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# VLAWMO

Vadnais Lake Area  
Water Management Organization



# 2020 ANNUAL REPORT

**Vadnais Lake Area Water Management Organization**

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Greetings!

2020 was a very active time for the Vadnais Lake Area Water Management Organization (VLAWMO). This Annual Report will give you some highlights, and we welcome your feedback!

In 2020, VLAWMO focused on implementing several regional partnership-based Projects identified in the 2017-2026 Watershed Management Plan:

- The Birch Lake iron-enhanced sand filter located at 4th Street and Otter Lake Road (pg 12). This project was constructed and finished in 2020, and provides an important benefit to Birch Lake by filtering stormwater before it enters the Lake. We want to thank our outstanding project partners: the City of White Bear Lake, Ramsey County and the Birch Lake Improvement District (BLID) for their collaboration. We were honored that this project was considered as a finalist for the Minnesota Association of Watershed District Project of the Year Award;
- Project design and permitting completed for the Lambert Lake Meander and sheet pile Replacement Project (pg 9). VLAWMO secured a grant in 2019 for the Lambert Lake restoration project which will utilize a zero interest loan to replace failing sheet pile in the pond. The restoration portion of the project includes rebuilding a section of the Creek to what it might have looked like before it was ditched. Construction for this multipurpose regional water quality Project is anticipated to start in early 2021 and we are looking forward to see how things come together;
- VLAWMO, in partnership with the City of Vadnais Heights, completed the Ditch 14 Maintenance Project on a stretch of Ditch 14 from E. Vadnais Lake to Oak Creek Drive; This project improves hydrology for a newly constructed City road culvert;
- Carp management work on both Pleasant Lake and West Vadnais continued in 2020 with electroshocking and tracking of carp that live in these lakes. We continue to monitor carp, to allow for an efficient harvest effort and ultimately a positive effect in water quality.

2020 also brought an update to several VLAWMO programs too, including an update of the VLAWMO cost-share program which included adding a new tier within the program focusing on soil health. 2020 was a busy year for completion of technical studies with three important resource management reports completed during the year.

These included a wetland function and value inventory report for the Sucker and Vadnais Lakes Subwatershed area, a priority-area BMP feasibility study in the Wilkinson Subwatershed, and a study on the sedimentation levels in Pleasant Lake. We anticipate that these studies will pave the way for continued discussion with partners on possible future implementation.

Partnerships were again critical to the work in the VLAWMO watershed in 2020, including collaboration with the City of White Bear Lake to establish an adaptive lake management public engagement process for East Goose Lake. The City and VLAWMO held a kickoff conversation with the East Goose lake shore residents and the two partners also collaborated on the construction of a limited access boat ramp. Ramsey County and the City partnered with VLAWMO to implement a series of raingardens on County Road F and to reduce polluted runoff from entering East Goose Lake.

In other important VLAWMO news, the VLAWMO Board recognized and presented achievement awards to two long-time VLAWMO leaders: Stephanie McNamara and Director Marty Long. Director Long served on the VLAWMO Board for over 13 years representing the City of North Oaks. Stephanie was Administrator for VLAWMO for 30 years and retired in the spring after successfully guiding the Organization to so many accomplishments. 2020 also marked the first VLAWMO Watershed Partnership Award presented to Connie Taillon with the City of White Bear Lake, and the second annual Watershed Stewardship Award presented to Ceci Shapland.

Lastly, I was hired as the new VLAWMO Administrator April 2020. It has been an honor and privilege to work with an outstanding Board of Directors and Technical Commission. I'm also so impressed with the second- to-none VLAWMO staff team of Brian, Tyler, Nick and Dawn. Everyone associated with VLAWMO has been so welcoming. 2020 has been a very busy year at VLAWMO and our Board of Directors and staff team look forward to even more exciting work in 2021 and beyond.

- Phil Belfiori, Administrator

## 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 6 cities 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 400,000 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

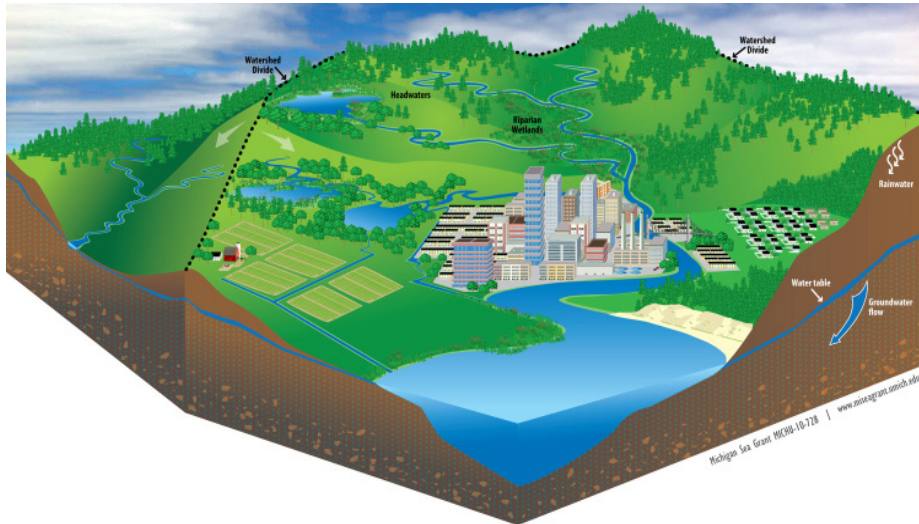


Goose Lake aerial image circa 1960.  
Photo courtesy of White Bear Lake Historical Society.

## 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 stormwater 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 16 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

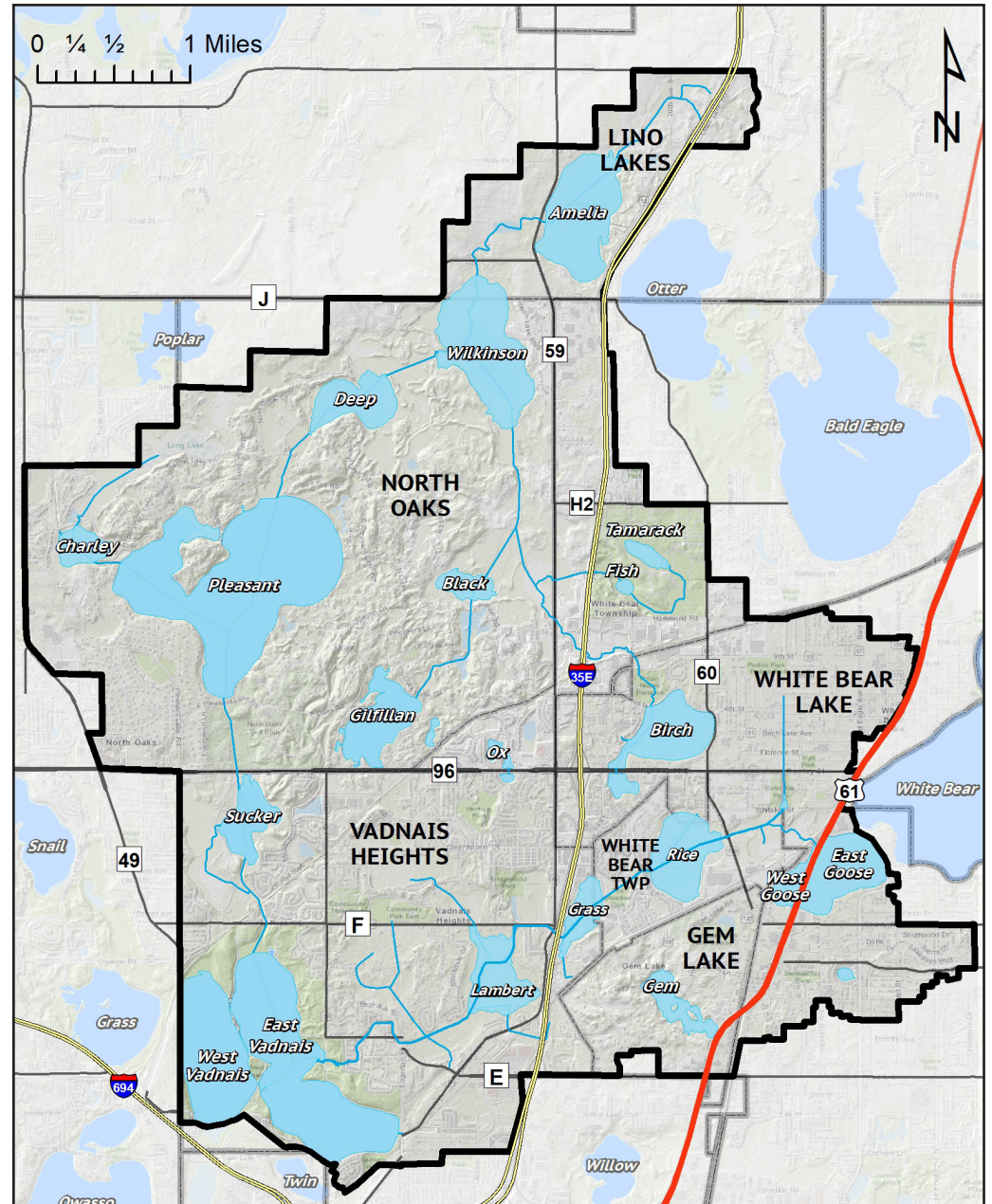
VLAWMO has jurisdiction over Lambert Creek, 4.5 miles of creek and wetland that runs from West Goose Lake and eventually empties into East Vadnais Lake.

### 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:**  
2020 activities, projects, and highlights

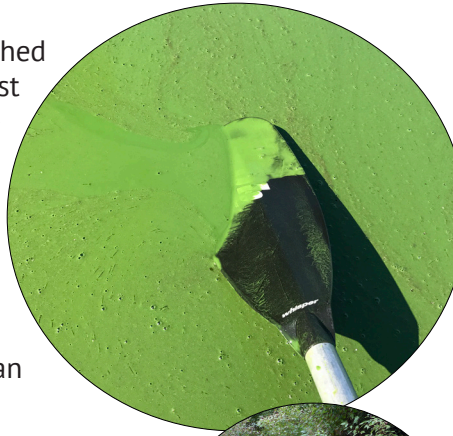
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- » What problems does the watershed face?
- » Lambert Creek Updates
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*What problems does the watershed face?*

**IMPAIRED WATERS:**

Several lakes in the watershed are on the State Impaired List for high nutrients. These include Wilkinson, Goose, West Vadnais, 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.



**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.



**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.



**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.

*See page 13 for the solutions.*



# Lambert Creek/Ditch 14 Updates

## LAMBERT CREEK DREDGING

Maintenance was conducted in December, 2020 on approximately 700ft of Lambert Creek near its outlet into East Vadnais Lake. This maintenance improved drainage and removed accumulated sediment at one of the biggest sediment outfalls on the Creek.

This project was prioritized according to a 2018 Hydrology and Hydrologic (H & H) modeling study conducted by Houston Engineering. From the study, VLAWMO was able to reference the as-built condition (ACSIC) for the length of Lambert Creek. This reference informed staff and contractors how deep to dredge and what change of water level is expected. Different locations along Lambert Creek have been prioritized accordingly and inform future projects similar to this one. The H & H study with a recorded summary presentation can be found on the VLAWMO website under 'waterbodies' > 'Lambert Creek.' Visit [vlawmo.org/projects](http://vlawmo.org/projects) for more information, diagrams, and before and after photos.



Lambert Creek dredging: Construction (above) and post-dredging creek level (right), evidenced by former water level ice shelf and new water level at creek bottom.



## LAMBERT LAKE POND AND MEANDER

VLAWMO, the City of Vadnais Heights, SEH engineering, the MPCA, and the University of Minnesota are working together to improve a portion of Lambert Creek at the historic site of Lambert Lake. The project includes a sheet pile replacement for water storage in Lambert Pond, as well as a meander along a portion of Lambert Creek south of Lambert Pond.

The sheet pile replacement covers 400 ft of Lambert Lake Pond. With the current sheet pile being near the end of its expected lifespan, this replacement is a long-term investment for flood control at this site. The pond also provides valuable access for future dredging projects. Because Lambert Lake Pond is a major outfall for sedimentation from Lambert Creek, dredging efforts here benefit Lambert Creek beyond the pond.

A 2,020 ft meander is contracted for construction just south of the pond. This serves to mimic historical function of Lambert Creek before it was channeled and turned into a ditch. Historical function is an asset for Lambert Creek because high water levels and stormwater can better access the floodplain, reducing peak flows and mitigating downstream flooding.



Early planning and construction: A pre-bid meeting took place on-site in Sept, 2020 (above) and construction preparations began in the winter (left). Construction continued into 2021.



## In the Community PROGRAMS AND EVENTS

Due to COVID-19, VLAWMO's community outreach adapted with the necessary changes of the time. With on line engagement and emphasizing outdoor socially-distant activities, we're thrilled that VLAWMO was able to retain a sense of community and participation in such a difficult year. This year's programming included the following.

### DIY NEIGHBORHOOD TOUR



**Neighborhood Garden & Plant Tour**

*A self-guided tour of local raingardens, native plants, and landscaping that improves water resources.*

**Aug 22<sup>nd</sup> & 23<sup>rd</sup> 2020**

10:00 AM - 4:00 PM  
Adapted for social distancing; Drive separate and ask questions via phone & email.

Registered guests will receive a tour booklet with background information on host sites, a driving route and contact information for questions to the host sites.

Visit our website to RSVP: [vlawmo.org/events](http://vlawmo.org/events)  
651.204.6070

Facilitated by Master Water Stewards Ceci and Ed Shapland

Master Water Stewards  
Community Leadership for Clean Water

**VLAWMO**

All projects supported by VLAWMO cost-share funds. See how your yard can be a solution for clean water!

Minnesota Water Stewards Ceci and Ed Shapland facilitated a customized neighborhood tour to accommodate for social distancing. Working with about a dozen local residents who have participated in VLAWMO's cost-share program, they set up a self-driving route for participants to follow on their own. Participants were able to see the successful cost-share projects up close, read about them in an info-packet, and ask questions to the property owner through phone and email. Tour planning and social distancing programming was a challenge in 2020, and the VLAWMO volunteer team will be looking to improve upon this style for 2021.

### JUNIOR WATERSHED EXPLORER WORKBOOK



Minnesota Water Stewards Ceci and Ed Shapland recognized an urgent need to support families undergoing stay-at-home schooling in Summer, 2020. Working with other local watersheds and VLAWMO staff, Ceci and Ed created an engaging, fun workbook for families. The book has puzzles, basic math, and scavenger hunts that curate outings to key parks and destinations in the watershed. The workbook is available for download at [VLAWMO.org/students](http://VLAWMO.org/students), and printed copies are available on request. Custom graphic design was funded by VLAWMO's Community Blue grant program.

In addition to these programs, VLAWMO hosted webinars in partnership with Blue Thumb (Resilient Yards; June, Healthy Soil; Sept). VLAWMO staff also hosted webinars in conjunction with Capital Improvement Projects (CIPs) for the Lambert Lake Pond and Meander (May) and Goose Lake Adaptive Lake Management (December).

### RAINBARREL WEBINAR



**Rainbarrel Workshop: Install and Use**

Summer 2020

Presented by Katherine L. Doll Kanne  
Master Water Steward



Minnesota Water Steward Katherine Doll Kanne held an on line rainbarrel install and use workshop in August, 2020. The workshop was a success in that it provided an entry-level project for new folks who are curious about water conservation and water-minded landscaping. Rainbarrels were provided to the first 15 workshop registrations, funded by VLAWMO's Community Blue grant program.

### MOVIE NIGHT: HOMETOWN HABITAT



Just before the world changed due to COVID-19, The North Oaks Natural Resource Commission (NRC) teamed up with VLAWMO to host screening of 'Hometown Habitat' at the North Oaks Golf Club. The film covered success stories of water-friendly and habitat-friendly landscaping around the country. Seed packets were provided for each guest. The project was funded by VLAWMO's Community Blue grant program.

## 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, Mick Jost, Susan Miller, and the Vadnais Heights City Hall staff for making raingarden maintenance a regular part of everyday life.



### CITIZEN SCIENCE: MACROINVERTEBRATES & PHENOLOGY

Citizen science allows 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](http://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 Soil and Water Conservation Division (RSWCD), VLAWMO gathers volunteers to serve as citizen AIS detectors. RSWCD 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, 2020, VLAWMO's MN Water Steward team consists of Ceci Shapland, Ed Shapland, and Katherine Doll Kanne.



Photo: Clean Water MN

MINNESOTA WATER STEWARDS  
Community Leadership for Clean Water

## Project Highlights

### BIRCH LAKE SAND-IRON FILTER

2020 saw the completion of a new iron-enhanced sand filter at the intersection of 4th St and Otter Lake Road in White Bear Lake. The filter treats incoming stormwater runoff from nearby streets and neighborhoods. Birch Lake is an exceptional lake with excellent water quality, and according to VLAWMO's water plan, is a priority to protect for the future of the watershed.

The sand-iron filter was needed at this specific site because this site was identified as a hot spot for incoming nutrients flowing into Birch Lake. Stormwater monitoring took place over several years on-site, tracking how runoff flows from the street into the adjacent wetland. The wetland was over taxed, receiving more nutrients and sediment than it could process. , VLAWMO staff saw how the wetland was "over-taxed", in that it was bogged down with excessive loading that it couldn't process and filter on its own. As a result, nutrients such as phosphorus would leach into Birch Lake from the wetland, risking increased algae blooms and likely causing more aquatic vegetation than what would naturally grow in the lake. As the filter reduces the nutrient levels with engineered iron-enhanced sand technology, the wetland and Birch Lake experience less loading and less material from the street level. Other contaminants that are removed by the filter include automotive fluids, trash, brake dust, and road salt flowing in from the street.



- Amount of iron-enhanced sand in filter: 73.5 Tons
- Stormwater catchment area: 52.26 acres
- Phosphorus reduction: 8.1 lbs of phosphorus reduced in Birch Lake annually (estimated)
- Filter draw-down time: 48 hours after a rain event
- Filter life span: 25 years
- Funding: LCCMR Clean Water Funds

For more information and a video of the filter in action, visit [VLAWMO.org/projects](http://VLAWMO.org/projects).



Above: Pre-construction, the stormwater outfall draining untreated stormwater into the wetland and Birch Lake. Right: Construction, filter completion, and the complete filter fresh after a rain event in July, 2020.



# Be part of the solution!

## How to help improve the watershed from home: Continued from page 8

### 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/](http://vlawmo.org/residents/water-stewardship/) for more info.

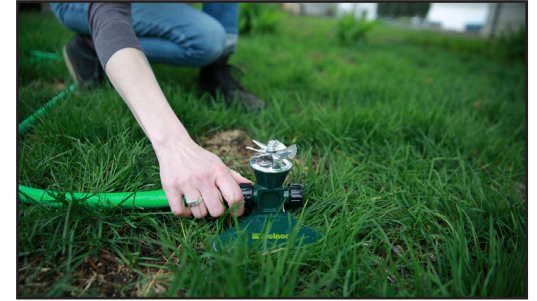


### SPRING & SUMMER:

- Adopt a stormdrain to promote local water quality.

#### Water with care:

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



#### 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 maintain a community raingarden to keep it functioning.

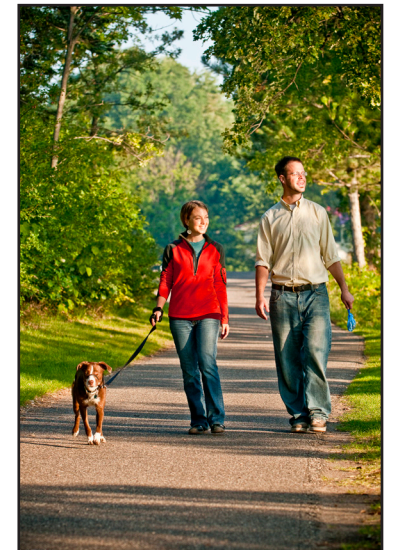
### FALL:

- Core aerate the lawn to increase root depth, durability, and water absorption.
- Continue adopt-a-drian efforts, cleaning out leaves and debris from stormdrains and the curb.
- Mulch leaves 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.



### ALL YEAR LONG:

- Prevent illegal dumping into stormdrains: "only rain down the drain".
- Build a native planting or raingarden. Plan with VLAWMO to make planting and installation easy and effective.
- Restore shorelines with deep-rooted native vegetation.
- Hire contractors certified in winter maintenance or turf maintenance best practices.
- Respect wetland boundaries. Each wetland plays a role in the watershed no matter how small.
- Always pick up pet waste.



## Cost-share Programs

VLAWMO's Cost-share Program provides assistance to public and private landowners for implementing stormwater improvement projects. Qualifying projects support one or more of the following:

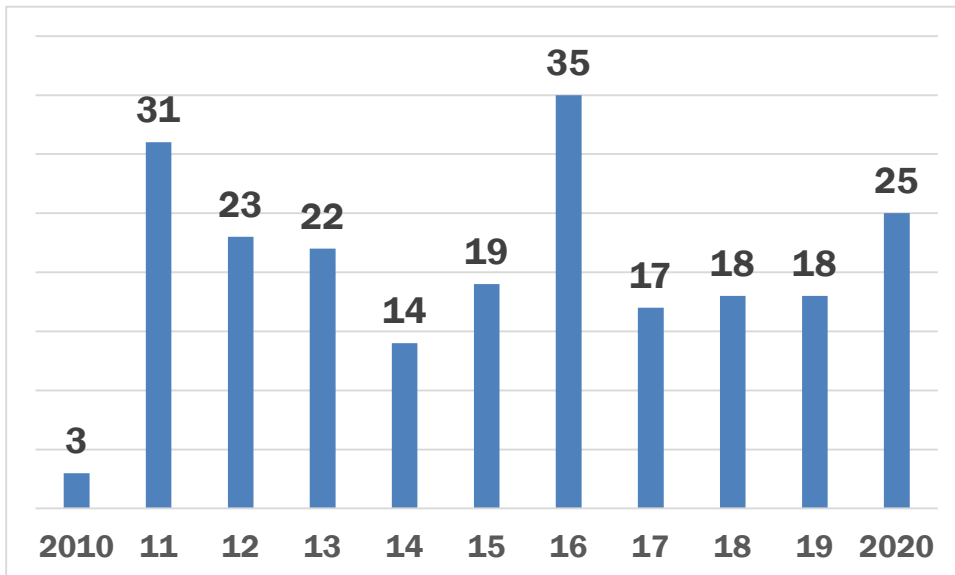
- » Prevention of flooding or mitigation of drought
- » Water quality improvement or increase in watershed storage capacity
- » Preservation, protection, and restoration of native plant and wildlife communities, especially along lakes, streams, and wetlands
- » Protection and preservation of groundwater quality and quantity

Funds vary by year and are granted on a first come first serve basis. Once the annual amount is depleted, applicants are advised to re-apply the following year.

There were 3 cost-share programs in 2020:

- » Rainbarrel: 5 grants, 6 rainbarrels implemented.
- » Landscape Level 1: 16 grants
- » Landscape Level 2: 4 grants

### Cost-share Grants by Year: Landscape & Rainbarrel



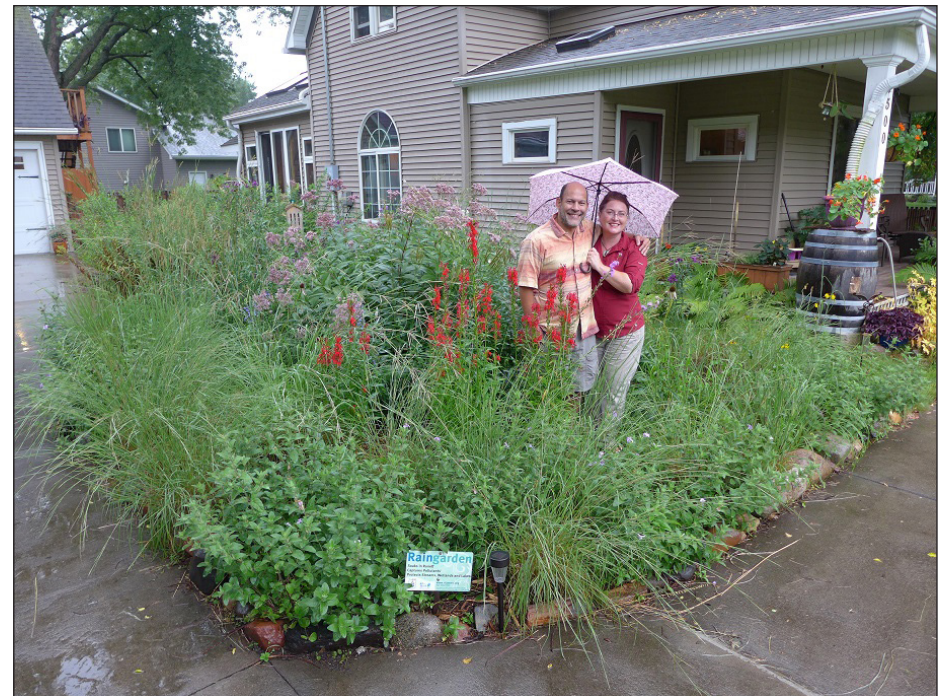
## LANDSCAPE COST-SHARE PROGRAMS

Landscape Level 1: Reimburses property owners 75% of the costs associated with implementing approved water quality improvement projects. The maximum reimbursement is \$2,000 for this program. Typical projects include raingardens, shoreline restoration, native habitat restoration, or pervious paver installation. New for 2020 was the inclusion of Targeted Priority Zones.

Landscape Level 2: Projects with a larger total cost (minimum total cost of \$5,000) and will reimburse 75% of the costs, up to \$20,000. The program was updated in 2015 to allow funding to be more available for applicants.

VLAWMO uses Minimal Impact Design Standards (MIDS) to measure the impact of landscape improvement projects. The impact of 2020's projects are estimated to improve water quality by:

- Reducing total phosphorus by **4.95 lbs** per year.
- Reducing suspended solids by **2,750 lbs** per year.
- Infiltrating **1,283,103 gallons** of water into the ground annually.



2020 Neighborhood Spotlight: Marlette Family

## LANDSCAPE LEVEL 1 SUMMARY

For Landscape level 1, **16** grants were awarded funding for a total of \$26,783.5. Funding for the year was used in its entirety.



A raingarden in Vadnais Heights featuring a pop-up connection from the downspout, under the sidewalk, and into raingarden basin (left).

Of the 16 level 1 grants, 10 were native plant restorations totaling 39,335 ft<sup>2</sup>. 4 were raingardens totaling 9,472 ft<sup>2</sup>. 2 were shoreline restorations totaling 1,532 ft<sup>2</sup>.

2019 project square footage:

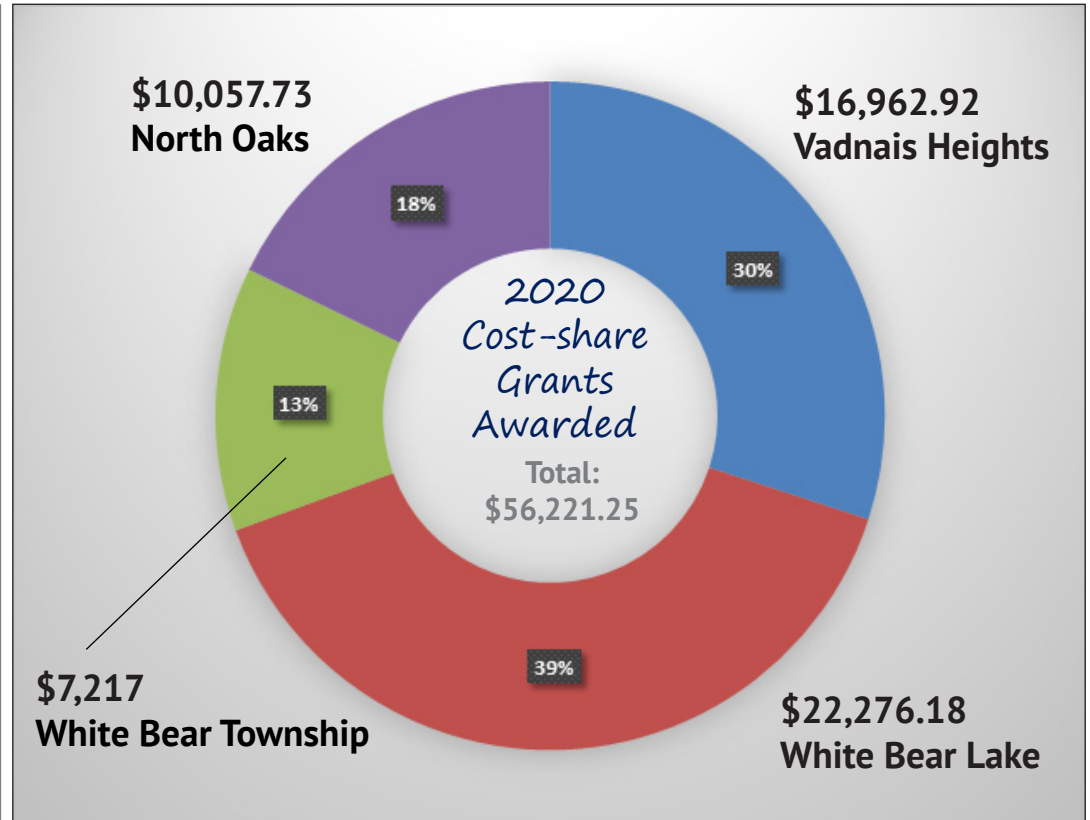
42,037 ft<sup>2</sup>

2020 project square footage:

213,967 ft<sup>2</sup>

## LANDSCAPE LEVEL 2 SUMMARY

**4** landscape level two grant was awarded for a total of \$29,296.30, covering 163,628 ft<sup>2</sup>.



## RAINBARREL COST-SHARE PROGRAM

The Rainbarrel Program reimburses residents 50% of the cost towards the purchase of up to 2 rainbarrels. Applicants are limited to \$125 maximum reimbursement per rainbarrel.

### RAINBARREL SUMMARY

In 2020 VLAWMO awarded grants for 6 rainbarrels, for a total of \$424.98. A total of 80 rainbarrel grants have been awarded since the program began in 2007. Each time a barrel is filled up, up to 300 gallons of rain water is available for reuse. If each rainbarrel gets filled 10 times throughout the year from various storm events, up to 3,000 gallons of water is available for reuse.

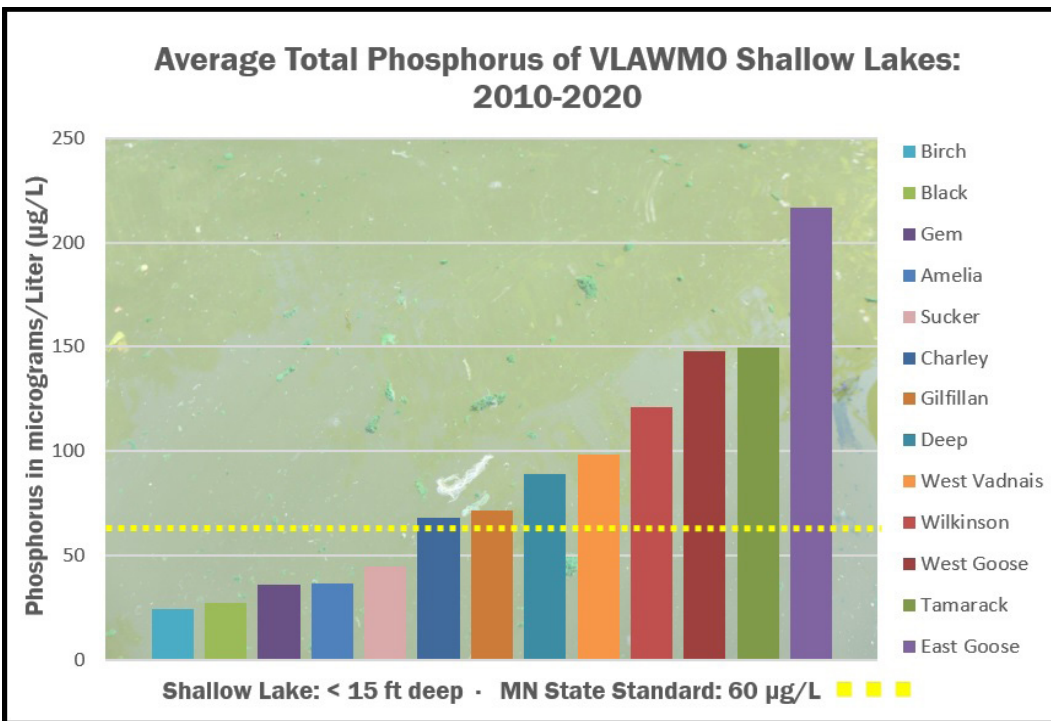
# Water Monitoring

## INTRODUCTION

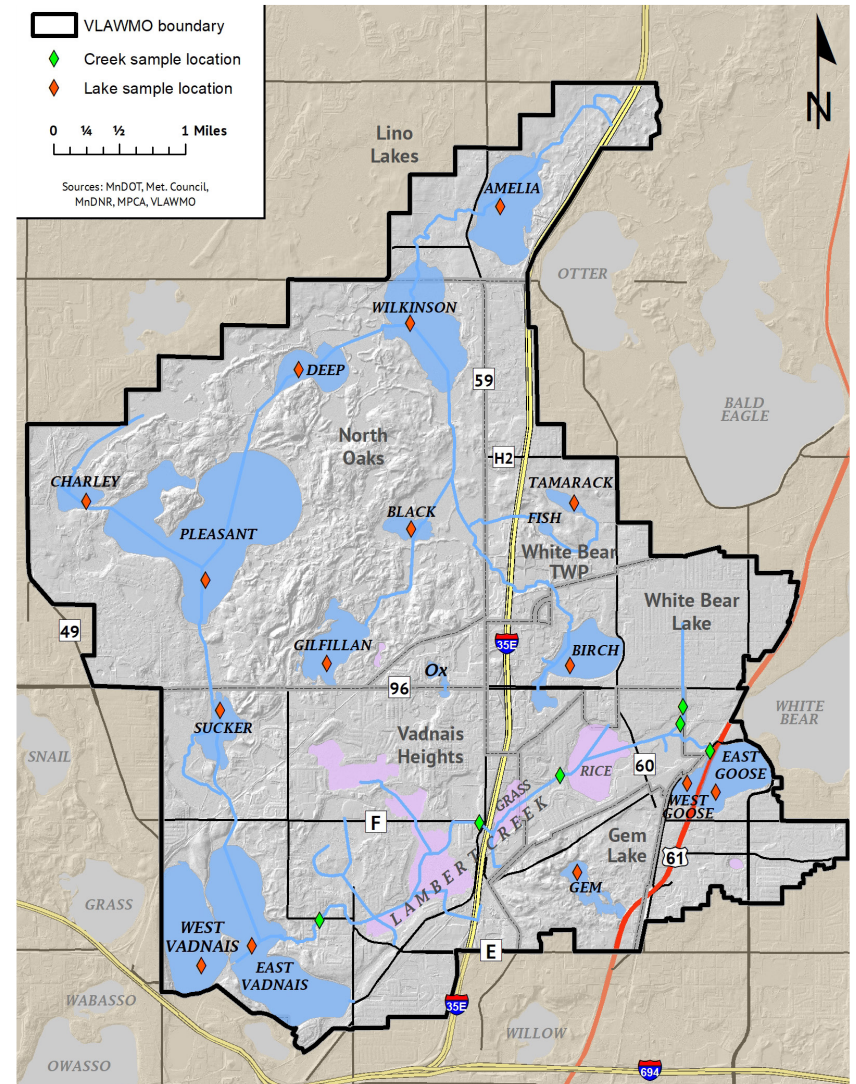
VLAWMO's regular water quality monitoring program includes nutrient sampling on 6 Lambert Creek sites, and nutrient sampling on 15 of the Vadnais Lake Area Watershed lakes. Nutrients and pollutants sampled for data include: total phosphorus, chlorophyll-A, soluble-reactive phosphorus, iron, total nitrogen, 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 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. Letter grades are developed from the Metropolitan Council matrix for annual averages.



## 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 and East Vadnais Lakes:** VLAWMO added Pleasant and East Vadnais lake to the sampling program in 2020. East Vadnais water quality was very good and well below state standards. Pleasant lake is currently below State nutrient standards.

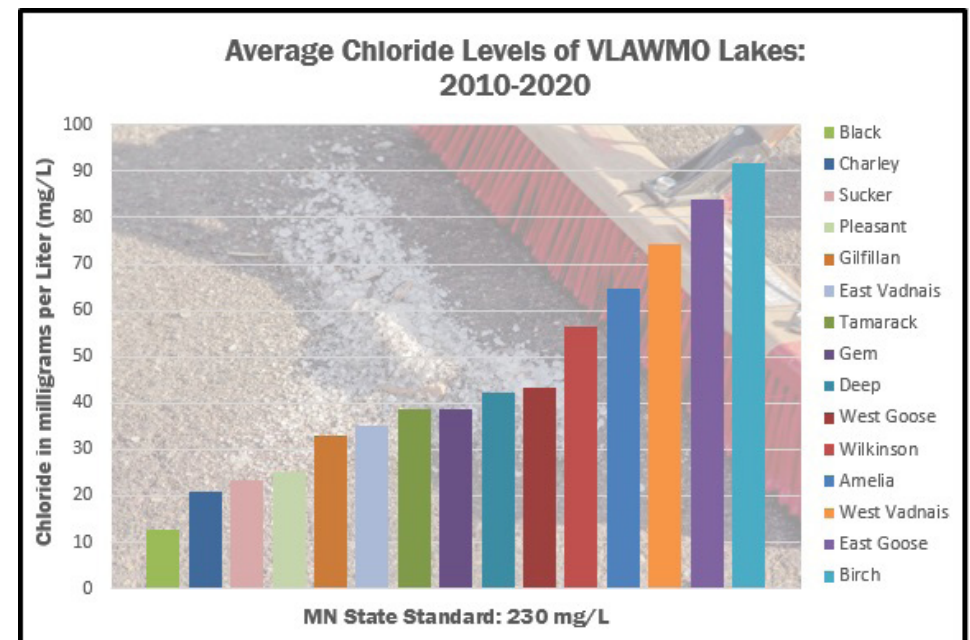
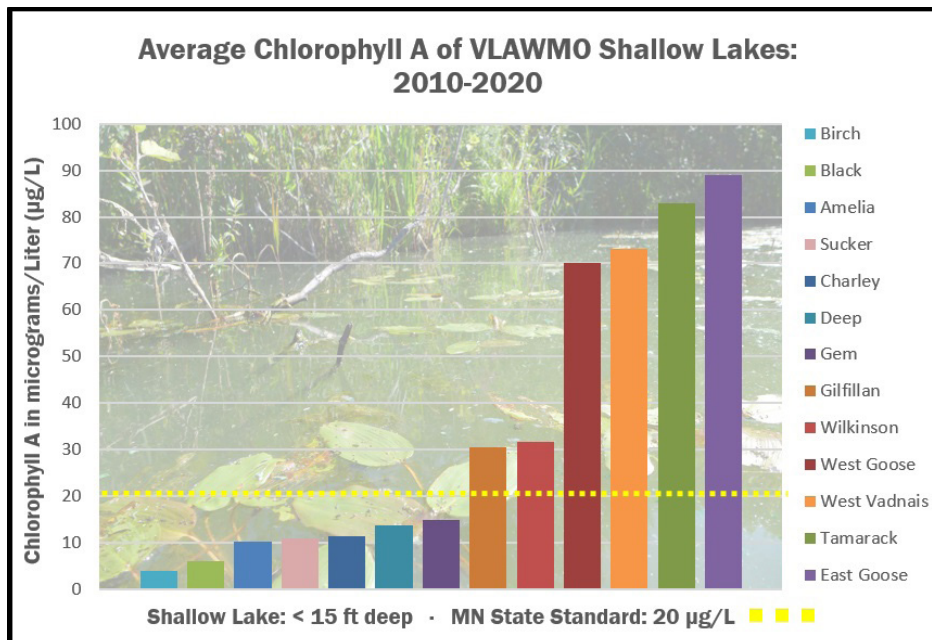
**Remote Monitoring Devices:** 2020 was the first full year of automated creek flow monitoring. Live information for the four sites monitored can be found at <http://monitormywatershed.org>.

**Lambert Creek:** Creek flow was significantly lower in 2020 than 2019 due to almost 10 inches less rain. Nutrient levels were similar to 2019.

**Birch Lake Storm Sampling:** 2020 was the first season of monitoring the effectiveness of the iron enhanced filter system on the corner of 4th Street and Otter Lake Rd. Initial results show filter is reducing phosphorus levels. Monitoring will continue in 2021.

**Chloride:** VLAWMO has been sampling lake chloride (salt) for 11 years. While slight rises are documented, there have been no significant 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 storm 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 2020 to aid in possible water quality projects in 2021. A Wilkinson Lake feasibility study was done to assess possible BMP locations to help reduce nutrient loading to Wilkinson Lake. Data was also used for both the MN State 319 Priority Small Watershed Grant and the BWSR Watershed Based Funding Grant.



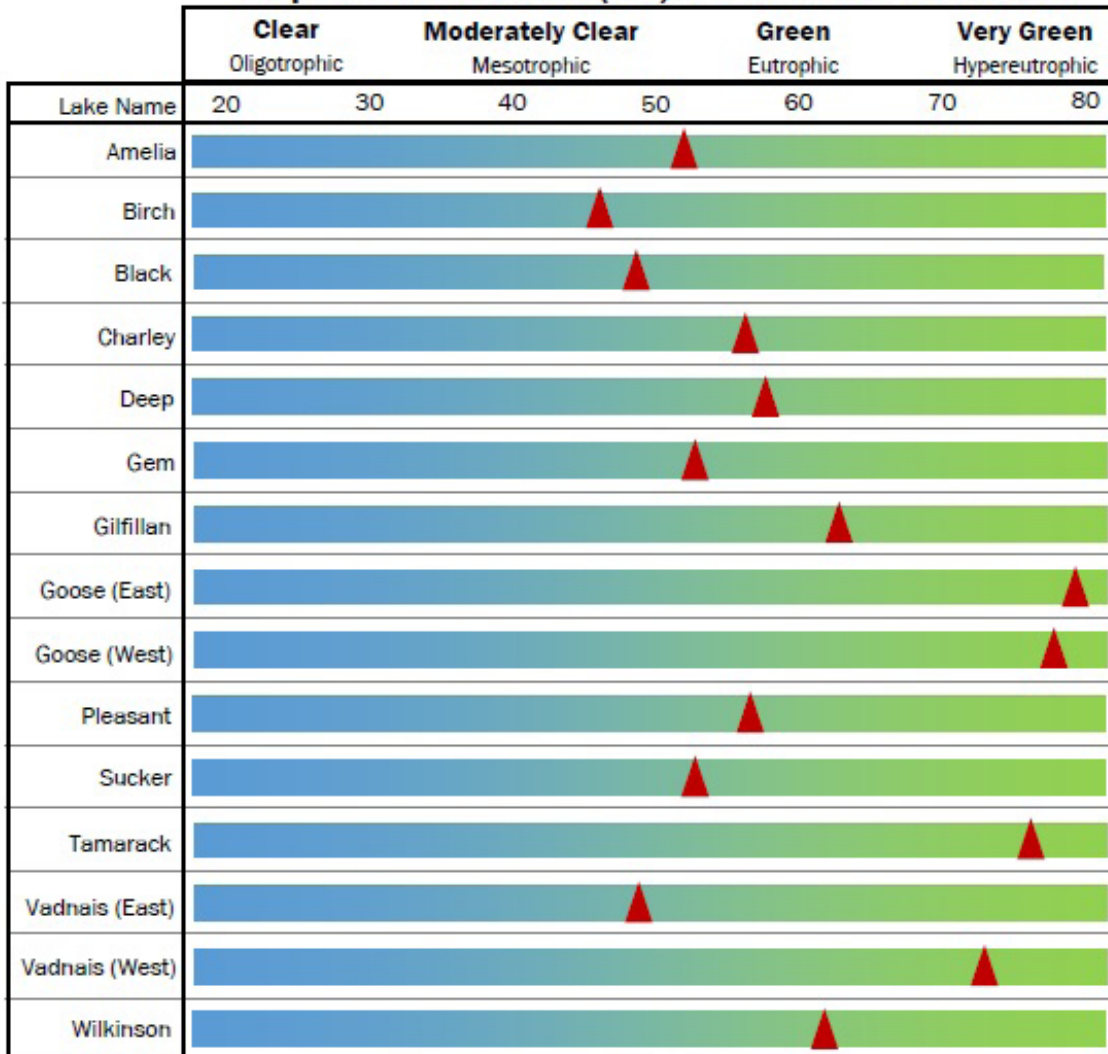
Find the complete 2020 Monitoring Report and a summary at [VLAWMO.org/resources/reports](http://VLAWMO.org/resources/reports)

## MONITORING SUMMARY: CONTINUED

### STATE OF THE LAKES

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

**Trophic State Indexes (TSI) of VLAWMO Lakes: 2020**



A new boat ramp installed at East Goose Lake. This ramp has no public access, and was installed with the City of White Bear Lake for monitoring purposes and future projects such as fish and vegetation surveys.



VLAWMO staff taking a monitoring sample at Gem Lake

## ADAPTIVE LAKE MANAGEMENT AT EAST GOOSE LAKE

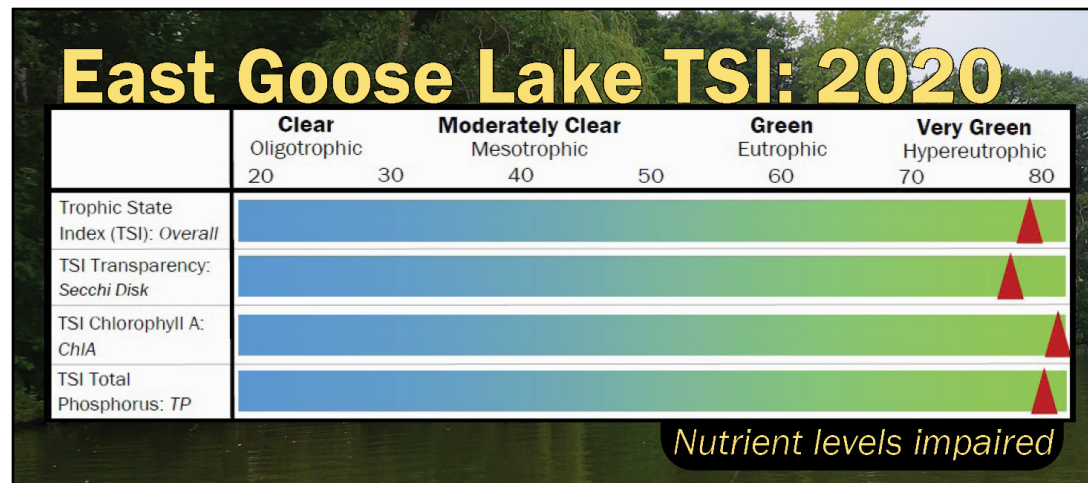
East Goose Lake is listed as impaired on the Minnesota State impaired waters list, and is therefore a high priority for both VLAWMO and the City of White Bear Lake to take steps to improve. Adaptive Lake Management (ALM) is a careful process of planning, analyzing, and setting goals together with project partners.

In 2020 VLAWMO and the City of White Bear Lake worked together to initiate a stakeholder outreach process, starting with the first priority of residents who live on East Goose Lake.

There are four general legs of the Adaptive Lake Management “stool”:  
Fish management, aquatic vegetation management, external (subwatershed) Best Management Practices (BMPs), and internal loading management.

The ALM process will utilize studies and lake data to determine which legs of the stool are needed and appropriate, will draw from stakeholder and partner input to assess needs and interests, and prioritize one or more management projects in concert with each other. Each project will include careful planning to determine how the projects are customized and carried out. An evaluation process will follow each project to determine the next steps.

Updates and opportunities for involvement will be conveyed at each stage of the process, available at:  
[VLAWMO.org/waterbodies/East-Goose-Lake](http://VLAWMO.org/waterbodies/East-Goose-Lake)



The East Goose Lake Trophic Status Index (TSI) is calculated annually based on water quality monitoring data, which runs May-September.

### Aquatic Vegetation Management



### Fish Management

### Internal Loading Management



### Subwatershed Best Management Practices (BMPs)

## CHARTING IT OUT:

Review of 2018 Goals, 2019 Projections

### IN THIS SECTION

- » 2018 Work Plan Review
- » 2019 Work Plan

## VLAWMO CORE ACTIVITIES



## WATER PLAN STRUCTURE



## 2020 WORK PLAN PROJECTION

VLAWMO continues to put the 2017-2026 comprehensive water plan into action. The water 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 water plan on our website under About > Why Water Matters for a more in-depth look at these plan components.

The tables for the previous year 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 water plan.

### ACRONYMS:

- WLA: Waste Load Allocation
- DNR: Department of Natural Resources
- MS4: Municipal Separate Storm Sewer System
- NEMO: Northland
- SWPPP: Storm Water Pollution Prevention Program
- STEM: Science, Technology, Engineering, Mathematics
- BMP's: Best Management Practices
- CIPs: Capital Improvement Project
- LGU: Local Governing 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
- BMP: Best Management Practice (pertaining to stormwater treatment)
- RFP: Request for Proposal
- TEC: Technical Commission



## CAPITAL IMPROVEMENT PROJECTS

## Review of 2020 Work Plan

Project Name	Description	Goal: Going into 2020	Goal: 2020 Result
<b>East Goose Lake Adaptive Lake Management</b>	The East Goose Lake Adaptive Lake Management effort is a partnership between VLAWMO and the City of White Bear Lake. The process is an adaptable planning effort that seeks to balance the needs of the lake, local stakeholders, and City and VLAWMO responsibilities in improving local water quality.	Construction of Co Rd F raingardens with City and Ramsey County	Complete
		Complete limited access boat launch	Complete
		Begin East Goose Lake ALM public engagement process	Complete
<b>Oak Knoll Pond Spent Lime Study</b>	Partner with Barr Engineering for spent lime treatment and monitoring on Oak Knoll Pond (tributary to Goose Lake). VLAWMO staff will assist in monitoring efforts, supported by homeowner and City coordination.	Complete study	Study and project delayed until Spring, 2021 Anticipated completion Fall, 2021
<b>Birch Lake: 4th &amp; Otter Lake Road Project Development</b>	VLAWMO will work with a consultant to assess the options for BMPs at the 4th and Otter Lake Rd site. Conceptual designs of best possible projects will be completed and VLAWMO will work with its partners Ramsey County and the City of White Bear Lake (WBL) to finalize design and secure funding for 2019 installation.	Complete installation Invasive species removal and vegetation restoration near filter to optimize function	Installation, operations and maintenance complete Vegetation management complete with City of WBL
<b>Lambert Lake Pond and Meander</b>	Replace sheet pile at Lambert Lake, meander a portion of ditch, add bio char treatment cells for bacteria and nutrient removal. Partnership with SEH, City of Vadnais Heights, University of Minnesota, and various contractors.	Grant signed, designs, construction, and lab study	Grant signed, EAW complete, permitting in place, bid process complete, construction contract signed, and erosion control/prep for construction underway at the end of the year
<b>Pleasant Lake Carp Removal</b>	Partnership with Carp Solutions to PIT tag, track, and remove carp.	Begin invasive carp removal in Pleasant Lake	Second year movement study completed. Removal on hold due to COVID with prep work underway for 2021

## Review of 2020 Work Plan

### GRANT PROGRAMS

CORE ACTIVITY #

	Project Name	Description	Goal: Going into 2020	Goal: 2020 Result
3.4	<b>Landscape Level 1</b>	Establish relationships and provide grants to property owners within the watershed to install water quality enhancement projects.	Install 2 target priority zone funding projects, award 75% of LL1 funds. Identify and confirm 4 cost-share spotlights	2 TPZ grants awarded, 1 installed. 100% of LL1 funds awarded. 3 spotlights conducted.
3.4	<b>Landscape Level 2</b>	Landscape Level 2 assists landowners with implementing larger BMP projects within the watershed. Preference for projects that have high visibility, educational value and/or local citizen support.	Fund 2 LL2 projects and achieve .5 lbs of annual TP phosphorus removal with project implementation	4 LL2 grants awarded. 4.48 lbs combined TP removal.
3.3	<b>Community Blue Grant</b>	A communication and outreach grant program for projects that relate to water quality.	Use 75% of allocated funds. Complete 2 grants over \$100 Complete 2 mini-grants under \$100	Exceeded 75% of funds Complete 1 mini grant complete



### PUBLIC EDUCATION AND OUTREACH

CORE ACTIVITY #

	Project Name	Description	Goal: Going into 2020	Goal: 2020 result
3.3	<b>Watershed Action Volunteers (WAV)</b>	The WAV consists of Minnesota Water Stewards (Freshwater partnership), Citizen Advisory Commission (CAC), and VLAWMO-specific volunteers with individual volunteer job descriptions.	Assist 1 MN Water Steward in capstone project Fulfill 50 hour volunteer requirement in MWS program for 2 MN Water Stewards Host 3 student service learners Host 2 successful volunteers with job descriptions	1 MWS capstone complete 3 MN Water Steward service hours complete 1 student service learner hosted 2 volunteers hosted with job descriptions
3.3	<b>Workshops</b>	Workshops educate residents on watershed processes, raingarden and native plant function, and installation. They also introduce VLAWMO's cost-share program to participants and encourage them to apply.	Host 3 workshops independently, 3 workshops in partnership	2 workshops independently, 3 in partnership



## PUBLIC EDUCATION AND OUTREACH

## Review of 2020 Work Plan

### CORE ACTIVITY #

	Project Name	Description	Goal: Going into 2020	Goal: 2020 Result
3.3	<b>Community Events</b>	Staff a VLAWMO booth at various community events. Develop information and engagement components for community events. A rainbarrel giveaway contest is used to attract event goers, and number of entries signify how many people stopped by the VLAWMO booth. Prizes such as tote bags, boating kits, and craft soda will be provided for free to guests who engage the booth.	Attend 6 community events with a booth Conduct 2 watershed education tours Conduct 3 nature-based education activities	Events canceled: COVID-19 1 DIY/remote tour Education activities canceled: COVID-19
3.3	<b>Communications</b>	Create and update material and publications for social media, website, seasonal E news, and local publications. Make all sections of the website active. Create and maintain communications to promote public awareness for responsible use of our water resources.	Complete updated lake fact sheets Maintain social media and email communications Maintain specific project web pages for Lambert Lake and Goose Lake regular updates	Lake fact sheets updated Social media/email maintained Lambert and Goose web pages maintained
3.3	<b>K-12</b>	Develop youth involvement opportunities and programs that relate to VLAWMO's goals and activities: Macroinvertebrates field days, STEM lessons.  Assist schools in establishing and maintaining stormwater best management practices (BMP's).	Complete two volunteer raingarden maintenance events at each school.  Interact with each school in the watershed once each year through either an in-person class visit or providing tools, maps, or resources to a class	One volunteer raingarden maintenance complete Jr Watershed Explorer book as a resource to each school
3.3	<b>Citizen Science</b>	Picture posts will be a new initiative for VLAWMO to explore phenology (ice-out, algae blooms) and AIS monitoring, with support from volunteers. Citizens assist lake monitoring each year through the Citizen Lake Monitoring Program (CLMP).	4 picture posts maintained. Three sites monitored for aquatic macroinvertebrates (Leaf Pack program). Citizens assist lake monitoring each year through the Citizen Lake Monitoring Program (CLMP)	4 posts maintained, 1 installed  6 sites monitored  3 lakes collected by volunteers for monitoring season

## Review of 2020 Work Plan

### MONITORING PROGRAM

SUB - WATERSHED

3.3	Project Name	Description	Goals: Going into 2020	Goals: 2020 Result
Lambert Creek	<b>Lambert Creek monitoring program</b>	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.	Document and evaluate the general health of the creek	Monitoring complete, no change in creek health
Lambert Creek	<b>Lake Level Program</b>	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
Multiple	<b>Stormwater Monitoring</b>	Automated and manual sampling at the iron-enhanced sand filter at Birch Lake.	Document effectiveness of iron-enhanced sand filter	Data complete
Multiple	<b>Lake Monitoring Program</b>	Monitor chemistry of 15 of VLAWMO's lakes through nutrient and sediment sampling, along with pH, conductivity, and dissolved oxygen (DO) measurements. Continue integration of automated sampling.	Keep water quality record of watershed's lakes Utilize water quality data for future projects and CIPs	4th season of stormwater monitoring completed at Birch Lake
Multiple	<b>Chloride Measurements</b>	Sample lakes and Lambert Creek. Partner with Birch Lake Improvement District (BLID) for summer monitoring of Birch Lake.	Check monthly measurement	Complete





## MONITORING PROGRAM

Project Name	Description	Goals: Going into 2020	Goals: 2020 Result
<b>Biological Monitoring</b>	<p>Volunteer-based macroinvertebrate Leaf Pack monitoring in Lambert Creek, Lambert Lake, and Deep and Charley Lake channels.</p> <p>Remote camera monitoring, otter telemetry project, frog and toad call surveys for baseline information on wetland health and function, long-term implementation initiatives.</p>	<p>Complete 5 Leaf Pack monitoring sessions on Lambert Creek/Lake</p> <p>Begin monitoring Deep and Charley channels</p> <p>Complete remote camera monitoring, telemetry, and frog and toad surveys</p>	<p>5 Leaf Packs complete, Deep and Charley channels initiated</p> <p>Lambert Lake remote cameras ongoing and continuous monitoring in place from July, 2020 - present, early 2021. Otter live trapping completed. Telemetry was not successful. An on line otter spotter map with reporting from residents now available, frog and toad surveys completed</p>



## ADMINISTRATION & REGULATION

Project Name	Description	Goals: Going into 2020	Goals: 2020 Results
<b>Budget &amp; Stormwater Utility</b>	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
<b>Wetland Conservation Act (WCA)</b>	Complete boundary and type & other determinations in consultation with the TEP. Respond to WCA questions.	Continued administration of WCA	Complete



## SUSTAINABLE LAKE MANAGEMENT PLANS (SLMP) AND STUDIES

Project Name	Description	Goals: Going into 2020	Goals: 2020 Results
<b>Pleasant Lake Feasibility</b>	A feasibility study to analyze sediment accumulation and possible removal in the west bay of Pleasant Lake	Complete study	Study complete Newspaper article published
<b>Wilkinson Lake Feasibility</b>	Partner with Ramsey County, the North Oaks Company, and SEH to identify improvement projects in the Wilkinson subwatershed.	Complete study	Complete
<b>West Vadnais, East Vadnais, and Sucker Lake SLMPs</b>	Surveys and research to be completed to support sustainable lake management plans.	Complete plans	Complete Integrated into 2021 restoration grant

 CAPITAL IMPROVEMENT AND MAINTENANCE PROJECTS

SUB-WATERSHED

Project Name	Description	Goals	Timeline
<p>Goose Lake</p> <p><b>East Goose Lake Adaptive Lake Management (ALM)</b></p>	<p>Continuing work on the East Goose Lake ALM public engagement process including completion of community survey and presentation to the City Council and VLAWMO Board.</p>	<p>Residential and business survey Engagement report Determine next steps in proposed Lake management according to report findings</p>	<p>Ongoing</p>
<p><b>Ditch Maintenance</b></p>	<p>Maintenance of the main stem of County Ditch 14 according to MN Public Drainage Permit 103D and the 2018 Hydrologic &amp; Hydrology study contracted by VLAWMO with Houston Engineering Inc. (available at vlawmo.org/waterbodies/lambert-creek).</p>	<p>Initiate planning with the City of Vadnais Heights for possible maintenance work downstream of Lambert Lake. Begin design and permitting, determine work and/or funding for site access.</p>	<p>Ongoing</p>
<p><b>Pleasant Lake Carp Removal</b></p>	<p>Working with Carp Solutions and NOHOA, this project will establish carp biomass in Pleasant Lake and determine movement patterns/ identify spawning and nursery areas so effective control can be conducted. Removals will be conducted and surveys continued to document results and water-quality improvements.</p>	<p>Carp removal Monitoring and biomass results</p>	<p>Ongoing</p>
<p><b>West Vadnais Lake Carp Removal</b></p>	<p>Working with Carp Solutions and Ramsey Washington Metro Watershed District (RWMWD), VLAWMO seeks to control carp biomass in West Vadnais Lake and prevent movement from West Vadnais Lake into the Phalen Chain, which has been a focus of management efforts for RWMWD and reductions in carp biomass have been achieved. Initial surveys and biomass estimates were conducted by RWMWD. VLAWMO is partnering on removals and barriers.</p>	<p>Reduce biomass of carp in West Vadnais Lake Prevent movement from West Vadnais Lake into the Phalen Chain.</p>	<p>Ongoing</p>

## CAPITAL IMPROVEMENT AND MAINTENANCE PROJECTS

2021 Work Plan

SUB-WATERSHED

	Project Name	Description	Goals	Time line
Lambert Creek	<b>Lambert Lake Pond and Meander</b>	Replace sheet pile at Lambert Lake, meander a portion of ditch, add bio char treatment cells for bacteria and nutrient removal. Partnership with SEH, City of Vadnais Heights, and various contractors, University of Minnesota. Grant provided by the MPCA.	Replace sheet pile and build meander. Incorporate bio char treatment and conduct monitoring to document bacteria reductions.	Construction winters '20-'21. Vegetation restoration '21-'22 Bio char monitoring '21-'23
Pleasant Lake	<b>Vadnais/Sucker Park Restoration</b>	45 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/SWCD, 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.	Landowner Contracts and site visits Prep and planning for buckthorn removal First phase of buckthorn removal	Spring, 2021 Summer, 2021 Fall, 2021

## GRANT PROGRAMS

CORE ACTIVITY #

	Project Name	Description	Goals	Time line
3.4	<b>Landscape Level 1</b>	Establish relationships and provide grants to property owners within the watershed to install water quality enhancement projects.	Fund and install 2 LL1 infiltration projects with a combined annual phosphorus reduction of 1 lb.	Ongoing
3.4	<b>Landscape Level 2</b>	Landscape Level 2 Cost-share Program is aimed at assisting landowners with implementing larger BMP projects within the watershed. Preference for projects that have high visibility, educational value and/or local citizen support.	Fund 4 LL2 projects and achieve 2 lbs of annual phosphorus removal with project implementation.	Ongoing
3.3	<b>Soil Health Grant</b>	Small projects focused on habitat and shoreline restoration, utilizing native vegetation to promote soil and watershed health.	Fund 4 SHG projects and achieve 10,000 ft <sup>2</sup> of restored area with project implementations.	Ongoing
3.3	<b>Community Blue Grant</b>	A communication and outreach grant program for projects that relate to water quality. Available to MN Water Stewards, volunteers, and community partners.	Support 2 MN Water Stewards capstone projects with grants and 1 community or volunteer grant.	Ongoing



## PUBLIC EDUCATION AND OUTREACH

## 2021 Work Plan

CORE ACTIVITY #

3.3

Project Name	Description	Goals	Time line
<b>Watershed Action Volunteers (WAV)</b>	The WAV consists of Minnesota Water Stewards (Freshwater), Citizen Advisory Commission (CAC), and volunteers with individual job descriptions. Service Learning Partnership with the U of M, citizen science initiatives.	Complete 2 MN Water Stewards capstone projects Hold spring and fall WAV/CAC meetings Facilitate 10 service learning and citizen science efforts	Ongoing
<b>Workshops</b>	Educate residents on watershed processes, raingarden and native plant function, and project installation. Education and familiarity on VLAWMO's cost-share grant programs.	Host 2 workshops independently, 2 workshops in partnership	Spring-Fall
<b>Community Events</b>	Staff a VLAWMO booth at various community events. Develop information and engagement components for community events. A rainbarrel giveaway contest is used to attract event goers, and number of entries signify how many people stopped by the VLAWMO booth. Prizes such as tote bags, boating kits, and craft soda will be provided for free to guests who engage the booth.	Conduct 2 watershed education tours either in-person or remotely	Spring-Summer
<b>Communications</b>	Create and update material and publications for social media, website, seasonal E news, and local publications. Make all sections of the website active. Create and maintain communications to promote public awareness for responsible use of our water resources.	Facilitate East Goose Lake stakeholder engagement, summarize to Board.	Winter-Summer
<b>K-12</b>	Develop youth involvement opportunities and programs that improve/benefit VLAWMO's goals and activities. Reach multiple age demographics through school involvement. Assist schools in establishing and maintaining stormwater best management practices (BMP's).	Complete two volunteer raingarden maintenance events at each school	Ongoing



## MONITORING PROGRAM

## 2021 Work Plan

Project Name	Description	Goals	Time line
<b>Lambert Creek monitoring program</b>	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 the general health of the creek.	Monitoring May-Sept
<b>Lake Level Program</b>	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
<b>Stormwater Monitoring</b>	Automated and manual sampling at the Birch Lake Iron-enhanced Sand Filter.	Monitor Effectiveness	May-Sept
<b>Biological monitoring</b>	<p>Volunteer-based Leaf Pack macroinvertebrate monitoring in Lambert Creek, Lambert Lake, and Deep and Charley Lake channels.</p> <p>Wildlife monitoring (remote cameras, etc.) to build baseline on wetland health and function, build comparison into long-term implementation initiatives.</p> <p>Watershed-wide frog and toad monitoring and wildlife remote-camera surveys provide presence/absence information for native species. River otter identified as a species indicating health of wetlands and water quality. Otter monitoring to occur at key sites and especially habitat-improvement projects.</p>	<p>Surveys completed</p> <p>Watershed-wide analysis of wildlife monitoring conducted, results presented in StoryMaps</p>	Ongoing

## 2021 Work Plan

### # ADMINISTRATION & REGULATION

CORE ACTIVITY

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

### # STUDIES AND PLANS

Project Name	Description	Goals	Time line
<b>Amelia Lake SLMP Surveys</b>	Amelia is the focus of our SLMP work as specified in the Plan. Surveys will include bathymetry and aquatic macrophytes with an additional delineation for invasive flowering rush in 2021.	Complete surveys Make delineation available Consider initial treatment	Spring-Summer, 2021
<b>Wilkinson 319</b>	Wilkinson is the focus of an upcoming round of small watershed priority funding with the MPCA. A Nine Key Element (NKE) Plan. The Nine Key Element plan must be approved before the first round of project applications can be submitted (spring 2021).	Complete NKE Plan Approval by EPA, submit first round of projects for funding	Spring-Summer, 2021
<b>Ash Street Spent Lime Study</b>	Partner with Barr Engineering for a spent lime study treatment and monitoring on Ash St Pond. Striving for phosphorus (TP) reductions in water quality based on stormwater samples.	Complete treatment with Barr Take stormwater samples documenting a 25% TP reduction	Treatment Spring 2021 Complete sampling pending timing of treatment

## 2020 Trail Cam Footage



Wildlife captured by remote camera in VLAWMO wetlands.

**LOGISTICS:**

Financial statement and budget

**IN THIS SECTION**

- » Finance and Budget
- » WCA Summary
- » Water Standards
- » Local Plan Adoption
- » Biennial Solicitations

**Wetland Conservation Act (WCA)**

VLAWMO administers the Wetland Conservation Act with review. There were 35 landowner contacts in which wetland related technical assistance was provided during 2020. There were 10 potential WCA violation sites investigated, 9 of 10 were resolved.

**WCA SUMMARY**

Type of Application	Approved	Denied	Withdrawn
<b>Boundary and Type</b>	8	0	0
<b>No-Loss</b>	4	0	0
<b>Exemption</b>	1	0	0
<b>Sequencing</b>	2	0	0
<b>Replacement Plan</b>	2	0	0

**Local Plan Adoption**

Adoption of Local 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	2018
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.



## 2020 Partners

### Municipal Partners:

- » City of Gem Lake
- » City of Lino Lakes
- » City of North Oaks
- » City of Vadnais Heights
- » City of White Bear Lake
- » White Bear Township

### Other partners:

- » Ramsey County Soil and Water Conservation Division
- » Minnesota Pollution Control Agency (MPCA)
- » Metro Watershed Partners
- » Ramsey County GIS User Group
- » North Oaks Home Owners Association, Natural Resource Commission
- » Ramsey Washington Metro Watershed District
- » Carp Solutions
- » Birch Lake Improvement District (BLID)
- » The North Oaks Company
- » Vadnais Heights Economic Development Corp.
- » Tamarack Nature Center
- » UMN Community-engaged Learning Program
- » Conservation Minnesota
- » MN Native Landscapes: Sucker Channel
- » White Bear Lake School District 624
- » White Bear Preserve Town homes

## Special Thanks

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:

- » Ramsey Soil and Water Conservation Division (RCSWCD): Justin Townsend for a special partnership in Aquatic Invasive Species (AIS) training and terrestrial invasive species detection and elimination. Vegetation and Bathymetry surveys completed in 2020, and financial support for Wilkinson Feasibility Study.
- » Ramsey Washington Metro Watershed District: Partnership in managing and improving West Vadnais Lake.
- » SEH: Emily Jennings for collaborations in project documentation, Pleasant Lake sediment and internal loading study.
- » Minnesota Zoo: Gina Goralski and Megan Earnest.
- » Tracy Lawler: Tracy of Natural Shores, Inc for presenting an on line native plant workshop in 2020.
- » Conservation Minnesota, Rice Creek Watershed District, and Anoka Conservation District: Keely Cervantes, Emily Johnson, Lauren Sampedro, and Marcus Green for partnering with VLAWMO on a water quality on line workshop in October, 2020.
- » UMN Veterinary Diagnostic Clinic: Tiffany Wolf, Rachel Thompson, Marissa Milsein for assisting with the otter project.
- » Birch Lake Improvement District (BLID): Dale Bacon for a plant donation to the 4th and Otter woodland restoration, continued support and communications on behalf of BLID.
- » Andy and Karen Shoemaker: Live Trapping Otters for Otter tracking and monitoring study.
- » Tamarack Nature Center: Melanie Harding, Stacey Sigurdson, and Noelle Roden for partnering with VLAWMO on a new picture post at Teal Pond in the Nature Center.
- » Ceci Shapland: For taking a leadership role in creating the Junior Watershed Explorer Workbook.
- » Girl Scout Troop 56087 for supporting education and outreach about the harmful impacts of lead on wildlife.

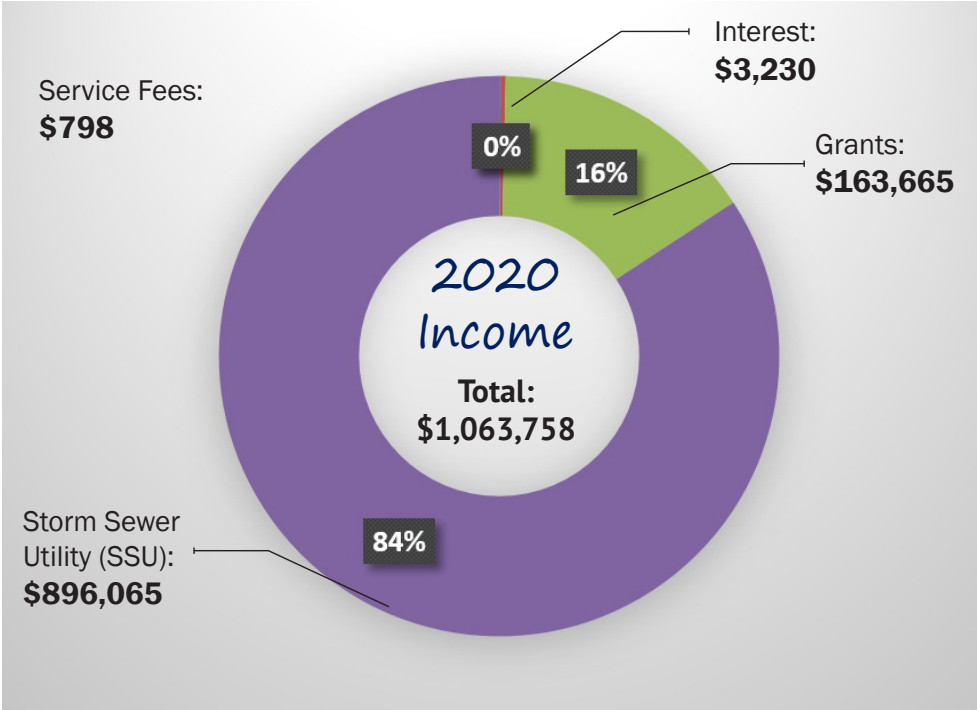


VLAWMO and RCSWCD staff conducting an aquatic macrophyte survey on East Vadnais Lake. 33

## Finance and Budget

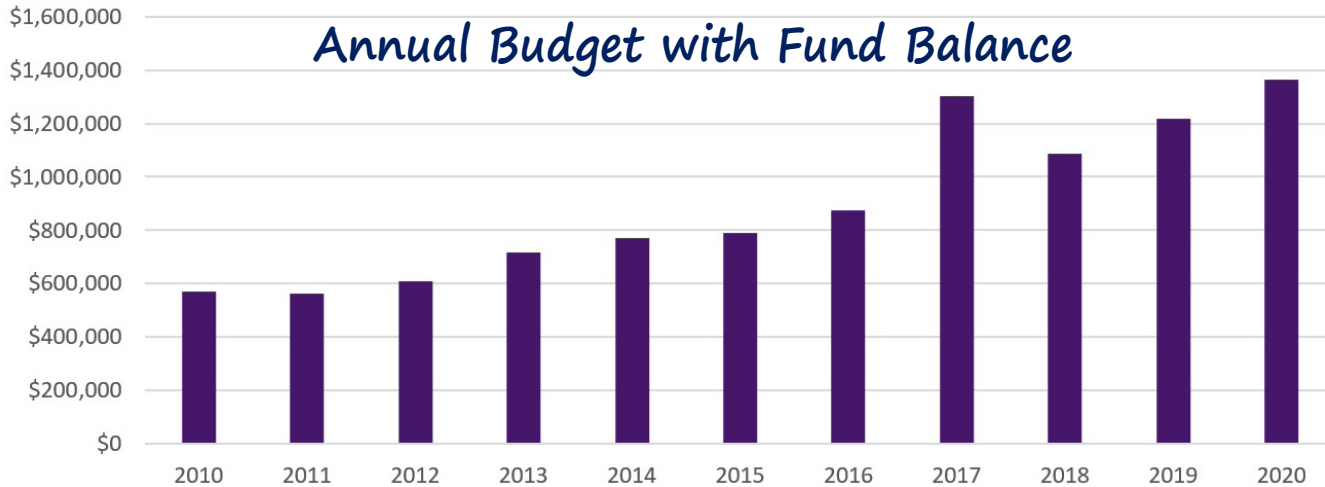
The 2020 budget was established by the Board of Directors in June with designated project and program funds carried over in December 2019. The Finance and Policy Subcommittee reviewed and made recommendations on the 2020 budget to the Board in June 2019. The Board added additional funds to address two main capital improvement project priorities: 1) Engineering and design work leading to 2021 construction of the Lambert Creek Meander and Pond Sheet Pile Maintenance Project and 2) Construction of the Birch Lake Iron Enhanced Sand Filter located at 4th Street and Otter Lake Road. Both of these projects are focused on Birch Lake and Lambert Creek. The other programmatic focus in 2020 was partnering with the City of White Bear Lake to transition to an adaptive lake management (ALM) approach for East Goose Lake. ALM plans for possible future Lake management. This partnership for East Goose Lake also included collaboration on construction of the County Road F Raingardens.

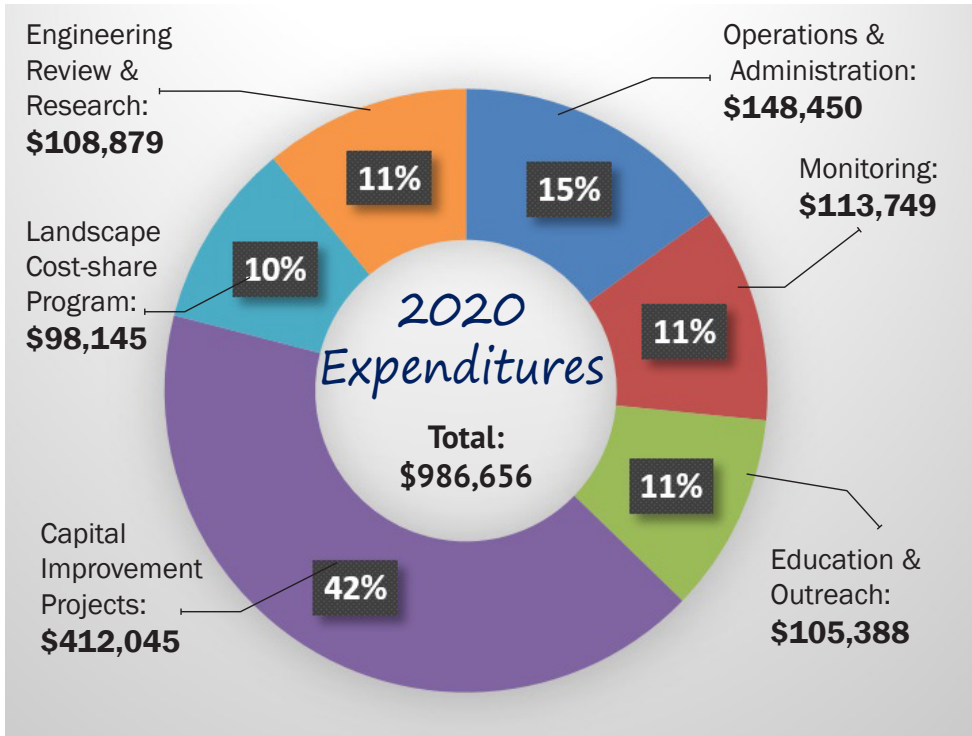
<b>Approved budget for 2020:</b> <b>\$909,000</b>
<b>Actual income from 2020:</b> <b>\$1,063,758</b>
<b>Money spent in 2020:</b> <b>\$986,656</b>



### GRANTS AND PARTNERSHIPS

Grant funds received in 2020 totaled \$163,665. The MPCA 319 grant supported the final engineering, permitting and bidding of the Lambert Creek Meander Project. Clean Water Legacy funding supported construction of the Birch Lake hot-spot remediation project and BWSR Watershed Based Funding supported a portion of the construction cost for a series of curb cut rain gardens on County Road F in partnership with Ramsey County and the City of White Bear Lake. Ramsey County partnered with grant dollars in development of a BMP feasibility study with the Wilkinson Subwatershed. Much of the 319 funds for Lambert subwatershed have been carried over as the projects continue into 2021. 2020 also marked a new partnership based adaptive lake management initiative between VLAWMO and the City of WBL for proposed management of E Goose Lake.





## 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 that is in line with its land use classification. \$ 896,065 in SSU was certified to Ramsey and Anoka Counties in 2020 for 11, 518 parcels. The average single family homeowner paid \$50.40 per year to support all of the projects and programs conducted by the watershed. That's about \$4.20 per month. The 7.69% increase in storm sewer utility fees allowed VLAWMO's budget to sustainably support the key priority programs and projects of the Water Plan. Ongoing projects resulted in some funding being carried over from 2019 to 2020 particularly to continue with design and implementation of the Lambert Creek Meander and Pond Sheet Pile Maintenance Project and the Birch Lake Iron Enhanced Sand Filter Project. Some grant income was utilized to cover expenses from the Lambert Creek Meander Project (MPCA 319 grant), the construction of the Birch Lake Iron Enhanced Sand Filter Project (BWSR Clean Water Legacy funds), and the construction of raingardens on County road F (BWSR Watershed Based funding).

## EXPENSES

Total cash expenses for 2020 were \$986,656, which was less than budgeted by \$375,861. Work in the Lambert Creek, Goose Lake and Wilkinson/Gilfillan/Black/Tamarack Subwatersheds will be carried over into 2021 with engineering and or planning funds expended in 2020 to prepare for implementation activities in these subwatershed areas.

## CAPITAL IMPROVEMENT PROJECTS

The major CIP construction project in 2020 was the 4th and Otter IESF Project. The VLAWMO partnered with the City of Vadnais Heights to maintain a portion of Ramsey Ditch 14 downstream of Oak Crest Drive. This was maintenance brought this portion of the Ditch to the 2018 approved as-constructed profile elevation.

Other work in 2020 prepared for an active project implementation year in 2021. This included final design and bidding for the Lambert Creek Meander and Sheet Pile Maintenance Project.


There were significant cost-share projects installed in 2020 including the above mentioned County Road F Raingarden partnership projects. The overall reduction from all cost-share projects in 2020 resulted in 4.95 lbs. total phosphorus (TP) reduction and 2,750 lbs. total suspended solids (TSS) reduction.



Buckthorn removal at Vadnais Heights City Hall

**WHO WE ARE:**

The people who make VLAWMO

 **IN THIS SECTION**

- » Staff
- » Consultants
- » Partnerships
- » Board of Directors
- » Technical Commission (TEC)

**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 six cities 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 cities. The Technical Commission meets to review and consider watershed business as well as make recommendations to the Board for wider scope decisions.

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**Commissioners can be reached  
by contacting VLAWMO**

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Gem Lake

**Jesse Farrel, Vice Chair**

Vadnais Heights

**Bob Larson, Treasurer**

North Oaks

**Terry Huntrods**

White Bear Lake

**Paul Duxbury**

White Bear Township

**Andy Nelson**

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