Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194

319/Clean Water Partnership/ Total Maximum Daily Loads

Semi-Annual Report for Reporting Year 2013

Reporting Period: ☒ January 1 through June 30, 2013 (Due August 1, 2013)
☐ July 1 through December 31, 2013 (Due February 1, 2014)

All information is required by U.S. Environmental Protection Agency (EPA). Do not leave blanks. This report form can be typed using your computer. Use the "**tab**" key to move through the fields of this form. Enter responses using text and check boxes as indicated. Keep a copy for your records.

I. General Report Information

1.	Project Title:	**Cottonwood Streambank Inventory and Prioritization Project**		
2.	Project Sponsor:	**Redwood-Cottonwood Rivers Control Area (RCRCA)**		
3.	Project Representative:	**Douglas A. Goodrich, Director, RCRCA**		
4.	Email Address:	douglas.goodrich@racgroup.net		
5.	Funding:	**Section 319 Federal Funds**		
6.	Contract/Loan Number:	**SWIFT Contract #55326**	Project Number:	**PRJ#07887**
7.	MPCA Project Manager:	**Mark Hanson**		
8.	Contract Start Date:	**10/01/2012**	Contract End Date:	**08/31/2016**
9.	Best Management Practice (BMP) Name (Refer to BMP List):	**Grade Stabilization Structure, Streambank and Shoreline Protection, and Onsite Wastewater Treatment Systems**		

10. **319/Clean Water Partnership (CWP) only** - Nonpoint Source (NPS) Category (Refer to NPS Definition of Categories):

	Primary	Secondary	Others
Category	**Agriculture, Urban Runoff/Stormwater, Hydromodificaton**	**Non-Irrigated Crop Production, Pasture Grazing,Municipal and Residential, Channel Erosion/Incision, Streambank or Shoreline Modification/Destabilization**	

11. **319/CWP only** - NPS Functional Category (Refer to NPS Definition of Categories):

	Primary	Secondary	Others
Category	**BMP Design/Implementation, Grade Stabilization, Streambank Stabilization, Sediment Control,**	**BMP Performance Assessment, BMP Effectiveness Monitoring, Nonpoint Source Project Staffing**	**Nonpoint Source Program Coordination, Water Quality Problem Identification**

12.	Waterbody type (refer to NPS Waterbody Type):	**Rivers**		
13.	**319/ CWP only:** Type of pollutant(s) addressed (refer to NPS Pollutants):	**Nutrients, Pathogens, and Sedimentation**		
14.	Ecoregion (refer to NPS Ecoregion):	**Western Corn Belt Plains**		
15.	Hydrologic unit code (12 digits):	**07020008(0000-9999)**	Latitude-longitude:	**Lat. 44°17'29" Long. 99°26'24**

16. Basin name (check all that apply):
- ☐ Lake Superior
- ☐ Lower Mississippi/Cedar

☐ Upper Mississippi
☒ Minnesota
☐ Rainy
☐ Red River
☐ Des Moines
☐ Missouri
☐ St. Croix

II. Project Description

1. Project Description Summary (taken from work plan summary) – Include at least two paragraphs that briefly summarize the project scope, the processes and the events that occurred **before** this reporting period.

The Cottonwood River Watershed encompasses 1,312.23 square miles and is one of thirteen major watersheds in the Minnesota River Basin. The River originates on the Coteau des Prairies, flowing eastward approximately 152 miles to the Minnesota River with a drop in elevation of about 750 feet. This topography results in periodic spring and summer flooding in the central portion of the watershed. At times, damages are severe. A related implication is rapid transport of sediment and attached nutrients from inadequately treated cropland during spring snowmelt and spring and summer rainfall events.

In the wake of flooding in the fall of 2010, heavy snows, and the subsequent flooding in the spring of 2011, there have been many requests to engineer projects to remedy ravine and bank failures along the Cottonwood River. Failed streambanks are considered to have a sediment to stream contribution ratio of 100% and can be a major source of the turbidity in the river. Studying the Cottonwood River site requests has shown that banks have receded at varying rates and that the problems may be caused by the system's inability to handle waters from such efficient drainage. Related implications to drainage is rapid transport of sediment and attached nutrients from inadequately treated cropland during spring snowmelt and spring and summer rainfall events.

Long-term monitoring has identified encouraging trends of total suspended solids and phosphorus reduction associated with the restoration that has taken place in the Cottonwood River watershed, but the current (2010) TMDL impaired reach designations show that the work is not finished. Recent studies are showing that a majority of turbidity (and nutrients transport leading to low oxygen conditions) are being contributed to stream systems through streambank, streambeds, river bluffs, and ravines. The floods of late 2010 and spring of 2011 have exacerbated ravines, banks, and gully erosion along the main corridor of the Cottonwood River and have shown that there are many instances of serious erosion and vulnerable banks in the corridor. This project would take steps to 1)Inventory failing banks and ravines/gullies along the Cottonwood River, 2)Develop a procedure to prioritize problem areas, 3)Provide funding to remedy high priority areas, and 4)Provide funding to keep water in upland areas (thereby retarding flow in the system, a major contributor to bank erosion). This project is based on the approved Lower Minnesota River Dissolved Oxygen TMDL Implementation Plan (http://www.pca.state.mn.us/index.php/view-document.html?gid=8001)for phosphorus reduction. Therefore, it is important to continue the implementation of BMPs that will reduce the total phosphorus contribution from the Cottonwood River Major Watershed and work to de-list the Lower Minnesota River Dissolved Oxygen TMDL impairment. The "9 Elements Checklist" for the Lower Minnesota River Dissolved Oxygen TMDL Implementation Plan is provided as documentation as requested by EPA (see Supplement 2).

The purpose of the Implementation phase of the Cottonwood River Restoration Project is to facilitate watershed land-use changes that will lead to reductions necessary to meet both main stem and tributary goals. The 1999 Diagnostic Study defined characteristics of specific pollutants, the processes affecting their transport, and appropriate measures to reduce their delivery to the Cottonwood River. Priority management areas were selected based on relative contributions to the total sediment and nutrient load in the River. Attitudes and opinions of watershed residents were explored as they relate to water quality and measures for its protection. As a result of the Resource Investigation, a locally developed Implementation Plan was created to direct restoration activities in the Cottonwood River Watershed over the next ten years.

The project has oversight by the Redwood-Cottonwood Rivers Control Area (RCRCA). RCRCA, established in 1983, is a Joint Powers Organization of eight counties and their Soil and Water Conservation Districts. (For additional information, go to www.rcrca.com) RCRCA has a proven history backed with an extensive database, a long-term monitoring program, and an organizational structure that remains supportive and flexible to ensure that projects such as the Redwood River Clean Water Project and the Cottonwood River Restoration Project are successful. This success can be viewed in the 2001 Final Report, "Evolution of Watershed Restoration", which can be found at www.rcrca.com.

Annual total suspended solids (TSS) loading from the Cottonwood River in 1997 was estimated at over 330,000 tons, or 252 tons per square mile. Total phosphorus (TP) was estimated at 505 tons. Throughout the study period, flow weighted mean concentrations of TSS and nutrients on the main stem and most tributaries exceeded expected values for minimally impacted

ecoregion streams. By 2008, annual FLUX calculations from the Cottonwood River sampling site at New Ulm showed a total phosphorus delivery of 143.38 tons annually to the Minnesota River. This is equal to .109 tons per square mile loss of phosphorus included with 83.52 tons per square mile loss of total suspended solids (go to www.rcrca.com). This is directly related to the turbidity impairment and contributes to the Minnesota River phosphorus loading (See http://www.pca.state.mn.us/water/tmdl.html

Recreational opportunities in the project area are limited by degraded water quality, channel obstructions, limited access, and a general lack of awareness by watershed residents. Potentially, the project area can be a major recreational resource.

Long term monitoring efforts from 1990 to present have identified TMDL impairments and the current/pending (2010) listings show that the work is not finished. With the TMDL plan approved on the lower Minnesota River for phosphorus reduction, it is important to continue the implementation of best management practices that will reduce the total phosphorus contribution from the project area and work to de-list the lower Minnesota River Dissolved Oxygen TMDL impairment.

Nearly all wetlands have been drained by a highly efficient and interconnected artificial drainage system. This drainage system has allowed agriculture, the primary land use, to flourish. Corn and soybeans are the main crops grown in the watershed.

The study's primary research tool was a water quality monitoring program used to gather data at 4 main stem locations and 10 tributary sites. Stream bank erosion assessments were made at several locations along the lower reach of the Redwood and Cottonwood Rivers. Fishery surveys were used to assess populations and species diversity. Land use and physical characteristics of the watersheds were analyzed through application of Geographic Information System (GIS) data layers. These evaluations were supplemented in the Cottonwood River by field observations using the tailored integrated stream and watershed assessment (TISWA) methodology.

The Redwood and Cottonwood River Phase I Diagnostic Studies and their Implementation Plans are on file at MPCA. Please refer to them and the Quality Assurance Project Plans (QAPP's) which are also on file for further information.

2. Specific Project Goals – Include numeric, quantifiable goals for environmental improvement, the number of Best Management Practices to be installed, **pollutant reductions** as well as programmatic and social goals.

The goal of this project is to continue best management implementation according to the Cottonwood River Phase I Implementation Plan approved in 1999 and implement phosphorus and total suspended solids (TSS) reducing conservation practices that will help achieve the Lower Minnesota River dissolved oxygen TMDL, the Minnesota River Turbidity TMDL, and Cottonwood Turbidity TMDL that is currently being developed. A secondary goal of this project is to inventory streambanks and failing ravines in order to prioritize the many potential projects for the best pollutant reduction. This four year work plan is projected to reduce phosphorus reaching the Minnesota River by 2,925.30 pounds annually or 1,170,120.00 pounds of aquatic plant growth annually (plus 1,991.76 tons of TSS). This work plan will administer grant funds from 2012 through 2016 to achieve the implementation goals through these objectives: 1. BMP Technical Assistance and Implementation, 2. Priority Area Inventory Development and Analysis, and 3. Grant Administration and Facilitation.

1. BMP Technical Assistance and Implementation:

- *Promote BMP cost share availability and identify BMP projects.*
  Task A Cost: Grant- $35,340.00 Match- $0.00
- *BMP cost share, incentives, and project implementation.*
  Task B Cost: Grant- $160,000.00 Match- $40,000.00
- *Promote and Implement MPCA low interest loan program.*
  Task C Cost: Grant- $0.00 Match- $123,000.00

Objective 1 Cost: Grant- $195,340.00 Match- $163,000.00 Total- $358,340.00

2. Priority Project Inventory Development and Analysis

Objective 2 Cost: Grant- $52,000.00 Match- $0.00 Total- $52,000.00

3. Grant Administration and Facilitation Comply with work plan and grant and loan agreement to meet projects goals

Objective 3 Cost: Grant- $49,660.00 Match- $80,000.00 Total- $129,660.00

3. Methods to achieve goals:

The Cottonwood River, as a result of the nine years of continuous monitoring, has been divided into priority areas that have been identified as contributing a disproportionate share of sediment and nutrients. With this prioritization, a ranking sheet

has been developed to rank each project application to ensure that it will provide a substantial reduction of pollutants. Since 2000, the projects that have been implemented have been tracked by total cost of the project, the landowners' share of the cost, and the reductions achieved by each project. With this data, a matrix has been developed to estimate the total cost per pollutant reduction. This matrix is used to estimate the number of projects needed and the pollutant reductions that can be achieved. By implementing projects in priority areas selected by a long-term monitoring program and using implemented project information to estimate cost and effectiveness of each type of BMP, the project can ensure that the goals and objectives will be met and the efficiency and pollutant reduction benefits of each BMP will be maximized. Several evaluation methods, in addition to the monitoring program are necessary to measure Project success. Methods used in the implementation plan have been selected to evaluate different components and outcomes of the plan in different ways. An established best management practice (BMP) tracking system will be used to measure BMP adoption rates within this project area. Information contained in this system will include records of initial contacts with landowners or operators; the status of each BMP from initial sign-up to construction; and the potential sediment and nutrient reduction obtained as a result of the BMP, using the BWSR/MPCA e-link program. This information will be entered into the watershed GIS system maintained by RCRCA. Other program evaluation tools will be developed to evaluate other key activities within each objective of the implementation plan as needed.

III. Semi-annual Report Information

1.	Project activities completed during last six (6) months according to the program elements or tasks: *Contract activities have just begun. The contract was finalized in Mid-December, 2012. Landowner signups and GIS photo reconnaissance as well as information gathering on streambank problems with partner agencies have begun. 5 contracts filed and awaiting constriction*	
2.	Challenges faced (optional):	
3.	Summary of monitoring data collected:	**N/A for this grant**
4.	Have all monitoring stations been established in STORET? ☒ Yes ☐ No	**N/A for this grant**
5.	Is the data being routinely submitted for storage into STORET? ☐ Yes ☐ No Last submittal date:	**N/A for this grant**
6.	Is the data being annually entered into E-Link? ☒ Yes ☐ No Date last entered:	**N/A for this period**
7.	Identify any significant **findings** and **results** of the project to date, as well as any unanticipated findings:	**See Question 1.**
8.	Describe specific (quantifiable, if possible) results achieved during this period:	**See Question 1.**
8a.	Sediment Load Reduction Phosphorus Load Reduction: Nitrogen Load Reduction:	*-tons/yr* *-lbs./yr* *- lbs./yr*
9.	Summarize any work plan changes:	
10.	List anticipated activities for next six (6) months: *In the next six months, technicians will continue to examine satellite photos and data of the Cottonwood River corridor as well as field review selected locations for prioritization of stream banks on the Cottonwood River. Also, areas will be targeted for BMP implementation and contracts tendered.*	
11.	List all products (documents, pamphlets, videos, maps, etc.) produced in this reporting period: BMP contracts and spreadsheets, BMP contract maps, among many products.	

IV. Expenditure Information for this Period

CWP: Provide a copy of the Expenditure Report with cumulative expenditures and this period's expenditures budget balances by work plan program element. The format for the Semi-Annual Expenditure Report is available on the Web at: http://www.pca.state.mn.us/publications/wq-cwp7-09.xls.

☒ Expenditure Report attached

CWP, 319, and TMDL - Complete the table below:	**Amount**
Total Grant Amount:	$297,000.00
Total Match Amount (if applicable)	$243,000.00
Total Project Amount:	**$540,000.00**
Cumulative Grant Expenditures through this period:	$ 13,921.26
Cumulative Match Expenditures through this period:	$133,315.80
Total Cumulative Expenditures through this period:	**$147,237.06**

Date form completed: **7/18/2013**

Please submit to: Your project manager **Mark Hanson**

PROJECT TITLE: Cottonwood Streambank Inventory and Prioritization Project SW55326
WORK PLAN BUDGET/EXPENDITURES AS OF: June 30, 2013 - Request Voucher #2

Objectives	unit cost	unit	Quantity Exp/budget	Local Match Budgeted	Grant Cash Budgeted	Total Budgeted	Cumulative Local Match Expended	Cumulative Grant Cash Expended	Cumulative Total Expended	Local Match Budget Balance	Grant Cash Budget Balance	Total Budget Balance	Amount Requested this Voucher	Amount Previously Requested
Objective 1) BMP Technical Assistance and Implementation						**$0.00**			**$0.00**	$0.00	$0.00	**$0.00**	$0.00	
Task A: Technical and implementation activities relating to BMP funding (Obj. 1; Task B)	$31.00	1140	$35,340.00		$35,340.00	**$35,340.00**		$3,105.04	**$3,105.04**	$0.00	$32,234.96	**$32,234.96**	$1,678.25	$1,426.79
Task B: BMP cost sharing, prioritization and ranking.			$200,000.00	$40,000.00	$160,000.00	**$200,000.00**			**$0.00**	$40,000.00	$160,000.00	**$200,000.00**	$0.00	$ -
Task C: Promote and Implement MPCA low interest loan program	$8,200.00 per	15.00	$123,000.00	$123,000.00		**$123,000.00**	**$111,875.90**		**$111,875.90**	$11,124.10	$0.00	**$11,124.10**	$0.00	$ -
Total Objective 1			$358,340.00	$163,000.00	$195,340.00	$358,340.00	$111,875.90	$3,105.04	$114,980.94	$51,124.10	$192,234.96	$243,359.06	$1,678.25	$ 1,426.79
Objective 2) –Priority Project Inventory Development and Analysis						**$0.00**		$0.00	**$0.00**	$0.00	$0.00	**$0.00**		$ -
GIS/Ground Truthing Analysis Relating to Project Suitability	$25.00	2080	$52,000.00		$52,000.00	**$52,000.00**			**$0.00**	$0.00	$52,000.00	**$52,000.00**	$0.00	$ -
Total Objective 2			$52,000.00	$0.00	$52,000.00	$52,000.00	$0.00	$0.00	$0.00	$0.00	$52,000.00	$52,000.00	$0.00	$ -
Objective 3) –Grant Administration and Facilitation						**$0.00**		$0.00	**$0.00**	$0.00	$0.00	**$0.00**		$ -
RCRCA Appropriation	$20,000/yr	4 yr.	$80,000.00	$80,000.00		**$80,000.00**	$21,439.90		**$21,439.90**	$58,560.10	$0.00	**$58,560.10**	$0.00	$ -
RCRCA Executive Director	$29.00/hr	1020 hrs	$29,580.00		$29,580.00	**$29,580.00**		$7,202.46	**$7,202.46**	$0.00	$22,377.54	**$22,377.54**	$3,411.27	$3,791.19
RCRCA Support Staff	$20.00/hr	703 hrs	$14,060.00		$14,060.00	**$14,060.00**		$3,049.42	**$3,049.42**	$0.00	$11,010.58	**$11,010.58**	$1,652.32	$1,397.10
Office Supplies	$750.00/yr	4 yr.	$3,000.00		$3,000.00	**$3,000.00**			**$0.00**	$0.00	$3,000.00	**$3,000.00**	$0.00	
Mileage/reent/expenses/professional servces	$755.00/yr	4 yr.	$3,020.00		$3,020.00	**$3,020.00**		$564.34	**$564.34**	$0.00	$2,455.66	**$2,455.66**	$0.00	$564.34
						$0.00			**$0.00**	$0.00	$0.00	**$0.00**		
Total Objective 3			$129,660.00	$80,000.00	$49,660.00	$129,660.00	$21,439.90	$10,816.22	$32,256.12	$58,560.10	$38,843.78	$97,403.88	$5,063.59	$ 5,752.63

ITEMIZED PROGRAM ELEMENT BUDGET

Total Element 1	**$358,340.00**	**$163,000.00**	**$195,340.00**	**$358,340.00**	**$111,875.90**	**$3,105.04**	**$114,980.94**	**$51,124.10**	**$192,234.96**	**$243,359.06**	$1,678.25	**$1,426.79**
Total Element 2	**$52,000.00**	**$0.00**	**$52,000.00**	**$52,000.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$52,000.00**	**$52,000.00**	$0.00	**$0.00**
Total Element 3	**$129,660.00**	**$80,000.00**	**$49,660.00**	**$129,660.00**	**$21,439.90**	**$10,816.22**	**$32,256.12**	**$58,560.10**	**$38,843.78**	**$97,403.88**	$5,063.59	**$5,752.63**

Project Grand Total	**$243,000.00**	**$297,000.00**	**$540,000.00**	**$133,315.80**	**$13,921.26**	**$147,237.06**	**$109,684.20**	**$283,078.74**	**$392,762.94**	$6,741.84	$ 7,179.42

BMP Cost Share Tracking as of June 2013

GRANT: SW55326 "Cottonwood 6" — **Grant to Expire 8-31-16**

SPOKEN FOR/NOT SPENT: $ 73,966.51 — **Grant Value $160,000.00**

SPENT: $ -

LEFT TO SPEND: $ 86,033.49

county	wtrshd_name	grant_id	cont_num	coop_l_name	coop_f_name	city	state	t_r_s	ws_id	actual_cost	cost_share	final_pay	final_pay_date	bmp	num_install	elink_soil	elink_sed	elink_phos	seed_acre	bmp_length
				Redman																
				Thram																
Redwood	Cottonwood	B39161	09CWL319-31-01	Pfarr	Glen	Lamberton	MN	**T109 R36 S30**	29063		$ 5,677.13			638	1					
Redwood	Cottonwood	B39161	09CWL319-32-01	Pfarr	Glen	Lamberton	MN	**T109 R36 S30**	29063		$ 4,833.94			638	1					
Redwood	Cottonwood	B39161	09CWL319-33-01	Pfarr	Glen	Lamberton	MN	**T109 R36 S30**	29063		$ 8,321.44			638	2					
Brown	Cottonwood	B39161	09CWL319-34-01	Burdorf/Johnson		New Ulm	MN	**T110 R30 S33**			$ 22,500.00			580	1					200
Brown	Cottonwood	B33058		Treml	Leon		MN				$ 18,750.00			638	5					
Brown	Cottonwood	B33058		Kral	Alan		MN				$ 5,634.00			410	1					
Brown	Cottonwood	B33058		Stark TWP	Sellner	Sleepy Eye	MN	**T109 R32 S16**	29006		$ 8,250.00			580	1					100

Septic Loan Match through December, 2012

Loan #	Project Name	Project Sponsor	Loan Sponsor	Actual Amount	Disbursed	% Disb/Actual	Loan Outstanding	Loan Balance	End Date
SRF0208	Cottonwood River Watershed Phosphorus TMDL Continuation	RCRCA	Brown County	$ 200,000.00	$ 164,095.73	82.05%	$ 157,569.83	$ 35,904.27	12/9/2012
SRF0209	Cottonwood River Watershed Phosphorus TMDL Continuation	RCRCA	Cottonwood County	$ 100,000.00	$ 100,000.00	100.00%	$ 103,370.26	$ -	12/9/2012
SRF0210	Cottonwood River Watershed Phosphorus TMDL Continuation	RCRCA	Lyon County	$ 100,000.00	$ 61,131.67	61.13%	$ 60,459.25	$ 38,868.33	12/9/2012
SRF0211	Cottonwood River Watershed Phosphorus TMDL Continuation	RCRCA	Redwood County	$ 130,000.00	$ 98,199.01	75.54%	$ 35,015.88	$ 31,800.99	12/21/2012
SRF0212	Cottonwood River Watershed Phosphorus TMDL Continuation	RCRCA	Murray County	$ 45,000.00	$ 31,449.56	69.89%	$ 30,537.72	$ 13,550.44	12/9/2012
				$ 575,000.00	$ 454,875.97		$ 386,952.94	$ 120,124.03	

SEPTIC MATCH for the GRANT; is the remainder of the amount disbursed ($454,875.97) – ($343,000.00) = $111, 875.97