

Workplan / Grant Application / Project Summary Report
2013 - Accelerated Implementation Grant - RCRCA
(Redwood-Cottonwood Rivers Control Area) (JPB)

Submitted by: **RCRCA (Redwood-Cottonwood Rivers Control Area) JPB**

Grant Fund Type: Accelerated Implementation Grant

Fund Year: 2013

<i>Total Grant Amount:</i>	\$52,600.00	<i>Amount Budgeted for this Workplan:</i>	\$52,600.00	<i>Amount Spent for this workplan:</i>	0.00	<i>Amount Not Spent on this workplan:</i>	\$52,600.00
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BMP Detail Summary

Number of BMP's Installed	BMP Name	Shape Type	Linear Ft.	Total Acres	Total Mapped BMPs	Soil Loss Reduction Tons/Yr	Sediment Reduction Tons/Yr	Phosphorus Reduction Lbs/Yr
1	□□□□□□□□							
Total # installed BMPs:						Tons/Yr	Tons/Yr	Lbs/Yr
Total # mapped BMPs:								

Initiative Name: **2013 - RCRCA Accelerated Implementation - Grant Administration**

Initiative Name: 2013 - RCRCA Accelerated Implementation - Grant Administration **Initiative Type:** Admin/Coordination

Year: 2013

Description

Administrative and coordinating activities to include grant management, financial oversight, and program execution reporting. Activities to include oversight of activities to comply with work plan and grant agreement to meet projects goals, prepare annual reports, payment requests, and final reporting, coordination of time sheet and accounts tracking designation for grant related activities.

Persons Responsible: Douglas Goodrich, Joy Bruns

<u>FUND(s)</u>	<u>Budgeted</u>	<u>Approved</u>	<u>Spent</u>	<u>First Spend Date</u>	<u>Last Spend Date</u>
1. 2013 - Accelerated Implementation Grant - RCRCA (Redwood-Cottonwood Rivers Control Area) (JPB)	2,600.00	2,600.00	0.00		
2. 2013 - Organizational Match - Acc. Imp. Grant - RCRCA (Redwood-Cottonwood Rivers Control Area) (JPB)	18,000.00	18,000.00	0.00		
Totals:	20,600.00	20,600.00	0.00		

Initiative Name: **2013 - RCRCA Accelerated Implementation - Technical and Engineering Initiative**Initiative Type: Technical and EngineeringYear: 2013Description

The project will create maps using precision LIDAR DEM data to refine TMDL priority sub-watersheds for BMP implementation in RCRCA member counties and watersheds.

The project will employ a GIS technician at roughly .5 FTE/yr over two years to procure and analyze Light Detection and Ranging (LIDAR) Digital Elevation Model (DEM) datasets using ESRI's ArcMap 9.3 for Geographic Information Systems (GIS) and Spatial Analyst Extension. LIDAR datasets will have to be hydrologically corrected before analysis to account for culverts and bridges which may require ground truthing in some instances. Staff technicians have been trained in the methodology of GIS based LIDAR data analysis using variables such as stream gradient, erodibility, land use, soils, and slope. Using the LIDAR data in GIS, the elevation data can be spatially analyzed to create new data sets for the sub-sheds within the Redwood and Cottonwood Rivers that have been described as priority areas in TMDL reports and county water plans. LIDAR data provides a precise model of the relief of land surfaces. Methods for using the precision data in GIS systems to create datasets including the (SPI) Stream Powers Index, (CTI) Compound Topographic Index, (SCA) Specific Catchment Areas, (CSA) Critical Source Areas, and the like have been developed and ground tested for effectiveness of determining sediment and pollution movement potential when compared to ground truthing and surveying areas for completeness.

Major Activities:

- LiDAR data procurement and preparation: (March, 2013)
- LiDAR data analysis and hydrologic correcting for culverts, roads, depressional areas, etc.: (March, 2013 - March, 2015)
- Map creation, prioritization and interpretation: (Oct. 2014 - Jun. 2015)
- Data/map dissemination and support for partner groups (Jun. 2015 - Oct. 2015)

Staff: Shawn Wohnoutka, Douglas Goodrich

Comments

This project will accelerate conservation efforts to reduce overland runoff sediment, bacteria, and nutrient loadings contributing to water quality impairments through further refinement of already targeted sub-watersheds in the Redwood and Cottonwood rivers as outlined in (TMDL) studies. Activities through this project seek to create a suite of maps showing focus areas based on environmental sensitivity variables through GIS analysis using precision LIDAR DEM data obtained through a Minnesota Legislative edict. Staff technicians have been trained in the methodology of GIS based LIDAR data analysis using variables such as stream gradient, erodibility, land use, soils, and slope and will apply them to create media (maps and datasets) for distribution to partners in an effort to expedite funding to accelerate BMP implementation in the highest priority targeted areas of the Redwood and Cottonwood watersheds. Another goal of the project is to provide a means for organizational partners for prioritizing and targeting areas for future funding and BMP implementation addressing pollutant reduction goals of TMDLs and county water plans.

FUND(s)

	<u>Budgeted</u>	<u>Approved</u>	<u>Spent</u>	<u>First Spend Date</u>	<u>Last Spend Date</u>
1. 2013 - Accelerated Implementation Grant - RCRCA (Redwood-Cottonwood Rivers Control Area) (JPB)	50,000.00	50,000.00	0.00		
Totals:	50,000.00	50,000.00	0.00		

Program Specific Workplan Items

Water Plan Reference:

LIDAR data for the area of southwest Minnesota has only become available for analysis in the past couple of years and would only have been included as an objective in the more recent work plans or plan updates. Prioritization of projects for BMP implementation for maximum pollutant reduction and water quality analysis to determine pollution reduction trends in surface waters have been two of the main tenets of RCRCA's organization and are described in the Redwood Clean Water Project and the Cottonwood River Restoration Project diagnostic study implementation plans. Priority "sub-basins" were described in RCRCA's original water project plans based on water quality testing and field measurement regimes. Portions of county water management plans/comprehensive plans of the eight counties of RCRCA (Brown, Cottonwood, Lincoln, Lyon, Murray, Pipestone, Redwood, and Yellow Medicine) make prioritizing areas for BMP implementation through the TMDL process findings a plan goal. A few of the more recent county water work plan updates include refining the TMDL or county priority areas through GIS modeling using different spatial indices or digital analysis methods of this project. One example is Brown County's Local Water Management Plan; Priority Concern 1 - Soil Erosion, Obj. B - Reduce the impairments in surface waters, "Utilize Counties Geographic Information Systems (GIS) data to inventory and target areas for best management practices".

TMDL Reference (if applicable):

"Advances in evaluation modeling" in order to "assist with fine-tuning priority areas (in the watersheds) in the future" is cited as a needed future goal within RCRCA's combined turbidity and E. coli bacteria TMDL Implementation Plans for the Redwood and Cottonwood Rivers (still pending state approval*) in the section 3.0, Priority Management Area, section of the plan as a way to complement and improve on the TMDLs written for the watersheds. The coming Minnesota River Turbidity TMDL*, Section 11, Implementation Strategy, states "using latest research on terrain analysis and LiDAR to enhance the understanding of the system" and "prioritization and targeting of sources so that the fixes will have the greatest impact with the least cost".

*RCRCA TMDL Reports and Implementation Plans, as with many in Minnesota, are finished and have been submitted to MPCA (E. coli - January, 2010; turbidity - July, 2011) and put on public notice but have been held up through the contested case process and have yet to be reviewed for approval by EPA or MPCA.

Watershed Name (81 Majors)

Cottonwood, Redwood

Project Description:

The Redwood and Cottonwood River Watersheds have been assessed and many reaches have been listed on the EPA's 303(d) list according to Minnesota Pollution Control Area (MPCA) protocol for turbidity, bacteria, and low dissolved oxygen. This project will accelerate conservation efforts to reduce overland runoff sediment, bacteria, and nutrient loadings contributing to water quality impairments through further refinement of already targeted sub-watersheds in the Redwood and Cottonwood rivers as outlined in (TMDL) studies. Activities through this project seek to create a suite of maps showing focus areas based on environmental sensitivity variables through GIS analysis using precision LIDAR DEM data obtained through a Minnesota Legislative edict. Staff technicians have been trained in the methodology of GIS based LIDAR data analysis using variables such as stream gradient, erodibility, land use, soils, and slope and will apply them to create media (maps and datasets) for distribution to partners in an effort to expedite funding to accelerate BMP implementation in the highest priority targeted areas of the Redwood and Cottonwood watersheds. Another goal of the project is to provide a means for organizational partners for prioritizing and targeting areas for future funding and BMP implementation addressing pollutant reduction goals of TMDLs and county water plans.

Project Outcomes:

RCRCA and partners will use this information to update priority areas and scoring for BMP cost-share requests. Other program changes may evolve from data returns due to this project including new sampling sites and direct contact activities for project funding requests. Partner county work plans will include information from this project as work plan updates/revisions cycle in the eight counties. Finer scale assessments of the priority watersheds outlined in the Lower Minnesota River Dissolved Oxygen TMDL Implementation Plan are listed as part of its Phase III nutrient mitigation approach. The Minnesota River Basin Plan and the Minnesota Non-point Source Management Plan also encourage sub-HUC 12 modeling as a means of prioritization for BMP implementation to address non-point pollution.

Continued tracking of implemented BMP projects in the state's e-Link system with calculated pollution reduction rates and mapping functions will be used to track area project adoption rate. Post project water monitoring as part of the organizational conditions and effectiveness water monitoring efforts will be able to recognize trends in water quality accomplishments to ascertain accelerated sediment and nutrient load reductions. Involved county water management plan revision processes with the member counties of RCRCA will document inclusion of prioritization areas delivered through this project.

The mapping tools and data delivered through this project will allow counties, JPOs, SWCDs, and other LGUs to prioritize for more targeted BMP implementation in future rounds of CWF funding to ensure funds are spent where they are most effective. Results of this project have the potential to take the place of field surveying efforts needed to arrive at priority areas within the watersheds, saving money in the long run and stretching CWF resources to be used elsewhere.

LGU CWF Website

http://rcrca.com/rcrca_reports_and_summaries.htm

Full Time Equivalent Employees

0.335 FTE (2100 hrs total/2088 =1.01 FTE/3 yr)
