



Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Della Schall Young, CPESC, PMP
Principal Scientist / Consultant

Date: September 13, 2023

Re: Lower Minnesota River Watershed District (LMRWD)—Programs, Studies,
and Projects Workplans

Below and attached are workplans for programs, studies, and projects specified in Section 4: Implementation Program of the 2018–2027 LMRWD Watershed Management Plan for the 2024 calendar year.

Municipal (LGU) and Individual Projects Permit Programs

LGU Permits: During 2023, the City of Burnsville received their LGU permit and the City of Lilydale was conditionally approved for its LGU permit on the condition of adoption of the draft Surface Water Management Plan and revised City ordinance Chapter 4: Water and Sewer and Chapter 9: Building and Land Use Regulations presented in their application. The City of Chaska also requested review of stormwater ordinance updates. The LMRWD provided comments, but the City of Chaska does not wish to pursue an LGU permit at this time. The Metropolitan Airports Commission (MAC) informed the LMRWD they are performing comprehensive updates to their permitting requirements and will be applying for their LGU permit in the future. The plan for 2024 is to coordinate with the MAC, Savage, and Chanhassen to get their LGU Permits.

The LMRWD created materials for an audit of LGU permit holders in accordance with Rule A: Administrative and Procedural Requirements. The audit applies to LGUs that have had their LGU permits for more than a year. This includes Eagan, Mendota Heights, Bloomington, Carver, and Shakopee. These audits will be conducted in late 2023 and may continue into 2024. The goal of the audit is to understand how LGU permit holders implement and enforce the LMRWD Rules as specified in their official controls and to identify opportunities to streamline LMRWD rules and policies. Results will be presented to the LMRWD Board of Managers following the audit.

The LMRWD will also complete municipal coordination meetings. The purpose of these meetings is to continue the established collaboration and information-sharing framework, to review recent and upcoming LMRWD and city projects and programs, and to assess resources and leverage continued partnership on projects that protect or enhance natural resources. The LMRWD will meet with municipalities within its jurisdiction in the winter of 2023.

Individual Project Permits: In 2023, the permits database, an ArcGIS geodatabase, was developed and implemented to increase the organization and efficiency of the LMRWD's permitting program. The permits database provides project information that can be shown spatially within ArcGIS and contains information such as permittee contact information, project size, rules triggered, inspection data, and associated geographic location for each project. The permits database streamlines the permit program and is used to monitor project status, permit expirations and renewals, and inspection requirements in one central location.

As of Friday, September 8, 2023, the LMRWD had processed 20 permit applications and issued 12 permits in 2023 (**Table 1** and **Figure 1**). The LMRWD conducted its second year of project inspections during the summer of 2023 to confirm compliance with LMRWD rules during and after construction. A total of 44 project sites were inspected during the 2023 inspection season.

In 2024, the LMRWD will continue to permit individual projects in cities without their LGU permits, Minnesota Department of Transportation (MnDOT) projects, and LGUs that have opted to have the LMRWD maintain specific rules. The plan is to continue project inspection activities and continue to refine the permitting data management system to enhance efficiency and access to permit information.

Education and Outreach (E&O) Program

The education and outreach program was created in 2021 to increase public participation and awareness of the Minnesota River and its natural resources. This program fulfills Goal 9 in the LMRWD Watershed Management Plan. For 2024, a board workshop will be held early in the year to gain manager input and set the direction for messaging and priorities for the year. This facilitated conversation will inform E&O program tasks for the calendar year which include the citizen advisory committee (CAC), social media activities, signage development, school engagement efforts, and community outreach and engagement activities. Quarterly progress updates on programs tasks and deliverables will be provided to the Board of Managers. Specific information on each program task is detailed in the E&O program's 2024 workplan allocating \$75,000.

Water Resources Restoration Fund

In 2024, the Water Resources Restoration Fund will provide funding for local government unit sponsored projects aiming to reduce nonpoint source pollution, improve and protect groundwater quality, and promote surveys and studies of wetland health and management. A water resources restoration fund application is being developed and will be used by LMRWD staff to solicit applications for funding requests and review eligible projects in 2024. The attached Water Resources Restoration Fund 2024 workplan allocates \$100,000.

Studies, Programs, and Capital Improvement Projects

Workplans are attached for each of the projects listed below.

- a. Minnesota River Study Area 3 Bluff Stabilization Project—The 60-percent planset and preliminary engineer cost estimate were submitted to the LMRWD in January 2023 and used to obtain 2.75 million dollars through the State of Minnesota Capital Grant. Permit applications and coordination is currently underway. The attached 2024 workplan includes final engineering design and review, final permitting, and construction administration. The bidding process is estimated to begin in June 2024 and construction will follow in August 2024. The 2024 workplan allocates \$225,000.
- b. Fen Stewardship Program—The LMRWD, in partnership with the MnDNR, developed a fen stewardship program for the LMRWD's fens. Funds for the fen stewardship program in 2024 will be allocated to implementing actions defined in the stewardship plans, groundwater recharge area mapping, and investigating the feasibility of fen land acquisition. The 2024 workplan allocates \$125,000, with an additional \$12,500 remaining from the 2023 workplan.
- c. Gully Inventory and Condition Assessment—Previously, the LMRWD completed gully inventory and condition assessment projects in 2020 and 2021. The LMRWD revisited high- and very-high-priority sites in 2023 and identified gullies within the LMRWD that should be prioritized for restoration. In 2024, the LMRWD will complete a feasibility study for four (4) recommended gully restoration sites. The LMRWD will also complete a high-level assessment of public pipe outfalls and their connection to

gullies on private property as well as a desktop analysis using new LiDAR data to identify gullies not yet inventoried. The 2024 workplan allocates \$150,000.

- d. Spring Creek Sites 1 and 2 Stabilization Project Construction—In 2023, the LMRWD retained ISG to complete the bank stabilization designs for this project. The 60-percent planset was submitted in August 2023 and permit coordination is currently underway. Construction is anticipated to start in late 2024 and continue into 2025. The 2024 workplan allocates \$100,000 towards constructing the project. Construction management is included in the 2023 workplan.
- e. Eagle Creek Bank Restoration at Town & Country RV Park Feasibility Study—Signs of hillslope failure at the RV park on the Main Bank of Eagle Creek are deemed a priority due to the environmental stress on the creek. The LMRWD will assess the eroding banks at the campground and determine how much sediment is contributing to the stream. The LMRWD plans to conduct a feasibility study to inform the need for stabilization measures. The 2024 workplan includes data collection, field work, and design. The workplan allocates \$30,000.
- f. Trout Streams Geomorphic Assessments—Previously, the LMRWD completed geomorphic assessments of trout streams in 2019. The project will continue in 2024 to expand upon previous work. Trout streams will be resurveyed to assess stream health and stability. The 2024 workplan allocates \$100,000.

Attachments

- Table 1—2023 Permit Program Summary
- Figure 1—2023 Permit Program Summary Map
- Education and Outreach Workplan
- Water Resources Restoration Fund
- Minnesota River Study Area 3 Bluff Stabilization Project Workplan
- Fen Stewardship Program Workplan
- Gully Inventory and Condition Assessment Workplan
- Spring Creek Sites 1 and 2 Stabilization Project Construction Workplan
- Eagle Creek Bank Restoration at Town & Country RV Park Feasibility Study Workplan
- Trout Streams Geomorphic Assessments Workplan

2023 Permit Program Summary



Permit Number	Project Name	Status	Pre-Permit Meeting	Date Received	Date Considered Complete	Board Actions			Permit Issued	Permit Expiration Date	First Renewal Expiration	Second Renewal Expiration	Construction Completed	Date Permit Closed
						Information Only	Conditional Approval	Approval						
2022-005	Chaska West Creek Apt	Active		2/8/2022	3/29/2023		4/19/2023		6/6/2023	6/6/2024				
2022-010	Quarry Lake Trail and Ped Bridge	Active		2/24/2022			4/20/2022		3/1/2023	3/1/2024				
2022-015	Xcel Driveway	Conditional Approval	5/25/2023	6/21/2023	7/31/2023		8/16/2023							
2022-019	I494 SP 2785-433	Active		4/21/2022	6/24/2022		7/20/2022		4/10/2023	4/10/2024				
2022-037	Peterson Wetland Bank	Conditional Approval		5/23/2023	6/30/2023	11/16/2022	7/19/2023							
2022-039	Former Knox Site	Active		11/3/2022	12/19/2022		1/18/2023		6/6/2023	6/6/2024				
2022-040	Burnsville Sanitary Landfill	Active		11/21/2022	2/15/2023		3/15/2023	8/16/2023	8/17/2023	8/17/2024				
2022-041	35W SP 2782-352	Active		12/15/2022	2/10/2023		2/15/2023		4/10/2023	4/10/2024				
2023-001	Lakota Lane After-the-Fact	Under Review		1/10/2023										
2023-002	Eagle Creek Bridge	Conditional Approval		1/13/2023	4/19/2023		5/9/2023							
2023-003	Ernst & Reidele Potential Development	No Permit Required		1/17/2023										
2023-004	CenterPoint Hwy 13 and Lynn Project	No Permit Required		1/24/2023										
2023-005	Cargill Savage West Safety Improvement Project	No Permit Required		1/25/2023										
2023-006	Borca Family DNR Dewater Review	No Permit Required		1/23/2023										
2023-007	MN River Greenway Trail	Conditional Approval		3/1/2023	3/15/2023		4/19/2023							
2023-008	Chaska Tech Center Amendment	Active		3/4/2023	4/11/2023		4/19/2023	7/19/2023	5/15/2023	5/15/2024				
2023-009	AT&T Bloomington to Eureka Fiber	Active		3/31/2023	5/19/2023		6/21/2023		6/26/2023	6/26/2024				
2023-011	Quarry Lake Playground	Active		4/19/2023	4/24/2023	5/9/2023		4/24/2023	4/24/2023	4/24/2024				
2023-012	Concourse G Infill Pods 2-3	Active		5/4/2023	5/30/2023	6/21/2023		5/31/2023	5/31/2023	5/31/2024				
2023-013	Merriam Junction Trail	Incomplete	4/5/2023	5/8/2023										
2023-014	KTI Fencing Property	Active		5/16/2023	7/6/2023		7/19/2023		9/1/2023	9/1/2024				
2023-015	City of Bloomington Storm Sewer Maintenance	Active		5/24/2023	6/15/2023		7/19/2023		8/23/2023	8/23/2024				
2023-019	Dean Lake Wetland Fill*	Active		7/17/2023				9/20/2023						
2023-020	Tramore Heights Addition	Under Review	9/1/2023	8/21/2023										

Permit Number	Project Name	Status	Pre-Permit Meeting	Date Received	Date Considered Complete	Board Actions			Permit Issued	Permit Expiration Date	First Renewal Expiration	Second Renewal Expiration	Construction Completed	Date Permit Closed
						Information Only	Conditional Approval	Approval						

**Conditional Approval or Renewal, staff recommendation only, has not yet been presented to the Board for action*

STATUS DEFINITIONS:

Active Permit: Applicant has a valid permit issued by LMRWD

Cancelled by Applicant: Applicant withdrew their application for a LMRWD permit

Closed: Applicant has indicated the project has completed construction and that the permit file may be closed

Conditional Approval: LMRWD managers conditionally approved the permit application, pending receipt of additional information from applicant

Expired: Applicant either obtained conditional approval, approval, and/or was issued a permit and the expiration date has passed

Incomplete: Applicant applied for a permit, but the application is incomplete

No Permit Required: Applicant applied for a permit, but during the completeness review, it was determined that the project did not trigger the regulatory thresholds

On Hold: Applicant requested their application be placed on hold

Pre-Permit: Applicant has requested pre-permit application reviews or meetings, but has not yet applied for a permit from LMRWD

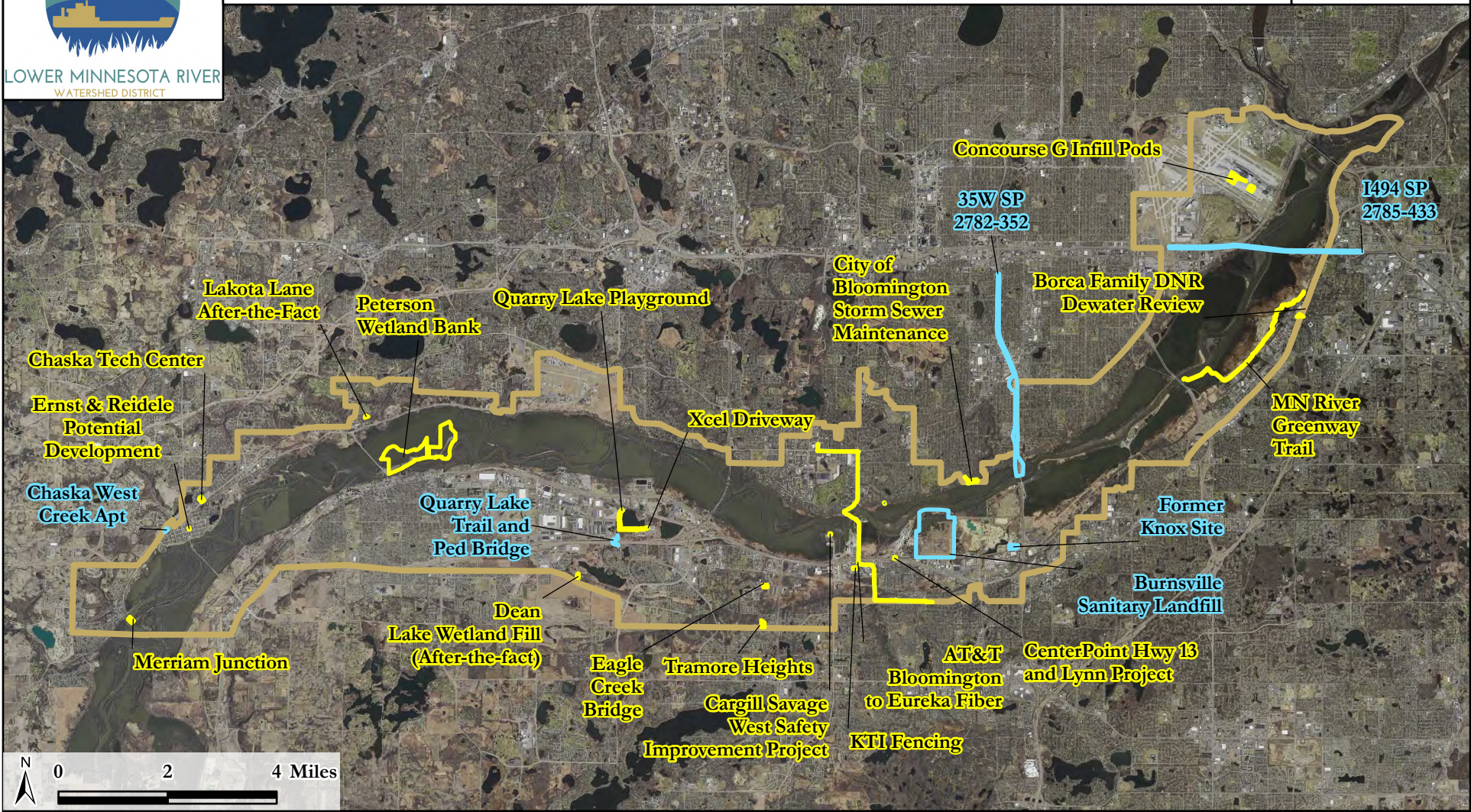
Under Review: Permit application is complete and under review by LMRWD staff

Construction Complete: project construction is complete but permit is not closed





2023 Permit Program Summary



Legend

- Permits Issued 2023
- Permits Received 2023
- LMRWD Boundary

Location Map

Projects\LMRWD\00 Annual Review\GIS

LOWER MINNESOTA RIVER WATERSHED DISTRICT

2024 Public Education and Outreach Plan

Work Plan—September 1, 2023

Young Environmental continues to administer the Lower Minnesota River Watershed District's (LMRWD's) public education and outreach program. The tasks below fulfill Goal 9 in the Watershed Management Plan: Public Education and Outreach, which functions to increase public participation and awareness of the Minnesota River and its unique natural resources.

Summary

<i>Outcome:</i>	2024 Public Education and Outreach Plan
<i>Project Partners:</i>	City Partners, Residents, and Businesses of the LMRWD; US Fish And Wildlife Service; And Nongovernmental Organizations (NGOs); Public and Private Schools
<i>Timeline for Completion:</i>	January 2024–December 2024
<i>Total Fees:</i>	\$70,000
<i>Total Expenses:</i>	\$5,000
<i>Total Project Budget:</i>	\$75,000

Objective 1. Project Management and Board of Managers Coordination

Task 1.1: Project plan development and project management. Finalize the work plan, assign project tasks, determine whether additional resources are needed, set dates for deliverables, generate and maintain project schedule, and perform monthly invoicing.

Task 1.2 Board Workshop. To begin 2024 Education and Outreach in alignment with LMRWD priorities, our team will lead a Board Workshop in early 2024 to gain input and inform the direction of messaging and priorities for the year. Young Environmental will lead a workshop to discuss Education and Outreach priorities for 2024. We will facilitate a conversation to understand the 2024 goals and determine how to align the various program components to reach the intended audience and share key messages.

Task 1.3. Quarterly Updates. Young Environmental will provide quarterly updates on Education and Outreach program tasks and deliverables to keep the Board of Managers informed on progress, evolving needs, and lessons learned from the community.

Timeline for Completion: January 2024–December 2024

Deliverables: Board of Managers Kick-Off Workshop and Quarterly Updates

Estimated Budget: \$5,000

Objective 2. Citizen Advisory Committee (CAC)

Young Environmental supports the CAC by preparing meeting agendas and minutes, securing educational presentations, tours, and learning opportunities, creating educational materials, coordinating attendance at local events, and increasing membership. In 2023, three new CAC members joined the committee. To boost this membership, targeted recruitment materials were sent to 15 partner cities and counties to be used as handouts, posting in facilities, inclusion in newsletters and/or on social media platforms. Recruitment postings were also shared quarterly on the LMRWD social media platforms. Eight meetings have been held so far this year with topics and tours ranging from the fish of the Minnesota River to wastewater treatment. CAC members have also been invited to additional learning opportunities such as salt reduction and best practices for pollinators. In 2024, Young Environmental hopes to continue the momentum with the CAC through the following tasks.

Task 2.1: Maintain a CAC of five members or more and focus on retaining existing members. Young Environmental will continue to search for CAC members using the LMRWD website and social media as well as through outreach at local tabling events. Current CAC members, municipal partners, and other groups within the LMRWD will also be asked to assist in reaching interested members of the community. Retaining our existing CAC membership is important so recognition of their impact and regular thanks will be incorporated. Young Environmental will continue to suggest and facilitate opportunities for unique and engaging educational experiences for CAC members to participate in on their own time to further their learning of water and natural resources.

Task 2.2: Plan and facilitate CAC meetings. Young Environmental will develop monthly meeting agendas with input from the LMRWD and the CAC. As part of agenda development, Young Environmental may also organize speakers and visits to projects and high-value resource sites.

Task 2.3: Monitor and assist the CAC. Young Environmental will draft a meeting summary or notes with the secretary, provide technical information, and support and host the virtual and/or in-person meetings.

Task 2.4: Develop educational materials as directed by the CAC. Over the course of the year, the CAC may need to have materials developed to convey the work of the LMRWD or to address recurring questions it has encountered. Young Environmental will draft up to four educational items in cooperation with the CAC and LMRWD Administrator.

Deliverables: CAC membership roster, list of education opportunities attended, meeting agendas, summaries, and CAC-guided educational materials

Estimated Budget: \$15,000

Objective 3. Social Media

We understand that it can be difficult to measure return on investment with social media efforts. We have provided an attachment with summarized 2023 analytics to date where we compare LMRWD metrics with neighboring watershed districts and provide context to understand the progress we've made and future adjustments needed. From this data, we do fall behind our neighbors in terms of followers; however, the number of "likes" is very comparable and do have a wide reach (a reach an estimated number of people who saw any content from your page or about your page). There has also been a 26% increase in our Instagram reach since last year. We have not seen an increase in Facebook or Twitter so far in 2023, but still feel that social media is the best way to let people know about the LMRWD even though the complexity of measuring the influence of social media exists.

Example: Twitter post to the left. While it received only one "like" by the NRCS_Minnesota but it has received 19 views in under 24 hours. It has three links. One to University of Minnesota-Extension, one to the LMRWD resident webpage, and one to the LMRWD rain garden and native plant handout. This drives people to our site regardless of how many followers we have or how many likes it gets.

Through our analytics, we have identified topics that perform well: salt, yard care, the CAC, and stormwater seem to be the topics most viewed across all platforms. In 2024, Young Environmental hopes to continue social media with the modifications to the program as noted below.

To maximize the proposed budget, we will make adjustments to focus energy on Instagram (which is performing well), grow our followers through partnership posts with neighboring collaborators and through our own internal network (CAC), and create targeted content pillars that align with our audiences' proven interests.

Task 3.1: Maintain social media sites. LMRWD Facebook, Instagram, and Twitter accounts were established in 2021. Young Environmental will continue to create quarterly content calendars and post content. Content will be based on trends noted with high engagement. Young Environmental will continue to gather and take photos of LMRWD resources/projects and perform weekly monitoring of all sites for partner content, follower comments, and analytic tracking. Because Instagram is performing well, we will focus on creating content that works well on this platform, including "how-to" conservation videos provided by CAC members.

Task 3.2: Enhance social media messaging. Young Environmental suggests adjustments to grow the social media audience and target unique users by enriching our social media messaging. In addition to best practice content, social media posts will include more posts about what makes the LMRWD special and its unique resources. Targeted campaigns may include personal connections to the Minnesota River,



recreation, and LMRWD project highlights. We will share knowledge and foster a sense of pride and ownership in the community and talk about the work LMRWD has done to protect resources through work on specific projects.

Task 3.3: Grow social media following. To continue intentionally growing the social media audience, we will explore partnerships for joint content with local organizations, tapping into existing networks. We will also research active neighborhood associations or conservation groups on Facebook who may have shared interests and invite them to follow our accounts. We will create signage for tabling events with links to the LMRWD website and an invitation to follow our social media accounts.

Deliverables: Quarterly content calendar, weekly posting to social media accounts, monitoring and maintenance of accounts, and image gathering, and design creation

Estimated Budget: \$10,000

Objective 4. LMRWD Signage

Young Environmental continued work on interpretive signs near high-value resource areas and at LMRWD project sites in 2023. Design is complete for Courthouse Lake (shown below) and a similar sign is currently being drafted for Quarry Lake. These signs will be fabricated over the fall and winter months for spring 2024 installation. Other sign projects that are progressing include conversations with the City of Burnsville for interpretive signs at the Rudy Kraemer Nature Preserve, interpretive and resource protection signs for Ike’s Creek in partnership with the City of Bloomington and the Minnesota Valley National Wildlife Refuge, and a co-branded creek crossing sign for Riley Creek in cooperation

COURTHOUSE LAKE

About Courthouse Lake

Courthouse Lake sits in what was one of three open-pit clay mines in the City of Chaska, located within the Lower Minnesota River Watershed.

During the late 1800s and early 1900s, the brick-making industry excavated cream-colored clay here. The unique, yellow-colored bricks were used in many buildings.

With the clay removed, high-quality groundwater filled the mine and created a lake with cold and well-oxygenated water. These conditions are ideal for stream trout, leading the Minnesota Department of Natural Resources to take interest in it as a "put-and-take" fishery. The stream trout do not reproduce in lakes so annual stocking is required to maintain the fishery.

Other recreation at the lake includes a 0.7-mile path around the lake that meanders through areas of restored native plants. Native plants do well in the soils and climate of their original location. They typically need less water and pesticides, and their deep roots infiltrate water, maintain healthy soils, and reduce soil erosion. Sections of the lawn around Courthouse Lake were restored to native plants, increasing the pollinator corridor along the Minnesota River and reducing polluted runoff from entering Courthouse Lake.

Lake Specs

SIZE: 12 acres

DEPTH: 57 feet

Q: WHAT ARE POLLINATORS?

Pollinators are bees, wasps, butterflies, moths, birds, bats, beetles, flies, and other insects that travel among flowering plants to help produce many of the fruits, vegetables, and nuts we eat.

FACT Pollinators are responsible for one out of every three bites of food you eat!

WHAT CAN YOU DO?
Help keep this lake clean & cool

KEEP STORM DRAINS CLEAN: Pick up pet waste and keep storm drains clear of litter, leaves, grass clippings, and other debris. Water from rain and snowmelt washes off lawns and enters drains on your street. This water is not treated before it enters the lake.

USE SIDEWALK SALT MINIMALLY: Shovel snow early and often so deicers are not needed. One teaspoon of salt permanently pollutes five gallons of water and harms freshwater systems, including the trout that are susceptible to changes in chloride.

REDIRECT YOUR DOWNSPOUT: Angle downspouts toward your lawns or gardens. This will help filter and cool rain and snowmelt before it enters the groundwater that supplies Courthouse Lake.

Create pollinator habitats

REDUCE PESTICIDE USE: Broad-spectrum insecticides used to kill unwanted pests often eliminate or harm a wide range of non-targeted insects as well. Be selective and reduce reliance on pesticides.

INCORPORATE NATIVE PLANTS INTO YOUR YARD: Attract bees, butterflies, and birds to your garden with native plants that provide color to your landscape and food and shelter for pollinators.

INSTALL A BAT OR NATIVE BEE HOUSE: Now that you have pollinators coming to your yard and garden, why not give them a place to call home?

Q: WHAT ARE NATIVE PLANTS?

Native plants are the type of flowers and vegetation that grow naturally in a particular area without human interaction. These types of plants are the indigenous species that have evolved and occur naturally in an ecosystem and habitat.

Q: WHAT IS A "PUT-AND-TAKE" FISHERY?

A put-and-take fishery means that hatchery-raised fish are stocked for fishing. Put-and-take management typically does not create a self-sustaining population of trout because few of the stocked fish reproduce.

ABOUT THESE RESOURCES:
Lower Minnesota River Watershed District (LMRWD) has partnered with communities, cities, and counties locally to preserve and protect water and natural resources.
Learn more at lowerminnriverwd.org.

with the Riley Purgatory Bluff Creek Watershed District. Young Environmental also continues

communication with Dakota County Parks for potential signage opportunities along the Minnesota River Greenway/Big Rivers Regional Trail. Young Environmental hopes to keep this successful program moving in 2024 through the following tasks.

Task 4.1: Interpretive signage. Young Environmental will continue to identify sites for LMRWD project and LMRWD resource signage and will make recommendations for proposed interpretive sign locations. Young Environmental will continue to work with local partners on locations and messaging and with the current signage contractor for design and fabrication. The Board of Managers will receive estimates for the cost of up to five signs annually.

Task 4.2: Resource identification and protection signs: In 2023, Young Environmental designed in-house graphics for Riley Creek crossing sign and Ike's Creek clean water starts here sign. In 2024, Young Environmental will continue to investigate opportunities for in-house sign graphic design for small-scale resource signs.

Deliverables: Recommendations for LMRWD sign locations, design, and fabrication cost coordination

Estimated Budget: \$10,000 (design and fabrication costs not included)

Objective 5. Schools Engagement

Young Environmental continued outreach to local schools. As part of this outreach, programming coordination with the Dakota County Soil and Water Conservation District (SWCD), the City of Burnsville, and Burnsville High School resulted in a request for proposal (RFP) for a consultant to develop in class curriculum and a field component for 9th grade science classes. The curriculum will be centered on water chemistry and testing. The RFP went out to consultants in May and this fall Bolton & Menk will deliver programming to three applied biology classes at the high school. This program may be replicable for other schools in LMRWD. The second round of the Educator Mini-Grant Program was also released in early 2023. Direct emails were sent to over 600 educators and organizations by Young Environmental about this program. The announcement was also shared on social media and city and county partners. Unfortunately, there were no applicants. For the 2023-24 school year direct mailing with information and a promotional handout went out to 106 schools in all partner cities in May before the end of the school year with hopes that more advance notice might increase applications. This fall an email blast and social media posts will be used to solicit applicants. With any new program, we understand the difficulty in start-up. In conversations with neighboring watershed districts, we understand these programs often take a year or so to gain interest and participants. We hope that in this round of educator grants, our second year of the program, we see increased interest. If necessary, Young Environmental will reevaluate engagement methods before proceeding with the winter/spring round of funding.

Task 5.1: Partnerships. Young Environmental will continue to explore educational opportunities for students within our partner cities to grow and expand our relationship with schools. Young Environmental will develop education plans for interested partners for the 2023–24 academic year. With any successful partnership, we will make sure to share the story on the website and social channels.

Task 5.2: Grant program. In 2022, Young Environmental developed the Educator Mini-Grant Program, providing schools, non-profits, educators, and students with funding opportunities. As part of this program, Young Environmental will assist in evaluating proposals, awarding grants, and compiling reports and reimbursement requests.

Deliverables: Relationship-building with partners, education plans, mini-grant outreach and promotion, and website updates

Estimated Budget: \$15,000

Objective 6. Community Outreach and Engagement

Young Environmental continued outreach to local organizations and participated in conversations to reach the community with water quality and natural resource messaging. As part of that, Young Environmental participated in a workgroup made up of stakeholders from Hennepin County to discuss and share ideas for a portable aquatic invasive species (AIS) hands-on display. This display would be available for all partners to bring to local events throughout the county and would promote best practices when dealing with AIS. Young Environmental also developed a low-maintenance landscapes handout to bring to local events and for sharing on the LMRWD website. This handout encourages residents to adopt less intense lawn care practices for water conservation and pollinator habitat. In 2023, Young Environmental coordinated several tabling events for CAC members to provide outreach to the community. This is the first year the LMRWD has attended farmers markets. Young Environmental staff assisted at several of these events:

- Everything Spring Expo: Eden Prairie
- Arbor Day Walk & Green Fair: Eden Prairie
- Burnsville Native Plant Market
- Eagan Market Fest
- Chaska Farmers Market
- Bloomington Farmers Market
- Buzz Fest: Bloomington



These events provided one-on-one interaction with residents in several LMRWD communities. Informational handouts on cost-share and clean water practices were handed out and personal connections were made. Young Environmental looks forward to continuing this outreach in 2024.

Task 6.1: Partnership. Young Environmental will continue to evaluate existing and established education and/or sustainability program partnerships with local cities, counties, nonprofits, and NGOs in 2024.

Task 6.2: Local events. In 2022, Young Environmental developed criteria to help determine participation in events and programming and the CAC a list of potential events and programs based on these criteria. In 2024, Young Environmental and the CAC will revisit criteria and list of existing events to assess effectiveness and adjust if necessary. Young Environmental will coordinate participation in events and programs as directed and will support the CAC in the events that meet those criteria. We believe local events are a way to also grow our audience and community and solicit input from the public. These events will also help us grow our audience on social media by providing an accessible follow-up.

Task 6.3: Tabling materials. Young Environmental developed several handouts that may be brought to community tabling events. Based on guidance from the CAC, Young Environmental will continue to develop additional handouts and/or other materials and investigate the purchase of interactive displays and present cost findings to the board.

Deliverables: Event criteria, list of events, local event participation, handout development, and interactive display memorandum

Estimated Budget: \$15,000

Meeting Goals of the LMRWD Watershed Management Plan

The Watershed Management Plan informs the day-to-day work of the LMRWD. Below, we have included the goals and strategies identified for the Education and Outreach program. These strategies have informed all the proposed objectives and will drive our ongoing work in this area.

Issues	Goals	Strategies
Issue 8: Public Education and Outreach	Goal 9: Public Education and Outreach: To increase public participation and awareness of the Minnesota River and its unique natural resources	Strategy 1.2.1: Provide public information services Strategy 4.2.3: Provide educational opportunities Strategy 8.1.1: Promote safety education Strategy 9.1.1: Maintain Citizen Advisory Committee Strategy 9.1.2: Develop an outreach program Strategy 9.1.3: Engage volunteers Strategy 9.1.4: Provide opportunity for public input Strategy 9.2.1: Produce scientific studies and work products Strategy 9.2.2: Promote a variety of education programs Strategy 9.2.3: Use multiple outlets to distribute information


Facebook

112 followers | 83 pages like our page

- Facebook reach decreased 20.5% in 2023 from 2022.
 - 2023 - January 1, 2023 - August 28, 2023
 - 2022 - January 1, 2022 - December 31, 2023

Reach: the number of people who saw any content from your Page or about your Page. This metric is estimated.

Best Performing Facebook Post of 2023

Join the CAC	229 - reach	1 - link click	1 - share	June 14, 2023
<p>Do you care about the Minnesota River, lakes, streams, wetlands, and groundwater in your community? Do you wonder how you might help protect and restore them? The LMRWD is seeking interested residents, just like you, to join its Citizen Advisory Committee (CAC). The CAC is a volunteer advisory group appointed annually by the District's Board of Managers. You do not need to be an expert to apply. All you need is an interest and concern for our shared water and natural resources. Applications can be found here: bit.ly/LMRWDCAC. Lower Minnesota River Watershed District</p> 				

With Facebook we are:

- **Reaching** people with Salt, Volunteering (CAC), Educator Grants, District Learning
- People are **clicking** on **links** to Recreation, CAC, Yard Care
- People are **sharing** content about People, CAC, Yard Care, Stormwater

Comparing Facebook with our neighbors.

Watershed District	Number of Facebook Followers	Number of Last 5 Post Likes	District Size
Lower Minnesota	112	1, 1, 2, 3, 2	80 square miles
Nine Mile	922	1, 0, 4, 2, 17 (+1 share) - tag with 3 Rivers Park District	50 square miles
Riley Purgatory Bluff Creek	427	1, 2, 2, 3, 2	50 square miles

Instagram

250 followers

- Instagram reach increased 26.2% in 2023 from 2022.
 - 2023 - January 1, 2023 - August 28, 2023
 - 2022 - January 1, 2022 - December 31, 2023

Reach: the number of people who saw any content from your Page or about your Page. This metric is estimated.

Best Performing Instagram Post of 2023

Order a rain barrel	102 - reach	14 - likes	6 - share	March 1, 2023
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With Instagram we are:

- **Reaching** people with Yard Care, Stormwater, Volunteering (CAC), Recreation
- People are **liking** content about Yard Care, Stormwater
- People are **sharing** content about Yard Care, Stormwater

Comparing Instagram with our neighbors.

Watershed District	Number of Instagram Followers	Number of Last 5 Post Likes	District Size
Lower Minnesota	250	3, 9, 2, 2, 4	80 square miles
Nine Mile	1,057	1, 0, 5, 23 (tag with 3 Rivers), 9	50 square miles
Riley Purgatory Bluff Creek	467	9, 12, 22, 17, 26 *use videos/questions	50 square miles

Twitter

92 followers

- Twitter impressions decreased 12% in 2023 from 2022
 - 2023 - January 1, 2023 - August 28, 2023
 - 2022 - January 1, 2022 - December 31, 2023

Impressions: how many total times a Tweet has been seen.

Best Performing Tweet of 2023

Lawn care	824 - impressions	2 -likes	1 - retweet	3 - user profile clicks	4 - detail expands
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User profile click: how many times a user clicked on your username leading them to your Twitter page.

Detail expand: how many times a user clicks on the Tweet to view more details.



With Twitter we are:

- Making an **impression** with Yard Care, Recreation, Salt, Stormwater
- People are **liking** content about Salt, Stormwater, Yard Care
- People are **liking** content about Salt, Stormwater, Yard Care

Comparing Twitter with our neighbors.

Watershed District	Number of Twitter Followers	Number of Last 5 Post Likes	District Size
Lower Minnesota	92	0, 1, 1 (with retweet), 1, 0	80 square miles
Nine Mile	116	0, 1, 0, 2, 1	50 square miles
Riley Purgatory Bluff Creek	246	1, 2, 1, 1 (with retweet), 1	50 square miles

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Water Resources Restoration Fund

Work Plan—September 13, 2023

This broad-based fund implements Goals 2 and 3 of the Watershed Management Plan to protect, improve, and restore surface water and groundwater quality within the Lower Minnesota River Watershed District (LMRWD). This program will fund projects sponsored by local government units (LGUs) that reduce urban nonpoint source pollution, improve and protect groundwater quality, and promote surveys and studies of wetland (fen) health and management.

Summary

<i>Outcome:</i>	Award project grant funds to eligible LGU projects in 2024.
<i>Project Partners:</i>	LGUs within the LMRWD
<i>Timeline for Completion:</i>	January 2024–December 2024
<i>Total Fees:</i>	\$10,000
<i>Total Expenses:</i>	\$90,000
<i>Total Project Budget:</i>	\$100,000

Objective 1. Program Administration

Task 1-1: Program administration. Funding criteria developed in 2023 will be used by LMRWD staff to solicit applications for funding requests and review eligible projects in 2024. A technical memorandum will be prepared to summarize applications received and provide recommendations to the Board of Managers to award the funds.

This is a summary of the review process and funding of Water Resources Restoration Fund applications:

1. Application materials for the Water Resources Restoration Fund will be developed by Young Environmental for approval at the January 2024 Board meeting.
2. Application materials will be distributed to LGUs within the LMRWD by January 19, 2024.
3. LGUs will have until February 29, 2024, to submit a completed Water Resources Restoration Fund Application.
4. Eligible, completed applications will be reviewed by Young Environmental according to the criteria and scoring metrics that were developed in 2023.
5. Young Environmental will provide a funding recommendation to the LMRWD Board of Managers in accordance with Table 1 at the April 2024 board meeting.

Table 1. LMRWD Funding Request Scoring Priority

Project Score	Priority	Recommended Action
0-19	Low	Do not recommend funding the request at this time; additional information may be needed to evaluate the potential project more fully.
20-40	Low-to-Moderate	Work with project sponsors to incorporate more LMRWD goals, policies, or strategies.
41-61	Moderate-to-High	Consider partial funding requests, with funding amount and design components that align with LMRWD priorities.
62-82	High	Recommend full funding request as presented.

The following items will be completed for each project that is awarded funds:

1. The LMRWD Board of Managers will vote on the funding recommendations. After a funding request has been approved, the LMRWD and the LGU will execute a grant contract and maintenance agreement, which will be developed by Young Environmental.
2. After the agreement has been signed by both parties, the LMRWD will provide funding on a reimbursement basis when receipts and summaries are submitted, up to 25% of the total project cost. Young Environmental will review summaries to ensure that work is performed as part of the grant contract. No invoices of work completed prior to an executed agreement may be submitted to the LMRWD for reimbursement.
3. For applicable construction projects, a site visit will be required to document project status and ensure that the work is being performed in compliance with the grant contract.
4. The LMRWD will hold 10% of the funds until the project is successfully completed, and a final report is submitted.

Timeline for Completion: January 2024-December 2024

Deliverables: Invoices and project updates, funding recommendations, and grant contracts and agreements

Estimated Budget: \$10,000

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Minnesota River Study Area 3 Bluff Stabilization Project - Construction

Work Plan—September 13, 2023

Area 3 is located on the north bank of the Minnesota River in the City of Eden Prairie. Previously, the Lower Minnesota River Watershed District (LMRWD) contracted Inter-Fluve to develop 90% plans to address the bluff slope stability, riverbank erosion, and removal of the City of Eden Prairie's failed stormwater pond. This work plan will build on previous tasks to advance the Area 3 stabilization measures to final design, permitting, and initiation of construction.

Summary

<i>Outcome:</i>	Construction of bank stabilization measures at Area 3
<i>Project Partners:</i>	City of Eden Prairie, United States Army Corps of Engineers, Inter-Fluve, Houston Engineering Inc., 106 Group, Barr Engineering
<i>Timeline for Completion:</i>	January 2024–December 2024
<i>Total Consultant Fees:</i>	\$178,000
<i>Total Young Environmental Fees:</i>	\$47,000
<i>Total Project Budget:</i>	\$225,000

Objective 1. Project Management

Task 1-1: Project plan updates and project management. Young Environmental will update the project plan from 2023 to assign new project tasks, determine whether additional resources are needed, set dates for deliverables, generate, and maintain project schedule, and conduct monthly invoicing.

Task 1-2: Contract management. Young Environmental will provide contract management support including procuring, awarding, and monitoring consultant contracts supporting the project, including Barr Engineering, Inter-Fluve, Houston Engineering, and 106 Group.

Task 1-3: Board updates. Young Environmental will provide up to three update memos to the LMRWD Board summarizing project progress and recommendations as needed.

Task 1-4: Grant administration. As part of the State of Minnesota Capital Grant appropriated to the Area 3 project, Young Environmental will complete tasks necessary to obtain the funds. This includes providing information requested by the state agency, providing payment requests, and completing all necessary grant reporting.

Timeline for Completion: January 2024–December 2024

Deliverables: Project plan and schedule, executed contract with engineering consultants, meeting agendas and summaries, grant applications, invoices, and board updates

Young Environmental Budget: \$18,500

Objective 2. Permitting

Task 2-1: Specialty permitting. Young Environmental will work with the 106 Group to complete historic and cultural resources specialty permitting for potential impacts to historic and cultural resources.

Task 2-2: Permit applications and regulatory agency coordination. Young Environmental will finalize any outstanding permit applications and consult with corresponding regulatory agencies to address agency comments. Young Environmental will also prepare and submit permit applications based on the final construction plans.

Timeline for completion: January 2024—March 2024

Deliverables: Permit applications, meeting agendas, and summary notes

Young Environmental Budget: \$7,500

Objective 3. Final Engineering Design

Task 3-1: 100% design package. Inter-Fluve will update the 90% design plans to final 100% construction plans. Inter-Fluve will conduct a construction survey, finalize the design, and update construction drawings, engineer's cost estimate, and specifications. Houston Engineering will update the 90% design plans to final 100% construction plans for the storm sewer outlet.

Task 3-2: 100% design package review. Young Environmental will review the final design package, including revisions to construction plans, the design memorandum, technical specifications, and engineer's cost estimate to ensure all previous comments from LMRWD, stakeholders, and regulatory agencies have been addressed. Young Environmental will work closely with the consultants to ensure that LMRWD scope and goals are being met.

Task 3-3: Coordination with project team. Young Environmental will host and facilitate up to two meetings with the consultants at the final submittal to communicate project progress, discuss issues encountered, develop potential solutions, and share any new information. This task also includes coordination with consultants throughout 100% plan development.

Timeline for Completion: January 2024–June 2024

Deliverables: Final construction plans, specifications, and technical design memorandum

Young Environmental Budget: \$8,500

Consultant Budget: \$50,000

Objective 4. Construction Administration

Task 4-1: Preparation of bid package. Inter-Fluve will prepare the bid package for advertisement. The bid package will include all relevant specifications, contract documents, and final signed construction plans. Inter-Fluve will coordinate on-site pre-bid meeting, address bidder's questions, issue addenda, and review bids for conformation with bid requirements during the bidding process.

Task 4-2: Bid opening. Young Environmental will coordinate the bid opening, tabulate the bids, and coordinate the contract award and execution with LMRWD.

Task 4-3: Construction administration. Inter-Fluve will complete construction staking, receive and respond to contractor questions throughout construction. Their team will lead project inspection activities during construction, providing weekly summary reports.

Task 4-4: Construction management. Young Environmental will facilitate construction coordination activities to ensure the LMRWD scope of work and goals are being met. This task includes attending the bid opening, recommending the best contractor for the project, facilitating document signatures, conducting site inspections to monitor project performance, and answering contractor and consultant questions when necessary. Depending on requirements for cultural resource permitting in Task 2-1, state and federal regulations may require an archeologist and/or tribal representative on-site during construction. If it is determined that this is necessary, an additional fee can be added to the work plan.

Task 4-5: As-Built survey. Inter-Fluve will complete a final as-built survey and produce record drawings to document final constructed conditions.

Task 4-6: Project close-out. Young Environmental will complete a final inspection for construction conditions and coordinate changes prior to final payment. This task also includes construction contract close-out.

Timeline for Completion: March 2024–December 2024

Deliverables: Bid package, comment/addenda log, meeting summary and notes, construction summary reports, record drawings, and closeout documents

Young Environmental Budget: \$12,500

Consultant Budget: \$128,000

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Fen Stewardship Program

Work Plan—September 13, 2023

The Lower Minnesota River Watershed District (LMRWD), in partnership with the Minnesota Department of Natural Resources (MnDNR), developed a fen stewardship program for LMRWD fens. In 2024, funds for fen stewardship will be allocated to implementing the actions defined in the completed stewardship plans, including but not limited to, ongoing monitoring efforts, public engagement, and vegetation survey and management.

Summary

Outcome: Funds from the Fen Stewardship Program will be reserved for implementation of the actions that are defined in the completed stewardship plans.

Project Partners: MnDNR, Metropolitan Council

Timeline for Completion: January 2024–December 2024

Total Project Budget: \$125,000 (+\$12,500 from 2023 Workplan)

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the work plan, assign project tasks and determine additional resources needed, set dates for deliverables, and generate and maintain project schedule.

Task 1-2: Contract management. Young Environmental will provide contract management support including procuring, awarding, and monitoring consultant contracts supporting the project.

Task 1-3: Coordination with the MnDNR. Young Environmental will organize two meetings with the MnDNR to prioritize implementation strategies and pool resources to address actions from the completed stewardship plans. The first meeting will be held to reaffirm or modify the scope of the work and review data needs, and the second meeting will include discussing findings and recommendations with MnDNR staff.

Timeline for Completion: January 2024–December 2024

Deliverables: Project plan and schedule, meeting agendas and summaries, executed contract with engineering consultants, invoices, and project updates

Estimated Budget: \$12,500

Objective 2. Recharge Area Mapping

Task 2-1: Recharge area mapping. Young Environmental will complete the recharge area mapping for Savage, Nicols, Gun Club Lakes, and Seminary fens. The mapping effort will include the collection of rainfall, land use, soil, and wetland extents data and scientific methods to determine how much groundwater is available in any particular area to recharge the local aquifer. The resulting hydrogeologic boundaries will be mapped in ArcGIS. If necessary, Young Environmental will engage LMRWD's consultant pool to complete this task.

Timeline for Completion: January 2024–December 2024

Deliverables: Recharge area maps for Savage, Nicols, Gun Club Lakes, and Seminary fens

Estimated Budget: \$25,000

Objective 3. Implementation of Stewardship Strategies

Task 3-1: Implementation of stewardship strategies. The Savage, Nicols, and Gun Club Lakes Stewardship plans identify several strategies to protect and enhance fen resources. Young Environmental will assist the LMRWD in working with existing and potential stakeholders to implement both short- and long-term goals that ensure the future of the fens. Implementation will include close coordination with the MnDNR as the lead agency and authority for fen management. The LMRWD will focus on top priority items identified in partnership with the MnDNR.

Timeline for Completion: January 2024–December 2024

Deliverables: Stewardship strategies

Estimated Budget: \$37,500

Objective 4. Fen Land Acquisition

Task 4-0 (2023): Implementation of the Seminary Fen Stewardship Plan. This task is Objective 5 from the 2023 Fen Stewardship Program work plan. The existing dollars allocated to this task (\$12,500) will roll over into the work plan for 2024. This task will initiate the potential land acquisition activity identified in the completed Seminary Fen Stewardship Plan. This includes coordination with the MnDNR to map and assess the value of private properties adjacent to Seminary Fen and to begin the process of acquisition. The private property northeast of the scenic and natural area where Fen Site E was identified is a notably valuable resource and will be the focus of the land acquisition study. Young Environmental will investigate historical and current conditions, provide information on potential properties for acquisition, and prepare a draft technical memorandum to summarize the findings from this review to share with the MnDNR. A final technical memorandum will be submitted to the LMRWD and the MnDNR.

Task 4-1: Coordination with the MnDNR. The potential land acquisition activity identified in the completed Savage, Nicols, and Gun Club Lakes Stewardship plans will also be initiated. This includes coordination with the MnDNR to map and assess the value of private properties adjacent to the fens and to begin the process of acquisition. Young Environmental will organize

two meetings with the MnDNR. The first meeting will be held to reaffirm or modify the scope of the work and review data needs, and the second meeting will discuss findings and recommendations with MnDNR staff.

Task 4-2: Develop a draft technical memorandum. Young Environmental will investigate historical and current conditions around each fen, provide information on potential properties for acquisition, and prepare a draft technical memorandum to summarize the findings from this review to share with the MnDNR.

Task 4-3: Final technical memorandum. Submit the final technical memorandum to the District and the MnDNR, incorporating the written feedback from Task 3-2.

Timeline for Completion: January 2024–December 2024

Deliverables: Agendas and meeting summaries, draft technical memorandum, and final technical memorandum

Estimated Budget: \$50,000 (+\$12,500 from the 2023 Workplan)

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Gully Restoration Feasibility Studies

Work Plan—September 13, 2023

In 2023, the Lower Minnesota River Watershed District (LMRWD) reevaluated 315 gullies through a field assessment and gully ranking process. Through the ranking process, the LMRWD identified gullies within the watershed district that should be prioritized for restoration. A restoration feasibility study will be conducted for four recommended gullies. In addition to feasibility studies, the 2023 project recommended completing a high-level assessment of public pipe outfalls and their connection to gullies on private property, a desktop analysis using new Light Detection and Ranging (LiDAR) data to identify gullies that have not yet been inventoried, and an accessibility assessment of the gullies that were considered inaccessible by foot.

Summary

Outcome: Make recommendations for restoration of four gullies and complete further assessment of high priority gullies within the LMRWD.

Project Partners: Minnesota Department of Natural Resources (MnDNR), US Fish and Wildlife Service (USFWS), Cities and Counties of LMRWD, Drone Consultant (TBD)

Timeline for Completion: January 2024–December 2024

Total Project Budget: \$150,000

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the workplan, assign project tasks, determine whether additional resources are needed, set dates for deliverables, generate and maintain project schedule, and perform monthly invoicing.

Task 1-2: Contract management. Young Environmental will provide contract management support including procuring, awarding, and monitoring consultant contracts supporting the project. The LMRWD consulting pool will be utilized.

Timeline for Completion: January 2024–December 2024

Deliverables: Project approach and schedule, invoices, and project updates

Estimated Budget: \$8,500

Objective 2. Coordination with Project Partners

Task 2-1: Municipal meetings. There are three gullies recommended for restoration in Shakopee, and one gully recommended for restoration in Burnsville. Young Environmental will host and facilitate a meeting with Burnsville and Shakopee to communicate project objectives, discuss

issues, develop potential solutions, and share any new information. This task includes developing meeting agendas and summaries.

Task 2-2: Partner Coordination. Beyond the municipal meetings, Young Environmental will coordinate with Burnsville, Shakopee, and other project partners to collect background information, if necessary, to complete the feasibility studies.

Timeline for Completion: January 2024–December 2024

Deliverables: Meeting agendas and summaries

Estimated Budget: \$3,500

Objective 3. Gully Feasibility Studies

The following Objective 3 tasks will be completed for each of the four recommended gully restoration sites. However, for Task 3-3, a request for information (RFI) will be drafted to select one consulting firm from the LMRWD consulting pool to collect drone imagery of all the gullies.

Task 3-1: Desktop analysis. Use available background resource information to identify the potential causes of gully erosion and gain a holistic perspective of the factors playing a part in the gully erosion. Contact the public entity that owns the property to assess the progress of gully erosion and determine the primary issues and concerns.

Task 3-2: Field condition assessment. Conduct a site visit at the gully to collect photographs, waypoint locations, and notes detailing the conditions of the area using field collection sheets. Determine if drone imagery may be helpful to fully assess the site conditions. If drone imagery is deemed necessary, it can be collected as part of Task 3-3.

Task 3-3: Drone imagery. This task includes collecting drone imagery to help assess site conditions at each gully. If necessary, Young Environmental will engage LMRWD’s consulting pool to complete this task.

Task 3-4: Hydrologic and hydraulic modeling. Evaluate historic and current drainage area to the gully to determine if recent changes may be contributing to the erosion. Utilize publicly available LiDAR data to build a hydraulic model to further assess the current stability of the gully and potential for continued erosion to inform the proposed restoration design.

Task 3-5: Restoration design practices. Identify the primary cause of erosion based on the desktop analysis, field assessment, and hydraulic analysis. Determine the appropriate restoration/stabilization practices to address the gully erosion and provide an engineer’s opinion of probable cost for the recommended restoration design.

Task 3-6: Draft feasibility study report. Develop a draft feasibility report that will document the data collected, methods and software used, results from the analysis, and recommendations for stabilization based on the concept drawings. The draft memo will be submitted to the LMRWD and project partners for consideration and written feedback.

Task 3-7: Final feasibility study report. Submit the final feasibility report and findings to the LMRWD and project partners incorporating the written feedback from Task 3-6.

Timeline for Completion: January 2024–October 2024

Deliverables: Maps, photographs, field notes and collection sheets, survey staking, survey data, topographic map, RFI and Board recommendation for drone inspection, hydraulic model, geomorphic assessment, engineer’s opinion of probable cost, draft report, and final report

Estimated Budget: \$123,500

Objective 4. Further Gully Assessments

Task 4-1: Private property gully assessment. Notify landowners of the gullies present on their properties and provide educational materials on managing and monitoring gully erosion. Complete a high-level assessment of public pipe outfalls to determine if any gullies located on private property are directly caused by a public pipe outfall, in which case public funding and partnership may be more readily available for restoration.

Task 4-2: LiDAR and digital elevation model (DEM) Assessment. Use the new LiDAR data collected by the United States Geological Survey (USGS) department and conduct a desktop analysis to identify gullies in the watershed district that have not yet been inventoried.

Task 4-3: Accessibility assessment. Conduct an accessibility assessment of the gullies that were considered inaccessible by foot during the 2023 gully inventory and coordinate with the municipalities and county public works departments to determine the best method of study. Alternative ways to monitor gully erosion may include drone survey, access by boat, or desktop analysis to compare old DEM data to new DEM data. This task includes providing recommendations on alternative assessment methods for inaccessible gullies.

Timeline for Completion: October 2024–December 2024

Deliverables: Outfall assessment, LiDAR comparison, accessibility assessment

Estimated Budget: \$14,500

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Spring Creek Sites 1 and 2 Stabilization Project - Construction

Work Plan—September 1, 2023

The Spring Creek Sites 1 and 2 Stabilization Project (Project) is located in the City of Carver. Site 1 is located at 112 5th Street West, and Site 2 is located at 404 Broadway. In 2023, the Lower Minnesota River Watershed District (LMRWD) awarded the design for final construction plans for the stabilization of Sites 1 and 2 to ISG Inc., a firm from the LMRWD consultant pool. This work plan includes construction of the bank stabilization measures at Spring Creeks Sites 1 and 2 proposed from the design prepared by ISG.

Summary

Outcome: Construction of bank stabilization measures at Spring Creek Sites 1 and 2

Project Partners: Sites 1 and 2 Landowners; Carver Soil and Water Conservation District (SWCD); Engineering Consultant (ISG); and Contractor (TBD)

Timeline for Completion: June 2024–December 2024

Total Project Budget: \$100,000

Objective 1. Construction

This work plan solely covers construction of the project. Tasks from the 2023 work plan may carry over into 2024 depending on permit timelines and conditions. Funds from the 2023 work plan will be used to execute final permitting, bidding, and construction management.

Task 1-1: Project Construction. This task includes the construction activities necessary to build the project to permitted and approved design specifications. Depending on the final construction cost, the project may need to be completed in phases. Winter construction is recommended.

Timeline for Completion: Two (2) months from contractor selection (construction may extend into 2025)

Estimated Budget: \$100,000

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Eagle Creek Bank Restoration at Town & Country RV Park Feasibility Study

Work Plan—September 13, 2023

Signs of hillslope failure and bank erosion have been observed near the campground on Main Branch of Eagle Creek, which is an added environmental stressor on the stream. The Lower Minnesota River Watershed District (LMRWD) will assess the eroding banks at the campground and determine how much sediment is contributing to the stream and what stabilization options may be feasible.

Summary

Outcome: Complete a feasibility study to inform the need for stabilization measures for the hillslope failure on Eagle Creek.

Project Partners: Town & Country RV Park and Campground, City of Savage, Minnesota Department of Natural Resources (MnDNR), Scott Soil and Water Conservation District (SWCD)

Timeline for Completion: January 2024–December 2024

Total Project Budget: \$30,000

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the work plan, assign project tasks and determine additional resources needed, set dates for deliverables, generate and maintain project schedule; and conduct monthly invoicing.

Task 1-2: Coordination with project partners. Young Environmental will host and facilitate up to two meetings with the City of Savage and Town & Country RV Park and Campground to communicate project progress, discuss issues encountered, develop potential solutions, and share any new information. This task includes developing meeting agendas and summaries.

Timeline for Completion: January 2024–December 2024

Deliverables: Project approach, project schedule, meeting agendas and summaries, invoices

Estimated Budget: \$4,500

Objective 2. Desktop Analysis

Task 2-1: Data collection and review. Use available background resource information and modeling to review, verify, and update data, where needed. Contact property owner to assess the progress of the erosion and determine primary issues and concerns. Young Environmental will contact public resources such as the City of Savage, the MnDNR, and the Scott SWCD to collect additional background information. The data used will be summarized in a data matrix and used in Objective 4 – Restoration Design.

Task 2-2: Develop Permit Matrix. Young Environmental’s permitting team will gather data and review regulatory requirements to develop a permit matrix to identify specific permit requirements. This task includes coordination with identified agencies to present the general project outline and confirm permit requirements and timelines. The permitting team will outline estimated permitting timelines and potential additional contracts that may be required to obtain the required permits.

Timeline for Completion: February 2024—April 2024

Deliverables: Data matrix, Permit matrix

Estimated Budget: \$4,500

Objective 3. Field Work

Task 3-1: Field condition assessment. Conduct a site visit to assess the condition of the bank failure at the campground. Young Environmental will collect photographs, waypoint locations, and notes detailing the conditions of the area using field collection sheets. Determine if drone imagery may be helpful to fully assess site conditions and bank stabilization. If drone imagery is deemed necessary, it can be added to the work plan as an additional cost.

Timeline for Completion: March 2024–April 2024

Deliverables: Maps, photographs, field notes and collection sheets

Estimated: \$1,500

Objective 4. Restoration Design

Task 4-1: Geomorphic Assessment. Compile existing data from the project area to conduct a geomorphic assessment that includes creek bed and water surface elevation profiles, channel cross sections, bankfull measurements, computations of bankfull dimensions, flood dimensions, dimensionless ratios, and analysis of creek bed material. Use the data from the geomorphic assessment to determine the current stability of the creek. This task also includes estimating the rate of erosion and contribution of sediment to the river using past survey data and additional information from the MnDNR.

Task 4-2: Hydrologic and Hydraulic Modeling. Utilize collected survey data from the 2024 Trout Streams Geomorphic Assessment project to build a hydraulic model to estimate bankfull flow, shear stress, and velocity. Use the model results to further assess the current stability of the creek and potential for continued erosion and to inform the proposed restoration design.

Task 4-3: Restoration Design Practices. Identify the primary cause of erosion based on the geomorphic assessment and hydraulic analysis. Determine appropriate restoration/stabilization practices to address the bank erosion and provide an engineer’s opinion of probable cost for the recommended restoration design.

Timeline for Completion: April 2024–October 2024

Deliverables: Hydraulic model, geomorphic assessment, engineer’s opinion of probable cost

Estimated Budget: \$9,500

Objective 5. Documentation

Task 5-1: Board updates. Young Environmental will provide one update memo to the LMRWD board summarizing project progress and recommendations.

Task 5-2: Draft feasibility study report. Develop a draft feasibility report that documents the data collected, methods and software used, results from the analysis, and recommendations for stabilization based on the concept drawings. The draft report will be submitted to the LMRWD and project partners for consideration and written feedback.

Task 5-3: Final technical memorandum. Submit the final feasibility report and findings to the LMRWD and project partners, incorporating the written feedback from Task 5-2.

Timeline for Completion: February 2024–December 2024

Deliverables: Board update, draft technical memorandum, final technical memorandum

Estimated Budget: \$10,000

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Trout Streams Geomorphic Assessments

Work Plan—September 13, 2023

Previously, Young Environmental completed a geomorphic assessment of trout streams in the Lower Minnesota River Watershed District (LMRWD). The project will continue in 2024 to expand on previous work and implement recommendations from the original assessment. Trout streams will be resurveyed to assess changes in stream alignment, cross-sectional geometry, and baseflow. Stream width-to-depth ratios, stream bed slope, meander pattern, and other bed features will be analyzed to assess stream health and stability.

Summary

Outcome: The trout streams will be resurveyed, both quantitatively and qualitatively, to determine how they are changing over time.

Project Partners: Minnesota Department of Natural Resources (MnDNR), US Fish and Wildlife Service (USFWS), Trout Unlimited, Metropolitan Council, University of Minnesota, and LMRWD Municipalities and Counties

Timeline for Completion: January 2024–December 2024

Total Project Budget: \$100,000

Objective 1. Project Management

Task 1-1: Project plan development and project management. Finalize the work plan, assign project tasks and determine additional resources needed, set dates for deliverables, and generate and maintain project schedule. If necessary, Young Environmental will provide contract management including procuring, awarding, and monitoring contracts supporting the project.

Timeline for Completion: January 2024–December 2024

Deliverables: Project plan and schedule, invoices, and project updates

Estimated Budget: \$7,500

Objective 2. Database Organization

Task 2-1: Database development and organization. Data from previous geomorphic assessments requires organization to effectively structure relationships between the existing survey data and new survey data. This task includes data mapping, database development, and data migration to transition existing data into a database that will comprehensively organize past information and streamline data management for trout stream management.

Task 2-2: Survey method development. Young Environmental will develop an effective survey collection method to be used during field work. This task will include coordination with project partners to determine if collaboration is feasible to provide survey equipment and training to support the data collection process. \$5,000 will be reserved for purchasing or renting survey equipment if equipment cannot be obtained through project partners.

Timeline for Completion: January 2024–March 2024

Deliverables: Completed geodatabase, method for field survey and documentation

Estimated Budget: \$3,500

Estimated Equipment Cost: Up to \$5,000

Objective 3. Data Collection and Review

After the 2019 geomorphic assessment, Barr Engineering summarized the completed work and provided recommendations for additional investigations and surveys. The recommendations are included in the attached table (Table 9-1) and are referenced in the following tasks.

Task 3-1: Review background information. Young Environmental will review the data collected from the previous geomorphic assessments and identify data and equipment needs for the 2024 geomorphic assessments. This task includes reviewing past reports and completing a literature review to inform the geomorphic assessment. In addition, Young Environmental will contact the MnDNR to determine if they have background information and past survey data that can be shared to help with the investigation.

Task 3-2: Coordination with project partners. The compiled information from Task 3-1 will be reviewed, and municipalities within this study area may be contacted for additional information and to determine new areas of concern, proposed projects, and completed projects that may affect future field work. Young Environmental will also coordinate with the MnDNR to review data and assess potential for collaboration (Table 9-1: Task 2).

Task 3-3: Initial field condition assessment. This task includes a desktop analysis to determine appropriate survey collection locations for each trout stream. Background information, past survey data, and aerial imagery will be compiled to aid in this determination. Depending on weather and flood conditions, Young Environmental will also conduct initial field condition assessments in early spring, before leaf-on, to provide insight into the general morphology of the stream and assess whether survey collection locations are feasible (Table 9-1: Tasks 3 and 4).

Timeline for Completion: March 2024–May 2024

Deliverables: Data matrix, meeting agendas, summary notes, and field condition maps

Estimated Budget: \$8,000

Objective 4. Field Work

Task 4-1: Collect survey data. Conduct site visits to resurvey each of the trout streams (Table 9-1: Task 11). Our team will collect field data, measurements, and notes detailing the condition of

each of the trout streams. Data will focus on geomorphic characteristics of the streams including longitudinal profile of the stream bed, water surface elevations, riffle and pool cross sections, bankfull indicators, and completion of a pebble count.

Task 4-2: Geomorphic Assessment. Compile survey data to conduct a geomorphic assessment that includes stream bed and water surface elevation profiles, channel cross sections, bankfull measurements, computations of bankfull dimensions, flood dimensions, dimensionless ratios, and a pebble count. Use the geomorphic assessment to analyze stream health and stability and compare new survey data to the 2019 survey as well as past surveys completed by the MnDNR (Table 9-1: Task 1).

Task 4-3: Fish Passage Evaluation. Young Environmental will use the *Minnesota Guide for Stream Connectivity and Aquatic Organism Passage Through Culverts* as well as other guidance developed by the MnDNR to evaluate culverts and bridges for fish passage. Staff will use field data to support the evaluation and identify which culverts and bridges may require replacement to better support fish passage (Table 9-1: Task 5).

Task 4-4: Assumption Creek, Eagle Creek, and Unnamed Stream 1 Investigation. Young Environmental will investigate the geomorphic and hydrologic issues identified for Assumption Creek, Eagle Creek, and Unnamed Stream 1 during the 2019 assessment. This includes Tasks 5, 6, 7, and 10 from Table 9-1.

Timeline for Completion: April 2024–October 2024

Deliverables: Maps, photographs, field notes, field inspection reports, survey data, geomorphic assessments, and structure evaluation

Estimated Budget: \$52,000

Objective 5. Documentation

Task 5-1: Board updates. Young Environmental will provide up to two update memos to the LMRWD Board, summarizing project progress and recommendations as necessary.

Task 5-2: Development of the draft 2024 Trout Stream Geomorphic Assessment Report. Prepare the 2024 Trout Stream Geomorphic Assessment Report. The draft report will be provided to the LMRWD and partners for comment.

Task 5-3: Finalization of the 2024 Trout Stream Geomorphic Assessment Report. Finalize the report and submit the final report to the LMRWD and project partners.

Timeline for Completion: May 2024–September 2024

Deliverables: Board updates, draft 2024 Trout Stream Geomorphic Assessment Report, final 2024 Trout Stream Geomorphic Assessment Report

Estimated Budget: \$24,000

Table 9-1 Recommendations for future work

Task No.	Description	Creek	Priority Level	Frequency	Notes
1	Compare survey data to past surveys completed by DNR	All	Medium	Once	
2	Meet with DNR staff to review the data and potential for collaboration	All		Once	
3	Walk the length of each stream; complete a qualitative assessment; document observed erosion and habitat issues	All		Once every 2 years	Best completed in spring or early summer before vegetation is high;
4	Walk the lower sections of each stream that were unable to be accessed in 2019	All	Medium	Once	Assumption, Eagle and Ike's Creeks are highest priorities
5	Evaluate all culverts and bridges for fish passage	All	Medium	Once	
5	Investigate the formation of mid-channel bars	Assumption and Eagle	High	Once	
6	Measure flows upstream and downstream of Seminary Fen to quantify the flow input	Assumption	Low	5-10 times	This could be done while walking the stream in Task 3.
7	Investigate the diversion into a long culvert and how that may impact geomorphology	Assumption	Low	Once	
8	Assess the eroding banks at the campground and determine urgency for stabilization	Eagle	Medium	Once	
9	Determine if over-widened channel at Ike's creek is a systemic instability or a result of Marl deposits	Ike's	High	Once	
10	Assess erosion on Unnamed Stream 1 and determine if feasible stabilization options exist	Unnamed 1	High	Once	
11	Resurvey cross sections to determine if changes have occurred	All	High	Once every 3 years	Streams could be prioritized and/or different placed on a different frequency schedule
11 (alt)	Select specific subreaches on each stream to survey more intensively (see discussion)	All	Medium	Once every 3 years	This is an alternative option for Number 11.

Source: Barr Engineering, 2019 Geomorphic Assessment Report

Rudy Kraemer Nature Preserve Interpretive Signage Wish List

Existing Conditions/Situation

- Rudy Kraemer Nature Preserve is a City natural area that is about 95 acres in size. There are about 2 miles of paved, packed gravel or wood chip trails for park users to utilize, including a section of the Lake Marion Greenway Trail. There are two sections of boardwalk into wetland areas. The site contains a mixture of calcareous fen associated wet prairie plant species, along with other areas of restored prairie and wetland. At least two threatened plant species have been found on the site, along with one special concern species. Rusty-patch bumblebees have also been found on the site. The site was purchased by the Kraemer Mining Company as part of a mitigation for an expansion of the Burnsville landfill and was donated to the City in 1996. Since that time, the City has done substantial habitat restoration at the park, including controlled burning and invasive species control.
- An existing trailhead kiosk is present at the site but it currently is empty due to the existing signage being outdated and worn. A self-guided nature trail is also in place but in need of new signage. New kiosk and self-guided natural trail signage are needed to highlight the unique environmental aspects of this site.

Request from Lower MN Watershed District

- \$12,000 budget provided by Lower MN Watershed.
- A proposal process is initiated between different design companies to get their proposal on how to creatively re-vamp the signage for the kiosk and the nature trial walk. The proposal would include costs for a basic “refresh” of existing signage, as well as a section for companies to list their new, out of the box ideas for interpretive engagement at the site.
- A graphic designer with an expertise in environmental signage is hired to create the signage.
- City would pay for cost of production of park maps and rules signage. City will install signage.
- Signage would have to include City logo and branding, though it could be blended with Lower MN logo/branding.
- City communications staff would be involved in design review process.

Actual items provided (or similar if selected proposal has different ideas)

- Design time
- 4 large sign panels that are 2.5' by 4.5' in size. 2 additional panels will be purchased by the City, covering the park trail map, regional trail map and park rules.
- 5 small signs 12" x 8" along the nature trail walk

Goals:

- Signage is as accessible to all as we can make it. We are still researching whether that would mean a multi-lingual sign or just using as accessible language as possible.

- Sign is kid friendly without large blocks of text – maybe provides some opportunity for engagement with a eco-elsa nature walk?
- Sign educates the public about the natural features of the park and the area
- Sign informs the public about some of the active management done by the City to protect the site
- Sign provides some action items for what people can do to help the environment.

Ideal Timeline

- Signage would be worked on over the winter (Nov-March time period) and produced/installed in April 2024.

Additional Info

Link to City page for the park - <https://www.burnsvillemn.gov/facilities/facility/details/Rudy-Kraemer-Nature-Preserve-26>.

Photos of existing kiosk, existing signage and general scenery at the park -



Figure 1 - Main trailhead kiosks at Rudy Kraemer Nature Preserve. These kiosks could have up to 6 large signs if front and back of panels are utilize

The signs below are from the self-guided nature trail and are in need of replacement.





A Place in the Sun

Look closely for wildlife basking in the sun.

Turtles need logs, rocks and other places out of the water to bask in the sun. Sunlight warms their bodies, discourages parasites such as leeches, and helps them produce Vitamin D, needed for strong bones.

Logs are also great places to look for food and watch out for predators. Do you see any animals using basking spots?

Stacked shell to shell, painted turtles share limited basking space on a log.



6
Kauai
Nature
Trail
© 2010







