainings help winter maintenance professionals and property managers provide safe roads, sidewalks, and parking lots while limiting road salt use. Less salt on outdoor surfaces means less salt polluting our freshwater resources.

The District took part in the development of the Minnesota Pollution Control Agency's (MPCA) Smart Salting for Property Managers training and was the first organization to host trainings. The District initially hosted two trainings and added two more due to popular demand! Over 100 individuals were certified through these property manager trainings in 2019.

Over the course of 2019, the District partnered with the MPCA to offer four Smart Salting for Parking Lots and Sidewalks trainings, one Smart Salting for Roads training, and four Smart Salting for Property Managers trainings. As we look to 2020, the District hopes to continue building on existing momentum to spread the word, not the salt.

Reflecting on 50 years of protecting, managing, and restoring local water resources. Learn more about our history at **rpbcwd.org/50years**

DISTRICT OFFICE:
18681 Lake Drive East
Chanhassen, MN
55317

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

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 and Smith Partners, PLLP as its legal counsel. BARR Engineering was selected as District Engineer. Included in our pool of consultant were Wenck Associates, Limnotech, SRF, HDR, ISG, Houghton Engineering Inc and HTPO. Next solicitation will be issued in 2021. Abdo, Eick and Meyers conducted the District's annual financial audit. 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 project. 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. Three new projects (Upper Riley Creek Restoration, Rice Marsh Lake Watershed Load project, Silver Lake watershed Load Project, and Wetland Restoration at Pioneer Trail) were identified for the 2019 year in addition to completing projects that were active in 2018. Please find below the status of the projects:

	Anticipated Substantial Completion	Status of Project 2019 Year End
Bluff Creek		
Bluff Creek Tributary	2020	90% completion
Chanhassen High School	2019	100% completed
Wetland Restoration at Pioneer	2022	Feasibility 70 % completed
Riley Creek		
Lake Riley - Alum Treatment	2020	Monitoring
Lake Susan Water Quality Improvement Phase 2 *	2019	100% completed
Rice Marsh Lake in-lake Phosphorus Load	Completed 2018	Monitoring
Rice Marsh Lake Water Quality Improvement Phase 1	2021	Pre-feasibility
Riley Creek Restoration (Reach E and D3)	2020	75% completion
Lake Riley & Rice Marsh Lake Subwatershed Assessment	2020	60% completion
Upper Riley Creek Stabilization	Delayed to 2022	Delayed to 2020
Middle Riley Creek*	Moved up to 2020	Pre-feasibility
St. Hubert Water Quality Project*	2021	Feasibility completed & plan amended

Purgatory Creek		
Purgatory Creek Rec Area-Berm/retention area - feasibility/design	2020	Collaborating with the City of Eden Prairie
Lotus Lake in-lake Phosphorus Load Control	Completed 2018	Monitoring
Silver Lake Restoration	2021	Feasibility completed
Scenic Heights	2020	80% completed
Hyland Lake in-lake Phosphorus Load Control	2019	Completed
Mitchell Lake Subwatershed Assessment	2020	60% completion
Duck Lake Watershed Load	2021	70% completion

*As to date all projects identified in the 10-Year Plan 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 2020.

STATUS OF LOCAL PLAN ADOPTION AND IMPLEMENTATION

The District has received and approved two Local Surface Water Management Plans. Deephaven was approved on May 3, 2019 and Minnetonka on August 29, 2019. The Cities of Eden Prairie, Minnetonka and Chanhassen all indicated their desire to assume regulatory responsibility of RPBCWD rules. As of yet, none of the cities have provided updated local controls for review. Therefore, RPBCWD will continue to administer their regulatory program in all municipalities to which it applies.

FINANCIAL STATUS

The District's fund balances 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. The 2019 Audited Financial Report may be found on our website at http://www.rpbcwd.org/library/annual-reports-andcommunications/.

2019 ANNUAL AUDIT

The District's annual audit can be found at the following website:
http://rpbcwd.org/library/annual-reports-and-communications/

2019 ANNUAL BUDGET

The District adopted its 2019 Annual Budget in September 2018. The table on the next page is the RPBCWD's budget at year end.

	2019 Budget	Fund Transfers	Revised 2019 Budget	Current Month	Year-to-Date	Year-to Date Percent of Budget
REVENUES						
Plan Implementation Levy	$3,602,500.00	-	$3,602,500.00	1,735,872.48	3,581,485.08	99.42%
Minnesota Market Value Credit	-	-	-	35.20	57.61	---
Permit	50,000.00	-	50,000.00	3,950.00	44,343.50	88.69%
Grant Income	708,079.00	-	708,079.00	86,000.00	591,609.57	83.55%
Investment Income	35,000.00	-	35,000.00	5,894.08	109,652.44	313.29%
Miscellaneous Income	-	-	-	3,028.00	4,530.65	---
Past Levies	2,511,789.00	-	2,511,789.00	-	-	0.00%
Partner Funds	432,000.00	-	432,000.00	14,000.00	49,000.00	11.34%
TOTAL REVENUE	**$7,339,368.00**	**$0.00**	**$7,339,368.00**	**$1,848,779.76**	**$4,380,678.85**	**59.69%**
EXPENDITURES						
Administration						
Accounting and Audit	42,000.00	-	42,000.00	2,553.36	43,195.09	102.85%
Advisory Committees	5,000.00	-	5,000.00	229.78	1,958.46	39.17%
Insurance and bonds	20,000.00	-	20,000.00	(4,616.00)	16,186.00	80.93%
Professional Services	-	6,524.80	6,524.80	-	6,524.80	---
Engineering Services	106,000.00	-	106,000.00	8,619.00	106,311.70	100.29%
Legal Services	78,000.00	-	78,000.00	8,591.12	70,428.61	90.29%
Manager Per Diem/Expense	20,000.00	1,756.79	21,756.79	8,654.06	25,122.29	115.47%
Dues and Publications	12,000.00	1,678.08	13,678.08	1,233.00	14,911.08	109.01%
Office Cost	144,000.00	-	144,000.00	(10,891.12)	141,564.03	98.31%
Permit Review and Inspection	135,000.00	25,543.69	160,543.69	9,221.34	160,543.69	100.00%
Permit and Grant Database	-	39,900.00	39,900.00	-	-	0.00%
Recording Services	10,000.00	-	10,000.00	(1,021.00)	9,390.66	93.91%
Staff Cost	550,000.00	-	550,000.00	29,477.40	546,525.46	99.37%
Subtotal	**$1,122,000.00**	**$75,403.36**	**$1,197,403.36**	**$52,050.94**	**$1,142,661.87**	**95.43%**
Programs and Projects						
District Wide						
10-year Management Plan	5,000.00	26,353.11	31,353.11	4,517.24	31,353.11	100.00%
AIS Inspection and early response	75,000.00	-	75,000.00	57,886.72	64,088.03	85.45%
Cost-share	267,193.00	-	267,193.00	5,491.44	68,469.49	25.63%
Creek Restoration Action Strategies Phase	-	-	-	-	-	---
Data Collection and Monitoring	186,000.00	12,009.60	198,009.60	19,200.69	203,570.37	102.81%
District Wide Floodplain Evaluation - Atlas 14/SMM model	30,000.00	18,000.00	48,000.00	3,527.00	34,869.50	72.64%
Education and Outreach	119,000.00	-	119,000.00	173.12	100,445.41	84.41%
Plant Restoration - U of M	42,000.00	-	42,000.00	-	25,238.45	60.09%
Repair and Maintenance Fund *	177,005.00	-	177,005.00	1,015.00	9,275.50	5.24%
Wetland Management*	145,272.00	-	145,272.00	5,120.75	29,586.75	20.37%
District Groundwater Assessment	-	-	-	-	-	---
Groundwater Conservation*	130,000.00	-	130,000.00	-	250.00	0.19%
Lake Vegetation Implementation	75,000.00	-	75,000.00	9,189.23	24,062.99	32.08%
Opportunity Project*	200,000.00	-	200,000.00	2,500.00	12,499.00	6.25%
TMDL - MPCA	10,000.00	-	10,000.00	-	-	0.00%
Stormwater Ponds - U of M	86,092.00	-	86,092.00	-	26,107.01	30.32%
Hennepin County Chloride Initiative	120,800.00	-	120,800.00	1,142.06	5,970.31	4.94%
Lower Minnesota Chloride Cost-Share	217,209.00	-	217,209.00	-	-	0.00%
Subtotal	**$1,885,571.00**	**$56,362.71**	**$1,941,933.71**	**$109,763.25**	**$635,785.92**	**32.74%**
Bluff Creek						
Bluff Creek Tributary*	291,091.00	-	291,091.00	108,818.35	226,053.24	77.66%
Chanhassen High School *	41,905.00	-	41,905.00	(2,000.00)	1,609.50	3.84%
Wetland Restoration at Pioneer	561,870.00	-	561,870.00	3,944.22	549,146.02	97.74%
Subtotal	**$894,866.00**	**$0.00**	**$894,866.00**	**$110,762.57**	**$776,808.76**	**86.81%**
Riley Creek						
Lake Riley - Alum Treatment*	5,000.00	-	5,000.00	-	-	0.00%
Lake Susan Water Quality Improvement Phase 2 *	13,420.00	10,032.26	23,452.26	(11,844.50)	11,495.26	49.02%
Rice Marsh Lake in-lake phosphorus load	73,983.00	-	73,983.00	-	13,414.87	18.13%
Rice Marsh Lake Water Quality Improvement Phase 1	150,000.00	-	150,000.00	-	-	0.00%
Riley Creek Restoration (Reach E and D3)	1,680,562.00	-	1,680,562.00	50,801.80	87,637.12	5.21%
Lake Riley & Rice Marsh Lake Subwatershed Assessment	72,500.00	-	72,500.00	4,858.80	42,538.97	58.67%
Upper Riley Creek Stabilization	425,000.00	-	425,000.00	-	-	0.00%
Subtotal	**$2,420,465.00**	**$10,032.26**	**$2,430,497.26**	**$43,816.10**	**$155,086.22**	**6.38%**
Purgatory Creek						
Purgatory Creek Rec Area- Berm/retention area - feasibility/design	50,000.00	-	50,000.00	-	-	0.00%
Lotus Lake in-lake phosphorus load control	105,772.00	-	105,772.00	-	1,666.30	1.58%
Purgatory Creek at 101	-	-	-	-	90.00	---
Silver Lake Restoration - Feasibility Phase 1	168,013.00	-	168,013.00	2,100.00	12,081.83	7.19%
Scenic Heights	111,226.00	-	111,226.00	(9,760.38)	55,767.49	50.14%
Hyland Lake in-lake phosphorus load control	120,000.00	-	120,000.00	-	128,612.41	107.18%
Mitchell Lake Subwatershed Assessment	87,500.00	-	87,500.00	3,594.60	41,296.64	47.20%
Duck Lake watershed load	213,955.00	-	213,955.00	322.50	88,532.52	41.38%
Subtotal	**$856,466.00**	**$0.00**	**$856,466.00**	**($3,743.28)**	**$328,047.19**	**38.30%**
Reserve	**$160,000.00**	**($141,798.33)**	**18,201.67**	-	-	0.00%
TOTAL EXPENDITURE	**$7,339,368.00**	**$0.00**	**$7,339,368.00**	**$312,649.58**	**$3,038,389.96**	**41.40%**
EXCESS REVENUES OVER (UNDER) EXPENDITURES	**$0.00**	**$0.00**	**$0.00**	**$1,536,130.18**	**$1,342,288.89**	

10-YEAR MANAGEMENT PLAN

In 2018, the District's 10 year management plan was adopted. This was preceded by a 2-year process that required a lot of data, analysis and prioritization, and input from stakeholders like city and state organizations, and the community. The plan guides all the District's actions, from monitoring to water quality projects, over a 10 year period. In 2019, the following amendments were made to the plan:

Cost-Share Plan Amendment

Amended March 6, 2019
(Page reference 9-34 to 9-38 in RPBCWD 2018. Planning for the Next Ten Years 2018-2027)

The Cost Share Program provides funding and technical assistance for projects that protect and conserve water resources and increases public awareness of the vulnerability of these resources and solutions to improve them. The program seeks to decrease barriers to - and incentivize the implementation of - best management practices, and shift cultural norms toward making these practices common-place. The Cost Share Program supports several of the District's Goals and Strategies as listed in **Table 9-5.**

Table 9-5 Goal and Strategies Supported by the Cost Share Program

Goal	Strategy
EO3 (Education & Outreach)	EO S9. The District will continue to implement its cost-share program to provide incentive for residents, businesses, institutions and local governmental units to implement watershed best management practices.
WQual1, WQual2, & WQual3 (Water Quality)	WQual S1. The District seeks to minimize the negative impacts of erosion and sedimentation through the District's regulatory, education and outreach, and incentive programs.
	WQual S3. The District encourages cities and developers to seek opportunities to incorporate habitat protection or enhancement into development and redevelopment projects.
	WQual S6. The District will seek opportunities to establish and preserve natural corridors for wildlife habitat and migration.
	WQual S7. The District will promote the use of natural materials and bioengineering for the maintenance and restoration of shorelines and streambanks where appropriate.
	WQual S11. The District recognizes the multiple benefits of vegetated buffers and promotes the use of vegetated buffers around all waterbodies.
	WQual S12. The District will assist and cooperate with cities, MPCA, MDNR, MnDOT, other watershed and other stakeholders in implementing projects or

	other management actions based on the Minnesota Pollution Control Agency's Twin Cities Metro Chloride TMDL. WQual S13. The District will continue to minimize pollutant loading to water resources through implementation of the District's capital improvement, regulatory, education and outreach, and incentive programs. WQual S15. The District will cooperate with other entities to investigate treatment effectiveness of emerging practices.
Ground1 (Groundwater)	Ground S1. The District will promote the conservation of groundwater resources through its education and outreach program and will work with cities to encourage conservation practices (e.g. water reuse).
WQuan2 (Water Quantity)	WQuan S1. The District will preserve and enhance the natural function of the floodplain and maintain floodplain storage volume. WQuan S2. The District will promote strategies that minimize baseflow impacts. WQuan S3. The District will continue to promote infiltration, where feasible, as a best management practice to reduce runoff volume, improve water quality, and promote aquifer recharge. WQuan S7. The District promotes/encourages cities and developers to implement Low Impact Development (LID) practices and will work with cities to reduce regulatory barriers to LID practices. WQuan S9. The District will work with cities and other stakeholders to encourage conservation practices (e.g. water reuse) to protect creeks, lakes and wetlands.

The cost-share program is organized into three tiers by stakeholder group:

1. Local Government and Commercial Facilities – aimed at building capacity for installation of water-quality improvement practices in conjunction with projects such as municipal street reconstruction, stormsewer retrofits, school property improvements and commercial property projects.
2. Lake Associations, Homeowners Associations and Nonprofits – designed to tap into the knowledge these organizations have regarding opportunities and priorities for stormwater-management in their areas, and their potential to ensure installation of shoreline and streambank restorations, rain gardens, filter strips, pervious surfaces and restoration of wetlands and habitat.
3. Single-Family Residential Projects – designed to support community member interest in protecting clean water through restoration of residential shorelines and streambanks, installation of filter and buffer strips, restoration of wetlands and habitat, construction of rain gardens and use of pervious surfaces.

Participants contribute in-kind (labor or materials) and/or monetary resources to their projects and commit to long-term maintenance. They sign a funding agreement detailing the location and

specifications of the project. The District provides technical assistance in review of project design and inspection to help ensure that best practices are properly and effectively constructed. Applications for cost-sharing will be accepted on ~~an annual~~ a regular basis. After being awarded a grant, participants have one year to complete the project or request an extension. Funds are disbursed to participants after documented completion of the project to the specifications detailed in the funding agreement. The District will annually assess outcomes of the cost-share program to determine whether alterations or additions to the focus areas is warranted.

9.7.1 **Available Funding**

The District will fund its cost-share programs from the *ad valorem* property tax levied annually on property within the watershed, as well as through other funding sources such as regional, state or federal grants. The budget for the program in 2018 will be $200,000. The Board of Managers will annually set the budget for the cost-share programs in a manner that meets program needs and prudently aligns with the District's overall financial capacity.

9.7.2 **Eligibility Criteria for Disbursing Funds**

Applicants are eligible for one cost-share grant per property per year. Applications are reviewed and ranked based on their potential to contribute to the goals of the program:

- improve watershed resources
- foster water resource stewardship
- increase awareness of the vulnerability of watershed resources
- increase familiarity with and acceptance of solutions to improve waters

Projects must be located within the District. Funding will not be awarded for work required as part of a permit requirement, but may be awarded toward the incremental cost of BMPs that will provide water quality treatment beyond permit requirements.

St. Hubert Opportunity Project

Amended October 6, 2019
(Page reference 9-50a to 9-50c in RPBCWD 2018. Planning for the Next Ten Years 2018-2027)

9.13.a St. Hubert Catholic School Opportunity Project

Need

Early 2016, The District completed the Rice Marsh Lake and Lake Riley Use Attainability Analysis Update. This effort involved a review of water quality data, land use within these watersheds and potential measures to protect water quality in these lakes. The assessment showed that Rice Marsh Lake is not meeting MPCA shallow lake water quality standards. More than half (64%) of the phosphorus load is from external sources, namely watershed runoff (44%) and discharge from Lake Susan into Rice Marsh Lake (20%). In 2018, the District implemented an

Alum Treatment on Rice Marsh Lake to reduce internal phosphorus load. It is important to control both external and internal sources of phosphorus loading to Rice Marsh Lake. However, the effectiveness and longevity of measures to control internal phosphorus load are enhanced by maximizing management of external load.

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 stormwater 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's 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 (Figure 9.7).

Description

Project Area 1 includes a retrofit of the parking lot median to incorporate a tree trench that would collect water from the adjacent parking lot.
Project Area 2 includes retrofitting an existing playground to incorporate underground storage of stormwater runoff from the school roof.
Project Area 3 includes repair of a storm sewer inlet and associated eroded gully and reduction of impervious area with incorporation of native plants and possible rain garden.
Project Area 4 includes restoration of a turf grass parcel into a native prairie with possible shallow depressions to catch/treat stormwater.

9-50a

Scoring

Staff scored the campus retrofit project (including all practices) following the project prioritization scheme detailed in Section 4 of the Plan. The project scored a 33, comparable to other projects in the Plan implementation table for the Riley Creek Watershed as seen in table 9-1.

Table 9-6 Scoring of St Hubert Catholic School Opportunity Project

District goals	Sustainability	Volume Reduction	Pollutant management	Habitat restoration	Shoreline Restoration	Watershed Benefit	Partnership	Public access Education	**Total**

							oppor-tuni-ties		
3	7	3	1	5	1	3	7	3	**33**

Estimated Construction Cost: $277,000 [All Project Areas]

Funding

The District would expect to fund this project by means of its watershed-wide ad valorem levy. However, staff is exploring cost-sharing and grant opportunities with other public agencies and will partner as opportunity allows.

9-50b


LEGEND
1 Tree Trenches
2 Playground
3 South Parking Lot and Recreation Improvements
4 West Parcel Prairie Restoration
Direction of Stormwater Runoff Flow
0
30
60
North
Enlarged Concrete Entrance Plaza
Roof Drains, typ.
Seating Area, typ.
Roof Drains, typ.
50' x 60' Underground Stormwater Storage
Nature Based Play Area
Playground Container (4,000 SF)
Playground Container (4,000 SF)
Gully Repair
Rain Garden
Seating Area
Re-located Basketball Court Striping
Expanded Landscaping or Potential Rain Garden
Landscaping or Potential Rain Garden, typ.
Existing Light, typ.
Tree Trench Plantings and Shallow Swale
Path and Seating Area
Mowed Paths
Native Prairie Restoration
Drain Tile
New Curb Cut
Shallow Depression
Shallow Depression
MAIN STREET
CR 101 / MARKET BLVD.
APPENDIX A: CONCEPT PLAN LAYOUT
St. Hubert Catholic School Opportunity Projects
APRIL 3, 2019
ST. HUBERT CATHOLIC SCHOOL
SRF

9-50c

2020 WORKPLAN

Administration	
Accounting and Audit	Coordinate with Accountant for the development of financial reports. Coordinate with the Auditor. Continue to work with the Treasurer to maximize on fund investments.
Internal Policies	Work with Governance Manual and Employee Committees to review bylaws and manuals as necessary. Work with Board to update governance manual and develop communication plan.
Advisory Committees	Engage with the Technical Advisory Committee on water conservation, chloride management and emerging topics. Engage with the Citizen Advisory Committee on water conservation, annual budget and emerging topics. Facilitate recruitment of CAC members for 2019.
Employee Management	Hire interns as necessary. Conduct performance reviews. Coordinate with Payroll Officer. Maintain cohesive and efficient workplace environment. Update personnel handbook as necessary.
Municipal Interactions	Engage with Municipalities to raise awareness and increase buy into District led projects.
Office Management	Maintain office operational.
Insurance and Safety	Maintain District Insurance and Employee Safety Program.
Regulatory Program	Finalize permitting database. Engage Technical Advisory Committee and Citizen Advisory Committee on possible rule changes. Implement and review regulatory program.
District Wide	
Aquatic Invasive Species	Review AIS monitoring program. Develop and implement Rapid Response Plan as appropriate. Coordinate with LGUs and keep stakeholders aware of AIS management activities. Manage and maintain the aeration system on Rice Marsh Lake as per the Riley Chain of Lakes Carp Management Plan. Keep abreast in technology and research in AIS.
Cost-Share	Review applications and recommend implementation.

	Increase stewardship base.
Data Collection	Continue Data Collection in permanent sites. Identify monitoring sites to assess future project sites. Review updates to the field CRAS analysis. Develop shoreline health index.
Community Resiliency	Coordinate maintenance of Hydrology and Hydraulics Model – and build higher resolution.
Education and Outreach	Implement Education & Outreach Plan, review at year end. Manage partnership activities with other organizations. Coordinate Public Engagement with District projects.
Groundwater Conservation	Work with other LGUs to monitor assess and identify gaps. Engage with the Technical Advisory Committee to identify potential projects. Develop a water conservation program.
Lake Vegetation Management	Work with the University of Minnesota or Aquatic Plant Biologist, Cities of Chanhassen and Eden Prairie, lake association, and residents as well the Minnesota Department of Natural Resources on potential treatment. Implement herbicide treatment as needed. Secure DNR permits and contract with herbicide applicator. Lakes the District is monitoring for treatment include: Lake Susan, Lake Riley, Lotus Lake, Mitchell Lake, Red Rock Lake and Staring Lake. Work with Three Rivers Park District for Hyland Lake.
Opportunity Projects	Assess potential projects as they are presented to the District.
Total Maximum Daily Load	Continue working with Minnesota Pollution Control Agency on the Watershed Restoration and Protection Strategies (WRAPS). Engage 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. Support Dr. John Gulliver and Dr. Ray Newman research and coordinate with local partners. Keep the manager abreast to progress in the research. Identify next management steps.
Watershed Plan	Update as necessary.

Wetland Management	Identify potential restoration/rehabilitate wetlands and wetland requiring protection. Build on the work from 2019 and 2018.
Bluff Creek One Water	
Chanhassen High School Re-use	Continue to monitor system.
Wetland Restoration and Flood Mitigation	Conduct feasibility/design for restoration. Remove buildings from sites. Begin restoration efforts.
Bluff Creek Tributary Restoration	Implement and finalize restoration.
Riley Creek One Water	
Lake Riley Alum	Implement 2nd split alum dose.
Lake Susan Improvement Phase 1	Continue to monitor and improve spent lime treatment facility.
Lake Susan Improvement Phase 2	Continue to monitor system.
Lower Riley Creek Stabilization	Complete restoration and monitor.
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 Chanhassen.
Lake Ann – wetland restoration	Complete feasibility for restoration and enhancement. Work with developer. Implement work.
Lake Riley and Rice Marsh Lake subwatershed Assessment	Continue working on project. Complete reporting requirements.
Upper Riley Creek	Work with City to develop scope of work (in addition to stabilizing the creek can we mitigate for climate change). Conduct feasibility. Develop cooperative agreement with the City of Chanhassen. Order project. Start design.
Purgatory Creek One Watershed	
Duck Lake Raingarden Project	Complete Duck Lake Partnership.

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	Coordinate design with the City of Chanhassen. Work with the City of Chanhassen for Design, cooperative agreement. Implementation for 2021 at the same time of street re-construction.
Scenic Heights	Continue restoration effort. Continue work with the City of Minnetonka and Minnetonka School District on Public Engagement for project as well as signage.
Mitchell Lake Subwatershed	Continue working on project. Complete reporting requirements.
Lotus Lake- Kerber pond	Conduct feasibility in partnership with the City of Chanhassen.
Professional Services	
Presentations	Present District findings at local, regional and national conferences.
American Water Resources Association	Represent the District on AWRA Board.
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 managing water resource problems. For instance, municipal land use planning and zoning powers are invaluable for ensuring that land uses are compatible with the surrounding environment. The District's Board of Managers adopted an updated regulatory program in December of 2019. The previous program was adopted in December of 2014 and amended on August 8th 2018 to address stakeholder concerns. The regulatory program implements a watershed approach to potential impacts to water resources that ensures a consist level of protection across the watershed.

The program includes thirteen rules, A-M, which can be viewed in detail on the District's website: rpbcwd.org/permits/.

REGULATORY PROGRAM

Regulation ensures proper integration of water resource protection when development and redevelopment projects occur.

The District received 52 permit applications in 2019. Including three (3) permits carried over from 2018, a total of 54 permits were approved in 2019 and none were denied. One permit is carrying over in to the 2020 permit year. It is estimated that more than thirteen (13) tons of Total Suspended Solids (TSS) and approximately 74 lbs of Total Phosphorus were prevented from entering our stormwater sewers and ultimately our water resources. In addition, approximately 105,113 cubic feet of water was abstracted during every 1.1-inch rainfall event. There were nine (9) projects which included buffers.

Summary		Estimated	Estimated	Estimated
Permit Type	Number	Total TSS (lbs)	Total TP (lbs)	Volume (cft)/ 1.1 inch
Governmental	21	2,606.4	6.7	18,648
Private Development	15	23,616.2	67.4	86,465
Ex. Single Family	15	Not Computed		
Withdrawn/ Review in Progress	1	Not Computed		
TOTAL	52	26,222.6	74.1	105,113

There was a 30% increase in TSS removal in 2019 over 2018 but a 12% decline in TP removal over the same time span. This could be to any number of factors including land use, predevelopment treatment, etc. Private development accounted for most removals. Despite looking like the new MS4 permit was going to result in a decrease in abstraction volume, 2019 saw a 15% increase in abstraction volume even with 14 fewer permits in the calculated categories.

Six applications requested a variance from District rules.

In 2019, the regulatory program prevented sediment pollution, reduced food for algae and helped slow down and soak in water it falls.

13
Dump trucks of sediment/yr (assuming bulk density of 1.5g/cc)

37
Tons less algae/yr

9830
Bathtub full of water infiltrated per 1.1" rainfall

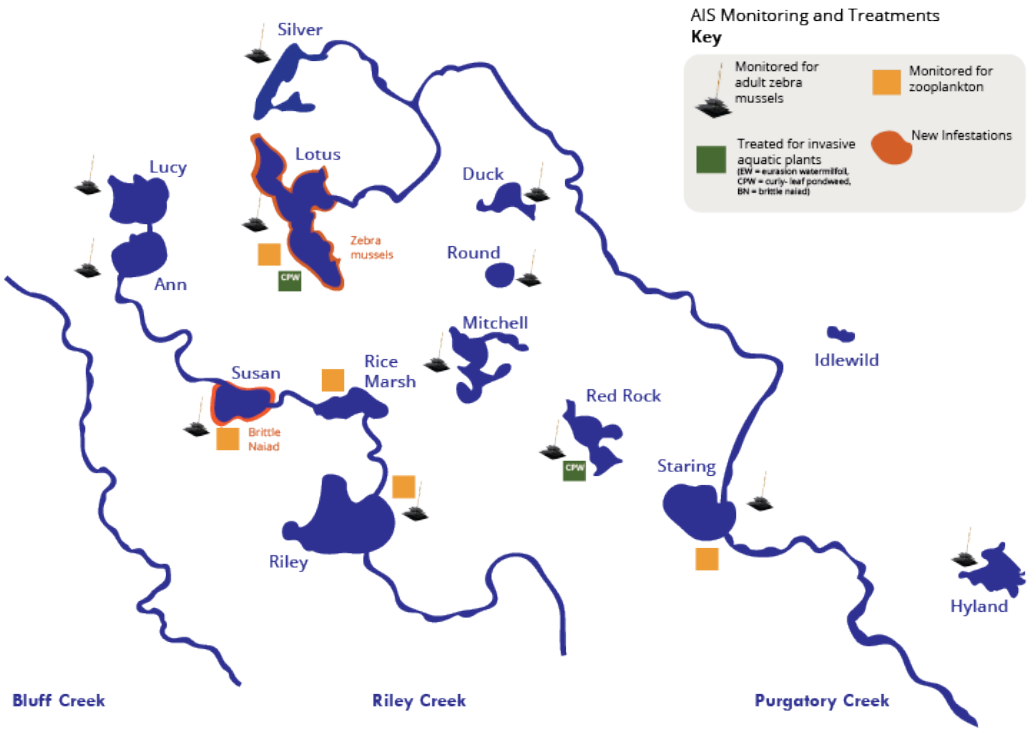
AQUATIC INVASIVE SPECIES

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 AIS program is to help support AIS inspections, AIS monitoring and rapid responses to a new infestation.

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 District, with help of 28 volunteers, monitored our lakes for zebra mussels. Unfortunately, Zebra Mussels were detected in Lotus Lake. The District worked with the MN DNR and Carver County to determine the extent of spread and identify if rapid response could occur. However, the spread was too large. In 2019, a new infestation of brittle naiad was found in Lake Susan.

The District continues to manage carp in the Riley Creek Watershed through our aeration unit on Rice Marsh Lake. 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.

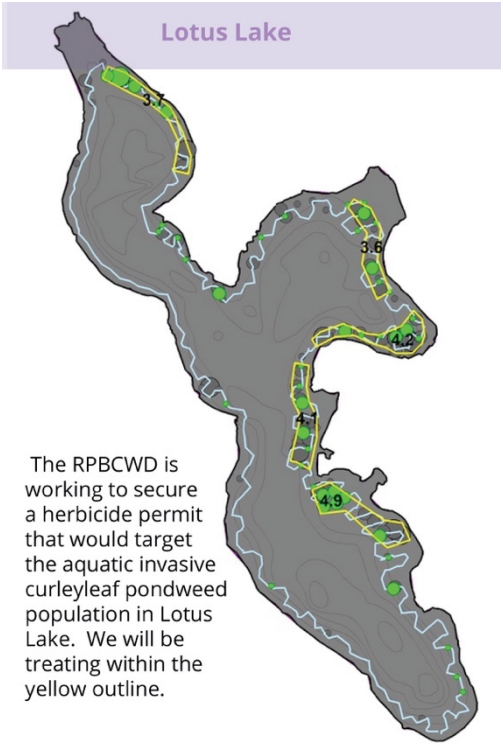
LAKE VEGETATION MANAGEMENT

In 2019, the District conducted herbicide treatments on aquatic invasive species on Lotus Lake and Red Rock Lake

Lake Vegetation Management Plans

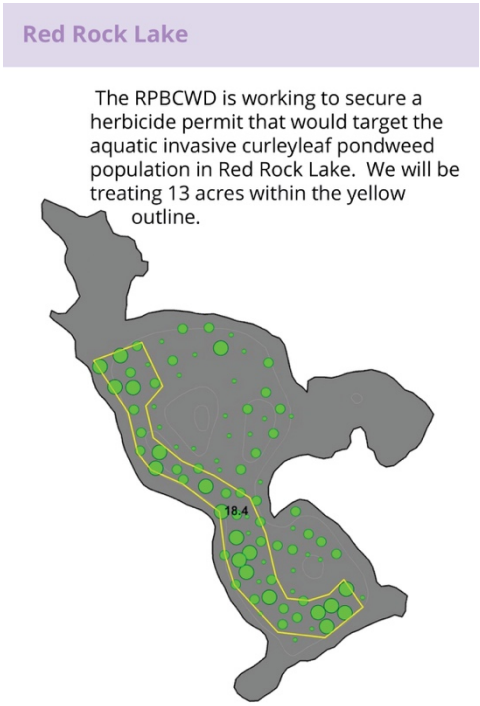
Lotus Lake

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 2019, the District conducted one herbicide treatment on Lotus Lake. The first treatment treated 20.6 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 2020.



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 2020.



CHLORIDE

The District is the fiscal agent and project lead for two chloride initiative: 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.

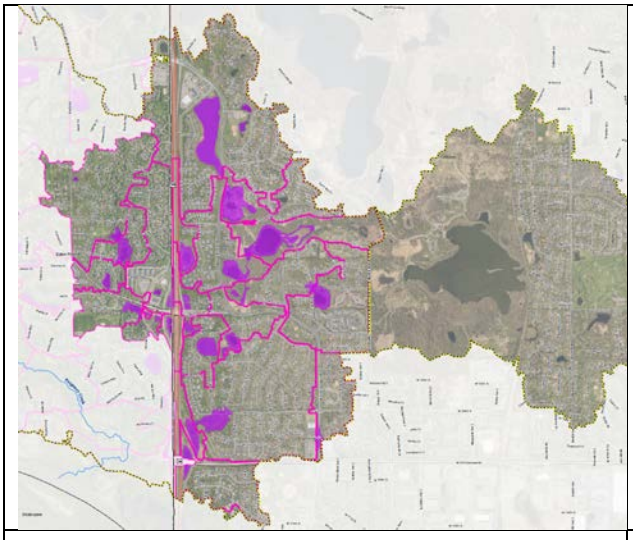
In 2019, the HCCI used a mixed-methods approach, combining qualitative data gathered from stakeholder interviews and quantitative data gathered through an online survey. Interviews were conducted with 12 private salt applicators in and around Hennepin County. Quantitative data were collected through a self-administered online survey distributed initially to 369 winter maintenance professionals and distributed further using snowball sampling. Findings will be published in a white paper in 2020.

The Lower Minnesota Chloride Grant partners several times in 2019 to discuss next steps and findings from conferences and individuals engage with chloride. It was determined that the initiative would hold off in the launching the grant program until the HCCI had conducted their research identifying needs and barriers. It is anticipated that the grant will be launched in 2020.

CLEAN WATER LAND & LEGACY AMENDMENT

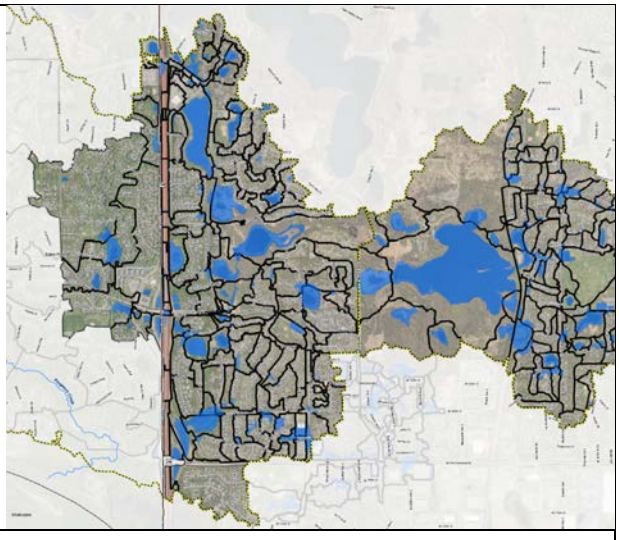
DISTRICT FLOODPLAINS

In 2016, the Districted completed a floodplain vulnerability evaluation to identify flood-risk areas along the creeks. One of the outcomes was identifying flood-risk areas and road crossings riparian to the creeks during a series of rainfall events. Following the evaluation, Technical Advisory Committee (TAC) members indicated it would be beneficial if the District's stormwater model included additional detail throughout the watershed and could be used to better identify flood-risk areas that are not adjacent to the creeks.
In 2019, the District partnered with the City of Bloomington to incorporate more detailed information in the Purgatory Creek and Hyland Lake subwatersheds and develop a framework to prioritize future evaluation of flood-risk reduction projects. Updates to the model included refining the watershed divides, previously developed to regional stormwater ponds, to neighborhood ponds as shown on the next page.



Purgatory Creek watershed - BEFORE

- 15 subwatersheds
- Average watershed size of 75 acres
- 6 potentially flood-prone structures for Atlas 14 100-year event



Purgatory Creek watershed - AFTER

- 128 subwatersheds
- Average watershed size of 8 acres
- 50 potentially-flood prone structures for Atlas 14 100-year event
- 151 potentially-flood prone structures for Mid-21st Century 100-year event

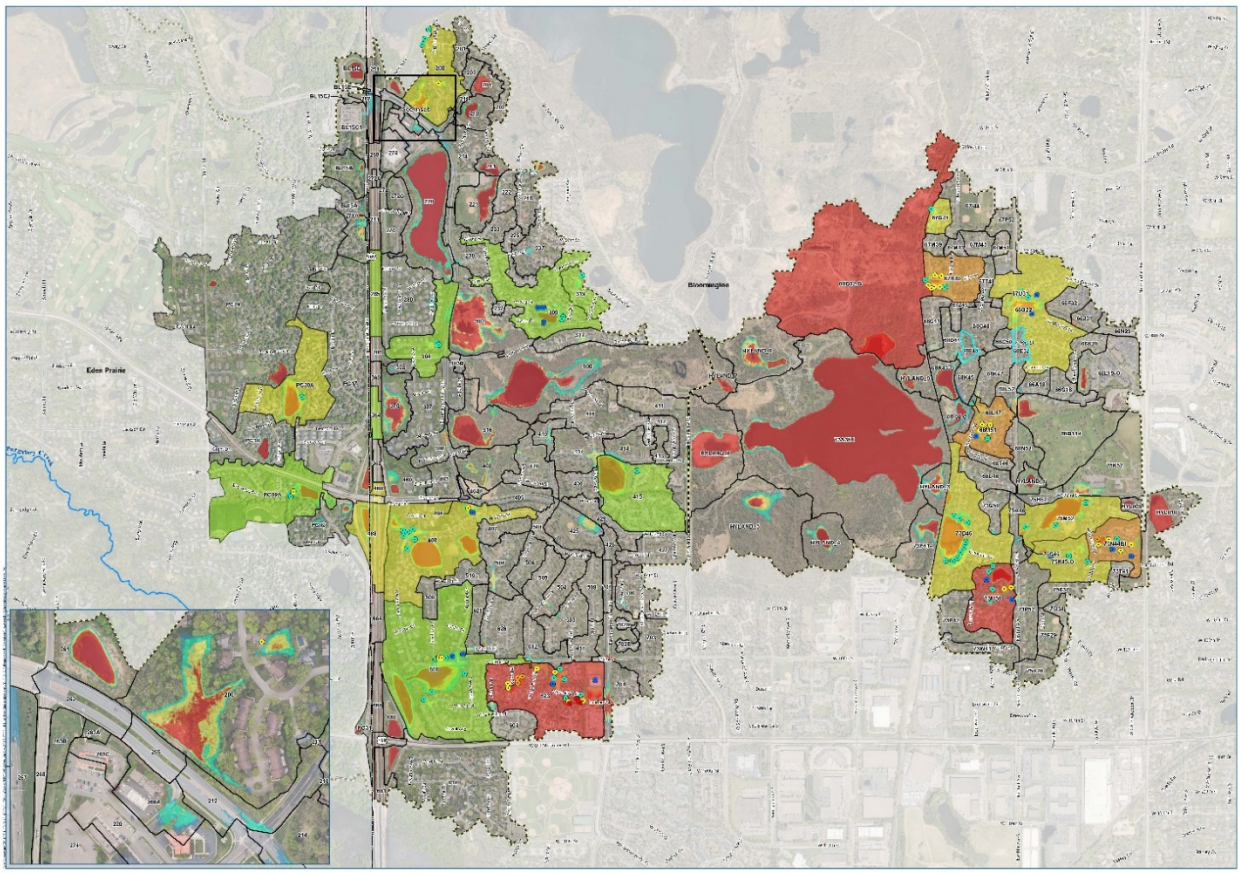
The District requested input from the TAC regarding how to prioritize evaluating flood-risk mitigation for the flood-prone areas. The TAC identified six categories that should be considered when prioritizing future evaluation.

1. Number of impacted structures
2. Frequency of flooding

3. Social Vulnerability Index
4. Project Efficiency
5. Multiple Benefits
6. Critical Infrastructure

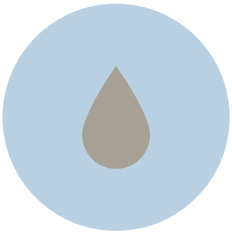
The District and City developed a framework and scoring methodology to prioritize each area within Purgatory Creek. In 2020, the District will continue to apply the prioritization framework throughout the watershed. The District will also continue to identify partnership opportunities with member cities to add detail to the stormwater model to identify flood-risk areas that are not adjacent to the creeks.

Prioritized areas in the Hyland Lake Subwatershed



GROUNDWATER CONSERVATION

In the fall and winter of 2019 District staff began the process of developing a District-wide program with the goal of conserving groundwater. Staff conducted stakeholder engagement, identified local opportunities and case studies, and assessed the needs of local resources. Through this process, staff recommended a three part groundwater conservation program to fund practices to conserve water, to help promote awareness and stewardship through education, and finally to pilot the use of future technologies. These goals will be accomplished through the development of a grant program for cities to fund water efficient technology rebate programs, the formation of an education collaborative to create audience specific educational materials and programming, and the piloting of a smart water meter replacement program. The Grant program and education collaborative will be launched spring/ summer of 2020.



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 increase awareness to 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 program helps cover some of the normal and routine maintenance cost.

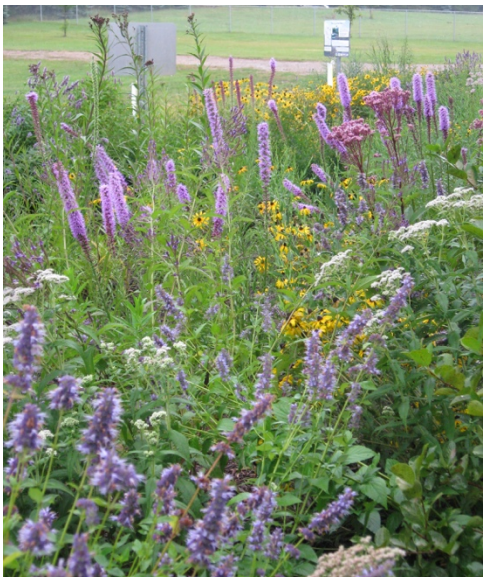
WATERSHED STEWARDSHIP GRANT PROGRAM

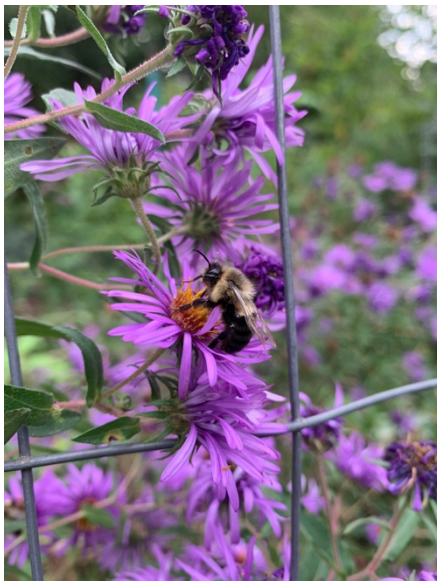
Funding and support for community projects that protect, improve, and increase awareness of water resources.

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 2019, the Watershed District's Watershed Stewardship Grant Program funded 14 projects, including raingardens, buffers, vegetated swales, and equipment upgrades. 55,000 square feet of habitat was restored.

District Staff worked with the Citizens Advisory to update the Watershed Stewardship Grant Program. Updates included the introduction of a scoring rubric and streamlining of the review and approval process.





In 2019, the watershed district's Watershed Stewardship Grant Program funded 14 projects to protect and improve water resources:

14 projects

55,000 ft² of habitat restored

EDUCATOR MINI-GRANTS

Twelve applications were received for the mini-grants, and all of the applications were approved. The approved grants included requests to purchase rain suits for children to explore outside in the rain, supplies for students to learn about the water cycle by creating their own terrariums, and water quality testing kits to study the health of Bluff Creek. Other grants included books to learn about the water cycle, and binoculars to observe wildlife that visits a pond. In all, an estimated 1,800 students benefitted from the supplies and experiences funded by educator mini-grants in 2019.

The twelve applications in 2019 show continued trend of increased interest in this program, up from ten applications in 2018 and six applications in 2017.

Prairie View Elementary students use their new grant-purchased snow-shoes to explore frozen duck Lake

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, and community in our watershed. 2019 was the first year that action grants were available. The district received four applications: three were approved and one was transferred to a Watershed Stewardship Grant (formerly cost share) application.

The year's projects included funds for materials to run community clean-up events, and funds for neighbors to collaborate on a shared landscaping project.

REPAIR & MAINTENANCE FUND

In 2019, no funds were requested by cities for the repair and maintenance of stormwater infrastructure. Some funds were used for the repair and maintenance of the Spent Lime facility of Lake Susan.

DATA COLLECTION

The District understands that data collection and decisions based on sound science are critical to the success of this Plan. Because of the dynamic and ever-changing nature of the water resources, the District operates an extensive lake and stream management program. This program is intended to improve the District's understanding and inform sound decision making to protect and enhance the surface and groundwater resources in the District. Generally, the program includes:

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

EXECUTIVE SUMMARY

The Riley Purgatory Bluff Creek Watershed District (RPBCWD) had a successful water quality sampling season in 2019, 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 2019 sampling effort are presented in this report.

2019 LAKE SUMMARY

During the 2019 monitoring season, 13 lakes and one high value wetland 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 all waterbodies, assessed carp populations, and collected zooplankton and phytoplankton populations in five lakes. Staff were able to remove 441 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. Unfortunately, zebra mussels veligers were found in Lotus Lake and mussel shells were found on a dock on shore, which makes Lotus the second lake within the District to be listed as infested. Successful alum treatments occurred on Hyland Lake in 2019. Herbicide treatments for curly leaf pondweed were conducted on Lotus Lake and Red Rock Lake. In 2019, brittle naiad was found at 2 locations in Lake Susan; this represents the first appearance of this invasive aquatic plant in the lake.

Surface water samples were collected, analyzed, and compared to standards set by the Minnesota Pollution Control Agency (MPCA) to assess overall lake health. Figure 1 displays lakes sampled in 2019 that met or exceeded the MPCA lake water quality standards for Chlorophyll-a (Chl-a), Total Phosphorus (TP), and Secchi Disk depth during the growing season (June-September). The MPCA has specific standards for both ‘deep’ lakes (Lake Ann, Lotus Lake, Lake Riley, and Round Lake) and ‘shallow’ lakes (Duck Lake, Hyland Lake, Lake Idlewild, Lake Lucy, Mitchell Lake, Red Rock Lake, Rice Marsh Lake, Staring Lake, Lake Susan, and Silver Lake) (MPCA 2016).

Overall lake water quality across the District improved in 2019. This is the first time since data has been collected that all lakes within the watershed district have met the water clarity standard in a year. Lake Ann, Lake Idlewild, Lake Riley, Rice Marsh Lake, Round Lake, and Duck Lake met all three MPCA standards in 2019; Rice Marsh Lake did not previously meet the Chl-a and TP standards in 2018, but the alum treatment at the end of 2018 cut the concentrations of both in half. Silver Lake met all standards in 2018, but just missed meeting the Chl-a and TP standards in 2019. Red Rock and Staring also all exceeded both the Chl-a and TP standards in 2019. Both Hyland Lake and Mitchell Lake failed to meet any of the standards in 2018 but met all standards except the Chl-a standard in 2019. Lucy and Susan also did not meet the Chl-a standard 2019. All lakes met the nitrate/nitrite water quality standard and only Lake Idlewild did not meet the chloride standard for lakes.

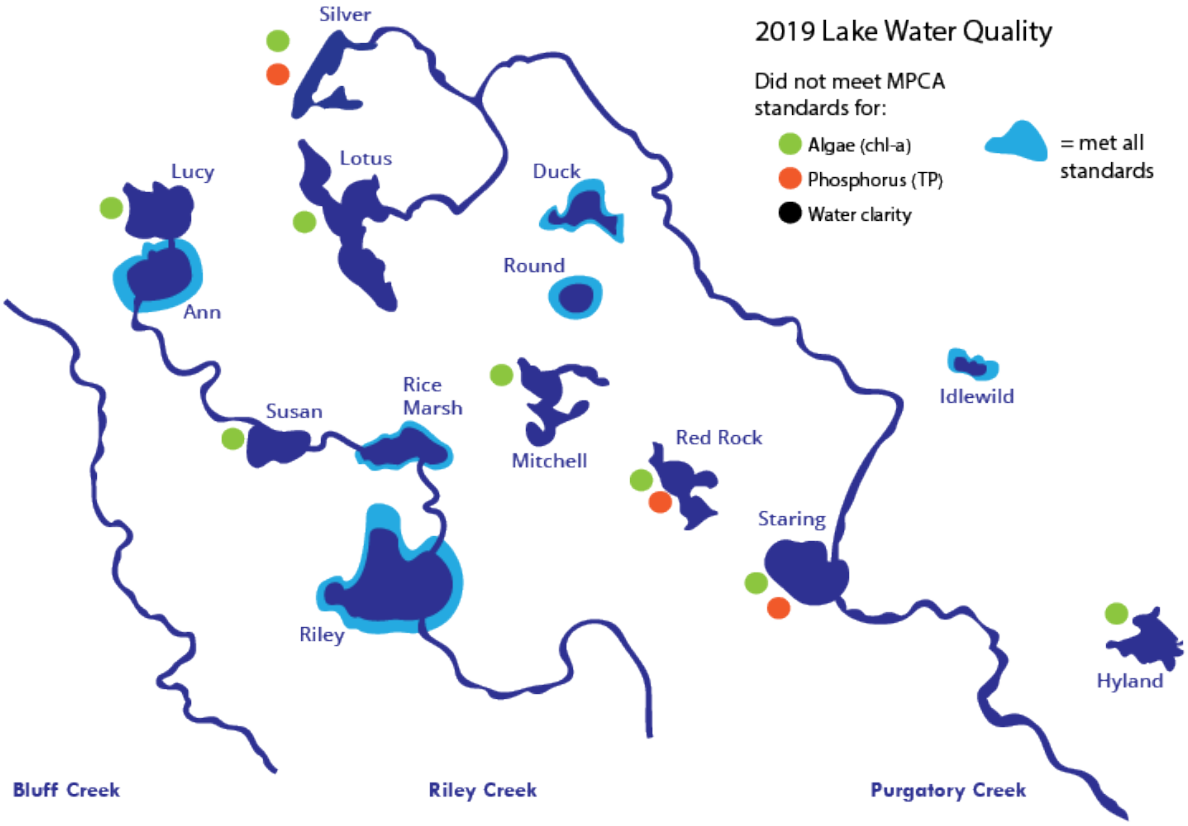


Figure 1 2019 Lake Water Quality

Summary of the lake water quality data collected in 2019 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) were assessed 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, 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.

2019 STREAM SUMMARY

In 2019, the District collected water quality samples and performed data analysis on 23 different sampling sites along Riley Creek (six sites), Bluff Creek (six sites), and Purgatory Creek (eleven sites). During the 2019 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 and Riley Creek to assess pollutant loads and the potential for restoration projects. The District collected macroinvertebrates at all eight Purgatory Creek regular water quality sites in 2019. Sections of Purgatory Creek were assessed and updated using the Creek Restoration Action Strategy (CRAS) evaluation, which identifies the stream reaches most in need of restoration. Overall, the 2019 CRAS scores of subreaches previously walked remained very similar to past scores.

The summary for all three creeks is based on water quality parameters developed by the MPCA in 2014 for Eutrophication and TSS as well as impairment status for fish and macroinvertebrates. The parameters measured during the summer growing season (April-September) and the associated MPCA water quality limits for streams located in the Central River Region include: Dissolved Oxygen (DO) daily minimum > 4mg/L, summer season average TP < 0.1mg/L, TSS < 10% exceedance of 30mg/L limit during the summer season, summer season average Chl-a <18ug/L, and summer season average pH < 9su and >6su (MPCA, 2016).

Regular creek sampling sites P3 through P5 and R3 met all MPCA water quality standards assessed in 2019 (Figure 2). The overall number of water quality standard impairments decreased from 2018 to 2019; Bluff had nine (previously 10), Riley had seven (previously 8), and Purgatory had seven (previously 9). Bluff Creek remained the stream with the most impaired water quality, as previously seen between 2015-2018, with TP impairments at all sites, as well as TSS impairments at two sites, a Chl-a impairment at B5, and a fish impairment at B1. Once again, TP was the water quality standard causing the most impairments in 2018 with seven of the 18 sites not meeting the standard (summer average <0.1 mg/L). TSS impairments decreased from nine impairments in 2018 to seven 2019. The dissolved oxygen standard (daily minimum of 4mg/L) was impaired at only site P8. All sites met the pH water quality standard (< 9su and >6su). Similar to 2016-2018, P2 did not meet the Chl-a standard (summer average <18ug/L). Macroinvertebrate impairments by the MPCA were added to this year's analysis and included lower Purgatory and Riley Creek.

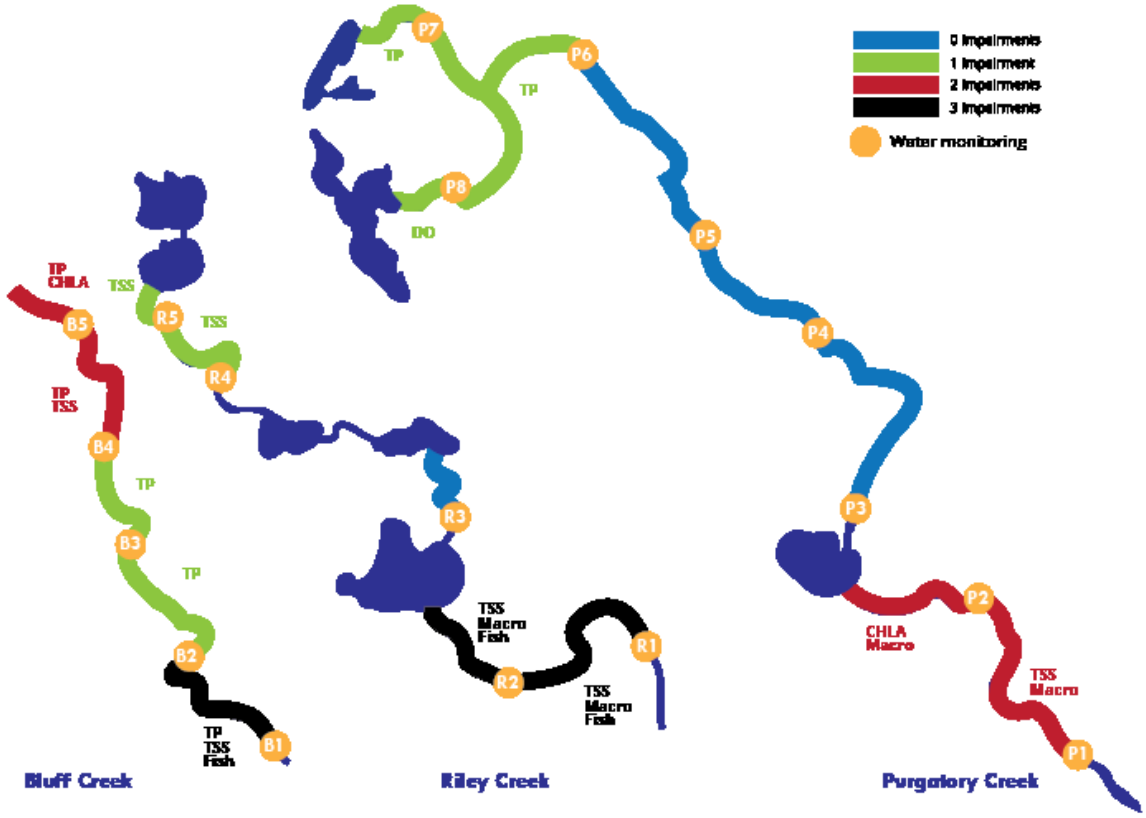


Figure 2 2019 Stream Water Quality

Summary of stream water quality data collected on Bluff Creek, Riley Creek, and Purgatory Creek in 2019 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 > 4mg/L, average Total Phosphorus (TP) < 0.1mg/L, Total Suspended Solids (TSS) < 10% exceedance of 30mg/L limit, average Chlorophyll-a (CHLA) <18ug/L, average pH < 9su and > 6su. The corresponding labels next to each stream section indicate which water quality standards 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 all. 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 2019, the District continued implementation of the E&O Plan. The following pages describe the District's E&O programs and major activities in 2019.

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 2019 program included three ongoing programs – Adopt a Dock, Master Water Stewards, and Service Learners. The district also led a large volunteer planting event and cosponsored a volunteer clean-up event.

Adopt a Dock

Adopt a Dock is a citizen science initiative. Lakeshore residents to monitor for aquatic invasive species. Invasive mussels were found on a plate in Lake Riley, after the district had already been confirmed the species in the lake.

Master Water Stewards

A partnership with the Freshwater Society, MWS trains community volunteers to prevent A through projects and education. In 2019, 5 stewards graduated from the program and 2 new stewards began classes.

Service Learners

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

In 2019, the watershed district's volunteer program engaged community members through three different opportunities and four events:

99 Volunteers*

776 hours volunteered

8 programs & events

**An additional 450 students from Scenic Heights Elementary volunteered a total of 225 hours planting flowers and grasses at the Scenic Heights School Forest Restoration Project site.*

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.

Highlights from 2019 included the District's 50th Anniversary Celebration in August, at which local leaders joined the Board of Managers, staff, partner organizations, and community members to celebrate clean water and 50 years of watershed history.

The District also hosted a meet and greet for local leaders and the Board of Managers in April.

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. Examples activities include guest presentations and citizen science opportunities for local schools and scout groups, service learning opportunities for high-school and college students, and providing financial and other resources to increase education about, and access to local water bodies. The also district partners with the Staring Lake Nature Center in Eden Prairie to support their water resources programing.

Educator Mini-Grants

The mini-grant program offers funding to educators for projects that or activities related to water resources. 12 projects were approved for funding in 2019 including gear for exploring in the rain, binoculars to observe wildlife, and terrariums to learn the water cycle.

School Visits

Education and Outreach staff work with local educators to bring students outside, and to bring water education into the classroom. In 2019, staff visited the classrooms of 1,422 students at 10 schools throughout the District.

Community Events

The district seeks out and responds to requests to present at youth and family events. In 2019, the District attended events such as the Metro Children's Water Fest and Eden Prairie's Animal Open House.

In 2019, the watershed district's youth outreach program engaged children and their families by:

12 mini-grant projects

4,489 individuals engaged

27 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. Examples of continuing education programs include seminars for professionals on best management practices, workshops for residents on raingardens, Project WET trainings for educators, and tours of resources or projects.

Healthy Lawns And Shorelines

The District offers trainings and other opportunities for residents interested in creating healthier landscapes. In 2019, the District held a Healthy Shorelines workshop partnered with Nine Mile Creek Watershed District and Carver County Watershed Management Organization to host 3 Sustainable Lawns workshops.

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 2019, the District hosted one Turf Maintenance workshop, 5 smart salting workshops for winter maintenance professionals, and 4 smart salting workshops for property managers.

Walk with the Watershed

As part of the District's 50th anniversary celebrations, staff led monthly "walk with the watershed" lunchtime hikes. Each month, participants explored a new park or water resource, and learned about what the District is doing to protect and manage it.

In 2019, the watershed district's continuing education program served the community through:

452 participants

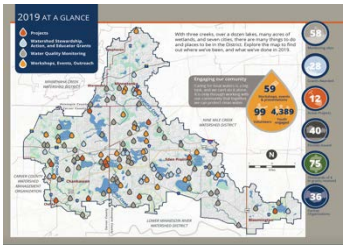
22 Trainings & events

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.

Annual Communication



Each year, the district prepares and distributes a communication about the work it does in the community. In 2019, the communication was combined with the District's 2020 Calendar.

Fact sheets

Water quality fact sheets tell the story of each lake and creek in the watershed. Nearly 800 copies were distributed in 2019.

Media

Electronic newsletter and press releases are written throughout the year. Social media platforms are also utilized. In 2019, staff published 260 social media posts.

Engagement events

From tabling at local fairs, to formal presentations, the district engaged with the public in a variety of ways in 2019.

In 2019, the watershed district's communications program engaged the community and raised awareness through:

800 fact sheets

16 events

12 presentations

260 social media posts

50TH ANNIVERSARY: COME EXPLORE WITH US

In 2019, the Riley Purgatory Bluff Creek Watershed District celebrated 50 years of watershed history with a series of events designed to help our community explore, discover, and protect local water resources.

Come explore with us!

On Ice: Participants at the Lake Ann February Festival explored the lake by snowshoe. Partners: City of Chanhassen, Three Rivers Park District

By Boat: Participants learned about Lake Riley and the District while enjoying free pontoon boat rides. Partner: Let's Go Fishing Eden Prairie Chapter

Through History: Members of the community gathered to celebrate the District's 50 years and the many ways that the local community has shaped the District.

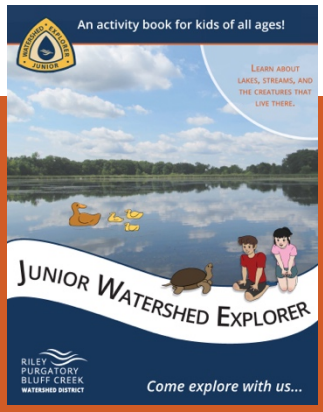
On Wheels: Participants explored the District by bike! Some traveled 50 miles in a "half century" ride, and others pedaled 8 miles along Bluff Creek.

Each season, the District partnered with local artist Kari Jo Johnson for a community art project designed by Kari Jo and painted by more than 150 members of the community.

354
People engaged at events

400+ copies

Of the Junior Watershed Explorer activity book given out



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.

This year, the watershed district is hosting its first GreenCorps member: Amy Bakkum. Member Bakkum's workplan is heavily focused on stormwater best management practices and finding ways to engage the community around them. The fall of 2019 saw Member Bakkum engaging in multiple efforts to understand the barriers winter maintenance contractors face when attempting to reduce salt use.

With this knowledge, Bakkum is moving forward with specifically targeted education to fulfil the needs presented by those in the winter maintenance field. Throughout her service in 2020, Bakkum will continue to develop various educational campaigns including education surrounding steep slopes best practices and ways to improve water quality using stormwater best practices. In August 2020, Member Bakkum will develop a comprehensive report of residents engaged and amount of land and water treated as a way to measure her success at the watershed district.

OPPORTUNITY PROJECTS

PRESERVE ASSOCIATION OPPORTUNITY PROJECT

In the fall of 2019, The Preserve Association 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. Implementation of high priority projects is projected for summer 2020.

ST. HUBERT OPPORTUNITY PROJECT

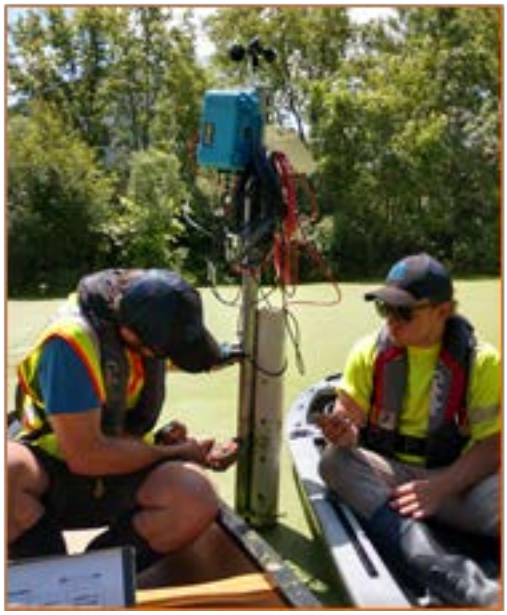
In 2018, District staff were contacted by St. Hubert Catholic School in Chanhassen about the possibility of partnering on a rain garden at the school. Initial consultation identified the potential for multiple best management practices on the site. With the adoption of the District's 10 Year Plan (the Plan) in July of 2018, the Opportunity Projects program was created specifically to address previously unidentified projects and partnerships. A stormwater 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. The project is anticipated to be in Design phase in 2020 and implementation 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 through close monitoring and soil analysis. A total of 5 ponds were selected of which three were elected for and Iron filling treatment in winter 2020. The District will continue to monitor in 2020 to test the efficacity of the treatment.

WETLANDS

That portion of the RPBCWD that lies within Carver County has been assessed. A total of 282 wetlands were within the assessment area of which 24 wetlands are unassigned a management classification. Five of the unassigned wetlands were not assessed as they were inaccessible. The remaining 19 are either being compared to MNRAMs performed by others or have discrepancies in the data that are being evaluated. The District will evaluate the 24 wetlands and classify them in 2020.

No exceptional wetlands were identified although a few wetlands were identified as being sensitive communities, such as wet meadows, but the species composition had converted to primarily reed canary grass or other invasive species and did not have the diversity of species necessary to be considered exceptional. This information will be used as the District evaluate wetlands that have the potential to be rehabilitated as well as those with the potential for restoration.

Wetlands that rated at low quality were associated with agricultural land use or were surrounded by high intensity land use. These wetlands exhibited very low species diversity and were dominated by invasive species. These wetlands all had high inputs of untreated surface water runoff entering them and often exhibited a flow through condition with a channel connecting the inlet to the outlet.

CLASSIFICATION	COU	PERCE
UNASSIGNED	24	9%
EXCEPTIONAL	0	0%
HIGH	43	15%
MEDIUM	151	54%
LOW	64	23%
	282	100%

Low quality wetlands also tended to rate lower as they were not part of a larger assemblage of different habitats. Habitat fragmentation seems to be a factor in the degradation of habitat but still needs further exploration.

Of the 151 medium wetlands, thirteen areas were prior converted wetlands. These wetlands were excavated, or had stormwater runoff directly routed to them to be used as a stormwater treatment area prior to the 1991 MN Wetland Conservation Act or were mitigated for under the same that now serve as stormwater detention ponds.

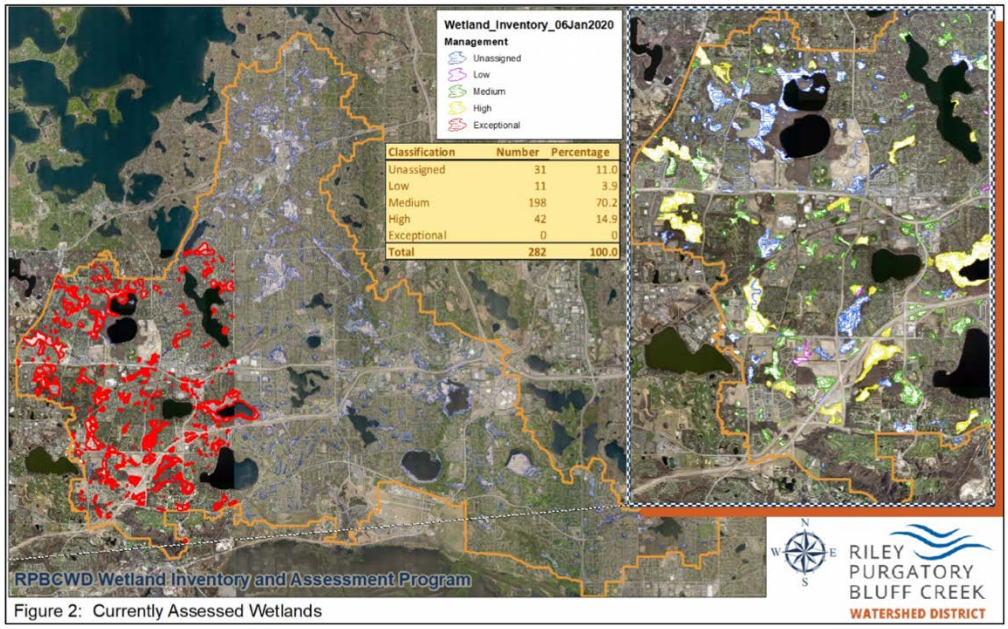


Figure 2: Currently Assessed Wetlands

BLUFF CREEK WATERSHED

The District is actively engaged in two 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 1400ft. 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 from the floodplain throughout. 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 reach of Bluff Creek. The project was delayed but started Fall of 2019. Completion of stabilization will be in Spring 2020.

CHANHASSEN HIGH SCHOOL

The District partnership with the city of Chanhassen and Eastern Carver County School District designed a stormwater reuse project for irrigation at Chanhassen 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 Chanhassen'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 Chanhassen High School is 0.57 inches per week between May through September.

Through a partnership between the RPBCWD, city of Chanhassen 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.

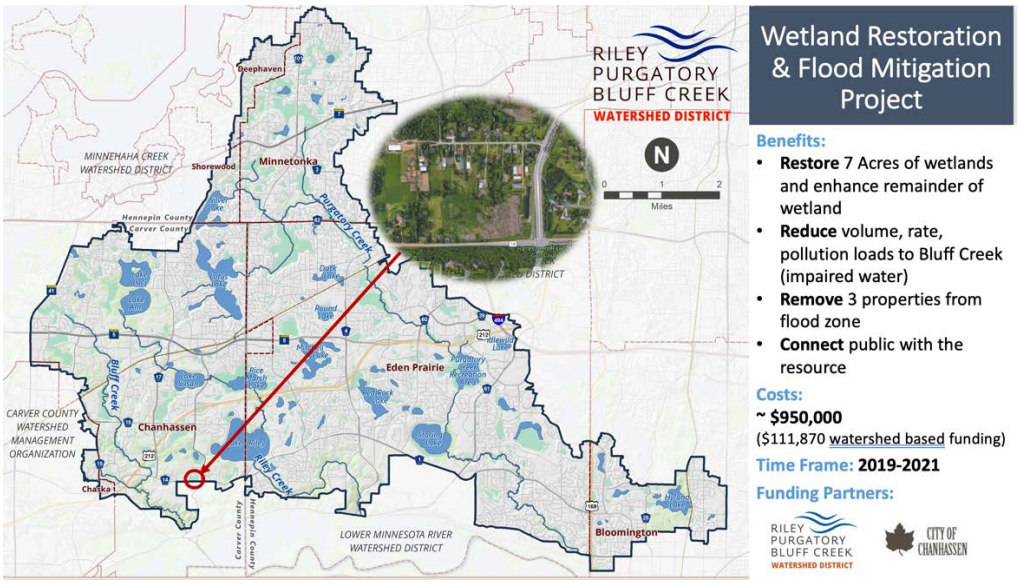
The system was completed in 2019.

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 Chanhas-sen 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 will be conducted in early 2020 with design and construction scheduled for summer and late-fall 2020, respectively.



CLEAN WATER LAND & LEGACY AMENDMENT

CITY OF CHANHASSEN

DEPARTMENT OF NATURAL RESOURCES

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 2018 to determine what is the best course of action in regards to a breach in the berm. The breach currently gives us the best opportunity to manage the carp population. The District will continue to work with the City of Eden Prairie in 2019.

LOTUS LAKE ALUM

In 2018, the District completed an alum treatment on Lotus Lake. In 2019, 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 of Silver Lake. The UAA indicates that runoff from approximately 13.5 acres drains through the location of the potential stormwater treatment system.

This site presents several design and maintenance challenges including, but not limited to, 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 the feasibility and, in early meetings with Chanhassen Parks and Natural Resources, determined that work should occur in channel to minimize tree loss.

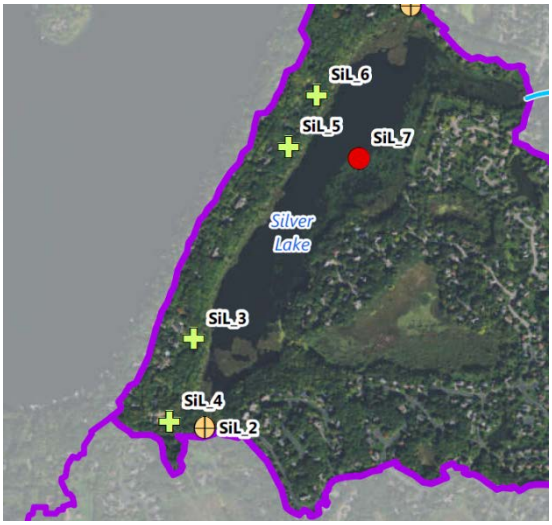


Figure SiL 1 - Location of SiL 2 in relation to Silver Lake

Work was expected to begin in 2019, however, turnover of staffing in the public works and engineering departments at Chanhassen have left a temporary void with no one in a position to speak to the status of Pioneer Trail upgrades. As the project is dependent upon a catch basin manhole drop structure and pretreatment device in the public right-of-way for Pleasantview and long-term maintenance of the device, it is imperative that Chanhassen is receptive to these necessities. For these reasons, the Silver Lake Project is on hold indefinitely. The work done to date will still be applicable to the project when it is re-initiated.

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 this good work to care for the forest and the watershed that it is a part of.

Details

Status: Active
Started: 2018
End: 2020
Cost: $260,000

Financial partners: Hennepin County, Minnetonka School District

Other partners: Scenic Heights Elementary, City of Minnetonka, Minnesota DNR, Boy Scouts, Girl Scouts

Learn more at rpbcwd.org

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, invasive plants were continually treated to prevent re-establishment. In the fall of 2018, volunteers planted over 100 native trees and shrubs.

2019 updates:
Invasive plant management continued with a focus on herbaceous plants like garlic mustard and motherwort. Care was taken to enhance valuable pockets of spring ephemeral plants such as wild ginger. The rest of the 7-acre site was seeded with native seed mixes in the late spring. Throughout the growing season, establishment of plants was assisted with touch-up seedings and continued weed management including buckthorn and invasive honeysuckle resprout control.

On June 5th, students from 19 classes at Scenic Heights Elementary installed a variety of prairie plants in the outdoor learning center behind their school. Throughout the day, 475 students and teachers planted 1,500 flowers and grasses in an area that is being converted back to native prairie and oak savanna. On June 8th, 20 volunteers—including local neighbors, former scenic heights school families, and regular watershed district volunteers—worked to continue the planting project. They installed 1,000 plants in wetland and shady areas of the restoration project.

In the fall, staff planted 40 native trees and shrubs in the wooded area surrounding the pond. These trees and shrubs were grown in the gravel bed nursery on the school grounds. Also, eagle scouts candidates installed a small bridge to cross the inlet into the pond and added two bat houses adjacent to the prairie knoll.

MINNETONKA PUBLIC SCHOOLS

CITY OF MINNETONKA

DEPARTMENT OF NATURAL RESOURCES

HYLAND LAKE IN-LAKE PHOSPHORUS LOAD

In 2019, the District partnered with Three Rivers Park District to apply Alum to Hyland Lake.

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 (plant a raingarden, install a rainbarrel, plant a tree, create a downspout planter) 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 in which residents learned about the project's goals and timeline. In winter and spring of 2019, the District conducted outreach to engage subwatershed residents in the project and to sign up homeowners to plant a raingarden, install a rainbarrel, 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 will work with contractors to install downspout planters and raingardens for residents.

2019 Project numbers

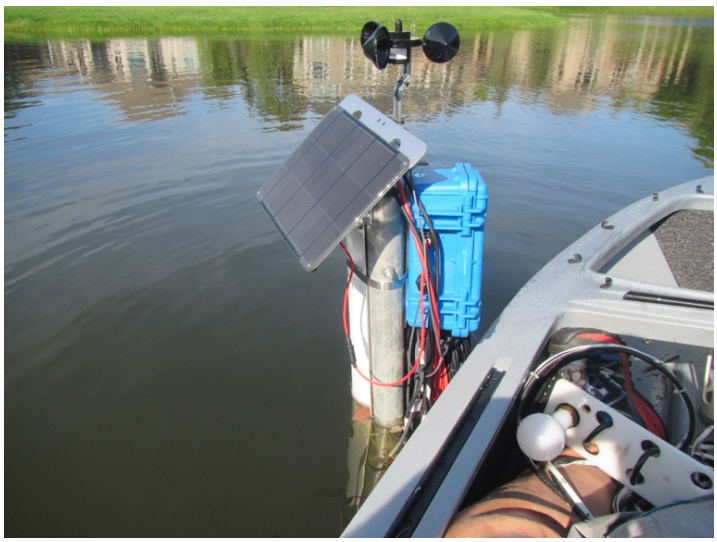
As of December 2019, residents on 82 properties had installed or committed to at least one of the best managements practices (BMPs) identified for the project.

- 4 households working to install raingardens in 2020
- 9 households committed to hosting downspout planters
- 50 rain barrels distributed (31 households total)
- 38 trees installed

24.3% of all households in the sub-watershed 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 2020.



CLEAN WATER LAND & LEGACY AMENDMENT

EDEN PRAIRIE
LIVE • WORK • DREAM

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 RILEYALUM TREATMENT

In 2015, the District implemented an alum treatment on Lake Riley to manage internal phosphorus loads coming from lake bottom. In 2019, the District continued monitoring and began the evaluation of the second dosing of alum anticipated to be implemented 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) and 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 includes water quality treatment through use of an iron enhanced sand filter (IESF) and stormwater reuse through irrigation of an adjacent ballfield.

CLEAN WATER LAND & LEGACY AMENDMENT

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. Financial partners include the State of Minnesota and the City of Chanhassen.

RICE MARSH LAKE ALUM TREATMENT

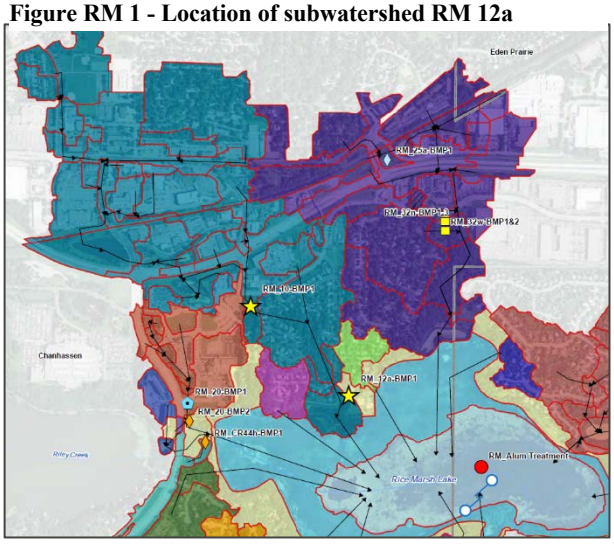
In 2018, the District implemented an alum treatment in Rice Marsh Lake to manage internal phosphorus loads coming from lake bottom. The District continues to monitor the treatment and assess effectiveness.

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

At the September 4, 2019 meeting of the RPBCWD Board of Managers, *Task Order 28 Rice Marsh Lake Water Quality Phase I* was approved. This includes the feasibility design for water quality improvement in the 240-acre watershed that includes much of the Chanhassen town center area and accounts for approximately 33% of the annual watershed phosphorus loading to Rice Marsh Lake.

Figure RM 1 - Location of subwatershed RM 12a



A kickoff meeting, task 1-1 of Task Order 28, was held with staff from Barr Engineering, Chanhassen Parks Department, and RPBCWD staff. In addition, much of the data for task 1-2 has been collected and the design engineer is in the process of calibrating the H&H model for task 1-3.

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 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 within that reach. 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 is exacerbated by the steep channel slope of the ravine. The existing storm sewer outlet includes riprap and geotextile, which has currently 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 impairment within this reach of Riley Creek. 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. Construction of the project will be in 2019.

MIDDLE RILEY CREEK

In 2019, Bearpath Golf Course approached the District with the idea of working together in the restoration of Middle Riley Creek. This area of the creek was identified in the 10-Year Plan as beginning in 2025. The project is being moved up to be implemented in 2020. Bearpath Golf Course is a financial partner on the project.

UPPER RILEY CREEK

The Upper Riley Creek project was identified for restoration for 2019-2021. The feasibility analysis was put on hold in 2019 until the City of Chanhassen completed their hiring process for their Water Resources Coordinator and Public Works Director. The district anticipates the development of the Upper Riley Corridor Enhancement Plan in 2020 with restoration anticipated in 2021 and 2022.

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 2020.