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A TWO YEAR EDUCATION PLAN TO SUPPORT THE GOALS OF THE
NINE MILE CREEK WATERSHED DISTRICT

by

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A capstone project submitted in partial fulfillment of the requirements for the degree of Master
of Arts in Education: Natural Science and Environmental Education.

Hamline University

St. Paul, Minnesota

August 2019

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PROJECT SUMMARY

This summary provides a brief description of the Education and Outreach (E&O) Plan for the Nine Mile Creek Watershed District (NMCWD). It answers the question, *How can the Nine Mile Creek Watershed District's (NMCWD) education program effectively meet the education goals set out in our ten year Water Management Plan?*

As a local unit of government in Minnesota, the NMCWD is charged with protecting and managing the water resources within its boundaries. The NMCWD oversees about 50 square miles, and contains parts of the cities of Bloomington, Richfield, Edina, Hopkins, Minnetonka, and Eden Prairie. It is guided by a Board of Managers and a ten year Water Management Plan, which sets the goals and focus areas for the District for ten years (2017-2027). Education and outreach are two of the main tools used to help the NMCWD accomplish the goals laid out in this plan. It is very important that the staff of the NMCWD use time and resources wisely to accomplish its goals. By creating effective education, we can encourage positive environmental stewardship behaviors. Therefore, I created an E&O Plan to help prioritize education efforts.

This project was guided by education and outreach plans from other watershed districts, including Capitol Region Watershed District (2009) and Riley Purgatory Bluff Creek Watershed District (2018). These plans formed the guiding framework for the completion of the NMCWD E&O Plan.

Rationale

This project was necessary in order to help meet the goals of the NMCWD Fifth Generation Water Management Plan. Among the goals laid out in this plan are efficient organizational management, and effective education and outreach. The education goals of the

Water Management Plan are broad, so that the education program can be flexible and adapt to the changing needs of the community. A shorter term education plan was important to help prioritize areas of education and focus the efforts of staff.

Participants

The intended audience for this E&O plan is multifaceted; the plan itself was meant for education staff, and perhaps volunteers presenting programs. Staff and volunteers participated in the creation of this plan, and they will also implement this plan, and work on updating it as needed. However, the ones benefiting from the plan and its implementation are our program participants. With more effective programming, the NMCWD can better serve its constituents.

Overview of Project Format

The plan for the NMCWD included an analysis of the various audiences we work with and prioritized which ones to direct our messaging towards. This was done through a variety of methods, including utilizing data gathered from past volunteer focus groups and staff meetings. All of the data used to inform this project was collected and analyzed by NMCWD staff, separate from this research project. The data gathered was also used in the past to inform the creation of the ten year Water Management Plan, the document that guides the overall goals of the NMCWD. NMCWD staff very much value public input and participation in planning education programs; this is so that we can not only keep them informed about water management decisions that affect them, but also to make sure that their concerns are heard and addressed. Therefore, it was important to involve these different voices in the creation of the education plan.

Next in the E&O Plan I describe the goals and strategies laid out in the Water Management Plan. These goals are very general in order to provide enough flexibility to

accommodate changing needs and information. The goals section in the E&O Plan describes these goals, as pertaining to the Education and Outreach Program.

The E&O Plan outlines and prioritizes the audiences that the NMCWD works with on a regular basis. These audiences are varied, and while the NMCWD will strive to craft messaging for each audience, some will need more resources dedicated to them.

The methods that the NMCWD uses to reach the audiences are also described. These methods include print materials, digital materials, and programs. Previous data gathered by the NMCWD guided the prioritization of specific methods over others in surveying information.

The plan identified key messages or topics. Topics were distilled from the NMCWD ten year Water Management Plan. These topics functioned as guides for programs to ensure that each program was accomplishing the goals of the NMCWD. The topics also identified areas and goals of the Water Management Plan that were not being accomplished by current programming. Some topics were highlighted as most important in feedback gathered from constituents, and included stormwater, climate change, sustainability, and habitat restoration.

The E&O Plan incorporated methods for implementation of the identified themes and messages. The NMCWD presents many programs each year, and partners on many more. The NMCWD also uses many different types of media and formats for distributing its messaging. The E&O plan helped prioritize and customize the messaging best suited for each format.

Finally, I developed a section on evaluation and refinement. The programs and messaging should have some way to evaluate their effectiveness, so that they can also be adapted to better meet the constituents needs in the future. This plan is meant to change with the changing needs of the NMCWD. It has a section on how future modification should take place.



Nine Mile Creek Watershed
District

Education and Outreach Plan

2019-2021

Education and Outreach Plan
2019

		Contents
1.0	Objective.....	3
2.0	Issues, Goals and Strategies.....	4
3.0	Audiences.....	8
4.0	Methods.....	12
5.0	Topics.....	14
6.0	Implementation.....	18
7.0	Evaluation.....	20
8.0	References.....	22

1.0 Objective

The objective of this Education and Outreach Plan (E&O Plan) is to accomplish the goals laid out in the ten year Water Management Plan of the Nine Mile Creek Watershed District (NMCWD). With limited amounts of staff, funding, and materials, it is important to prioritize outreach strategies to have the most impact. The contents of this plan were informed by staff and stakeholder input gathered by the NMCWD. Staff will continue to update this plan as new information becomes available, and as needed to be most useful to our constituents.

By prioritizing outreach strategies, NMCWD staff hope to create the most effective education and outreach program possible. With effective outreach, we can begin to affect behavior changes in the people receiving our outreach. The goals for behavior change are to inspire behaviors that protect and preserve the environment.

2.0 Issues, Goals, and Strategies

The E&O Plan supports the goals laid out in the fifth generation Water Management Plan (WMP) of the NMCWD, which was approved in 2017. In writing the fifth edition of the WMP, the NMCWD identified significant issues facing the watershed. There are about 200 action items described in the WMP to address these issues, and many ways in which education and outreach can help address them.

2.1 Issues

The issues listed here are described in greater detail in the Water Management Plan. This section of the E&O Plan focuses on examples in which the education and outreach program can help address them and achieve the goals laid out in the WMP for each issue.

Stormwater Management

- Work with public and private partners to evaluate, plan and develop regional stormwater management and reuse facilities
- Education aspect: inform the public about the planning process, and teach about new facilities planned or under development

Surface Water Management

- Collect and interpret water quality and ecological indicator data, as well as data about Aquatic Invasive Species; this also includes implementing recommendations from data reports to improve water quality

- Education: continue to make data and interpretations available to the public; inform about water quality improvement projects, and gather feedback on projects; implement education initiatives ahead of and during each project

Open Space and Recreational Uses

- Provide access to water resources, while protecting and preserving natural areas
- Education: Host programs at natural areas on a rotating basis, to promote equal access, and encourage sustainable use of natural spaces

Wetland Management

- Identify and implement wetland restoration and protection practices
- Education: Provide information on the functions of wetlands, and their importance; teach strategies for protecting wetlands

Groundwater Management

- Study the interaction of groundwater and surface water in the watershed, and collaborate with other entities to promote groundwater conservation
- Education: Inform public and partners about groundwater, and promote conservation through programs and workshops.

Land Use Management

- Participate in land use planning efforts to identify opportunities for improved water resources management
- Education: Make planning process more visible to members of the public

Flood Management

- Assist cities in addressing increased flood potential

- Education: Inform about effects of increased flood potential, and promote ways to mitigate flooding through programs and cost share grant program

Climate Change Adaptation

- Work with partners and stakeholders to promote climate change adaptation to minimize property damage and impacts to natural resources
- Education: Inform about the effects of climate change, and educate about adaptation strategies planned and in place

Education and Outreach

- Foster open communication and stakeholder participation through prioritized educational programming that aligns with District goals
- Education: Evaluate and revise educational offerings to offer the most up-to-date and effective programming to constituents; update this plan bi-annually

Organizational Management

- Review the District's implementation program relative to progress towards District goals, and collect relevant data to measure success
- Education: Share success and progress towards meeting District goals with the general public through programming and publications

In past surveys, respondents identified stormwater and climate change as issues of importance. Other topics included sustainability and habitat protection/restoration.

Though education and outreach can help support all of the issues mentioned above, education and outreach is specifically called out as its own goal in the WMP. The issues regarding education were identified in section 4.11 of the WMP; the general goals for

education were described specifically in section 5.9. Finally, broad implementation strategies were outlined in section 6.4 of the WMP.

3.0 Audiences

The NMCWD groups types of people together by common interests and goals. These groups may also share the same issues, and be reached by the same motivations to take action or change behavior. The messages that make sense to one audience may not resonate well with another. Therefore, it is important that the NMCWD tailor messaging and programs to the needs of each individual audience. The NMCWD interacts with and teaches a variety of audiences. These audiences include, K-12+, residents, visitors or recreators, local leaders, businesses and professionals, faith-based groups, developers, and social media audiences. These groups are described in more detail below.

K-12+

This is a diverse group, not only in terms of age, but also in terms of ethnicity and background. This audience does not just include children, but also includes educators, administrators, parents and caregivers. They may identify with a local waterbody near their school; they may reside outside the watershed district. Many different types of schools operate within the NMCWD, including public and private schools, charter schools, and language immersion schools. This audience has great potential to influence other audiences, as they bring home what they learned in school and teach it to parents, other family members, and caregivers. Richardson Nature Center of the Three Rivers Park District and Normandale Community College in Bloomington also reach this audience.

Residents

Residents include those who live within the boundaries of the NMCWD. They include homeowners and renters, and may live in single-family or multi-family dwellings. This audience has been a main focus of the NMCWD in the past. Residents may identify with a nearby waterbody (a few lake associations exist within the NMCWD), but may also identify more strongly with a neighborhood group or association. The potential for this group to influence community level change among their neighbors is great. However, the NMCWD can improve upon its messaging for the renter part of this audience, which has been underserved in the past, as this sub-audience does not usually have decision making authority about the land where they live. This group also loosely includes families, though many NMCWD programs promote to, and teach non-resident families.

Recreators

This audience may only visit the lakes, creeks, and parks within the NMCWD. For the purpose of this document, those recreators who also live within the NMCWD are covered under the Residents audience, though the messaging may overlap. Recreators and visitors make use of a wide variety of equipment, including (but not limited to) boats, waterskis, cameras and binoculars. Much of this equipment is involved in messaging, especially as it relates to preventing the spread of aquatic invasive species.

Local leaders

Local leaders include elected and appointed officials to the six cities in the NMCWD (Bloomington, Richfield, Eden Prairie, Edina, Hopkins, and Minnetonka), Hennepin

County, and various statewide organizations. They are generally people who make decisions about issues pertaining to land use and the environment on a local level (city and county), as well as a statewide level as well. Environmental groups, such as the Izaak Walton League, also are included in this audience, as they are comprised of members and environmental professionals with great potential to affect change.

Businesses/Professionals

This group does business or works within the boundaries of the District, but may not live within the District. This group has been historically difficult to reach, as the actual landowners of the businesses themselves are not always located within the NMCWD, and the business itself may not be able to influence land-use or management decisions. However, this audience can still benefit from education. For instance, the NMCWD has worked with the green teams at businesses like Dell and Cigna, which has led to habitat restoration around the buildings. Businesses and employees often have great interest in projects occurring around them, and the NMCWD will continue to look for opportunities to inform businesses about upcoming projects.

Volunteers

The NMCWD interacts with many different types of volunteers. Some volunteers only participate in short term events, such as a planting event or trash cleanup. Other volunteers have donated their time for many years, such as those in the Citizen Assisted Lake Monitoring Program or the Citizen's Advisory Committee. Still others, like the Master Water Stewards, perform volunteer work based on their own interests around the watershed, and are long term volunteers with open ended projects. This

group not only receives education, but also assists in planning programs and messaging, as well as educating all the audiences listed here.

Faith based groups

Faith based groups are a very diverse conglomeration of audiences; their similarities tend to lie in caring for creation, having larger parcels of land, and providing messaging for large groups of people at the same time. There are numerous opportunities for partnerships within this audience. For instance, places of worship can implement stormwater best management practices as demonstrations for their worshippers to implement later on their own properties.

Developers

Developers often interact with the NMCWD through its regulatory program. Developers seek permits from the NMCWD, and must prevent damage to local waterbodies through seeking the permit. There are many outreach opportunities to reach this audience in the future, especially with the recent addition of a Permit and Water Resources Coordinator at the NMCWD. This new staff member can help target outreach to developers.

Social media

This audience is nebulous, and is comprised of people from many of the above mentioned audiences. However, the social media platforms used by the NMCWD require their own type of messaging, and the audience on social media interacts with the NMCWD in a different way from an in-person audience. Therefore, they are included here as a separate audience.

4.0 Methods

The NMCWD uses a variety of methods, including digital and print materials, as well as in person programs and workshops, to reach its intended audiences, which are listed in section 3. The various methods currently used are described below. Methods identified by constituents and stakeholders are identified in section 4.2.

4.1 Method descriptions

Print media

Print media does not require personal interaction at the time of use; it is able to be consumed by the user without outside explanation or assistance. It also exists in physical format, rather than a digital one. Examples of print media include flyers, handouts and brochures, press releases, and interpretive signs. This category also includes the NMCWD history book, and other works published by the district.

Programs

Programs include workshops, trainings, lectures, staffing a table at a community event, and hands-on demonstrations. They are presented by a speaker to an audience, where the audience and presenter can interact in real time.

Volunteer events

Volunteer events differ slightly from programs, in that they involve a service or work component. These events usually also include an educational component as well, but the focus of the event is to complete an environmental stewardship action.

Digital

Digital media are any media that are consumed through a device of some kind. This includes the District's website and resource library, e-newsletter, social media platforms, email communications, and also recorded presentations. Some of the media in the physical formats are duplicated in digital form.

Promotional

Promotional items do not necessarily involve an educational component, though they often link to another of the methods, most commonly the District's website. They are useful items that often encourage sustainable behaviors, and can include reusable water bottles, trail maps, stickers, cloth tote bags, and pens.

4.2 Prioritized methods

In past surveys, stakeholders and constituents have indicated that certain education and outreach methods are more effective in helping them learn than others. These preferences for outreach methods will be taken into consideration while developing programs and messaging.

From past data collected, constituents favor in person workshops and programs, and online resources as the methods to gain new knowledge and information. The least favored methods were interpretive signs and flyers or brochures. This information is useful for planning what materials to present while at community events, which have favored flyers and brochures in the past. The NMCWD will work to make more resources available electronically, and connect our constituents with online resources.

5.0 Topics

The NMCWD uses the methods described in Chapter 4 to reach the audiences described in Chapter 3 on a variety of topics. These topics are varied and wide-ranging, but can be described by the general topic categories listed and described below.

5.1 Topic Descriptions

Aquatic Invasive Species: Plants and animals (that often originate from other countries) that dominate an aquatic ecosystem. They usually dwell wholly in the water, like zebra mussels or curly-leaf pondweed.

Stormwater: Precipitation that hits surfaces and flows across land. Stormwater flows through stormdrains directly into lakes and creeks, with no pre treatment. Thus, any pollutants it picks up (like chloride, grass clippings or chemicals) flow directly into the bodies of water as well.

Erosion: Erosion occurs when wind or water scour soil away. The NMCWD educates about erosion as it relates to creek and lake banks, as well as sediment filling in lakes and wetlands.

Shallow lakes: Lakes that are “50 acres or greater in size having a maximum depth of 15 feet or less” as defined by the Minnesota Department of Natural Resources. They have a unique ecology, and are quite different from lakes elsewhere in the state.

Algae: Often occurring in shallow lakes, algae is a symptom of high phosphorus in lakes. Excessive amounts of phosphorous pose a water quality issue for some lakes in the NMCWD. More education is needed on how stormwater runoff impacts phosphorus levels in lakes, and on which types of algae pose health risks.

Groundwater: Water found in aquifers, and is often a primary source of drinking water.

Water use and conservation: How to reduce the use of groundwater in homes and businesses, thereby conserving it.

Chloride: Chloride is present in many types of winter de-icing products like rock salt. It is often called a permanent pollutant, as there is no feasible, cost-effective way of removing it from lakes once it has entered the lake. It is harmful to aquatic life in high enough concentrations.

Climate Change: This topic is multi-faceted, and involves much more than just water related topics. However, storms are forecasted to be more intense in climate change scenarios for Minnesota, thus causing more stormwater, and stormwater pollution. Climate change models also predict warmer winter lows, which cause concerns for managing snow and ice, and the potential for increased chloride pollution in waterways.

Sustainability: In the face of a changing climate, we need to teach about how to care for our landscapes and our needs by being more efficient in our use of resources. Sustainability helps us make less of an impact on the planet's resources as we try to fulfill our basic needs.

Lake and creek data: The NMCWD collects data on the health of the creek and lakes within our boundaries. This data establishes baseline water quality conditions, tracks changes, and allows the NMCWD to measure the success of past and ongoing projects in improving the health of District water bodies.

Habitat protection and restoration: This topic is also very wide-ranging: in the past, the NMCWD has focused on removing an invasive plant called buckthorn, and restoring

the cleared area to a more native habitat type. The NMCWD office building offers a demonstration and education of this process; the NMCWD also makes grant funds available for cost sharing projects like this around the watershed.

Shoreline restoration and buffers: Shoreline buffers can help protect lakeshores from erosion with a variety of tactics. Most commonly, the NMCWD encourages the use of native plants as buffers to help hold soil in place. The cost share grant program also provides education and funding support for this topic.

5.2 Topics of Interest

In past surveys, constituents have ranked various topics, including those described above, on how important the topics were to them. Stormwater has consistently ranked fairly high on the important issues or topics that respondents were concerned about.

There are many related issues around stormwater, involving what the stormwater is picking up as it moves to the stormdrains. The NMCWD has begun participating in the Adopt a Drain program to begin to address this topic in our watershed.

Other topics of interest included sustainability, habitat protection, shoreline restoration and climate change. The NMCWD will strive to include the most up to date science and information on these practices in our programs, to better prepare our constituents for the changes happening on a local and global scale due to climate change. NMCWD programs have always encouraged sustainability and habitat protection, and we will continue to find ways to teach about specific practices as methods allow.

Staff will continue to assess the public's desire for information on a certain topic. Some audiences may have been missed during data gathering on topics of import, and the

NMCWD will continue to strive to include representatives from as many audience groups as possible in messaging and program planning. This also includes gathering more external input when planning programs from a wider range of people.

6.0 Implementation

Implementing this Plan will primarily be the work of the education staff, interns, and various volunteers trained by education staff. Staff will complete work plans annually that plan out programs by combining the audiences, methods, and topics described above.

Programs where implementation is most flexible to changes in messaging include these listed below. Speakers, presentation type, and topics can all be adapted to suit the needs of the audience, and the themes selected by constituents.

Summer Education Series: A group of family-friendly education programs usually conducted outside, during the summer months. Historically, these programs have focused on getting people outside and learning new skills.

Homeowner Series: A series to teach homeowners sustainable land care practices. This is usually conducted during spring and fall, and sometimes winter months.

State of the Water gathering: An annual gathering of NMCWD partners, decision makers and constituents to relate the accomplishments of the past year, and look ahead to the future. Speakers often talk about specific projects, or water issues around the District.

Mobile Education Displays: This category includes the Popup Education Cart and the Watershed Sandbox. The Popup cart is a mobile cart that visits Farmer's Markets and local beaches and parks in the summer and fall. Activities at the cart rotate, and are usually hands-on or game-like in nature. Historically, it has taught about aquatic invasive species.

The Watershed Sandbox is shared with the Riley Purgatory Bluff Creek Watershed District. It uses virtual reality technology to project a topographic map and virtual water onto the sand below. It changes based on how users sculpt the sand; it is used to teach about water flow, topography, and the interconnectedness of land and water.

Social media and website: The website is used for many purposes, and has a rotating suite of tips, news, articles, and reports. It is used to increase transparency of gathered data, project updates, and the like. The NMCWD social media platforms are used in much the same way, but with smaller snippets of all these articles.

Education staff gather input from many different groups when planning and presenting messaging, including board managers, citizen advisors, and constituents. The feedback from these groups will all be used to hone messaging, especially in those programs most flexible in type, above. The NMCWD will strive to include voices and audiences that may have been missed in previous surveys and listening sessions.

7.0 Evaluation

This plan covers two years (2019-2021) and is meant as a starting point to prioritize education messaging and programming for the NMCWD. It is important that this plan be evaluated for effectiveness periodically, so as to keep it up to date. New information must be incorporated into this plan, and new audiences and methods accounted for. The NMCWD will gather constituent input from as many of the audiences (listed in chapter 3) as feasible during the evaluation process. Each program's impact or reach will also be tracked by how many people participated. Updates to the E&O Plan will take into consideration the reach of various programs and methods, and prioritize efforts that have the most reach or best engagement from participants. The E&O Plan will also be more thoroughly evaluated during the updating process for the ten year Water Management Plan. Other ways of evaluating various methods are listed below.

Print media: The NMCWD can track number of flyers/brochures handed out; tracking how people heard about programs (gets at which media, print or digital attracted their attention).

Programs: Staff have been tracking the people reached at each program and event that has staff support (whether leading, hosting, or preparing materials for). This has already helped staff make better choices about which kinds of programs reach the most people for the amount of time invested. Staff can also develop evaluations for participants to fill out after they have been through the program.

Volunteer events: This type of program can also be evaluated by the number of people who participate in the event, or engage in the behavior. Participant evaluations can also be administered as in the programs category.

Digital: The NMCWD can track clicks to the website, and see which pages people are visiting the most. Staff can also track engagement on social media posts, and see which topics and formats are reaching more people than others.

Promotional: Promotional items are already tracked, as engagement with programs is tracked. We evaluate which items are picked up most often at each type of event, and staff work to pair each item with the format that suits it best (for instance, tote bags at farmer's markets or community events). Staff will also track engagement with the promotional item (for instance, conduct a visual survey of how many people are reading the trivia facts on promotional coasters).

8.0 References

This Plan was informed by many sources and references. Thanks to all the staff that provided these resources for context and guidance, especially from the Riley Purgatory Bluff Creek Watershed District and the Capitol Region Watershed District.

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