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Dear NPS 319 Task Force Committee:

The Red River Regional Council is pleased to submit to you the revised copy of our 319 NPS Grant Proposal entitled "Red River Riparian Project: High Priority Watersheds in the Lower Red River Basin-Phase V". There are a few major changes that have been made to our application, particularly with the size of our project area, staff, and budget.

We have narrowed the scope of our project area to only include the Park River, Fordville Dam watershed, and the Tolna Coulee subwatershed on the Sheyenne River. Recently, we learned of the NPS Task Force's approval of the Walsh County SCD's application for watershed restoration in a portion of the Homme Dam watershed. With their goals in mind, we will work cooperatively with them in addressing riparian needs on the South Branch of the Park River. We will continue to address water quality concerns on the Middle, North, and Main branches of the Park River.

The Fordville Dam watershed, and the surrounding impaired river miles surrounding it, is another focus area for riparian improvements. The Fordville Dam reservoir has hyper-eutrophic conditions. A 50% reduction in nutrients of N and P would possibly result in the reservoir being able to meet water quality standards. The Tolna Coulee subwatershed of the Middle Sheyenne River near Pekin, ND will continue to be an area we address. While this may be a small area, there are several livestock producers that would benefit from rotational grazing and off-channel water facility. *E. coli* is a concern in the larger Middle Sheyenne watershed as it affects Lake Ashtabula.

The following is a summary of 319 funding requested:

319 funds needed for Best Management Practices: \$ 223,800
319 funds needed for other Program objectives: \$ 166,515
Total 319 funds requested: \$ 390,315

Thank you for your consideration.

Sincerely,

Sarah Braaten Johnston
Environmental Project Manager
Red River Regional Council

Enc.

PROJECT TITLE:

Red River Riparian Project - High Priority Watersheds in the Lower Red River Basin- Phase V

NAME, ADDRESS, PHONE AND E-MAIL OF LEAD PROJECT SPONSOR/SUBGRANTEE

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State: North Dakota

HYDROLOGIC UNIT CODES: (identified below)

High Priority Watershed: Yes

Watersheds: High Priority Watersheds in the
Lower Red River Basin of North
Dakota

Project Types

Staffing and Support

x Watershed

Groundwater

I&E

x Wetlands

Water Body Types

Groundwater

x Lakes/Reservoirs

x Rivers

x Streams

x Resource

NPS Category

x Agriculture

x Urban Runoff

x Resource

x Hydromodification

Project Area:

Watersheds:

Park River

ND-09020310-013-S_00, ND-09020310-001-L_00, ND-09020310-010S_00,
ND-09020310-016-S_00, ND-09020310-020-S_00, ND-09020310-039-S_00,
ND-09020310-037-S_00;

Forest River

ND-09020308-001-S_00, ND-09020308-015-S_00, ND-09020308-001-L_00

Sheyenne River

ND-09020203-001-S_00;

Summarization of Major Goal: The main goal of this program is to improve the water quality of impaired water bodies that have been identified on the Clean Water Act (CWA) Section 303(d) listing. The Red River Riparian Project will provide technical and financial assistance for riparian restoration to landowners, communities, water resource districts, and soil conservation districts within targeted high priority watersheds in the Lower Red River Basin in North Dakota. Anticipated results include long-term measurable improvements of water quality, increased riparian function and river system health.

Project Description: This watershed project will:

- 1) Result in the implementation of best management practices (BMP's) for the restoration and management of riparian areas seriously impacted by anthropogenic practices and changes in climate within high priority watersheds of the Lower Red River Basin in North Dakota.



- 2) Maximize the reduction of non-point source (NPS) water pollution by targeting high priority watershed and sub-watersheds;
- 3) Coordinate the delivery of multiple programs involving riparian management through funding from the Environmental Protection Agency (EPA) 319 Program, the U.S. Department of Agriculture (USDA), state conservation funding sources (Outdoor Heritage Fund), and other state and non-governmental sources through joint watershed committees.
- 4) Provide direct assistance to landowners and communities in restoring riparian areas;
- 5) Instill ownership and promote stewardship of river reaches through support of local school and volunteer group involvement in restoration implementation and subsequent monitoring activities;
- 6) Increase the awareness of proper riparian management. Enhance the expertise of resource managers, policy makers, and landowners by partaking in local, regional and state meetings and presenting information on restoration.
- 7) Conduct photo point monitoring to visually evaluate effectiveness of past restoration efforts conducted by the Red River Riparian Project in its program history, and share results with other natural resource managers.

FY 2014 319 funds requested:	\$390,315
Matching Funds:	\$260,210
Total Project Cost:	\$650,525
319 Funded FTE Positions:	1.2 FTE

2.0 STATEMENT OF NEED

The Red River Riparian Project has been addressing the riparian needs of landowners in the Red River Valley since 1998. The project has received EPA funding through the North Dakota Department of Health 319 Program since the project's inception. Originally the project area included much of the Red River Basin in North Dakota and Minnesota. Within the past eight years, the project has worked on the regional scale addressing water quality, with the project area focusing on northeastern North Dakota watersheds. Phase 4 work items are summarized in Appendix I. In Phase 5, the project area is scaled down further to allow for additional focus on areas of riparian need and water quality impairments.

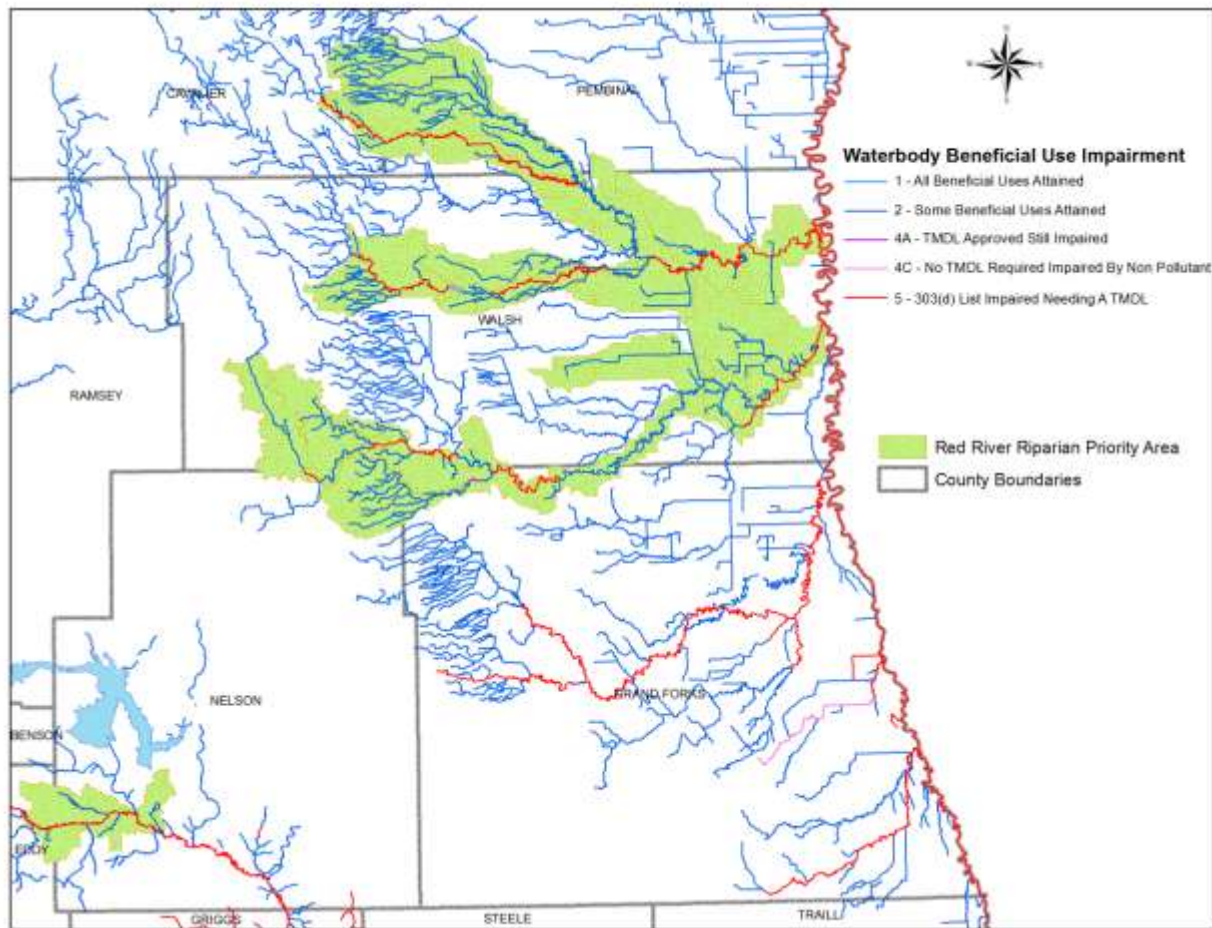
2.1 Water Quality Priority

The degradation of riparian areas has a direct impact on non-point source water by increased sediment loads through riverbank erosion and reduced filtering of agricultural nutrients and pollutants. Record floods this past spring, involving two or three floods throughout the months of May and June, have resulted in overwhelming restoration demand that goes unmet to address stream bank erosion, sedimentation, and loss of vegetation. In order to meet the goals of reducing non-point source pollution, stakeholders on impaired streams require assistance for restoration of degraded riparian areas.

Total Maximum Daily Loads

A water body is considered water quality limited when its water quality does not meet applicable water quality standards or is not expected to meet applicable water quality standards. Section 303(d) of the Clean Water Act and its accompanying regulations (CFR Part 130 Section 7) require each state to identify water bodies (i.e., reservoirs, rivers, and streams) which are considered water quality limited requiring load allocations, waste load allocations, or total maximum daily loads. Pollutants that cause impairment are, by federal and state definition, “any man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.” Figure 1 shows the locations of the TMDL water bodies in northeastern North Dakota. Streams on the Clean Water Act 303(d) list of impaired water bodies that are in need in a TMDL are shown in red. The Red River Riparian Project priority areas are shown in purple polygons. Watersheds include the South, Middle, North, and main branches of the Park River, the Forest River with emphasis on the Fordville Dam watershed, and the Tolna Coulee subwatershed of the Middle Sheyenne River south of Pekin, ND.

Figure 1. Priority Watersheds for the Red River Riparian Project (J. Gross, NDDH 2013)



2.2 Impacts to Water Bodies and Riparian Areas

Impairments found in north eastern North Dakota streams have included Copper, Selenium, Lead, Cadmium, e. coli, sedimentation/siltation, or combination of benthic or fishes assessments. Over 363 miles of streams are experiencing some form of impairment in our region.

Northeastern North Dakota watersheds have been impacted for over a century by land management decisions in agricultural production, grazing operations, and urbanization. Riparian forests have been impacted heavily by the decline of the American Elm brought on by Dutch Elm Disease. The subsequent invasion of non-native invasive plant species into riparian areas have greatly affected the composition of riparian plant communities, by the substitution of low functioning, shallow rooted species in these areas. The restoration of highly functional plants, shrubs, and trees allow for the re-stabilization of stream banks in some instances.

On top of the already degraded riparian conditions created by land management choices and the subsequent changes in ecology, some watersheds have experienced devastating changes in hydrology. Changes in hydrologic regime, thought to be a combined result of changes in climate couples with changes in methods of water management, result in what appears to be accelerated erosion rates of stream banks and loss of riparian vegetative cover in some areas.

In Phase III of the Red River Riparian Project, Stream Visual Assessment Protocol (SVAP) was used to assess the condition of aquatic ecosystem conditions throughout three streams in northeastern North Dakota in 2008 (Table 1). Assessments were completed with the cooperation of NRCS and the local Soil Conservation Districts.

Table 1. Stream Visual Assessment Protocol (SVAP) Results 3 Northeastern ND Streams

Stream Visual Assessment Protocol (SVAP) 2008: Ranking of Condition		
Stream	SVAP Rank	Number of Sites
South Branch of Park River	Good	6
	Fair (high)	27
	Fair (medium)	5
	Fair (low)	18
	Poor	34
	No Ranking	5
	Total sites	78
Stream	SVAP Rank	Number of Sites
Turtle River	Good	5
	Fair (high)	6
	Fair (medium)	7
	Fair (low)	7
	Poor	50
	No Ranking	0
	Total sites	74
Stream	SVAP Rank	Number of Sites
Little South Pembina River	Good	0
	Fair (high)	2
	Fair (medium)	0
	Fair (low)	9
	Poor	20
	No Ranking	0
	Total sites	31

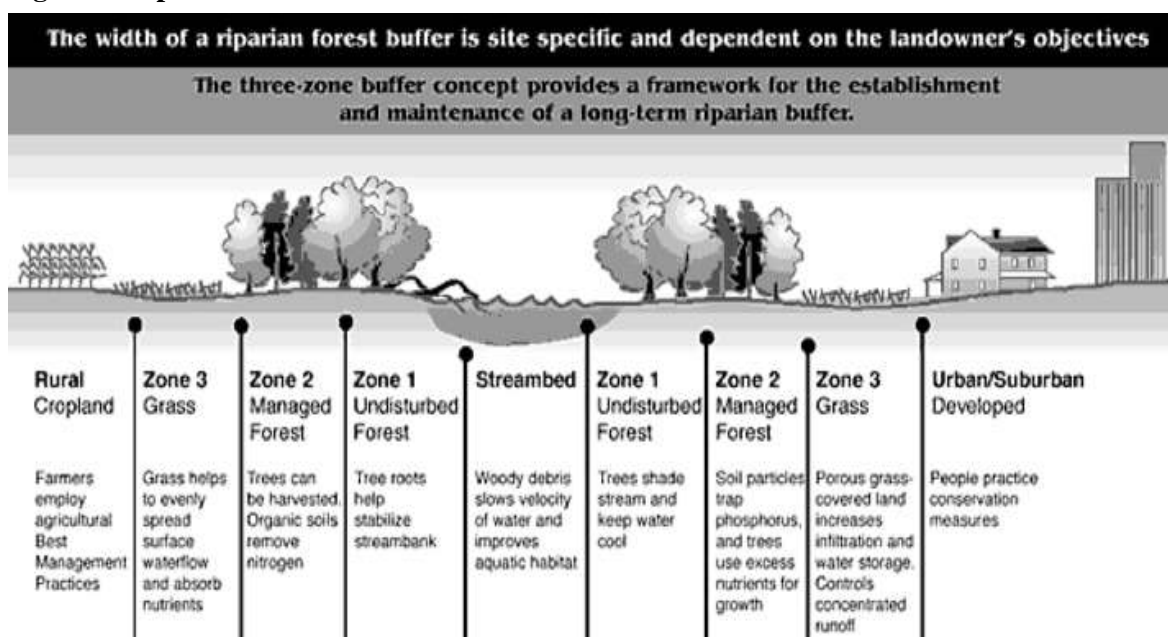
The 2008 SVAP assessment of three streams indicated the need for riparian restoration work. Since that time, water quality results from the 2012 ND 303(d) list indicate measureable impairment levels in these streams for parameters such as sedimentation/siltation, e. coli bacteria. These results, combined with the recent damage from the 2013 floods, provide further indication that riparian areas are lacking in function in many areas of our streams. Moderate to severe damage to stream banks was seen in some areas after the spring floods of 2013, especially in the Tongue River, Pembina River, and the South branch of the Park River (Figure 2). In addition to this evidence, the Red River Riparian Project has received overwhelming response from landowners for restoration work, and the demand is more than what the program is currently able to meet.

Figure 2. South Branch of Park River after late spring flood caused by heavy rains in Spring 2013



Restoration of degraded riparian areas can greatly improve water quality (Figure 3). Establish Riparian zones filter and store sediment, nutrients, pesticides, and metals from upland surface and groundwater through infiltration, filtering, uptake, and transformation. The width necessary for filtering sediment is a function of velocity and particle size. Infiltration, uptake, and chemical transformations are dependent on soil properties, slope, and species and density of vegetation. Typical widths for the riparian buffers are 60 to 200 feet. However, the width of the riparian zone may extend beyond 200 feet in the lower portions of major watersheds.

Figure 3. Riparian Buffer Zones and Their Function



Riparian zones also control the hydrodynamic interaction of the stream with the adjacent uplands, stabilizing stream banks, moderating flood discharges, and improving groundwater recharge. Riparian areas or ecotones also support high biological diversity and productivity of vegetation, mammals, birds, and fish.

Identified Water Bodies

The following water bodies are identified in the ND 2012 Integrated Section 305(b) Water Quality Assessment Report & Section 303(d) List of Impaired Water Bodies, (Table 2). There are 138 miles of impaired streams, of which 55 miles are not supporting fish and other aquatic biota. The remaining 83 miles of impaired streams are fully supporting fish and other aquatic biota, however, are threatened. There are 379 acres of impaired reservoirs in our project area, belonging to Homme Dam and Fordville Dam.

Prioritization of river reaches within high priority watersheds of the, South Branch of the Park River, Forest River, and Middle Sheyenne in Nelson County will be the key components of this riparian project proposal. The Section 303(d) list of impaired water bodies with sediment as an impairment will have continued landowner outreach and restoration efforts. The Middle Sheyenne River in Nelson County has impairment due to *e. coli*. The Riparian Project would like to continue working with livestock producers in Osago, Bergen, and Nesheim Townships. We have had success implementing rotational grazing with off channel livestock watering system through use of pipelines, and we have more producers interested in these practices.

Table 2. Water Bodies With Impairments in Targeted Reaches

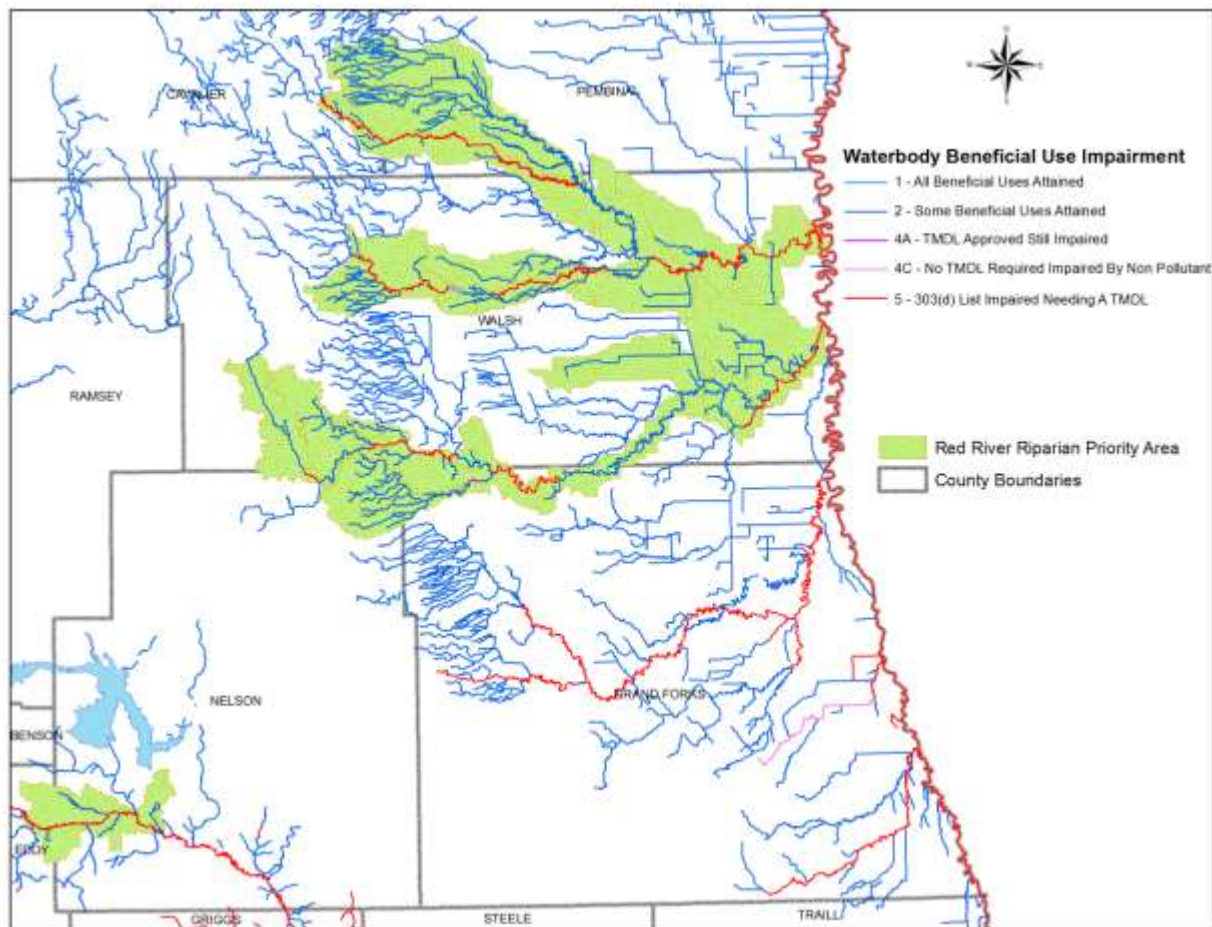
Assessment Unit ID	Description	Area	Designated Use	Use Support	Impairment
ND-09020203-001-S_00 SHEYENNE RIVER	Sheyenne River from Tolna Dam outlet (ND-09020203-001-S_00) downstream to Lake Ashtabula. Located in Southern Nelson and Eastern Griggs County. *Target is the Tolna Coulee subwatershed.	93.81 Miles	Recreation	Not Supporting	Escherichia coli
ND-09020308-015-S_00 FOREST RIVER	Forest River from its confluence with South Branch Forest River, downstream to its confluence with a tributary near Highway 18.	13.26 miles	Fish and Other Aquatic Biota	Fully Supporting but Threatened	Fish Bioassessments
ND-09020308-001-S_00 FOREST RIVER	Forest River from Lake Ardoch, downstream to its confluence with Red River of the North.	16.17 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation Benthic- Macroinvertebrate bioassessments
ND-09020308-001-L_00	Fordville Dam	185 acres	Recreation	Fully Supporting but Threatened	Nutrients/Eutrophication Biological Indicators
ND-09020310-010S_00 PARK RIVER	Park River from its confluence with a tributary east of Grafton, ND (ND-09020310-012-S_00), downstream to the outlet from Salt Lake (ND-09020310-009-S_00).	14.68 miles	Fish and Other Aquatic Biota	Fully Supporting but Threatened	Cadmium Selenium Lead Copper
ND-09020310-013-S_00 PARK RIVER	Park River from the confluence of the South Branch of the Park River and the Middle Branch of the Park River downstream to its confluence with a tributary east of Grafton.	6.83 miles	Recreation	Fully Supporting but Threatened	Cadmium Selenium Lead Copper
ND-09020310-001-L_00 PARK RIVER	Homme Dam on the Park River.	194 acres	Fish and Other Aquatic Biota	Fully Supporting but Threatened	Sedimentation/Siltation Nutrients/Eutrophication Biological Indicators
			Recreation	Fully Supporting but Threatened	Nutrients/Eutrophication Biological Indicators

Assessment Unit ID	Description	Area	Designated Use	Use Support	Impairment
ND-09020310-016-S_00 PARK RIVER	South Branch Park River from its confluence with a tributary near Park River, ND (ND-09020310-018-S) downstream to its confluence with a tributary (ND-09020310-015-S_00).	16.72 miles	Fish and Other Aquatic Biota	Fully Supporting but Threatened	Selenium Combination Benthic/Fishes Bioassessments
ND-09020310-020-S_00 PARK RIVER	South Branch Park River from its confluence with a tributary watershed near Adams, ND (ND-09020310-022-S_00) downstream to Homme Dam.	16.9 miles	Fish and Other Aquatic Biota	Fully Supporting but Threatened	Selenium Combination Benthic/Fishes Bioassessments
ND-09020310-037-S_00 PARK RIVER	North Branch Park River from its confluence, a tributary near Highway 32 downstream to confluence with Cart Creek.	41.62 miles	Fish and Other Aquatic Biota	Not Supporting	Combination Benthic/Fishes Bioassessments
ND-09020310-039_00 PARK RIVER	North Branch Park River from a dam near Milton, ND downstream to its confluence with a tributary near Highway 32.	15.52 miles	Fish and Other Aquatic Biota	Fully Supporting but Threatened	Fishes Bioassessments

2.3 Project Location

Figure 4 shows the highlighted reaches of impaired streams that were listed on the North Dakota Section of the 303(d) list, outlined in the Table 1. These reaches will be focused on for improvement in riparian condition. Other areas identified as impaired (Figure 1) will also be addressed on an as needed basis.

Figure 4. Streams of Focus for Riparian Work



2.4 Regional Characteristics of Watersheds

Land uses adjacent to riparian areas are summarized below in (Table 3) for three watersheds within the project area. Riparian areas assessed in the Park River watershed showed land uses of primarily forest land or cropland in the riparian corridor. The Turtle River sites resulted in primarily either cropland or pasture land in the riparian corridor. The Little South Pembina River showed primarily pasture land as being in the riparian corridor and forest land and crop land thereafter. When comparing these three watersheds, the Park River watershed and the Turtle River watershed have more cropland in the riparian corridor than the Little South Pembina watershed. The Park River riparian corridors had the most forest covered sites, and the Turtle River the least. Residential and farmstead categories were a small percentage of the encroachment on riparian areas.

Table 3. Land use of SVAP assessed sites

Stream Visual Assessment Protocol (SVAP) 2008: Land use of assessed sites	
South Branch, Park River	78 sites assessed
Landuse	Percentage use
Cropland	34%
Pasture Land	9%
Forest Land	44%
Industrial	2%
Residential	5%
Farmstead	3%
Other	3%

Turtle River	74 sites assessed
Landuse	Percentage use
Cropland	49%
Pasture Land	26%
Forest Land	10%
Farmstead/Feedlot	3%
Hayland	3%
Conservation Reserve Program (CRP)	6%
Other (highways, golf course)	3%

Little South Pembina River	31 sites assessed
Landuse	Percentage use
Cropland	11%
Pasture Land	69%
Forest Land	13%
Idle Grassland	3%
Wildlife land	3%

Agriculture is the primary industry in this region of North Dakota. In the Pembina River Basin alone, 82% of all land is used for agriculture. Common crops grown in our northeastern North Dakota counties are wheat, barley, corn, soybeans, sunflowers, and oilseeds. Grand Forks, Walsh, and Pembina counties also raise these crops, and in addition many acres of potatoes and sugar beets are raised within the Turtle, Park, Tongue, Pembina, and Red River watersheds.

Land is very valuable and highly productive in these Red River Valley watersheds. It is not unheard of for clay loam land to have productivity indexes in the upper 90's. Ancient Lake Agassiz once covered much of the Red River Valley and lake bed sediments of silt and clay were deposited to create these fertile lands. The Pembina escarpment is a tall ancient beach ridge that spans from eastern Cavalier County down through western Walsh County. The escarpment

contains deposits of sand and gravel within layers of shale. The weathering of these shale layers can set the basis for highly erodible soils comprised of silty clay loam. The Pembina, Tongue, and Park Rivers at times flow through areas of Highly Erodible Land (HEL) as categorized by NRCS.

2.5 Sources of pollutants and degradation

The agriculturally dominated areas of northeastern North Dakota have water quality impairments for various reasons. Cultivation leads to soil transport and erosion that can result in high amounts of runoff and sedimentation when water runs through riparian areas of poor function. Some areas have nutrient rich soil to begin with, and as soil erodes and is transported into the rivers as sediments, the water quality results reflect these erosional inputs. Selenium is one example of a naturally occurring element that becomes a pollutant when too much of it exists in the surface water. Fertilization of crops and season long livestock grazing along riparian areas can also contribute to water quality impairments, in particular excess phosphorus and nitrogen that result in algal blooms downstream. Lake Winnipeg in Canada (Figures 5 and 6) has struggled with blue green algae. Excess nutrients coming from the Red River Basin contribute to this algal problem.

Figure 5. Lake Winnipeg, blue green algae

Photo: Cass County SCD



Figure 6. Water quality sample.

Photo: Cass County SCD



3.0 PROJECT DESCRIPTION

3.1 Project Goals

Environmental Goals

The main environmental goal of this program is to restore the beneficial water quality uses pertaining to recreation, and fish and aquatic biota in the priority reaches impacted by non-point source pollution. Fish and aquatic biota in priority reaches are impacted to levels where they are either not supporting, or are fully supporting, but threatened in use. Areas designated for recreational water use improvements have statuses that include not supporting recreation, or fully supporting, but threatened recreational use.

- a. Reduce Erosion-** Eroded soil inputs from gullied fields and stream banks will be addressed by the following methods:
- culverts will be replaced with rock chutes to dissipate concentrated flow that comes down the bank during heavy rains (Figures 7 and 8).
 - Riparian vegetation will be restored on banks which are devoid of vegetation to prevent further erosion.
 - Buffers will be enhanced and widened to allow for more degrees of the riparian corridor to be intact and serve as an effective filter.

Figure 7. Stream bank with culvert



Figure 8. Stream bank after culvert removal



- b. Reduce sediment-** Excess sediment inputs from collapsing stream banks will be addressed by the following methods:
- Utilizing bioengineering methods for stream bank stabilization on banks that are actively eroding.
 - Rotational grazing plans with off-channel watering for livestock (Figure 9).
 - Removal of excess wood debris in the channel if it is diverting flows to cut banks and causing further degradation of banks. Beneficial woody debris left intact to provide habitat for fish habitat.
 - Riparian forest enhancements: tree planting, scarification, sanitation and thinning.
- c. Reduce nutrients-** Excess nutrients and/or presence of fecal coliform as water quality impairments are addressed by:
- Rotational grazing plans with off-channel watering for livestock.

- Enhancement of riparian buffers.

Figure 9. Off-channel watering trough and pipeline for cattle, Tolna, ND



d. Enhance riparian forest health- Forests such as the bur oak/ green ash/American elm communities are enhanced through practices such as:

- tree planting
- timber stand improvement
- sanitation and thinning
- understory vegetation restoration

e. Protect stream banks- encourage responsible riparian management through best management practices:

- Enhancement of buffers through widening of riparian zones
- Re-vegetation of vulnerable areas and bio-engineered solutions for scoured areas
- Protection of cut banks with natural woody debris
- Responsible use of wood debris removal by not removing beneficial wood

Best management practices (BMPs) will be used by the Riparian Project to assist landowners with restoration, protection, and management. BMPs to be applied are found in the ND NPS Program BMP Cost Share Guidelines. BMPs are applied according to the resource concerns being addressed, the goals of the landowner, and to a lesser extent, the cost-to-benefit ratio. BMPs applied with the Riparian Project involve restoration utilizing bioengineering techniques that use plants and structure to arrest and prevent slope failures and erosion.

Program Goals

a. Directly assist landowners with the restoration, protection, and effective management of riparian areas within the Lower Red River Basin of North Dakota that will result in long-term improvements in the ecological/ecosystem health of the river system. We will do this by providing:

- Management recommendations for grazed riparian areas
- Riparian management recommendations for each requestor
- Project planning assistance
- Technical assistance
- Cost share assistance

b. Improve water quality through our collaborative work with Water Resource Districts (WRDs), Soil Conservation Districts (SCDs), communities and other local stakeholders to reduce non-point source pollution. We will provide:

- Watershed Committee meetings
- Annual reports
- Special meetings
- Riparian Advisory Committee
- Fostering close working relationships
- Cooperative projects

This proposal, sponsored by the Red River Regional Council (RRRC) and supported by the subcontractors and cooperators listed in Appendix I, is a watershed project for restoration of riparian zones in high priority watersheds of North Dakota's Lower Red River Basin.

Planning Process

The Riparian Project or cooperating agency staff will inventory the riparian area, identify areas of concern, and work with the landowner to develop a Riparian Management Plan that meets the landowner's needs and the riparian restoration needs. Working with other contributing agencies such as the NRCS and SCD, the Riparian Project staff will help to deliver a variety of programs that will provide the greatest benefit to the health of the river as well as to the landowner. Regional soil conservation districts will offer in-kind work towards the project to allow for more project ground to be covered in a shorter period of time. They will assist the Riparian projects with work that allows them to be connected to the needs of their local landowners and direct involvement in the solutions brought to those individuals. The North Dakota Forest Service will deliver forest stewardship plans for those clients who request their assistance with bottomland riparian forests.

The Riparian Project will include individual plan recommendations for restoration activities and best management practices such as tree planting and bioengineering where necessary. In many cases, restoration involves machine or hand planting of trees or shrubs where the riparian forest is decadent, narrow, thin from grazing, or non-existent. Where stream banks are unstable and actively eroding, reshaping of the bank to a stable slope and application of bioengineering or traditional engineering solutions may be required. Riparian Project personnel will work with the contracted Project Engineer provided by the ND Department of Health to review the site, determine if a solution can be engineered, develop a design, and assist with design implementation.

Once a restoration plan is completed, it is reviewed by the Watershed Committee and presented to the landowner. If the landowner is interested in implementation, the Environmental Project Manager or Project technician will assist the landowner in identifying additional sources of cost-share and known contractors to complete the work. Before project dollars are expended, the practice and costs are reviewed by the Red River Riparian Committee and the Red River Regional Council.

During the installation of a practice by the landowner or contractor, the project engineer or the project manager will provide oversight and technical guidance when needed. He/she will inspect the completed sites to ensure that the practices were implemented according to specifications.

The landowner is reimbursed for up to 60% of the project cost plus any additional cost share provided through the Riparian Project from sources such as ND Game and Fish Department or a local water resource board.

Once restoration is implemented in priority reaches, it will be necessary to monitor those reaches as well as individual demonstration sites in order to measure the success of the practice and the benefits to watershed health. Experience gained on the Riparian Project suggests that long-term monitoring (5-10 years) is necessary to observe measurable results from riparian restoration and management. An additional description of the Riparian Project proposal monitoring plan is included in Section 5.0 Evaluation and Monitoring Plan.

Oversight of Program and Cost Share Approval

The Project – High Priority Watersheds in the Lower Red River Basin of North Dakota will utilize and streamline established program structure and procedures. In particular, local ownership, participation and promotion in the project by stakeholders will be increased by restructuring the Riparian Advisory Committee (RAC) into five joint water resource district (WRD) / soil conservation district (SCD) Watershed Committees (Figure 10). These committees, made up of WRD & SCD board members, NRCS & SCD staff, Riparian Project personnel or other watershed experts/stakeholders, will provide the Riparian Project Manager with technical oversight on all aspects of the restoration within the targeted watersheds at a local level. They will review restoration plans, recommend programs or Best Management Practices (BMPs) for site restorations, determine levels of cost-share for BMPs, identify areas of concern, and suggest projects to target. Once the Watershed Committee has reviewed all restoration for technical soundness and cost share support, the project will be passed to the Riparian Committee and RRRC for approval of cost share dollars.

Figure 10. Riparian Advisory Committee and Associated Groups



The original RAC will include members of the five Watershed Committees as well as ND Department of Health, NRCS & State Water Commission staff, Red River Basin watershed management organizations, environmental education groups and other interested parties. The RAC will meet once a year to review project accomplishments, monitoring and information/education (I&E) efforts, and other support needs. Members of all committees provide the project with expertise in hydrology, water quality, wildlife and fisheries management, agriculture, forestry, Geographic Information System (GIS), education, and engineering.

3.2 Objectives and Tasks:

GOAL: Restore the riparian function of waterbodies within the priority watersheds by delivering the technical expertise and financial support needed to effectively stabilize degraded areas and improve management within the riparian corridors.

Objective 1. Manage the project, coordinate efforts with local entities, and facilitate delivery of assistance.

Task 1. Coordinate delivery of multiple programs involving riparian management by combining efforts of the project sponsors and contributing agencies. Provide project manager and utilize staff and administrative support within the Red River Regional Council, including telephone, audit, accounting, supplies, and secretarial support.

Products: 1.2 FTE positions overseen by the RRRC Executive Director of which:

- 1) 1.0 FTE *Environmental Project Manager* provides program management, project management and design.
- 2) 0.2 FTE Administrative support provided at process reimbursements, assist with clients, and provide general secretarial support.

Cost: \$ 235,950 (October 2014-September 2016) for 1.2 FTE

Task 2. Utilize advisory committees to assist the Riparian Project Manager with project oversight. Five Joint WRD/SCD Watershed Committees will consist of local board members and expertise appropriate for each watershed in the project. Federal, state, and local agencies and non-governmental organizations with expertise in water quality, forestry, agricultural conservation, hydrology, engineering, and wildlife management will be utilized.

Products: 1) Watershed committee meetings

Cost: In-kind match will be recorded, estimated at \$8,000 per year for a total of \$16,000 during the two year project phase.

Task 3. Provide riparian technical assistance to landowners. Directly assist landowners with the protection, responsible management, and restoration in targeted river reaches within high priority watersheds of the Lower Red River Basin of North Dakota (Restoration listed in Table 9 – BMP Budget). Coordinate with range and engineering technical assistance.

Products: 1) Provide technical assistance to landowners with riparian restoration. Also, assist with project coordination, outreach to stakeholders and cooperators, development of management plans, prescription of practices, and assistance in coordinating implementation.

Cost: No additional cost - Included in the cost of the Environmental Project Manager

Objective 2. Monitor river reaches where best management practices for restoration and management have been implemented. Monitoring will help demonstrate the weaknesses and strengths of projects, and provide a learning opportunity on how to improve upon implementing effective practices.

Task 4. Using photo point monitoring protocols to provide follow-up monitoring on a sample size of 4 projects that were implemented in high priority watersheds. Recommend repairs to projects that do not meet the operation and maintenance requirements that were agreed to.

Products: 1) Site Reports with photos points and vegetation surveys

Cost: No additional cost. Completed by (RRRC) Environmental Project Manager

Objective 3. Provide technical and financial assistance to restore, protect, and manage riparian areas along a minimum of 10 river miles in the Lower Red River Basin.

Task 5. Provide financial assistance to landowners and establish best management practices for riparian management, grazing management, riparian vegetation restoration plantings, bioengineering and other construction restoration as listed in Table 10 – BMP Budget.

Products: 1) A minimum of 15 Riparian Management Plans which may include restoration designs, grazing plans, forest management plans, tree planting plans
2) 10 miles of restored riparian areas (12.0 restored acres is equivalent to 1 mile of restoration). Landowner technical assistance may include forest management practices and range planning as needed.

Cost: \$373,000 (Estimated BMP costs October 2014 – September 2016)

Objective 4: Educate stakeholders is through the collection of pertinent information that can be used to demonstrate change in these river systems with and without riparian enhancements.

Task 6. Use specialized survey equipment and software to establish reference cross sectional data for priority reaches of the target watershed to be used in restoration design planning of degraded areas.

Products: 1) Regional stream baseline cross-sectional data report

Cost: Total: \$35,200

\$28,550 Trimble S6 Robotic Total Station Survey Station

\$1,859 S6 Power Kit, \$1,459 Target Kit, \$482 Carry Case

+\$2,850 RIVERmorph software

Task 7. Conduct stream bank surveys using Trimble survey equipment, and incorporate Rosgen Natural Channel Design bio-engineering practices to NRCS specifications. Includes additional training in applying methods to restoration design and NRCS technical service provider training.

Products: 1) Bio-engineered designs using Rosgen methods
Cost: \$2,000 David Rosgen training class and NRCS training,
RIVERmorph Software previously listed in Task 6.

Objective 5. Increase understanding of riparian ecosystems and riparian management methods focused towards restoration/management of riparian functionality and sustainability in the Lower Red River Basin.

Task 8. Instill ownership and promote stewardship of river reaches through support of local school and volunteer group involvement in restoration implementation and subsequent monitoring activities. Provide technical support for local secondary school curriculums, volunteer groups, or agencies.

Products: 1) Volunteer buffer plantings with local groups and participation in riparian presentation at water festivals/ ECO-Ed camps.
2) Provide riparian information and education materials which instills ownership in sites as well as riparian values.

Cost: Costs covered by Task 3 (RRRC)

Task 9. Inform and educate basin stakeholders and natural resource professionals on the benefits of healthy riparian areas to influence land management choices that result in measurable watershed health improvements. Develop information and education materials for recommendations that are adopted by the Riparian Advisory Committee.

Products: 1) Tours of demonstration sites and restored areas annually or upon request.
2) Project display and website development.
3) Distribute information from past university assisted projects including NDSU grazing recommendations, and the UND Tongue River Hydrology Study in the City of Cavalier.
4) Organize a riparian field training session.

Cost: No additional Cost (RRRC)

3.3 Milestone Table: Please see table on page 22.

3.4 Environmental Permits: From 2001 to 2006 the Red River Regional Council secured a Regional General Permit (RGP 00-03) from the United States Army Corps of Engineers (US ACE) for the reshaping of river banks, installation of stabilization structures in the channel, and re-vegetation of the sites using practices described in the permit. Due to changes and additions to permitting requirements with the US ACE, the RRRC no longer needs a Regional General Permit to cover most practices being installed, but will pursue this as an option if deemed necessary in the future. Most project work can be covered under a Nationwide Permit with the US ACE. Projects that include cultural resources identified by the North Dakota Department of Health NPS Program will receive a review by ND State Historic Preservation Office.

3.5 Lead Agency: The Red River Regional Council (RRRC) will be the lead project sponsor. The RRRC is the appropriate coordination agency to implement this project because it has

successfully sponsored the Red River Basin Riparian Project since 1994. The RRRC provides a direct link to landowners and local elected officials who have the responsibility to manage soil and water resources. The RRRC also works closely with the Red River Riparian Committee which serves as the subcommittee for riparian project oversight. The project will be directed by the Environmental Projects Manager, and implemented with the assistance of the Project Technician under the direction of the Executive Director, Red River Regional Council, and oversight by the Red River Riparian Committee and Regional Council. The Environmental Projects Manager is familiar with all aspects of the riparian project and has expertise in riparian ecology, range science, forestry, forest stand improvement, and a working knowledge of all riparian restoration practices including bioengineering.

3.6 Roles/Responsibilities for Proper Oversight and Management of BMPs: During the project period of performance, the RRRC will be responsible for ensuring that project participants comply with all aspects of the NPS 319 Program. Procedures in the North Dakota NPS Management Program Cost-share Guidelines for NPS Control BMPs (June 2013) will be followed closely.

**MILESTONE TABLE FOR RED RIVER RIPARIAN PROJECT PROPOSAL
– HIGH PRIORITY WATERSHEDS IN THE LOWER RED RIVER BASIN**

	TASK/RESPONSIBLE ORGANIZATIONS	OUTPUT	QTY	YEAR 1		YEAR 2		YEAR 3	
GOAL	Manage and Facilitate an effective program that provides expertise on reducing NPS pollution			Oct-14	Dec-14	Jan-15	Dec 15	Jan-16	Sept 16
	OBJECTIVE 1 Task 1 – RRRC Project Support	0.2 FTE RRRC Staff	1						
	Task 2 – Utilize three watershed committees	Plan reviews and approvals	5						
	OBJECTIVE 1 Task 3 – Provide technical assistance	1.0 FTE to develop riparian management and restoration plans on 10 miles of 303(d) streams.	1						
	OBJECTIVE 2 Task 4 –Monitor BMP’s in restored reaches	Determine effects of BMP’s on riparian area and effective practices.	4						
	OBJECTIVE 3 Task 5 – Provide cost sharing for riparian restoration	Financial support to facilitate the installation of 10 miles of riparian restoration in targeted reaches. 15 restoration plans.	15						
	OBJECTIVE 4 Task 6 – Stream cross sectional data, Trimble survey equipment	Baseline data needed for restoration. Design restoration projects.							
	OBJECTIVE 4 Task 7 – Bioengineering plans using Rosgen Natural Channel Design Methods and software	Bio-engineered designs in cooperation with BMP Team							
	OBJECTIVE 5 Task 8 – Promote stewardship in riparian areas through outreach to local and volunteer groups.	Organize volunteer riparian restoration projects and participate in ECO. Ed camps.	2						
	OBJECTIVE 5 Task 10 – Inform & Educate stakeholders, landowners & natural resource professionals.	Tours. Field training session. Informational reports/presentations	2						

4.0 COORDINATION PLAN:

4.1 Lead Project Sponsor and Subcontractors: This proposal is sponsored by the Red River Regional Council (RRRC). The Red River Riparian Committee is a subcommittee of the RRRC assigned with oversight responsibilities of this riparian project proposal. The RRRC will be the lead project sponsor and will be responsible for coordination of all aspects of the project. As such, the RRRC will contract with the ND Department of Health (NDDH) and develop and oversee subcontracts with the project partners to complete the work described in this proposal. The RRRC will be responsible for all financial aspects of the project including requesting reimbursement from the NDDH, payments to subcontractors, cost share disbursements to participants, identification and tracking of cash match and in-kind assistance from local sources, and overall project accounting. Specific responsibilities of the Environmental Project Manager will include coordinating with project personnel, drafting and administering subcontracts, reporting progress to the RRRC, overseeing financial reporting, submitting semi-annual, annual and final reports, coordinating Joint Watershed Committees, conducting Riparian Advisory Committee meetings, leading information and education activities, representing and promoting the Riparian Project, and coordinating with other basin environmental and water management efforts in the Lower Red River Basin of North Dakota.

Soil Conservation Districts in the five counties will provide in-kind services towards the Red River Riparian Project as time permits. Each soil conservation district has been asked to pledge both money and time to support this project. Tasks that some soil conservation districts in the region have volunteered to assist with include gathering landowner information, conducting initial site visit, providing GIS maps of the project area, and tree planting design drawings. Soil conservation districts and the Red River Riparian Project also have the opportunity to write for project specific grants such as grants from the Great Plains Fish Habitat Partnership, the National Wild Turkey Federation, the North Dakota Natural Resources Trust, North Dakota Outdoor Heritage Fund and many others.

The project will continue to work with cooperating agencies, such as NRCS, on ongoing monitoring efforts to determine the effectiveness of riparian restoration efforts in meeting overall program goals not only in the 319 Program but also the Conservation Reserve Program (CRP), Wetland Reserve Program (WRP), Emergency Watershed Program (EWP), Environmental Quality Incentives Program (EQIP) and other USDA programs. Information gained from these assessments would be useful not only to the Riparian Project, but to other state and federal programs.

Educating basin stakeholders on the benefits of healthy riparian areas and providing training to basin resource managers will continue to be a high priority of the Riparian Project. The project will host training workshops, conduct tours of restoration sites, provide grazing assistance to producers, and maintain a website to offer landowners, cooperators and stakeholders information on the latest in riparian restoration and management techniques.

Educational efforts will focus on: 1) continuing to provide training to restoration contractors and local soil and water resource district staff; 2) participating in basin water quality and

management workshops and conferences; 3) supporting existing and future basin-wide educational efforts; and 4) distributing project information to basin stakeholders.

The riparian project will also utilize the services of NDSU Extension Grazing Specialist Kevin Sedivec to provide onsite consultations with ranchers and review of range management prescriptions in riparian forest management plans. The ND Forest Service will provide forest stewardship plans to landowners on an as needed basis as part of their role in providing forestry support to landowners in North Dakota.

4.2 Local Support for Riparian Project: This Red River Riparian Project proposal is supported locally by landowners, county water boards, soil conservation districts, and communities in the Lower Red River basin. This support is described in Section 2.0 Statement of Need in this proposal. The list of project cooperators is listed in Appendix 2. The project is also supported by the members of the Red River and Upper Sheyenne River Joint Water Resource District boards and the Red River Basin Commission.

Riparian Project Administration – Roles and Responsibilities	
Riparian Committee	Regional Council
<ul style="list-style-type: none"> • Recommendations to Regional Council on policy issues and project expenditures including review and approval of all cost sharing requests. • Coordination with USDA offices and programs including other offices and programs including NRCS. • Represent the Regional Council at project stakeholder meetings including tours and other official project appearances and meetings. 	<ul style="list-style-type: none"> • Official sponsor of project and holds contract with ND Dept. of Health (NDDH). • Link between the project and elected officials including SCD's, WRD's, County Commissioners and Mayor's etc. • Approve all project policies and expenditures. • Support project with processing of re-imbursements, accounting and other secretarial. • Administration and coordination of project personnel, subcontracts and contract for services agreements. Report project accomplishments and expenditures on an annual/semi-annual basis as required by NDDH. • Coordinate project requests. • Manage technical review and guidance of project requests through Watershed Committees. • Direct Project Outreach.

4.3 Coordination with Other Pertinent Programs: The project will coordinate with the NPS BMP Team for engineering support assistance, including design of projects to NRCS specifications. Cooperation with State agencies will be significant with the Riparian Project. In addition, the riparian project will continue to work closely with the Turtle River Development Phase 319 Watershed Project in the Lower Red River Basin. The Riparian Project has also cooperated with the International Water Institute, Cass County SCD and the Natural Resource Conservation Service (NRCS) to further watershed education, resource manager training, and research activities in the basin and will continue to coordinate these activities in the Lower Red River Basin. The NRCS provides many opportunities for cooperation on riparian restoration. The Riparian Project has assisted with delivery of the EWP, EQIP and Continuous CRP throughout the basin. The project also worked directly with NRCS personnel to plan and implement several riparian restoration projects. This proposal continues collaboration as the new farm bill provides additional funding for programs such as Conservation Security Program (CSP), Farmland Protection Program (FPP), WRP, EQIP, Wildlife Habitat Incentive Program (WHIP), CRP, and Continuous CRP. The Riparian Project will also be cooperating extensively with non-governmental organizations, including the Greenway on the Red Trust and the Natural Resources Trust, for expansion and improved management of riparian corridors in the Basin.

The Minnesota Pollution Control Agency's Section 319 Program, EPA Region 5, Minnesota Department of Natural Resources and the Minnesota State Board of Soil and Water Conservation Districts are aware of the project, and joint cooperation on both sides of the Lower Red River Basin will be maintained. These agencies along with the Red River Basin Commission, the International Joint Commission, the Red River Water Management Consortium, and others will be kept up to date on the project through meetings, newsletters and conferences.

4.4 Similar Activities: The Aquatic Ecosystem Committee of the International Red River Board has recommended that participating agencies work towards reducing Red River nutrient loading to increase the health of Lake Winnipeg. Studies have indicated that up to 80 percent of sediment/phosphorus loading comes from river bank erosion

5.0 EVALUATION AND MONITORING PLAN:

5.2 Monitoring Strategy: A riparian monitoring plan will be developed to assess vegetative response to the project's restoration practices and improved management of the riparian zone. This plan will be designed to provide measurable data to track the success of restoration and Best Management Practices.

Photo point monitoring will be conducted to track changes in the riparian area over time. Monitoring will be conducted using the methods described in the US Forest Service publication "Photo Point Monitoring Handbook: Part A-Field Procedures"(Hall , 2002) .This general technical report (PNW-GTR-526) may be accessed at <http://www.fs.fed.us/pnw/pubs/gtr526/>.

Vegetation monitoring will be conducted to provide measurement of riparian vegetation cover using the three sampling methods: cross-section method, greenline method, and woody species regeneration method. These methods are described in the following US Forest Service publication "Monitoring the vegetation resources in riparian areas" (Winward, 2000). This

general technical report (RMRS-GTR-47) may be accessed at http://www.fs.fed.us/rm/pubs/rmrs_gtr047.pdf. Plant nomenclature will be referenced from USDA Plants Database at <http://plants.usda.gov>.

5.3 Data Management

Data will be managed and reported via GIS wherever possible. Reports of project monitoring results will be available for each monitored reach at the end of the project period. These reports and any interim reports will be made available and shared with other agencies and projects conducting current and future riparian restoration within the region. Project evaluations will be conducted on a continuing basis by the member agencies of the Riparian Advisory Committee as well as the Red River Regional Council Board of Directors.

5.4 Stream bank stability modeling

In phase IV, UND was contracted to study the Tongue River within the limits of the City of Cavalier to help address stream bank failures below the dam that were threatening homes. In this modeling process, the environmental projects manager, Sarah Braaten became familiar with the USDA Bank Stability and Toe Erosion Model (BSTEM) for bank stability estimation. BSTEM allowed us to understand the factors behind slope failure as it pertains to stream banks and assign stability ratings. BSTEM ratings will be assessed on stream projects involving the stabilization of cutbanks to determine the current state of stability of the bank under current environmental and soil conditions. The software is free of charge and may be downloaded at <http://ars.usda.gov/Research/docs.htm?docid=5044>.

5.5 Long term funding of operation and maintenance of projects

Individual landowners are responsible for the costs of operation and maintenance of the implemented BMP for the duration of its lifespan, as listed in the BMP manual. The landowner signs a document agreeing to this operation and maintenance obligation. If there are BMPs funded with NRCS cost share, the NRCS is responsible for any applicable operation and maintenance agreements for those cost shared practices.

6.0 Budget

Please see the follow page for the program budget.

6.0 Budget See budget tables below.

Table 7

Summary	FY 14	FY 15	FY 16	TOTAL COSTS
EPA Section 319 Funds				
FY2014-2016 Funds Section 319 Funds	\$ 48,789	\$ 195,158	\$ 146,368	\$ 390,315
State/ Local Match				
RRRC Project Support (TA) Technical fees *	\$ 2,331	\$ 9,325	\$ 6,994	\$ 18,650
Landowners (FA)	\$ 18,650	\$ 74,600	\$ 55,950	\$ 149,200
Stakeholder Match (WRDs, SCDs, County)	\$ 8,295	\$ 33,180	\$ 24,885	\$ 66,360
Sponsor Match - Red River Regional Council	\$ -	\$ 10,000	\$ -	\$ 10,000
Watershed Committee Meetings (In-Kind)	\$ 2,000	\$ 8,000	\$ 6,000	\$ 16,000
Subtotal	\$ 29,276	\$ 117,105	\$ 87,829	\$ 260,210
Total Project	\$ 78,066	\$ 312,263	\$ 234,197	\$ 650,525
Other Federal (FA)	\$ -	\$ -	\$ -	\$ -
319 (FA)	\$ 27,975	\$ 111,900	\$ 83,925	\$ 223,800
Landowner (FA)	\$ 18,650	\$ 74,600	\$ 55,950	\$ 149,200
Total BMP's	\$ 46,625	\$ 186,500	\$ 139,875	\$ 373,000

FA Financial Assistance
 TA Technical Assistance
 SCD Soil Conservation District
 WRD Water Resource District
 TPC Total Project Cost

*Further explanation of the RRRC Project Support Technical Fees can be found in Appendix III.



Table 8

Part 2: Detailed Budget (Section 319/Non-Federal)						
	2014	2015	2016	Total Costs	Cash, In-kind Match	319 Funds
Objective 1: PERSONNEL/SUPPORT/ADMIN						
Salary (1.0 FTE)	\$ 13,029	\$ 53,678	\$ 41,467	\$ 108,174	\$ 43,270	\$ 64,904
Fringe (1.0 FTE)	\$ 5,160	\$ 20,917	\$ 15,886	\$ 41,963	\$ 16,785	\$ 25,178
Salary (0.2 FTE)	\$ 1,882	\$ 7,755	\$ 5,991	\$ 15,628	\$ 6,251	\$ 9,377
Fringe (0.2 FTE)	\$ 1,200	\$ 4,839	\$ 3,661	\$ 9,700	\$ 3,880	\$ 5,820
Travel	\$ 1,080	\$ 3,800	\$ 3,240	\$ 8,120	\$ 3,248	\$ 4,872
Office Space/Overhead 1.2 FTE	\$ 5,850	\$ 23,400	\$ 17,550	\$ 46,800	\$ 18,720	\$ 28,080
Equipment/Supplies	\$ 2,700	\$ 240	\$ 200	\$ 3,140	\$ 1,256	\$ 1,884
Training	\$ -	\$ -	\$ 2,000	\$ 2,000	\$ 800	\$ 1,200
Business meetings	\$ 25	\$ 250	\$ 150	\$ 425	\$ 170	\$ 255
Subtotals	\$ 30,926	\$ 114,879	\$ 90,145	\$ 235,950	\$ 94,380	\$ 141,570
Objective 2: Monitoring, O&M Compliance						
Travel cost for monitoring	\$ -	\$ 500	\$ 500	\$ 1,000	\$ 400	\$ 600
Subtotals	\$ -	\$ 500	\$ 500	\$ 1,000	\$ 400	\$ 600
Objective 3: Financial & Technical Assistance						
BMPs for Riparian	\$ 46,625	\$ 186,500	\$ 139,875	\$ 373,000	\$ 149,200	\$ 223,800
Specialized equipment, software for design	\$ -	\$ 35,200	\$ -	\$ 35,200	\$ 14,080	\$ 21,120
Restoration Training	\$ -	\$ 2,000	\$ -	\$ 2,000	\$ 1,600	\$ 2,400
Subtotals	\$ 46,625	\$ 223,700	\$ 139,875	\$ 410,200	\$ 164,080	\$ 246,120
Objective 4: Information/Education						
Public meetings/Workshops/Tours	\$ 75	\$ 900	\$ 900	\$ 1,875	\$ 750	\$ 1,125
Survey/Newsletters/News releases	\$ 300	\$ 300	\$ 300	\$ 900	\$ 360	\$ 540
Subtotals	\$ 375	\$ 1,200	\$ 1,200	\$ 2,775	\$ 1,110	\$ 1,665
Objective 4: Water Quality Monitoring						
Sampling/Transport/Supplies	\$ 200	\$ 200	\$ 200	\$ 600	\$ 240	\$ 360
Subtotals	\$ 200	\$ 200	\$ 200	\$ 600	\$ 240	\$ 360
Total for all Objectives/Tasks						
Total 319/Non-federal Budget	\$ 78,126	\$ 340,479	\$ 231,920	\$ 650,525	\$ 260,210	\$ 390,315
Section 319 Funds per year	\$ 46,876	\$ 204,287	\$ 139,152	\$ 390,315		
Total local match per year (Total Budget)	\$ 31,250	\$ 136,192	\$ 92,768	\$ 260,210		
Local match per year	\$ 13,876	\$ 55,505	\$ 41,629	\$ 111,010		
Producer BMP match per year	\$ 18,650	\$ 74,600	\$ 55,950	\$ 149,200		



Table 9 - BMP Budget

Riparian Management	TOTAL COSTS
Filter Strip - 30 acres @ \$80/acre	\$ 2,400
Riparian Forest Buffer -39 acres @ \$400/acre	\$ 15,600
Forest Stand Improvement - 15 acres @ \$ 200/acre	\$ 3,000
Subtotal	\$ 21,000
Erosion Control	
Critical Area Planting 50 acres @ \$300/acre	\$ 15,000
Riparian Herbaceous Cover - 9 acres @ \$3,000/acre	\$ 27,000
Subtotal	\$ 42,000
Grazing Management	
Fencing - 4000 ft. @ \$1.35/ft.	\$ 5,400
Range Seeding - 10 acres @ \$ 40/acre	\$ 400
Pipelines - 1,125 ft. @ \$45/ft.	\$ 50,625
Well -1 @ \$8995/well	\$ 8,995
Spring Development - 1 @ \$4000/spring	\$ 4,000
Range Assistance - 2 Ranches *	\$ -
Trough & Tank - 2 @ \$2800 installed	\$ 5,600
Solar Pump - 2 @ \$4,000/pump	\$ 8,000
Subtotal	\$ 83,020
Riparian Forest Plantings	
Windbreak/Shelterbelt plantings - 75 HLFT @ \$20/HLFT	\$ -
Handplants - 740 trees @ \$2/tree	\$ 1,480
Subtotal	\$ 1,480
Bio-Engineering & Other Construction Restoration	
Stream Channel Stabilization -700 ft. @ \$206/ft.	\$ 144,200
Streambank/Shoreline Stabilization - 375 ft. @ \$ 206/ft.	\$ 77,250
Wetland Restoration - 0 acres @ \$1,400/acre	\$ -
Cultural Resource Review - 3 properties @ \$1,350	\$ 4,050
Engineering - 9 systems * Provided by BMP Team	\$ -
Subtotal	\$ 225,500
TOTAL PROJECT	\$ 373,000

* NOTE: BMP Planning & Development based on actual costs of practices

7.0 Public Involvement

Public involvement in the Red River Riparian Project is assured through advisory committees and oversight of project activities by the Red River Riparian Committee and the Red River Regional Council. Furthermore, stakeholder meetings and surveys have an integral part of the development and prioritization of the delivery mechanism for this project. Annual tours are open to the public.

Appendix I

Red River Riparian Project Annual Report 2013



Annual Report

Project Name: Red River Riparian Project
High Priority Watersheds in the Lower Red River Basin

Reporting Period: September 1, 2012 – August 31, 2013

Project Period: June 1, 2008 – September 30, 2014

Author: Sarah Braaten

Project Implementation Plan Status – 63 of 76 months have been completed (83 % of project)

Project Objective	On Schedule	Ahead of Schedule	Behind Schedule	Complete
Maintain Five Watershed Committees and Project Staff to coordinate and facilitate assistance.				
Develop 90 riparian plans outlining riparian restoration recommendations.				
Coordinate Watershed and RC&D Committee approval of \$1,043,305 of 319 Riparian Project cost share funds for BMP's.				
Implement riparian restoration on 75 river miles.				
Develop new range/forest Ecological Site Descriptions (ESD), management recommendations & information/ education materials for bottomland hardwood pastures in the Red River Basin.				

Total Project Expenditures to Date:

Table 1. Total Section 319 Grant Award – June 1, 2008 – September 30, 2014

FY08 Original Section 319 award	\$ 1,424,966
FY06 Section 319 Funding Reallocation (5/10)	109,000
FY08 Section 319 Funding Revision (5/10)	(109,000)
FY08 Section 319 Funding Revision (5/11)	(600,000)
FY10 Section 319 Funding Reallocation (5/11)	<u>400,000</u>
Total Section 319 Funding.....	1,224,966

Total expended as of August 31, 2013.....\$1,024,724.57

Table 2. Cumulative Project Expenditures - June 1, 2008 – August 31, 2012

Personnel Salaries	\$ 179,281.03
Fringe Benefits	85,202.80
Travel	25,070.75
Supplies.....	19,243.94
Rent/Utilities	6,818.64
Communications (Telephone/Postage)	10,443.28
Equipment	8,862.97
Contractual.....	381,444.30
BMP	390,951.16
Other	14,233.79
Administration	65,563.97
In-Kind.....	<u>520,757.65</u>
Total	\$ 1,707,874.28

Local Match/319 Expenditures

Total Section 319 Expenditures: \$1,024,724.57

Total Local Match: \$ 683,149.71

Total Expenditures: \$1,707,874.28

Table 3. Section 319 & Local Match Expenditures

Local cash match for BMPs

Producer/sponsor cost share.....	\$ 107,066.73
AGSCO	4,038.89
Ducks Unlimited	1,000.00
Red River Basin Commission	1,920.00
ND Game & Fish Private Land Initiative	6,133.34
ND Game & Fish Save Our Lakes Program	272.67
ND Wetlands Trust	750.00
Natural Resources Trust.....	<u>2,500.00</u>
Subtotal	\$ 123,681.63

Local in-kind match for BMPs	
Producer/sponsor cost share.....	\$ 12,285.86
Local cash match for administration	
Lake Agassiz Regional Council.....	3,001.19
NDSU President's Grant.....	335.72
Red River Joint Water Resource Districts	980.40
Red River Basin Commission.....	2,606.43
GFAFB.....	1,670.13
Riparian Field Training.....	<u>100.00</u>
Subtotal	\$ 8,693.87
Local in-kind match for administration	
Arbor Day Celebration Attendees.....	\$ 1,445.97
Producer/Sponsor.....	2,000.00
City of Cavalier.....	770.00
Landowner Meetings	3,537.53
ND Forest Service.....	245,604.55
ND Game & Fish Dept.	1,411.00
NDSU Ctr. For Natural Resources.....	161,157.38
ND State Water Commission.....	11,363.00
Pembina County Water Resource District	2,119.20
Pembina County Soil Conservation Dist.	117.99
Pembina County Extension Service.....	1,096.66
Range Tour Participants.....	2,488.95
Red River Joint Water Resource Districts	2,306.78
Red River Regional Council and RC&D	12,401.89
Riparian Advisory Committee	6,801.03
Riparian Kick-Off Meeting Attendees.....	982.80
SWCD TSA-1	5,511.72
UND Geology/Geologic Eng. Dept.....	37,168.15
Watershed Committees	<u>7,803.82</u>
Subtotal	\$506,088.42
Total Local Match.....	\$650,749.78

Appendix I BMP's Applied per 12 Digit Hydrologic Unit Code (HUC) as of August 31, 2013.

Appendix II Cumulative Section 319 & Producer Expenditures on BMP as of August 31, 2013.

Progress of Objectives and Tasks for High Priority Watersheds		
Tasks	Reported Progress (this period)	Current Status (cumulative)
Objective 1. Manage the project, coordinate efforts with local entities, and facilitate delivery of assistance.		
1. Coordinate delivery of multiple programs involving riparian management by combining efforts of the project sponsors and contributing agencies. Utilize staff within the Red River Regional Council (.3 FTE staff).	<ul style="list-style-type: none"> Utilized the Red River Regional Council for secretarial support, supplies and equipment. 	On schedule
2. Utilize advisory committees to assist the Riparian Project Manager with project oversight. Five joint WRD/SCD Watershed Committees will consist of local board members and expertise appropriate for each watershed, including water quality, forestry, agricultural conservation, hydrology, engineering and wildlife mgmt.	<ul style="list-style-type: none"> The Riparian Advisory Committee meeting was held at Turtle River State Park on March 25. Watershed updates were given by watershed committee members. A presentation was given by UND Civil Engineering regarding stream bank stability on the Tongue River. NDSU Range Science updated the Riparian Advisory Committee with information pertaining to establishing riparian forests. International Water Institute also presented information. Watershed meetings were held from the following watersheds: Little South Pembina, Park River/Cart Creek, Middle Sheyenne, Tongue River, Tongue River/Cart Creek, and Fordville. Riparian Stakeholder meeting – June 20. This meeting was open to the public and well attended by key partners. Discussion revolved around current issues in our watersheds and results of the public stakeholder survey. 	On schedule

Progress of Objectives and Tasks for High Priority Watersheds		
Tasks	Reported Progress (this period)	Current Status (cumulative)
<p>3. Provide project management and riparian technical assistance to landowners.</p> <p>Directly assist landowners with the protection and effective management and restoration of targeted river reaches within high priority watersheds of the Lower Red River Basin of ND.</p> <p>Subcontract with the NDFS (0.95 FTE) to develop 90 riparian management plans with coordination of range and engineering technical assistance.</p>	<ul style="list-style-type: none"> • Technical assistance was provided to 27 landowners. • 6 Forest Stewardship Plans (FSP) were completed by the North Dakota Forest Service. • Two projects were implemented during this project period, and numerous others are in the planning stages. • Project management was provided for each project by the Riparian Project Manager. • North Dakota Forest Service gave notice of the discontinuation of their contract in February 2013. Technical assistance and financial match for the project was pulled. The dedicated match that the NDFS provided the Riparian Project was no longer available as they dedicate that match to another project. Work halted on forest stewardship plans with the resignation of Dave Nowatzki that same month. 	Behind schedule

Progress of Objectives and Tasks for High Priority Watersheds		
Tasks	Reported Progress (this period)	Current Status (cumulative)
Objective 2. Identify river reaches in high priority watershed to target for restoration, including seven 303(d) reaches and two additional reaches with severe riparian impairments.		
4. Augment current prioritization of project work area with additional GIS data layers including Upper Midwest Aerospace Consortium (UMAC) and landowner surveys for targeting river reaches for riparian restoration. Maximize water quality benefits for riparian restoration by focusing on riparian restoration efforts.	<ul style="list-style-type: none"> • NDFS completed GIS data • In Spring 2013, the Riparian Project conducted a special survey of stakeholders who live or farm along river land in all of the targeted watersheds. Surveys also sent to county commissions, water boards, townships, and natural resource managers. Survey allowed for continued targeting of areas of most critical need after series of three floods this past spring. 	Completed
Objective 3. Provide technical and financial assistance to restore, protect and manage riparian areas along a minimum of 75 river miles in the Red River Basin.		
5. Provide financial cost sharing assistance to landowners. Develop BMPs for riparian management, grazing management, windbreak plantings and bio-engineering. Coordinate Watershed and Riparian Committee approval of \$1,046,905 of 319 Riparian Project cost share funds for BMP's	<ul style="list-style-type: none"> • Cost share provided to landowners: \$ 27,062.27 • Total project cost: \$ 45,103.79 • Stream bank stabilization implemented at the Fedje property in Cavalier, ND in the Tongue River Watershed. • Off-channel watering system installed on the Middle Sheyenne River near Tolna, ND. System was comprised of a well with two flow through troughs and 150 ft of pipe. 	On Schedule

Table 6. Progress of Objectives and Tasks for High Priority Watersheds		
Tasks	Reported Progress (this period)	Current Status (cumulative)
6. Develop Contract for Services agreements for: 1) Engineering services, including surveying, drafting, restoration design and construction oversight; 2) Hydrology & hydraulics study and report on Cart Creek in cooperation with the SWC and NRCS planning staff.	<ul style="list-style-type: none"> • K2S provided engineering services to the Riparian Project through an agreement with NDDH. • UND Study on the hydrology on the Tongue River from Renwick Dam was completed in January 2013. • Cart Creek Study completed in 2009 	Completed
7. Develop Contract for Services agreements for range technical assistance including consultation with ranchers and the development of educational media.	<ul style="list-style-type: none"> • Last year, the obligations for these tasks were fulfilled. Technical assistance has been provided by NDSU towards the project in the form of both riparian grazing brochures and the consultation with area farmers with cattle in the Middle Sheyenne River Watershed. • We continue to work with Kevin Sedivec, NDSU Extension Grazing Specialist. He provides rotational grazing advice to farmers. • NDSU was approved for additional funds for site suitability/soil sampling determinations for tree plantings on riparian sites. They continue to monitor and maintain the riparian tree establishment demonstration sites as well. They are set to complete their work May 2014. 	Completed

Objective 4. Increase understanding of riparian ecosystems and riparian management methods focused towards restoration/management of riparian functionality and sustainability in the Lower Red River Basin.		
8. Instill ownership and provide stewardship of river reaches through support of local school and volunteer group involvement in restoration implementation & monitoring activities. Provide technical support for local secondary school curriculums, volunteer groups, or agencies.	<ul style="list-style-type: none"> September 2012: Eco-Ed water quality seminar presented at Icelandic State Park for Pembina County Soil Conservation District October 2012: Stream table demonstration booth offered educational opportunities at the Walsh County Fair for two days. 	On schedule
9. Develop a Contract for Services agreement to develop new range/forest ecological site descriptions and management recommendations for bottomland hardwood pastures of the Red River Basin.	<ul style="list-style-type: none"> Completed 	Completed

<p>10. Inform and educate basin stakeholder and natural resource professionals on the benefits of healthy riparian areas to influence land management choices that result in measureable watershed health improvements. Develop information and education materials for approved RAC recommendations.</p>	<ul style="list-style-type: none"> • Public stakeholder meeting June 20, 2013 provided educational materials to attendees regarding local watersheds and riparian health. • Educational booth at the Red River Basin Commission. • Riparian Field Tour was open to the public in August of 2012. • Workgroup meetings are held in Pembina county to discuss riparian and agricultural impacts on the watersheds. • Pembina River Basin Advisory Board presentation. • Networking with natural resources partners including ND Game and Fish Department, US Fish and Wildlife, NRCS, Great Plains Fish Habitat Partnership, National Wild Turkey Federation, Red River Basin Commission, International Water Institute, North Dakota Forest Service, ND Soil Conservation Districts, MN Department of Natural Resources, and many others. 	<p>On schedule</p>
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Local Recommendations and Comments

Sarah Braaten Riparian Project Manager

The climate conditions of 2013 were much different than we had expected following the drought of 2012, which left us in a hydrologic deficit. The drought of 2012 resulted in a drawdown of water tables and base flows on our streams. Local residents took interest in what the bottom of the rivers looked like. Conditions were much different come spring of 2013. Flooding hit the region in the first week of May with the first flood, which was comprised of runoff from a deep snowpack in the Red River Valley. Flooding occurred again in the third week of May, when heavy rains hit the area and resulted in the widespread overland flooding of the Red, Pembina, Tongue, Forest and Park River watersheds. Renwick Dam became threatened by a potential dam breach due to high flows on the Tongue River. Only two weeks thereafter, an additional flood occurred, resulting in a third crest for the region's rivers. Stream banks that were no longer able to handle saturation and inundation collapsed. Trees tipped into streams taking the bank with them. Scoured banks resulted from repeated high flows, and stream channels in some locations migrated in their longitude. Stream flows have been high in the northern watersheds of the Pembina and Tongue Rivers, with discharges of around 400 cfs on the Pembina River in August. We continue to work with the conditions that we are given, wet or dry, to restore riparian areas and water quality.

The past year has been a busy year with much success in the areas of education of landowners. We have spent many hours with landowners, educating them one on one with what is happening to their stretch of the river and what can be done to help the riparian areas and water quality. While many landowners agree with recommended strategies for effective riparian management, many are at a loss in being able to implement those recommendations. Sometimes the recommendations become impractical when cost is factored in. Sometimes there are issues in getting a qualified contractor who will do the job for the cost that is estimated. Sometimes we just don't have a long enough project season for those farmers who don't have time to implement projects and farm at the same time. With these ways projects can fall to the wayside, this spring I asked local stakeholders to answer a few questions pertaining to project planning and implementation. A majority of the demographic who answered are currently farming or having farmed in the past (71.5%) of 130 respondents.

Here are the questions we asked and the answers we received:

Q1: When it comes to planning and implementing projects, in your opinion, what are the biggest factors that limit the planning process?

1. Cost: The cost of the project is too high, or more than I'm willing to pay
2. Regulation: Permitting process
3. Time: Too busy to make time in the summer for planning the project
4. Technical: I need more information and understanding of the project (technical advice)
5. Farm: The recommended practices are not practical to my farm operation
6. Methods: I'm not convinced that the project will work as planned
7. Labor: Challenges locating qualified contractors
8. Risk: The project seems too risky, or I'm worried about downstream effects
9. Other avenues: I can get help from other programs

It is no surprise that the cost of implementing projects is the biggest challenge landowners are faced with. Some BMP's are expensive, even more so with the cost of labor and materials increasing from year to year. These responses are a good indicator that we should look at either more affordable solutions, or try to increase funds so that the landowner pays less, or both. We are looking at using more affordable solutions that incorporate more bio-engineering and less hard armor approaches. We are also looking at helping individual landowner projects get funded through the Outdoor Heritage Fund. We continue to help landowners through the permitting process in every way possible.

Q2: In your opinion, do you feel that rivers have water quality problems in our portion of the state?

Yes	71
Yes, but only in a small portion	26
No	15
Not Sure	15

Most people who responded to this question believe that there are water quality problems in the region. 11.8% of the respondents didn't feel there was a problem, and the same number of people weren't sure. It is important that we continue to educate the public on the kinds of water quality impairments we have in our streams. Knowledge is power in these kinds of scenarios.

Q3: What best management practices or riparian improvements would you like to see the Riparian Project continue to work on?

1. Stream bank stabilization through vegetation, bio-engineering and root wads
2. Erosion control through vegetative buffers
3. Tree and shrub plantings
4. Cribwall structures for streambank stabilization
5. Sediment capture through conifer revetments
6. Enhancing riparian vegetation through planting native plants
7. Deer exclusion fencing for tree plantings
8. Off-site livestock watering/exclusion fencing/grazing assistance
9. Installation of lunkers for fish habitat

Best management practices that received the most votes are listed starting at 1. The Riparian Project will continue to work on reducing sediment loading by continuing to tackle stream bank erosion. Bank stabilization and enhancements of riparian zone vegetation continue to be approaches taken to reduce sediment inputs into streams. Property continues to be damaged by flooding and stream bank erosion. Great care is taken in determining whether or not a riparian project is an appropriate solution for projects that concern inhabitable structures. K2S Engineering is helpful in providing guidance in making these determinations.

Summary Of BMP Expenditures Per HUC

NOTE: For multiple year practices where the Planned Amount differs from the Actual Amount Applied, a cumulative Planned Amount value will be used for this Summary Report. The Cost Share, Match, etc, are calculated from the Actual Total Yearly Cost input.

Project: Red River Riparian Project

Time Period: 09/01/2012 To 8/31/2013

Hydrologic Unit Code: 090202030205

Grazing Management	Cumulative Amount	Units	Total 319 Cost Share	Total Producer Match	Total BMP In-Kind	Total BMP Costs
Pipelines	150	Linear Feet	\$4,085.10	\$2,723.40	\$0.00	\$6,808.50
Trough and Tank	2	Number	\$3,348.95	\$2,232.63	\$0.00	\$5,581.58
Category SubTotal:			\$7,434.05	\$4,956.03	\$0.00	\$12,390.08
HUC Sub Total:			\$7,434.05	\$4,956.03	\$0.00	\$12,390.08

Hydrologic Unit Code: 090203131301

Riparian Area Management	Cumulative Amount	Units	Total 319 Cost Share	Total Producer Match	Total BMP In-Kind	Total BMP Costs
Riparian Herbaceous Cover	0.34	Acres	\$1,241.14	\$827.42	\$0.00	\$2,068.56
Streambank and Shoreline Stabilization	150	Linear Feet	\$18,387.09	\$12,258.06	\$0.00	\$30,645.15
Category SubTotal:			\$19,628.23	\$13,085.48	\$0.00	\$32,713.71
HUC Sub Total:			\$19,628.23	\$13,085.48	\$0.00	\$32,713.71
Red River Riparian Project Total:			\$27,062.27	\$18,041.52	\$0.00	\$45,103.79

Summary Of Billing Period Expenditures On BMP's

Project: *Red River Riparian Project*

Time Period: *9/1/2012 To 8/31/2013*

NOTE: For multiple year practices where the Planned Amount differs from the Actual Amount Applied, a cumulative Planned Amount value will be used for this Summary Report. However, the Cost Share, Match, etc, are calculated from the Actual Total Yearly Cost input.

<i>Grazing Management</i>				Cumulative Amount	Units	Total 319 Cost Share	Total Producer Match	Total BMP In-Kind	Total BMP Costs
Code	516	Practice	Pipelines	150	Linear Feet	\$4,085.10	\$2,723.40	\$0.00	\$6,808.50
Code	614	Practice	Trough and Tank	1	Number	\$3,348.95	\$2,232.63	\$0.00	\$5,581.58
Grazing Management Totals:						\$7,434.05	\$4,956.03	\$0.00	\$12,390.08

<i>Riparian Area Management</i>				Cumulative Amount	Units	Total 319 Cost Share	Total Producer Match	Total BMP In-Kind	Total BMP Costs
Code	390	Practice	Riparian Herbaceous Cover	0.34	Acres	\$1,241.14	\$827.42	\$0.00	\$2,068.56
Code	580	Practice	Streambank and Shoreline Stabilization	150	Linear Feet	\$18,387.09	\$12,258.06	\$0.00	\$30,645.15
Riparian Area Management Totals:						\$19,628.23	\$13,085.48	\$0.00	\$32,713.71

Red River Riparian Project Totals:						\$27,062.27	\$18,041.52	\$0.00	\$45,103.79
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Appendix II

RIPARIAN PROJECT SUBCONTRACTOR AND COOPERATORS

Cooperators

Walsh County Soil Conservation District
Pembina County Soil Conservation District
Grand Forks County Soil Conservation District
Nelson County Soil Conservation District
Cavalier County Soil Conservation District
Walsh County Water Resources Board
Pembina County Water Resources Board
Grand Forks County Water Resources Board
Nelson County Water Resources Board
Cavalier County Water Resources Board
Red River Joint Water Board
North Dakota Department of Health
North Dakota Game and Fish Department
North Dakota State Water Commission

Cooperators

Natural Resources Conservation Service
Environmental Protection Agency
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Red River Basin Commission
Pembina River Basin Advisory Board
Great Plains Fish Habitat Partnership
International Water Institute "Riverwatch"
National Wild Turkey Federation
North Dakota Forest Service
North Dakota State University Extension Service-
Range Sciences
North Dakota Natural Resources Trust

Appendix III

Red River Regional Council Project Support Technical Fees

The Red River Riparian Project was recently provided approval to use a fee for service structure by the North Dakota Department of Health. The Red River Regional Council adopted the following fee policy for the Red River Riparian Project, starting in December 2013. The fee structure will generate funds to support the planning and implementation of projects.

Each client receives a free consultation visit to their site. Here we provide technical assessment of the issues taking place, and provide BMP options to the client. After this visit has taken place, the client applies to the program for project assistance and the application fee is collected. This step will help to gauge and secure client buy-in to the project, hopefully allowing for a higher rate of BMP implementation. See “Application Fees” below.

Application Fees			
Project Category	Services	Client	Non-refundable Fee
Low technology projects	Work that does not involve engineering services. Normal range of technical assistance.	Landowners Local Government	\$200
Technology projects	Engineering plans, complex problem solving, technical planning requiring extra time and resources.	Landowners Local Government	\$1,000

After the application fee is collected, a preliminary project estimate is provided to the applicant. All time spent on the project planning and implementation portion of the project is tracked in the Spring Ahead project tracking system. Fees collected will not exceed the cost of the environmental project manager’s time, regardless of the total project cost. Proposed fee percentage rates are summarized in the table below. At no time will the Riparian Project make a profit, rather only cover the actual costs of administration and project implementation. Collected funds will be managed in the Riparian Project account.

Project Planning and Implementation Fees			
Services Provided	Client	Total Project Cost	Fees
<ul style="list-style-type: none"> Specialized project plans Coordination of engineering services and other specialists. Project management including planning meetings, permitting, bid coordination, construction oversight. 	Landowner	< \$20,000	3.0% of Total Project Cost
		\$20,000-49,999	3.5% of Total Project Cost
		\$50,000-99,999	4.0% of Total Project Cost
		\$100,000+	4.5% of Total Project Cost
	Local Government	any cost	5.0% of Total Project Cost