ANNUAL REPORT

2021

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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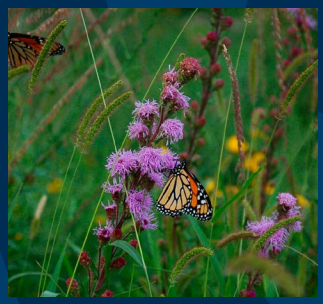


FEATURES

Do you want to be a part of your local watershed?
Contact us at (651) 792-7950 for more information or go to rwmwd.org.

Tina Carstens
Administrator

rwmwd.org

LETTER FROM THE ADMINISTRATOR

CREATING & PROVIDING INNOVATIVE SOLUTIONS

Although we had some continued adjustments due to Covid, RWMWD again accomplished the majority of our annual goals this past year. For example, our continued focus on weather extremes has bolstered our work on flood risk reduction studies and projects. Although 2021 saw more record drought than rain, we anticipate that unusually wet seasons will be part of long-term climate trends. Improvements on the Lake Phalen outlet and the Keller Channel allowed our systems to respond to more significant rain events with increased precision and capacity.

This proactive and holistic approach to common and emerging watershed concerns extends to physical improvements and our outreach work throughout the District. The dramatic shifts in lake levels over the last few years, from exceptionally wet years to exceptionally dry ones, have resulted in concerns from constituents about impacts to nearby waters. We listened to these concerns and developed a more public-friendly permitting program that allows residents to better understand and access our regulatory process. We also heard from grant recipients that their biggest obstacle was the knowledge and resources needed to successfully maintain their rain garden, native planting, or other best management practice. In response, we created a maintenance grant and provided one-on-one plant management education and assistance.

This coming year, we look forward to providing more innovative solutions to water concerns and communicating those openly with the public. I encourage you to engage with our organization by learning more about RWMWD today and in the future through our meetings, volunteer opportunities, or events.

Watershed Staff, Board Members & CAC Advocates

2021 CITIZEN ADVISORY COMMITTEE MEMBERS

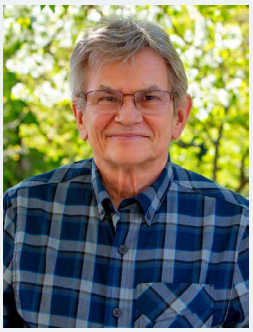
Mark Gernes
Hallie Finucane
Scott Ramsay
Jill Danner
Glen Olson
Cliff Aichinger
Katheryn Keefer
Tammy McCulloch
Gary Nelson
Stuart Knappmiller
Gary Schroeher
John Chikkala
Dana Larsen-Ramsay
Jennifer Gruetzman
Karen Wold
Randee Edmundson

STAFF LIAISONS

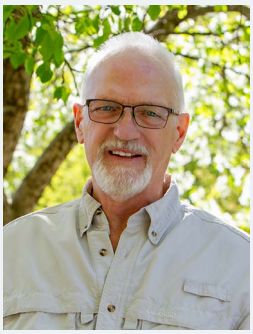
Carrie Magnuson
Sage Passi

2021 RWMWD BOARD

BOARD



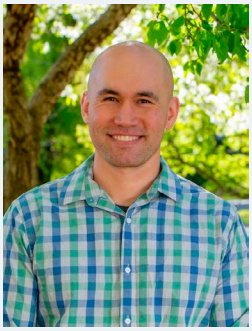
Larry Swope
President



Cliff Aichinger
Vice-President

Pam Skinner
Secretary

Dianne Ward
Treasurer



Val Eisele
Member

RWMWD Offices

2665 NOEL DRIVE
LITTLE CANADA, MN 55117

RWMWD STAFF

2021 RWMWD STAFF

Tina Carstens
Administrator

Paige Ahlborg
Watershed Project Manager

Bill Bartodziej
Natural Resources Specialist

Simba Blood
Natural Resources Technician

Matt Doneaux
Natural Resources Technician

Mary Fitzgerald
District Inspector

Lauren Hazenson
Communications & Outreach Coordinator

Eric Korte
Water Monitoring Coordinator

Kyle Kubitza
Water Monitoring Technician

Carrie Magnuson
GIS Technician

Shelly Melser
Office Manager

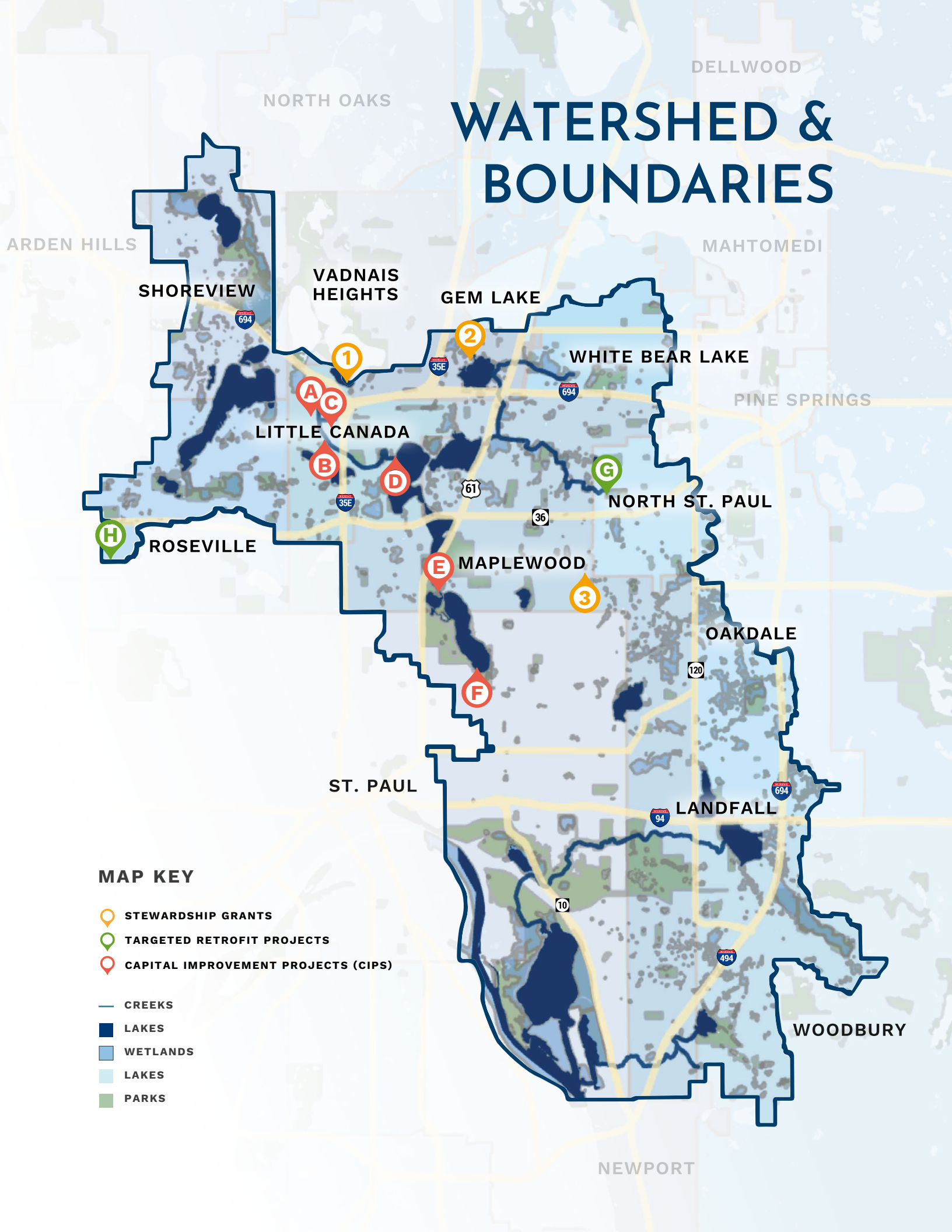
Sage Passi
Watershed Education Specialist

Lyndsey Provos
Water Monitoring Technician

Emily Simmons
District Secretary

Nicole Soderholm
Permit Coordinator

Dave Vlasin
Watershed Project Coordinator


WATERSHED & BOUNDARIES
DELLWOOD
NORTH OAKS
ARDEN HILLS
MAHTOMEDI
SHOREVIEW
VADNAIS HEIGHTS
GEM LAKE
WHITE BEAR LAKE
PINE SPRINGS
LITTLE CANADA
NORTH ST. PAUL
ROSEVILLE
MAPLEWOOD
OAKDALE
ST. PAUL
LANDFALL
WOODBURY
NEWPORT
694
35E
61
36
120
94
10
494
1
2
3
A
B
C
D
E
F
G
H
MAP KEY
STEWARDSHIP GRANTS
TARGETED RETROFIT PROJECTS
CAPITAL IMPROVEMENT PROJECTS (CIPS)
CREEKS
LAKES
WETLANDS
LAKES
PARKS

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

OUR MISSION

To PRESERVE and IMPROVE water resources and related ecosystems to SUSTAIN their long-term health & integrity and CONTRIBUTE to the well-being and engagement of stakeholders within the community.

OUR BACKGROUND

Ramsey Washington Metro Watershed District works across municipal boundaries to manage about 65 square miles that eventually drain into the Mississippi River, including 20 lakes, five streams and over 1,000 wetlands.

We contribute funding and technical expertise to water infrastructure projects, help regulate development through permitting, manage natural resources and educate the public on watershed issues. As a special-purpose unit of government, we were established in 1975 under what is now the Minnesota Watershed Act. This provides planning, regulatory and taxing authority to coordinate watershed management efforts between city, county and state agencies.

2021 PROJECT LOCATIONS

- **A** Owaso Berm Raise
- **B** Owaso Basin Channel Cleaning
- **C** Ryan Drive Conveyance Upgrades
- **D** Keller Parkway Conveyance Upgrades
- **E** Keller Chanel Weir
- **F** Phalen Outlet Resilience
- **G** North St. Paul Target Parking Lot
- **H** St. Rose of Lima
- **1** Twin Lake Shoreline Restoration
- **2** HB Fuller Parking Lot Planting Project
- **3** Ramsey County Parks & Recreaction Main Entrance

Stewardship Grants

GREEN INFRASTRUCTURE

Creating capacity and resilience in our watershed

Capital Improvement Projects and Stewardship Grants create long-lasting improvements to water quality, manage flood risk, and support local ecology. Capital Improvement Projects are large-scale measures to manage flood risk and improve water quality. They include stormwater treatment systems, outlet control structures, and other infrastructure improvements. To date, we have completed over 50 Capital Improvement projects ranging from $50,000 to $5.5 million.

The Stewardship Grant Program offers financial, educational, and technical assistance for smaller projects. These grant funds are available to public or private landowners for projects designed to filter and reduce runoff, protect groundwater, restore native ecosystems, prevent flooding, and lessen the effects of drought.

324

TOTAL

Stewardship Grants inspected 2020-2021

ST. ROSE OF LIMA CATHOLIC CHURCH

The City of Roseville had identified the St. Rose of Lima church parking lot as a suitable area to install an underground system to help address local drainage and flooding concerns. RWMWD took the opportunity to work with the church to reduce the amount of impervious pavement on their property and install a rain garden. We worked with the church to reconfigure their parking lot to reduce impervious surfaces without losing parking stalls, which then reduced the amount of impervious surface by almost 15,000 square feet. The improvements now address local drainage, flooding concerns, and reduce runoff going into Bennett Lake.

RAMSEY COUNTY PARKS AND RECREATION MAIN ENTRANCE

In 2021, the Twin Cities metro area experienced drought conditions and municipalities enforced strict watering requirements. As a result, RWMWD received many grant requests for converting turf grass areas which require high volumes of potable water to be used for their upkeep. One of the grant awards was to Ramsey County Parks and Recreation to complete a native planting in front of their main entrance. This planting resulted in the removal of 90% of the existing turf grass areas in the front of the building and converted those areas into native plant beds. As part of this project, the RWMWD Stewardship Grant program provided funding for 4,000 sq feet of native plantings, 860 individual plants, and 11 types of native species.

TWIN LAKE SHORELINE RESTORATION PROJECT

RWMWD completed the shoreline buffer restoration of 15 residential properties on Twin Lake that were damaged by prolonged high water levels. The total restoration area is approximately 0.65 acres, with individual sites ranging from 1,000 square feet to 6,800 square feet. The project scope includes site-wide management for invasive and non-desirable species, bank and shoreline stabilization, and re-vegetation using a combination of native seed and plant plugs. This restoration will establish a diverse, natural shoreline buffer and provide wildlife and pollinator habitat, runoff interception and filtration, competition for invasive species, and landscape aesthetics.

NORTH ST. PAUL TARGET STORE

Commercial properties have some of the largest impervious areas within RWMWD. This is why they are a priority area for our targeted retrofit projects. RWMWD made connections with Target Corporation to install stormwater best management practices at their St. Paul store off Suburban Ave in 2020 and completed a retrofit project at the North St. Paul Target store in 2021. The project consists of four rain gardens and two tree trenches to capture parking lot runoff. Four acres of impervious area are treated annually through these improvements. Stormwater is captured and filtered to remove six pounds of phosphorus and 1,140 pounds of total suspended solids each year before draining into Kohlman Creek.

H.B. FULLER PARKING LOT PLANTING PROJECT

H.B. Fuller's Willow Lake site is 285 acres and includes not only the corporate campus but also Willow Lake Nature Preserve Foundation land. Most of the site is a natural area featuring Willow Lake, several wetlands, prairie, and forests. In 1995, H.B. Fuller worked with RWMWD to install a series of interconnected rain gardens that reduced the rate of runoff and infiltrated stormwater to help remove pollutants before the water leaves the parking lot and reaches Willow Lake. Over the years, the rain gardens have filled in and required significant maintenance. In 2021 more than one inch of accumulated material was removed from two rain gardens and native seed and native perennial plugs were added to restore and enhance the rain garden basins. The parking lot drainage was also improved by adding a drainage swale to direct stormwater into the rain gardens, and curb cuts were modified to ensure stormwater drains to the rain gardens.

2021

Education & Outreach

CREATING OPPORTUNITIES

For the Next Generation of Water Managers

RWMWD EDUCATION PROGRAMS DEVELOP LESSON PLANS AND SERVICE LEARNING ACTIVITIES FOR K-12 STUDENTS IN THE CLASSROOM AND THE FIELD. THESE PROJECTS CONNECT STUDENTS TO WHAT'S HAPPENING IN OUR WATERSHED AND EMPOWER THEM WITH THE TOOLS TO IMPROVE AND PROTECT WATER RESOURCES. WE ALSO OFFER COMMUNITY EDUCATION AND VOLUNTEER PROGRAMS FOR ADULTS TO FOSTER ADVOCATES FOR BETTER WATERSHED MANAGEMENT AND WATER QUALITY.

792

YOUTH

engaged in education program projects

School and Youth Engagement

In early 2021 our partner, the East Side Boys and Girls Club in St. Paul, was awarded a grant to convert their compacted turf lawn into a pollinator/water-friendly native demonstration garden. RWMWD worked closely with their staff and 42 high school youth to design and prepare the site over the spring and summer. In the fall, we coordinated the planting of this 2600 square foot native garden with youth and staff from the Club and two fifth grade classes from nearby L'Etoile du Nord French Immersion School, Ramsey County Master Gardeners, Master Naturalists and Water Stewards.
In the spring, 75 Weaver Elementary fifth graders transplanted hundreds of native seedlings for giveaways at RWMWD community events and tours. We coordinated Weaver fifth graders and Central Park Elementary School's two sixth grade classes in cleaning their rain garden inlets and cutting down and bagging up the rain gardens' vegetation to make way for the perennials' new sprouts. The education team hosted a May field day for Weaver's three fifth-grade classes at Wakefield Lake, engaging them in water quality monitoring and macroinvertebrate sampling.
They recruited Central Park sixth graders to do a leaf clean-up in the fall at the Wildlife Rehabilitation Clinic parking lot and also supported four Mounds Park Academy science classes in invasive removal around their rain garden basins and in their pond buffer.

WaterFest Adapts to the Pandemic

After a year's hiatus due to Covid, our summer celebration, WaterFest was held over nine days from June 19-27 with a self-directed format with attendee safety at the forefront. The "We are Water Exhibit," hosted by the Hmong Museum allowed participants to hear stories about water from a Hmong perspective. Another activity, the Lake Phalen Goose Chase, an online multi-lingual scavenger hunt designed by Macalester College geography professor Daniel Trudeau guided participants around the park and collected their input. Other popular features were hunting for clues to solve a Water Pollution Mystery, an activity set up by Washington Conservation District, the Voyageur canoe rides, and the native plant giveaway.

Water Stewards Tours

Water Stewards became leaders on several initiatives to educate communities about watershed issues and best management practices this year. One Water Steward designed a July tour for the public with visits to rain gardens, water conservation systems, and several shoreline restoration projects in Shoreview. She also developed a self-guided best-management tour featuring twelve stops in Shoreview that the public could visit over a month.

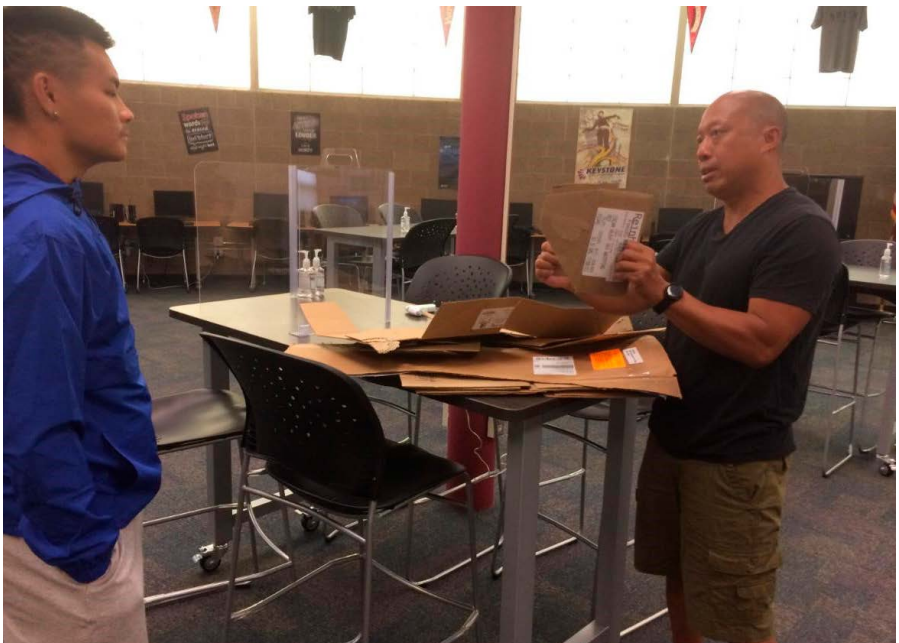
In late summer, another Water Steward developed a 10-mile bike tour for the public with stops at watershed-friendly rain gardens, native plantings, and landscaping projects on the East Side of St. Paul. This tour provided the opportunity to learn about the history of water management in the Battle Creek area and view projects implemented to address flooding issues at the McKnight infiltration basins in Battle Creek Regional Park's Water Park and the weirs along the creek.

Summer Volunteers Engaged in Plantings at Lake Phalen

Major outlet renovations at the south end of Lake Phalen precipitated the need for several days of replanting along the shoreline in late June. Eighteen 3M employee volunteers, several Water Stewards, and a group of former Cleveland Quality Middle School teachers stepped up to help us with this planting.

2021

In Pictures



Natural Resources

CREATE PRESERVE RESTORE

By integrating natural resource conservation into our flood control and water quality efforts, we help to sustain healthy urban ecosystems within the watershed. Our team actively manages restored natural areas that provide quality fish and wildlife habitat and outdoor recreation and learning opportunities. Our strong ties with cities, counties, civic groups, schools, and state agencies that partner with us on projects allow us to transform a wide variety of natural spaces. We also collaborate with university researchers on ecological restoration, biological monitoring and invasive species control studies like our innovative approach to managing common carp.

WETLAND A ECOLOGICAL RESTORATION

Wetland A, situated near Snail Lake in Shoreview, is one of the Watershed's most substantial natural wetland remnants. RWMWD partnered with Ramsey County and other organizations to conduct a three-year ecological restoration project in the area, with an expected completion date in late 2021. In 2021, RWMWD staff and volunteers restored 2.6 acres of shoreline that stretched 1,975 feet, completing the third restoration stage along the site's southeast corner. Over 13,000 plants representing 80 species were installed to restore natural buffers in place of invasive species like common buckthorn.

Toward the end of the initial Wetland A restoration efforts, we developed a custom plant identification tool for Wetland A. Plant signs were installed on-site displaying common and scientific names, origins, and a QR code. The QR codes are linked to our custom online plant guide on the i-Naturalist app. A total of 225 native plant and invasive weed species are summarized in the guide.

CARP CONTROL IN THE OWASSO CHAIN OF LAKES

Our overriding program goals are to:

- Significantly reduce the adult carp population in the main chain of lakes below 100 lbs per acre, which is the threshold at which negative water quality impacts become evident
- Block prime spawning areas during spring migration to reduce carp recruitment
- Continue to monitor the carp population to assess management effectiveness
- Use adaptive carp management over the long term to sustain low carp numbers

In 2021 we made substantial progress on these goals by removing 743 carp from the Owasso Chain. The most significant and promising news is that carp biomass remains below the 100 pounds per acre threshold in all of the main lakes. In addition, we did not detect any young carp in the lakes, suggesting that the barrier installation has limited carp spawning in connected ponds and wetlands.

LAKE PHALEN SHORELAND BUFFER

As a component of the long-term ecological restoration effort of the buffer, we introduced bur oaks in prairie shoreland areas devoid of trees. We installed twelve 5 to 7-foot tall oaks around the lake in these prime locations. One of the main stressors to the buffer restoration is foot traffic outside of the paved pathway, which can cause erosion. We repaired two of these larger eroded areas with fill soil, prairie seed, erosion control blanket, and plant plugs. These ongoing monitoring, planting, and maintenance activities will ensure the Lake Phalen shoreland will be an asset to wildlife and human visitors alike.

ECOLOGICAL RESTORATION AT LOCAL GOLF COURSES

For over 15 years, District natural resources staff have been working to restore no-play zones or protected areas on Keller Golf Course to native prairie habitat. These areas enhance the course's natural beauty, create a habitat for native pollinators and wildlife, and improve water quality. In 2021, over a one-acre prairie was added to the existing 26 acres of restored space on the course. Because of Keller's success, and with the assistance of natural resources staff, the neighboring Goodrich Golf Course has committed to restoring 2.4 acres of no-play area in 2022 to diverse prairie and wetland habitat.

STRATEGIC AQUATIC PLANT HARVESTING PAPER - PUBLISHED IN LAKELINE

This paper describes our experience with aquatic plant harvesting in Lake Kohlman. The primary purpose of this study was to determine how much total phosphorus (TP) was removed from the lake system by plant harvesting. These data provide a solid base for the Watershed to partner on certain harvesting efforts that are performed in an ecologically sound manner.

ECOLOGICAL RESTORATION MAINTENANCE

Monitoring and long-term maintenance are critical to ensuring high-quality natural areas, particularly restored buffers that protect our surface water resources. We use various methods to control invasive weed species, such as prescribed burns, mowing, and hand pulling. In 2021, we actively managed 97 acres of restored lands and over 3 miles of shoreline buffer. Of these, 35 acres were treated with controlled burns.

Water Quality

QUALITY WATER FOR QUALITY LIFE

RWMWD conducts regular water quality monitoring, tracking, and improvement activities throughout the year to keep our waters clean, healthy, and safe. In partnership with Ramsey County, our lake water quality monitoring program collects samples on District lakes every two to three weeks from the beginning of June through the end of September. The data we collect is used to determine and prioritize water quality improvement projects district-wide and is also available as a resource for public and private entities.

View the watershed map to learn about each of the waters we manage.

rwmwd.org/water

1,899
SAMPLES

water samples delivered for laboratory testing

36.86
MILES

traveled by boat to collect water samples

LAKE MONITORING

In a typical year, RWMWD staff monitor 15 lakes in Ramsey County every 2-3 weeks from May-October. We measure lake water clarity and take readings of conductivity, pH and dissolved oxygen every meter of depth in the deepest part of the lake. In addition, we collect water samples that are analyzed for chloride, phosphorus, and chlorophyll-a. Automized lake-level stations at Phalen, Owasso, Snail, Wabasso, and West Vadnais Lakes also offer continuous lake-level monitoring. Overall, there is a long-term trend of improving water quality for District lakes. In 2021 water quality improved in Carver Lake and Lake Owasso, while water quality was worse for Kohlman Lake. Drought conditions like those we experienced in 2021 can have a temporarily negative impact on water quality.

CREEK MONITORING

RWMWD contributes to the Metropolitian Council's Stream Monitoring and Assessment Programming by sampling at Fish Creek, Battle Creek, Kohlman Creek, and Gervais Creek. These streams continued to be monitored every two weeks and after every rain event throughout 2021. Our monitored steams all show a long term trend of improved water quality.

BELTLINE STORM SEWER MONITORING

The Beltline Interceptor is a five-mile long tunnel that stretches from Lake Phalen and Beaver Lake to the Mississippi River. Approximately half of the stormwater that flows through the District to the Mississippi River travels through this tunnel. RWMWD tracks chloride, e. coli, temperature, conductivity, pH, phosphorus levels and other attributes of surface water runoff in the Beltline.

SPECIAL PROJECTS MAINTENANCE AND MONITORING

In addition to lakes and creeks, RWMWD monitors the Beam Avenue Iron Enhanced Sand Filter, Shoreview Commons Pond, and Frost Kennard Spent Lime Filter. Testing was completed after every storm occurring between April and November 2021.

ALUM TREATMENT

RWMWD owns and operates an alum treatment facility in Maplewood. Alum treatment safely limits phosphorus and algae and can even prevent algae blooms. This facility is designed to automatically treat nutrient-rich water with alum (aluminum sulfate) before discharging into Tanners Lake. Alum chemically binds with phosphorus. Eventually, this alum/phosphorus compound, known as "floc", is removed from the treated water. The result is better water quality for all Tanners Lake visitors and wildlife.

BY THE NUMBERS

After several years of Covid restrictions, RWMWD programming surged back in 2021, particularly in our education and outreach programs. We also continued to see many grant applicants as more residential and commercial properties considered introducing native plantings and rain gardens into their landscaping. The story of this resurgence can be seen in the statistics of each program this year.

STEWARDSHIP

1

$42,100

AWARDED IN GRANTS

39 Stewardship Grant projects approved

STEWARDSHIP

4.16
ACRES

of BMPs installed through the Stewardship Grant program

NATURAL RESOURCES

11k
PLANTS

were installed at various restorations with the help of volunteers

EDUCATION

6
SCHOOLS

within our district participated

PERMITTING

978
INSPECTIONS

Erosion and Sediment Control Permit Inspections were completed 2020-21

3.5
ACRES

and 2,500 linear feet of shoreline were restored at Snail Lake Wetland A

30
CLASSES

engaged in Education Program projects

By the Numbers

2021 GENERAL FUND BUDGET

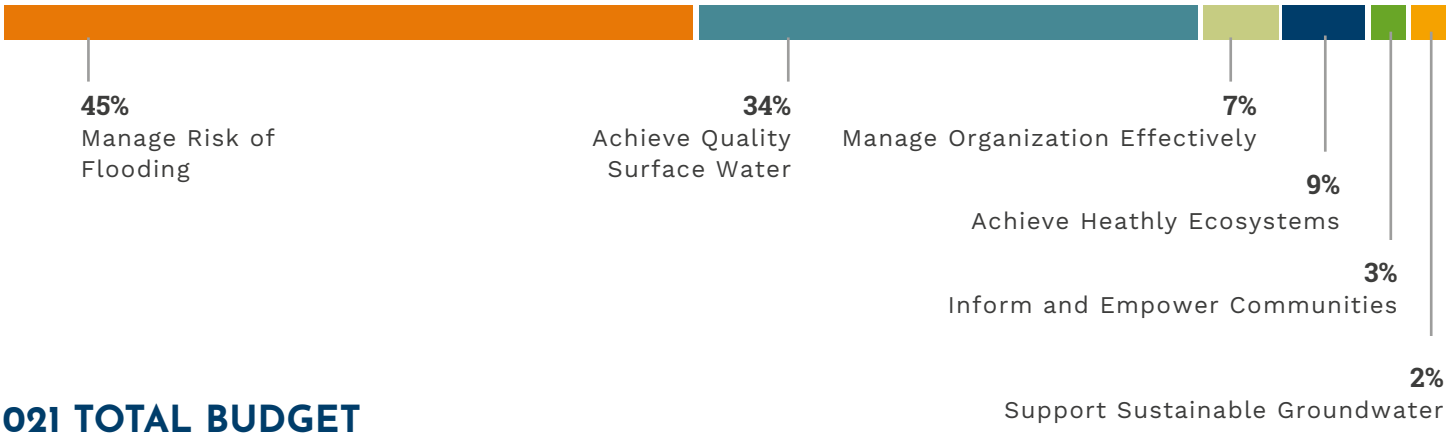
Engineering	$658,000
Attorney	$50,000
Managers	$12,000
Finance/Auditing	$65,000
Miscellaneous	$69,500
Administrative	$2,219,000
Program Activities	$926,000

2021 CAPITAL IMPROVEMENT BUDGET

Maplewood Mall SRF Loan Debt Service	$92,238
Beltline and Battle Creek Tunnel Repair Debt Service	$302,663
District Office Building Bond Payment	$194,885
Targeted Retrofit Projects	$2,810,000
Stewardship Grant Fund	$1,000,000
Project Repair & Maintenance	$1,325,000
Wetland Restoration Projects	$500,000
Flood Risk Reduction Fund	$4,200,000
TOTAL LEVY for 2021	$6,763,498
Increase from 2020	0.00%

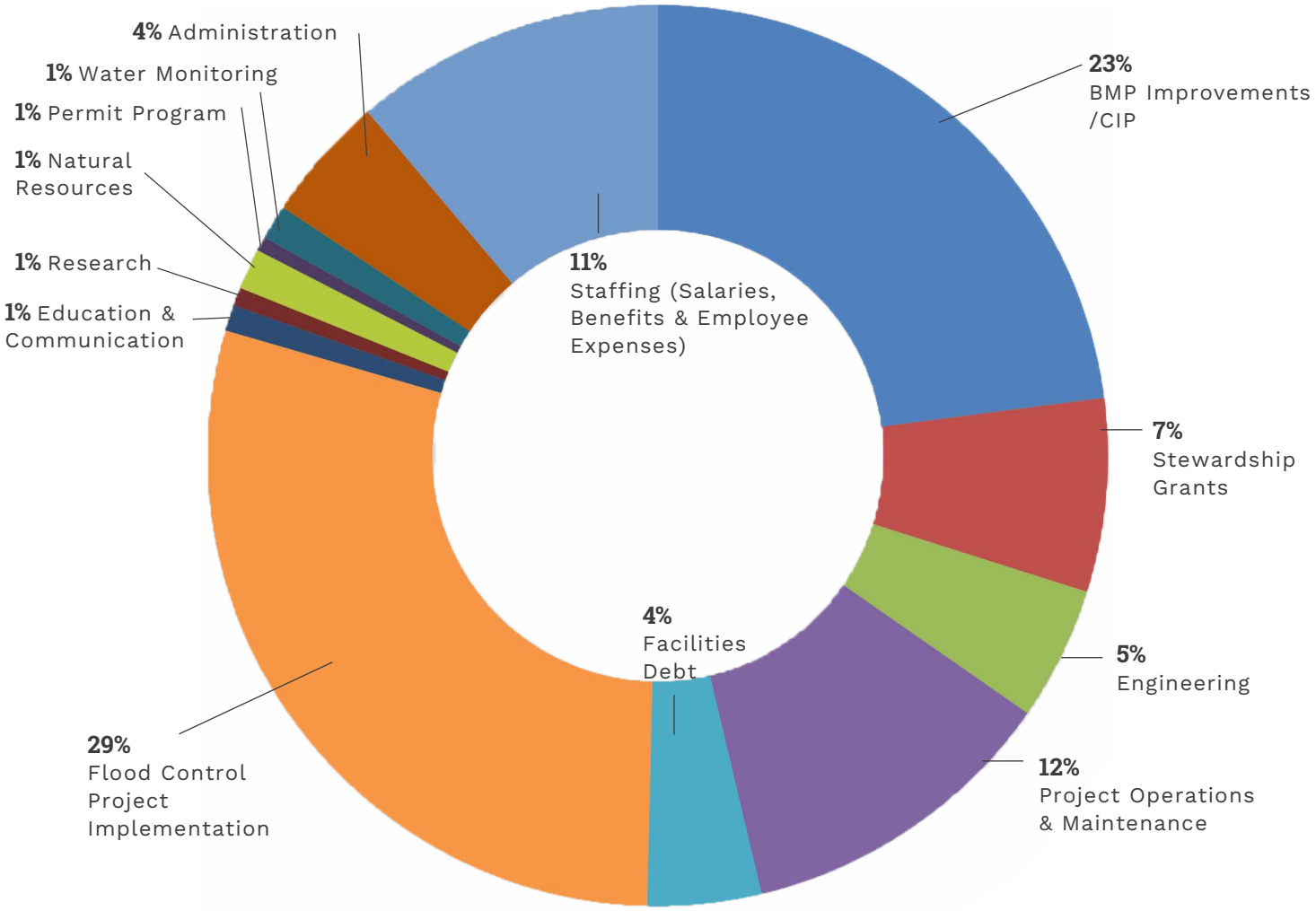
2021 PLAN/GOALS

Budget Percentage by Goal



2021 TOTAL BUDGET

Detailed View



Quality Water for Quality Life.

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METRO WATERSHED DISTRICT

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