Environment and Natural Resources Trust Fund

M.L. 2022 Approved Work Plan

General Information

ID Number: 2022-297

Staff Lead: Corrie Layfield

Date this document submitted to LCCMR: August 10, 2022

Project Title: Living Snow Fence Program-ENRTF Project

Project Budget: $200,000

Project Manager Information

Name: Daniel Gullickson

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Project Reporting

Date Work Plan Approved by LCCMR: August 16, 2022

Reporting Schedule: March 1 / September 1 of each year.

Project Completion: October 31, 2025

Final Report Due Date: December 15, 2025

Legal Information

Legal Citation: M.L. 2022, Chp. 94, Sec. 2, Subd. 10c

Appropriation Language: $200,000 the second year is from the trust fund to the commissioner of transportation for contracts to build and improve living snow fences consisting of trees, shrubs, native grasses, and wildflowers. Money appropriated in this paragraph may only be used to acquire and plant trees native to Minnesota. This appropriation is available until June 30, 2026.

Appropriation End Date: June 30, 2026

Narrative

Project Summary: Planting Minnesota native trees, shrubs, grasses, and wildflowers in new and/or existing living snow fence sites provides blowing snow control along transportation corridors and decreases road salt use.

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

The volume of snow being carried by the wind can be 100 times greater than the amount of snow falling from the sky. While we cannot keep it from snowing, we can manage the wind carrying tons of blowing snow per lineal foot along a transportation corridor to reduce snow and ice crashes and, improve winter traveler mobility for accessing goods and services. MnDOT's predominately depends on heavy equipment that runs on fuel, such as tractors with snow blowers, motor-graders, and dozers, as well as salt to achieve highways clear of snow and ice for public safety. Catching the snow with living snow fences buys time helping reduce the blowing snow and ice on the highway between snow plow passes. MnDOT has mapped over 3,700 blowing snow problems across the state. These are blowing snow problem areas requiring additional resources in materials, labor, and equipment to maintain above and beyond routine snow plowing.

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

MnDOT's Living Snow Fence program uses strategic plantings of native trees, grasses, wildflowers, and shrubs along highways to catch snow in blowing snow problem areas. These installations help reduce MnDOT's dependence on heavy equipment to push back and remove snow drifts, thus reducing MnDOT's carbon footprint associated with snow removal operations. They also significantly reduce MnDOT's use of salt containing Chloride, which can persist in waters and is toxic to freshwater fish, amphibians, insects, and plants. Finally, these installations make roadways safer to travel in the winter by improving visibility and decreasing drifting snow coverage.

This project will address blowing snow problem areas on the I-90 corridor between Austin and Albert Lea, MN in MnDOT District 6.

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?

The living snow fence plantings and snow storage areas planted into native grass & wildflower mixes can provide habitat for pollinator species, control soil and water erosion, and sequester carbon, thus providing year round environmental benefits. In windswept areas, living snow fences can reduce salt by 50% or more by capturing the blowing snow, preventing it from sticking on our highways. Chlorides contained in salt adversely impacts water quality, aquatic life, roadside vegetation, and highway infrastructure.

Project Location

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

Region(s): SE

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

Region(s): SE

When will the work impact occur?

During the Project

Activities and Milestones

Activity 1: Installation of Living Snow Fences

Activity Budget: $140,000

Activity Description:
The native plant materials will be furnished, installed, and maintained by a landscape contractor paid for with ENRTF funds, MnDOT staff using Non-ENRTF funds will be preparing plans, specifications, administering the construction contract to complete the living snow fence planting projects.

Pre-design work requires a field visit to look at soils, drainage patterns, identify construction access routes, looks at existing vegetation cover, and meet with snow plow operators to confirm the blowing snow control problem limits. Pre-design work done back in the office consists of determining blowing snow transport, prevailing winter wind attack angle on the road, road profile, and USDA soil surveys.

Final design work consists of putting together the plan, specifications, and engineer's cost estimate for competitive bids. Also, an internal Environmental Review will be done to make sure the living snow fence project is not impacting environmentally and culturally sensitive areas.

After the living snow fence installation contractor is selected they will have until June 30, 2023 to complete planting operations.

Activity Milestones:

Description	Approximate Completion Date
Living Snow Fence Pre-Design Work	October 31, 2022
Living Snow Fence Final Design Work	December 31, 2022
Living Snow Fence Installation Period	June 30, 2023

Activity 2: Maintain Installed Living Snow Fences

Activity Budget: $60,000

Activity Description:
MnDOT's Landscape Inspection and Contract Administration Manual, MnDOT's Standard Specifications for Construction, and the Living Snow Fence Plan will be utilized to insure the installed living snow fences are properly maintained during the 2 year plant establishment period. Living snow fence project inspection is a specialized aspect of transportation contracting. Unlike concrete and asphalt, plants are living materials that vary in size, shape, texture, color, and vigor from one location, season, and year to the next. Plants are perishable. Whenever they are planted or transplanted they are under stress and prone to diseases, insect pests, and other stress-related problems. The best conceived and designed living snow fence projects may not produce the desired results if plant material, planting procedures, and establishment care do not meet the project intent and specified requirements.

Utilizing MnDOT's contract administration tools referenced above helps to increase consistency and success of MnDOT landscape projects, which will result in lasting value for the environment, community, and taxpayer.

Activity Milestones:

Description	Approximate Completion Date

Living Snow Fence Maintenance Establishment Period	June 30, 2025

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.
MnDOT will acknowledge the Environment and Natural Resources Trust Fund for the living snow fence locations where these funds are used by working with our Public Affairs Coordinators to develop and send out local & statewide press releases, conduct media interviews, and post on our website. We will share this information with ENRTF communications team for dissemination. MnDOT will also explore hosting a field day tour to exchange knowledge transfer with the Landscape Nursery Industry, Soil and Water Conservation Districts, United States Department of Agriculture Natural Resources Conservation Service, County Highway Departments, and MnDOT Districts.

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 work be funded?
After final living snow fence project contract acceptance it will become MnDOT's responsibility to care for these living snow fences. MnDOT will not be applying for more ENRTF funds to cover the long term costs of maintaining these living snow fences.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
							Sub Total	**-**
Contracts and Services								
Landscape Contractor Vendor	Professional or Technical Service Contract	To Furnish, Install, and Maintain for 2 years Native Living Snow Fence Plantings				0		$200,000
							Sub Total	**$200,000**
Equipment, Tools, and Supplies								
							Sub Total	**-**
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	**$200,000**

Classified Staff or Generally Ineligible Expenses

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

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
In-Kind	State Road Construction Budget-legal citation for the funds (MN Session Laws of 2021, 1st Special Session, Chapter 5, Article 1, Section 2, Subdivision 3)	Design and Construction Inspection by MnDOT Blowing Snow Control Shared Service	Secured	$24,000
			State Sub Total	**$24,000**
Non-State				
			Non State Sub Total	**-**
			Funds Total	**$24,000**

Acquisition and Restoration

Parcel List

Name	County	Site Significance	Activity	Acres	Miles	Estimated Cost	Type of Landowner	Easement or Title Holder	Status of Work
Austin I-90 Living Snow Fence	Mower	Highly visible living snow fence project location west of Austin, Minnesota	Fee Title	3.5	-	$75,000	Public	MnDOT	Has Not Begun
I-90 Petrans Bridge Living Snow Fence Planting	Freeborn	The I-90 bridges going over the railroad tracks and County highway are exposed to significant blowing and drifting snow.	Fee Title	45	-	$125,000	Public	MnDOT	Has Not Begun
Totals				**48.5**	**0**	**$200,000**			

Restoration

1. Provide a statement confirming that all restoration activities completed with these funds will occur on land permanently protected by a conservation easement or public ownership.
These funds will be used on land owned by MnDOT in either fee or easement.

2. Summarize the components and expected outcomes of restoration and management plans for the parcels to be restored by your organization, how these plans are kept on file by your organization, and overall strategies for long-term plan implementation.
MnDOT will be looking at dead, declining trees/shrubs in existing living snow fences that need to be replaced, as well as, seek opportunities to plant new living snow fences where they do not currently exist. The expected outcome is to improve the function of existing living snow fences to capture blowing snow keeping it off our transportation corridors. Plans are kept on file electronically (eDOC's) MnDOT's electronic record system. All new living snow fence installations and existing living snow fence improvements will be tracked through MnDOT's Transportation Asset Management System, a management tool for tracking the condition of transportation assets like noise walls, guardrail, signs, pavement markings, signals & lighting. By being in MnDOT's Transportation Asset Management System allows us to track the condition of the living snow fence and create work orders for tracking the cost and activities associated with maintaining these living snow fence assets.

3. Describe how restoration efforts will utilize and follow the Board of Soil and Water Resources "Native Vegetation Establishment and Enhancement Guidelines" in order to ensure ecological integrity and pollinator enhancement.
The Board of Soil and Water Resources -Strategies for restoring resilient, functional landscapes, and maintaining ecological diversity will be followed: Strategic Plant Selection for the Site, Designing for multiple functions, looking to make landscape connections, matching living snow fence plant communities to the site, restoring and maintaining diversity, working with ecological adaption, providing habitat for pollinators & beneficial insects, effective storm water management, preserving & restoring soil health, managing invasive species, practicing adaptive management, and learning from project experience. To guard against insect and disease pests a diversity of native plants will be planted. Plants will be selected based on their tolerance to salt spray as found in MnDOT's Plant Selector online tool. A diverse selection of plants providing a food source for pollinators through the entire growing season will be incorporated into our living snow fence designs.

4. Describe how the long-term maintenance and management needs of the parcel being restored with these funds will be met and financed into the future.
The long-term maintenance and management would be achieved by tracking through MnDOT's Transportation Asset Management System with the work to be performed by MnDOT Maintenance Crews, or hiring vendors or local entities to perform the vegetation management maintenance work.

5. Describe how consideration will be given to contracting with Conservation Corps of Minnesota for any restoration activities.
Consideration will be given to contracting with Conservation Corps of Minnesota for maintaining these living snow fence plantings after the 2 year contract plant establishment period ends, or MnDOT Truck Station Maintenance Personal will maintain them by incorporating into their Vegetation Management workplans. MnDOT successfully worked with Conservation Corps of Minnesota planting the TH 14 living snow fence in Waseca, Minnesota.

6. Provide a statement indicating that evaluations will be completed on parcels where activities were implemented both 1) initially after activity completion and 2) three years later as a follow-up. Evaluations should analyze improvements to the parcel and whether goals have been met, identify any problems with the implementation, and identify any findings that can be used to improve implementation of future restoration efforts at the site or elsewhere.
Through MnDOT's Transportation Asset Management System as builts for new plantings will be entered into the system after the work is completed, and calendar triggers can be set within this tool when follow-up visits of the site are

necessary. By integrating living snow fences into the Transportation Asset Management System it allows us to capture all labor, materials, equipment and costs for maintenance operations via work orders to help us see where efficiencies can be gained creating more sustainable living snow fence projects.

Attachments

Required Attachments

Map

File: c6aba3c5-211.pdf

Alternate Text for Map

Living Snow Fence Planting and Improvement sites along Interstate 90 between Austin and Albert Lea Minnesota...

Optional Attachments

Support Letter or Other

Title	File
background check certification form	9d92eb71-4df.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

This was a legislatively added project, there was no proposal stage, here is the workplan.

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

Petrans Bridge

Living Snow Planting

Legend

215th St

Approximate Project Start

90

46

840th Ave

E Main St

E Main St

KOA Campgr

Albert Lea / Austin KOA Journey

90

90

102

T-236

Approximate Project End

Potential living snow fence planting areas outlined in Red. Plantings consisting of native grasses, wildflowers, shrubs, and trees to control blowing and drifting snow.

Along Interstate 90 between Austin and Albert Lea Minnesota

Google Earth

N

2000 ft

Interstate 90 Austin Living Snow Fence

Planting and Improvements