

2015 YEAR IN REVIEW



MINNEHAHA CREEK
WATERSHED DISTRICT

Pictured: Minnehaha Creek near the Burwell House in Minnetonka, first place winner in the scenery category of the Earth Day Photo Contest (photo by Aldo Abelleira)

BUDGET

	2014	2015	Change
Levy	\$7,897,094	\$ 8,291,310	4.99%
Budget	\$13,019,231	\$ 14,206,850	9.12%

2015 BUDGET ALLOCATIONS

AIS Management and Control	\$831,900	Hydrodata	\$560,453
Capital Projects	\$4,255,025	Information Technology	\$174,000
Communications	\$168,600	Land Conservation & Restoration	\$2,961,423
Education	\$193,500	Maintenance	\$466,000
General Operations	\$2,628,526	Permitting	\$265,000
Government Relations	\$37,000	Planning	\$591,000
Grants	\$1,074,423		

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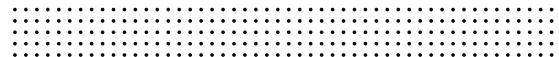
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The Minnehaha Creek Watershed District (MCWD) is responsible for 181 square miles that drain into the Minnehaha Creek and ultimately the Mississippi River. There are eight major creeks, 129 lakes, and thousands of wetlands within the MCWD. The MCWD includes all or part of 27 cities and two townships in Hennepin and Carver counties.

FROM THE ADMINISTRATOR



It has already been about a year since I was named administrator of the MCWD. It has been an honor and a privilege to join the dedicated Board of Managers and staff in their important work, and we are very proud to highlight a few of our many efforts in 2015.

I have learned much in my first year, and as a learning organization, we continue to explore responsive approaches to our priorities and our daily business to provide a wide range of community benefits. As you read through this report, you will likely notice the high priority placed on partnership. In fact, it is the cornerstone of the District's new mission statement that was recently adopted by the MCWD Board of Managers:



We collaborate with public and private partners to protect and improve land and water for current and future generations.

Whether referred to as cooperation, collaboration, integration or teamwork, it's all about understanding others' goals and priorities, and with that in mind, adding value to protect and improve water resources and create benefits for others in the process. Although perhaps not always the shortest process, we work hard to understand and align with the priorities of partners to achieve greater benefits than just enforcing regulations or working on land and water resource efforts in isolation.

It might sound like common sense, but truly connecting with public and private partners does not happen automatically. It is critically important to acknowledge that land use decisions are inextricably linked with sustainable water use and planning. As administrator, I work closely with our staff and Board of Managers to support this approach in order to achieve greater outcomes, to ensure that we are responsive and accountable to our communities and to be careful stewards of public funds.

As we enter our 50th year as a watershed district, we continue to work hard every day to understand the needs of our partners and to look for ways that our goals and priorities intersect to add value and create win-win community benefits. Focusing on partnerships will be a cornerstone of our 10-year Comprehensive Plan, our work in the focus areas of Minnehaha Creek and Six Mile Creek, our commitment to excellent customer service in our permitting work, and the many other facets of our work throughout the watershed.

Throughout 2016, I look forward to seeing this spirit of teamwork, innovation and service grow and develop and continuing to learn about ways we can make significant lasting improvements to the health of our waters and vitality of our communities. If this all seems a little vague or high-minded, the case studies and examples in this report will more clearly demonstrate the path forward.

- Lars Erdahl

January 2016

COMPREHENSIVE PLAN

We are in the process of developing our next 10-year comprehensive plan, set to be adopted in 2017. The document guides the District's activities and approach to its work.

Committees of local leaders, professionals and interested residents are already meeting and helping us determine where we should focus our efforts and how we can better integrate our work with others. We'll be releasing more detailed information about the plan in the coming months.

Learn more, get involved, and stay up to date at minnehahacreek.org/2017.

PROJECTS AND PLANNING

MINNEHAHA CREEK GREENWAY TAKES SHAPE

The District's flagship project of the past decade or more reached some major milestones this year. The Minnehaha Creek Greenway is 50 acres of previously-inaccessible green space around a restored Minnehaha Creek in St. Louis Park and Hopkins. Several key Greenway projects wrapped up in 2015 and a few other major pieces got underway. Here are a few of the notable developments of this historic effort to restore Minnehaha Creek through its most degraded stretch and improve the communities, businesses and lives of people that surround it:



MINNEHAHA CREEK PRESERVE: The Preserve officially opened in St. Louis Park in July. The work returned a 3,000-foot-long section of the creek to a more natural shape and added more than a mile of trail system, creating access to 39 acres of previously inaccessible-green space. The Preserve manages polluted stormwater from 80 acres of surrounding area that previously flowed untreated into the creek.

COTTAGEVILLE PARK: The first phase of work to expand and improve Cottageville Park wrapped up in September. In partnership with the city of Hopkins, we added nearly 5 acres of parkland in a highly developed area. Other improvements keep 26 pounds of phosphorus (which equates to as much as 13,000 pounds of algae) and nearly three tons of eroded soil from entering the creek each year. It also improves wildlife habitat and provides areas to peacefully enjoy the creek.

JAPS-OLSON COMPANY: We partnered with Japs-Olson Company to manage stormwater for the company's expansion. In return Japs-Olson donated about four acres of its property near the creek. The land will be restored and used to connect the Minnehaha Creek Greenway trail system to Excelsior Boulevard.

MEADOWBROOK GOLF COURSE: The Minneapolis Park and Recreation Board is re-vamping Meadowbrook Golf Course in St. Louis Park after it was damaged by historic flooding in 2014. We are working in partnership to improve the creek as it travels through the golf course and decrease flood risks while also extending the Minnehaha Creek Greenway trail network through the course. The project includes more than 30 acres of restored native habitat.

Learn more at minnehahacreek.org/greenway.

FOCUS: SIX MILE CREEK SUBWATERSHED

One of the hallmarks of our new Comprehensive Plan is a “two track” approach: a “**focal**” track where we focus on an area for a number of years to make lasting, significant improvements; and a “**responsive**” track where we respond to opportunities across the watershed. Building on the success of our first official area of focus, the Minnehaha Creek Greenway, we are embarking on a new focused initiative in the Six Mile Marsh subwatershed. It’s an area west of Lake Minnetonka that includes portions of Laketown Township, Minnetrista, St. Bonifacius, and Victoria.

Our first step is to bring together public and private organizations in the area to learn about their goals, priorities, and planned investments. From there, we’ll identify where the priorities of others intersect with opportunities to improve and protect natural resources. Through these partnerships, we can work cost effectively while achieving goals that go beyond clean water. Keep up with the work at minnehahacreek.org/six-mile.



RESTORING THE LONG LAKE CREEK CORRIDOR

We partnered with the city of Long Lake and Metropolitan Council to restore a former wastewater treatment pond connected to Long Lake Creek. The work turned the pond into a healthy wetland with a meandering stream running through it.

The project provides wildlife habitat and restores the previously-ditched stream to its natural function. Long Lake Creek is a known carrier of excess sediment and nutrients into Lake Minnetonka, and the project is the first of several restoration projects planned along the stream.

WHAT MAKES A "HEALTHY" WATERSHED?

Each year we issue our Lake Grades, a compilation of the past season's monitoring data that grades lakes A through F. Though the District collects and releases much more information on water quality, it's the grades that tend to get the most attention, probably because they're easy to understand and remember.

While these grades may give a general sense of the health of a lake, they are far from telling the whole story. They only look at clarity and the content of phosphorus and algae, ignoring other indicators of a healthy ecosystem like diversity of habitat or aquatic life. Nor do the grades consider the interaction between lakes and other ecological features like the landscape or the streams that feed them. They also don't differentiate between deep



and shallow lakes, which function very differently.

Recognizing these shortcomings, our research and monitoring staff are developing a new, holistic way to understand the overall health of the watershed. The E-Grade Program will use a wide array of criteria to evaluate not only deep and shallow lakes, but the other natural resources throughout the watershed.

We're working with a variety of agencies and technical experts to develop the system, which will start rolling out in 2018. We plan to publish two papers in peer-reviewed scientific journals, demonstrating approval from the greater scientific community. Learn more at minnehahacreek.org/e-grade.

STRANGE FALL WEATHER MEANS HISTORIC YEAR FOR GRAY'S BAY DAM

On Dec. 21 we closed the steel gates of the Gray's Bay dam, sealing Minnehaha Creek from its headwaters of Lake Minnetonka. It was the latest the dam has ever needed to remain open since it was built in 1979.

It's not that it was such a rainy year in general -- in fact, the dam did not discharge water above the mild rate 20 cubic feet per second (CFS) until November. But heavy rains in the late fall caused the lake to rise well above its ideal level going into winter. Plus, when the lake is high, it means the six major streams that feed into it are probably high as well and these streams keep bringing water into the lake days after the rain has stopped. The cooler fall temperatures also mean less water is lost to evaporation than in the summer.

The dam is a key tool in keeping the lake and creek from becoming either too high or too low. Operating it is a complicated calculus -- you have to consider the level of both the lake and creek, recent and projected rainfall, time of year, and if the lake is on track to be at the right level going into the winter (to prevent flooding when the snow melts in the spring).



It's no surprise it took the communities around Lake Minnetonka and Minnehaha Creek nearly a decade to come up with an operating plan that takes all of that information into account. The District uses that model, approved by its communities and the Minnesota DNR, to operate the dam. Learn more at minnehahacreek.org/water-levels.

AQUATIC INVASIVE SPECIES (AIS)



WATERCRAFT INSPECTIONS

In 2015, District grants helped fund more than 20,000 hours of inspection staff at a dozen public boat launches across the watershed. Those inspections prevented 17 potential zebra mussel infestations at non-infested lakes, among other invasive species that were stopped.

BEEFING UP EARLY DETECTION

If a new invasive species can be found in a lake soon enough, and removed quickly, there is often a chance to prevent a full-blown infestation. That's the basis for our Early Detection program, which closely monitors lakes considered at risk of new infestation. In addition to staff monitoring, we recruited and trained 50 volunteers from across the watershed to regularly monitor their own lakes.

We also created an early detection guide that helps users identify different types of invasive species. The handbook has been used throughout the state and is available at minnehahacreek.org/early-detectors.



“THOSE INSPECTIONS PREVENTED 17 POTENTIAL ZEBRA MUSSEL INFESTATIONS AT NON-INFESTED LAKES”

LESSONS LEARNED AT CHRISTMAS LAKE

In October we concluded a yearlong response effort to contain and eliminate zebra mussels in Christmas Lake, the first response of its kind.

Though zebra mussels were unfortunately found outside of the treatment zone – likely because the treatment areas turned out not to be large enough – it yielded a number of successes and valuable lessons. Among them was that the products we used did appear to kill all the zebra mussels with little other effects on the lake, as no zebra mussels were found alive within the area treated.



STUDYING HYBRID MILFOIL

We usually think of aquatic plants as either native or invasive. Yet when it comes to watermilfoil (commonly referred to as just “milfoil”), it’s not so simple. There is the invasive Eurasian watermilfoil that has taken hold in lakes across the state, and there is the native Northern milfoil that belongs in our ecosystem. But there is also a hybrid between the two that is not well understood and isn’t as responsive to current techniques for keeping invasive milfoil at bay.

In a study funded by Hennepin County, we worked with the University of Minnesota and Montana State University to observe how hybrid milfoil is distributed in Lake Minnetonka and gauge the success of different ways of managing this aquatic plant.

"TWO ROADS DIVERGED IN A WOOD..."

- Robert Frost

In 2014, the Mader Family Trust approached our permitting staff about plans to sell a 77-acre parcel of land in Minnetrista. The Trust wanted to learn more about how the series of wetlands on the property would be regulated if a developer were to buy the land. What has happened since is a testament to the power of creative thinking, partnership, and understanding the goals of those you are working with.

To illustrate why we are excited about this project, both for the work itself and the model it created, let's consider two different paths -- two parallel universes, if you will -- that diverge from this first contact: one where the permitting process is handled in the traditional regulatory fashion; and the other, a teamwork approach that is unfolding today.

THE REGULATORY ROAD MORE TRAVELED

The Trust wanted to sell the land for a housing re-development. According to the city's standard zoning rules, the property was eligible to be divided into six residential lots. Under MCWD and state rules, the degraded wetlands would be protected but not improved.

(Side note: When work does impact wetlands, the developer is required to offset the impacts by restoring other wetlands. If not feasible on site, this is commonly achieved by using a "wetland bank" to buy credits from people who have restored wetlands elsewhere. More on that in a moment.)



THE PATH WE'RE ON

We facilitated a partnership with the Trust and city of Minnetrista to understand each other's goals. District staff brought its expertise in planning wetland restorations to the table and the city looked at how its rules could encourage an environmentally friendly approach. The Trust, keenly interested in preserving the natural heritage of the land, was flexible in looking for a way that balanced economic return and environmental benefit.

Out of that came a plan for the eventual developer to restore the health of the wetland and adjoining upland buffer -- a total of 42 acres. The restoration would qualify the property as a "cluster development" under the city of Minnetrista's zoning rules, allowing for an additional four properties, increasing the value for the developer and boosting potential tax base for the city. Lastly, as further economic incentive for the wetland restoration, the developer who restores the wetland is eligible to earn the wetland bank credits referenced earlier.



Mader children at their family farm

This creative take on permitting and development is anticipated to become the first wetland bank in the MCWD, reversing a trend that for many years led to net loss of wetlands across the District.

A recent article in the Minnesota Board of Soil and Water Resources newsletter highlighted this creative approach. James Wisker, MCWD Director of Projects and Planning, summed up the moral of our story: "As we have learned time and again, it pays off to think beyond business as usual. By working with landowners, cities and others in a proactive and collaborative manner, the District is able to obtain higher community and natural resource benefits than what could be achieved with a standard, reactive approach."

GRANTS

RECORD YEAR FOR GRANT PROGRAMS

Thanks to an increasing interest in clean-water projects, the District's two primary grant programs both received a record number of applications in 2015. The Cynthia Krieg Watershed Stewardship program helps fund innovative ways to encourage stewardship across the watershed. Projects funded this year include workshops on re-using stormwater, educational urban canoe adventures, and resources for maintaining clean-water landscaping.

The Cost Share grant program funds clean-water landscaping like raingardens or restored shorelines. Learn more about the grant funds at minnehahacreek.org/grants



COST SHARE SPOTLIGHT: PARKWAY PLACE TOWNHOMES



Three raingardens under construction at Parkway Place Townhomes

Minneapolis resident Terry Hammink completed the Master Water Steward program (page 11) in 2013 and, like many Stewards, saw how his skills and knowledge could apply right in his front yard. In Terry's case, the front yard is a communal space he shares with the rest of the owners in the Parkway Place Townhomes.

As the townhome association prepared to re-do its parking area, Terry got deeply involved and planned an ambitious project to catch 99 percent of the runoff from the large, two acre lot through raingardens, parking spaces with permeable pavers, and other innovative techniques. The project, which received funding from our Cost Share grant program and Hennepin County, keeps more than 350,000 gallons of polluted stormwater out of nearby Minnehaha Creek each year.

TAKING THE PULSE OF DISTRICT RESIDENTS

In early 2015 we conducted a scientific, random-sample survey of District residents to gain insight into how they perceive water quality issues and our organization. The survey found that 98 percent of the 600 residents surveyed consider protecting water quality either "very" or "somewhat" important. Nearly half cited water quality concerns as the most important environmental issue facing the Twin Cities, followed by climate change, air pollution and renewable energy.

The survey – which also gathered input on what residents expect from the District and what our priorities should be – is helping us put together our next Comprehensive Plan. The data also helps us track the changes in attitudes and actions of our residents over time. See the full results at minnehahacreek.org/public-opinion.



EARTH DAY PHOTO CONTEST DEBUTS

We received more than 100 submissions for our inaugural Earth Day Photo Contest, showcasing the diverse natural beauty of our watershed. See more photos and submit entries for the 2016 contest at minnehahacreek.org/contest.

LANDSCAPE CATEGORY



First place, Aldo Abelleira

RECREATION CATEGORY



First place, Stan Waldhauser

HELPING COMMUNITIES PLAN FOR INCREASING RAINFALL

With the potential for storms to become more frequent and more intense in a changing climate, communities are taking a new look at how they manage rainwater and flooding. We partnered with two Twin Cities communities – Minneapolis and Victoria – on a federally-funded study that looks the impact of these changes in rainfall and how these communities and others like them can adapt.

The process they followed is covered in the our new guide, *Community Adaptation Planning for Changing Landscapes and Climate*. A copy of the guide is available at minnehahacreek.org/WET.



THE STUDENTS BECOME THE MASTERS

Master Water Stewards program expands metro-wide after successful three-year pilot

One of the District's stated goals is to promote individual stewardship of our natural resources, and to give interested people the knowledge and tools they need to make an impact. Perhaps no initiative in our history better embodies that goal like the Master Water Stewards program, which recently wrapped up the third and final year of its pilot phase and has now expanded metro-wide.

During its first three years, the program was led by the Freshwater Society in partnership with the MCWD and Clean Water Fund. By the end of the pilot program 80 certified Stewards went through a rigorous curriculum and built projects across the watershed that keep more than a million gallons of polluted stormwater out of lakes and streams each year.

As importantly, each Steward studied ways to engage their neighbors in protecting clean water. Stewards commit to at least 25 hours of volunteer work per year and the "capstone" projects they complete as part of the training have two elements: building a project, such as a raingarden; and educating others by hosting an open house, distributing educational materials, or other outreach.

The success of the program inspired watershed districts and cities across the metro to sponsor their own Stewards in 2016. Learn more at masterwaterstewards.org.



Stewards standing in front of their recently-installed "cistern," which catches rain to re-use instead of letting it flow into the street

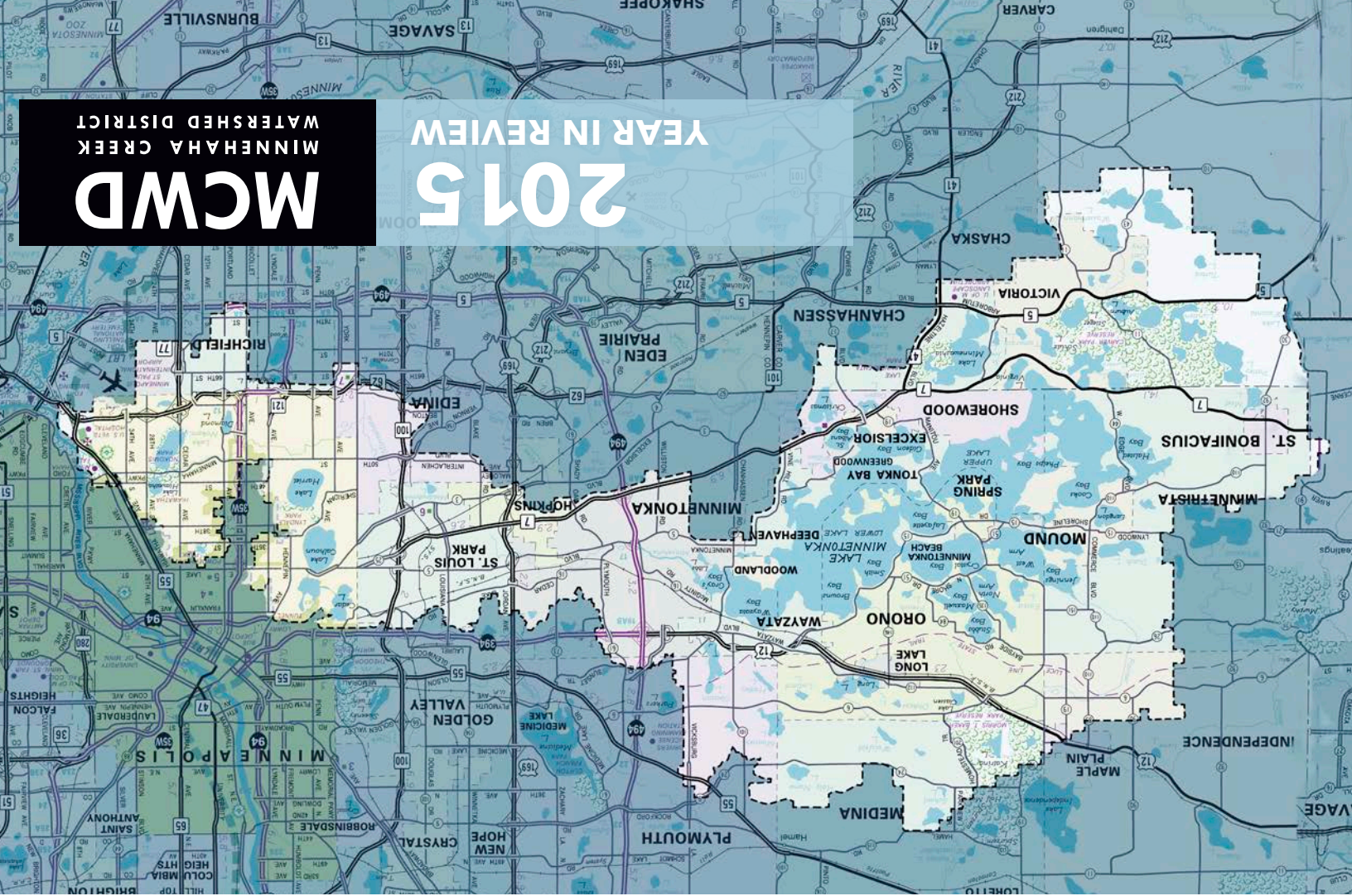
RECORD DAY FOR MINNEHAHA CREEK CLEANUP



The ninth annual Minnehaha Creek Cleanup was one for the books – a record 1,600 people showed up to collect an all-time high four tons of trash. The event featured an expanded education area that provided activities and information for volunteers of all ages. The 2016 Cleanup is planned for Sunday, July 24. Learn more at minnehahacreek.org/Cleanup.

MCWD
MINNEHAHA CREEK
WATERSHED DISTRICT

2015
YEAR IN REVIEW



MINNEHAHA CREEK
WATERSHED DISTRICT

15320 Minnetonka Blvd.
Minnetonka, MN 55345



ANNUAL REPORT

Year:

2015

Program:

Aquatic Invasive Species Program

Top Accomplishments

Project/Activity: AIS Cost-Share and Roaming Inspector Program

Description: *The District offers a 50% cost-share to other local agencies for watercraft inspection services performed at public accesses in the District. In addition, the MCWD funds 100% of a roaming inspector program that places watercraft inspectors at accesses that would not otherwise receive any coverage.*

Outcomes:

- Partnered with 5 local agencies for watercraft inspections at District lakes, including Minneapolis Parks and Recreation Board, Lake Minnetonka Conservation District, City of Shorewood, Three Rivers Park District and Carver County.
- Contributed towards 20,548 hours of inspections performed at 12 District lakes.
- 54,755 watercraft inspections occurred at District Lakes, which include inspections provided by the MN DNR. Of those, the District's program resulted in about 52% of those inspections.
- 17 potential zebra mussel infestations were prevented at non-infested lakes.
- Compliance of Minnesota's drain plug law at District lakes was at 95.4%, similar to the statewide rate of 95.7%.
- 96.3% of watercraft entering District Lakes arrived with clean watercraft.
- Partnered on the first year of a 2-year pilot inspection program at Christmas Lake that involved more stringent decontamination procedures.

Goals Achieved: *Preventing the spread of AIS is the number one goal of the District's AIS Program. No new infestations were detected in 2015. The District was successful in leveraging its resources, by partnering with other local agencies to provide watercraft inspection services at District Lakes.*

Project/Activity: AIS Early Detector Program

Description: A citizen volunteer monitoring program was developed to expand on the early detection work for AIS in the District. When AIS are detected early, the chances of controlling it and limiting its spread lake-wide, and any chance to attempt eradication, are greatly improved. Early detection monitoring is a great role for citizens.

Outcomes:

- Staff developed a monitoring kit to loan to volunteers to assist in their detection work. This kit included a zebra/quagga mussel sampling plate, underwater viewing scope, magnifying glass, strainer, and guide book.
- Staff created an early detector guide book that walks volunteers through the steps needed to monitor AIS: How to Prepare, Assembling a Kit, How to Survey and Collecting and Identifying possible AIS, and How to Report. The guide books have been very well received, both in the District and statewide. Many organizations have shown interest in the books, so much so that the District created a more generalized copy for public consumption that is available as a pdf on the website.
- 50 volunteers participated in the program. Zebra Mussels were found in Christmas Lake in 2015 from a volunteer with a sampler plate.

Goals Achieved: This program has improved awareness of AIS, and has increased early detection monitoring in the District. Active participation by lake users is important, because the more people systematically looking for AIS, the greater the chance of finding something early.

Project/Activity: AIS Early Detection/Baseline Monitoring

Description: Baseline data of what AIS exists in each District waterbody, and to what extent, is a critical component of operating the program. This data will allow infestations to be tracked over time, as well as identify waterbodies that are free of AIS. Each waterbody in the District will be evaluated every 3 to 5 years. Early Detection monitoring is the other component to this work, and occurs annually in high risk waterbodies, mainly those with a public access. Detecting AIS early can lead to a more effective rapid response and immediate awareness of the public.

Outcomes:

- AIS surveys occurred on 48 different water bodies in 2015, an increase from 2014. With 194 water bodies identified to be assessed, a survey for each should be completed by 2019.
- No new AIS infestations were discovered in 2015.
- Data from surveys will be used in the development of the District's new E-Grade Program.
- Aside from Common Carp, which are not detected through our surveys but are found throughout the watershed, Curlyleaf Pondweed is detected most frequently in lakes it was surveyed for, being found in 93.5% of waterbodies surveyed. Eurasian Watermilfoil is next at 64.3%, followed by Zebra Mussels at 20.8% and Flowering Rush at 3.6%. It's important to note all zebra mussel infested lakes, with the exception of one, are part of connected waterways. Flowering Rush is also only found in a connected waterway.
- No AIS were detected in 9 waterbodies, although it's likely common carp would be found if surveyed for. All 9 waterbodies tend to be small, with little to no public use.

Goals Achieved: Continuation of gathering baseline data of AIS in District water bodies. Data will be used to track infested water bodies over time, assess ecological impacts from AIS, as well as contribute towards the District's new E-Grade Program. Early Detection continues on high risk water bodies, as it is critical for an effective rapid response.

Project/Activity: Christmas Lake Rapid Response

Description: Zebra mussels were discovered in Christmas Lake in 2014 by District staff, and a multi-agency rapid response followed. In 2015, searching and treatments continued as more zebra mussels were found in the bay near the public access. A large 10 acre area of the bay was treated in July with potash, and subsequent monitoring by the MCWD and DNR did not find any zebra mussels through September. A homeowner with a volunteer sampler plate discovered one zebra mussel in October, with more found on his dock and boat lift that were being removed for the season. Further searching in October found zebra mussels scattered throughout areas of the lake, attached to other docks and boat lifts. It was evident many of the zebra mussels were a result of in-lake reproduction.

Outcomes:

- Knowledge and experience was gained through this rapid response that will be applied to future rapid response efforts in the state.
- Experience with three different zebra mussel control products were gained, with a better understanding of efficacy of different products and possible non-target effects.
- Partial lake treatments of AIS, even when detected early, can be very difficult and eradication is unlikely.
- MCWD's Early Detection Program was successful in discovering an early infestation of zebra mussels. Many of the protocols used by the MCWD have been adopted statewide.

Goals Achieved: Discovering AIS early and attempting control before an AIS takes over is part of the MCWD's AIS Management Plan. Through a sound early detection program, zebra mussels were discovered early. The District's great relationship with partners such as the MN DNR, City of Shorewood, and MAISRC, led to an immediate rapid response that is a model for in the state.

Project/Activity: Hybrid Milfoil Pilot Study

Description: Through a Hennepin County AIS Grant, the District partnered with the University of Minnesota and Montana State University to assess milfoil genotypes in Lake Minnetonka. This research focuses on Hybrid Milfoil, which is a cross between the invasive Eurasian Watermilfoil and the native Northern Watermilfoil. Distribution of milfoil genotypes among select bays was assessed, focusing on bays with and without ongoing Eurasian Watermilfoil management. Milfoil weevils (which feed on and may naturally limit milfoil) were also sampled in select bays, and will be examined for preference to different milfoil genotypes. Data are still being analyzed, and a report from the work will be ready by spring of 2016.

Outcomes:

- Distribution of milfoil genotypes will be assessed in select bays of Lake Minnetonka, including some with ongoing management efforts, and some without ongoing management.
- Milfoil response to herbicide treatments will be examined, and analyzed to understand if certain genotypes are less impacted by treatments, or if some may even be more aggressive spreaders.
- Data could indicate to researchers certain areas that may require further studies, as this was an exploratory research project.
- Results of study may have implications on future management techniques for Eurasian Watermilfoil and its hybrids.

Goals Achieved: Participating in applied research studies is one of the goals of the AIS Program. Improving our knowledge on AIS and how to control it is important, as many of our lakes are infested with AIS such as Eurasian Watermilfoil and the effects of hybridization are not well understood.

Project/Activity: Lake Minnetonka Zebra Mussel Study

Description: Zebra mussels were detected in Lake Minnetonka in 2010, and the MCWD shortly after developed a plan to study the population in the lake and its possible effects on water quality. Since 2011, the zebra mussel population and distribution has been tracked by the use of sampler plates around the lake. Water quality monitoring continued across the lake, and algae and plankton communities were assessed. We are now five years into the infestation, and water quality changes in the lake have been evident.

Outcomes:

- Zebra mussels exist in high densities in most areas of the lake. Highly eutrophic bays such as Halsteds, Jennings and West Arm, continue to have low densities. These bays typically have abundant blue-green algae, which are not a good food source for zebra mussels.
- Water clarity has greatly improved in most of the lake, with exception of highly eutrophic bays like Halsteds and others on the west end of the lake.
- Chlorophyll-a has decreased in many bays, to the point where some bays are starting to become food limited for zebra mussels.
- Staff presented the data at the North American Lake Management Society Conference that was held in Saratoga Springs, NY.
- Work has begun to publish a paper for a peer-reviewed journal.
- A goal with the long-term data is to establish biomass densities of zebra mussels that start to impact water quality in lakes, similar to what's been established with common carp.

Goals Achieved: This research project has furthered our knowledge base on the effects of zebra mussels in different water quality conditions. It has been critical in understanding the changes occurring in Lake Minnetonka, and will likely be able to be applied to other lakes to predict effects from zebra mussels.

Project/Activity: Six-Mile Creek Carp Assessment

Description: Common carp have been identified as contributors to degraded water quality conditions of lakes in the Six-Mile Creek Subwatershed, which flows from Piersons Lake to Halsteds Bay in Lake Minnetonka. The District has partnered with the University of Minnesota to conduct an assessment of the population, distribution, movement patterns and recruitment in the subwatershed. This was year 2 of 3 of the assessment, with an annual report due by spring of 2016, and a final report with management recommendations due by spring of 2017.

Outcomes:

- Tracking of radio-tagged carp continue
- A second aging study will be conducted this winter to complement last year's aging study on carp from Parley, Mud and Halsteds Bay. This year's study will be conducted on carp from Piersons, Wassermann, East Auburn, West Auburn and North Lundsten.
- 24 waterbodies have been surveyed for young-of-year carp; of those, only 5 contained young-of-year carp. These indicate possible carp nurseries.
- Genetic and microchemical analyses on common carp and water samples from across the subwatershed has started. The aim of this is to help determine where the young carp are coming from and their patterns of dispersal.

Goals Achieved: The U of M remains on track with the carp assessment, and many interesting findings have already been found. This carp assessment is part of a larger effort in the Six-Mile Creek Subwatershed by the MCWD.

Project/Activity: Flowering Rush Management Pilot

Description: The District has been evaluating hand-removal as a control option for small infestations of Flowering Rush in Lake Minnetonka since 2011. The first couple years were piloted in only a few test sites, and hand removal seemed effective at reducing stem density and biomass in soft sediment conditions, but not as effective in harder sediments. The pilot was expanded to 10 total sites in 2013, and removal occurred in those sites in 2014 and 2015.

Outcomes:

- Reductions in populations have occurred, especially taking a larger population to a smaller population, but reductions after that are more difficult and are more susceptible to seasonal variation.
- Eradication seems unlikely, but the current infestations appear to be controllable.
- Hand removal techniques and processes have been improved and become more efficient for effectiveness, reducing spread and limiting non-target impact

Goals Achieved: Containment of AIS is one of the goals of the AIS Management Plan. When certain species are found in low numbers and limited distribution, containment efforts may be necessary to reduce further spread in a waterbody and to other waterbodies. Flowering Rush is only found in Lake Minnetonka and limited areas of Minnehaha Creek, and containment activities seem appropriate.

Project/Activity: AIS Legislative Efforts

Description: The District provided comments to the state legislature to retain the AIS trailer decal program that would have required users to pass an online test on aquatic invasive species and place a decal on their watercraft showing they completed the test.

Outcomes:

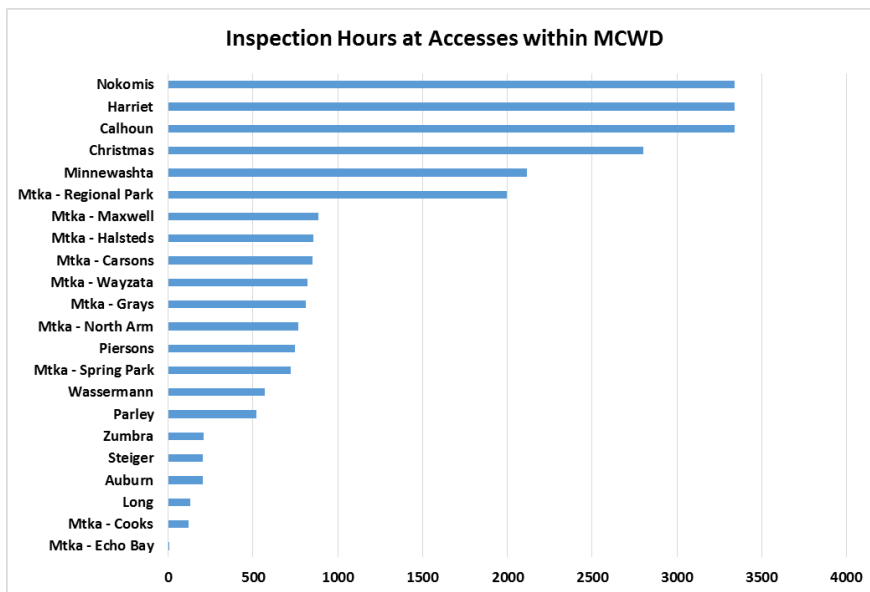
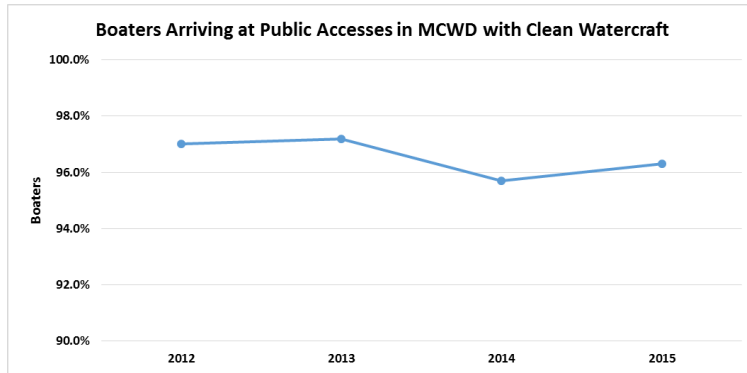
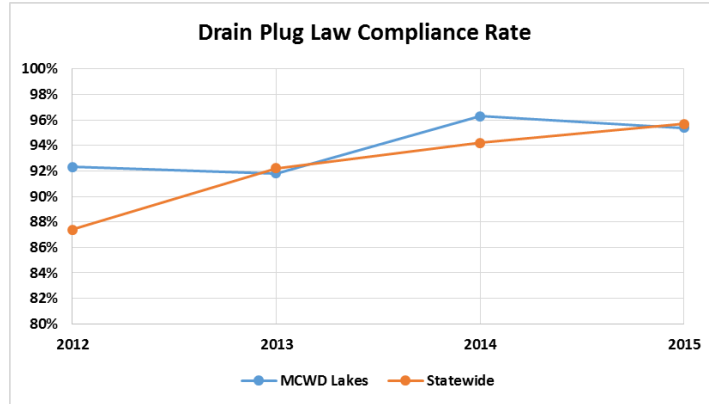
- Legislature decided for a read-and-acknowledge program, which requires users when renewing their boat license to read information regarding aquatic invasive species prevention. The District was disappointed with this change in legislation, but will monitor the effectiveness of the new law and consider seeking restoration of the original law.

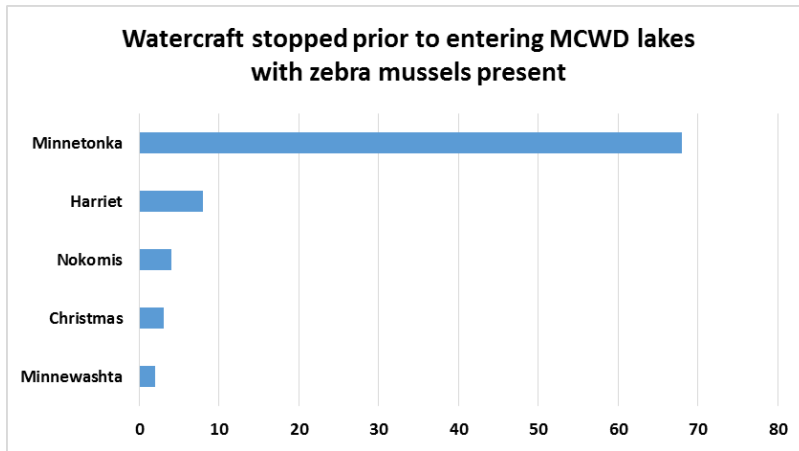
Goals Achieved: The District utilizes legal and legislative services as a strategy to maintain or improve AIS prevention efforts.

Supporting Information/Attachments

(reports, photos, spreadsheets, etc.)

Project/Activity: AIS Cost-Share and Roaming Inspector Program

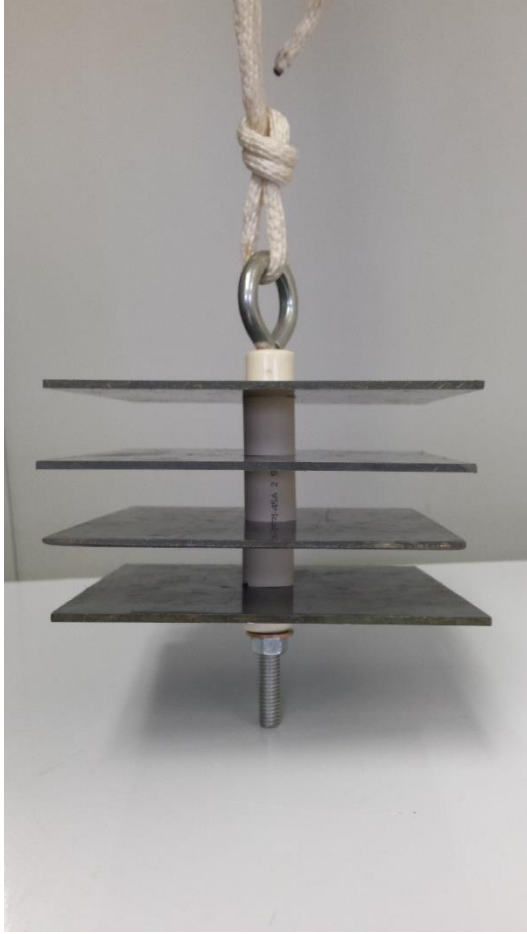




Project/Activity: AIS Early Detector Program



The AIS Early Detector Guide book featured a section on identification of invasive species and native look-alikes.

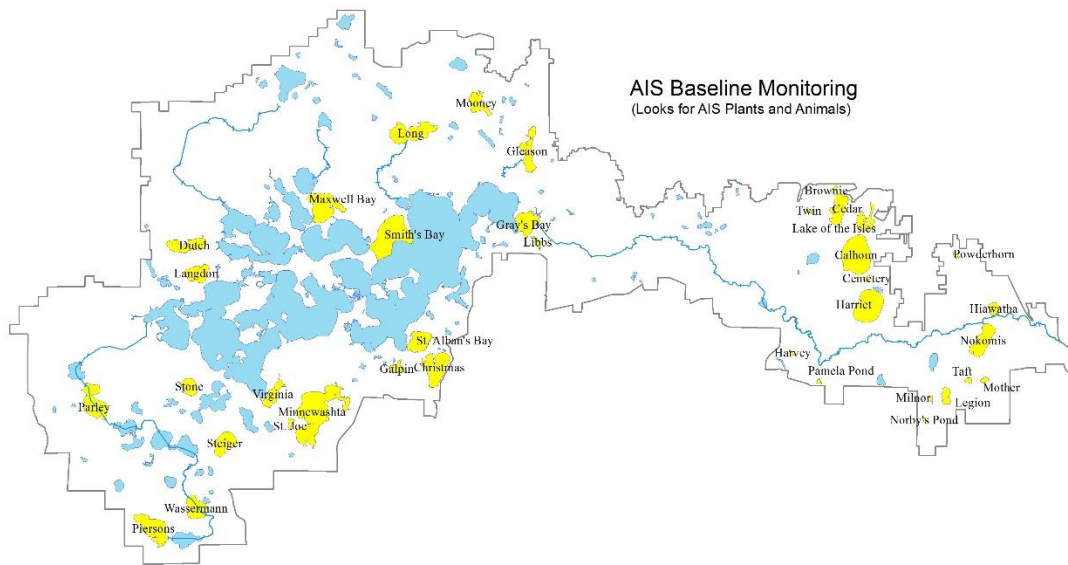
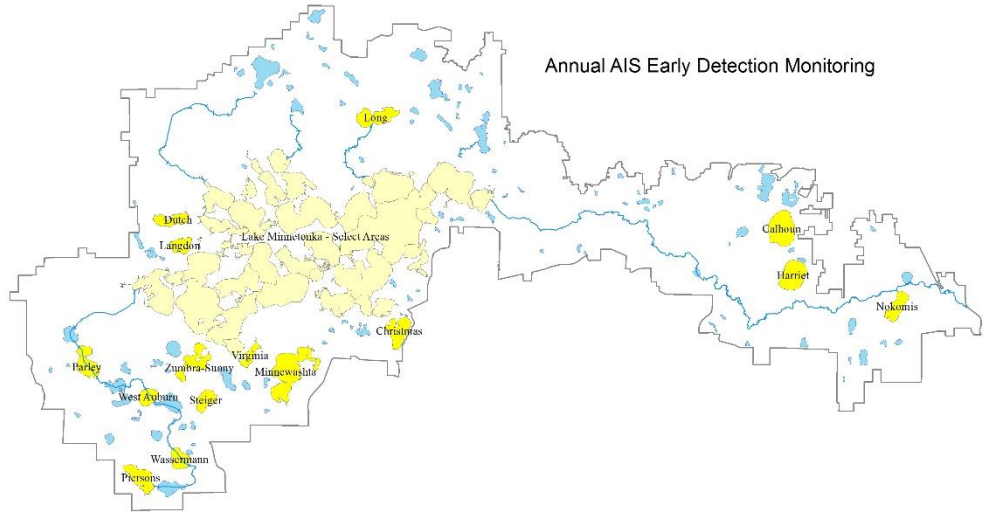


Zebra/Quagga Mussel Sampler Plate

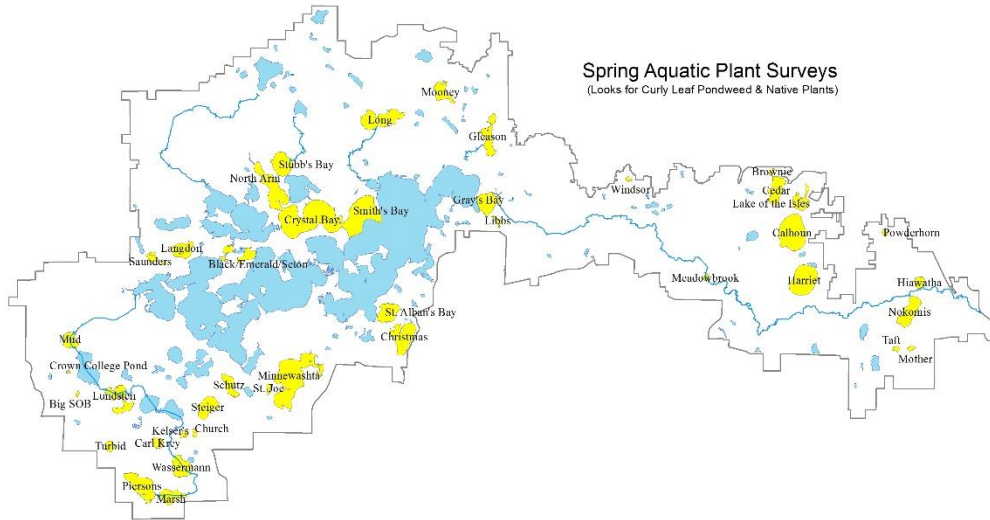


Viewing scope used in early detection work.

Project/Activity: AIS Early Detection/Baseline Monitoring

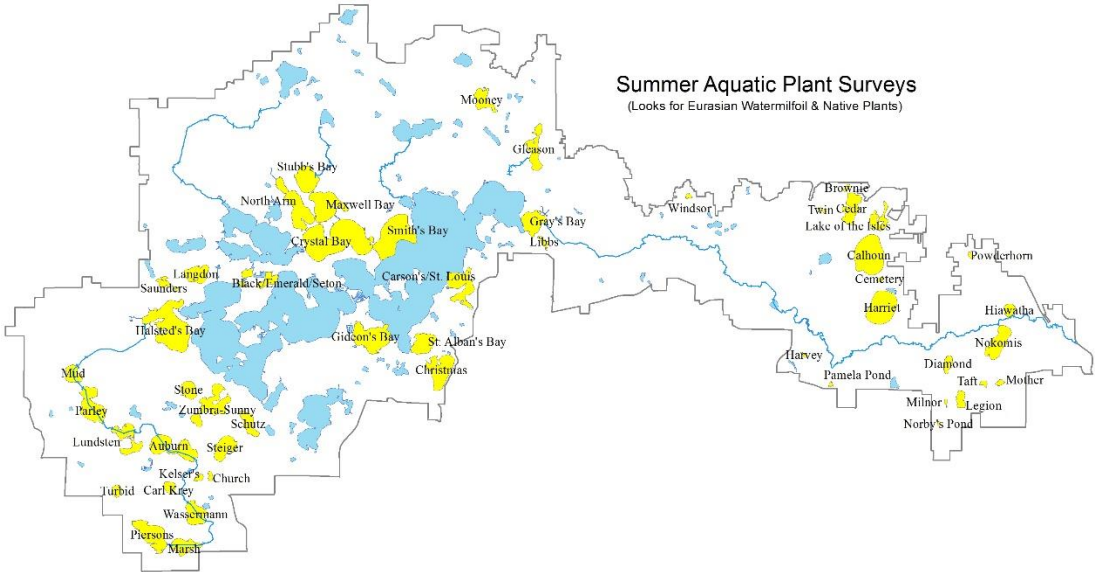


Updated December 2015



Spring Aquatic Plant Surveys
(Looks for Curly Leaf Pondweed & Native Plants)

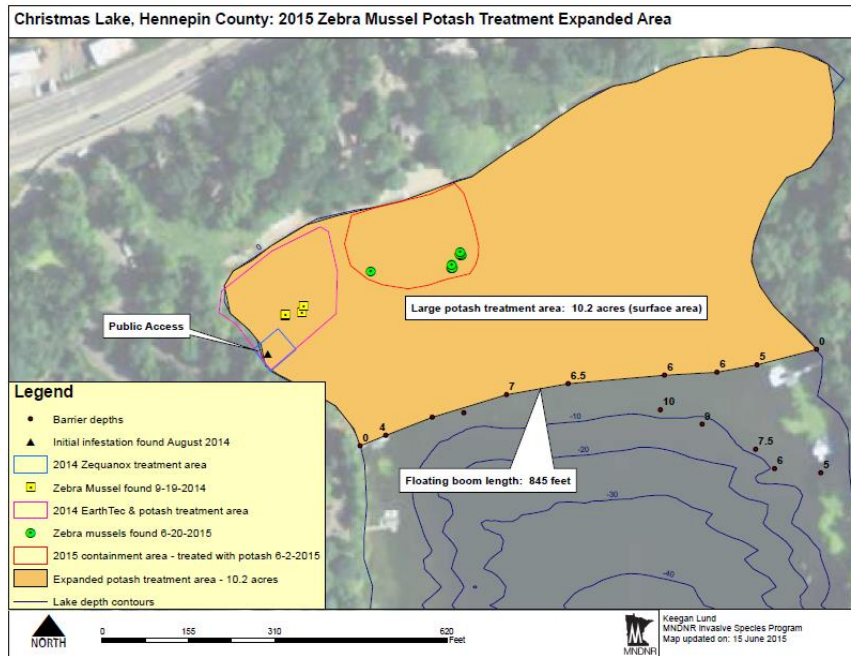
Updated December 2015



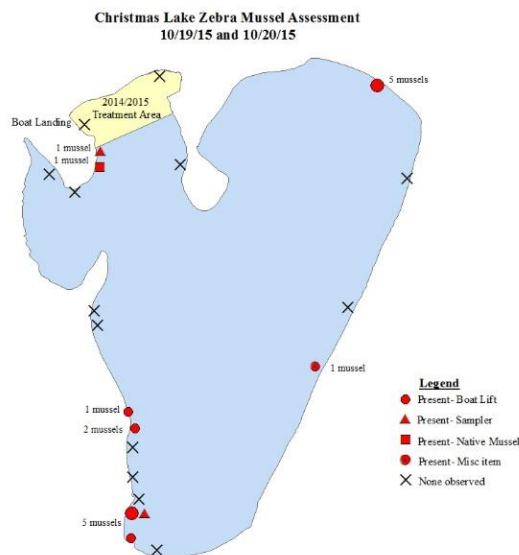
Summer Aquatic Plant Surveys
(Looks for Eurasian Watermilfoil & Native Plants)

Updated December 2015

Project/Activity: Christmas Lake Rapid Response

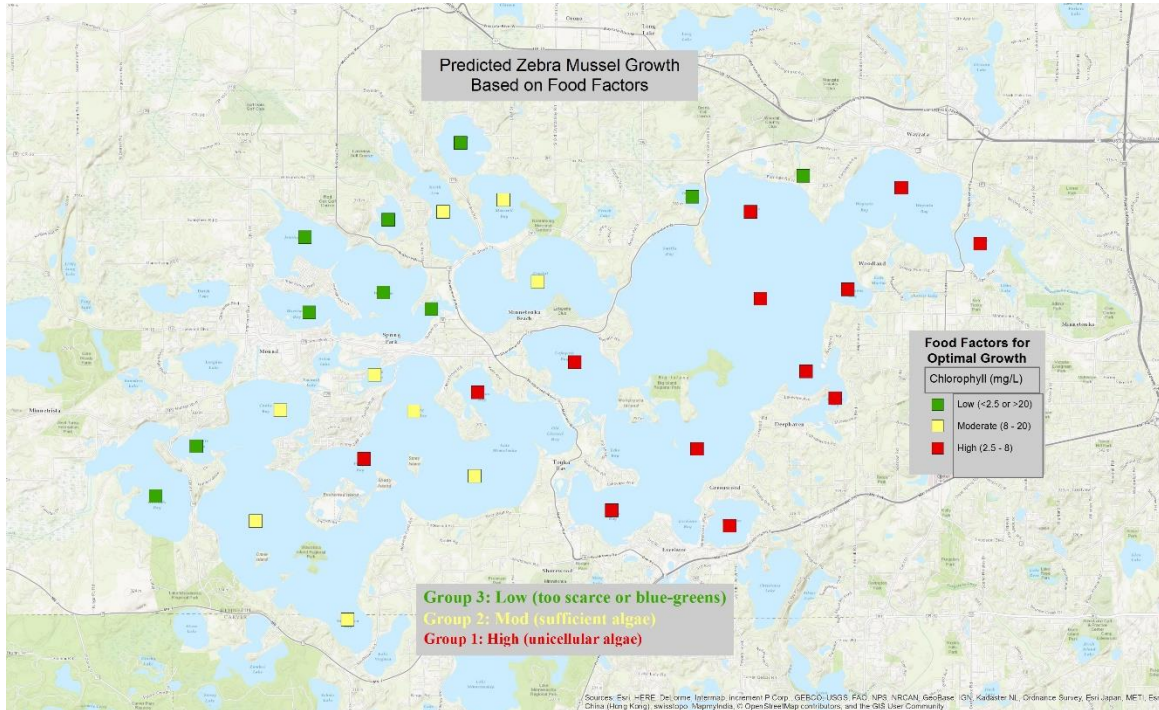


Treatment areas from 2014 and 2015 in Christmas Lake.

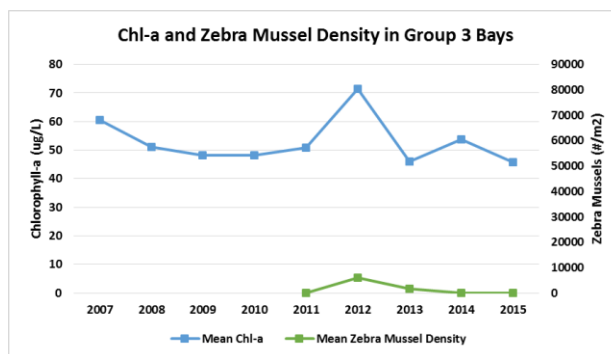
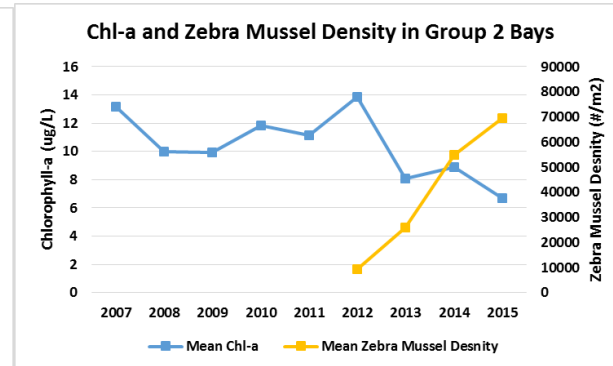
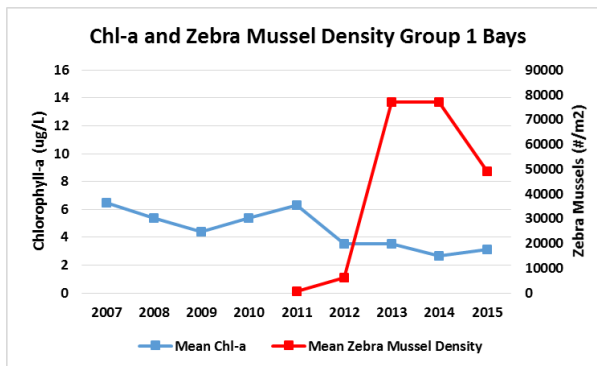
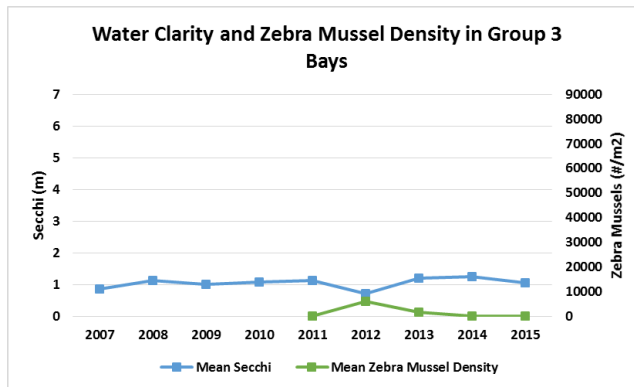
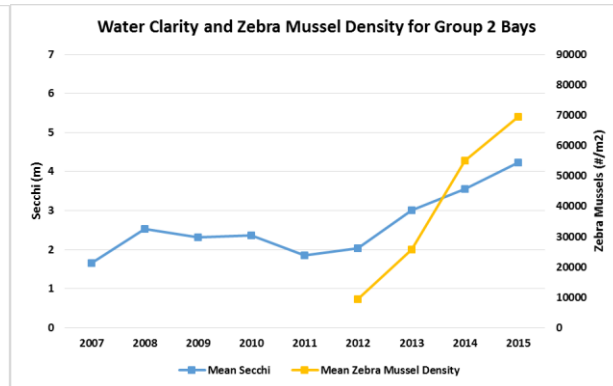
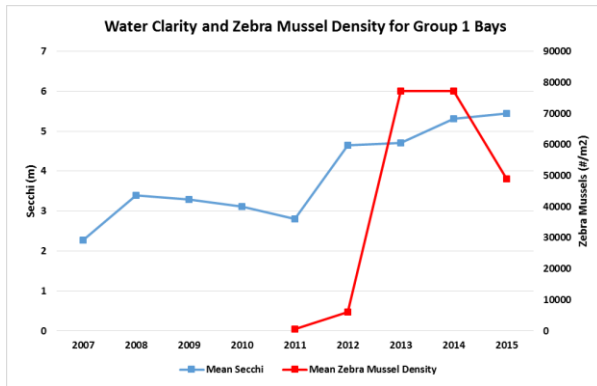


Assessment completed in October of 2015. Several zebra mussels were found, indicated by red dots.

Project/Activity: Lake Minnetonka Zebra Mussel Study



Previous research has shown zebra mussel growth dependent upon levels of Chl-a. This map separates Lake Minnetonka Bays into three groups based on pre zebra mussel infestation Chl-a levels.



Project/Activity: Six-Mile Creek Carp Assessment

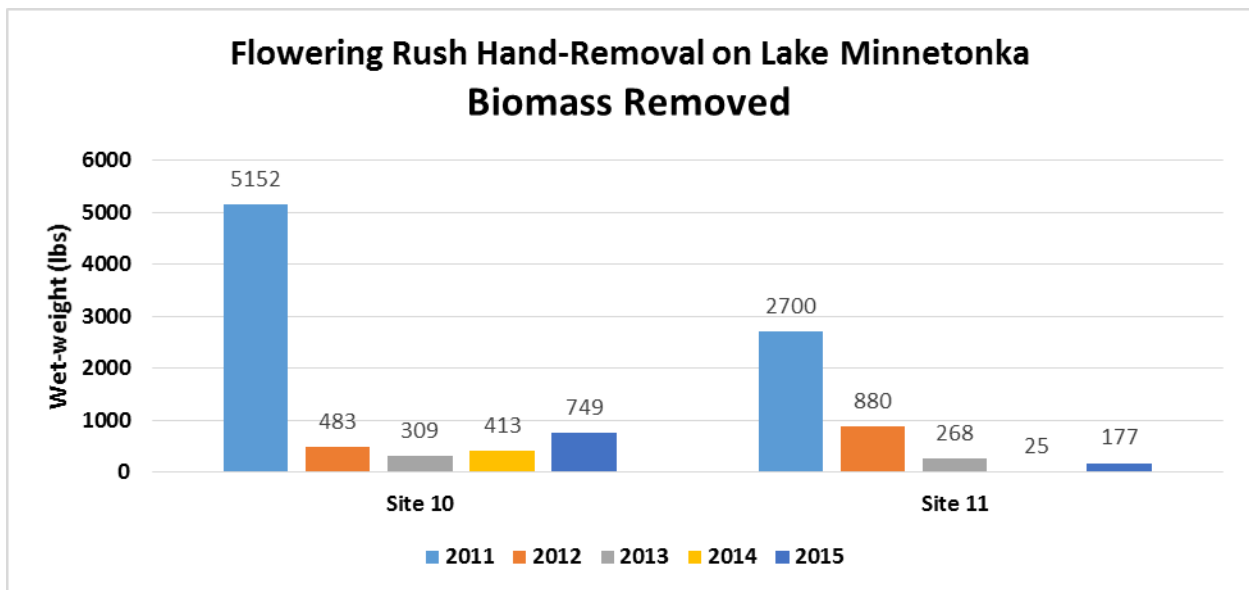


Reid Swanson retrieving a trapnet full of fish in Zumbra Lake

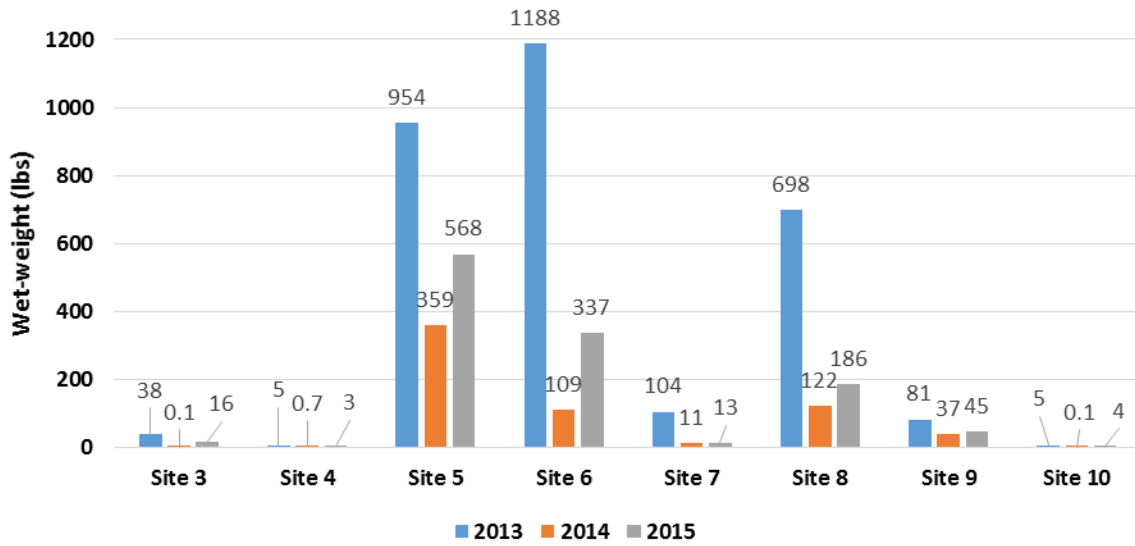
Project/Activity: Flowering Rush Management Pilot



Flowering Rush Hand-Removal Locations



Flowering Rush Hand-Removal on Lake Minnetonka Biomass Removed



8. A barrier net placed around the area for removal.



1. Flowering Rush between two residential docks.



ANNUAL REPORT

Year:

2015

Program:

Communications

Top Accomplishments

Project/Activity: *Minnehaha Creek Cleanup*

Description: The Minnehaha Creek Cleanup, a key element of the Communications workplan's engagement program, marked its 9th anniversary in 2015. Due to increasing costs associated with the growing popularity of this event, staff implemented a new sponsorship framework. This system, which offered a range of promotional benefits to contributors of financial and in-kind support, allowed us to create a new eco-education zone and add a third cleanup location in Minnetonka. A second non-profit partner, the Freshwater Society, was also brought on board to assist with promotion and provide staff support through the Master Water Stewards program. The event broke records for attendance and trash collection in 2015, making it the most successful cleanup since its inception in 2007.

Outcomes:

- A record high number of 1,600 people attended the cleanup, surpassing the previous year's attendance by 600.
- They collected 4 tons of trash, crushing the goal of 3 tons of trash. 3,400 pounds of trash was collected at Lake Hiawatha Park, 3,000 pounds of trash was collected at the Knollwood Super Target and 1,600 pounds of trash was collected at the St. David's Center in Minnetonka.
- The sponsorship framework allowed the District to leverage its \$25,000 investment in the event with \$45,000 in support from sponsors. An additional 10 sponsors came on board in 2015, bringing \$20,000 in new money to the event.
- More than 20 organizations participated in the eco-education zone and 283 people participated in the Pledge for Clean Water, which was offered for the first time in 2015. The largest percentage of respondents (79.8%) pledged to sweep up leaves and grass clippings.
- Respondents to the post-cleanup survey gave the event high marks (4.2 out of 5) and would recommend the event to others (4.4 out of 5).

Goals Achieved:

1. Broadened and strengthened relationships with residents of the watershed district
2. Fostered partnerships with like-minded organizations that provided support and tabled at the eco-education zone.
3. Engaged residents in improving water quality by picking up trash and asking them to do other clean water work after the event.
4. The addition of the new and improved eco-education zone and the widespread media coverage of the event positioned the District as a leader in providing water quality information.

Project/Activity: *Comprehensive Plan communication*

Description: Worked with Planning staff to refine messaging strategies for the development of the 2017 comprehensive plan. Helped organize and promote a series of three kickoff meetings. Designed a four-page overview handout and a series of posters highlighting the District's work. Created a webpage with resources and information related to the comprehensive plan process.

Outcomes:

- 532 people visited the comprehensive plan web page
- News release announcing the meetings was picked up by six newspapers with a combined circulation of 74,591
- Administrator Lars Erdahl's introduction column, focused on Comprehensive Plan, ran in five newspapers with a combined circulation of 63,571
- Facebook posts on kickoff meetings reached 1,030 people
- Tweets about kickoff meetings reached 944 people

Goals Achieved:

1. Explained the District's new two-track approach and Balanced Urban Ecology approach
2. Demonstrated how the District is an effective and attractive partner
3. Supported the development of a smooth and productive comprehensive plan process by engaging a wide array of stakeholders and specifically explaining the District's vision, goals, and process in adopting its new plan.

Project/Activity: *Public opinion survey*

Description: In order to understand that attitudes and knowledge of District residents regarding the MCWD and water quality in general, staff worked with Himle Rapp to conduct a districtwide Public Opinion survey. The random-sample phone survey was administered to a representative percentage of the population in the District. The survey, which was conducted by the Morris Leatherman Company in February 2015, has a margin of error of +/- 4.1 percentage points. It was the first districtwide public opinion survey in the District since 2003.

Outcomes:

- Provides baseline data to help the District track the progress of its efforts to raise awareness, increase knowledge and change behaviors
- Surveyed 600 people across three geographic clusters, adjusted to reflect District demographics
- Results showed great interest and concern for water quality in the District, as 98 percent of respondents considered protecting water quality either “very” or “somewhat” important and 44 percent cited water quality concerns as the most important environmental issue facing the Twin Cities
- President’s Column and Manager’s Column on survey results were picked up by seven local newspapers with a combined circulation of 70,183

Goals Achieved:

1. Assessed the attitudes and knowledge of District residents to inform the new Comprehensive Plan and the District’s day-to-day activities.
2. Provides a baseline for future surveys as one of the most effective and concrete measurements of the District’s progress in raising awareness and changing behavior.
3. Demonstrated the District’s commitment to being responsive to its residents.

Project/Activity: *Earth Day photo contest*

Description: Launched a new social media campaign in the spring of 2015 that encouraged people to submit scenic photos from across the watershed in an online contest. The deadline was Earth Day and the winners, selected by an internal staff voting process, were announced shortly after. The contest was executed without a budget. Three winners were selected in each of two categories: landscape and recreation.

Outcomes:

- Received nearly 100 submissions
- Web page for contest was visited 320 times and web page announcing winners was visited 165 times
- Facebook posts promoting photo contest reached 4,474 people
- Tweets promoting photo contest reached 3,535 people
- Instagram posts promoting photo contest generated 103 likes

Goals Achieved: The contest achieved three primary goals:

1. Promoted and drove traffic to the District's new Instagram account
2. Provided high-quality photos for use in District publications (with photographer's consent)
3. Fostered engagement with District residents and encouraged them to celebrate their connection to local lakes and streams

Project/Activity: Videos

Description: Significantly expanded the District's video offerings that were featured in the District's digital communications, including the website and social media sites. Videos also have been featured at events, including the Minnehaha Creek Preserve ribbon cutting ceremony in July and at presentations, including a meeting of emergency preparedness officials in Minneapolis in December. New videos that were added to the District's library in 2015 include:

- "Highwater" – aerial drone video of 2014 flooding impacts
- A mini-documentary about the Minnehaha Creek Preserve and Minnehaha Creek Greenway
- Two water quality education videos funded by a Cynthia Krieg grant – a parody song about the water cycle and movement of water through the watershed, and a sketch about the benefits of installing raingardens
- Short video on Kenwood Stone Poem Raingarden project which also aired on TPT's Almanac program
- Two videos of aerial drone footage about the 2015 Minnehaha Creek Cleanup and the Minnehaha Creek Preserve restoration
- A series of short videos from the field -- the restored Long Lake Creek coming online, controlled burns at Six Mile Marsh Prairie Restoration, searching for zebra mussels in Christmas Lake
- A full year of Board of Managers workshops and meetings

Outcomes:

- MCWD's YouTube channel received 28,743 views in 2015
- MCWD's YouTube channel received 44 likes, 30 comments, 53 shares and 33 subscribers. Its videos were added to 128 user playlists.
- Added 38 videos to YouTube channel, including Board meetings and workshops

Goals Achieved:

1. Videos provide a powerful way to demonstrate the District's work and engage residents around water quality topics.
2. The timely posting of Board of Managers meetings and workshops provides transparency and allows for easy reference to Board discussions.

Project/Activity: *Ribbon cutting events*

Description: Hosted ribbon cutting events to celebrate the completion of two projects along the Minnehaha Creek Greenway: Minnehaha Creek Preserve and Cottageville Park. Both events brought a variety of stakeholders and community members together to celebrate the new community amenities, and reflect publicly on how creative partnerships led to innovative projects.

The Preserve opening featured the debut of the 5.5-minute mini-documentary on the Preserve and Minnehaha Creek Greenway. Following remarks, a group of children from Meadowbrook Collaborative cut the ribbon and participants were invited to explore the new boardwalk system. MCWD staff members were stationed along the way, providing information about areas of the restoration.

The Cottageville Park event marked the opening of the park. Following the remarks, students from nearby Eisenhower Elementary School helped cut the ribbon and played on the new playground facility. The ribbon cutting was held in advance of a community celebration that featured music, food, games and a movie in the park.

Outcomes:

- Approximately 100 people attended the Minnehaha Creek Preserve opening. It featured speakers from the City of St. Louis Park, MCWD, the Minnesota Board of Water and Soil Resources, Meadowbrook Collaborative, Park Nicollet Health Services and Congressman Keith Ellison's office.
- 75 people attended the Cottageville Park opening. It featured speakers from the City of Hopkins, MCWD, the Minnesota Board of Water and Soil Resources, Hopkins Public Schools, Hennepin County Board of Commissioners, Blake Road Corridor Collaborative.
- Stories about the events were published in seven newspapers with a combined circulation of 358,927, in addition to television coverage
- Video of Minnehaha Creek Preserve ribbon cutting was produced by City of St. Louis Park TV and was featured in the city's cable TV programming

Goals Achieved:

1. Raised awareness about the District's work along the Minnehaha Creek Greenway and historical issues the District is addressing
2. Built connections and goodwill with community leaders in the area
3. Highlighted the benefits of working in partnership with the District and showcased successful examples of the District's Balanced Urban Ecology approach

Project/Activity: *Publications*

Description: Produced a variety of print and digital publications aimed at increasing awareness of the District and water quality issues, and encouraging citizen engagement.

Highlights included:

- Two publications, a 12-page Year in Review and six-page Mid-Year Highlights, recounting the District's recent work.
- 36-page AIS Early Detection handbook to help volunteers identify aquatic invasive species and distinguish them from native species
- Four-page Comprehensive Plan overview for the kickoff meetings in early 2015
- Six-page Community Adaptation Handout, a guide for communities to adapt their infrastructure in preparation for more intense and frequent storms (produced as part of the NOAA-funded climate adaptation study)
- Four-page overview of the 325 Blake Road property and Minnehaha Creek Greenway for potential re-developers

Outcomes:

- Mid-Year and Year in Review reports were each mailed to ~475 stakeholders, including state and federal legislators, city councilmembers and county commissioners, key city and agency staff, and lake and neighborhood association officials.
- Printed 650 copies of the Early Detector guide, some of which have been purchased by other groups. They've been distributed to AIS early detector volunteers, lake association members, and other interested residents.
- Mailed Comprehensive Plan overview to a broad list of stakeholders including state, county and city policymakers, state and local government staff and partner organizations including lake and neighborhood associations.
- Distributed Community Adaptation Handout at events including the Climate Convening hosted by Climate Generation and the MAWD annual conference.

Goals Achieved:

1. Increases awareness of the District's work and understanding of the water quality issues it is working to address
2. Positions the District as an effective government agency, credible information source and an attractive partner
3. Helps build and maintain relationships with elected officials, partner organizations and community leaders
4. Increases voluntary participation in monitoring for aquatic invasive species
5. Maintains transparency and accountability

Project/Activity: *Permitting Communication*

Description: Worked with Permitting department to solve the longstanding problem of explaining complicated timelines for getting permits, and the process for getting a wetland permit. These processes are difficult to explain and have led to frustration and unrealistic expectations from applicants. To address these issues we developed two fact sheets clearly laying out the permitting timeline – one for wetland permits, and another for all other types of non-fast-track permits.

Outcomes:

- Provides clear explanation of process that's accessible on the website
- Guides staff in their interactions with permit applicants
- Permitting staff has reported a drop in questions and frustration since these communications tools were developed.

Goals Achieved:

1. Promotes the perception of MCWD as a helpful partner in the permitting process
2. Reduces workload for Permitting staff through proactive communication
3. Increases awareness about why permit requirements are in place

Project/Activity: *Website*

Description: Added two major new features that improve the user experience in two of the most highly used portions of the website. Improved display and graphic depiction of Lake Minnetonka water levels and Gray's Bay dam discharge; and implemented a new interactive map interface, including an easy way to determine if an address is in the District.

Outcomes:

- Improved functionality appearance of the interactive map, making it easier to use
- Restored graphic display of Lake Minnetonka water levels which provides a visual record of the changes over time
- 252,209 page views for website
 - Top five pages: Home, Water Levels, Canoe Minnehaha Creek, Staff Directory, Minnehaha Creek Cleanup, and Permits

Goals Achieved:

1. Increases awareness of MCWD, its mission and programs
2. Maintains and increases transparency and accountability
3. Assists MCWD's efforts to increase voluntary participation by residents to protect and improve water resources in the District
4. Establishes the District as a source of credible, scientific information

Project/Activity: Social media

Description: Use Facebook, Twitter, Instagram and YouTube to spread District messages through a variety of channels and engage with interested residents in, usually, a fun and lighthearted way.

Outcomes:

- On Facebook, received 255 more Likes and posts reached 166,285 people
- On Twitter, earned 216 new followers and posts reached 82,854 people
- On Instagram, 63 posts yielded 655 likes and comments
- On YouTube, received 28,743 views, 44 likes, 30 comments, 53 shares and 33 subscribers. MCWD were added to 128 user playlists.

Goals Achieved:

- Increases awareness of MCWD, its mission and programs
- Maintains and increases transparency and accountability
- Assists MCWD's efforts to increase voluntary participation by residents to protect and improve water resources in the District

Supporting Information/Attachments

(reports, photos, spreadsheets, etc.)

Project/Activity: Creek Cleanup



Freshwater Society came on board as a second non-profit partner and 26 Master Water Stewards helped staff the event, providing much-needed support for MCWD staff



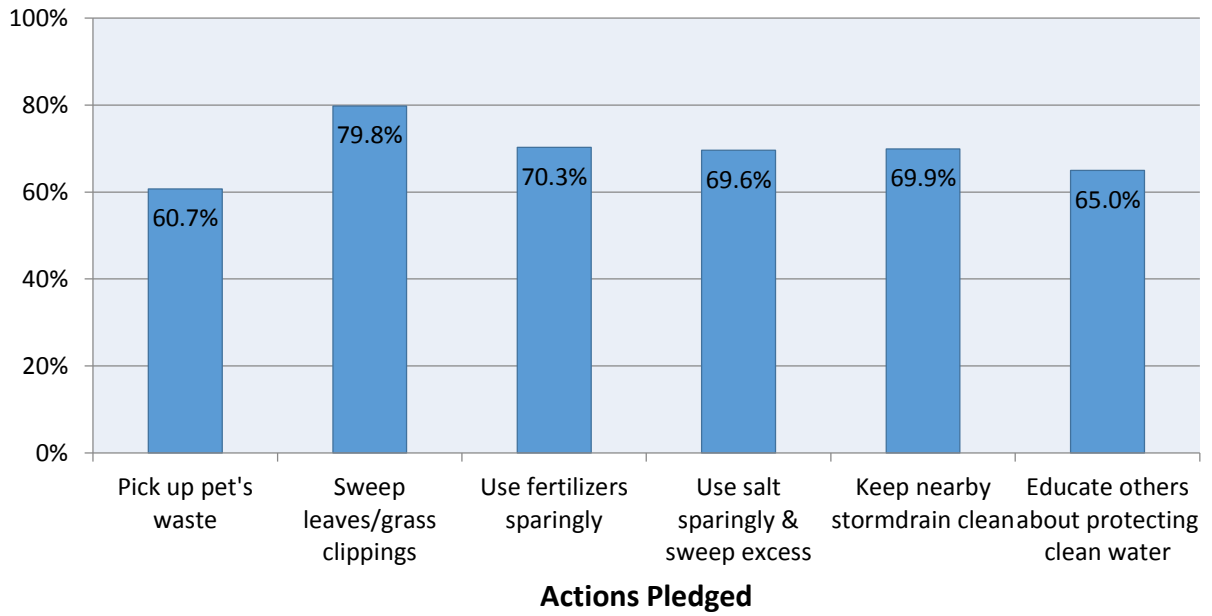
New eco-education zone provided activities from 20+ organizations, costumed characters and Pledge for Clean Water.



New trash collection sponsor 1-800-Got Junk came on board this year, a recycling/composting area was added and volunteers weighed trash on scales.

Pledge for Clean Water Results

(Based on 283 participants)



SPONSORSHIP OPPORTUNITIES

TITLE SPONSOR - \$25,000

- Extra-large logo on front of event t-shirt
- Extra-large logo on flier
- Address crowd from stage during welcome and celebration
- Logo and mention as presenting sponsor in all news releases
- Logo and link to your site on all Cleanup web pages
- Tagged reference on Facebook, Twitter and Instagram posts
- Logo on all event site signage and printed materials
- Opportunity to provide dedicated signage



PLATINUM - \$15,000

- Logo on back of event t-shirt
- Large logo on bottom of flier
- Address crowd from stage during celebration
- Logo and mention in all news releases
- Logo and link to your site on all Cleanup web pages
- Logo on select event site signage and printed materials



GOLD - \$10,000

- Medium logo on bottom of flier
- Address crowd from stage during celebration
- Mention in all news releases
- Logo and mention on Cleanup web pages
- Logo on printed event materials



SILVER - \$5,000

- Small logo on bottom of flier
- Thanked from stage during celebration
- Mention in all news releases
- Mention on Cleanup web pages



BRONZE - \$2,500

- Mention on bottom of flier
- Thanked from stage during celebration
- Mention in all news releases



Project/Activity: Comp Plan Outreach

- Comp Plan website: www.minnehahacreek.org/2017

MCWD STAFF CONTACT(S)

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(952) 641-4512



CONNECT WITH US



Comprehensive Water Resources Management Plan update

The Minnehaha Creek Watershed District (MCWD) is updating its [Comprehensive Water Resources Management Plan](#) (Plan) as part of its ongoing commitment to water quality issues throughout the watershed. Required by law to set the District's goals and guide its activities, the current Plan was adopted in 2007, with the next generation Plan due in June 2017.

OVERVIEW

Scope

Developing the District's [2007 Plan](#) involved extensive analysis of the watershed and a robust stakeholder engagement process to set long-term goals. The 2017 Plan update will build on this strong foundation and focus primarily on developing policies and processes to improve service delivery and project implementation. Consistent with past practices, the District welcomes input from our engaged communities and citizens alike.



In pursuit of a balanced urban ecology

Recognizing the relationship between our natural and built environments, the MCWD works in partnership with the public, private and civic sectors to help protect and improve our natural systems, make wise investments in public infrastructure and improve the quality of water and quality of life in our communities. The District pursues this work under three guiding principles:

- Partnership - We will join with others in pursuing our watershed management goals
- Focus - We will intensify and maintain our focus on high-priority projects
- Flexibility - We will be flexible and creative in adapting our practices to those of our partners

TWO TRACK APPROACH

FOCUS

FLEXIBILITY

For the 2017 Plan update MCWD is proposing using a "Two-Track" approach that will allocate

Project/Activity: Public Opinion Survey

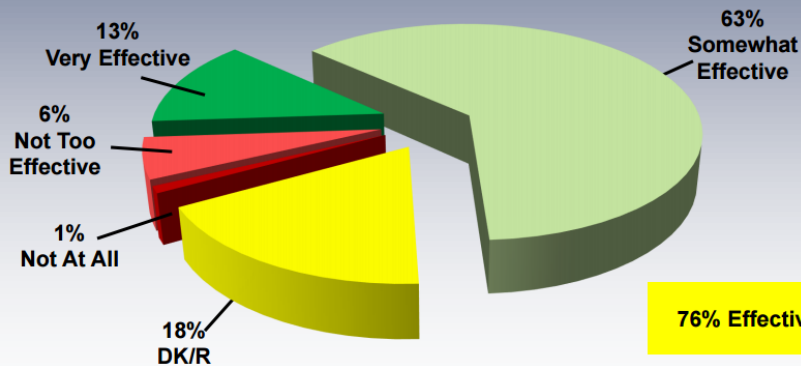
Most Important Enviro Issue in Twin Cities?

	Most Important	Second Most Important	Total
Improving Water Quality	20%	15%	33%
Reducing Air Pollution	14%	13%	27%
Addressing Climate Change	15%	7%	22%
Lawn/Farm Chem. Run-Off	14%	13%	27%
Conserving Water/Prevent Depletion	10%	14%	24%
Energy Conservation	9%	9%	18%
Develop Renewable Energy	9%	16%	25%
Reduce Garbage	8%	12%	20%

44% selected water quality, chemical run-off and conserving water as top priorities

MCWD Views as Effective

How effective is the MCWD in protecting water quality in the watershed?



Graphics from the final report of the public opinion survey

Project/Activity: Ribbon Cutting Events



Minnehaha Creek Greenway ribbon cutting



Cottageville Park ribbon cutting

Project/Activity: Publications



AIS Early Detection guide

STEP 3
 INVESTIGATE OPTIONS

The process was two-fold: **Identify the preferred adaptive strategies** (community can take to reduce impacts from extreme rainfall and land use changes, and **assess a community's capacity** to increase resilience to flooding. Adaptive strategies that were identified included: a) improve existing stormwater infrastructure, b) develop additional flood storage, and c) utilize low impact development options to mitigate flood volumes.

This study also relied on a community-led process in which stakeholders were convened to build social capacity and identify local and regional actions related to adaptation planning, and the barriers and constraints to their implementation. Out of these sessions, four priority action areas emerged:

1. **education and outreach** to raise awareness and concerns among public officials for reducing risk;
2. **land use planning** to create guidelines for policies that promote preservation of natural hydrologic corridors, wetlands, and other natural elements that serve to buffer flooding;
3. **stormwater infrastructure and low impact development** to identify options for water quality and flood control within the contexts of new and redevelopment; and
4. **sustainable funding** to assess funding sources and needs for updating infrastructure and identify opportunities for private adaptive management.

HOW MUCH MONEY CAN BE SAVED BY USING GREEN INFRASTRUCTURE?
 Chester Creek watershed, Duluth, MN

Reduced Post Storm Land Restoration Costs: \$265,400
 Reduced Storm Sewer Infrastructure Costs: \$158,600
 Increased Recreational Use: \$326,000
 Reduced Building Damages: \$1,029,000

PROJECTED SAVINGS THROUGH 2035
\$1.63M
 (\$89,000/YEAR)

STEP 4
 EVALUATE RISKS AND COSTS

We applied cost estimates, using local cost data when possible, to determine the economic costs of implementing adaptive strategies in each community. As expected, total costs were higher in the Minneapolis study site due to the larger volume of flooding predicted there, and the higher costs of construction due to density and existing infrastructure, but per unit costs of flood mitigation measures were similar between the two sites. Flooding at the Victoria site could also be managed by allowing excess water to pond in streets and existing low lying areas. Although this may be a low-cost adaptation option, it would require ongoing commitment to current policies and evaluation of public perceptions of street flooding.

According to a study of the Chester Creek Watershed in Duluth, MN, which was heavily damaged by flooding in 2012, the benefits of incorporating green infrastructure measures including retention areas, permeable pavement, underground storage and stormwater tree trenches could help the city realize \$1.63 million in savings through 2035 (see figure to left). Other potential benefits, including improved water quality, additional wildlife habitat and green space, and increased property values were not included in the study.

Graph Source: Economic Assessment of Green Infrastructure Strategies for Climate Change Adaptation: Pilot Studies in the Great Lakes Region, May 2014

Community Adaptation Handout

Project/Activity: Permitting Communication



The Minnehaha Creek Watershed District (MCWD) is charged with making sure a variety of construction projects don't harm nearby lakes, streams and wetlands. District staff strives to be as helpful and easy to work with as possible, and to help applicants navigate existing rules and find opportunities that benefit everyone. MCWD provides this guide to make the process as clear as possible.

Permit applications and more information are available at www.minnehahacreek.org/permits.

1. SUBMIT APPLICATION - 15 BUSINESS DAYS

District staff will review your application within 15 business days and let you know if any other materials are needed. Applications are available at www.minnehahacreek.org/permits.

2. ENGINEER REVIEW

Some projects (see table on back) may require review from a District engineer. There may be fees associated.

3. PUBLIC NOTICE PERIOD - 14 CALENDAR DAYS

For some projects a public notice postcard must be mailed to land owners within 600 feet of the site, announcing and explaining the project. Applicants can choose to reimburse the MCWD for handling the mailing, which is typically less expensive, or supply labels from Hennepin County at their own expense.

Comments on the project are accepted for 14 calendar days. During that time, residents may request a public hearing with the MCWD Board of Managers if they are concerned about the project.

4. DECLARATION

Some permits require that you record a "declaration" with your county. District staff will prepare the necessary paperwork for you and walk you through the process.

5. FINANCIAL ASSURANCE

Some projects require an applicant to post a pre-determined sum to be refunded when permit requirements are met. District staff will let you know if this applies to your permit and walk you through it.

RECEIVE YOUR PERMIT!

Handout outlining the District's permit process

Project/Activity: Website

Page ?	Pageviews ?
	252,823 % of Total: 100.00% (252,823)
1. /	47,375 (18.74%)
2. /water-levels	19,182 (7.59%)
3. /what-can-i-do/explore-watershed/canoe-minnehaha-creek	12,415 (4.91%)
4. /about	8,324 (3.29%)
5. /about/staff	6,323 (2.50%)
6. /events/2015-minnehaha-creek-cleanup-july-26	5,909 (2.34%)
7. /permits	4,331 (1.71%)
8. /permits/additional-information/how-determine-100-year-floodplain-elevation	4,327 (1.71%)
9. /data-center/water-levels	4,055 (1.60%)
10. /project	3,696 (1.46%)
11. /data-center	3,435 (1.36%)
12. /data-center/mc wd-lake-grades	2,962 (1.17%)
13. /permits/additional-information/am-i-district	2,904 (1.15%)
14. /about/employment	2,614 (1.03%)
15. /grants	2,311 (0.91%)
16. /permits/regulatory-rules	2,269 (0.90%)
17. /data-center/faq-water-levels-lake-minnetonka-and-minnehaha-creek	1,993 (0.79%)

List of the most-viewed pages on the MCWD website in 2015

Project/Activity: Videos

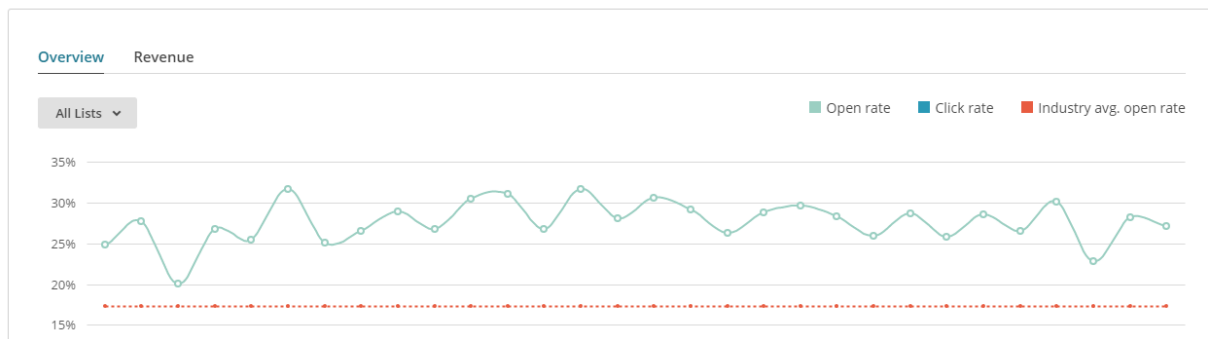
Video	Watch time (minutes) ?	Views ? ↓
Installing a Permeable Paver Driveway	69,260 (80%)	23,115 (80%)
This is How We Flow on Minnehaha Creek (Thi...	1,751 (2.0%)	1,022 (3.6%)
Raingarden Envy	1,551 (1.8%)	899 (3.1%)
Erosion Control Tips - Stabilizing Soils and Ero...	1,273 (1.5%)	674 (2.3%)
The Minnehaha Creek Preserve	2,088 (2.4%)	660 (2.3%)
Erosion Control Tips - Perimeter and Sediment...	426 (0.5%)	210 (0.7%)
Kenwood Stone Poem Raingarden	176 (0.2%)	190 (0.7%)
New Long Lake Creek stream channel goes on...	355 (0.4%)	168 (0.6%)
Erosion Control Tips - Best Management and ...	271 (0.3%)	131 (0.5%)
Minnesota Lakes At Risk	595 (0.7%)	103 (0.4%)

List of top views of videos on the District's Youtube channel in 2015

Project/Activity: Media Relations and e-newsletter

Total Articles	360
Total Impressions	21,819,583
Total Media Cost	\$1,148,733

Total number of impressions and the equivalent media cost, according to the news clipping service Burrelles Luce. The District issued 31 news releases and media advisories in 2015.



The District issued 46 Splash e-newsletters in 2015 news releases and media advisories in 2015 to an average of more than 1,000 subscribers. The 29 percent average “open” rate is nearly double the industry average.



ANNUAL REPORT

Year:

2015

Program:

Cost Share Grant Program

Top Accomplishments

Project/Activity: *Parkway Place Townhomes, Minneapolis*

Description: Terry Hammink, a 2013 Master Water Steward, worked within his townhome association to develop an entire site stormwater management retrofit. The District, along with Hennepin County, were partners in design development and funding assistance.

Outcomes: The project captures and treats 99% of the runoff from the roughly 2 acre drainage area. This is equivalent to approximately 387,000 gallons a year being kept onsite and infiltrated into the ground. This project has lead District cost share projects in diversity of organizations reached, with Terry leading monthly tours of the project and other townhome owners and their management group promoting it through their channels. Their consistent reporting on their outreach initiatives will help the District research the success of demonstration projects like this one.

Goals Achieved: The project was designed to create a safer and more usable public space, reducing the impervious surface and adding a community space by expanding the center median, where one can be surrounded by raingardens filled with native pollinator plants. There are other demonstration practices like pervious paver parking stalls and pretreatment forebays to create an educational space that will create conversation and awareness of the stormwater being managed onsite.

Project/Activity: *Arden Park, Edina*

Description: The District worked with the City of Edina and Master Water Stewards to create a stormwater management infused street reconstruction project. The District helped fund the installation of stormwater BMPs throughout the street design, aligning goals with Edina's 'Living Streets' policy. Further community engagement by Master Water Stewards led to a focused educational outreach by the District to create awareness of native planted shoreline buffers and their benefits to nearby residents along Minnehaha Creek in this area.

Outcomes: The city installed a subsurface infiltration trench, 3 sump manholes and permeable pavers replacing part of the street itself. This resulted in 14 acre-ft of runoff stored, 6,500 total suspended solids and 11.6 pounds of phosphorus captured for the 50 acre drainage area. The focused outreach included face to face conversations between MWS and residents, followed by multiple meetings with District staff and the residents. Multiple residents are developing designs for their streambank and one resident installed two raingardens and a 200 linear ft restoration of their streambank.

Goals Achieved: This projects exemplifies partnership between public and private property owners. Partners aligned goals in reducing flooding and improving the water draining from their properties to Minnehaha Creek. This project shows how Master Water Stewards can contribute to a District strategic focus area, and how we can work with cities to not only improve water quality, but how to then empower residents to do so as well.

Project/Activity: *Shir Tikvah Synagogue, Minneapolis*

Description: Shir Tikvah partnered with MCWD, as well as received a Gendler Grapevine grant, to create raingardens for stormwater runoff and will replace large areas of sod with native plantings in a highly visible area 1 block from Minnehaha Creek. The project included an educational program with the assistance of Master Water Stewards.

Outcomes: The property does not have a parking lot. But the 8,000 sf of runoff from the roof and impervious surfaces onsite drain directly to storm sewer inlets on the property. These raingardens will capture approximately 130,000 gallons, 900 lbs of TSS and 0.4 lbs of phosphorus a year. They had a celebration to help plant the raingardens, where over 150 people came out to volunteer and learn about the project.

Goals Achieved: This project had everything we could hope for with Community Engagement projects. The initiative, coined 'Gan Tikvah', or 'Garden of Hope', was an effort for this congregation to become more sustainable and one with nature. The project includes the stormwater features as well as an expansion to their vegetable gardens, and the addition of honey bees. This was a very cost effective project that is removing pollutants that would otherwise drain directly into the cee. And the outreach built through this project was outstanding, resonating with nearby residents and congregants, with over 150 people that showed up for the celebration of the raingardens install.

Project/Activity: *Union Congregational Church, St. Louis Park*

Description: Sue Nissen and Randy Holst are two Master Water Stewards who educated the church on water quality and managing the site's runoff. When they learned about the drainage issues the church was having, and the pre-school attached to the building, they saw a great opportunity to improve the environment and the community.

Outcomes: UCC worked with MCWD, Metro Blooms and Ecoscapes to design and install a three cell raingarden, a pre-treatment basin, a permeable paver outdoor classroom/gathering space, and a large above ground rainwater cistern to capture and filter roof runoff to be re-used to water their vegetable garden. The project captures a majority of the parking lot runoff as well as part of the roof, totaling approximately 245,000 gallons, 200 total suspended solids, and 0.5 lbs of phosphorus annually. The church held an event to unveil the raingarden and other BMPs. With a majority of congregants and the daycare children living nearby, this community space is used outside of mass and regular daycare hours.

Goals Achieved: The project includes an educational program that has been adopted by the church and the daycare, including botanical names for all of the native plants, curriculum on understanding where the water draining off the site flows to, and the addition of educational signage near the newly installed lending library. The signage will link passersby to other MCWD initiatives, like the Minnehaha Greenway less than a mile from this site. It also will have information on what residents can do on their own property to promote clean water.

Project/Activity: *Nokomis Neighbors for Clean Water, Minneapolis*

Description: This initiative is a partnership between MCWD, Metro Blooms, Hennepin County, City of Minneapolis, BWSR, Friends of Lake Nokomis, Nokomis East Neighborhood Association and Master Water Stewards. All of these organizations joined forces to alter the perception and functionality of alleyways in Minneapolis. After reflecting on the success of a pilot alleyway retrofit in this area in 2014, Metro Blooms was able to leverage Clean Water Land and Legacy, County and MCWD funding to expand the initiative to 15 blocks within the Lake Nokomis subwatershed. The project's intent is to beautify alleyways to create a welcoming community space. It will also engage and educate residents on water quality issues, and empower and incentivize the installation of stormwater BMPs to retain impervious runoff on private property. This would keep a large amount of runoff from entering the alley, and draining to storm drains, directly flowing into Lake Nokomis.

Outcomes: In most cases, the participating properties capture 90% of the contributing drainage area, resulting in approximately 15 lbs phosphorus removal annually for the entire project. The retrofit includes the installation of raingardens, redirecting downspouts, native planting strips and permeable pavers. The initiative has 3 completed alleyways, with 6 more alleyways to be installed in both 2016 and 2017. The project has brought the community together, and includes Master Water Stewards and block leaders to organize and develop interest. Metro Blooms then designs each property and is project manager over construction of the practices.

Goals Achieved: This project directly aligns with the long term strategic plan to improve water quality in Lake Nokomis. It compliments other District initiatives in the area (wetland restoration and bio manipulation in the lake) and was foreseen as one of the only options for stormwater management in the highly developed drainage area to the northeast of the lake. The project has been successful at bringing people together for the common cause of protecting our waterbodies. WE have increased awareness, and implemented a number (up to 180 BMPs when finished) of demonstration practices others can learn from and adopt on their own property. Each alley has an "alley captain" who champions the project, organizing the information sessions and gathers community interest. In my eyes, this is the most successful project his year at empowering residents to take ownership in protecting the natural resources in their neighborhood.

Project/Activity: *GreenCorps Member Project*

Description: The District was fortunate to be a host site for a GreenCorps member in 2014-2015. Heidi Quinn served an 11 month internship at the District, and one of her main projects was conducting an inspection of all past funded cost share projects. The member also created a GIS map of all completed projects where this inspection information was uploaded to. The long term goal for this map is for it to become the future database for the program, and to create a visual representation of where projects are, their performance and the outreach built within the community from them.

Outcomes: These inspections would help staff understand which projects have been installed and their functionality over time. This was difficult to do with the existing staff capacity. From these inspections, we discovered that almost 90% of the projects that have been closed out are still functioning properly, with minimal seasonal maintenance needed. The interactive map is a project that has helped create a visual representation of the projects throughout the District as well as a tool for sharing program data.

Goals Achieved: Hosting a GreenCorps member enabled the Cost Share program to pursue some new initiatives that were previously beyond staff capacity. Getting updated inspections was necessary, and great news to report that almost all past funded projects are still in the ground and functioning properly. The interactive map is something that has been on every department's radar but staff have lacked the ability to put in the time to develop. Heidi was able to put in the time to create a map that the Board felt could be adopted District wide and beyond. This map needs continued updates, but will help be a visual representation of the program and its effectiveness.

Project/Activity: *Homeowner Projects, Districtwide*

Description: It was a great year for homeowner cost share projects, as we saw more residential installations than any previous year. Some were tied to other District initiatives, but some were developed by the individual and have grown to become demonstration sites with educated homeowners promoting stormwater management in their community. The District saw partnerships beyond the usual Minneapolis and Edina neighborhoods to include projects in Mound, St. Louis Park, Deephaven and Minnetonka Beach, as well as other cities.

Outcomes: These projects have historically been small scale and generic. However, we are seeing greater density of homeowner BMPs in certain communities, making a bigger impact on water quality. The projects themselves have become more complex. This year we saw residential underground capture/re-use systems, green roofs, permeable pavers, and more than just raingardens.

Goals Achieved: We saw the most applications for one year for shoreline/streambank restoration projects, which has been a focus of our outreach post 2014 flooding. We have created partnerships with both residents and cities through the development of these projects. Some of these partnerships have opportunities to lead to further collaboration, or even building capacity to leverage policy change within these communities to provide greater water quality than what is currently being implemented.

Supporting Information/Attachments

(reports, photos, spreadsheets, etc.)

Project/Activity:

Project/Activity:

Project/Activity:

Project/Activity:

MINNEHAHA CREEK



WATERSHED DISTRICT

QUALITY OF WATER

QUALITY OF LIFE

ANNUAL

REPORT

2015

Year:

Education

Program:

Top Accomplishments

Project/Activity: *Cynthia Krieg Watershed Stewardship Fund*

Description: The Cynthia Krieg Watershed Stewardship Fund awards money annually to projects that promote environmental stewardship through education and innovation within the District. Education staff guided projects throughout the year, highlighting progress and completion of past projects through social media. Staff and the CAC reviewed and evaluated 2016 grant applications, with the Board of Managers make the final decision for projects to be funded.

Outcomes: Projects completed during 2015 include:

- Wilderness Inquiry's Urban Wilderness Canoe Adventures curriculum, which engaged over 2,275 students in water quality education
- Urban Ecosystems "Lake Minnetonka Guide to Shoreline Gardening", with the purpose of encouraging shoreline owners to protect water quality through their gardening practices, while maintaining their preferred aesthetics

Projects ongoing during 2015 include:

- Kenwood Elementary installed a raingarden, signage, and developed a hands-on curriculum for 5th graders about watersheds
- Minneapolis Parks and Rec Board developed a social marketing campaign to reduce feeding of waterfowl around lake waterfronts

We received 18 proposals for the 2016 funding year totaling over \$287,000 for our \$125,000 level of available funds. Thirteen projects will be funded for 2016 including a 'Watershed Moment Campaign' to educate Lutheran congregations in the District, several youth engagement and curriculum projects, community workshops about rain barrels and water quality, and a local conference about water reuse.

Goals Achieved: Funding proposals in specific, focal geographies is one way the education department can program in priority subwatersheds, a major goal of the workplan. The grant program also allows us to cultivate and strengthen relationships with priority audiences and increase involvement with groups protecting water quality in the District.

Project/Activity: *Creek Cleanup Education Tent*

Description: At the 2015 Annual Creek Cleanup, we had an expanded education area called the 'Eco-Education Zone' at the Lake Hiawatha site where various like-minded organizations were invited to have a table. We also had a Pledge for Clean Water.

Outcomes: Sixteen organizations had a table with interactive activities to engage cleanup volunteers. Over 1,600 volunteers attended the cleanup, and many entered the Eco-Education Zone. 273 individuals took a pledge for clean water. A follow-up survey demonstrated that more than 85% of the exhibitors had an excellent experience at the event. 100% of exhibitors who took the survey said they would be likely or very likely to participate in next year's event. Over sixty percent of the cleanup volunteers who participated in a follow-up survey said they learned something new from the Eco-Education Zone.

Goals Achieved: The Creek Cleanup, and supporting items like the Education Tent, fall into multiple workplan goals. It helps increase awareness and understanding of MCWD goals, priorities, programs and resources, increases voluntary public participation and enhances stewardship of local water resources through the engagement and education of district residents. It also increases the awareness and understanding of the MCWD with other environmental organizations and paves the way for future partnerships.

Project/Activity: *Signage at Minnehaha Preserve*

Description: Development and installation of interpretive signage at the Minnehaha Preserve in St. Louis Park.

Outcomes: A goal of the signage is to enhance the value of the creek restoration work and promote community understanding and connection to the Minnehaha Greenway. A series of eight large signs detailing the history of the area, how land use changes in the area have affected Minnehaha Creek, and what users and the community can do to help protect and improve our lakes and streams were developed and installed at the Minnehaha Greenway. The signs are an important part of interpreting the restoration and connecting community members with the watershed.

Goals Achieved: The Minnehaha Greenway has been identified as a priority geography for the alignment of District programs and capital investment.

Project/Activity: *Community Outreach*

Description: The education team took a deeper dive into community outreach during 2015 attending a variety of community events as an organizer, sponsor, presenter, tabling a booth, or a combination of the above.

Outcomes: Over 4,600 District residents were engaged in 2015 at over 40 events organized, sponsored, or attended by staff. Events include Minnetonka's Community Open House, Arboretum lego exhibit events, Westonka Dog Days, and Cargill's Earth day Showcase. Staff engaged individuals on topics including winter salt use, pet waste, native plants, green infrastructure, and best management practices for clean water.

Goals Achieved: Community engagement is a major part of the education workplan. Audiences included local leaders, partner organizations, community groups, private contractors, local property owners, and more. Events took place Districtwide with the goal of increasing awareness of MCWD principles, priorities, and projects; enhancing community understanding of local water resources and issues; providing resources and empowering residents to protect and improve water quality; and building the community capacity necessary to support strategic initiatives.

Project/Activity: *Watershed Association Initiative (WAI)*

Description: The WAI has a mission of engaging and empowering citizens of the Minnehaha Creek Watershed to assist MCWD in meeting its established water quality and lake/stream management goals. The WAI main goals include leadership, education and collaboration.

Outcomes: A new coordinator for the WAI program, Jen Kader, joined the program in September. The coordinator has been involved with supporting existing lake and stream groups and several new organizations in the watershed have expressed in forming. On December 1st the WAI in partnership with MCWD and the Freshwater Society hosted the annual Lakes and Rivers Summit in Hopkins. The event was an opportunity for individuals to learn about lake and stream management, network and exchange ideas. This years' summit focused on funding options available to local groups, Aquatic Invasive Species (AIS), and shoreland restoration. There were 70 individuals attending the summit.

Goals Achieved: This activity is part of the Targeted Community Engagement Programs. WAI plays a key role with cultivating, strengthening and nurturing relationships with lake and stream groups.

Project/Activity: *Youth Education*

Description: Youth education was a bigger focus in 2015 than in past years. Staff worked with many school groups, pre-K through high school. Events include field days, service projects, and interactive programming.

Outcomes: The annual Children's Water Festival had over 1200 4th graders in attendance. MCWD Education and AIS staff helped sponsor, provided an educational station, and assisted in outreach with schools in the District. Staff worked with youth at Meadowbrook Collaborative multiple times, engaging approximately 65 children, to teach them about watersheds, the neighboring creek, and macroinvertebrates. Staff also worked with school groups to teach them about watersheds, and stormwater pollution, in addition to leading them in service projects (stormdrain cleanups), engaging about 150 students. Staff also assisted partnering organization Wilderness Inquiry in several education programs, reaching over 150 students.

Goals Achieved: Youth education is an important piece of MCWD's broad education and outreach. In addition, programming with Meadowbrook Collaborative youth is in a priority geography.

Project/Activity: *Training and Workshops*

Description: MCWD staff developed a new workshop for realtors, and organized many other trainings including 3 rain garden workshops in partnership with Metro Blooms, the Shallow Lakes Forum, Lakes & Rivers Summit, and the Clean Water Summit at the Arboretum. In addition, staff consulted with Fortin Consulting to plan winter maintenance trainings for public work officials, set to take place in January.

Outcomes: The Clean Water Summit in September saw approximately 160 participants. The Shallow Lakes Forum had 55 participants and the Lakes & Rivers Summit had about 80 participants. MCWD sponsored three raingarden workshops hosted by Metro Blooms in 2015. The three workshops had 69 participants in total. According to a survey sent to workshop participants, over 75% of participants either installed, are currently installing, or plan to install a raingarden because of attending the workshop. Many participants also noted adopting other clean water practices as a result of the workshop, including installing a rain barrel, installing permeable pavement, redirecting downspouts, adjusting winter salt use, and raking/bagging leaves.

Goals Achieved: Trainings and workshops allow MCWD to target specific communities and behaviors. It increases voluntary public participation in water resource issues, fostering stewardship of local water resources.

Project/Activity: *Education material development*

Description: New fact sheets were developed and updated to maintain current information about District programs and ongoing projects. A large, portable floor map of the District was developed and printed by the Science Museum of Minnesota. Staff also developed a portable case of bottles filled with water and various pollutants to take to events and programs. Several other displays are in the development stage to be completed in early 2016 including a stormwater plinko board, a 'suitcase' about water pollutants, and some additional mini golf holes.

Outcomes: The floor map can be used to engage visitors to the District, and as a tool to take to events to engage residents about watersheds and the District. The bottles with pollutants are a great tool to engage students about stormwater pollutants before a stormdrain cleanup, or other service projects. They can also be brought to events to bring individuals to the MCWD table and start conversations. Fact sheets and flyers are important for events so individuals have information to take home and refer back to. Both the Cost Share and Cynthia Krieg grant programs had updated flyers that were handed out at a variety of events – and both grant programs had an increase in applicants from the previous year.

Goals Achieved: Both print and interactive educational materials help reach target audiences and connect audiences to the resources and topics MCWD is trying to engage them in. Education materials are part of the broad education and outreach goal, but also contribute to programming and engagement in targeted and priority areas.

Project/Activity: *Master Water Stewards*

Description: In the third year of the three year pilot in the Minnehaha Creek Watershed, the program has had a total of 80 Master Water Steward volunteers. This year's individuals were active with designing and implementing run-off prevention capstone projects coupled with outreach campaigns to increase awareness and encourage neighbors to take action to protect clean water. District staff was involved with preparing for the expansion of the program across the Twin Cities metro area.

Outcomes: The District has a volunteer force of 80 individuals who are leaders in their community and champions for clean water. The combined 80 stewards have helped redirect more than one millions gallons of stormwater into the ground, rather than in stormdrains. The three raingardens installed by MWS in 2015 alone have infiltrated 96,485 gallons of water, and diverted .25 lbs of phosphorus and 46 lbs of TSS. The 2016 MWS program will be expanding to six other watershed districts and one municipality.

Goals Achieved: The MWS program helps increase voluntary public participation in water resource management, as well as fosters stewardship of those resources. The program also serves to build community capacity in the neighborhoods the stewards reside in. Master Water Stewards assist staff in broad education and outreach. Stewards were also utilized for targeted community engagement when staff could not be present at events.

Project/Activity: *Non-point Education for Municipal officials*

Description: Non-point Education for Municipal (NEMO) officials was once again a focus for the watershed district this past year. The two major events included a summer boat tour on Lake Minnetonka and a workshop on winter maintenance and chlorides at the Minnetonka Public Works facility. These events are targeted towards elected officials in the west metro area to provide educational and skill building programming that increases their knowledge about the connection of land use and management decisions to water quality and natural resources.

Outcomes: More than 85 elected officials attended the boat tour on Lake Minnetonka. Education topics included aquatic invasive species (AIS), water quality, and the role of education and outreach. About 40 elected officials attended the chloride workshop in October to learn about the harms of chloride pollution to our waters, and what they can do to make a difference.

Goals Achieved: The NEMO program is a very targeted engagement program to educate local leaders and officials about water quality and the decisions they make in their communities. NEMO programs also help municipalities increase awareness and understanding of the District.

Project/Activity: *Climate Change education and outreach*

Description: Together with MCWD Communication staff, Climate Change was a focus of programming in 2015. Staff participated in the Climate Generation MN Convening in November, and hosted a workshop on how communities and individuals can prepare for a changing climate.

Outcomes: More than 70 individuals attended the Climate Convening in November to learn individual and community solutions to prepare and adapt to climate change. Education staff engaged District residents at several events in discussion of climate change through a drone video of 2014 flooding. Staff assisted the communications program in writing an executive summary of a 2014 NOAA climate adaptation study.

Goals Achieved: Education and outreach about climate change is key to fostering stewardship of our natural resources in the District and increasing awareness and understanding of MCWD goals, priorities, programs, and resources.

Supporting Information/Attachments

(reports, photos, spreadsheets, etc.)

Project/Activity: Creek Cleanup Education Tent





Project/Activity: Cynthia Krieg Watershed Stewardship Fund



Wilderness Inquiry

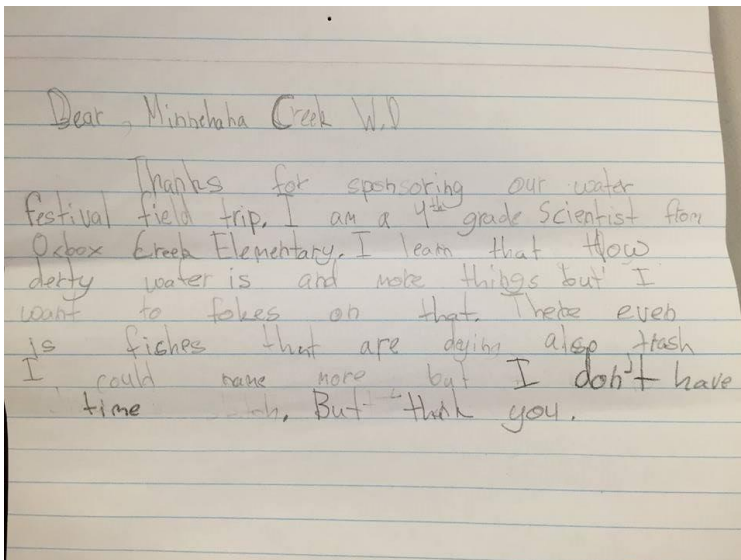


Wilderness Inquiry



Wilderness Inquiry

Project/Activity: Youth Education



Children's Water Festival



Children's Water Festival



Children's Water Festival



Meadowbrook Collab



Meadowbrook Collab



Meadowbrook Collab



Meadowbrook Collab



Meadowbrook Collab



Ramsey Middle School cleanup



Ramsey Middle School cleanup



Hopkins HS Earth Club cleanup



Hopkins HS Earth Club cleanup

Project/Activity: Minnehaha Preserve Educational Signage



Project/Activity: Master Water Stewards



2015 MWS graduation



Bus tour

Project/Activity: NEMO



chlorides workshop

Project/Activity: Community Outreach



Westonka Dog Days



Lego exhibit



Lego exhibit



Lego exhibit



Minnetonka Eco Fun Fest

Project/Activity: Trainings and Workshops

Project/Activity: Educational Material Development



Pollute or Protect suitcase

Project/Activity: Climate Change





MINNEHAHA CREEK



WATERSHED DISTRICT

QUALITY OF WATER

QUALITY OF LIFE

ANNUAL REPORT

Year:

2015

Program:

Permitting

Top Accomplishments

Project/Activity: *Refocused Mission and Partnership Approach*

Description: A primary focus of the Permitting Department (Department) in 2015 has been the repositioning of the department's mission in support of the 2017 Comprehensive Plan. The mission has been reconfigured and refocused in an effort to bridge the perceived gap between land-use and water governance through proactive involvement in community development. Through the revitalized focus, the Department has committed to providing proactive, value added planning in partnership with its member communities and the development community. To supplement the Department's rebranded mission, Permitting Staff have begun to analyze the data received through permit applications to actively track land-use change within the District in real time. This analysis allows staff to extrapolate areas of development pressure and proactively engage cities and developers early in the community development process. In doing so, the Permitting Department is able to assist and facilitate in navigating water resource regulation and provide sustainable land-use planning expertise to achieve greater natural resource benefits than would otherwise be accomplished through regulation alone.

Outcomes: Implementation of the Department's refocused mission has enabled staff to engage municipalities and the development community early in the land development process. The added coordination has provided new opportunities to leverage natural resource benefits through sustainable land-use planning expertise, streamlined permitting, and value added project management.

To further these initiatives, the Department has bolstered inter-agency coordination amongst local, state, and federal land-use and water resource regulatory authorities in an effort to streamline the permitting process. The Department has been working towards development of a general permit with the U.S. Army Corps of Engineers (USACE) to further facilitate a streamlined permitting process. In inter-connecting these various agencies and coordinating their regulatory processes to streamline permitting, the Department has aggregated a unique knowledge base that allows staff to navigate applicants through the complexities of land-use and water resource regulation.

The application of the Department's refocused mission and unique knowledge base have culminated in the identification of opportunities to implement greater natural resource benefits through partnership and value added planning. A prime example of this approach is the Laketown 9th Development, led by the Lennar Corporation. The 99-unit subdivision originally proposed a permanent wetland impact of 1 acre, and met all applicable natural resource regulations in doing so. However, early coordination amongst the Department, the City of Victoria, and the Developer resulted in the identification of an alternative partnership approach, which will restore 12 acres of wetland within the Six Mile Creek corridor. This project has served as a model example of how the Permitting Department has refocused its mission to promote greater natural resource benefits through partnership and collaboration.

Goals Achieved: In examination of the Department's refocused mission, the greatest natural resource benefits are unlikely to be accomplished through technical comprehension and rule administration alone. In efforts to bridge the land-use and water governance gap, the department has invested in achieving greater natural resource outcomes through collaboration and partnership. Development of partnerships and policies aimed at strengthening links between water management and land-use development will continue to position the Department and the District as a cooperative and competent partner, delivering outstanding natural resource improvements and protection while maintaining prosperous relationships with various entities, agencies, and groups. The Department continues to explore a variety of other partnerships predicated on identifying creative regulatory solutions which achieve a greater degree of resource protection than would be obtained through reactive administration of the District's authorities.

MINNEHAHA CREEK



WATERSHED DISTRICT

QUALITY OF WATER

QUALITY OF LIFE

ANNUAL REPORT

Year:

2015

Program:

Planning and Projects

Top Accomplishments

Project/Activity: *Long Lake Creek Corridor Improvement Project – Phase II*

Description:

The Long Lake Creek Corridor Phase II Restoration Project was constructed throughout the early winter months of 2015, with final vegetation plantings, wetland enhancements and invasive species control being completed throughout the remainder of 2015. This restoration, constructed on the site of a former waste water treatment facility (WWTF), involved dredging and disposal of excess sediments and reconnecting the basin to Long Lake Creek, resulting in a mixed-type wetland with the creek meandering through it, similar to the historical alignment and conditions that would have been present prior to ditching the stream to construct the WWTF. The restoration project is a cooperative effort between the District, city of Long Lake, and the Metropolitan Council.

Outcomes:

The project resulted in nearly 10-acres of restored, mixed-type wetland; over 30,000 wetland plantings and 400 shrubs; over 550 linear feet of new, sinuous stream channel; and extensive invasive species management, both on the site of the restoration and in coordination with adjacent property owners.

Goals Achieved:

The purpose of the restoration project is to improve water quality for Long Lake Creek and downstream receiving water body Tanager Lake, which is impaired for excess nutrients; increase in-stream, wetland and upland habitat value; create additional floodplain storage by reconnecting the stream with its historic floodplain; and to provide a publicly accessible natural resource amenity for the residents of Long Lake and surrounding communities.

Project/Activity: *Six Mile Creek Subwatershed Planning*

Description: 2015 saw the initiation of the Six Mile subwatershed planning effort, the first geography to be formally adopted as a focal geography by the District board. The Six Mile plan will be rolled out as part of the 2017 comprehensive plan, and will not only shape the capital investments of the district in the subwatershed, but will also serve as the framework for future focal geography planning. The plan will build on the robust scientific analysis conducted in the 2007 Comprehensive Plan, the 2014 Diagnostic Study, the ongoing Carp Assessment, and other District-led studies. However, unlike past subwatershed plans, the Six Mile focal geography plan will embody the adopted *Balanced Urban Ecology Policy* aimed at developing high-impact projects through systems-thinking, sustained focus, and strategic partnerships. Staff are working closely with community partners to integrate the water resource framework into partner objectives and planned investments.

As staff have been scoping the planning process for Six Mile, we have remained responsive to specific emerging opportunities that fulfill Six Mile goals. Significant progress has been made towards a wetland restoration adjacent to the Laketown 9th development in Victoria. Through partnership between the District and US Home Corporation, the project will keep wetland acres in the watershed and achieve environmental outcomes greater than would be achieved through regulation alone. A second project is being evaluated north of Pierson Lake that could not only address the primary source of phosphorus pollution in the watershed, but also protect the headwaters of the watershed in anticipation of development reaching that area.

Outcomes:

- Executed a memorandum of understanding with the City of Victoria memorializing coordination on land use and water planning, and permit review. The Victoria MOU has leveraged opportunities such as the US Homes Corporation wetland restoration and coordination on downtown development anticipated in 2016.
- Leveraged an additional \$40,000 in BWSR grant dollars to evaluate opportunities to manage phosphorus and flooding in the Mud Lake drainage area.
- Based on successes with the partnership model, we are pursuing an agreement with the US Army Corps to evaluate a programmatic general permit and opportunities for project funding through their Habitat Restoration program.

Goals Achieved: The Six Mile subwatershed plan and plan implementation will achieve District goals through: improving ecological integrity of the subwatershed through integrated land use and water resource planning; improving water quality by managing internal and external nutrient loading in affected lakes; evaluating impacts of future development on flood storage capacity and integrate community flooding concerns with subwatershed planning; and engaging residents, local governments, and private interests in the planning and prioritization process.

Project/Activity: *Comprehensive Plan Update*

Description: The process to update the District's Comprehensive Plan began in earnest in early 2015 with a series of public meetings. The Plan update is guided by the Board's *Balanced Urban Ecology Policy* with a primary focus on improving the District's implementation model to better integrate its work with the built environment. Staff efforts in 2015 have focused primarily on public outreach and engagement, an internal self-assessment and strategic planning process, and a series of discussions with the Planning and Policy Committee (PPC) and stakeholder advisory committees to guide development of the implementation model. There has been broad support from the advisory committees thus far for the District's efforts to improve integration with land-use planning and its two-track approach.

In 2016, work will continue in three primary areas: (1) working with the advisory committees to refine the District's implementation model, (2) working with staff and the PPC to evaluate and align programs through the strategic planning framework, and (3) utilizing new data and the Ecosystem Evaluation Program framework to update the water resource issues and implementation strategies for each subwatershed. These three areas of work will be brought together to draft the Plan for review and approval by June 2017.

Outcomes:

- An updated Comprehensive Plan that satisfies the requirements of MN Rules 8410
- An improved implementation model that supports the District efforts to improve integration of land-use and water planning
- Community support for the District's new model

Goals Achieved:

- The Plan update process will directly address the goals of Education and Communications and Public Input by engaging stakeholders in the process and educating them about the District's approach.
- The Plan will indirectly address the District's Water Quality, Water Quantity, Ecological Integrity, and other goals by providing an improved implementation framework that will increase the District's success.

Project/Activity: *Strategic Planning Framework*

Description: In mid-2015, staff developed the Strategic Planning Framework as a tool to help the Board and staff evaluate existing programs and new initiatives to ensure that the District is allocating its resources to the highest and best use. The framework provides context for decision-making by linking program activities back to the District’s mission and goals; identifying the outcomes, metrics, and resources allocated for each activity; and showing how the District’s various programs align.

The first step in the process, which began in late 2015, is to refine the District’s mission and goals to improve focus and clarity and ensure that they reflect the evolution of Board policy in recent years. This work will continue into 2016 with the adoption of mission, vision, values, and goals followed by an evaluation of each program by the staff and Board. This framework will be incorporated into the Comprehensive Plan as an ongoing evaluation tool to be repeated every 5 years, or more often as needed.

Outcomes:

- Establish Board priorities and allocate resources accordingly
- Improve District focus and effectiveness
- Align programs under common mission and goals
- Develop clear outcomes and metrics for program activities

Goals Achieved:

- The Strategic Planning Framework will indirectly address all of the District’s goals by improving focus, program alignment, and resource allocation across the organization.

Project/Activity: *(title of activity goes here)*

Description:

Outcomes:

Goals Achieved:

Project/Activity: *(title of activity goes here)*

<p>Description:</p> <p>Outcomes:</p> <p>Goals Achieved:</p>
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Project/Activity: *(title of activity goes here)*

<p>Description:</p> <p>Outcomes:</p> <p>Goals Achieved:</p>
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Project/Activity: *(title of activity goes here)*

<p>Description:</p> <p>Outcomes:</p> <p>Goals Achieved:</p>
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Supporting Information/Attachments

(reports, photos, spreadsheets, etc.)

Project/Activity:

Project/Activity:

Project/Activity:

Project/Activity:



ANNUAL REPORT

Year:

2015

Program:

Project Maintenance & Land Management

Top Accomplishments

Project/Activity: Technical Assistance to Private Landowners

Description: Creatively utilized technical staff expertise and District resources to provide technical and project assistance to private landowners in the Painter Creek subwatershed.

Outcomes: This technical assistance could lead to the acquisition of approximately 600 acres of land through conservation easements, which will guide the restoration and protection of a large corridor connecting currently preserved natural areas throughout the entire Painter Creek subwatershed.

Goals Achieved: With minimal financial investment, the District will protect, in perpetuity, wetland, forest, and upland habitat with sound technical assistance to private landowners who have become strong partners of the District.

Project/Activity: 2014 MCWD Flood Report

Description: Aggregated and synthesized data gathered throughout the flooding event to assess impacts across the watershed.

Outcomes: The flood report documents the flooding event, discusses the effects of high water across the District, details the organizational impact across District departments, and summarizes agency coordination.

Goals Achieved: The District plans to leverage the information within the report, along with the experiences gained during the flooding event, to memorialize protocols and procedures to be implemented during a future flood event.

Project/Activity: Project Maintenance Plan

Description: Developed a Project Maintenance Plan for District projects, facilities, and lands which lays out a schedule for repairs and maintenance.

Outcomes: The Project Maintenance Plan will help schedule and track the cycle of reinvestment into District projects and facilities.

Goals Achieved: Projects will receive timely, proactive inspections that will identify potential issues before major problems occur. A maintenance schedule will be created so that facilities maintain proper function, and this schedule will inform future budgeting.

Project/Activity: Maintenance of Gleason North Stormwater Ponds, Plymouth

Description: Stormwater ponds are surveyed every three years to determine their sediment levels and their total wet volume. 2015 surveys determined the need to perform maintenance on the Gleason North Ponds 2 and 3. The ponds will be dredged during the winter of 2016.

Outcomes: Removal of 770 cubic yards of sediment will allow these ponds to continue to function as designed, provide storage for stormwater to prevent flooding, and settle out nutrients before stormwater enters Gleason Lake.

Goals Achieved: Infrastructure is maintained on a frequent and regular basis leading to improved water quality and refined techniques for maintenance of these facilities.

Project/Activity: Project and Land Inspections

Description: Biannual inspections of 52 District projects and 22 properties held by the District in fee title or easement.

Outcomes: Inspections proactively identify needed repairs that can be budgeted for and scheduled in advance and inform the writing of future contracts.

Goals Achieved: Projects and properties are inspected and maintained on a regular and consistent basis while allowing staff the opportunity to consistently update project partners and identify opportunities for future projects.

Supporting Information/Attachments

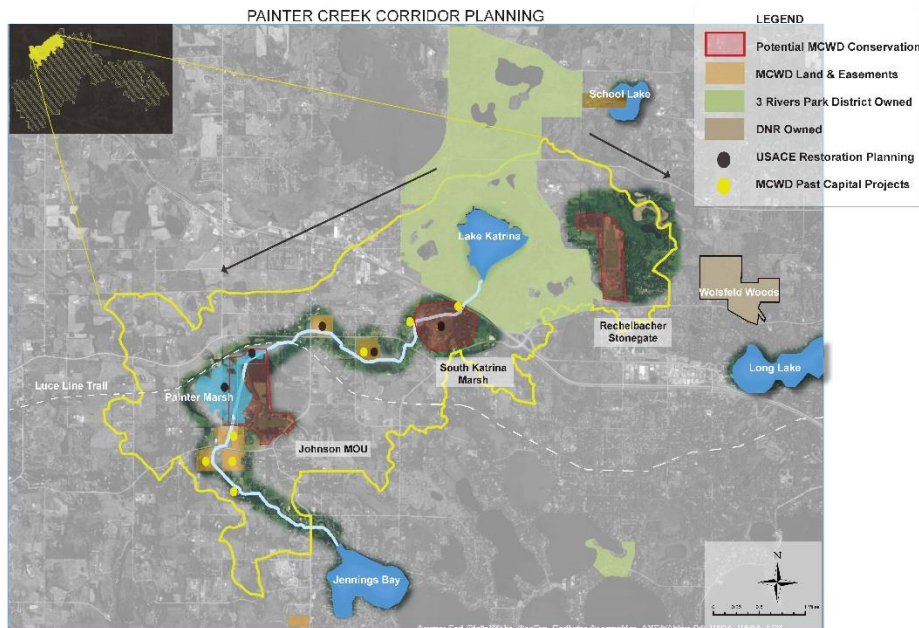
(reports, photos, spreadsheets, etc.)

Project/Activity: Technical Assistance to Private Landowners



Q:\Departments\O&M\Annual Inspections\2015 Inspections\Rechelbacher (Image 7917)

Project/Activity: Technical Assistance to Private Landowners



Q:\Departments\Planning\Capital Project Planning\Projects in Planning Phase\Painter Creek\Painter corridor for presentation

Project/Activity: Project and Land Inspections



Q:\Departments\O&M\Annual Inspections\2015 Inspections\SMMPR (Image 6847)

Project/Activity: Maintenance of Gleason North Stormwater Ponds, Plymouth



Q:\Departments\O&M\Annual Inspections\2015 Inspections\Gleason Ponds (Image 7345)



ANNUAL REPORT

Year:

2015

Program:

Research and Monitoring: Water Quality Program

Top Accomplishments

Project/Activity: Stream Statistical Analysis

Description: Staff hired WSB Engineering to assess monitoring stations on Minnehaha Creek, Painter Creek, Long Lake Creek, and Classen Creek and make recommendations for anchor sites that best represent the health of the stream.

Outcomes: The report findings identified there was enough similarity in water quality results among adjacent sites, that staff could reduce 10 of their anchor sites down to 7 on Minnehaha Creek and 5 sites on Painter Creek down to 3. The report also indicated that majority of the in-lake sites and stream sites located at the lake outlet may have statistically similar water quality. Upon further analysis, the program could reduce more stream sites, still have a robust data set, and reallocate resources towards E-Grade.

Goals Achieved: The goal is to better understand the water quality of the streams. The statistical analysis benefited the Watershed District by providing greater understanding of the individual stream sites, reducing redundancies in the field, and allowed for the reallocation of resources.

Project/Activity: Investigational Monitoring

Description: Staff conducted additional monitoring in several areas of the watershed to determine the root of a particular issue. Investigational monitoring occurred in Dutch Lake, Mooney Lake, and a site on Minnehaha Creek east of Japs-Olson building.

Outcomes: The monitoring on Dutch Lake was a joint effort between MCWD and resident on Dutch Lake. Severe blue-green algae blooms were associated with elevated phosphorus levels at point sources at several locations around the lake, including the launch of the lake. Adjacent road construction to the lake was potentially exacerbating the issue. Permitting staff was alerted about the findings and the city of Mound was contacted.

The monitoring on Mooney Lake was also a joint effort between MCWD and residents on Mooney Lake. Severe blue-green algae blooms were afflicting the lake for most of the summer. Previous monitoring on an upstream retention pond which is connected to a storm inlet that flows into the lake, indicated the storm inlets may be a source of the algal blooms. Residents monitored 4 storm inlets during rain event. The results were elevated phosphorus and total suspended solids concentrations. The residents also began monitoring the blooms to study algal community. Levels of blue-green algae were extremely high. The residents are working with a consultant to review the data and develop a plan to restore Mooney Lake.

Planning Department staff requested snap-shot nutrient data to be collected at a site on Minnehaha Creek just east of the east of Japs-Olson building. Review of the data is underway.

Goals Achieved: The goal is to better understand the health and function of the watershed. Staff worked with local communities to take advantage of opportunities to better understand the lakes and streams throughout the watershed.

Project/Activity: Ecosystem Evaluation (E-Grade) Program Development

Description: Develop the E-Grade Program to better assess, communicate and protect the overall health of the watershed. Develop the Ecosystem Evaluation Program (2nd of 4 year development schedule) - Meet with the Technical Advisory Committee (TAC) to get feedback and scientific community support, begin finalizing the metrics to assess the ecosystem services, and develop and test the grade break points for the deep and shallow lake, streams, and wetland features.

Outcomes: The TAC provided feedback and scientific community support on the metrics to assess the ecosystem services and the draft version of grade break points for the deep and shallow lake features. We met with the full TAC on March 18, 2015 and November 12, 2015. Three additional meetings were scheduled in April to discuss each feature separately (lakes, streams, and wetlands) and consisted of TAC members specialized in a particular feature. Staff also met with DNR and MPCA staff members several times to discuss more detailed specifics about certain metrics.

Goals Achieved: There are two goals. The long-term goal is to develop the E-Grade Program. The short-term goal was to meet with the Technical Advisory Committee (TAC) to get feedback and scientific community support, begin finalizing the metrics to assess the ecosystem services, and develop and test the grade break points for the deep and shallow lake, streams, and wetland features. The long-term goal is in progress and will be complete by the end of 2017.

Project/Activity: Subwatershed Monitoring

Description: Comprehensive monitoring was conducted in the following subwatersheds: Six Mile Marsh, Schutz Lake, and Minnehaha Creek as part of the E-Grade program's 3-year subwatershed rotation.

Outcomes:

In wetlands:

- Surveyed vegetation communities
- Collected soil samples

In lakes:

- Conducted near-shore seining and electroshocking of the fish community
- Conducted trap netting and gillnetting
- Surveyed vegetation communities
- Collected nutrient samples

In streams:

- Conducted habitat assessments
- Surveyed macroinvertebrate communities
- Collected nutrient samples

Goals Achieved: There were two goals. The first goal was to collect data to be used to develop the grade break points for the E-Grade ecosystem services for the deep and shallow lakes, streams and wetlands. The second goal was to gain a better understanding of the overall health of each of the 11 subwatersheds. The first goal was achieved and the second goal is in progress.

Project/Activity: Anchor Site Monitoring

Description: Baseline monitoring at established sites throughout the watershed. Sites are located on Lake Minnetonka, lakes in the upper watershed, and on all the creeks throughout the watershed. Data collection will focus on sampling for nutrients and assessing the physical parameters of the waterbodies.

Outcomes:

- Monitored the water quality on 32 lakes
- Monitored the water level on 21 lakes
- Monitored the water quality, flow and water level on 12 streams (47 monitoring sites)
- Stream remained ice-free longer than usual this year (late December) – typically stream monitoring ends early November

Goals Achieved: The goal is to collect data to assess trends throughout the watershed. The data will also be used to model hydrological conditions and assess areas to improve water resources.

Project/Activity: Monitoring Partnerships

Description: Research and Monitoring Department works with multiple partners to collect and share data. The partners were Minneapolis Parks and Recreation Board, Three Rivers Parks District Metropolitan Council Environmental Services, University of Minnesota, Minnesota Department of Natural Resources and United States Geological Survey.

Outcomes:

- Collected water quality data on an additional 18 lakes within the watershed
- Monitored flow and additional water quality parameters at the site upstream of the Minnehaha Falls
- Monitored water level at the Grays Bay Dam
- Collected storm samples on the streams
- Monitored the water level on 21 lakes

Goals Achieved: The goal is to provide a better understanding of the health of the watershed. Through partnership, MCWD is able to achieve this goal.

Project/Activity: Lake Nokomis Biomanipulation Project: Post-Project Monitoring

Description: Conduct the second year of post-Biomanipulation project monitoring on Lake Nokomis

Outcomes: The post-project monitoring of Lake Nokomis finds that the biomanipulation of the fish community is having a positive effect on the vegetation community and water quality in the lake. The walleye are maintaining the bluegill and the native plants are increasing in distribution in Lake Nokomis.

Goals Achieved: The goal is to collect data to assess the health of Lake Nokomis and the success of the biomanipulation project. The goal is still in progress. One more year of post-project monitoring needs to be conducted.

Project/Activity: 2014 Water Quality Report – Published in 2015

Description: The 2014 Water Quality Report summarized the nutrient concentrations in the lakes and loading concentrations of the streams throughout the watershed.

Outcomes:

- Published on the Watershed District's website
- Sent to all monitoring volunteers
- Discussed the results with internal staff (e.g., Planning Department)

Goals Achieved: The goal is to assess, summarize and communicate the results from the data collected throughout 2014. The 2014 Water Quality report was reformatted to better summarize the data and to make the technical information easier to understand in order to reach a wider audience. Sections were added to the report to highlight the nutrient problems throughout the watershed. The technical chapters on each of the subwatersheds were also reformatted. Each subwatershed became a stand-alone report that showcased photos and highlighted facts and information deemed useful to the public.

Supporting Information/Attachments

Project/Activity: Subwatershed Monitoring- Fish Sampling



Staff sorting fish with consultants from a near-shore seine



Staff backpack electroshocking with consultant

Project/Activity: Subwatershed Monitoring-Streams



Staff collecting macroinvertebrate samples below Minnehaha falls

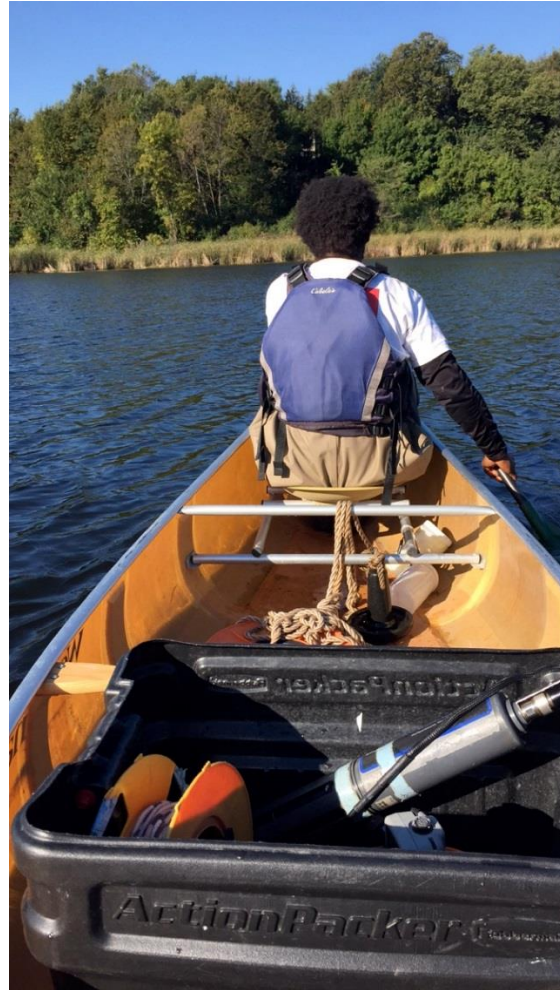
Staff headed off to collect macroinvertebrate samples and do a stream habitat assessment on a portion of six mile creek.



Project/Activity: Anchor Monitoring



Staff conducting routine stream monitoring on Minnehaha Creek



Staff paddling towards one of the canoe lake monitoring sites.