Environment and Natural Resources Trust Fund

M.L. 2022 Approved Work Plan

General Information

ID Number: 2022-169

Staff Lead: Michael Varien

Date this document submitted to LCCMR: June 11, 2022

Project Title: ESTEP: Earth Science Teacher Education Project

Project Budget: $495,000

Project Manager Information

Name: Lee Schmitt

Organization: Minnesota Science Teachers Association

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Project Reporting

Date Work Plan Approved by LCCMR: June 27, 2022

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

Project Completion: June 30, 2025

Final Report Due Date: August 14, 2025

Legal Information

Legal Citation: M.L. 2022, Chp. 94, Art. , Sec. 2, Subd. 05f

Appropriation Language: $495,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the Minnesota Science Teachers Association to provide professional development for Minnesota science teachers in environmental and earth science to strengthen environmental education in schools.

Appropriation End Date: June 30, 2025

Narrative

Project Summary: The Earth Science Teacher Education Project (ESTEP) will provide statewide professional development for Minnesota science teachers in Environmental and Earth Science content and pedagogy to strengthen environmental education in schools.

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

With adoption of the new 2019 Minnesota Academic Standards in Science, all 6th grade teachers in Minnesota will now be asked to teach earth/environmental science to their students using a new phenomenon-based approach to instruction. Sixth-grade teachers are being asked to teach science subject matter in which most have little or no background. In addition, high schools will need to develop and implement new earth/environmental science courses. These high school teachers of science, especially in rural districts, will need accessible, affordable graduate-level earth/environmental science courses to procure a 9-12 Earth and Space Science teaching license.

All the quality work and successes of LCCMR-funded programs will have little longevity if we do not develop and maintain a citizenry educated in the richness, value and fragility of Minnesota's natural resources. Now is the opportune time for a statewide initiative to prioritize and strengthen environmental education in all our schools. Environmental education in Minnesota needs stimulus, focus and rejuvenation; teachers need earth/environmental science training; and the implementation of the new 2019 science standards provides the impetus.

ESTEP will meet this challenge and enhance environmental education in schools throughout Minnesota.

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.

Solving this urgent need for statewide professional development in Environmental and Earth Sciences for Minnesota teachers requires an experienced team of educators and scientists. Organized and led by MnSTA, geologists from MSU-Moorhead, Mankato, St. Cloud, Winona and UM-Twin Cites will team with experienced environmental/earth science educators to provide 13 ESTEP Institutes over three summers (2022-2024) in four different regions of the state, serving up to 310 Minnesota 6th grade and high school science teachers. Five content-focused online courses offered during the same timeframe can serve another 960 teachers, together serving up to 1270 teachers and enriching earth/environmental education for an estimated 60,000 Minnesota students.

Institutes will include review of key environmental/earth science concepts addressed in the standards; the new phenomenon-based approach to teaching science; lab and fieldwork; sharing resources; and collegial planning for classroom implementation.

Understanding the detail and complexity of Earth's systems is crucial to the future of our economy and our planet, and having teachers knowledgeable and confident in Earth and Environmental Science topics is essential for quality earth/environmental education.

ESTEP will create a statewide emphasis in environment education in 6th grade and high school earth science classrooms across Minnesota.

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?

We cannot protect what we do not understand. Preserving Minnesota's natural resources cannot be accomplished without fundamental knowledge of geology, hydrology and climate taught in our schools by informed, confident science educators.

To improve the quality of earth/environmental education, ESTEP will:
1) Increase teacher content knowledge in environmental/earth sciences with direct emphasis on Minnesota's water, air, land, minerals, and climate.
2) Increase teacher skills in designing and facilitating phenomenon-based instruction.
3) Increase curriculum time devoted to environmental science and student-directed investigations.
4) Increase teacher confidence and enthusiasm for teaching environmental science.
5) Increase outdoor learning experiences.

Project Location

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

Statewide

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

Statewide

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: ESTEP Planning and Coordination

Activity Budget: $2,000

Activity Description:
Objective: Design and market three teacher institutes for July/August 2022, the summers of 2023-24, and five online courses.

MnSTA and our five university partners have been discussing elements of the ESTEP program for two years. With MnSTA funding, planning will move aggressively to set specific course content that directly targets new standards benchmarks, finalizing course syllabi, determining phenomenon-based teaching strategies to be modeled, designing pre/post tests and attitudinal surveys, choosing field sites, finalizing locations and dates, and detailing/confirming logistics for the institutes and online courses. These tasks will be divided and assigned to team members with strict deadlines.

Due to the urgent need for this professional development, the ESTEP Planning Team has agreed to complete planning and waive all expenses so institutes can begin in mid-July and August of 2022. $2000 has been budgeted for planning in years two and three.

Marketing during the 2021-22 school year will be done at no cost by MnSTA and MESTA through their listservs and webpages. District science leaders in all Minnesota schools will be contacted to direct market ESTEP to their science teachers. MnSTA will handle online registrations.

When funding becomes available on July 1, 2022, ESTEP will be ready.

Activity Milestones:

Description	Approximate Completion Date
Complete detailed agendas for summer institutes.	October 31, 2021
Locations/instructors determined/confirmed for one high school and two 6th grade institutes in July/August 2022.	November 30, 2021
Marketing and application designed, tested and posted online.	January 31, 2022
Online course syllabi completed and reviewed. Online platforms ready.	March 31, 2022
Logistics and participants confirmed.	May 31, 2022
Planning Team meets after each summer for a day of program review and revisions.	December 31, 2024

Activity 2: Fulfillment of ESTEP Professional Development Summer Institutes and Fall/Spring Online Courses

Activity Budget: $484,000

Activity Description:
Objective: Deliver 13 high-quality, environmentally-focused summer professional development institutes and up to 30 fall/spring online courses over three years.

In July 2022, 20 high school science teachers will attend a 5-day institute at MSU-Moorhead, July 25-29, while two, 5-day 6th grade teacher institutes, serving 30 teachers each, will run in the Metro, July 18-22, and Alexandria, August 8-12.

Beginning in fall 2022 though spring 2025, five online courses – Earth Essentials, EE/ES Advanced Topics, Geoscience for Elementary Teachers, Meteorology, and Astronomy – will be available each semester for up to 960 teacher participants.

In summer 2023, two high school institutes will be provided at MSU-Moorhead and MSU-Mankato, and ESTEP will also host three 6th grade institutes (30 participants each) in three different regions of the state. Tentative 2023 sites include the Metro, Marshall, and Duluth.

In summer 2024, two high school institutes will be provided at MSU-Moorhead and MSU-Mankato, and ESTEP will host three 6th grade institutes in three regions. Locations and dates TBD.

ESTEP will serve as many as 340 teachers in 13 programs in summers 2022-24 and up to 960 teachers in online courses.

Activity Milestones:

Description	Approximate Completion Date
Complete three, first-year regional summer programs for up to 80 teachers of science.	August 31, 2022
Complete five regional summer programs for up to 130 teachers.	August 31, 2023
Complete five regional summer programs for up to 130 teachers.	August 31, 2024
Complete 24 online sections, serving 40 teachers each, during the falls and springs of 2022-25.	May 31, 2025

Activity 3: Evaluation and Reporting on ESTEP Impact on Environmental Education in Minnesota Schools

Activity Budget: $9,000

Activity Description:
Objective: Collect data from ESTEP participants and their students to determine the effectiveness of the program and its impact on earth/environmental education in Minnesota.

Instruments below will be developed using non-ENTRF funds from MnSTA planning grants and will comply with ENTRF funding requirements.

Teacher Tests: Standards-based evaluative instruments will be developed to gauge teacher learning of earth/environmental concepts. Pre/post institute score analysis will determine the number that show statistically significant (t test) knowledge gains.

Teacher Surveys: This will be a project-specific, Likert-type instrument to assess changes in attitude and classroom practice to be completed by teachers online pre-program and again at the end of the following school year. Items will be compared pre versus post to determine percentage changes in responses related to confidence in teaching science/environmental topics, amount of instructional time devoted to environmental and phenomenon-based teaching, and areas of professional growth.

Student Tests: Project-developed student knowledge and skills tests will be constructed. Achievement in earth/environmental content will be gauged by comparing scores of the teacher participants' students to students of teachers who teach the same standards and grade level but did not participate in ESTEP.

Activity Milestones:

Description	Approximate Completion Date
Construct and test ESTEP Teacher Survey instruments.	July 31, 2022
Complete the design of content tests and rubrics for gauging teacher and student learning.	July 31, 2022
Administer online survey instrument to teachers registered for summer 2022 institutes.	July 31, 2022

Collect data on student engagement and learning of environmental science during school year.	May 31, 2023
Administer online survey again to teachers after one year of teaching post-ESTEP training.	May 31, 2023
Analyze/report findings on teacher/student achievement and classroom advances in Minnesota earth/environmental education.	June 30, 2023
Repeat data collecting, analysis and reporting for 2023 and 2024 programs.	August 31, 2024

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dr. Russell Colson, Professor of Geology	Minnesota State University, Moorhead	Dr. Colson will serve as lead instructor for two cohorts of 20 high school science teachers seeking additional licensure in 9-12 Earth/Environmental Science. Colson will lead four, 8-day summer institutes at MSU-Moorhead, present at regional institutes, and instruct two online courses over the three years of the project.	Yes
Dr. Bryce Hoppie, P.G. (Mn), Professor of Geology	Minnesota State University, Mankato	Dr. Hoppie will be the lead earth/environmental science instructor for three, 5-day, regional 6th grade science teacher summer institutes and lead one cohort of high school teachers hosted at MSU-Mankato.	Yes
Dr. Kate S. Pound, Geology Professor	St. Cloud State University	Dr. Pound will be the lead earth/environmental science instructor for three, 5-day, 6th grade science teacher summer institutes hosted at St. Cloud State, Bemidji State, and UM-Crookston.	Yes
Dr. Jennifer L.B. Anderson, Professor of Geoscience	Winona State University	Dr. Anderson will serve as a guest presenter on Minnesota climate issues for all ESTEP summer institutes.	Yes
Dr. Hillary A. Barron, Research Associate	University of Minnesota Twin Cities	Dr. Barron will be a guest presenter in teaching toward equity in science/environmental education at all summer institutes.	Yes
Dr. Rachel Humphrey, Professor	St. Cloud State University	Dr. Humphrey will instruct the online introductory Meteorology course for teachers offering up to two sections in fall and spring over the three years of the project.	Yes
Larry Mascotti, Community Faculty	Metropolitan State University	Mr. Masotti will instruct the online introductory Astronomy course for teachers offering up to two sections in fall and spring over the three years of the project.	Yes
Kate Rosok, MESTA President	Minnesota Earth Science Teachers Association (MESTA)	MESTA - a statewide organization serving Minnesota earth science teachers - will provide co-instructors for each ESTEP summer institute, help with statewide coordination, identify regional field sites, and provide teaching resources and networking for ESTEP participants.	No
Dr. Donna Whitney	School of Earth and Environmental Sciences; University of Minnesota Twin Cities	Dr. Whitney will serve as a guest presenter focusing on Minnesota minerals, geo-habitats and petrology for all summer institutes.	Yes

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.
The ultimate goal of ESTEP is to provide teacher professional development in earth/environmental sciences that will become curricula in Minnesota schools to instruct and inspire students on the value, protection and conservation of Minnesota's natural resources. Environmental studies in 6th grade and high school science classes will be taught by newly-knowledgeable, motivated and confident science educators. Data from ESTEP summer and online programs, resources and teaching strategies will be shared statewide through MnSTA conferences, workshops, website and newsletters. Other educational organizations will be tapped to spread the news of how Minnesota ENRTF funds have

supported the new state science standards, eased the transition for science teachers, and enriched environmental education statewide. ENRTF Acknowledgment Guidelines will be followed by using the LCCMR logo and required verbiage on all project communications and outreach.

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 ultimate result of ESTEP will be a cohort of science teachers confident in their content understanding and pedagogical skills in addressing the new Earth/Environmental Science standards. Implementation of a more vibrant, environmentally - and Minnesota-focused approach - to teaching science will be immediate in classrooms across the state.

Pre/post testing of teachers and students plus pre/post attitudinal surveys will be used to gauge the success of ESTEP.

Resources and strategies will be distributed statewide through MnSTA conferences, workshops and website. All expenses in maintaining communication and sharing best practices and resources will be funded by MnSTA.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
							Sub Total	**-**
Contracts and Services								
Dr. Russell Colson	Sub award	Dr. Colson will be lead instructor for one cohort of high school teachers totaling 16 days of instruction at $800 per day (NSF PhD daily rate) plus instruct six online courses at $3000 per course. (Normal reimbursement would be $9348.) $400 is also budgeted for planning team work.				0.84		$34,200
Dr. Bryce Hoppie	Sub award	Dr. Hoppie will serve as lead instructor for 6th grade and high school institutes totaling 38 days over three years. The $800/day stipend matches NSF grant guidelines for PhD instructors and includes all preparation, course instruction, assessment, mileage, and per diem. $400 is also budgeted for planning team work.				0.54		$31,200
Dr. Kate Pound	Sub award	Dr. Pound will serve as lead instructor for three 6th grade teacher summer institutes. The $800/day stipend is based on NSF grant guidelines for PhD instructors and includes all preparation, course instruction, assessment, mileage, and per diem. $400 is also budgeted for planning team work.				0.06		$12,400
Dr. Rachel Humphrey	Sub award	Ms. Humphrey will instruct three online courses in Meteorology, one per year, over three years. The instructor rate of $3000 per online course is based on one-third of the standard university rate for teaching a three-credit online course for up to 40 students.				0.39		$9,000
Larry Mascotti	Sub award	Mr. Mascotti will instruct three online courses in Astronomy, one per year, over three years. The instructor rate of $3000 per online course is based on one-third of the standard university rate for teaching a three-credit online course for up to 40 students.				0.39		$9,000

Dr. Jennifer Anderson	Sub award	Dr. Anderson will present on Minnesota climate for one-half day for 11 programs over three years. $400 is one-half of the $800 per day afforded PhD instructors based on NSF grant guidelines and includes all preparation, presentation, mileage, and per diem.				0.15		$4,400
Dr. Hillary Barron	Sub award	Dr. Barron will present on achieving equity in science/environmental education for one-half day for 11 programs over three years. $400 is one-half of the $800 per day afforded PhD instructors based on NSF grant guidelines and includes all preparation, presentation, mileage, and per diem.				0.15		$4,400
Dr. Donna Whitney	Sub award	Dr. Whitney will present on Minnesota mineral resources and petrology for one-half day for 11 programs over three years. $400 is one-half of the $800 per day afforded PhD instructors based on NSF grant guidelines and includes all preparation, presentation, mileage, and per diem.				0.15		$4,400
Dana Smith	Sub award	Ms. Smith will co-instruct for two, 8-day. $400 per day is based on NSF grant guidelines for non-PhD instructors and is inclusive of all expenses. She will also guest present on environmental topics for five institutes and co-teach one online class. $400 is also budgeted for planning team work.				0.3		$11,800
Marlene Schoeneck	Sub award	Ms. Schoeneck, a high school science teacher, will guest present for one day in each of 11 programs focusing on environmental education and pedagogy. $400 per day is based on NSF grant guidelines for non-PhD instructors and includes all preparation, presentation, mileage, and per diem.				0.15		$4,400
Mary Ann Colson	Sub award	Ms. Colson, a middle school science teacher, will co-instruct with Dr. Colson at MSU-Moorhead for two, 8-day programs focusing on environmental education and pedagogy. $400 per day is based on NSF grant guidelines for non-PhD instructors and includes all expenses. She will also guest present five days at other institutes.				0.12		$8,400
John Olson	Sub award	Mr. Olson will manage the ESTEP budget and be responsible for all budget-related transactions. $3000 per year is based on an estimated 200 hours per year at $15/hour.				0.3		$9,000

Lee Schmitt	Sub award	Mr. Schmitt will manage project evaluation and reporting. $3000 per year is based on an estimated 200 hours per year at $15/hour. $400 is budgeted for planning team work. Schmitt will also co-instruct for 1.5 days in each of 11 summer programs at $400 per day.				0.3		$16,000
High School Teacher Co-instructors TBD	Sub award	Experienced high school earth/environmental teachers will be selected to co-teach each of the eight 6th grade summer institutes to highlight teaching strategies. An estimated 28.5 days at $400 per day is based on NSF grant guidelines for non-PhD instructors and includes all preparation, presentation, mileage, and per diem.				0.51		$11,400
MSU-Moorhead	Sub award	Course credit for high school teacher participants. Amount is based on 80% of 40 possible teachers in the high school program choosing to receive credits vs stipend. $120/credit is a negotiated fee from MSU-Moorhead (see justification). 12-credit licensure preparation program x $120/credit x 30 participants.		X		0		$43,200
MSU-Moorhead	Sub award	Course credit for 6th grade teacher participants. Amount is based on 80% of 270 possible teachers in the nine, 5-day summer programs choosing to receive credits vs stipend. $120/credit is a negotiated fee from MSU-Moorhead (see justification). 2 credits x $120/credit x 216 participants.		X		0		$51,840
MSU-Moorhead	Sub award	Online course credit for teachers. Amount is based on 50% of a possible 960 teachers that could participate in ESTEP online courses if every section were filled (highly unlikely). $120/credit is a negotiated fee from MSU-Moorhead (see justification). 3 credits x $120/credit x 480 teachers.		X		0		$172,800
							Sub Total	**$437,840**
Equipment, Tools, and Supplies								
	Tools and Supplies	Field Notebooks for Teachers (310 teachers x $21.95)	Recording data and notes from field and lab investigations plus essential geo-scales and information for processing soil, mineral and rock data in the field.					$6,805

	Tools and Supplies	Field lens. (310 teachers x $13.50)	Essential tool for magnification in the field.					$4,185
	Tools and Supplies	MGS County Atlases (310 teachers x $12.50)	Detailed geologic maps of each teacher's county including bedrock, habitats, water and mineral resources.					$3,875
	Tools and Supplies	Assorted MGS Geology/Hydrology Maps of Minnesota (310 teachers x $25)	Observation and investigation of Minnesota soils, water, habitats, and mineral resources.					$7,750
	Tools and Supplies	General field/lab supplies TBD based on final curricula in each region. Supply amount is based on MSU-recommended $125/student for instructional supplies in a science class.	Tools, lab equipment, chemicals needed for field and lab investigations TBD.					$7,257
							Sub Total	**$29,872**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
							Sub Total	**-**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
	Printing	Duplicating of handouts (40 pages/teacher x .12/page x 310 participants).	Printouts will be needed for teachers to use in processing data, gaining insight into lesson design, and to highlight pertinent earth/environmental science content.					$1,488
							Sub Total	**$1,488**

Other Expenses								
		Stipends for High School Teacher Participants	Amount based on 20% of 40 possible teachers in the high school program choosing to receive a stipend vs credits. $60/day for attending professional development is 33% of the average teacher stipend rate of $180/day. 8 days x $60/day x 2 summers x 10 teachers.	X				$9,600
		Stipends for 6th grade Teacher Participants	Amount based on 20% of 270 possible teachers in the 6th grade program choosing to receive a stipend vs credits. $60/day for attending professional development is 33% of the average teacher stipend rate of $180/day. 5 days x $60/day x 54 teachers.	X				$16,200
							Sub Total	**$25,800**
							Grand Total	**$495,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - MSU-Moorhead	Sub award	Course credit for high school teacher participants. Amount is based on 80% of 40 possible teachers in the high school program choosing to receive credits vs stipend. $120/credit is a negotiated fee from MSU-Moorhead (see justification). 12-credit licensure preparation program x $120/credit x 30 participants.	Educational professional development grants typically fund a teacher credit or stipend option. MSP, ITQ, 3M, Medtronic, MDE and NSF grants all allow for payment of credits or stipend to teachers. Participation in ESTEP requires a large commitment of time, and teachers deserve some form of compensation. MnSTA has negotiated with Minnesota State University, Moorhead to provide a "co-sponsored rate" for graduate credits at $120 per credit. This pays for administration of the credit only (recording, posting grades, transcripts, etc.) and provides no "profit" or overhead for the university. MSU-Moorhead would normally charge $460/credit, so $120 is a real bargain not offered by any other university. Course credits will be consolidated and all payments for credits will be made to MSU-Moorhead.
Contracts and Services - MSU-Moorhead	Sub award	Course credit for 6th grade teacher participants. Amount is based on 80% of 270 possible teachers in the nine, 5-day summer programs choosing to receive credits vs stipend. $120/credit is a negotiated fee from MSU-Moorhead (see justification). 2 credits x $120/credit x 216 participants.	Educational professional development grants typically fund a teacher credit or stipend option. MSP, ITQ, 3M, Medtronic, MDE and NSF grants all allow for payment of credits or stipend to teachers. Participation in ESTEP requires a large commitment of time, and teachers deserve some form of compensation. MnSTA has negotiated with Minnesota State University, Moorhead to provide a "co-sponsored rate" for graduate credits at $120 per credit. This pays for administration of the credit only (recording, posting grades, transcripts, etc.) and provides no "profit" or overhead for the university. MSU-Moorhead would normally charge $460/credit, so $120 is a real bargain not offered by any other university. Course credits will be consolidated and all payments for credits will be made to MSU-Moorhead.
Contracts and Services - MSU-Moorhead	Sub award	Online course credit for teachers. Amount is based on 50% of a possible 960 teachers that could participate in ESTEP online courses if every section were filled (highly unlikely). $120/credit is a negotiated fee from MSU-Moorhead (see justification). 3 credits x $120/credit x 480 teachers.	Educational professional development grants typically fund a teacher credit or stipend option. MSP, ITQ, 3M, Medtronic, MDE and NSF grants all allow for payment of credits or stipend to teachers. Participation in ESTEP requires a large commitment of time, and teachers deserve some form of compensation. MnSTA has negotiated with Minnesota State University, Moorhead to provide a "co-sponsored rate" for graduate credits at $120 per credit. This pays for administration of the credit only (recording, posting grades, transcripts, etc.) and provides no "profit" or overhead for the university. MSU-Moorhead would normally charge $460/credit, so $120 is a real bargain not offered by any other university. Course credits will be consolidated and all payments for credits will be made to MSU-Moorhead.
Other Expenses		Stipends for High School Teacher Participants	Educational professional development grants typically fund a teacher credit or stipend option. MSP, ITQ, 3M, Medtronic, MDE and NSF grants all allow for payment of credits or stipend to teachers. Participation in ESTEP requires a large commitment of time, and teachers deserve some form of compensation. $60/day for attending professional

			development is 33% of the average teacher daily stipend rate of $180/day.
Other Expenses		Stipends for 6th grade Teacher Participants	Educational professional development grants typically fund a teacher credit or stipend option. MSP, ITQ, 3M, Medtronic, MDE and NSF grants all allow for payment of credits or stipend to teachers. Participation in ESTEP requires a large commitment of time, and teachers deserve some form of compensation. $60/day for attending professional development is 33% of the average teacher daily stipend rate of $180/day.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
			State Sub Total	**-**
Non-State				
In-Kind	Summer Instructor and Presenter Travel	Instructors' summer mileage for travel to and from summer institute locations will be waived. (200 miles/year x .575/mile x 12 instructors/presenters x 3 years = $4140 in kind.)	Secured	$4,140
In-Kind	Participant Travel to Field Sites	Program bus/van mileage to transport teachers to field sites will be replaced by using teacher vehicles. (4 vehicles/summer x 300 miles/day x 0.58/mile x 21 days = $14,616 in kind.)	Secured	$14,616
In-Kind	Lead Instructor Planning Mileage	Mileage for Drs. Colson, Hoppie, and Pound to visit and select field sites for investigation will be waived. (300 miles x .575/mile x 4 instructors = $2,070 in kind.)	Secured	$2,070
In-Kind	Minnesota Universities and Schools	Rental fees for use of university facilities and school sites for summer institutes will be waived. (Estimated $500/week x 17 weeks = $8500 in program savings.)	Secured	$8,500
In-Kind	Minnesota Science Teachers Association (MnSTA)	A one-year membership in MnSTA/MESTA will be provided in kind for summer teacher participants. (310 participants x $25 = $7750 in kind.)	Secured	$7,750
In-Kind	Minnesota Science Teachers Association (MnSTA)	MnSTA website marketing, registration, and statewide online distribution of resources will be provided in kind. ($600/year x 3 years = $1800)	Secured	$1,800
In-Kind	Minnesota Science Teachers Association (MnSTA)	The six-member ESTEP Lead Planning Team received two $10,000 planning grants from MnSTA. These non-ENRTF funds were used for planning and preparing online courses, summer teacher institutes and evaluation instruments all matching grant initiatives and LCCMR guidelines.	Secured	$20,000
In-Kind	Minnesota School Districts	Minnesota school districts will be asked to reimburse teacher travel expenses to ESTEP summer institutes using their available ESSA funding. Room and board amount is based on 50% need for 6th grade teachers and 100% need for high school teachers staying in university dorms.	Potential	$42,320
			Non State Sub Total	**$101,196**
			Funds Total	**$101,196**

Attachments

Required Attachments

Visual Component

File: 10c1ea00-0b9.pdf

Alternate Text for Visual Component

The logo contains the letters ESTEP in an open format with graphics within each letter. The "E" contains a cross-section of a volcano, "S" contains an image of soil and rocks, "T" show a river system, "E" contains clouds and a tornado, and "P" a planet's surface starry skies....

Financial Capacity

File: 2f9e617e-b29.pdf

Board Resolution or Letter

Title	File
MnSTA Board Authorization for LCCMR Grant (ESTEP)	306e4e5f-000.pdf

Optional Attachments

Support Letter or Other

Title	File
Intro & 2019 Minnesota Academic Standards in Science	ea247e7b-219.pdf
6th & 9-12 Minnesota Environmental Benchmarks (Highlighted)	f87fb8bf-c2e.pdf
ESTEP Background Check Form_2022-05-23 initialed	a7d22c46-35f.pdf
ESTEP Logo	1c5c572b-b85.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

First Round of Revisions:
1) Under "Organization Contact Information", the address and phone for MnSTA have changed, and I cannot make these changes. New address: 24405 Iceland Path, Lakeville, MN 55044. New phone: 612-801-1490. 2) End date changed to June 30, 2025. 3) Added Milestone #6 to Activity #1 addressing planning team work. 4) Added to Activity #3 Description that non-ENRTF funds were used to plan summer programs and prepare evaluation instruments in advance, at our own risk, using non-ENRTF, MnSTA planning grants. 5) In Budget for Professional Contracts, changed Joe Reymann (now deceased) to John Olson; changed budget amount for Lee Schmitt (who is now an instructor as well as evaluator) and reduced matching amount for high school teacher co-instructors; distributed planning team budget amount to individual team members; established MSU-Moorhead as the entity receiving all credit payments; and in non-ENRTF Contributions to Project added $10,000 to the MnSTA planning grant amount. 6) In Attachments, added a visual and moved the Environmental Benchmarks document to Other. 7) Added Dissemination Plan paragraph.

Second Round of Revisions, requested on June 8th and due by June 14th are as follows:

1) Again, the address and phone for MnSTA have changed, and I cannot make these changes (see #1 above). Please advise. 2) Comment #1: We are aware that all costs for any pre-planning before final approval of our proposal will be paid by MnSTA, not ENRTF funds. Wording in the Activity 1 description has been changed to reflect this. 3) Comment #2: To avoid any red flags, the three milestones dates in Activity 3 that were before ENRTF funding have been changed

to July 31, 2022. This date is still accurate. 4) Comment #3: The ESTEP Logo, added as a visual, is the only "visual" we have for the project. The ? box says that we "may attach a map, photo", etc. So is providing a visual a requirement? If the ESTEP logo is not acceptable, we would prefer to not have a visual at all. Please advise. 5) Comment #4: Under Professional/Technical Contracts, Contract types have been changed to Sub Awards.

Please let me know if you have any added questions or concerns. Thank you for adding our initialed Background Check form to the Attachments.

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

MINNESOTA'S

EARTH SCIENCE TEACHER ED PROGRAM

3-D SCIENCE TEACHING ... LAND WATER SKIES STARS!