



Environment and Natural Resources Trust Fund

M.L. 2021 Approved Work Plan

General Information

ID Number: 2021-137

Staff Lead: Corrie Layfield

Date this document submitted to LCCMR: July 21, 2021

Project Title: Plumbing The Muddy Depths Of Superior Hiking Trail

Project Budget: \$187,000

Project Manager Information

Name: Lisa Luukkala

Organization: Superior Hiking Trail Association

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Project Reporting

Date Work Plan Approved by LCCMR: July 20, 2021

Reporting Schedule: December 1 / June 1 of each year.

Project Completion: November 30, 2023

Final Report Due Date: January 14, 2024

Legal Information

Legal Citation: M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08h

Appropriation Language: \$187,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with the Superior Hiking Trail Association to install and implement water management practices to prevent erosion and improve access to the Superior Hiking Trail.

Appropriation End Date: June 30, 2024

Narrative

Project Summary: Bring "plumbing," or serious and effective water management devices and techniques, to the Superior Hiking Trail. This includes building structures and sculpting and managing soil and rock.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Much of the Superior Hiking Trail was not built to modern, national trail building standards. That fact, plus extremely heavy usage of the Trail due to its popularity, coupled with the ravages of climate change, means that water is damaging the Trail by either flowing onto or along it, and not moving off the Trail at all. The result is serious erosion and the proliferation of mud holes. Hikers tend to avoid muddy and wet spots on the Trail; by doing so, they exacerbate the problem by widening the Trail and causing more erosion and creating even more mud.

A lack of "plumbing" on the Trail creates three distinct problems: (1) Increased erosion of the tread into nearby bodies of water, (The SHT follows and crosses nearly 100 named rivers and streams, as well as many lakes and ponds.) (2) A need for expensive fixes, such as boardwalks and reroutes, when erosion and mud holes are left unplumbed for too long, (3) An unsatisfying experience for the tens thousands of annual visitors to the SHT.

What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.

The solution to this problem is not technically complicated but it is logistically complex. There's hardly a mile of the SHT that doesn't require what we call "plumbing," or reworking the tread of the Trail. The goal of this plumbing is to make the SHT shed water quickly -- allowing it to move across, not along, the tread -- and to make certain that the SHT, and use of it, is no longer a cause of erosion. Plumbing can be as simple as re-contouring the tread, by cutting back berms that form on the edges of the path or installing dips and drains, to allow water to flow off the Trail. It can mean building simple rock or wooden walkways in perennially wet areas. The solution for each section of the Trail will be determined by the surrounding landscape and how water flows through the area.

Due to the nature of construction projects in the outdoors and the variability of weather in northern Minnesota, we anticipate needing two full trail seasons -- typically June to November -- to complete this project.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

As a part of our broader Trail Renewal Program initiative, efforts to plumb the SHT will ensure that every mile of this natural footpath along the North Shore is sustainably built and will be enjoyed by tens of thousands of annual visitors for decades to come -- all without causing unnecessary harm to surrounding lands and waters. With more precipitation expected in the coming years due to climate change, our efforts to make the SHT resilient and well-drained now will pay dividends later to protect and preserve the sensitive habitats and ecosystems through which the Trail passes.

Project Location

What is the best scale for describing where your work will take place?

Region(s): NE

What is the best scale to describe the area impacted by your work?

Region(s): NE

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: A Resilient Trail By Way of Rebuilt, Reinforced, and Re-plumbed Tread

Activity Budget: \$187,000

Activity Description:

There is no "One Size Fits All" approach to ensuring the SHT sheds water effectively; in fact there are several solutions. We'll employ the right techniques in the right places keep water off the Trail and restore, reshape and rebuild the tread to nationally established sustainable standards.

Our efforts in this activity will include excavating worn sections to establish new contours and installing water management/drainage devices (e.g. drainage dips, swales, ditches) so that water is deflected away from the tread. This will reduce or eliminate erosion and mud holes.

In sections where plumbing is not feasible, we'll make mud holes more resilient and more appealing to trail users by installing stone steps. There is no shortage of native, local stone along the Trail, and well-built stone features have a long useful life expectancy with little maintenance required. And, where needed, we'll build "puncheon" -- simple boardwalk -- to keep trail users from tearing up wet soils and causing erosion.

We will use these techniques, developed by professional trail builders across the country, to make the Trail enjoyable, sustainable, and resilient for years to come.

Activity Milestones:

Description	Completion Date
2021 trail plumbing projects (3-6 total projects) completed	November 30, 2021
Identify 2022 project sites, develop scope of work, and hire contractor(s)	February 28, 2022
If necessary, identify 2023 project sites, develop scope of work, and hire contractor(s)	February 28, 2023
5 to 10 stone step crossings installed to fix perennial mud holes	November 30, 2023
10 to 20 short reroutes (under 1,000 feet each) constructed	November 30, 2023
25 to 50 miles of tread restored and re-contoured to effectively shed water	November 30, 2023

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Jim Shoberg	City of Duluth Parks Department	Liaison to SHTA from Duluth Parks to assist in planning and executing trail projects within the limits of the City of Duluth	No
Mike Young	Minnesota DNR Division of Forestry	Liaison to SHTA from DNR to assist in planning and executing trail projects within northeastern Minnesota forest lands	No
Christa Maxwell	Minnesota DNR Parks and Trails Division	Liaison to SHTA from DNR to assist in planning and executing trail projects within North Shore state parks	No
Derrick Passe	Lake County Soil and Water Conservation District	Advises on environmental regulatory matters in Lake County	No
Jon Benson	U.S. Forest Service	Liaison to the SHTA for any work done on the SHTA within the boundaries of Superior National Forest.	No
Cathy Quinn	U.S. Forest Service	Liaison to the SHTA for any work done on the SHTA within the boundaries of Superior National Forest.	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

We would highlight our LCCMR projects as completed through our print materials, website, social media and other media outlets. In addition, we will include recognition of ENRTF in our Request for Proposals. We will comply with ENRTF guidelines.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this be funded?

The Trail Renewal Program has focused the Association's energy, resources, and systems so that the lofty goal of creating and supporting a hiking trail that lasts a century is achievable. The Trail Renewal Program has brought about a significant increase in private donations that support the operations of the SHTA. Continued efforts to plumb the SHT will utilize support from wherever we can get it, including public sources (local governments, IRRRB, ENRTF, Federal Recreational Trails Program) and private sources (private foundations, major donors, and investors).

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Enhancement Plan for Superior Hiking Trail	M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 09f	\$100,000
Restoring Five Sections of the Superior Hiking Trail	M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 09o	\$191,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Trail Operations Director		Trail operations director oversees trail construction and plumbing projects.			25%	0.48		\$32,500
							Sub Total	\$32,500
Contracts and Services								
TBD	Professional or Technical Service Contract	Qualified and reputable professional trail building entities paying prevailing wages will be contracted to complete trail restoration and plumbing projects. They will be sourced via competitive RFP process. Services would include tread reconstruction, puncheon/boardwalk construction, and stonework.				0.73		\$140,000
							Sub Total	\$140,000
Equipment, Tools, and Supplies								
	Tools and Supplies	Construction Materials, Tools, and Supplies	This includes construction materials, such as milled lumber, metal supports, and related hardware, and necessary hand tools and supplies to complete the activities of the project.					\$14,500
							Sub Total	\$14,500
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-

Travel In Minnesota								
							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$187,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
In-Kind	Volunteers	1000 hours of volunteer support for the project, valued at \$25/hr.	Secured	\$25,000
Cash	Donations and memberships	Various related expenses, including: materials, tools, volunteer support, lodging, travel, and other professional services to support this project.	Secured	\$50,000
			Non State Sub Total	\$75,000
			Funds Total	\$75,000

Attachments

Required Attachments

Visual Component

File: [23be29bb-741.pdf](#)

Alternate Text for Visual Component

A two-page document that includes photos and outlines the following:

Our Problem: Year-round mud holes and wet areas that cause erosion, push hikers off-trail, and damage surrounding vegetation.

Our Solution: Install devices that shed water off and/or reinforce the tread to keep users on the Trail....

Financial Capacity

File: [3ef2a330-2f4.pdf](#)

Board Resolution or Letter

Title	File
SHTA Board Resolution	cd71a07b-df8.pdf

Optional Attachments

Support Letter or Other

Title	File
Background Check Form -- Superior Hiking Trail Association	97d27012-965.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

After review of the milestones with SHTA's Trails Operations Director, we realized that the original Milestone #2 has redundancies to Milestone #1. Upon further discussion amongst our trail maintenance experts, it was determined that Milestone #1, which is our most important indicator of success, would require many drainage devices, but each section of trail is so unique it would be difficult for a contractor to quantify each and every technique they used on such a large amount of trail. Milestone #1 referred to trail restored and re-contoured to shed water effectively and a multitude of strategies will be employed to make that happen.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

N/A

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No

Our Problem: Year-round mud holes and wet areas that cause erosion, push hikers off-trail, and damage surrounding vegetation.



↑ Without proper drainage, this section near Split Rock River has caused significant erosion in recent years.



A 15-foot wide mud hole caused hikers to create their own reroutes at Bean and Bear Lakes Loop last summer.



“Cupping” of the tread has caused water to run down, not across, the Trail, resulting in erosion into the Gooseberry River.

Our Solution: Install devices that shed water off and/or reinforce the tread to keep users on the Trail.



Example drain found on Ice Age National Scenic Trail in Wisconsin.

Drainage Devices

Drains, dips, and swales will help move water off and away from the Trail quickly.



Installed near Oberg Mountain, 2019.

Puncheon

Simple boardwalk will protect the Trail and surrounding vegetation from damage when wet.



Installed at Bean and Bear Lakes, 2019.

Stone Steps

Local stone will be used to offer an enjoyable, sustainable path through perennially muddy areas.