



2022 ANNUAL REPORT



Vadnais Lake Area Water Management Organization
800 East County Road E
Vadnais Heights, Minnesota 55127

Website: www.vlawmo.org
Email: office@vlawmo.org
Phone: (651) 204-6070
Fax: (651) 204-6173

 In compliance with Minnesota Administrative Rules | Chapter 8410 | Part 8410.0150

EST 1983
VLAWMO
Vadnais Lake Area
Water Management Organization

SECTION 1

Page 4

WHAT IS VLAWMO?

Introduction,
Background

SECTION 2

Page 8

YEAR IN REVIEW

2022 Highlights,
Common Watershed Problems

SECTION 3

Page 20

CHARTING IT OUT

2022 Review, 2023 Goals

SECTION 4

Page 32

LOGISTICS

Administration, Finances,
Standards, Partnerships & Thanks

SECTION 5

Page 36

WHO WE ARE

The people who make VLAWMO

APPENDICES: AVAILABLE ON LINE AT VLAWMO.ORG

A-1: Legal publication

A-2: Audit

A-3: Full Water Monitoring Report

Table of Contents

WHAT IS VLAWMO?

Introduction and
background

IN THIS SECTION

- » Letter from the Administrator
- » Background
- » Mission Statement
- » Map

Vadnais Lake Area Water Management Organization

Letter from the Administrator

Greetings!

2022 was again a very active year for the Vadnais Lake Area Water Management Organization (VLAWMO). This Annual Report will give you some highlights, and we'd welcome your feedback.

In 2022, VLAWMO implemented two partnership-based projects identified in the 2017-2026 Watershed Management Plan:

- Whitaker Pond Biochar Filter. This project represents VLAWMO's first biochar stormwater filter and was made possible with partnership from White Bear Township and the City of White Bear Lake. The project provides important water quality benefits including bacteria and nutrient reductions and provides critical regional water quality treatment located at the headwaters of Lambert Creek.

- Pleasant/Deep Lake Carp Harvest. VLAWMO, in partnership with the North Oaks Home Owners' Association and the North Oaks Company, completed this fish management project in the Deep Lake channel upstream of Pleasant Lake in the Summer of 2022. The revised fall estimate shows that a reduction in carp biomass has likely been achieved. A follow-up removal is planned for 2023. Ongoing removal efforts and monitoring will continue to inform carp removal needs.

2022 also saw completion of several important Board directed efforts that will help prepare for future watershed management actions. One example was the establishment of a high level project partnership plan for the next 5 years and incorporation of it into the VLAWMO Watershed Management Plan. The VLAWMO Board also approved a public drainage management policy which sets guidance for future decisions on drainage activities and procedures to inform partners.

Public engagement and communication are critical to our work. Two important communication projects in 2022 included the VLAWMO Good Neighbor Guide which is available at city halls and township offices in the watershed. The guide serves as a one-stop-shop for learning how to take positive actions towards water protection in everyday life. Another key public outreach effort has been assisting Cities and Townships in their State-required communications on smart salting, preventing illegal dumping into waterbodies, pet waste, and other related topics.

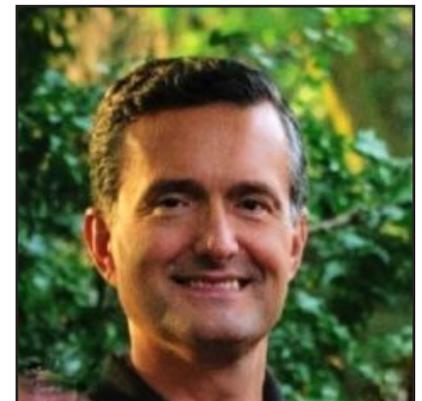
The VLAWMO cost share grant program was also successful with several new raingardens and water quality improvements. One of these raingardens can be found at the North Oaks community entrance in partnership with the North Oaks Homeowner's Association. See the cost-share summary on pg. 12 for a photo.

In other news, 2022 also marked the fourth annual VLAWMO Watershed Awards. The Partner Award was presented to Principal Sara Svir on behalf of Vadnais Heights Elementary, while the Steward Award was presented to White Bear Township resident and VLAWMO cost share participant Megan Sigmon-Olsen. We're tremendously grateful for their leadership and the watershed is in a better place thanks to their partnership.

Lastly, it is an honor to work with an outstanding VLAWMO Board of Directors, Technical Commission, and staff. In particular, I would like to recognize outgoing director Patricia Youker for her years of service on the VLAWMO Board and her leadership in water management. I'm so privileged every day to work with Brian, Lauren, Nick and Dawn who are the best team of any watershed in the metro area. 2023 is VLAWMO's 40th anniversary. I invite you to join us as we look back in appreciation of the community's outstanding accomplishments and to recognize all of the partners that have made VLAWMO what it is today. The VLAWMO team looks forward to continuing the strong water management legacy that's been established over the past four decades.

- Phil Belfiori, Administrator

Phil Belfiori



Background

The Vadnais Lake Area Water Management Organization (VLAWMO) was formed in 1983 to protect the Vadnais Lake watershed area in northern Ramsey County and a small portion of Anoka County. Our organization was formed through a Joint Powers Agreement (JPA) that was ratified by the 5 cities and 1 township within VLAWMO boundaries to comply with the State of Minnesota Metropolitan Surface Water Management Act (Minnesota statute Chapters 103A – 103H). We are governed by a 6 member Board of Directors that is represented by an elected official from each of the communities. VLAWMO covers approximately 25 square miles and includes portions of Vadnais Heights, White Bear Township, White Bear Lake, Gem Lake, Lino Lakes, and all of North Oaks.

OUR APPROACH

Managing a watershed area to protect our vital water resources has become the primary approach across the country. Since water flows across political boundaries, partnerships among local governments, regional, state and federal agencies are vital. Because Vadnais Lake is used as the drinking water reservoir for approximately 450,000 customers in the St. Paul area, VLAWMO frequently partners with the St. Paul Regional Water Services (SPRWS) on a variety of water quality monitoring and improvement projects.

OUR CORE PRINCIPLES

To guide our efforts towards achieving our mission, VLAWMO shares responsibility with its member communities to:

- » Protect surface water quality
- » Protect groundwater quality and recharge areas
- » Provide public education to promote good stewardship of water resources
- » Protect and manage wetlands through the Wetland Conservation Act
- » Collaborate with other public and private organizations
- » Manage stormwater and control flooding through the use of best management practices
- » Require good erosion control practices, both during development and as a part of good stewardship

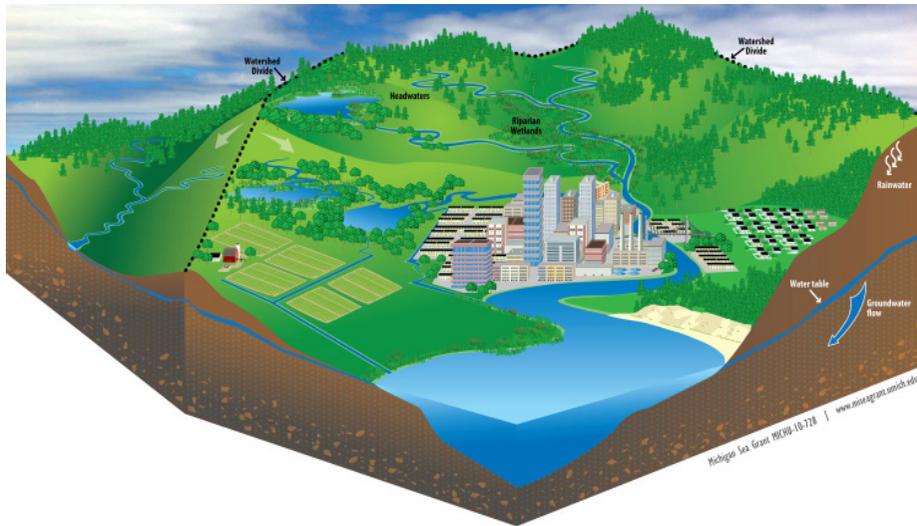


The VLAWMO education booth at Vadnais Heights Heritage Days. August 2022.

Mission Statement

Our mission at the Vadnais Lake Area Water Management Organization is to protect and enhance the water resources within the watershed.

Activities we work on include: Water quality monitoring, education and outreach projects, wetland protection, and water quality enhancement projects.



“How Watersheds Work” courtesy of Michigan Sea Grant (MICHU-10-728)



What is a Watershed?

A watershed is all the land area that drains to a specific water resource, such as a lake or stream. Watersheds range in size from a few square miles to an entire continent. As rain and melting snow run downhill, they carry sediment and other materials into streams, lakes, and groundwater.

The land use activities within a watershed have a direct impact on the quality of the water. 96% of the land use within VLAWMO is urban with a small area of agricultural land in the northern end.

Watersheds provide water for drinking, irrigation, streams, and activities such as fishing, swimming, and boating. In addition, watersheds also provide food and shelter for wildlife.

OUR GOALS

Accomplishing our mission requires a focus on common goals. The VLAWMO will pursue the following goals as a way of proceeding towards the mission.

- » Protect and improve surface water quality
- » Protect and enhance wetland resources
- » Protect and improve waters for wildlife habitat and recreation
- » Enhance public participation and stewardship
- » Make and enable informed decisions
- » Optimize public resources
- » Protect and improve groundwater quality and quantity
- » Analyze and use alternative funding sources
- » Improve communications
- » Prevent flooding

WHAT IS A WMO?

A watershed management organization (WMO) is a local government agency charged with protecting water resources within its boundaries. All land within the metropolitan area must be within an organized watershed (State Statutes Chapters 103B & 103D). Watershed Districts are governed by County Commissioners while Water Management Organizations are governed on the municipal level.

WHO PAYS FOR IT?

The Vadnais Lake Area Water Management Organization is funded by a storm sewer utility fee. Property owners within the watershed are charged a fee to manage the stormwater that runs off their property. This public utility fee is determined by land use (ex. Residential, commercial etc), and is included on Ramsey County property tax statements. The authority to charge and collect a stormwater utility fee is governed by Minnesota State Law.

Water Resources in the Watershed

LAKES

There are 17 lakes within VLAWMO. East Goose Lake, West Goose Lake and Birch Lake are located in White Bear Lake. Tamarack Lake, Fish Lake and Ox Lake are located in White Bear Township. Gem Lake is located in Gem Lake. Amelia Lake is Located in Lino Lakes. Pleasant Lake, Charley Lake, Deep Lake, Black Lake, Wilkinson Lake and Gilfillan Lake are located in North Oaks. Sucker Lake, East and West Vadnais Lake are located in Vadnais Heights.

East Vadnais Lake is the drinking water reservoir for the City of Saint Paul. East Vadnais Lake is supplied with water pumped from the Mississippi River in Fridley that flows via an underground aqueduct into Lake Charley in North Oaks. The water then flows east to Pleasant Lake, then south into Sucker Lake, and then into East Vadnais.

LAMBERT CREEK

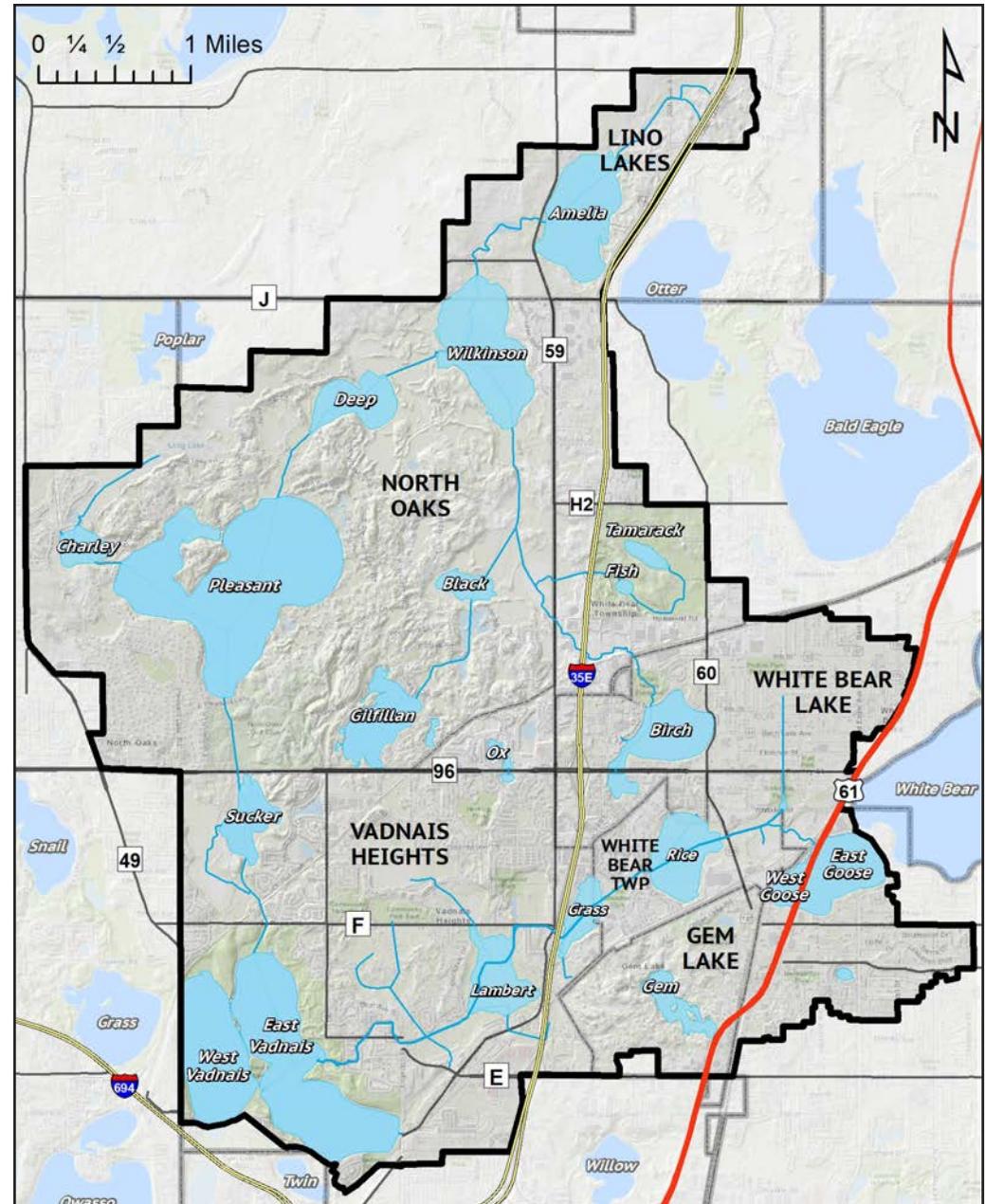
VLAWMO has jurisdiction over Lambert Creek, 4.5 miles of creek and wetland that runs from West Goose Lake and Whitaker Pond and eventually empties into East Vadnais Lake.

WETLANDS

There are over 500 wetlands within VLAWMO. Tamarack, Grass, Wilkinson, Rice, Lambert, and Sobota Slough are a few of the largest wetland complexes in the watershed.

GROUNDWATER

Groundwater beneath the land surface of the watershed flows to local lakes, the Mississippi River, and aquifers including the Prairie du Chien aquifer.



THE YEAR IN REVIEW:

Activities, projects, and highlights

What problems does the watershed face?

IMPAIRED WATERS:

Several lakes in the watershed are on the State Impaired List for high nutrients. These include Wilkinson, Goose, West Vadnais, Tamarack, Pleasant, and Gilfillan Lakes. Lambert Creek has an impairment of high E. coli bacteria levels. Studies show that the E. coli is coming from canine and avian sources.



Improving these waterbodies requires cooperation between cities, land owners, businesses, and the watershed organization. Each home, park, and property connects to a waterbody through stormwater runoff and is part of the puzzle.



RISING CHLORIDE LEVELS:

Road salt has a permanent impact on fresh water, with no economical way to remove it once it's in the water. When it is washed into lakes and wetlands, the chlorides in salt interrupt the natural nutrient cycling that fish depend on.

While some water bodies flush salt downstream to another watershed, some lakes in VLAWMO are accumulating salt.

All of VLAWMO's lakes are currently below state standards, but VLAWMO is monitoring this closely to track changes and guide management.



SEDIMENTATION:

Erosion and sedimentation is a natural process that can be accelerated with human activity. Bare soil, degraded slopes, and poorly protected drainage routes are common sources of excess sediment.

Small amounts of sediment accumulate in stormwater runoff to create a big issue for lakes and streams. Sediment clogs wetlands, culverts, and drainage ditches, suffocates aquatic plants that stabilize lake beds, and carries excess nutrients with it.



DEGRADED WETLANDS:

Many shorelines on lakes and ponds contain turf grass up to the water's edge. This causes problems for water quality and degrades nature's ability to protect water resources.



Sometimes wetlands are altered or filled in illegally. Even small infringements on wetland boundaries contribute to a state-wide struggle in preventing the gradual loss and degradation of wetlands. Preventing this loss supports clean and secure surface and groundwater for the future.

Be part of the solution:

Easy steps to help improve the watershed.

WINTER:

Practice Smart Salting:

- Shovel and scrape early after a snowfall.
- Spread salt with 2-3" between crystals.
- Don't over-salt: 1/2 - 2/3 of a coffee mug holds enough salt for one parking space.
- Practice spot-treatment, apply salt, sand, or grit in cold temps and as a salt alternative.
- Visit vlawmo.org/residents/water-stewardship/ for more info.
- Sweep up extra salt and sand when pavement is dry.
- Select your product according to the temperature.



SPRING & SUMMER:

- Adopt a stormdrain to promote local water quality.

Water with care:

- Use sprinklers that keep water low to the ground.
- Direct sprinklers away from pavement.
- Water lawn in the morning and evening to reduce evaporation. Install smart irrigation controllers.



Mow with care:

- Mow grass at 3" to hold moisture on the lawn and reduce runoff.
- Keep grass clippings out of the street.
- Leave grass clippings on lawn for free fertilizer, or fertilize sparingly.
- Plant a raingarden or help maintain a public or community raingarden.

FALL:

- Core aerate the lawn to increase root depth, durability, and water absorption.
- Continue adopt-a-drain efforts, cleaning out leaves and debris from stormdrains and the curb.
- Mulch leaves into lawn with a mower for free fertilizer.
- If you must use weed killer, do so now to make a bigger impact and use less compared to Spring/Summer.
- Dispose of leaves and grass clippings responsibly at a compost site or through a hauler service- never in a ditch, wetland.



ALL YEAR LONG:

- Prevent illegal dumping into ditches and stormdrains: "only rain down the drain".
- Install a native planting, raingarden, or bee lawn.
- Plan with VLAWMO to make planting and installation easy and effective.
- Restore shorelines with deep-rooted native vegetation.
- If you're involved with contractors, seek contractors certified in smart salting or turf maintenance best practices.
- Respect wetland boundaries. Each wetland plays a role in the watershed no matter how small.
- Pick up pet waste promptly and dispose of it in the trash.



In the Community

PROGRAMS AND EVENTS

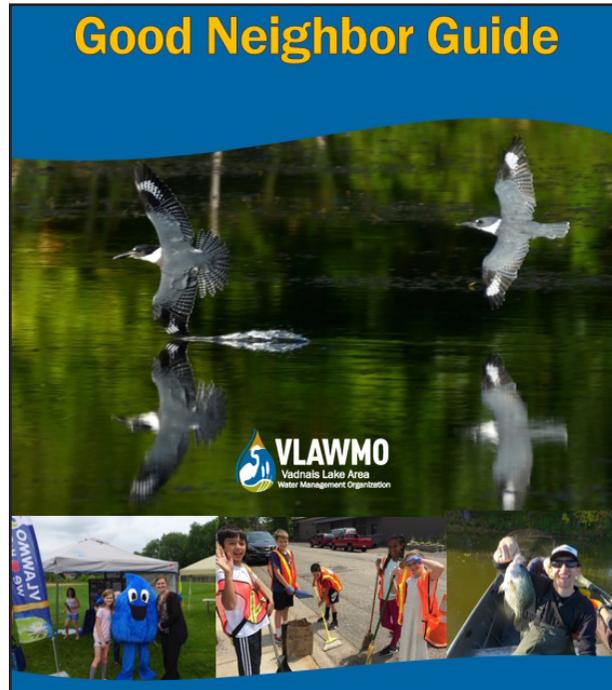
VLAWMO maintained an active presence at various community events such as the Vadnais Heights Heritage Days and White Bear Lake MarketFest. In addition to several of these public booths staff and volunteers completed several special events, education efforts, and community service projects.

GOOD NEIGHBOR GUIDE

The Good Neighbor Guide is a one-stop-shop resource for learning to be water-friendly in everyday life. Topics include turf care, smart salting, native plants, and more.

Minnesota Water Stewards Ceci and Ed Shapland facilitated the creation of a new Good Neighbor Guide in 2022. Starting in late 2021, Ceci and Ed met with Watershed Action Volunteers and VLAWMO staff for several planning meetings to design the booklet and make it relevant to the communities VLAWMO serves.

The final copies hit City Halls and Township offices throughout the watershed in September.



WHITE BEAR MONTESSORI NATIVE PLANT TOUR

VLAWMO teamed up with Natural Shores Technologies and the White Bear Montessori in August to host a first-of-its kind native plant tour. This “walk and talk” event featured three successful projects that were supported by VLAWMO grant funding from 2013 to 2016. Participants strolled through a prairie restoration and browsed three different raingardens while learning from native plant expert Tracy Lawler of Natural Shores.



SAINT MARY'S OF THE LAKE RAINGARDEN RENOVATION

Local resident Alex Nelson approached VLAWMO in late 2021 in pursuit of an Eagle Scout Project. After exploring several options with VLAWMO and other organizations, Alex chose to take on a raingarden renovation at Saint Mary's of the Lake Catholic Church in White Bear Lake. In 2022 Alex started planning for the project by completing a VLAWMO Community Blue grant application. With these funds approved by the VLAWMO Technical Commission, Alex was able to purchase and facilitate deliveries of fresh mulch and native plants. Alex recruited his fellow Scouts to conduct the work including trimming dogwood shrubs, removing non-native and weedy vegetation, laying fresh mulch, cleaning the curb-cut catch box, blending new plants into the existing planting plan, and finally adding the new plants in August to finish off the effort.

The raingarden was originally built in 2013 through another Community Blue grant.



Watershed Action Volunteers

Volunteers bring VLAWMO's work into the community. In addition to the volunteer programs outlined on this page, volunteers help present booths at public events, conduct wetland surveys, and photograph wildlife in the watershed.



ADOPT-A-RAINGARDEN & ADOPT-A-DRAIN

Volunteers help maintain public raingardens throughout the watershed. VLAWMO would like to thank Christ the Servant Lutheran Church, Laurie Kuduk, Judy Lissick, Kathy Hellen, Susan Miller, and the Vadnais Heights City Hall staff for making raingarden maintenance a regular part of their routine.

The VLAWMO watershed also now boasts over 4,000 stormdrains adopted by everyday residents! www.adopt-a-drain.org

ADOPT
A STORM
DRAIN



CITIZEN SCIENCE: MACROINVERTABRATES & PHENOLOGY

Citizen science can allow nature enthusiasts of all kinds to participate in valuable watershed monitoring at their own pace. With the Leaf Pack Method, VLAWMO volunteers help monitor six locations along Lambert Creek and in North Oaks for aquatic macroinvertebrates. Several picture posts are also installed at key sites such as lake shores, wetland restorations, and channels. These posts guide users in taking a multi-photo panorama that gets saved in a gallery database. This database is useful for finding trends in vegetation, algae blooms, ice in/out, erosion, and more. Visit vlawmo.org/get-involved for more info.



CITIZEN ADVISORY COMMITTEE (CAC)

The CAC is a venue for residents to help advise and guide VLAWMO education and outreach efforts, help plan and gather public feedback (surveys, etc.), and convey public interests, concerns, and opportunities for networking to staff and the VLAWMO Board of Directors. VLAWMO's CAC is a subset of the primary volunteer group, the Watershed Action Volunteers (WAV).

AQUATIC INVASIVE SPECIES (AIS)

Partnering with Ramsey County Soil and Water Conservation Division (RCSWCD), VLAWMO gathers volunteers to serve as citizen AIS detectors. RCSWCD provides training and records of aquatic invasives across the county. Together we're able to have eyes-on-the-water for quick detection and response should new infestations occur.



MINNESOTA WATER STEWARDS

VLAWMO joined the MN Water Stewards program in 2018. This program is coordinated through the nonprofit Freshwater, who trains and prepares volunteers to be citizen champions in watershed projects and outreach. As of December, 2022 VLAWMO's MN Water Steward team consists of seven invaluable team members.



Photo: Clean Water MN

MINNESOTA WATER STEWARDS
Community Leadership for Clean Water

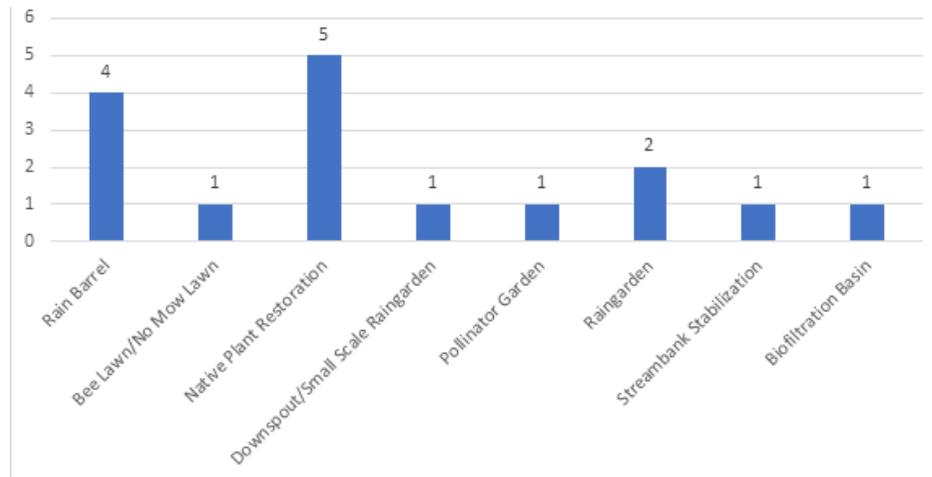
Cost-share Programs

VLAWMO's cost share programs assist public and private landowners to install stormwater reduction and water quality improvement projects. Four programs are available including: Rain Barrel Grant Program, Soil Health Grant Program, Landscape Level 1 Grant Program, and the Landscape Level 2 Grant Program. Projects completed through these programs support:

- » Water quality improvement and reduction of nutrient loading
- » Prevention of flooding and increase in flood storage capacity
- » Reduction of stormwater rate and volume
- » Preservation, protection, and restoration of native plant communities, especially along lakes, streams, and wetlands
- » Protection and preservation of groundwater quality and quantity

Funds are granted on a first come, first served basis. VLAWMO's 2022 program allocations were \$500 to Rain Barrel, \$5,000 to Soil Health, \$16,000 to Landscape Level 1, and \$28,000 to Landscape Level 2. 15 grants were awarded, totaling \$31,637.24.

Project Types Awarded in 2022



COST SHARE PROGRAM DESCRIPTIONS

Soil Health: The Soil Health Grant Program reimburses small-scale projects that protect and improve water quality and native plant communities including native plantings and pollinator gardens, downspout raingardens, turf replacement and bee lawns, and buffer strips. VLAWMO funds 75% of the cost of the projects up to \$750 or up to \$1,000 if located in a priority area.

Landscape Level 1: The Landscape Level 1 Grant Program reimburses water quality improvement projects like raingardens, curb cut raingardens, shoreline and streambank restorations, erosion control or stabilization, and permeable pavement. VLAWMO funds 50-75% of the cost of the projects up to \$5,000 or \$7,500 if a curb cut raingarden.

Landscape Level 2: The Landscape Level 2 Grant Program supports partnership projects with communities and municipalities to install larger-scale water quality improvement projects such as raingardens or infiltration basins, stormwater reuse, and reconstruction projects that reduce stormwater rate and volume. VLAWMO funds 25-90% of the cost of projects based on projected water quality benefits.

2022 IMPACT

VLAWMO uses Minimal Impact Design Standards (MIDS) to measure the impact of landscape improvement projects. The impact of 2022's projects are estimated to improve water quality by:

- Reducing total phosphorus by **1 lb** per year.
- Reducing suspended solids by **166.8 lbs** per year.
- Infiltrating **4,518 gallons** of water into the ground annually



A 2022 raingarden near Pleasant Lake in North Oaks supported by Landscape Level 1.

SOIL HEALTH & LANDSCAPE LEVEL 1 SUMMARY

VLAWMO awarded 8 grants for 1 bee lawn/no mow lawn, 5 native plant restorations, 1 downspout raingarden, and 1 pollinator garden, totaling \$4,879.65.



A 2022 Soil Health Grant project in Vadnais Heights.

LANDSCAPE LEVEL 1 SUMMARY

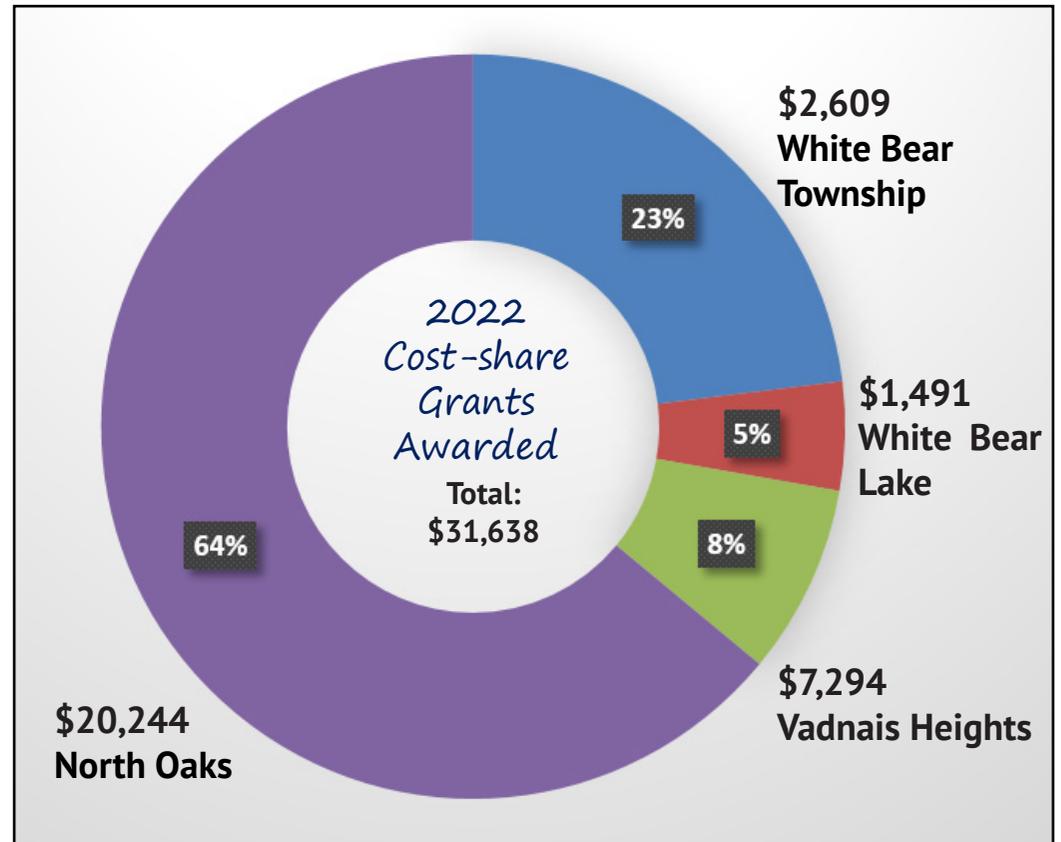
VLAWMO awarded 3 grants for 2 raingardens and 1 streambank stabilization project, totaling \$11,478.25.

LANDSCAPE LEVEL 2 SUMMARY

VLAWMO awarded 1 grant for a large biofiltration basin/raingarden, totaling \$15,000.



The North Oaks Homeowner's Association (NOHOA) utilized a Landscape Level 2 grant for a new raingarden at the North Oaks community entrance. Photo showing project under construction.



RAINBARREL GRANT PROGRAM

The Rain Barrel Grant Program reimburses residents 50% of the cost for the purchase of up to 2 rain barrels. Applicants are limited to \$100 for each rain barrel, no more than \$200 total.

RAINBARREL SUMMARY

VLAWMO awarded 3 grants for 4 rain barrels, totaling \$ 279.34.

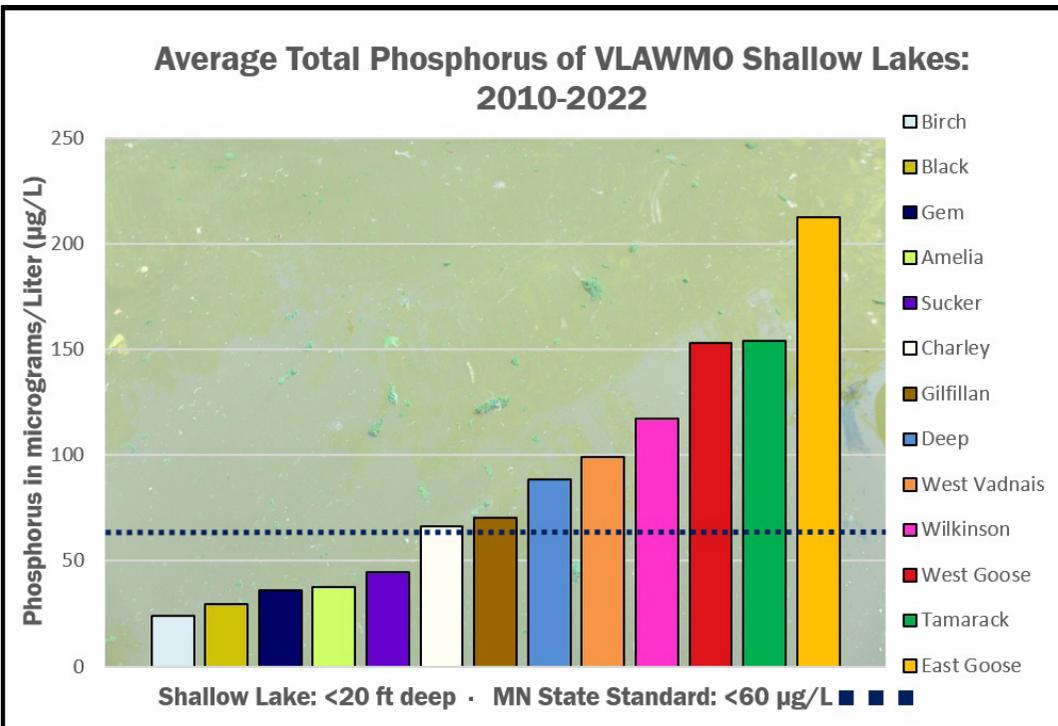
Water Monitoring

INTRODUCTION

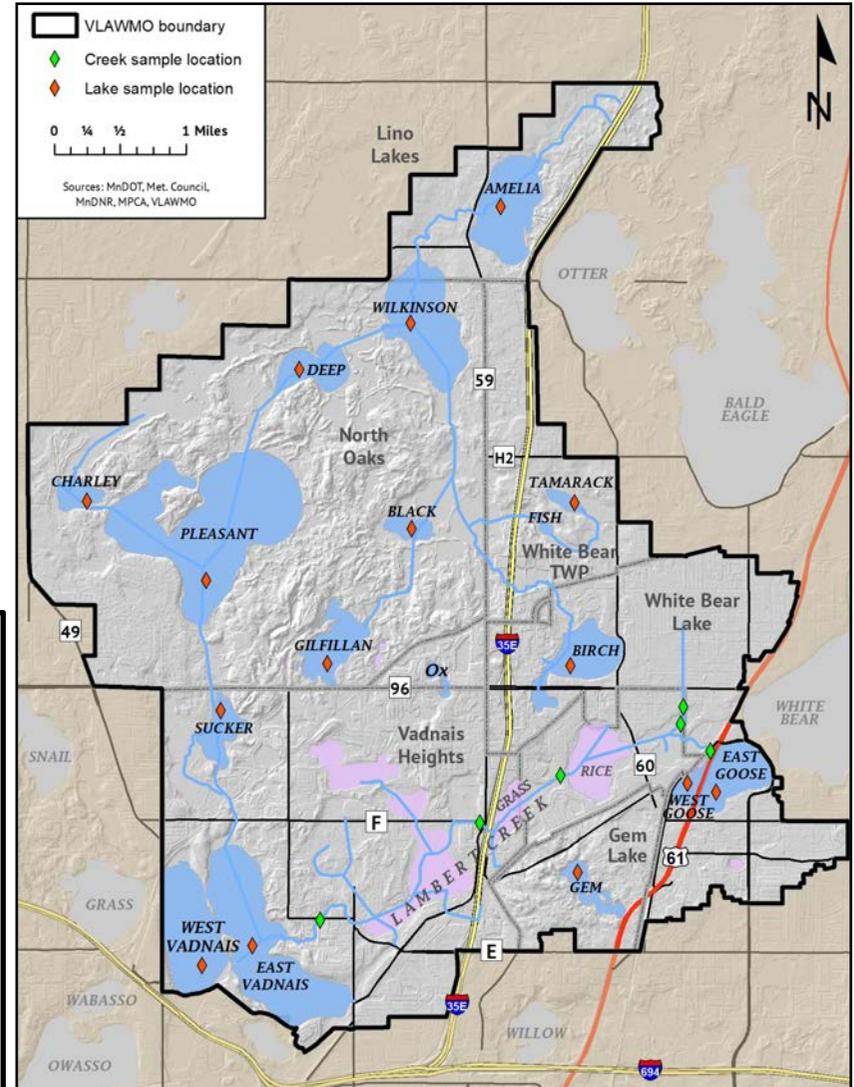
VLAWMO's regular water quality monitoring program includes nutrient sampling on 6 Lambert Creek sites, and nutrient sampling on 15 of the Vadnais Lake Area Watershed lakes. Nutrients and pollutants sampled for data include: total phosphorus, chlorophyll-A, soluble-reactive phosphorus, iron, total nitrogen, nitrate, total suspended solids, and chloride. VLAWMO's specialty monitoring programs, such as project BMP's and storm sampling, will continue. See the map of current monitoring locations to the right.

Part of VLAWMO's water monitoring includes rainfall measurements because rainfall and the timing of rainfall are factors that influence water quality. Typically, more precipitation implies more water runoff, which carries more contaminants from the land surface into water bodies.

Lakes are summarized with a grading system called the Carlson Trophic State Index (TSI). This system was developed in the 1970's to calculate average phosphorus, chlorophyll-A, and Secchi disk readings, and generate a summarizing number.



VLAWMO Monitoring Locations



Monitoring results are used to guide local water policies and management, and to help prioritize and locate future water quality projects such as raingardens, underground retention basins, and shoreline restorations.

WATER MONITORING HIGHLIGHTS

Pleasant Lake: Roughly 900 carp (close to 20,000lbs) were removed from Pleasant Lake in 2022. Monitoring in 2023 will help assess the removal's impact on water quality.

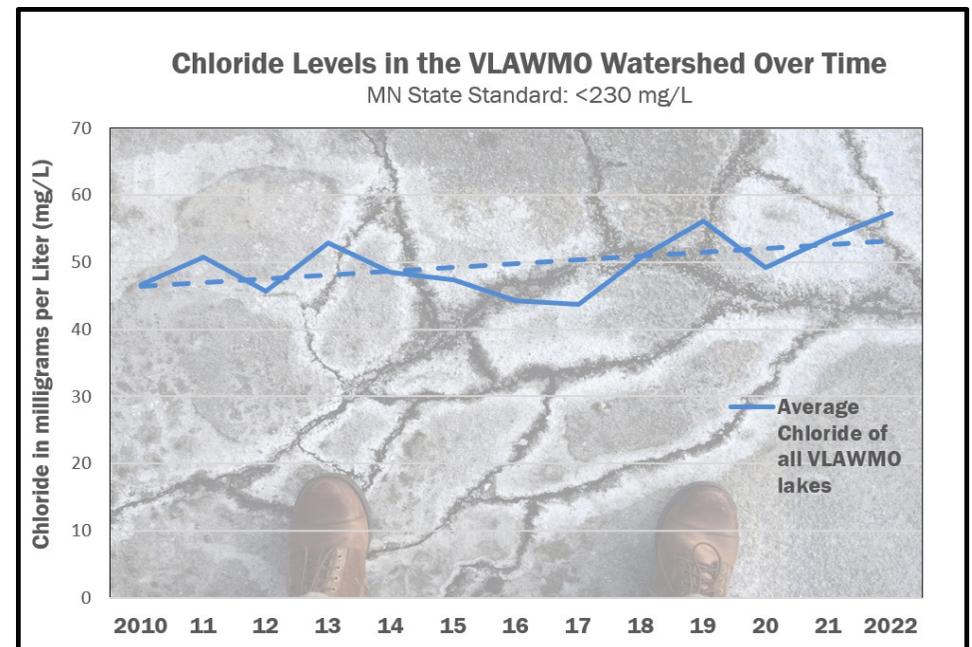
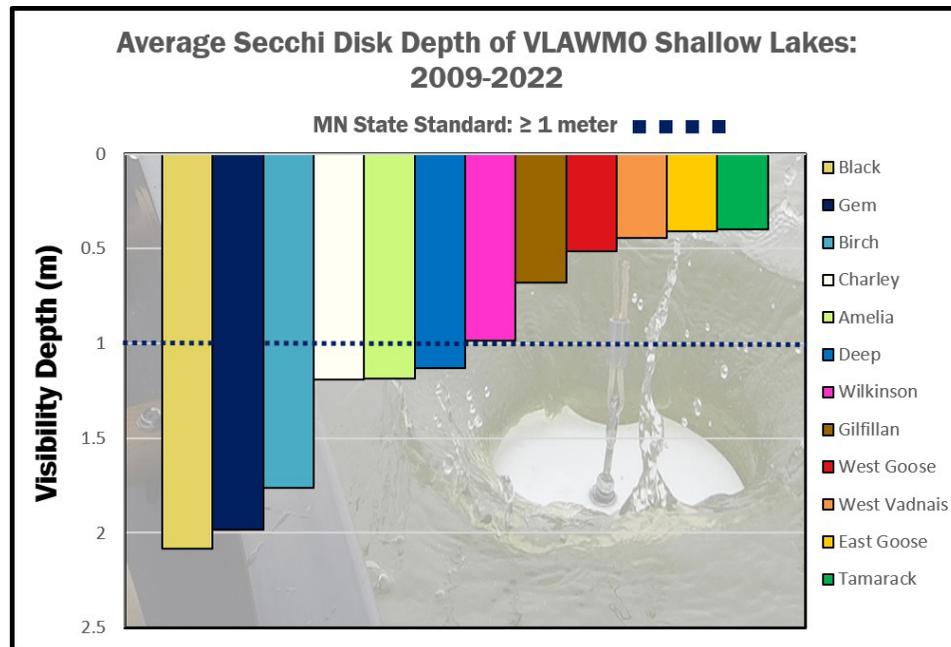
Remote Monitoring Devices: 2022 was the third full year of automated creek flow monitoring. Live information can be found here for the four sites that are remote monitored on the creek. <http://monitormywatershed.org/>

Lambert Creek: Creek flow was extremely low in 2022. Rainfall was 6.91 inches below average for the season. Two of the five monitoring sites were dry for portions of the monitoring season.

Oak Knoll Pond/Wood Lake Spent Lime Demonstration Study: A spent lime feasibility study was done on Oak Knoll pond in White Bear Lake to investigate the feasibility of spent lime as a potential tool for reducing total phosphorus (TP) levels. Preliminary results showed promise in decreasing TP levels after the spent lime applications. Application and monitoring to start in 2023.

Chloride: VLAWMO has been sampling lake chloride for 13 years and while slight rises are documented, there have been no major changes within the lakes. Black Lake has the lowest levels. Birch Lake and East Goose are the highest, which coincides with their proximity to major roads and stormwater drainage. All of the lakes are below the current State standard of 230 mg/L.

Use of Monitoring Data: The VLAWMO monitoring data was used for multiple subwatershed studies and grant applications in 2022 to aid in possible water quality projects moving forward in 2023.



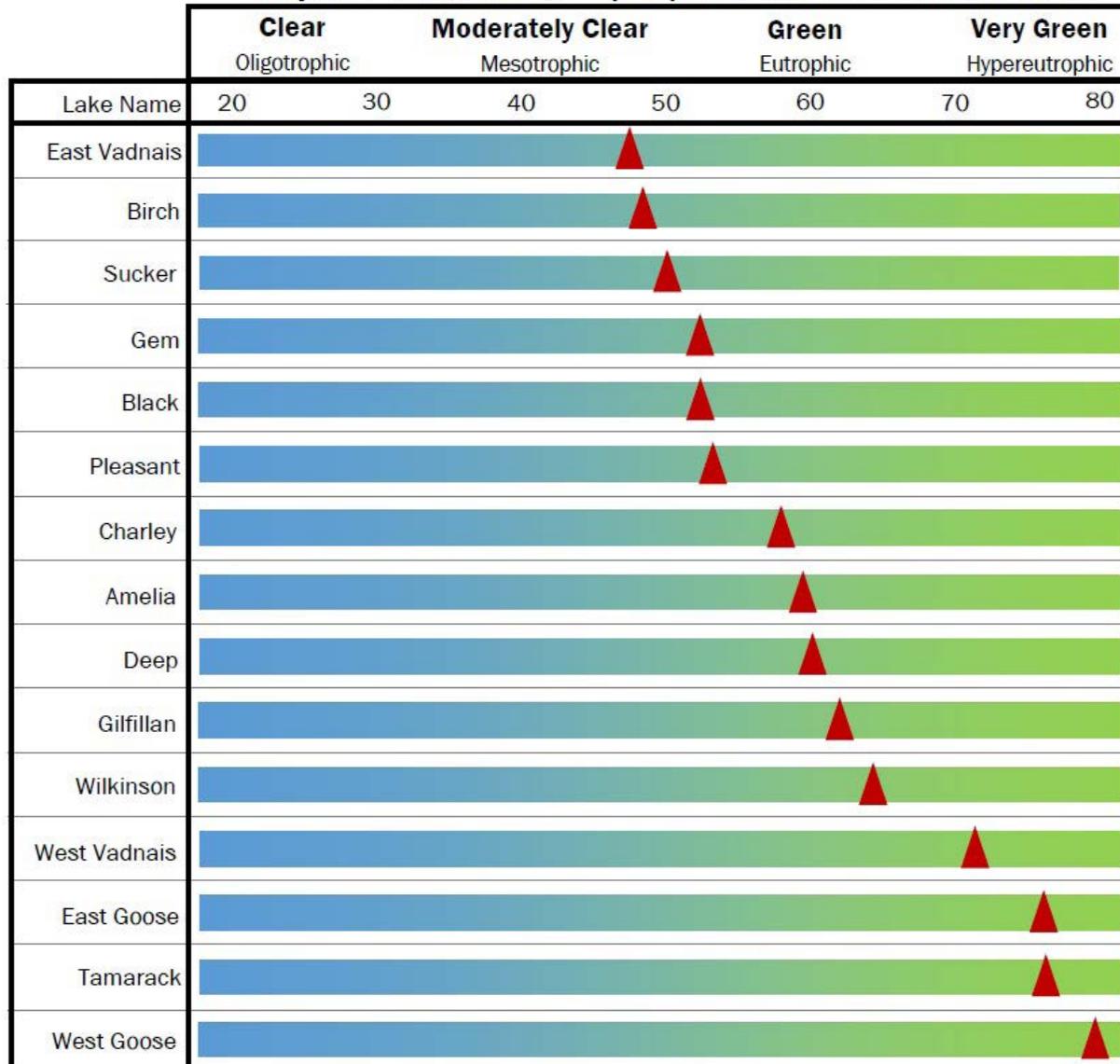
Find this year's complete Monitoring Report and a summary at VLAWMO.org/resources/reports

MONITORING SUMMARY: CONTINUED

STATE OF THE LAKES

VLAWMO uses the Carlson Trophic Status Indicator (TSI) to summarize lake health. TSI is calculated from annual monitoring data by combining total phosphorus, chlorophyll-a, and transparency (Secchi) readings.

Trophic State Indexes (TSI) of VLAWMO Lakes: 2022



A water sample on the shore of East Goose Lake.



VLAWMO staff taking a monitoring sample at Birch Lake

Project Highlights

PLEASANT/DEEP LAKE CARP HARVEST

VLAWMO worked with the North Oaks Home Owners' Association (NOHOA), the North Oaks Company, and Carp Solutions to accomplish a common carp harvest in May of 2022. Native to Eastern Europe and brought to the US from Germany in 1877, common carp act as invasive species in North American Lakes. Pleasant Lake is impaired for nutrients, and common carp travel between Pleasant, Deep, Charley, and other downstream lakes through a network of channels.

Through a series of studies and electrofishing sessions with Carp Solutions prior to 2022, staff learned that the carp population was predominately large adults. The absence of young and young adult fish means that removal of these large carp is more likely to result in water-quality improvements than it would in a healthy reproducing population, where reproduction is likely to replace fish removed over time. Ongoing efforts will maintain reductions and detect if successful reproduction occurs.

A total of 916 carp were removed from a barrier set up in a Deep Lake channel during spring/summer 2022. Post-removal surveys were conducted to assess the results on the carp population. It's estimated that the total biomass of all the carp in the lake went from 230 kg/ha to 48.9 kg/ha. Complete removal of all carp is impractical, but studies show that keeping the population below the critical threshold of 100 kg/ha will increase likelihood of achieving the desired water quality results. A full report on the carp harvest can be found at vlawmo.org/projects.



Carp Solutions work on carp harvesting with nets and a barrier at the channel between Deep and Wilkinson Lakes.

BRIDGEWOOD PARK RAINGARDEN KICK-OFF

VLAWMO teamed up with the City of Vadnais Heights, the Minnesota Master Gardeners, and Watershed Action Volunteer Gloria Tessier to host a kick-off party for a new raingarden in Bridgewood Park.

Located near the popular pickleball courts, the raingarden was completed in June 2022. It features two curb-cut devices to capture runoff and sediment from the parking lot and street. After stormwater splashes into the "turret" catchments the sediment and other debris drops to the bottom while the water drains out the side. This raingarden and others like it help to restore upland water storage that has been lost in mid-to-late 1900's development. By storing more water upstream, the raingarden also reduces the stormwater volume, excess nutrients, and sediment that flow downstream into Lambert Creek and eventually to East Vadnais Lake.

The raingarden is estimated to store 4,643 bathtubs of stormwater, .47 lbs of total phosphorus, and remove 85 lbs of sediment from Lambert Creek annually. Just 1 lb of phosphorus can create up to 500 lbs of algae - raingardens help keep this key nutrient in the soil and out of the water.

Check out the construction photos and the educational signage posted on-site at vlawmo.org/projects.



VLAWMO staff and Minnesota Master Gardeners at the Bridgewood Park raingarden kick-off 17

Project Highlights

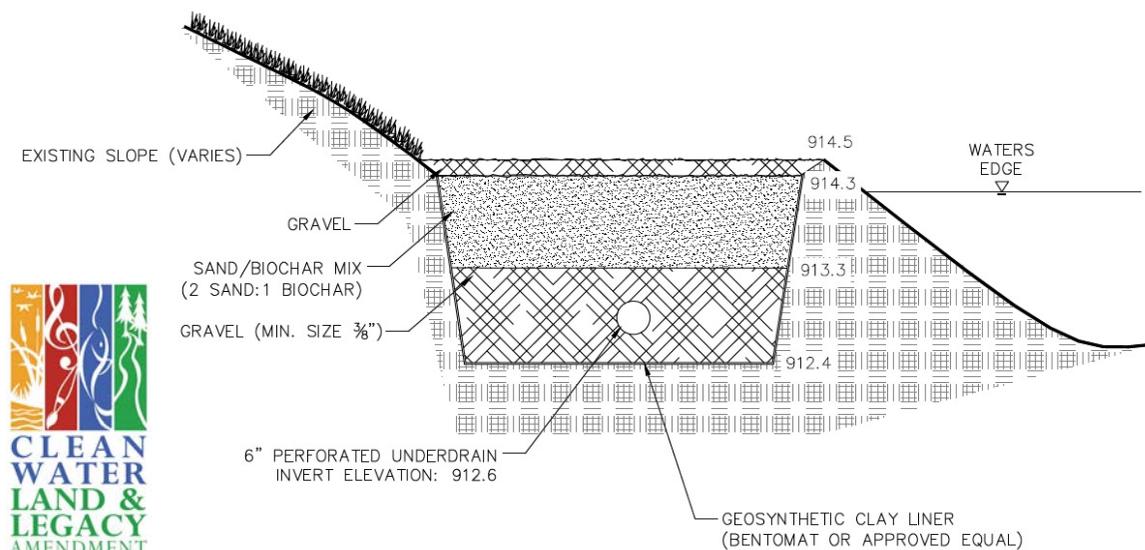
WHITAKER POND BIOCHAR FILTER

VLAWMO was pleased to complete its first biochar stormwater filter in partnership with White Bear Township and the City of White Bear Lake. Located between Columbia Park and Whitaker Street, the project is funded by a grants from the Minnesota Pollution Control Agency (MPCA) 319 and the Board of Water and Soil Resources (BWSR).

Biochar is a charcoal-like substance made by burning organic material, usually agricultural and forestry wastes. It's commonly used as a soil additive for enhancing soil structure and water retention, but also acts as a filter. This filter is designed to capture the "first flush" after a storm event. This pertains to nutrients and bacteria that wash off parking lots, streets, lawns, and other surfaces in the first several minutes of a rain event. As the water level in the pond rises, the filter takes the high water, slowly seeps it down through its layers (above right) and sends it on its way to Lambert Creek through an underdrain.

Whitaker pond was first constructed in 1996 to improve stormwater storage at the headwaters of Lambert Creek. The pond also provides a strategic location for catching sediment draining in from upstream streets, parking lots, and lawns, reducing the sediment that flows downstream. Lastly, the pond's proximity to Columbia Park allows for large equipment to access the site for maintenance and to periodically dredge sediment from the pond.

Find more info, funding, and photos of the project at vlawmo.org/projects.



Above: The Whitaker Pond Biochar Filter pictured during construction in October 2022.

Below: Layers of the biochar filter during construction.

Bottom left: Biochar filter cross section diagram.

Image courtesy of SEH.



Project Highlights

HISTORIC TOWN HALL NATIVE PLANTING

The White Bear Lake Area Historical Society (WBLAHS) pioneered a new native planting at the Historic Town Hall located in White Bear Township. The Historical Society secured grant funding from VLAWMO's Soil Health cost-share program, and worked with VLAWMO staff to arrange a planting plan. The Saint Paul Garden Club also contributed grant funds while landscaping and equipment support was provided by a contractor through White Bear Township public works.

The native planting paired well with the mission and goals of the White Bear Lake Area Historical Society. Because the plants are native to the Minnesota mesic prairie region, they provide a demonstration of the plants and habitat that historically dominated the landscape pre-European settlement. Staff from VLAWMO and the Historical Society worked together to interpret this connection and provide educational signage on-site. VLAWMO looks forward to continuing the partnerships started with this project, and is excited to utilize this community icon as a demonstration site for water-friendly landscaping and soil health.



Above: Sandy Law (Saint Paul Garden Club), Dan Jones (White Bear Lake Area Historical Society) and Phil Belfiori (VLAWMO), Katherine Doll Kanne (MN Water Steward), Ed Prudohn (White Bear Township Board of Supervisors), and Joe Reil (White Bear Lawn & Snow) participated in site prep and planting.

Left: The newly completed native planting in September 2022.

CHARTING IT OUT:

Review of this year's goals and next year's projections

VLAWMO CORE ACTIVITIES



WATER PLAN STRUCTURE



2023 WORK PLAN PROJECTION

VLAWMO continues to put the 2017-2026 comprehensive watershed management plan into action. A minor plan amendment was made in 2022 focused on drainage policy updates. The watershed management plan structure (above) informs issues that will be addressed, goals that VLAWMO will set, and the strategies employed to reach those goals. See the 2017-2026 comprehensive watershed management plan on our website under "About" for a more in-depth look at these plan components.

The tables for the previous year's review and the upcoming year work plan are color coded according to the VLAWMO core activities diagram (above). Each core activity also has a number, conveyed in the 2017-2026 comprehensive watershed management plan.

ACRONYMS:

- WLA: Waste Load Allocation
- DNR: Department of Natural Resources
- MS4: Municipal Separate Storm Sewer System
- SWPPP: Storm Water Pollution Prevention Program
- STEM: Science, Technology, Engineering, Mathematics
- BMP: Best Management Practice
- CIP: Capital Improvement Project
- LGU: Local Government Unit
- LCCMR: Legislative Citizen Commission on Minnesota Resources
- AIS: Aquatic Invasive Species
- TMDL: Total Maximum Daily Load
- TEP: Technical Evaluation Panel
- BOD: Board of Directors
- RFP: Request for Proposal
- TEC: Technical Commission



CAPITAL PROJECTS & PROGRAMS

Review of 2022 Work Plan

Project Name	Description	Goal: Going into 2022	Goal: 2022 Result
Wilkinson BMP	A deep water wetland restoration is planned to help improve Wilkinson Lake, an impaired waterbody. Partners in this project include the North Oaks Company, Minnesota Land Trust, and Houston Engineering Inc. Funded by EPA 319 with shared match between VLAWMO and the North Oaks Company.	Continue with design and planning for construction of BMP with project partners.	Design and planning conducted, project ongoing until 2024.
East Goose Lake Adaptive Lake Management (ALM)	Continuing work on East Goose Lake ALM public engagement and possible lake treatment options.	Aquatic vegetation management policy created. Pursue development of ALM plan with partners.	Aquatic vegetation management policy extended. ALM pursued with a focus on spent lime feasibility.
Ditch Maintenance	Maintenance of the main stem of County Ditch 14 according to MN Public Drainage Permit 103E and the 2018 Hydrologic & Hydrology study contracted by VLAWMO with Houston Engineering Inc. (Available at vlawmo.org/waterbodies/lambert-creek).	Continued branch ditch planning with City of Vadnais Heights. Re-survey of completed maintenance projects: Dec, 2020 and Dec, 2021.	Ditch inspection drone survey complete.
Pleasant Lake Carp Removal	Working with WSB, Carp Solutions and NOHOA, establish carp biomass and movement patterns in Pleasant Lake for carp control measures. Removals will be conducted and surveys continued to document results and water-quality improvements.	Carp removal harvest. Stream harvest and biomass monitoring - harvest dependent.	Initial harvest complete. Biomass estimate reevaluated.
West Vadnais Lake Carp Removal	Working with Carp Solutions and Ramsey Washington Metro Watershed District (RWMWD), control carp biomass in West Vadnais Lake and prevent movement from West Vadnais Lake into the Phalen Chain. Initial surveys and biomass estimates were conducted by RWMWD. VLAWMO is partnering on removals, surveys, and electric barriers.	Fish survey, shared with Ramsey Washington Metro Watershed District (RWMWD). Carp monitoring.	Complete. Incomplete - low water conditions and poor accessibility.

Review of 2022 Work Plan

CAPITAL PROJECTS & PROGRAMS

Project Name	Description	Goal: Going into 2022	Goal: 2022 Result
Vadnais-Sucker Lake Regional Park Restoration	28 acres of restoration in Vadnais-Sucker Lakes Regional Park. Removal and treatment of invasive buckthorn and reseeding/ planting with natives with ongoing maintenance. Partners in this project include Great River Greening, Ramsey County Parks, and St. Paul Regional Water Services. Funds provided by the Outdoor Heritage grant program administered by the MN DNR. The grant time frame for this project is 5 years.	Buckthorn removal.	RFP complete. Contractor selected.

CAPITAL PROJECTS & PROGRAMS - GRANTS

Project Name	Description	Goal: Going into 2022	Goal: 2022 Result
Landscape Level 1	Establish relationships and provide grants to property owners within the watershed to install water quality enhancement projects	Fund and install 1 LL1 infiltration projects. Combined annual phosphorus reduction: 1 lb.	2 LL1 projects complete. 1 lb TP/yr reduced.
Landscape Level 2	Assist landowners with implementing larger BMP projects focused on stormwater capture and treatment within the watershed.	Fund 4 LL2 projects with annual phosphorus removal: 2 lbs.	1 LL2 project funded, complete in 2023. 2 lbs TP/yr reduced.
Soil Health Grant	Small projects focused on habitat and shoreline restoration, utilizing native vegetation to promote soil and watershed health.	Fund 4 SHG projects with restored project area: 10,000 ft ² .	8 SHG projects complete. ~12,000 sq ft.
Community Blue Grant	A communication and outreach grant program for projects that relate to water quality. Available to MN Water Stewards, volunteers, and community partners.	1 public education initiative 1 raingarden renovation or service project.	“Good Neighbor Guide” public education initiative complete. Saint Mary’s raingarden renovation complete.



EDUCATION AND OUTREACH

Review of 2022 Work Plan

Project Name	Description	Goal: Going into 2022	Goal: 2022 Result
Community Events	Staff a VLAWMO booth, develop watershed information/brochures, and host public workshops and learning opportunities.	8 community event/workshops. 1 watershed/BMP tour.	8 community evens. 1 tour.
Communications	Create and update material and publications for social media, website, seasonal E-news, and local publications. Create and maintain communications on VLAWMO projects and to promote responsible use of water resources.	10+ E-newsletters. Project map and project page facilitation. Yard care and raingarden care calendar. 3 communications items provided to member Cities/Township.	10 E-newsletters. Project map and calendar complete. Complete.
K-12	Provide watershed activities and resources for schools. Assist schools in establishing and maintaining stormwater best management practices (BMP's).	3 school collaborations/yr. 2 school raingarden maintenance activities.	2 school collaborations. 1 school activity.
Citizen Science	Facilitate LeafPack macroinvertebrate monitoring. Facilitate 5 Picture Post photo-monitoring sites with volunteer photo-taking. Pilot Wetland Health Evaluation Program (WHEP) with Tamarack Nature Center partnership.	4+ completed macroinvertebrate LeafPack studies submitted to the Monitor My Watershed Wiki. 3+ photo entries at each picture post. Complete pilot WHEP program and assess results.	2 LeafPacks complete. All picture post entries complete. WHEP complete.
Watershed Action Volunteers (WAV)	The WAV consists of Minnesota Water Stewards (Freshwater), Citizen Advisory Commission (CAC), and volunteers with individual job descriptions.	Complete a "Good Neighbor Guide" for Cities/Township Facilitate public booths (3+).	Complete. 5 public booths.

 **MONITORING PROGRAM**

Review of 2022 Work Plan

Project Name	Description	Goals: Going into 2022	Goals: 2022 Result
Lambert Creek monitoring program	Monitor basic phosphorus, nitrogen, Chlorophyll-A, chloride, and sediment levels at 6 sites along with pH, conductivity and DO at the 3 flumes. Maintain automated flow meter and precipitation gauge at Whitaker. Four remote sensors installed along creek, live updated volume and water levels displayed on line.	Document and evaluate creek water quality.	Data collection complete, see monitoring report.
Lake Level Program	Gilfillan, Birch, Gem & Goose Lake gauges are calibrated in the spring and read up to 11 times during the summer.	Monitor lake levels on 4 targeted lakes in the watershed to track short & long term trends.	Complete.
Lake Monitoring Program	Monitor chemistry of 15 of VLAWMO's lakes for nutrients, turbidity, pH, conductivity, and dissolved oxygen (DO).	Keep water quality record of watershed's lakes. Utilize water quality data for future projects and CIPs.	Data collection complete, see monitoring report.
Chloride Monitoring	Sample lakes and Lambert Creek. Partner with Birch Lake Improvement District (BLID) for additional winter monitoring of Birch Lake.	Check Spring measurements.	Complete.
Biological Monitoring	Volunteer-based macroinvertebrate Leaf Pack monitoring in Lambert Creek, Lambert Lake, and Deep and Charley Lake channels. Volunteer phenology/picture post monitoring at five lake and wetland shoreline sites in the watershed.	Complete 2 Leaf Pack monitoring sessions on Lambert Creek/Lake. Gather photo data from each of the 5 shoreline picture posts sites in the watershed.	2 Leaf Pack monitoring sessions complete. All picture post sites active.

Review of 2022 Work Plan



ADMINISTRATION & REGULATION

Project Name	Description	Goals: Going into 2022	Goals: 2022 Results
Budget & Stormwater Utility	Storm sewer rates are based on the adopted budget and certified to the counties for collection.	Continued county participation and budgeting for future years.	Complete.
Wetland Conservation Act (WCA)	Complete boundary and type & other determinations in consultation with the TEP. Respond to WCA questions.	Continued administration of WCA.	Complete.



SUSTAINABLE LAKE MANAGEMENT REPORTS (SLMRs) AND STUDIES

Project Name	Description	Goals: Going into 2022	Goals: 2022 Results
Amelia Lake SLMR Surveys	A Sustainable Lake Management Report (SLMR) is being written according to the 10-year Watershed Plan.	Flowering rush follow-up surveys. Complete Amelia SLMR.	Flowering rush location detected. Complete.

2023 Work Plan

CAPITAL IMPROVEMENT AND MAINTENANCE PROJECTS

Project Name	Description	Goals	Timeline
Wilkinson BMP	A deep water wetland restoration is planned to help improve Wilkinson Lake, an impaired waterbody. Partners in this project include the North Oaks Company, Minnesota Land Trust, and Houston Engineering Inc. Funded by EPA 319 with shared match between VLAWMO and the North Oaks Company.	Continue with design and planning for construction of BMP with project partners.	Ongoing 2023-2024.
Vadnais/Sucker Regional Park Habitat Restoration	28 acres of restoration in Vadnais-Sucker Lakes Regional Park. Removal and treatment of invasive buckthorn and reseeding/planting with natives with ongoing maintenance. Partners in this project include Great River Greening, Ramsey County Parks, and St. Paul Regional Water Services. Funds provided by the Outdoor Heritage grant program administered by the MN DNR. The grant time frame for this project is 5 years.	Minimum 28 acres restoration completed. On-site public outreach event.	2023 restoration complete. Ongoing maintenance through 2025.
Oak Knoll Pond Spent Lime Study	Financial and social feasibility study with Barr Engineering to determine potential for scaling up small pond treatments to a large pond.	Report development and consideration, pond access pursued with property owners around pond.	Ongoing 2023.
Groundwater Conservation Pilot Project	Pilot program in partnership with member communities to install smart irrigation controllers on public properties with high groundwater usage. Evaluate effectiveness for providing groundwater conservation benefits.	Complete 1 pilot project.	Spring 2023-2024.

2023 Work Plan


GRANT PROGRAMS

Project Name	Description	Goals	Timeline
Rainbarrel Grant	Reimburse 50% of a rainbarrel purchase (up to \$200) with proof of purchase.	Fund 3 rainbarrel reimbursements.	Ongoing.
Landscape Level 1	Establish relationships and provide grants to property owners within the watershed to install water quality enhancement projects.	Fund at least 1 LL1 infiltration project.	Ongoing.
Landscape Level 2	Assist landowners with implementing larger BMP projects focused on stormwater capture and treatment within the watershed.	Fund 2 LL2 projects.	Ongoing.
Soil Health Grant	A grant program that reimburses landowners for installing small-scale practices that improve water quality and soil health with a focus on native plant restorations.	Fund 5 SHG projects.	Ongoing.
Community Blue Grant	A communication and outreach grant program for projects that relate to water quality. Available to MN Water Stewards, volunteers, and community partners.	1 public education initiative. 1 raingarden renovation or service project.	Ongoing.

 **PUBLIC EDUCATION AND OUTREACH**

2023 Work Plan

Project Name	Description	Goals	Timeline
Watershed Action Volunteers (WAV)	The WAV consists of Minnesota Water Stewards (Freshwater), Citizen Advisory Commission (CAC), and volunteers with individual job descriptions.	Complete 1 Minnesota Water Steward Capstone Project Hold spring and fall WAV/CAC meetings Facilitate public booths (3+).	June-Oct. March-Oct. April-Sept.
Community Engaged Learners (CEL)	The Community Engaged Learning (CEL) Partnership with the U of M includes habitat improvement projects such as buckthorn removal, prairie and native woodland establishment, wooded wetland restoration, and various wildlife and macroinvertebrates monitoring.	Complete 8 or more field work days in habitat management and site maintenance.	Ongoing.
Workshops	Educate residents on watershed processes, raingarden and native plant function, smart salting, and VLAWMO grant programs.	4 residential workshops (raingardens, etc.). 1 municipal staff workshop (smart salting, etc.).	Spring-Fall.
Community Events	Staff a VLAWMO booth, develop watershed information, brochures, and resources for community events.	5 community events. 1 watershed/BMP tour.	Spring-Summer.
Communications	Create and update material and publications for social media, website, seasonal E-news, and local publications. Create and maintain communications on VLAWMO projects and to promote responsible use of water resources.	10+ E-newsletters. Website renovation. 3 communications items provided to member Cities/Township.	Winter-Fall.
K-12	Provide watershed activities and resources for schools. Assist schools in establishing and maintaining stormwater best management practices (BMP's).	1 school collaboration/yr. 2 school raingarden maintenance activities.	Ongoing.

2023 Work Plan

Project Name	Description	Goals	Timeline
Citizen Science	Facilitate LeafPack macroinvertebrate monitoring. Facilitate 5 Picture Post photo-monitoring sites with volunteer photo-taking. Pilot Wetland Health Evaluation Program (WHEP) with Tamarack Nature Center partnership.	2+ completed macroinvertebrate LeafPack studies submitted to the Monitor My Watershed Wiki. 2+ photo entries at each picture post. Facilitate WHEP Program with Tamarack Nature Center.	April-November.



MONITORING PROGRAM

Project Name	Description	Goals	Timeline
Lambert Creek monitoring program	Monitor basic phosphorus, nitrogen, Chlorophyll-A, chloride, and sediment levels at 6 sites along with pH, conductivity and DO at the 3 flumes. Maintain automated flow meter and precipitation gauge at Whitaker. Four remote sensors installed along creek, live updated volume and water levels displayed on line.	Document and evaluate creek water quality.	Monitoring May-Sept.
Lake Level program	Gilfillan, Birch, Gem & Goose Lake gauges are calibrated in the spring and read up to 11 times during the summer.	Monitor lake levels on 4 targeted lakes in the watershed to track short & long term trends.	Monitoring May-Sept.
Chloride measurements	Sample lakes and Lambert Creek during spring snow melt and ice out.	Check Spring measurements	Spring.
Lake monitoring program	Monitor chemistry of 15 of VLAWMO's lakes for nutrients, turbidity, pH, conductivity, and dissolved oxygen (DO).	Keep water quality record of watershed's lakes. Utilize water quality data for future projects and CIPs.	Monitoring May-Sept.



ADMINISTRATION & REGULATION

Project Name	Description	Goals	Timeline
Budget & Stormwater Utility	Storm sewer utility rates are based on the adopted budget and certified to the counties for collection.	Continued county participation and budgeting for future years.	Ongoing.
Wetland Conservation Act (WCA)	Complete boundary and type & other determinations in consultation with the TEP. Respond to WCA questions.	Continued administration of WCA.	Ongoing.



SUSTAINABLE LAKE PLAN REPORTS (SLMRs) AND STUDIES

Project Name	Description	Goals	Timeline
Tamarack Lake SLMR update	Update previous SLMPs with new survey, monitoring, and other relevant information. Post on the VLAWMO website.	Complete update and display on VLAWMO website.	Summer.
Gem Lake SMLR update	Update previous SLMPs with new survey, monitoring, and other relevant information. Post on the VLAWMO website.	Bathymetry survey. Aquatic macrophyte survey. Display on VLAWMO website.	Summer.

MS4 Summary

VLAWMO has worked with its member communities from 2020-2022 to prepare tools and resources for the 2020-2025 General MS4 Permit.

The Municipal Separate Storm Sewer System (MS4) Permit is a program administered by the Minnesota Pollution Control Agency (MS4). It organizes tasks and responsibilities for communities that generate stormwater runoff to protect and improve their local water resources. The permit is organized into 6 categories called Minimum Control Measures (MCMs). The MCMs cover topics such as public education, public participation, illegal dumping (illicit discharge), construction and development protocols, as well as general house keeping such as staff training. As a Joint Powers Association (JPA), VLAWMO offers its expertise in water resources and public communications to help expand and streamline its member community's permits.

VLAWMO resources that member communities utilized in their MS4 reporting include:

Minimum Control Measure #1:

- Info-graphic and mailing slip: Pet waste
- Info-graphic and mailing slip: Smart salting
- Article templates: Pet waste and smart salting
- Downloads and videos available at the VLAWMO Local Government web page (vlawmo.org/agencies)

Minimum Control Measure #2:

- A stormdrain stenciling and outreach kit for volunteer service projects (if rented and used)
- Adopt-a-Raingarden (if municipality has a public raingarden)
- Trash pick-up supplies (if utilized by volunteers)

Minimum Control Measure #3:

- Info-graphic, mailing slip, and full page flier: Illicit Discharge Detection and Elimination (IDDE)

Minimum Control Measure #6:

- Promotion of free smart salting and turf maintenance best practices (if staff attended training and obtained certification)
- Assistance with website communications (layout, language)

Other:

- Pool and spa drainage guide
- Water Conservation language templates
- Customized presentations and print materials per municipality request



Pool & Spa Drainage Guide

Why careful pool water disposal matters:

Improper release of swimming pool water can harm local waterbodies, native vegetation, and wildlife habitat. Local waterbodies depend on responsible actions from everyone to remain healthy and functional for the community.

Pool draining steps:

1. A week prior to draining the pool, stop adding chlorine and any other substance.
2. Test the water before draining: pH should be 6.5-7.8, chlorine levels not detectable.
3. Pump pool water over an open area such as a lawn before letting it drain into a stormdrain. Look for natural drainage paths or alter the drainage path to keep water away from adjacent property and buildings. Monitor the pumped water to ensure it doesn't cause erosion and pick up debris as it runs into the stormdrain.
4. Never drain pool water directly into a body of water such as a lake, stream, wetland, or even stormdrain.
5. Used pool filters can be thrown into the trash. Extra or partially used filters can be disposed of at the Ramsey County household hazardous waste collection site.



Pool draining tips:

- Careful use of pool chemicals can save money and help simplify the pool draining process.
- If pool drainage is a regular or semi-regular occurrence, it will be worth taking the time to make a permanent plan that includes hoses, pumps (pictured left), and potentially landscaping strategies.
- Consider a backyard raingarden with an overflow feature as a strategy to capture pool water and rooftop runoff.
- Filter out any paint chips before draining.
- If using an acid product to clean the pool, make sure pH levels have adjusted to normal before draining. Always follow instructions on chemical labels for disposal and usage. Never mix two or more chemicals.
- Remember that stormdrains connect directly to waterbodies.



LOGISTICS:

Financial statement and budget

Wetland Conservation Act (WCA)

VLAWMO administers the Wetland Conservation Act as the LGU for its member communities. There were 38 landowner contacts in which wetland related technical assistance were provided this year. There were 4 potential WCA violation sites investigated, 4 or 4 were resolved.

WCA SUMMARY

Type of Application	Approved	Denied	Withdrawn
Boundary and Type	6	0	0
No-Loss	2	0	0
Exemption	1	0	0
Sequencing	1	0	0
Replacement Plan	1	0	0

Local Water Plan Adoption

Adoption of Local Water Plans: Gem Lake, Lino Lakes, North Oaks, White Bear Lake, White Bear Township, Vadnais Heights are all complete and have been adopted.

Member Community	Last Local Water Plan Update Year
Gem Lake	2018
Lino Lakes	2018
North Oaks	2008
Vadnais Heights	2018
White Bear Lake	2021
White Bear Township	2019

Partnerships

One of VLAWMO’s greatest successes is working together with partners to use resources wisely and maximize effectiveness. Workshops, meetings, and webinars allow VLAWMO to be on the cutting edge of the water resources in the Northeast Metro.

- » Metro Watershed Partners provides monthly meetings to keep updated with other watersheds, receive feedback and strategy assistance, as well as hear from guest speakers to enhance education and outreach efforts.
- » Ramsey County GIS User Group focuses on sharing, developing, and promoting GIS data and technology. As a member agency, VLAWMO contributes and receives data, and has a voting hand in the content the Group funds and develops. Regular RCGISUG membership fees go to producing aerial images of Ramsey County and other GIS data.
- » Ramsey County Soil and Water Conservation Division holds informative forums on topics of general concern (AIS, State of the Waters, groundwater). They also provide technical assistance for lake studies and BMP design. Lastly, they provide financial partnership in grant funding of projects.
- » Many other organizations and groups (p. 35) help carry out VLAWMO’s mission through events, outreach strategies, and project planning.

Biennial Solicitation for Proposals

Proposals for professional auditing services were solicited in 2020. Legal and Engineering in 2021.

2022 Partners

Each year our fabulous partners provide leadership, guidance, and resources to support our goals. This year saw the completion of some efforts and the continued investment of others. VLAWMO would like to thank:

Municipal Partners:

- » Cities of Gem Lake, Lino Lakes, North Oaks, Vadnais Heights, White Bear Lake, and White Bear Township

Other partners:

- » Ramsey County, Ramsey County Soil and Water Conservation Division
- » SEH, WSB Engineering, Houston Engineering, Inc., Barr Engineering, Peterson Companies
- » Minnesota Land Trust
- » Great River Greening
- » White Bear Historical Society
- » AFSA High School
- » Get the Lead Out MN
- » Vadnais Heights Lions
- » Vadnais Heights and Lakeaires Elementary Schools
- » White Bear Lake Environmental Advisory Commission
- » Metro Watershed Partners, BlueThumb
- » Ramsey County GIS User Group
- » Freshwater
- » Natural Shores Technologies
- » White Bear Montessori
- » City of Vadnais Heights Parks Commission
- » Ramsey Washington Metro Watershed District
- » Carp Solutions
- » Birch Lake Improvement District (BLID)
- » The North Oaks Company, North Oaks Home Owners' Assc (NOHOA), North Oaks Natural Resources Commission, Natural Environment Stewardship Team
- » Vadnais Heights Economic Development Corp/ Partners for Good
- » Tamarack Nature Center



Community-Engaged Learners from the U of M at the Birch Lake woodland restoration

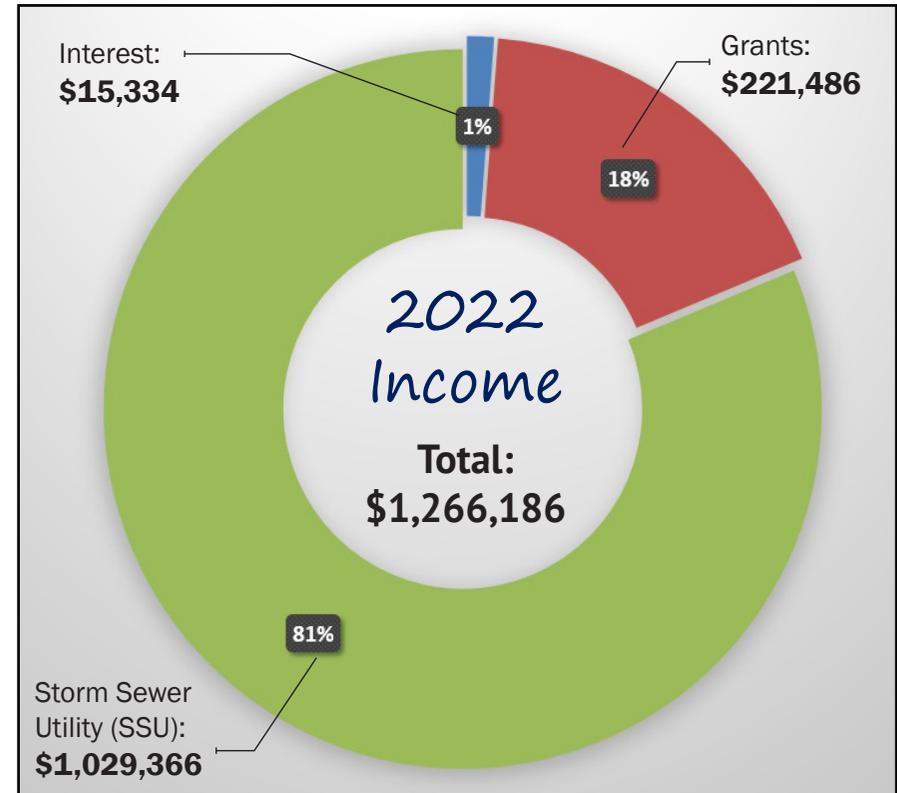


The Vadnais Heights Lions at a volunteer planting and maintenance day at the Vadnais Heights Fire Department Rain Garden

Finance and Budget

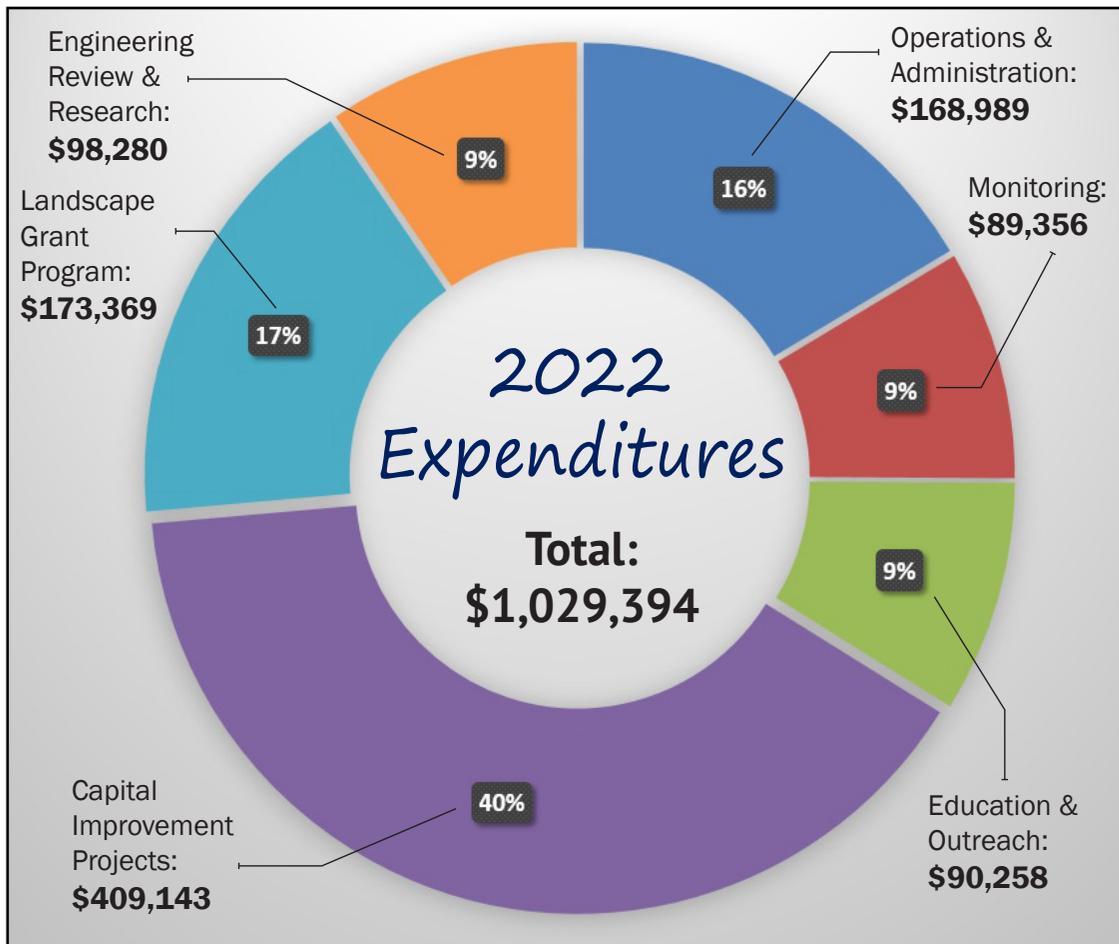
The 2022 budget was established by the Board of Directors in June with designated project and program funds carried over in December, 2021. The Finance and Policy Subcommittee with a representative from the Technical Commission and the Board reviewed and made recommendations on the 2022 budget to the Board in June, 2021. The Board-approved budget included funds to address a capital improvement project associated with the construction of the Whitaker Pond Biochar Filter and the carp harvest project at Pleasant and Deep Lakes. These projects focused on addressing water quality protection for high priority waterbodies in the watershed. The other programmatic focus in 2022 was the VLAWMO cost-share grant program and development of several policies and technical studies. These included a public drainage policy and completion of a feasibility study to guide the design of a proposed deep water wetland restoration practice upstream of Wilkinson Lake.

Approved budget for 2022:
\$1,350,339
Actual income from 2022:
\$1,266,186
Money spent in 2022:
\$1,029,394



Annual Budget by Year





INCOME

The mainstay of support for VLAWMO work comes from its Storm Sewer Utility (SSU) fees. These fees are based on an estimate of impervious surface for each parcel of land with reference to land use classification. \$1,029,366 in SSU was collected in Ramsey and Anoka Counties in 2022 for 11,546 parcels. The average single-family homeowner paid \$57.96 per year, about \$4.83 per month to support projects and programs conducted by the watershed. The 9% increase in storm sewer utility fees supported sustainable coverage of key priority programs and projects outlined in the VLAWMO Watershed Management Plan. Some grant/loan income was utilized to cover project implementation costs.

EXPENSES

The total cash expenses for 2022 was \$1,029,394. Engineering and planning efforts initiated in 2022 in the Lambert Creek and Wilkinson/Gilfillan/Black/Tamarack subwatersheds will be carried over into 2023 for project implementation.

GRANTS AND PARTNERSHIPS

Grant funds received in 2022 totaled \$221,486 including the MPCA 319 grant and BWSR watershed based funding grant. Both supported the final construction of the Whitaker Pond Biochar Filter.



Volunteers help with raingarden brush-up at Vadnais Heights Elementary

WHO WE ARE:

The people and partnerships that make VLAWMO thrive

The VLAWMO office is located at:

800 E County Road E
Vadnais Heights, MN
55127

Who we are:

VLAWMO Employs five full-time staff for everyday operations. Consultants are required for a variety of purposes including auditing, bookkeeping, engineering, and technical assistance. The VLAWMO Board of Directors consists of one elected official from each of the five cities and one township within the watershed. Each board member is appointed for a three year term. The VLAWMO Technical Commission consists of one citizen representative from each of the six communities. The Technical Commission meets to review and consider watershed business as well as make recommendations to the Board for wider scope decisions.

2022 BOARD OF DIRECTORS (BOD)**Jim Lindner, Chair**

City of Gem Lake
651.492.5083

Dan Jones, Vice Chair

City of White Bear Lake
651.283.6097

Patricia Youker, Treasurer

City of Vadnais Heights
612.790.7577

Tom Watson

City of North Oaks
612-751-0124

Ed Prudhon

White Bear Township
651.426.2311

Rob Rafferty

City of Lino Lakes
651.429.6772

2022 TECHNICAL COMMISSION (TEC)**Jesse Farrell, Chair**

Vadnais Heights

Gloria Tessier, Vice Chair

Gem Lake

Bob Larson, Treasurer

North Oaks

Terry Huntrods

White Bear Lake

Paul Duxbury

White Bear Township

Andy Nelson

Lino Lakes

CONSULTANTS

STAFF

Phil Belfiori

Administrator
phil.belfiori@vlawmo.org
651.204.6073

Dawn Tanner, PhD

Program Development Coordinator
dawn.tanner@vlawmo.org
651.204.6074

Brian Corcoran

Water Resources Manager
brian.corcoran@vlawmo.org
651.204.6075

Nick Voss

Education and Outreach Coordinator
nick.voss@vlawmo.org
651.204.6070

Lauren Sampedro

Watershed Technician and Program Coordinator
lauren.sampedro@vlawmo.org
651.204.6071

SEH - Engineer on retainer

3535 Vadnais Center Dr
Vadnais Heights, MN 55110
800.325.2055

Abdo, Eick & Meyers LLP.

5201 Eden Ave. Ste. 250
Eden Prairie, MN 55436
952.835.9090

Ehlers & Associates

3060 Centre Point Dr
Roseville, MN 55113
651.697.8500

HDR Engineering, Inc.

701 Xenia Ave. S. Ste. 600
Minneapolis, MN 55416
763.591.5400

Houston Engineering Inc.

6901 E Fish Lake Rd
Maple Grove, MN 55369
763.493.4522

Kennedy & Graven, Chartered

200 South Sixth St Ste. 470
Minneapolis, MN 55402
612.337.9215

Ramsey County Soil and Water Conservation Division

2015 Van Dyke Street
Maplewood, MN 55109
651.266.0300

St Paul Regional Water Services

1900 Rice St
St Paul, MN 55113
651.266.6350

Barr Engineering

4300 Market Pointe
Minneapolis, MN 55435
952.832.2600

Carp Solutions LLC

1380 Pike Lake Court
New Brighton, MN 55112
612.275.3792

WSB and Associates

701 Zenia Ave. S. Ste. 300
Golden Valley, MN 55416
763.541.4800

Resilient Resources LLC

3235 Fernbrook Lane N
Minneapolis, MN 55447
612.408.7515

Natural Shores Technologies, Inc.

1480 County Rd 90
Independence, MN 55359
612.703.7581

CliftonLarsonAllen, LLP

220 South Sixth St #300
Minneapolis, MN 55402
612.397.3266



J. Hartmann