



Environment and Natural Resources Trust Fund

2021 Request for Proposal

General Information

Proposal ID: 2021-181

Proposal Title: Update Metro MLCCS for Enhanced Natural Resource Management

Project Manager Information

Name: Chris Lord

Organization: Metro Conservation Districts

Office Telephone: (763) 434-2030

Email: chris.lord@anokaswcd.org

Project Basic Information

Project Summary: Provide critical geospatial land cover data and analytical protocols as a foundation for science-based water and ecological resource analysis, project identification, and ranking on 1.9M acres of the 11-county metro.

Funds Requested: \$499,000

Proposed Project Completion: 2023-06-30

LCCMR Funding Category: Foundational Natural Resource Data and Information (A)

Project Location

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

Region(s): Metro

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

Narrative

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

Minnesota Land Cover Classification System (MLCCS) data are outdated or absent throughout much of the 11-county metro area. Accurate MLCCS data provide detailed information on impervious surface composition in cultural environments and species level detail in natural environments, and are instrumental for science-based site-level water and ecological resource project identification, analysis, and ranking. This resolution of data is critical to inform management decisions in the rapidly developing 3.2 million acre 11-county metro area, which is home to 61% of Minnesota's population, is expected to grow by an average of 16.8% by 2045, is the epicenter of natural resource management challenges in the state, and contains all or portions of 7 of the top 8 ecological subsections in Minnesota ranked in terms of the number of species of greatest conservation need.

While water resource analyses will be immediately enhanced from updated high-resolution MLCCS data, the analytical protocols do not exist for ecological resources. Land protection, whether through easements or acquisition, is often done opportunistically. Ecological restoration and enhancement is typically limited to properties that have been protected. Due to this approach, the resulting network can be a random patchwork of activity that doesn't build to a vision.

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.

This project will update MLCCS coverage for 1.9M acres, primarily the 7-county metro area, which was originally surveyed between 1999 and 2009, and updated since to varying degrees. The remaining 1.3M acres, largely covering Wright, Sherburne, Isanti, and Chisago counties, will be addressed in future phases of this effort. Data will be collected and put to use in natural resource management by the members of the Metro Conservation Districts (MCD), which covers the 11-county metro area. The data will also be available for use by agencies, NGOs and others in the region.

Myriad regional and state-level habitat management analyses exist. To bring big concepts in agency plans to fruition, we need to empower local level natural resource managers to implement comprehensive targeted ecological resource analysis to identify precisely which property owners to engage. The data will be used to develop and implement analytical protocols for portions of the Anoka Sand Plain, Big Woods, and St. Paul-Baldwin Plains ecological subsections. Protocols will identify and rank project opportunities and answer the question, "Which are critical property owners to engage to protect, restore and enhance habitat for species of greatest conservation need, ecological connectivity and resilience, and public enjoyment of wildlife?"

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?

1.9 million acres of high-resolution MLCCS data updates will largely be completed throughout the 7-county metro area by a combination of new and redirected existing staff. These data will be used to improve water resource analysis and develop ecological resource analytical protocols.

Ecological resource analytical protocols will be developed and applied to portions of three of the seven ecological subsections in the region; Anoka Sand Plain, Big Woods, and St. Paul-Baldwin Plains. This will include property level targeting of protection, restoration and enhancement strategies.

Activities and Milestones

Activity 1: Conduct MLCCS Inventory Primarily throughout the 7-County Metro

Activity Budget: \$365,000

Activity Description:

MLCCS standardized methods will be followed to update and expand inventories of cultural and natural land cover types largely throughout the 1.9M acre 7-county metro area. Future applications will be submitted to address the remaining 1.3M acres that generally comprise the greater 11-county metro area. With the advent of high-resolution aerial photography, pictometry, and statewide LiDAR in the last 7 years, the accuracy and resolution of work products utilizing remote sensing has been greatly enhanced since the 1990s, when MLCCS inventories were initiated.

A combination of remote sensing and field surveys will be used. Cultural landscapes (substantially altered vegetation or >4% artificial surfaces) will be completed to level 3 or 4, which includes anthropomorphic elements, vegetation form, plant type, and percent impervious surface. Natural landscapes will be completed to level 4 or 5, which includes vegetation form, plant type, soil hydrology, and plant species composition, as well as known invasive species, and species of greatest conservation need. Minnesota Natural Heritage System and the Minnesota's Native Vegetation: A Key to Natural Communities will be used.

Activity Milestones:

Description	Completion Date
Anoka MLCCS - cultural landscapes level 3/4 (143k acres), natural landscapes level 4/5 (143k acres)	2022-05-31
Washington MLCCS - cultural landscapes level 3/4 (203k acres), natural landscapes level 4/5 (78k acres)	2022-06-30
Ramsey MLCCS - cultural landscapes level 3/4 (103k acres), natural landscapes level 4/5 (6k acres)	2022-06-30
Dakota MLCCS - cultural landscapes level 3/4 (300k acres), natural landscapes level 4/5 (75k acres)	2022-06-30
Hennepin MLCCS - cultural landscapes level 3/4 (311k acres), natural landscapes level 4/5 (78k acres)	2022-10-31
Carver MLCCS - cultural landscapes level 3/4 (191k acres), natural landscapes level 4/5 (48k acres)	2022-10-31
Scott MLCCS - cultural landscapes level 3/4 (191k acres), natural landscapes level 4/5 (48k acres)	2022-10-31

Activity 2: Ecological Analysis Protocol Development and Application

Activity Budget: \$122,000

Activity Description:

Develop and apply analytical protocols utilizing MLCCS data for a portion of the Anoka Sand Plain, Big Woods, and St. Paul-Baldwin Plains ecological subsections. This protocol will identify and rank project opportunities to the individual property level for ecological protection, restoration and enhancement. Interagency panels of implementing partners within each subsection will be engaged to develop and test the protocols. Once developed, protocols can be applied to other ecological subsections with MLCCS data.

Activity Milestones:

Description	Completion Date
Anoka Sand Plain subsection report identifying priority parcels and actions for ecological protection, restoration and enhancement	2022-08-31
St. Paul-Baldwin Plains subsection report identifying priority parcels and actions for ecological protection, restoration and enhancement	2022-09-30
Big Woods subsection report identifying priority parcels and actions for ecological protection, restoration and enhancement	2022-10-31
Protocol report detailing the analytical process	2023-05-31

Activity 3: Grant Administration and Management

Activity Budget: \$12,000

Activity Description:

Through separate joint powers agreements, one of the eleven members of the Metro Conservation District will assume the role of Host for this project and another the role of Fiscal Agent. The Host organization will be responsible for ensuring timelines, outcomes, and reporting requirements are met. The Fiscal Agent will administer grant funds and ensure the accurate tracking and reporting of all financial transaction in accordance with LCCMR requirements.

Activity Milestones:

Description	Completion Date
Project expenses and milestone progress will be tracked and routinely reported following LCCMR reporting requirements	2023-06-30

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Chris Lord	Anoka Conservation District	In addition to the role identified for all MCD members, ACD will serve as the project manager and ensure delivery of all project elements is completed and reported in a timely manner in accordance with LCCMR requirements.	Yes
Troy Kuphal	Scott SWCD	In addition to the role identified for all MCD members, SSWCD currently serves as MCD's fiscal agent and is anticipated to fulfill that role for this grant. The fiscal agent will manage all financial transactions in accordance with LCCMR requirements.	Yes
Mike Wanous	Carver SWCD	Up to two of the 7 core Metro Area MCD members (TBD) will serve as hosts for ecologists and digitizing technicians, providing office facilities and personnel oversight. Positions may be new or a portion of redirected existing staff. In all cases, the workload will be additive.	Yes
Brian Watson	Dakota SWCD	Up to two of the 7 core Metro Area MCD members (TBD) will serve as hosts for ecologists and digitizing technicians, providing office facilities and personnel oversight. Positions may be new or a portion of redirected existing staff. In all cases, the workload will be additive.	Yes
Karen Galles	Hennepin Co. Env. Services Dept	Up to two of the 7 core Metro Area MCD members (TBD) will serve as hosts for ecologists and digitizing technicians, providing office facilities and personnel oversight. Positions may be new or a portion of redirected existing staff. In all cases, the workload will be additive.	Yes
Jay Riggs	Washington Conservation District	Up to two of the 7 core Metro Area MCD members (TBD) will serve as hosts for ecologists and digitizing technicians, providing office facilities and personnel oversight. Positions may be new or a portion of redirected existing staff. In all cases, the workload will be additive.	Yes
Ann WhiteEagle	Ramsey County Soil and Water Conservation Division	Up to two of the 7 core Metro Area MCD members (TBD) will serve as hosts for ecologists and digitizing technicians, providing office facilities and personnel oversight. Positions may be new or a portion of redirected existing staff. In all cases, the workload will be additive.	Yes

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?

Once completed to a common standard, MLCCS updates will be more easily completed by MCD members utilizing alternative funding sources. It is anticipated that it will cost approximately \$3,000/year on average for each county to complete updates utilizing current high-resolution aerial photography. Updated MLCCS data and analytical protocols, and subsequent training, will enable practitioners to identify priority areas for land protection, restoration, and enhancement. MLCCS data on vegetative type and impervious cover will inform surface water management efforts.

Project Manager and Organization Qualifications

Project Manager Name: Chris Lord

Job Title: District Manager

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

Chris Lord has 29 years of project management experience with the Anoka Conservation District (ACD), including multi-year projects in excess of \$1,000,000. Chris oversees all aspects of ACD operations including financial, personnel, policy, and programmatic details for an annual operating budget of \$1.5-\$2M encompassing over 60 distinct programs and

services. Chris will hire, train, and manage staff; manage contracts for services, see to the accurate tracking and reporting of all expenses, and see to the timely and accurate delivery of all work products. Chris has a BS in Natural Resources and Environmental Sciences. ACD is a special purpose local government unit established in 1946 and supports a staff of 10-15 regular and seasonal natural resource professionals with project management experience.

Organization: Metro Conservation Districts

Organization Description:

Metro Conservation Districts (MCD) is a joint powers board formed under authority of Minnesota Statutes section 471.59. MCD is composed of eleven members, including: Hennepin and Ramsey counties, and the Soil and Water Conservation Districts of Anoka, Carver, Chisago, Dakota, Isanti, Scott, Sherburne, Washington, and Wright counties. MCD serves as an entity under which its members can jointly plan, develop and implement programs and activities for resource conservation. Soil and Water Conservation Districts, which make up the bulk of the membership are a non-regulatory county level subdivisions of state government formed under Minnesota Statutes Chapter 103C. Professional SWCD staff conserve and enhance the natural resources of their counties under the supervision of locally elected boards of supervisors.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Project Manager		Ensure delivery of all project elements is completed and reported in a timely manner in accordance with LCCMR requirements.			33%	0.1		\$15,600
Fiscal Agent		Manage all financial transactions in accordance with LCCMR requirements			33%	0.04		\$6,400
Ecologist		Delineate and identify polygons on high resolutions aerial photos, and conduct extensive field investigations of natural areas, develop analytical protocols for ecological resources and prepare example work products for portions of three subsections			33%	1		\$93,000
Ecologist		Delineate and identify polygons on high resolutions aerial photos, and conduct extensive field investigations of natural areas, develop analytical protocols for ecological resources and prepare example work products for portions of three subsections			33%	1		\$93,000
Digitizing Technician		Digitize delineated polygons and populate attribute tables per ecologists notes			33%	1.4		\$118,000
Digitizing Technician		Digitize delineated polygons and populate attribute tables per ecologists notes			33%	1.4		\$118,000
GIS Specialist		Protocol, technology and systems management			33%	0.5		\$51,000
							Sub Total	\$495,000
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
	Equipment	GPS Capable Tablet	Field ground truthing will be necessary throughout the project. In natural environments without landmarks GPS will be needed.	X				\$1,000

	Equipment	Computer Work Stations	High resolution digitizing at the regional scale requires high end work stations with large dual monitors and high speed processors - \$6,000 for 4 workstations	X					-
	Equipment	Digitizing Tablets	Digitizing complete coverage across 1.9 million acres in 16 months (640 acres/day) will require digitizing tablets for the digitizing technicians.	X					\$1,000
	Equipment	ArcGIS Licenses	Individual ArcGIS licenses are needed for MLCCS updates and protocol development - \$5,600 for 4 licenses	X					-
								Sub Total	\$2,000
Capital Expenditures									
								Sub Total	-
Acquisitions and Stewardship									
								Sub Total	-
Travel In Minnesota									
	Miles/ Meals/ Lodging	50 miles per day, 200 days per year, 1.5 years, 2 employees, \$0.58/mile - \$17,400	Mileage primarily for ground truthing land cover in the field - cost covered by partners as match.						-
								Sub Total	-
Travel Outside Minnesota									
								Sub Total	-
Printing and Publication									
	Printing	Half Section Aerial Photos - 6,000 half section full color high resolution aerials on 11x17 paper	Half sections are used in the field to delineate boundaries and record field observations.						\$2,000

							Sub Total	\$2,000
Other Expenses								
							Sub Total	-
							Grand Total	\$499,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Equipment, Tools, and Supplies		GPS Capable Tablet	The project is field intensive and required rugged tablets that are GPS enabled for gathering data in the in remote location, which landmarks are sparse to accurate identify location without GPS.
Equipment, Tools, and Supplies		Computer Work Stations	Project partners will cover the \$6,000 needed to purchase 4 workstations that are needed for this project but would like to document the purchase as match.
Equipment, Tools, and Supplies		Digitizing Tablets	Two digitizing tablets are need to accelerate the pace of progress to a rate averaging 640 acres per day in order to finish the project within the grant term.
Equipment, Tools, and Supplies		ArcGIS Licenses	Project partners will cover the \$5,600 in costs for critical GIS software needed to complete this project but would like it to be recognized as a match toward the project.

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
In-Kind	MCD Member hosting an Ecologist	10% of the cost of a part time Ecologist for two years	Pending	\$10,000
In-Kind	MCD Member hosting an Ecologist	10% of the cost of a part time Ecologist for two years	Pending	\$10,000
In-Kind	MCD members collectively	Mileage reimbursement for private vehicle use for the project and for use of partner owned vehicles for the project	Pending	\$17,400
Cash	MCD members collectively	4 computer workstations - high resolution digitizing at the regional scale requires high end work stations with large dual monitors and high speed processors	Pending	\$6,000
Cash	MCD members collectively	4 individual ArcGIS licenses are needed for MLCCS updates and protocol development	Pending	\$5,600
			Non State Sub Total	\$49,000
			Funds Total	\$49,000

Attachments

Required Attachments

Visual Component

File: [0496c710-722.pdf](#)

Alternate Text for Visual Component

The Twin Cities Metro Area is home to 61% of Minnesotans, is projected to grow another 17% by 2045, is the epicenter of natural resource management challenges in the state, and contains 7 of the 8 top ecological subsections in terms of the number of species of greatest conservation need. With all of this, it is critical that natural resource managers have the best possible data to inform management decisions. Minnesota Land Cover Classification System (MLCCS) coverage is the ideal foundation for both water and ecological resource management. Coverage throughout the metro area was initially completed before 2009, but to varying degrees has become outdated. This project will update MLCCS coverage across 1.9M acres of the metro area for \$400K, which if done from scratch would cost \$3.3M. Equally important, this project will develop and apply rigorous analytical protocols to portions of three ecological subsections to answer the question; “Which are critical property owners to engage to protect, restore, and enhance habitat for species of greatest conservation need, ecological connectivity and resilience, and public enjoyment of wildlife?”

Board Resolution or Letter

Title	File
MCD Resolution Authorizing Submittal of LCCMR Application for MLCCS	58915b08-3af.pdf

Optional Attachments

Support Letter or Other

Title	File
LOS Washington County	e6f472a7-af8.pdf
LOS Dakota County	90d98171-e2b.pdf
LOS Scott County	9fd0d72f-c16.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have patent, royalties, or revenue potential?

No

Does your project include research?

No

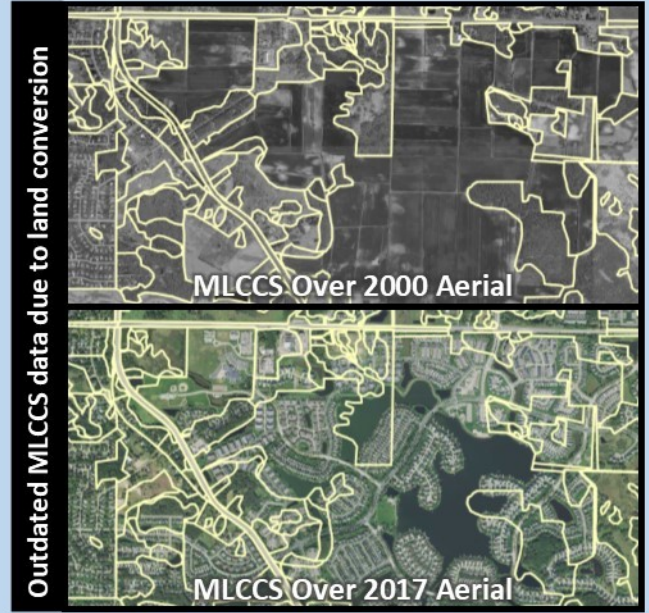
Does the organization have a fiscal agent for this project?

Yes, Scott SWCD

Update Metro MLCCS for Enhanced Natural Resource Management

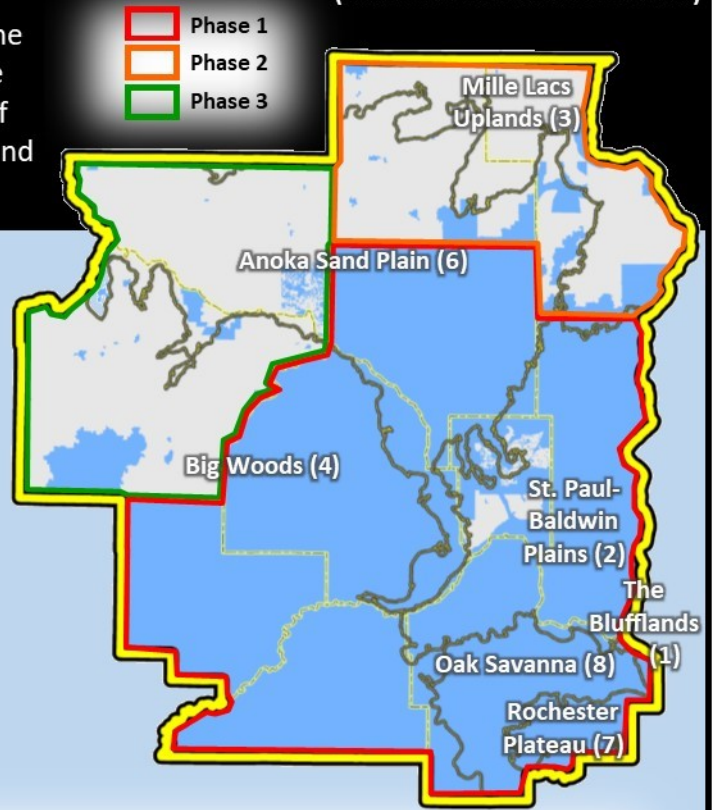
Project Outcomes -This phase focuses on the 7-county metro area. The 4-county area that comprises the Greater Twin Cities Metro will largely be addressed in future phases.

- Provide critical updated high resolution geospatial Minnesota Land Cover Classification System (MLCCS) data throughout the rapidly developing 1.9M acre 7-county metro area as a foundation for science-based water and ecological resource analysis and management.
- Develop and apply analytical protocols utilizing MLCCS for a portion of the Anoka Sand Plain, Big Woods, and St. Paul-Baldwin Plains ecological subsections, which will identify and rank parcel specific protection, restoration and enhancement opportunities.



Project Innovation - While common in water resource management, this project will be the first to analyze ecological resources with sufficient rigor to answer the question, "Which property owners should we engage to protect, restore and enhance habitat for species of greatest conservation need, ecological connectivity and resilience, and public enjoyment of wildlife?"

Project area map with MLCCS and ecological subsections (number is statewide SGCN rank)



Project Need - Up-to-date MLCCS data provide anthropomorphic feature detail in cultural environments and species level detail in natural environments and are instrumental for natural resource managers.

High-resolution data are critical for natural resource management decisions in the metro area, which;

- is home to 61% of Minnesota's population,
- is expected to grow by an average of 16.8% by 2045,
- is the epicenter of water and ecological resource management challenges in the state, and
- contains all or portions of 7 of the top 8 ecological subsections in Minnesota ranked in terms of the number of species of greatest conservation need (SGCN).

1.93M acres Updated MLCCS (1.46M cultural, 0.47M natural) 1.29M acres Expanded MLCCS (0.99M cultural, 0.30M natural)

