



Environment and Natural Resources Trust Fund

2024 Request for Proposal

General Information

Proposal ID: 2024-155

Proposal Title: Rock Ridge Deep Winter Greenhouse for Environmental Education

Project Manager Information

Name: Keith Peterson

Organization: Iron Range Partnership for Sustainability

Office Telephone: () -

Email: keith.peterson@essentiahealth.org

Project Basic Information

Project Summary: Build a deep winter greenhouse on the Rock Ridge ISD 2909 campus and hire a greenhouse coordinator to provide environmental education for elementary and high school students using appropriate curricula.

Funds Requested: \$149,000

Proposed Project Completion: December 31, 2026

LCCMR Funding Category: Small Projects (H)

Secondary Category: Environmental Education (C)

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

Narrative

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

Hands on environmental education with a greenhouse facility is currently not available at Rock Ridge. A greenhouse on the the Rock Ridge ISD 2909 campus will allow hundreds of students each year to learn about soil health, native plant species and pollinators, nutrition, and how growing plants in a sustainable environmentally friendly way positively impacts the the surrounding land, water, and air. Planting a seed and tending to a growing plant is a hopeful and nurturing experience that teaches patience, responsibility, and gives students agency resulting in a personal investment in the natural world. We envision that knowledge gained with hands-on experience will have a greater impact than learning facts from a book in a classroom and result in students being inspired to care for our environment and to make choices that promote a healthy and sustainable Minnesota. The impact of the initial investment will be far reaching and long lasting. Over the next twenty to thirty years, thousands of students with receive hands on environmental education and take with them knowledge that will inform the choices they make in caring for the environment.

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.

This proposal involves building a University of Minnesota-developed deep winter greenhouse on campus to offer hands-on environmental and agricultural education to Rock Ridge students. Deep Winter Greenhouse is the name given by the University of Minnesota to a passive solar greenhouse now in its second generation, developed at the University, and replicated in a number of locations across the state. The greenhouse uses solar heat generated during the day and stored underground and recirculated at night, making active growing possible all winter even in the northernmost parts of the state. A deep winter greenhouse will provide hands-on access to environmental education and fresh nutritious food that supports the “academies model” of experiential, engaging, project-based learning at the new Rock Ridge elementary and high school serving students from Virginia, Eveleth, Gilbert and the surrounding areas. . Hundreds of students each year will get their hands in the dirt to learn how to grow their own food with some students inspired to enter agricultural occupations.

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?

Caring for the land often directly results from having a connection to the land and an understanding of the natural world. A deep winter greenhouse will provide hands on environmental education. This knowledge will result in a deeper connection to our land, a better understanding of where our food comes from, and skills allowing many to grow their own food in a sustainable way.

Activities and Milestones

Activity 1: Deep Winter Greenhouse Construction

Activity Budget: \$71,000

Activity Description:

Construct a deep winter greenhouse based on plans available from the University of Minnesota, Deep Winter Greenhouse v2.2. The structure will be 24 feet x 24 feet. Constructions will require excavation to a depth of four feet with block work and a concrete slab over 4 feet of river rock. The building with require utilities for electricity, sewer, water and a secondary heat source. Cost to construct the building including excavation, concrete, block work, materials and labor is estimated at \$74,000.

Activity Milestones:

Description	Approximate Completion Date
Site preparation	August 31, 2024
Utilities work to provide the greenhouse with water, electricity and sewer	October 31, 2024
Construction of the deep winter greenhouse	June 30, 2025

Activity 2: Deep Winter Curriculum Integration

Activity Budget: \$36,000

Activity Description:

In order for students and teachers to get maximum benefit from having a greenhouse on campus it is imperative that a clear, easy to use, and interactive curriculum be easily accessible. The curriculum will include use of the greenhouse as an embedded portion of some science classes along with options for both elementary and high school teachers to use the space for educational projects of their choosing. The curriculum will lay out what is needed for projects, along with timelines and educational objectives so that the teacher can choose a project that most benefits their students. Other area schools have already done significant work on curriculum development and will build off their knowledge and other resource available online to develop the curriculum needed for the greenhouse to be used to its maximum potential. We plan to adapt currently available curricula such as "Towards a Sustainable Agriculture: A Curriculum for High School Classes" developed by MN North Central Sustainable Agriculture Research and Education and "Pathways to Horticulture - High School Curriculum" developed by the Minnesota Nursery and Landscape Association.

Activity Milestones:

Description	Approximate Completion Date
Deep Winter Greenhouse Curriculum Integration	September 30, 2025
Collaboration with Rock Ridge teacher to refine curricula to best meet student needs	November 30, 2025

Activity 3: Develop a position and hire a greenhouse coordinator

Activity Budget: \$42,000

Activity Description:

In order for teachers and students to benefit from the using the deep winter greenhouse we plant to hire a deep winter greenhouse coordinator for a period of five years. This individual will have knowledge in environmental education, agriculture, greenhouse use, and must be able to promote and educate teachers and students on the use of the deep winter greenhouse. The coordinator will help with providing the knowledge needed to get choose appropriate

greenhouse projects and be available for hands-on help as the projects are started. They will also help during construction of the greenhouse to make sure the structure is built as specified by the University of Minnesota who has done extensive research on deep winter greenhouse design. The individual will also understand and coordinate maintenance needs for the deep winter greenhouse.

Activity Milestones:

Description	Approximate Completion Date
Hire greenhouse coordinator	December 31, 2024
Schedule instruction of courses in the deep winter greenhouse for spring term 2026	December 31, 2025
Initiate formal program for evaluation of deep winter greenhouse use and student impact	July 31, 2026
Schedule instruction in deep winter greenhouse for fall term 2026 based on evaluation	August 31, 2026
Formal review with student/faculty evaluations to assess area of improvement for future use	December 31, 2026

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Rock Ridge ISD 2909 School District	Independent School District 2909	The deep winter greenhouse will be built on the Rock Ridge ISD 2909 campus to provide environmental education to elementary and high school students. Rock Ridge ISD 2909 has set aside land and signed a memorandum of understanding committing to build and operate the greenhouse if sufficient funds are raised.	No

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?

The deep winter greenhouse will be a permanent structure that will be integrated in to the curriculum at the new Rock Ridge ISD 2909 campus for environmental education for many years to come. The memorandum of understanding is clear that after the greenhouse if built ongoing costs including utilities and maintenance are the responsibility of the Rock Ridge school district. The MOU is attached as a separate document.

Project Manager and Organization Qualifications

Project Manager Name: Keith Peterson

Job Title: Volunteer Deep Winter Greenhouse Work Group Leader

Provide description of the project manager’s qualifications to manage the proposed project.

I recently completed a two year term as the board chair of the Iron Range Partnership for Sustainability and began work on a plan to build a deep winter greenhouse at the Rock Ridge ISD 2909 campus. Along with other project volunteers we met with the Superintendent, Dr. Noel Schmidt, the high school and elementary principals as well as the Rock Ridge ISD 2909 School board on two occasions. In January of 2023, the Deep Winter Greenhouse project received unanimous support from the school board to sign a memorandum of understanding outlining a partnership between the Rock Ridges ISD 2909 and Iron Range Partnership for Sustainability, a 501 (c) 3 organization and fiscal sponsor of the Deep Winter Greenhouse work group. We have developed a plan to raise funds for construction of the greenhouse and a greenhouse coordinator position to facilitate the integration of available curricula in the to Rock Ridge offerings. This individual will help oversee maintenance of the greenhouse and ensure the greenhouse is used to its full potential for hands on environmental and agricultural education at Rock Ridge ISD 2909. I have three of my children enrolled at Rock Ridge and work in the community as a physician.

Organization: Iron Range Partnership for Sustainability

Organization Description:

The Iron Range Partnership for Sustainability (IRPS), a 501 (c)(3) non-profit corporation located in northeast Minnesota’s Iron Range, was founded in 2008, incorporated as a nonprofit in 2011 with an annual budget of \$50,000 to \$150,000 . We are governed by a volunteer working board of directors from across the Iron Range. IRPS is dedicated to maintaining and improving the economic, environmental and social characteristics of our area so that our residents can continue to lead healthy, productive and enjoyable lives. This work is carried out in the events we sponsor and the partnerships we forge. We have offered the Iron Range Earth Fest annually since 2009 and the Iron Range Pasty Festival annually since 2019. These two major events bring in hundreds of participants to celebrate the Range and to learn new skills and foster actions that contribute to a thriving and sustainable Iron Range. We co-sponsor other events such as Solar 101 with Solar United Neighbors, BIPOC Wilderness Experience with the US Forest Service, farmers market with Virginia Market Square, community gardens with Growing Together, pre-school gardening education with L'il Gard'ners, a Range-Wide Solar Tour, the Virginia Community Food Forest with AEOA, and various educational initiatives.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Deep winter greenhouse curriculum integration		Integrate and adapt existing curricula for teachers to easily use and access the deep winter greenhouse			0%	0.6		\$36,000
Deep Winter Greenhouse Coordinator		Oversee operation of the deep winter greenhouse, help implement greenhouse curriculum, work to promote use of the deep winter greenhouse, and be a resource to help teachers successfully complete educational projects			0%	1.2		\$42,000
							Sub Total	\$78,000
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Expenditures								
		Excavation and site preparation (\$12,000), Foundation block work and slab (\$14,000), Construction Material (\$22,000), Utilities installation/excavation (\$8000), Supplies including soil, seeds, lighting, planters, paint, fan, tools (\$15000)	Necessary to make the deep winter greenhouse on the Rock Ridge ISD 2909 campus operational					\$71,000
							Sub Total	\$71,000
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	\$149,000

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				
Cash	Private donations from individuals	Donations will used for grant writing expenses	Secured	\$3,750
Cash	Cleveland Cliffs Foundation	Initial expenses before LCCMR funding is received and hiring of supplementary personnel.	Pending	\$50,000
			Non State Sub Total	\$53,750
			Funds Total	\$53,750

Attachments

Required Attachments

Visual Component

File: [2819c026-a29.docx](#)

Alternate Text for Visual Component

Graphic of a deep winter greenhouse from cover page of University of MN deep winter greenhouse plans...

Financial Capacity

File: [277cbd6c-cd8.pdf](#)

Board Resolution or Letter

Title	File
IRPS Board Resolution Letter	e4f098ba-274.docx

Optional Attachments

Support Letter, Photos, Media, Other

Title	File
Memorandum of Understanding	a3a9581a-437.pdf
IRPS Financial Comments	855eccd3-2be.docx

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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

Does your project include the design, construction, or renovation of a building, trail, campground, or other capital asset costing \$10,000 or more?

Yes

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services, as defined in Minnesota Statutes section 299C.61 Subd.7?

Yes

Do you certify that background checks are performed for background check crimes, as defined in Minnesota Statutes, section 299C.61, Subd. 2, on all employees, contractors, and volunteers who have or may have access to a child to whom children's services are provided by your organization?

Yes