Park River Watershed Project Implementation Plan

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STATE: North Dakota
WATERSHEDS: Park River Watershed, including Homme Dam Reservoir
HYDROLOGIC UNIT CODE: 09020310 **HIGH PRIORITY WATERSHED:** yes
TMDL STATUS: Homme Dam Reservoir – TMDL in 2012
The Park River has no TMDL

TMDL Implementation

PROJECT TYPES	WATERBODY TYPES	NPS CATEGORY
[ ] STAFFING & SUPPORT	[ ] GROUNDWATER	[X] AGRICULTURE
[X] WATERSHED	[X] LAKES/RESERVOIRS	[ ] URBAN RUNOFF
[ ] GROUNDWATER	[X] RIVERS	[ ] SILVICULTURE
[ ] I & E	[X] STREAMS	[ ] CONSTRUCTION
	[ ] WETLANDS	[ ] RESOURCE EXTRACTION
	[ ] OTHER	[ ] STOWAGE/LAND
		[ ] DISPOSAL

PROJECT LOCATION: Latitude: 48.40628 Longitude:-97.79094
Walsh County

MAJOR GOAL:

The main goal of this watershed program is to restore beneficial uses in recreation and fish/aquatic biota at the Homme Dam reservoir and to improve water quality and riparian areas in the South, Middle, and North Branches of the Park River for fish and aquatic biota facing impairments due to non-point source pollution.

PROJECT DESCRIPTION:

The watershed project will:

1. Restore recreation uses at Homme Dam through the maintenance of chlorophyll-a concentrations in the reservoir at the level of 16 µg/L. Meeting this target requires the reduction in phosphorus loading into the reservoir by 40%. The reduction in phosphorus also would benefit the impaired function of the fishery and associated aquatic species;

2. Improve conditions in riparian areas and reduce non-point sources of phosphorus loading from cropland and non-cropland areas in impaired reaches of the North, Middle and South Branches of the Park River;

3. Deliver technical and financial assistance for the implementation of BMPs within AnnAGNPS priority areas on cropland, rangeland, and adjacent riparian corridors in the watershed;

4. Partner with producers, landowners, communities, local government, local agencies, and other stakeholders to coordinate conservation planning that will address resource concerns and benefit natural resources in the watershed;

5. Form a Park River Watershed Committee to aid in watershed planning for the reduction of non-point source pollution impacting water quality;

6. Document trends in water quality over the course of the project, including chlorophyll-a concentrations and phosphorus loading and evaluate progress towards established water quality goals;

7. Educate landowners, students, and other stakeholders on NPS pollution concerns and solutions, including soil erosion, nutrient transport, and harmful algae blooms (HABs) at the Homme Dam reservoir;

8. Coordinate at the closest levels with the "Natural Resources Team" in Walsh County to provide best management practice (BMP) recommendations for implementation in the watershed.

9. Coordinate with the NDDH and International Water Institute to develop a PTMApp Decision Support Tool for the Park River Watershed by 2020 to allow for better prioritization and identification of watershed and field areas for nutrient and sediment reduction.

Total 319 FY 18 Funds Requested: $199,361
Other State and Federal: $1,114,000
319 Funded Full Time Personnel: 1 FTE

Local Match: $132,907
Total Budget: $1,446,268

2.0 STATEMENT OF NEED

2.1 The need for an implementation program in the Homme Dam watershed began in 2010, when the North Dakota Department of Health (NDDH) identified Homme Dam as an impaired water body, and listed it on the 2010 Clean Water Act Section 303(d) list of impaired waters. Based on a Trophic State Index (TSI) score, "Fish and Other Aquatic Biota" and "Recreation" uses of Homme Dam are impaired due to excess nutrients, eutrophication, and biological indicators.

Homme Dam was a high priority for TMDL development, and in 2012 the TMDL was approved by EPA. The first phase of implementation began in fall of 2014 and is funded until 2018. The Walsh County Three Rivers Soil Conservation District (SCD) seeks to continue work to restore the S. Branch of the Park River upstream of the Homme Dam in the next phase of the project to restore the water quality in the reservoir.

The reservoir's recreation is often impaired by harmful algae blooms (HAB's) caused by eutrophication. Harmful algae blooms (HABs) occur in the summer months of June-September, which has hindered the ability of the public to safely enjoy water recreation activities (Figure 1). The local community is concerned about HABs and its impact to health, and the economy due to a loss of recreation that would normally draw people to this very popular reservoir. The county has invested in kayaks and paddle boats to enhance water related activities at the reservoirs, however, algae blooms hinder these activities as well. It is not uncommon for visitors to cancel trips to the area due to poor water quality conditions.

Figure 1. Homme Dam swim beach experiencing a harmful algae bloom in August 2017.

The public became aware of harmful algae blooms in 2015, during the first summer of the Homme Dam Watershed Project. The watershed coordinator discovered an algae bloom at the beach and boat dock areas which was identified by NDDH as blue green algae. Algae toxin levels were over 800 ppb of microcystin toxin, or 80 times the maximum limit for safe recreational use in the bloom. The recreational limit for microcystin toxins in N.D. is 10 ppb. Since that time, HABs testing and monitoring have been conducted in a successful

collaboration between NDDH and the watershed coordinator. Advisories or warnings were posted for a total of 45 days in the summer of 2015. In 2017, advisories or warnings were posted for approximately 58 days, with a severe bloom (>400 ppb toxin) occurring in early September. Small children and dogs, who are most susceptible to toxicity from cyanobacteria toxins, are frequent visitors at the swim beach and fishing docks, where algae blooms accumulate.

In addition to continuing water quality improvement efforts in the Homme Dam Watershed, the District also seeks to expand assistance efforts to impaired reaches of the three branches Park River. Several segments of the South Branch, Middle Branch, and North Branches of the Park River are listed on the 303(d) list with the following impairments:

- North Branch of the Park River has 27.63 miles of stream and tributaries were determined to be "not supporting" fish and aquatic biota in combination benthic and fishes bioassessments.
- Middle Branch of the Park River has 25.47 miles of stream and tributaries "Fully Supporting But Threatened" were determined to be "not supporting" fish and aquatic biota in combination benthic and fishes bioassessments.
- South Branch of the Park River was listed as "Fully Supporting But Threatened" fish and aquatic biota due to Selenium.
- Stream Visual Assessment Protocol (SVAP) scores on for riparian areas of the S. Branch of the Park River resulted in many of the sampled sites receiving a poor to fair ranking (Table 1)(NRCS 2008). The evaluation takes into account hydrology, streambanks, soil, and riparian vegetation.

Table 1. South Branch Park River Stream Assessment Results

SVAP Rank	Number of Sites
Good	5
Fair (high)	27
Fair (medium)	5
Fair (low)	15
Poor	25
No Ranking	1

Stakeholder concerns and conservation needs were assessed in September 2017. A public watershed stakeholder meeting was held on September 15th, 2017 to gather feedback via discussion and written surveys. Surveys were made available to the public, however, a group of one-hundred twenty five farmers, retired farmers, rural landowners, and local agencies were also sent direct mailings. There was a 27% return rate on surveys. Survey responses are summarized by group (Appendix 2). Resource concerns most frequently identified by stakeholders include soil erosion, streambank erosion, water quantity, and water quality—including sedimentation and algae blooms (Figure 2).

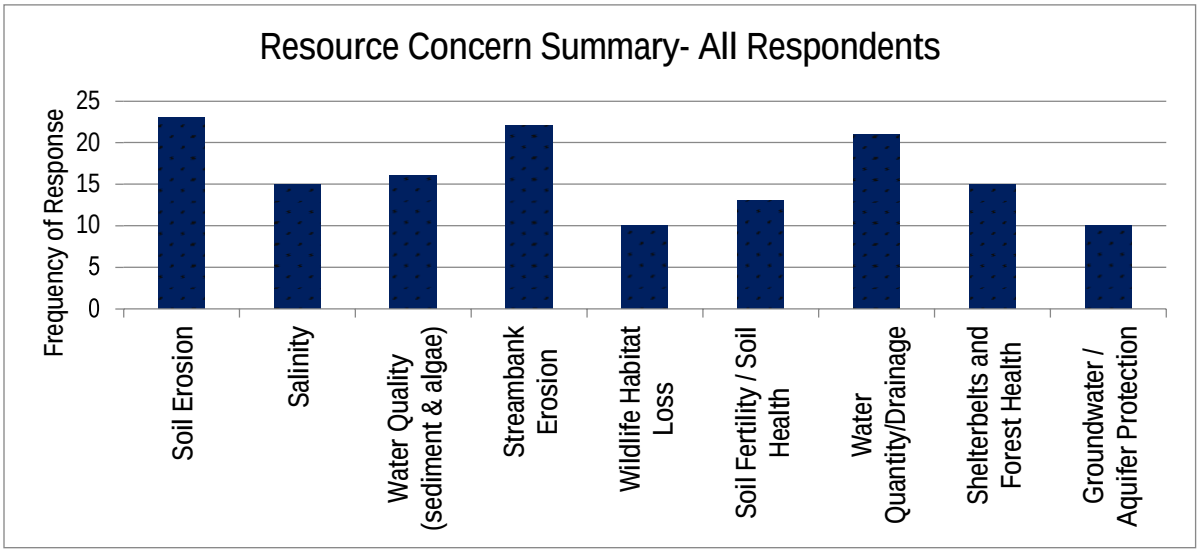


Figure 2. Park River Watershed stakeholder resource concerns.

When active farmers were asked to choose resource concerns that should be prioritized in conservation programs in the watershed, they responded that soil erosion, streambank erosion, and water quality were a primary concern (Q. 3, Appendix 2). In question 5 of the survey, active farmers responded that funding for BMPs like shelterbelt establishment or renovation, riparian area practices, conservation easements in riparian areas, and salinity management should be high priorities for BMP funding in the watershed. Residue management practices such as strip till and no-till, along with workshops focused on farming and conservation received medium priority for watershed funding. When asked whether or not assistance from a watershed coordinator or riparian specialist was needed, 73% of active farmers, 50% of retired farmers, 50% of rural landowners, and 100% of local agency staff survey indicated “yes”, with a majority selecting a preference for both technical and financial assistance being available as well.

In 2016, the Local Work Group met to review top natural resource concerns for cropland and pastureland management. While this meeting ultimately provided prioritization through development of ranking questions for USDA program assistance, it also formally identified top resource concerns. The top concerns for cropland were soil erosion, soil quality, and water quality.

2.2 Homme Dam (HUC 09020310-001) is located on the South Branch of the Park River located two miles west of Park River. The dam is operated by the US Army Corp of Engineers out of the Lake Ashtabula station, Valley City, N.D. Completed in 1950, Homme Dam is a 185-acre reservoir designed for flood control and water supply benefits (NDDH 2010). At full pool, Homme Dam covers a surface area of 185 acres, has a maximum depth of 34.5 feet and an average depth of 16.5 feet. The Homme Dam watershed is a 131,699 acre watershed in the Park River basin located in Cavalier and Walsh counties (Appendix 1).

Homme Dam has been classified as a Class 3 warm-water fishery, “capable of supporting natural reproduction and growth of warm-water fishes (i.e. largemouth bass and bluegill) and associated aquatic biota and marginal growth. Some cool water species may also be present”(NDDH 2011). The trophic status of the Homme Dam reservoir was determined to

be eutrophic to hypereutrophic based on water quality data collected from 2010 to 2011by the Walsh County Three Rivers Soil Conservation District, and analyzed by the NDDH.

The reservoir provides several recreational opportunities. Since 1953, Homme Dam Recreation Area has been a happening place for local residents' recreational needs--offering fishing, swimming, boating, camping, hiking, hunting, and snowmobiling. In 2004, the beach and swimming area underwent reconditioning near the spillway.

2.3 An Annualized Agricultural Nonpoint Source Pollution (AnnAGNPS) model was developed for Park River Watershed. The AnnAGNPS model uses soils, fertilization rates, cropping systems, elevation, land use, precipitation data, etc. to 1) characterize the size and shape of the watershed and 2) identify "high priority areas" that are potentially the most significant sources of nutrients (N & P) and sediment in the Homme Dam watershed (NDDH 2012). The results of the AnnAGNPS model will be used to target technical and financial assistance for the implementation of BMPs in the watershed (Figures 3 and 4).

A PTMApp for the Park River Watershed is currently under development by the International Water Institute and the NDDH. The PTMApp calculates total nitrogen, phosphorus and sediment. The PTMApp allows for better prioritization at the watershed scale and field scale to identify specific areas for nutrient and sediment reduction. This application is scheduled to be completed by 2020.

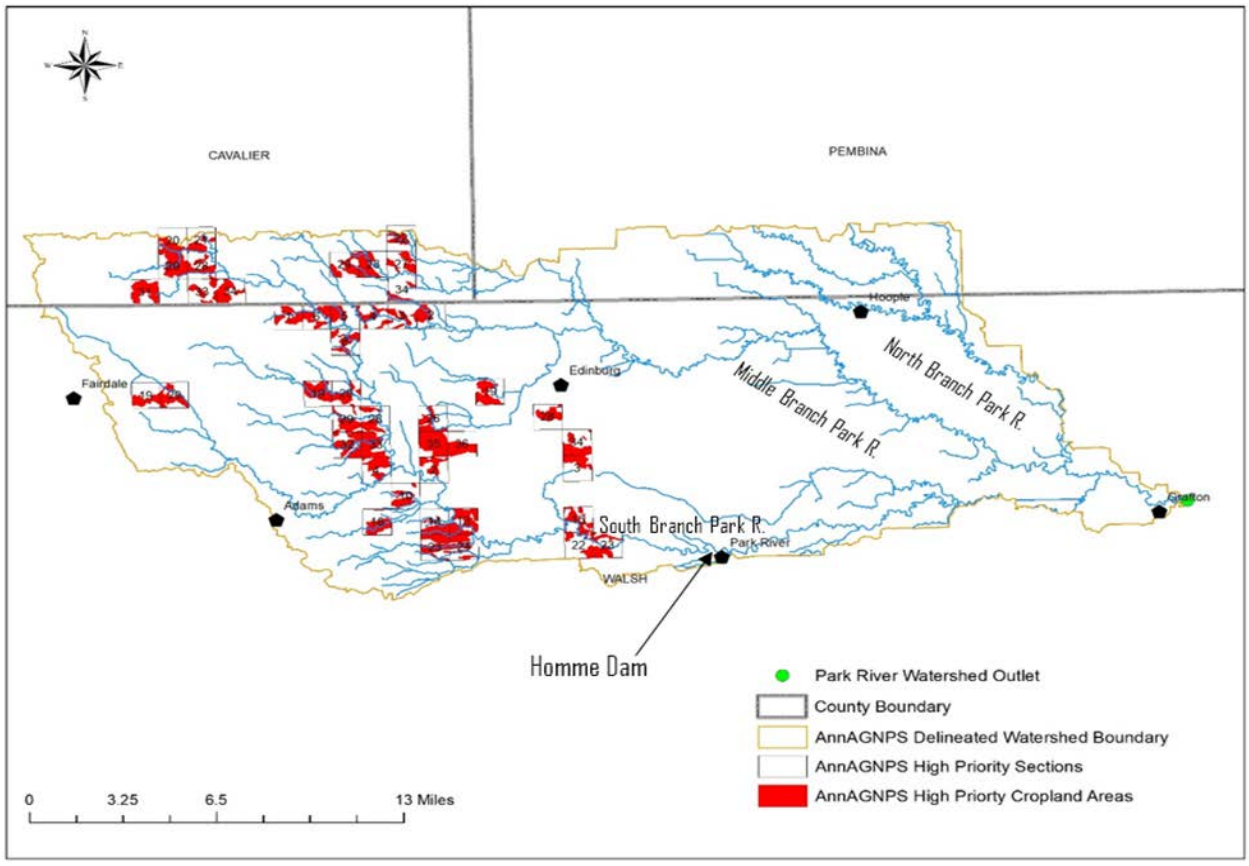


Figure 3. AnnAGNPS Critical Areas for Cropland for all branches of the Park River.

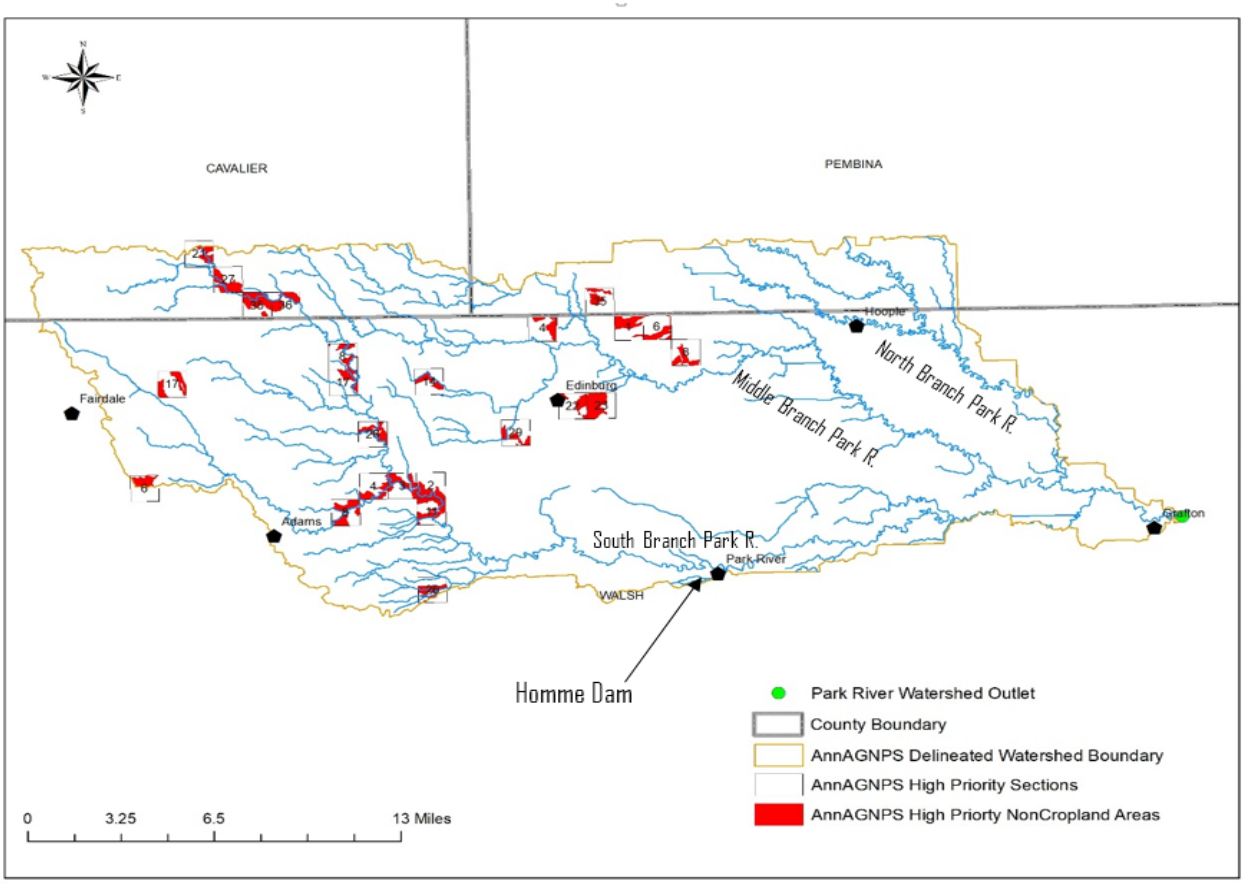


Figure 4. AnnAGNPS Critical Areas for Non-Cropland for all branches of the Park River.

2.4 The topography of the Park River Watershed varies from west to east due to glaciation. Elevation changes dramatically from Homme Dam in western Walsh County at 1,120 ft to 825ft at Grafton in eastern Walsh County. In western Walsh County, in what is referred to as the Glacial Till Plain, the landscape is comprised of undulating hills in addition to terminal moraines that are hilly. The area is categorized as Major Land Resource Area (MLRA) 55, the Northern Black Glaciated Plains. Within hilly areas, temporary or seasonal wetlands are not uncommon. Outcrops of shale bedrock from the Cretaceous age are exposed across the glacial till plain where the rivers and ravines drain into the lake bed. In general, the soils of the Glacial Till Plain largely consist of glacial till, sand and gravel deposits, and cobble substrate. These soils formed in calcareous loam and clay loam glacial till and the associated alluvium from the till process (USDA SCS 1972).

Several Lake Agassiz beach lines exist within the glacial till plain (USDA SCS 1942). Several more ancient beach lines lie in the elevation gradient experienced transitioning east until approximately five miles west of Highway 18 until it gradually flattens into level the glacial lake bed where little or no slope exists. This area is classified as MLRA 56- the Red River Valley of the North. The western lake bed consists of very fine sand, silt and silty clay loam (USDA SCS 1972). On the eastern lake bed, clay and silty clay were deposited. The climate supports a grassland transition between short grass prairie in the west and tallgrass prairie towards the east portion of the watershed. Agriculture has replaced most of the

grassland areas. Riparian areas face degradation and are often encroached upon by agriculture, including grazing of narrow riparian corridors.

According to the 2016 National Agricultural Statistical Service (NASS) land survey, the 251,021 acres in the project area can be classified as follows:

- 66% active cropland
- 15.25% pasture or grassland,
- 6.4% wetlands,
- 4.62% are riparian woodlands or shelterbelts,
- 5.3% barren or urban development,
- 1.12% tamegrasses or planted grass,
- 0.50% alfalfa.

Crops commonly grown in the lower elevations of the watershed in fertile lake bed soils include spring wheat, soybeans, corn, potatoes, and sugarbeets. The Homme Dam sub-watershed include spring wheat, edible beans, soybeans, canola and corn.

The climate of the Park River Watershed is characterized as sub humid with warm summers with frequent hot days and occasional cool days. Winters are very cold influenced by blasts of arctic air surging over the area. Average temperatures range from 20° F in the winter to 68° F in the summer. Precipitation occurs primarily during the warm period and is normally heavy in late spring and early summer. Total average annual precipitation is about 20 inches. About 16 inches or 85 percent of rain falls between April and October. In 2016, this area received above average rainfall saturating soils in the watershed. In the summer months, 27 inches of rain was recorded by NDAWN in the east at Grafton and some areas west in the watershed received more rain than Grafton. With completely saturated soils, farmers were met with difficult crop losses. In stark contrast, 2017 resulted in 11 inches of rain during the summer months with 4 inches in June, and the remainder in erratic rainfall events.

2.5 Historical water quality data was collected in 1996 and 2006 in Lake Quality Assessments (LWQA). Results indicated that nutrient levels in Homme Dam increased two fold between 1996 and 2006 (NDDH 2012).

Further testing took place in 2010 and 2011 during the watershed assessment conducted by the Walsh County Three Rivers SCD. Water quality monitoring was conducted on one inlet site, one outlet site and the deepest area of the reservoir. In 2010, average growing season (April-November) total phosphorus concentrations were 0.338 mg/L and average chlorophyll-a concentrations was 13.3 µg/L (Table 2). Water quality data for 2011 indicated average growing season total phosphorus concentration was 0.233 mg/L and average chlorophyll-a concentration was 20.5 µg/L (Table 3).

Table 2. 2010 Homme Dam (Deepest Site) Water Quality Data Summary (NDDH 2012).

Parameter	N	Average	Minimum	Maximum	Median
Total Phosphorus (mg/L)	27	0.338	0.194	0.884	0.302
Dissolved Phosphorus (mg/L)	24	0.300	0.176	0.776	0.260
Total Nitrogen (mg/L)	27	1.600	1.020	2.290	1.490
Total Kjeldahl Nitrogen (mg/L)	27	1.001	0.839	1.175	0.975
Nitrate/Nitrite (mg/L)	27	0.270	0.015	0.870	0.18
Chlorophyll-a (µg/L)	9	13.3	0.75	36.7	12.2
Secchi Disk (meters)	9	1.3	0.6	2.7	1.2

Table 3. 2011 Homme Dam (Deepest Site) Water Quality Data Summary (NDDH 2012).

Parameter	N	Average	Minimum	Maximum	Median
Total Phosphorus (mg/L)	29	0.233	0.117	0.904	0.184
Dissolved Phosphorus (mg/L)	29	0.189	0.078	0.758	0.147
Total Nitrogen (mg/L)	29	1.615	0.936	2.750	1.35
Total Kjeldahl Nitrogen (mg/L)	29	0.987	0.321	1.534	0.975
Nitrate/Nitrite (mg/L)	29	0.422	0.015	1.24	0.086
Chlorophyll-a (µg/L)	10	20.5	0.75	61.4	17.9
Secchi Disk (meters)	9	1.3	0.4	2.1	1.3

The average growing season Secchi disk transparency in 2010 and 2011 was 1.3 meters. In 2010, the maximum Secchi disk transparency measurement recorded was 2.7 meters, while the maximum measurement in 2011 was 2.1 meters (Tables 2 & 3)(NDDH 2012). Water quality data collected in Homme Dam in 2010 and 2011 showed an average chlorophyll-a concentration of 16.9 µg/L (TSI = 58.3) and average Secchi disk transparency depth of 1.3 meters (TSI = 56.4). Based on these data Homme Dam is generally assessed as a eutrophic lake. Total phosphorus data and corresponding TSI value of 83.4, which characterizes Homme Dam as hypereutrophic.

The TSI target of 58.3 for chlorphyll-a will be a trophic state sufficient to maintain both aquatic life and recreation uses of Homme Dam (Table 4). The chlorophyll-a TSI target will be achieved by reducing nutrient inputs into the lake by forty percent which equates to a total phosphorous load capacity of 8,996.4 kg/yr or a daily load of 24.6 kg/day. Phosphorus loads into the reservoir could be reduced by forty percent by treating AnnAGNPS identified "high priority areas" (NDDH 2012).

Table 4. Carlson's Trophic State Indices for Homme Dam (NDDH 2012).

Parameter	Relationship	Units	TSI Value	Trophic Status
Chlorophyll-a	TSI (Chl-a) = 30.6 + 9.81[ln(Chl-a)]	µg/L	58.3	Eutrophic
Total Phosphorus (TP)	TSI (TP) = 4.15 + 14.42[(ln(TP)]	µg/L	83.4	Hypereutrophic
Secchi Depth (SD)	TSI (SD) = 60 - 14.41[ln(SD)]	Meters	56.4	Eutrophic

TSI < 30 - Oligotrophic (least productive) TSI 30-50 Mesotrophic
TSI 50-65 Eutrophic TSI > 65 - Hypereutrophic (most productive)

Nutrient loading into Homme Dam originates 100% from non-point source pollution (NDDH 2012). The vast majority of nutrient loads are transported with overland runoff from agricultural areas, riparian degradation, and over-utilization by livestock in the riparian corridor. Existing land use and Annualized Agricultural Non-Point Source pollution modeling (AnnAGNPS) within the watershed indicates that the majority of NPS loading is coming from cropland.

Implementation of best management practices by producers in the watershed will be necessary in order to address loading from NPS sources. Sediment loading upstream of Homme Dam could be reduced by working with livestock producers who are managing cool season riparian pastures that are often grazed for long periods of time. We have worked with several producers with small beef herds, discovering that producers generally don't have many areas to rotate cattle to other riparian areas. By finding ways to rotate cattle to feeding areas other than the riparian zone, such as crop aftermath grazing, cover crop grazing, or temporary feeding in paddocks, we can reduce over-utilization of riparian pastures. Further consultation with NDSU Extension specialists will result in broadening options for livestock producers needing alternative forage for livestock to accomplish rotation goals.

Riparian areas in AnnAGNPS areas are expected to experience an increase in overall function as streambank erosion is reduced through riparian and cropland BMPs. Improvements in water quality are expected to be accomplished through increasing riparian vegetation and buffer widths to reduce channel erosion and improve function.

We will work to incorporate soil health principles into producers' farming practices across the watershed in a effort to reduce the amount of runoff, sediment transport, and NPS pollution from cropland. Looking into the history of soil erosion in the Park River Watershed, soils in both the east and west portions of the watershed were greatly affected by wind erosion if not covered in the dirty thirties, due to sandy loam and silty loam textures (unpublished 1942 SCS Report of the Park River Watershed, First Soil Conservation Demonstration Site in North Dakota). Dr. Dave Franzen from NDSU recently described Dr. David Hopkin's and Brandon Montgomery's work in comparing erosion rates on cropland in the Red River Valley. The study site that lost over 50% of its topsoil since 1960 is located in the South Branch of the Park River Watershed.

Soil erosion is a major concern of landowners and conservationists in the county. The Natural Resources Team (Appendix 3) continues to educate producers on how they can use BMPs such as no-till farming coupled with cover crops to reduce soil erosion, increase infiltration, improve soil structure, increase soil water holding capacity, and overall health of their soils. These practices will benefit water quality by reducing soil erosion and sediment loading, reducing phosphorus inputs and scavenging nutrients.

The project will have met its goals when Homme Dam can maintain the fully supporting status of the aquatic life and recreational uses. This restoration will take place by reducing the phosphorus loading to the reservoir by 40 percent of the annual phosphorus load. Therefore, the maximum allowable load target is 8,996.4 kg/yr. The end target concentration for chlorophyll-a in the reservoir should be maintained at 16 µg/L, which also corresponds to a chlorophyll-a TSI score of 58.3. This would also take the lake out of the

Hypereutrophic status and put it into a Eutrophic status, which allows better support for aquatic life as well as increasing the overall recreational use quality.

3.0 PROJECT DESCRIPTION

3.1 The main goal of the project is to reduce phosphorus loading into Homme Dam to restore beneficial uses of recreation and fish & aquatic biota, and reduce the occurrence of harmful algae blooms (HABs). In addition, impaired beneficial uses of fish and aquatic biota in the North, Middle, and South Branches of the Park River Watershed will be addressed by working in riparian areas and using cropland BMPs to decrease NPS pollution by nitrogen, phosphorus, and sediment.

3.2

Objective 1- Establish a network of collaborators to participate in the planning, prioritization, and implementation of watershed restoration activities to achieve water quality goals.

Task 1: Employ one full-time project coordinator to implement project tasks and develop plans for future priority initiatives addressing NPS pollution concerns.

Product: One full time project coordinator focused on project development, watershed plan development and BMP implementation.
Cost: $ 228,743

Task 2: Coordinate with other organizations, agencies, and stakeholders as needed to obtain additional technical and financial assistance to implement current and future projects addressing water quality and NPS pollution concerns. Partnerships are further discussed in section 4.0 Coordination Plan.

Product: A variety of financial and technical resources will be available for planning and implementation of projects to reduce NPS pollution.
Cost: Costs included in Task 1 costs

Task 3: Organize a watershed stakeholder committee to include affiliated organizations, agencies and stakeholders involved in the Park River Watershed and Homme Dam. The committee will bring open dialog on prioritization of work areas, and help to further development of watershed goals, future conservation efforts, stakeholder awareness and education of landowners through conservation demonstration sites.

Product: Park River Watershed Management Plan, including management of the Homme Dam watershed. The management plan with be coordinated with affiliates and stakeholders.
Cost: Costs are covered under Task 1

Task 4: Management of the watershed program to meet expectations of project implementation, task completion, and the appropriations of Section 319 funds and local match.

Product: Monthly SCD meetings to review project activities and progress; annual evaluations of staff performance; ongoing project promotion; assist with outreach efforts; approve BMP cost share agreements; coordinate with project partners; provide support staff; and secure necessary matching funds.
Cost: Costs covered in Task 1

Objective 2- Maintain the chlorophyll-a concentrations in the reservoir at 16 µg/L by reducing the phosphorus loading to the reservoir by 40%. This equates to an annual phosphorus load capacity of 8,996.4 kg/yr.

Task 5: Work with livestock producers to develop improved grazing management systems as well as fencing systems and exclusion grazing. Coordinate with NDSU Extension Service livestock specialists and NRCS to address the need for additional grazing opportunities by incorporation rotations that include crop aftermath and/or cover crop incorporation into the grazing system. We will work closely with the Red River Riparian Program and NRCS to plan and fund BMPs.

Product: Implementation of BMP's (Best Management Practices) on range/pasture and riparian areas to improve and protect stream banks and water quality upstream of Homme Dam.
Cost: $ 33,000

Task 6: Work with crop producers to develop improved management practices, such as cover crop, no-till planting, grass buffers, and windbreaks in areas with soil erosion and runoff.

Product: Implementation of BMP's (Best Management Practices) in the watershed to improve water quality by lessening NPS runoff into ditches and streams. Coordinate with NRCS and NDSU Extension to plan cropland practices, including finding ways to help speciality crop farmers reduce soil erosion. In addition, we will work closely with the Red River Riparian Program and NRCS to plan and fund BMPs.
Cost: $ 33,000

Objective 3- Increase producers, landowners, and the general public's understanding of the impacts of NPS pollution and the potential solutions to prevent or reduce NPS pollution.

Task 7: Demonstrate the use of soil conservation and soil health BMPs on cropland areas to reduce NPS pollution. Examples used on demonstration sites include the use of cover crops, no-till planting, and nutrient management for improving soil health, and reducing erosion and excess nutrients. Work will be completed in cooperation with NRCS, NDSU Extension, Red River Riparian Program, and SCD Board of Supervisors.

Product: Two Soil Health Demonstration sites-- Each site includes 40 acres of no-till acres farmed for three years, with cover crop implemented after planting. Haney soil tests will be needed at the beginning and end of the three year period.
Cost: $ 20,000 (cost of cover crop seed, no-till planting, speaker fees, field days). This is a preliminary estimate while NDDH develops program rates.

Task 8: Coordinate with NDSU Extension, NRCS, and the Red River Riparian Program to conduct at least four workshops during the project period to discuss stream bank erosion, water quality issues, rotational and aftermath grazing, cover crops, riparian management, nutrient management, and no-till practices.

Product: Four informative workshops targeted towards active farmers and landowners in the watershed, targeting landowners upstream of Homme Dam and impaired reaches of the watershed.
Cost: $ 7,000 (Speaker fees, advertising, and printing costs of meeting materials)

Task 9: Utilize radio, newspaper articles, direct mailings, Soil Conservation District newsletter, one-on-one contacts, etc., to disseminate information on conservation and management options using BMP's that can be used to improve water quality in the watershed. We will provide direct mailings to landowners in the AnnAGNPS priority areas of the watershed at least twice per year.

Product: Annual mail-out newsletters, possible radio spot talking about water issues and solutions, "Conservation Corner" newspaper column published in the Walsh County Record at least 5 times per year, one on one contact with producers.
Cost: $2,700

Task 10: Work with Walsh County Schools to educate students about water quality issues and NPS. Continue to lead water quality seminars at the SCD's annual Eco-Ed Day, and participate in other opportunities for outreach to students. Involvement in agricultural or science classes in local school districts, as well as the local land judging team meetings are two examples of opportunities to provide specialized learning to students. Grafton, Park River, or Edinburg school districts would be schools in the project area.

Product: Hands on experience in the classroom in a minimum of one session per school in the project period, and annual participation in Eco-Ed Day in Walsh County.
Cost: $2,500 (Cost for the development and printing of educational materials and mileage).

Objective 4-As BMP are applied, document trends in water quality and beneficial use conditions (i.e. chlorophyll-a concentrations, chlorophyll-a TSI score and phosphorus loadings) to evaluate progress toward established goals. Also, track the type, location, amount and costs of BMP applied with Section 319 cost share assistance.

Task 11: Coordinate with the NDDH to implement a Quality Assurance Project Plan (QAPP) to track in-lake trends in chlorophyll-a concentrations and annual phosphorous loading to the reservoir.

Product: Data collection through routine sampling
Cost: Cost covered in Task 1 cost

Task 12: Maintain the NPS Program BMP Tracker database to document the type, location, cost and amount of BMP applied with Section 319 financial assistance.

Product: Record of all BMP implemented with Section 319 financial support
Cost: Costs are included in Task 1 cost.

3.3 See attached Milestone Table (Appendix 4).

3.4 All necessary permits for BMP implementation will be acquired. These may include CWA (Clean Water Act) Section 404 permits. Project sponsors will work with NDDH to determine if National Pollution Elimination System permits are needed for the proposed livestock systems. The project staff will also consult with the ND State Historic Preservation Officer to determine if the planned BMP will have an effect on cultural resources and if a cultural inventory is needed.

3.5 The Walsh County Three Rivers Soil Conservation District is the appropriate entity to coordinate and implement this project. The SCD is a locally elected conservation organization that serves all the people in the county. The sponsors will work with the North Dakota Department of Health (NDDH) to determine the need for any environmental permits for livestock management systems.

3.6 The Walsh County Three Rivers SCD will be responsible for auditing Operation and Maintenance Agreements (O&M) of BMP cost shared with Section 319 funds during the project period. This will include yearly status reviews to evaluate the maintenance of the BMP and determine if any changes are needed to enhance or maintain the effectiveness of the BMP. The lifespan of each BMP will be listed in the individual contracts to ensure longevity of the practices. The producer signs the "EPA 319 Funding Agreement Provisions" form which explains in detail the consequences of destroying a BMP before the completion of its lifespan.

4.0 Coordination Plan

4.1

1) The Walsh Country Three Rivers Soil Conservation District will be the lead agency liable for project administration, conservation planning, technical assistance, educational campaign, clerical assistance, access to equipment and supplies, and annual financial support. The Park River Watershed Coordinator will serve as a liaison between watershed projects/producers and USDA program participation.

The Park River Watershed Coordinator will work closely with the Red River Riparian Program Manager to streamline project planning to meet resource needs in the watershed. This collaboration can include technical planning efforts that incorporate best management practices (BMP's), drawing upon both coordinators' strengths to provide planning and project management in the project area.

2) USDA Natural Resources Conservation Service (NRCS) and the Park River Watershed Coordinator will work to closely throughout the project to ensure landowners in the watershed are receiving needed planning assistance. NRCS will support the project by providing technical assistance, facilitating local involvement, participating in educational outreach programs during the project, and coordinating special initiatives together. NRCS will also provide cost-share assistance through the USDA conservation programs and will serve as participants on the Local Work Group. Staff will incorporate existing USDA programs (financial and technical) and target resources to enhance efforts within the watershed. Existing office space and office equipment use will be made available to the watershed coordinator. The Watershed Coordinator will be kept to date on NRCS standards and provided appropriate technical training opportunities.

3) The NDDH will administer the Section 319 funding allocations and agreements with the Walsh County Three Rivers SCD. Technical assistance will be provided for the development of the necessary quality assurance project plans for the watershed assessment projects and the appropriate training will be provided for the proper water quality sample collection, preservation, and transportation. NDDH also will continue to provide analytical support for water quality and HABs samples.

4) North Dakota State University Extension Service will assist in project information and education activities with the possibility of providing "in-kind" funds. Specialists will be asked to assist in tours and educational demonstrations. Specialists will also be solicited for assistance for landowners with complex resource needs.

5) North Dakota Game & Fish Department will be solicited for technical and financial assistance when needed. We look forward to collaborating with NDG&F's Save Our Lake Program. We will consult with US Fish and Wildlife, US Army Corp of Engineers, Walsh County Water Resource District, and Walsh County Commission on projects affecting resources in the watershed. Financial and technical support will be requested from the above agencies on as needed project basis.

6) Other potential partners include the North Dakota Forest Service, Cavalier County Soil Conservation District, Pembina County Soil Conservation District, Walsh County Park Board, North Dakota Stockmen's Association, Ducks Unlimited, and City Commissioners. Additional funding sources may include the North Dakota Natural Resources Trust and the North Dakota Outdoor Heritage Fund.

4.2 Support for this project has been received from the Park River NRCS office, the Walsh County Extension Service, the Red River Riparian Project, the Walsh County Commission, and landowners---several who are looking forward to utilizing the new program. In September 2017, the Park River Watershed Stakeholder survey providing us feedback on the need for the program, including the need for additional financial and technical assistance.

4.3 Several affiliates have programs and projects that would coincide with the Park River Watershed's goals. The NRCS's immediate pertinent programs such as wetland easements, wetland reserve programs (WRE), and Environmental Quality Incentives Program (EQIP), especially the Red River Basin Initiative, will be utilized during the implementation of BMPs in the watershed. Also the Conservation Reserve Program (CRP) will be an option provided by the local Farm Service Agency (FSA).

The North Dakota Forest Service offers financial support for tree plantings\renovations and will be considered as an additional source of funding for specific BMP's such as riparian and windbreak plantings. The Walsh County Water Board issues funds and support to those in the county for water and stream issues, and will be approached as a funding source on riparian projects.

4.4 The Park River Watershed Coordinator, Sarah Johnston, will share expertise in riparian ecology and restoration in planning efforts with Danielle Gorder of the Red Riparian Program. The skill sets of both coordinators are expected to complement one another. Danielle Gorder is currently studying for a M.S. in Environmental Engineering at UND. Sarah Johnston holds a M.S. in Range Science from NDSU where she researched riparian forest restoration and ecology. This co-existence and collaboration is expected to result well rounded riparian restoration and management plans that meet the needs and goals of the Park River Watershed.

The "Natural Resources Team" in Walsh County is comprised of the County Extension, NRCS, Soil Conservation District watershed coordinator, and the Riparian Program coordinator. This team is working closely on the same resource concerns in the project area, however, collaboration has allowed for prevention of duplication of efforts. We have learned that time, money, and knowledge can be gathered through networking and collaboration with one another and partnering agencies. NRCS and County Extension have worked closely with both 319 coordinators, and that relationship is expected to continue. Continuing to strengthen collaboration efforts will only increase the success of our agencies and goals to reduce non-point source pollution (NPS).

The team has a mutual understanding of how to best address resource concerns, and to date, collaboration has been primarily through educational workshops, press releases, and demonstration sites. Additional technical support will be sought from the resource team in project planning.

Evaluation and Monitoring Plan

5.0 The Quality Assurance Project Plan (QAPP) has been developed by the ND Department of Health (NDDH) and provides a protocol for routine water quality sampling at Homme Dam. Nutrient levels, chlorophyll-a and other water quality parameters are gathered and tested as outlined in the QAPP.

Because of generous efforts by agencies like NDDH, EPA, and NOAA to provide testing support, equipment and training to the local watershed coordinator, the coordinator is well prepared for future harmful blooms that may have impact to human and animal health. At the present time, the watershed coordinator is able to expedite the identification of toxin producing species like Aphanizominon, Microcystis, and Anabaena. Abraxis tests strips provide the coordinator fast preliminary toxin results, and samples are referred to a support lab contracted by NDDH. The public mostly relies on signage at Homme Dam to determine if the water is safe, and therefore, the coordinator has a key role in HABs testing and response in the watershed.

6.0 Budget

6.1 See Attachments (Appendix #3)

7.0 Public Involvement

7.1 The Park River Watershed Project will work closely with watershed stakeholders to provide them ample opportunity to provide input on resource concerns, BMP priorization, education and outreach, and other watershed restoration efforts. Workshops will allow for education on topics influencing water quality in the watershed.

Outreach at crop improvement association meetings, livestock improvement association meetings, the county fair, public schools, township meetings, county commission meetings and other local places of public gathering will allow information sharing to take place. Public outreach has been a strong point of the current Homme Dam Watershed Project and will continue into the next phase of the program.

Park River Watershed Implementation Plan

Appendices

1. **Walsh County Maps**

2. **Park River Watershed Survey**

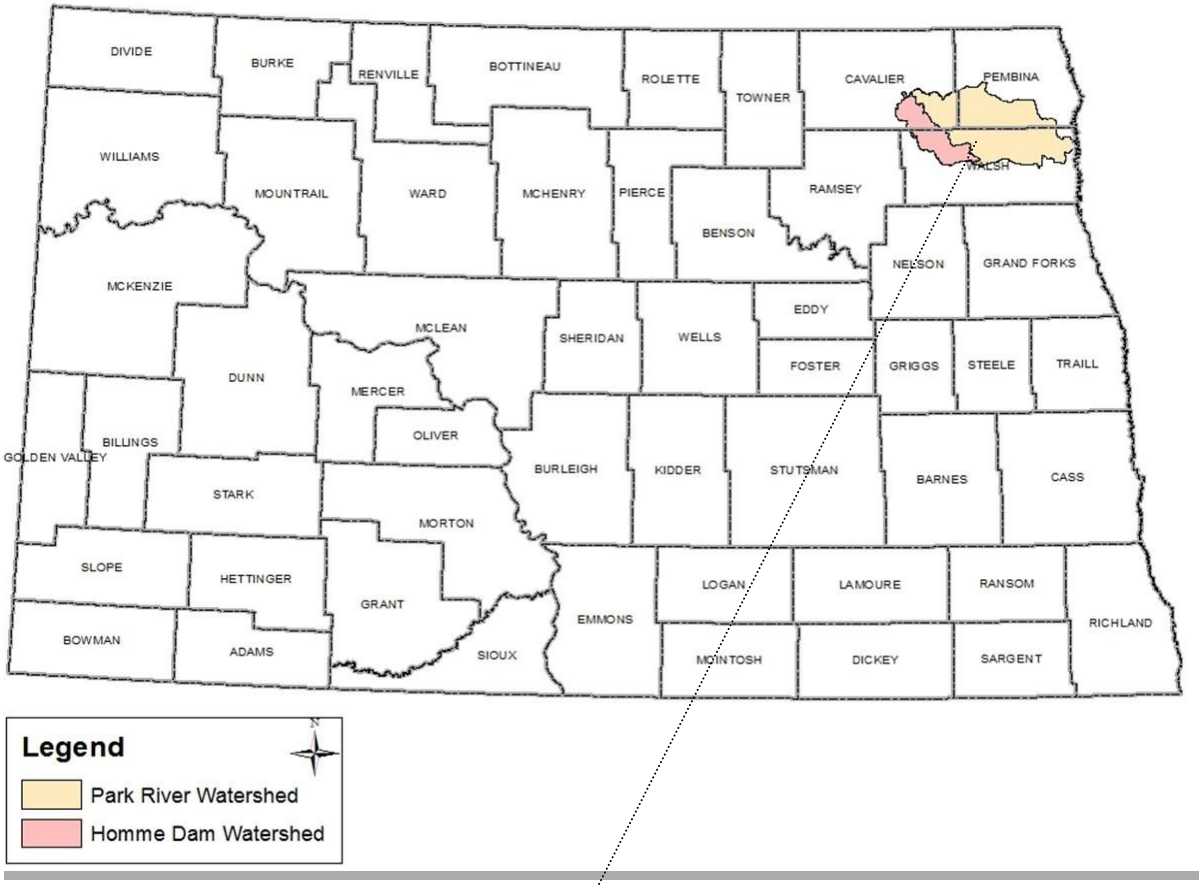
3. **Walsh County Natural Resources Team**

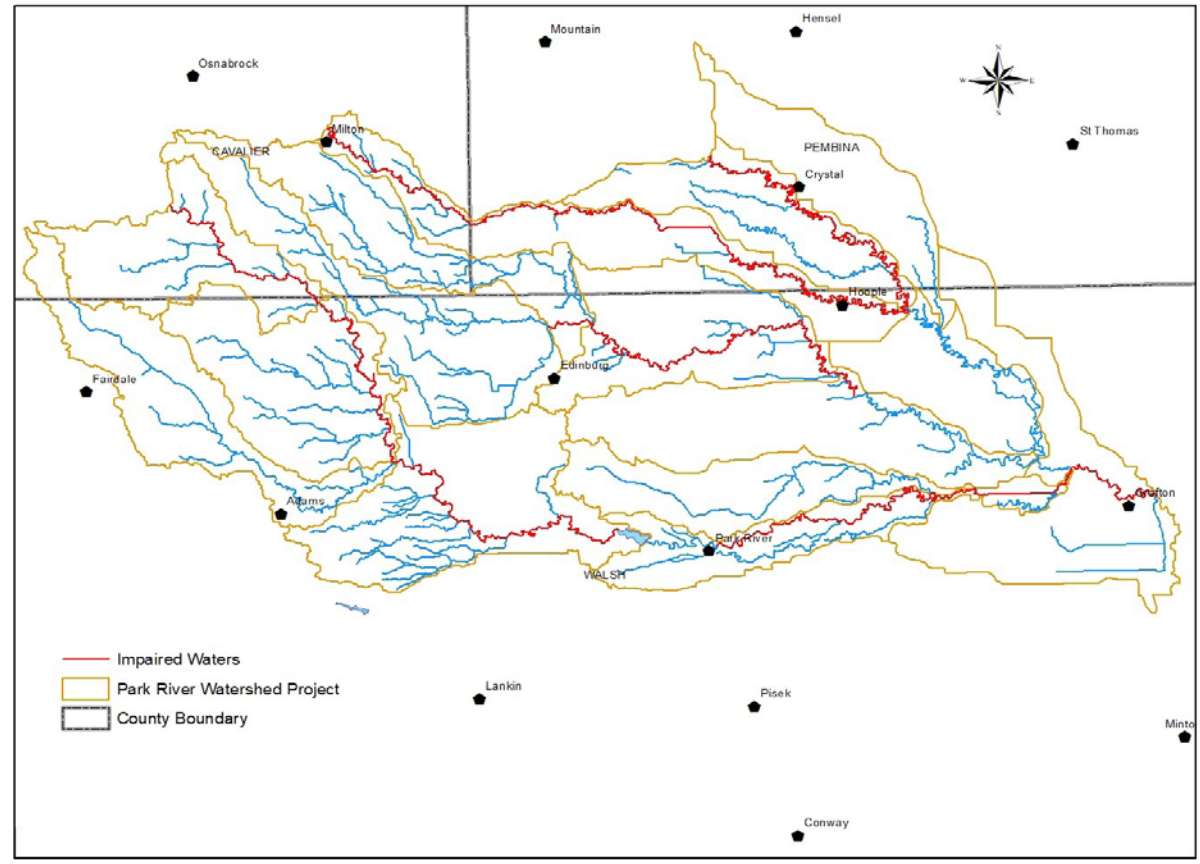
4. **Budget Tables**

5. **Milestone Table**

Appendix 1

Map of the Park River Watershed in North Dakota


DIVIDE
BURKE
RENVILLE
BOTTINEAU
ROLETTE
TOWNER
CAVALIER
PEMBINA
WILLIAMS
MOUNTRAIL
WARD
MCHENRY
PIERCE
RAMSEY
WALSH
BENSON
NELSON
GRAND FORKS
MCKENZIE
MCLEAN
SHERIDAN
WELLS
EDDY
FOSTER
GRIGGS
STEELE
TRAILL
DUNN
MERCER
OLIVER
BILLINGS
GOLDEN VALLEY
BURLEIGH
KIDDER
STUTSMAN
BARNES
CASS
STARK
MORTON
SLOPE
HETTINGER
GRANT
EMMONS
LOGAN
LAMOURE
RANSOM
RICHLAND
BOWMAN
ADAMS
SIOUX
MCINTOSH
DICKEY
SARGENT
Legend
Park River Watershed
Homme Dam Watershed


Mountain
Hensel
Osnabrock
Milton
CAVALIER
PEMBINA
Crystal
St Thomas
Hoople
Edinburg
Fordale
Adams
Park River
WALSH
Grafton
Impaired Waters
Park River Watershed Project
County Boundary
Lankin
Pisek
Conway

Appendix 2

Park River Watershed Landowner Survey

THE TWO MINUTE
PARK RIVER WATERSHED SURVEY

by
Sarah Johnston
Walsh County Three River Soil Conservation District
and
Danielle Gorder
Red River Regional Council

9/20/2017

Survey Methods

The following survey was sent to approximately 125 stakeholders via traditional mail in early September 2017. The mailing consisted of primarily rural landowners or farmers, including twenty five township board members. Recipients were asked to send responses to the Soil Conservation District via mail, or if they preferred, they could utilize a Survey Monkey link provided by the Red River Regional Council. In addition to this direct solicitation effort, an online survey was advertised on social media and in the legal section of the county newspaper. Surveys were also made available to the public at the Park River Watershed Stakeholders' meeting September 15th. In addition to solicitation to citizens, we also solicited members of the Walsh County Commission, Walsh County Weed Board Coordinator, Walsh County Highway Superintendent, Water Resource District board members, the City of Grafton, the City of Park River, the NRCS District Conservationist, and the Walsh County Extension Agent for their feedback.

The survey questions served as a basis for discussion during the September 15th public stakeholder meeting, where eight individuals attended. The meeting took place during harvest season, which of course is a busy time for farmers to attend. With the imminent grant deadline, we were pleased with the amount of feedback we received in the survey and the meeting. Please see the next two pages for a copy of the original survey.

The 2 Minute 
Park River Watershed Survey-

Please return in the envelope provided prior to September 15th.

Thank you in advance for your feedback!

1. **Please describe yourself (choose any that apply):**
   a. Active Farmer/Operator
   b. Retired farmer
   c. City/County agency
   d. Rural landowner (employed other than farming)
   e. Urban landowner
   f. Other:_____

2. **Do you have concerns over resources in the Park River Watershed?** (If so, please circle all that apply)
   a. Soil Erosion
   b. Salinity
   c. Water Quality (sedimentation, algae blooms)
   d. Streambank Erosion
   e. Wildlife Habitat Loss
   f. Other (please specify) _____
   g. Soil Fertility/Soil Health
   h. Water Quantity/Drainage
   i. Shelterbelts and Forest Health
   j. Groundwater/Aquifer protection

3. **From the list above, what resource concerns do you feel conservation programs should prioritize in the Park River Watershed?**

4. **Do you feel that there is a need for a watershed coordinator or river specialist to provide planning advice and financial assistance in the Park River Watershed? The project area includes all branches of the Park River.**
   a. Yes, both financial and planning advice should be provided
   b. Yes, only planning advice is needed and should be provided
   c. Yes, only financial assistance is needed and should be provided
   d. No, our needs are met without these roles providing planning advice and/or cost share assistance.

One Last Question----------→

5. How should funding be prioritized in terms of practices if we are awarded a local pool of funding for Park River Watershed landowners?

	Please circle the Level of Importance		
Residue Management (no-till, strip-till, mulch-till)	High	Moderate	Low
Salinity & Sodic Soil Management (establish vegetative cover only)	High	Moderate	Low
Shelterbelt Establishment/Renovation	High	Moderate	Low
Nutrient Management (includes fertilizer rates and/or manure mgmt.)	High	Moderate	Low
Riparian restoration, buffers, and other river enhancements	High	Moderate	Low
Conservation easements in river areas (10 - 30yr w/land rental pymt)	High	Moderate	Low
Water retention projects (ponds, dikes, conversion of ac. to wetland)	High	Moderate	Low
Grazing practices such as fencing/prescribed grazing	High	Moderate	Low
Pasture/Hayland Planting, or land conversion to grassland	High	Moderate	Low
No-till farming including a demonstration site and no-till drill rental	High	Moderate	Low
Cover Crops, including prevent planting cost share	High	Moderate	Low
Workshops focused on farming and conservation planning	High	Moderate	Low
Other ideas:_____	High	Moderate	Low

Name (optional):_____

Address:_____

Phone:_____

Email:_____

Would you like to receive a copy of the results? Y N (please ensure your address is listed abov

Your identity and contact information will be kept private. We may want to use your information to follow up with you regarding conservation in the watershed.
This survey is being conducted jointly by 319 water quality projects at the Walsh County Three Rivers Soil Conservation District and the Red River Regional Council. We want to thank you again for your time.
If you have any questions, please contact us:

Walsh County Three Rivers Soil Conservation District
Sarah Johnston
Homme Dam Watershed Coordinator
701-284-7363

Red River Regional Council
Danielle Gorder
Environmental Program Manager
701-352-3550

Survey Results & Discussion

Of the 125 surveys mailed to watershed stakeholders, 34 surveys or 27% were returned (33 were returned by mail, and one was completed online). In addition to the direct mail results, three individuals of unknown solicitation completed the survey using the Survey Monkey web link, making the total number of.

The respondents were classified based on whether or not they indicated being an active farmer, retired farmer, rural landowner only, or belonged to a city or county agency. A total of 17 active farmers, 11 retired farmers, 6 City or County Agency staff, and 3 rural landowners with no farming background made up the group.

Resource Concerns & Need for Assistance

In survey question #2, respondents chose as many resource concerns as he/she wanted to with a total of nine resource categories offered. There was also a blank and a write-in option for unlisted concerns of which one active farmer wrote in a concern for chemical runoff. The respondents' most frequent cumulative responses to this question included soil erosion, streambank erosion, and water quantity/drainage (fig. 1).

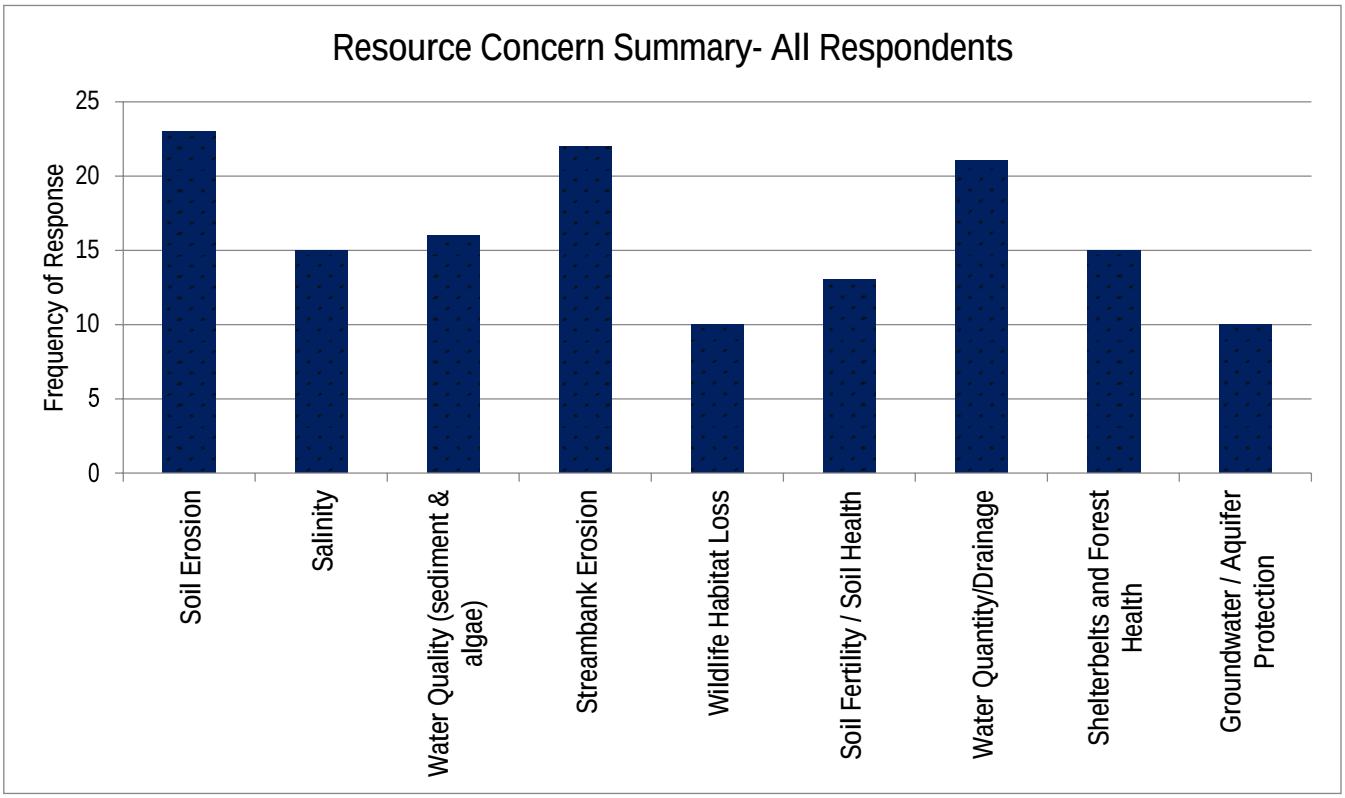


Figure 1. Responses to survey question #2 inquiring about resource concerns in the Park River Watershed.

Active farmers showed concern for all natural resource categories presented to them, with water quantity and drainage being the most frequently selected concern, followed by soil erosion, salinity, and streambank erosion (fig. 2). Groundwater and aquifer protection received more selections than wildlife habitat loss. One farmer wrote in that he was concerned with chemical runoff. The Park River Community receives water from the Fordville Aquifer, and the Grafton Community received drinking water from the Red River and the Park River.

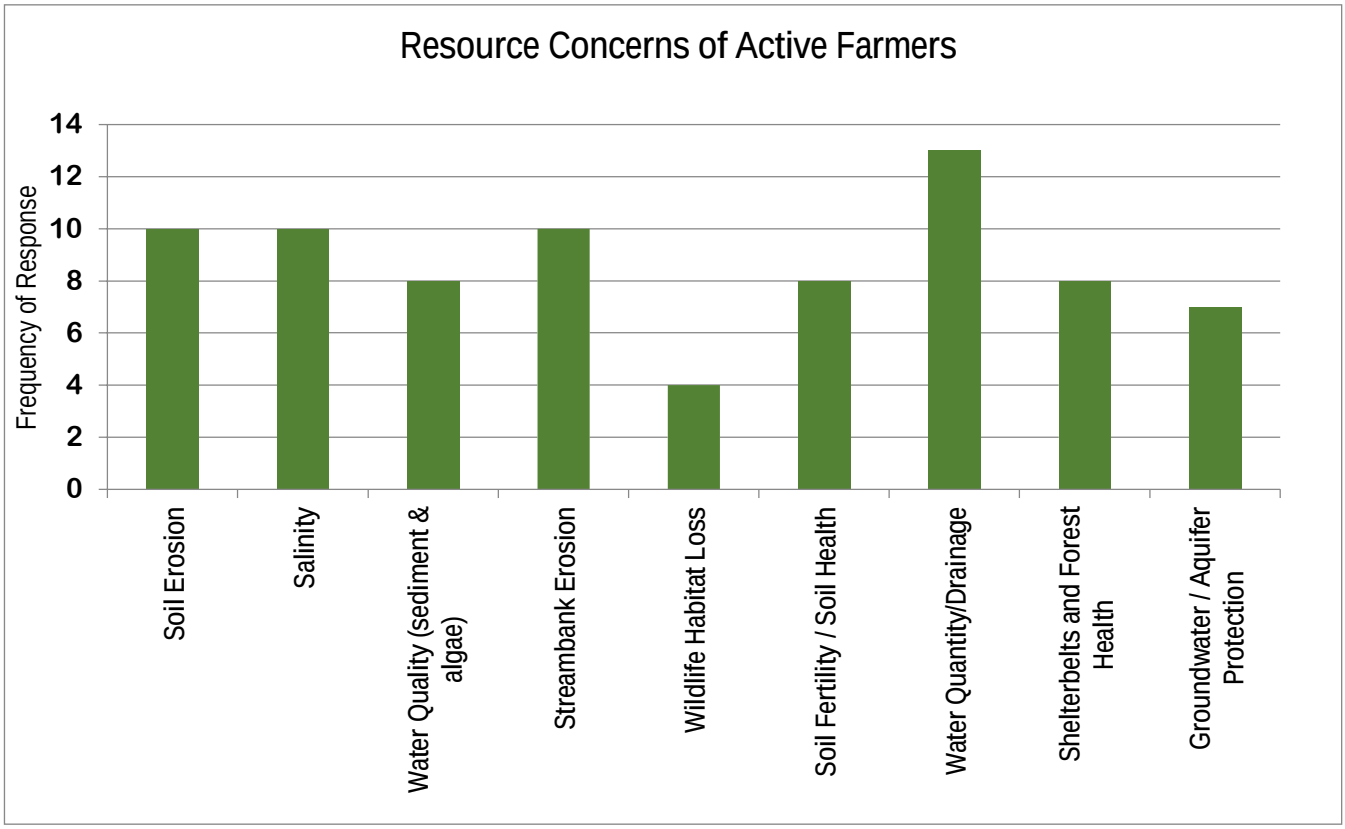


Figure 2. Active farmer responses to question #2 regarding resource concerns in the Park River Watershed.

In response to question #4, eleven of the fifteen farmers who answered the question with a "yes" (73%) believe that assistance is needed from a watershed coordinator or a river specialist in the form of planning advice. Of these responses, ten favor planning advice in combination with financial assistance (66%) (Table 1). Four of the fifteen (26%) stated that their needs were already met.

Table 1. Do you feel that there is a need for a watershed coordinator or river specialist to provide planning advice and financial assistance in the Park River Watershed?

Yes - Financial and planning advice	10
Yes - Only planning advice	1
Yes - Only financial assistance	0
No - Needs are already met	4
Total Respondents	15

Retired farmers most frequently responded that soil erosion, streambank erosion, and shelterbelts and forest health were resource concerns (fig. 3). Many retired farmers indicated that they are rural landowners as well.

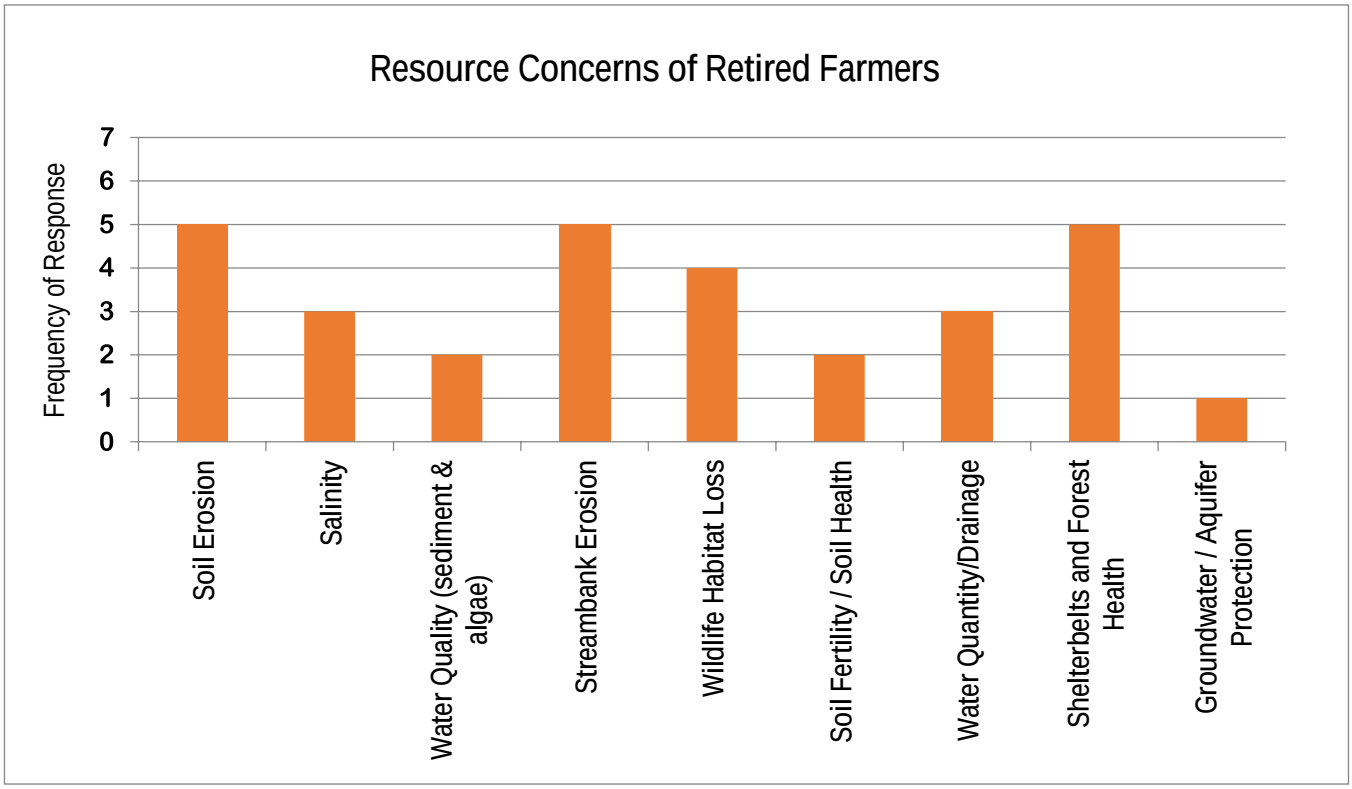


Figure 3. Retired farmer responses to question #2 regarding resource concerns in the Park River Watershed.

In response to question #4, four of the eight retired farmers (50%) believe that assistance is needed from a watershed coordinator and/or a river specialist in the form of planning advice and financial assistance (Table 2).

Table 2. Do you feel that there is a need for a watershed coordinator or river specialist to provide planning advice and financial assistance in the Park River Watershed?

Yes - Financial and planning advice	4
Yes - Only planning advice	1
Yes - Only financial assistance	1
No - Needs are met	2
Total Respondents	8

City and county agencies had six respondents, of which all six (100%) selected soil erosion and water quality as concerns (fig. 4). Five respondents (83%) selected for streambank erosion as a resource concern.

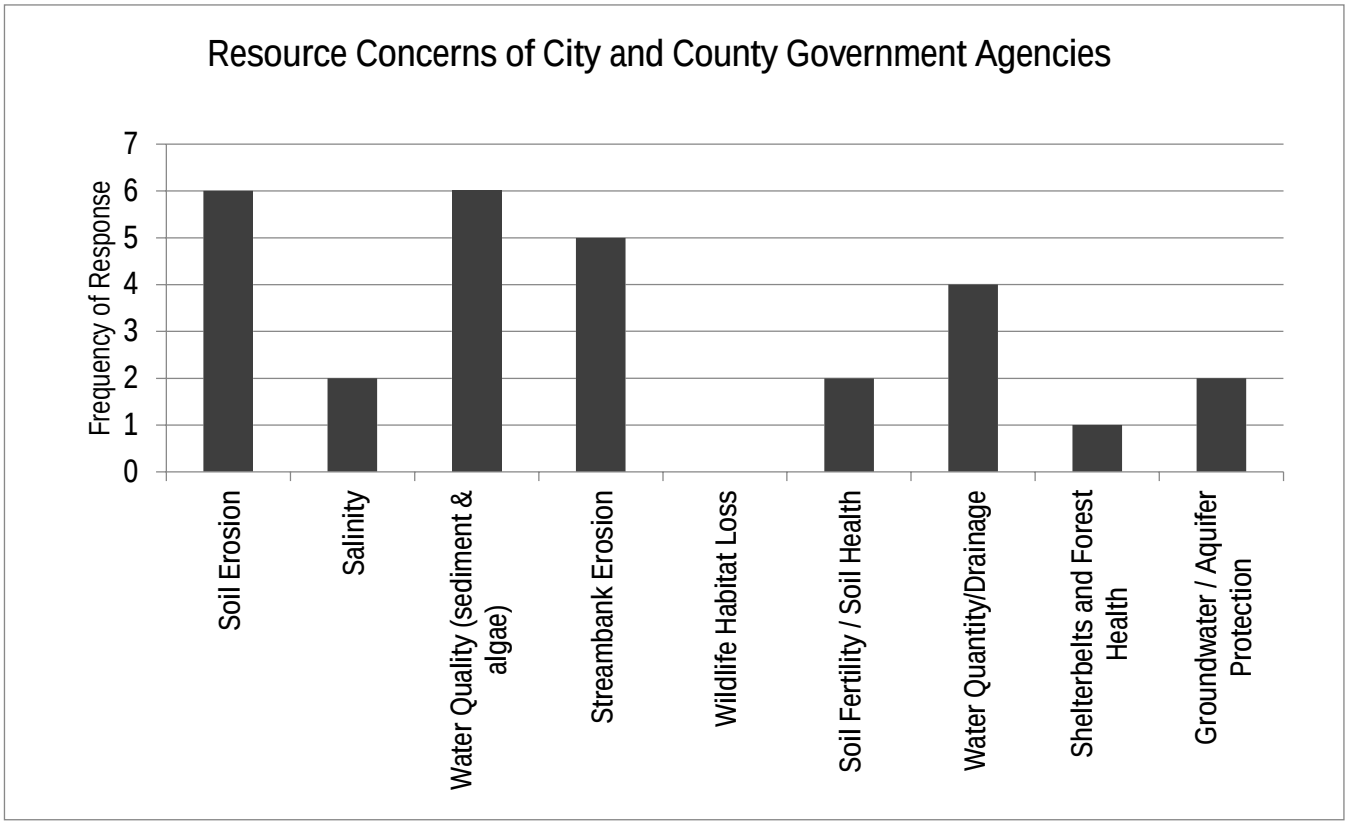


Figure 4. City and Local government agency responses to question #2 regarding resource concerns in the Park River Watershed.

In response to question #4, six of the six agency respondents (100%) believe that assistance is needed from a watershed coordinator or a river specialist in the form of planning advice and financial assistance (Table 3).

Table 3. Do you feel that there is a need for a watershed coordinator or river specialist to provide planning advice and financial assistance in the Park River Watershed?

Yes - Financial and planning advice	6
Yes - Only planning advice	0
Yes - Only financial assistance	0
No - Needs are met	0
Total Respondents	6

Rural landowners chose soil erosion, streambank erosion and wildlife habitat loss more frequently than other resource concerns in question #2 (fig. 5). Rural landowners are defined as landowners who have a profession other than farming. This includes rural residents that work in town.

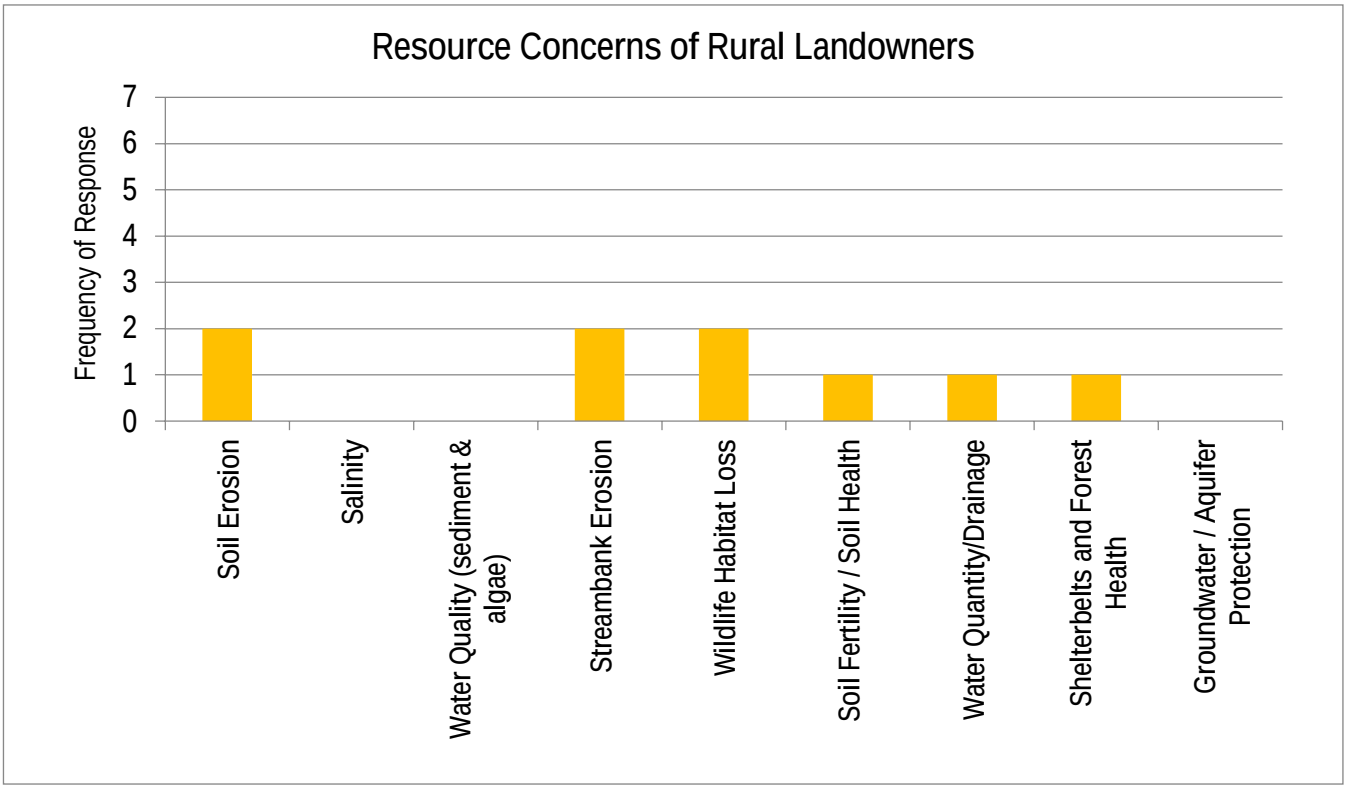


Figure 5. Rural landowner responses to question #2 regarding resource concerns in the Park River Watershed.

In response to question #4, two of the three landowner respondents believe that assistance is needed from a watershed coordinator or a river specialist in the form of planning advice and financial assistance (Table 3).

Table 2. Do you feel that there is a need for a watershed coordinator or river specialist to provide planning advice and financial assistance in the Park River Watershed?

Answer	# Respondents
Yes - Financial and planning advice	2
Yes - Only planning advice	0
Yes - Only financial assistance	0
No - Needs are met	1
Total Respondents	4

Comparisons of Concerns

The resource concerns of stakeholders between groups does show some distinctions, with the farmers having different levels of frequency for salinity concerns or wildlife versus rural landowners and agencies (fig. 6). All groups had high frequency of selections for soil erosion and streambank erosion. Soil erosion being the number one resource concern amongst stakeholders concurs with results from the 2016 Local Work Group resource prioritizations for cropland and rangeland.

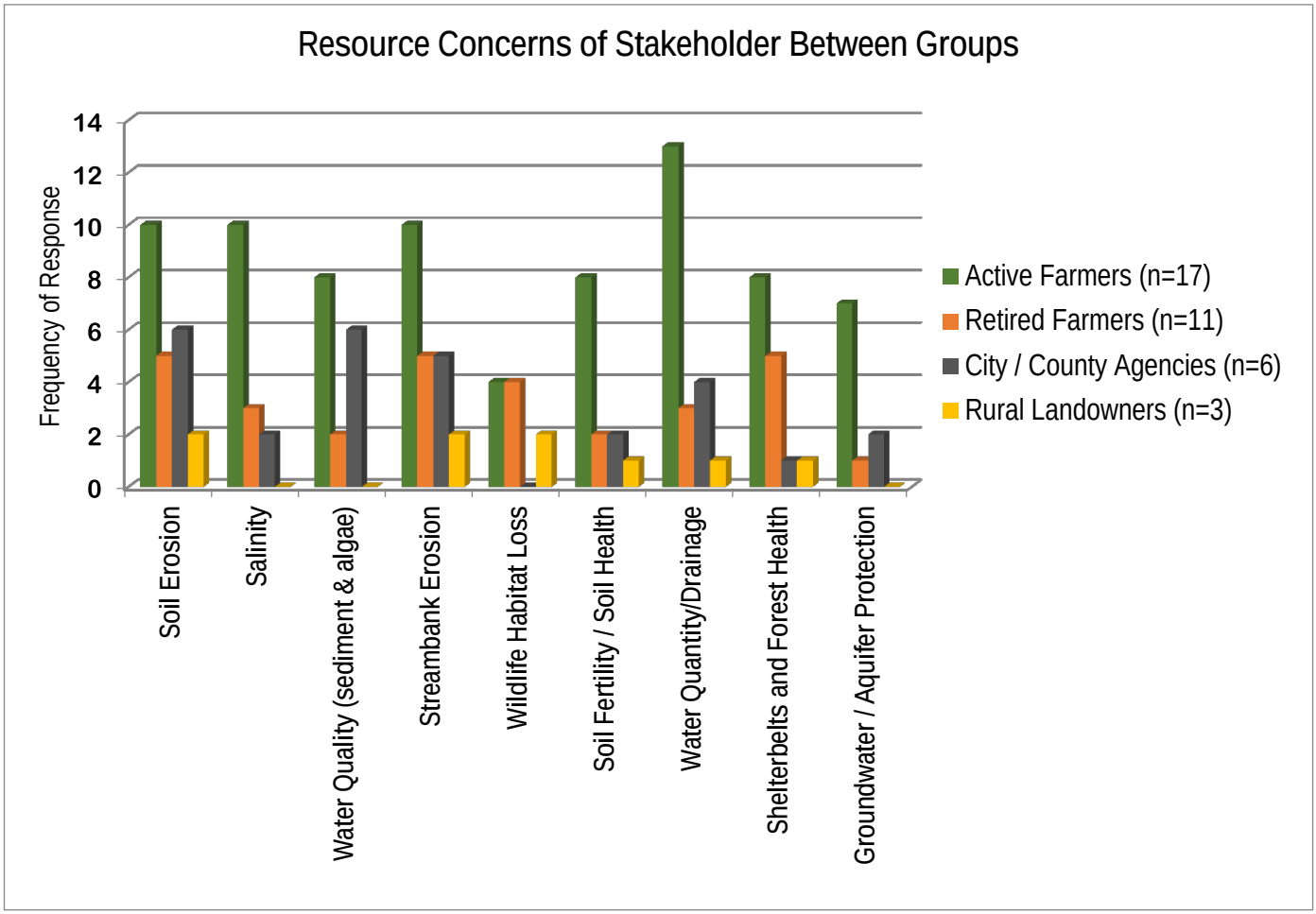


Figure 6. Side by side frequency of responses to question #2 regarding resource concerns in the Park River Watershed.

Funding prioritization

Stakeholders were asked to prioritize any special funding received by the upcoming grant. Respondents were able to select levels of priority for each management practice based on resource areas that the Soil Conservation District and Red River Regional Council selected for their consideration. Active farmers gave highest prioritization to shelterbelt establishment or renovation, riparian area practices, conservation easements in river areas, and salinity management (fig. 7). Residue management (including strip tillage, mulch tillage, or no-til) was of medium priority as were workshops focused on farming and conservation.

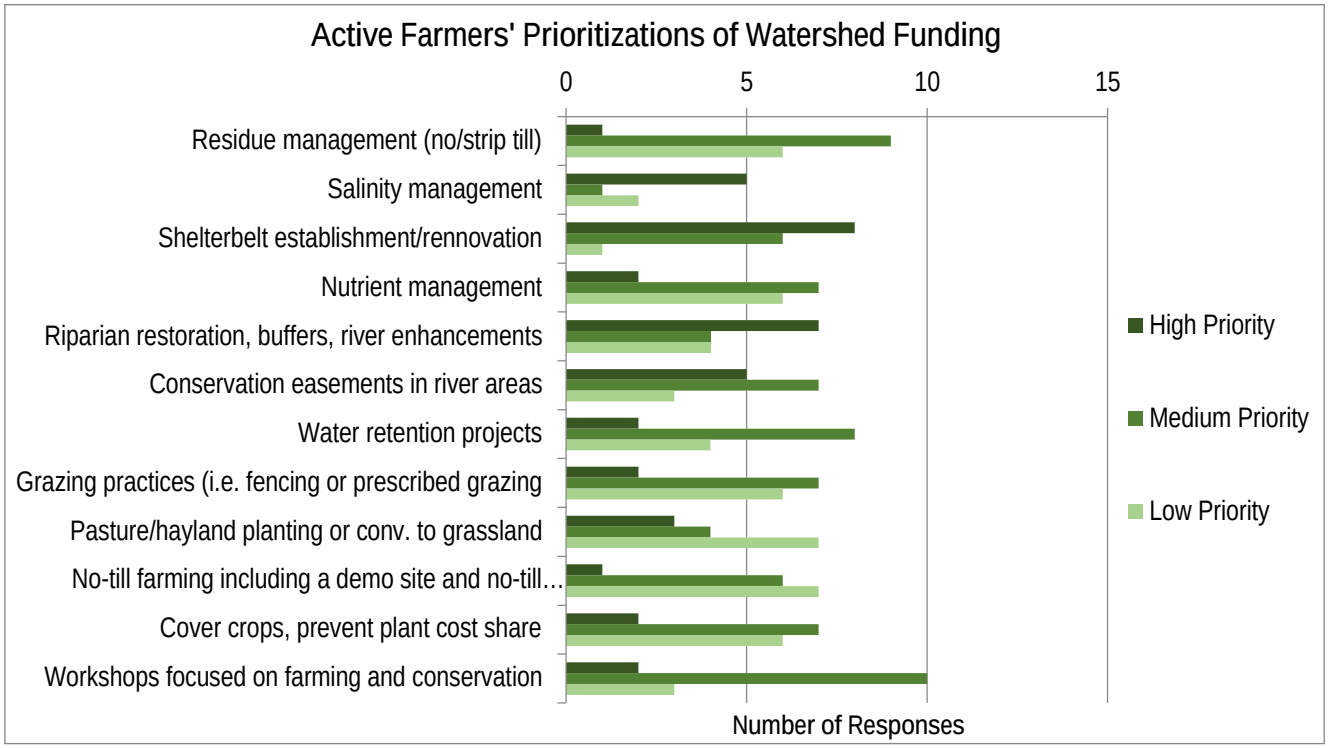


Figure 7. Active Farmers' prioritizations of watershed funding (n=17).

In regard to water retention projects, two of the thirteen (15%) of active farmers considered retention a high priority for funding. Of the thirteen farmers who responded to this topic, eight farmers (61.5%) considered retention a medium funding priority, and four (31%) considered it a low priority. These results are important to note because they directly pertain to question #2, where drainage and water quantity were selected most frequently as a concern for active farmers. Drainage and water quantity ranked often as a conern for farmers in question #3 (Table 3.) Drainage issues were also discussed at the watershed stakeholder meeting on September 15, 2017.

Table 3. Question #3- Prioritized Resource Concerns for Conservation Programs

Primary Concern	# Respondents	Secondary Concern	# Respondents	Third Concern	# Respondents
Soil Erosion	4	Water Quantity/Drainage	3	Streambank Erosion	3
Streambank Erosion	3	Streambank Erosion	3	Groundwater\ Aquifer Protection	3
Water Quality -Homme Dam (2) -Other areas (2)	4	Salinity	2	Soil Erosion	1
Shelterbelts/ Forest Health	2	Shelterbelts/ Forest Health	2	Drainage	1
Water Quantity/ Drainage	2	Tree Debris	1		
Total Respondents	15		12		9

*This question required respondents to write in their answers

Retired farmers prioritized shelterbelt establishment and renovations, riparian restoration/buffers/other riparian enhancements, and water retention projects as higher priorities for funding than other resource practices (Figure 8). Conservation easements and residue management practices were considered lower priorities for this group compared to the priorities of active farmers.

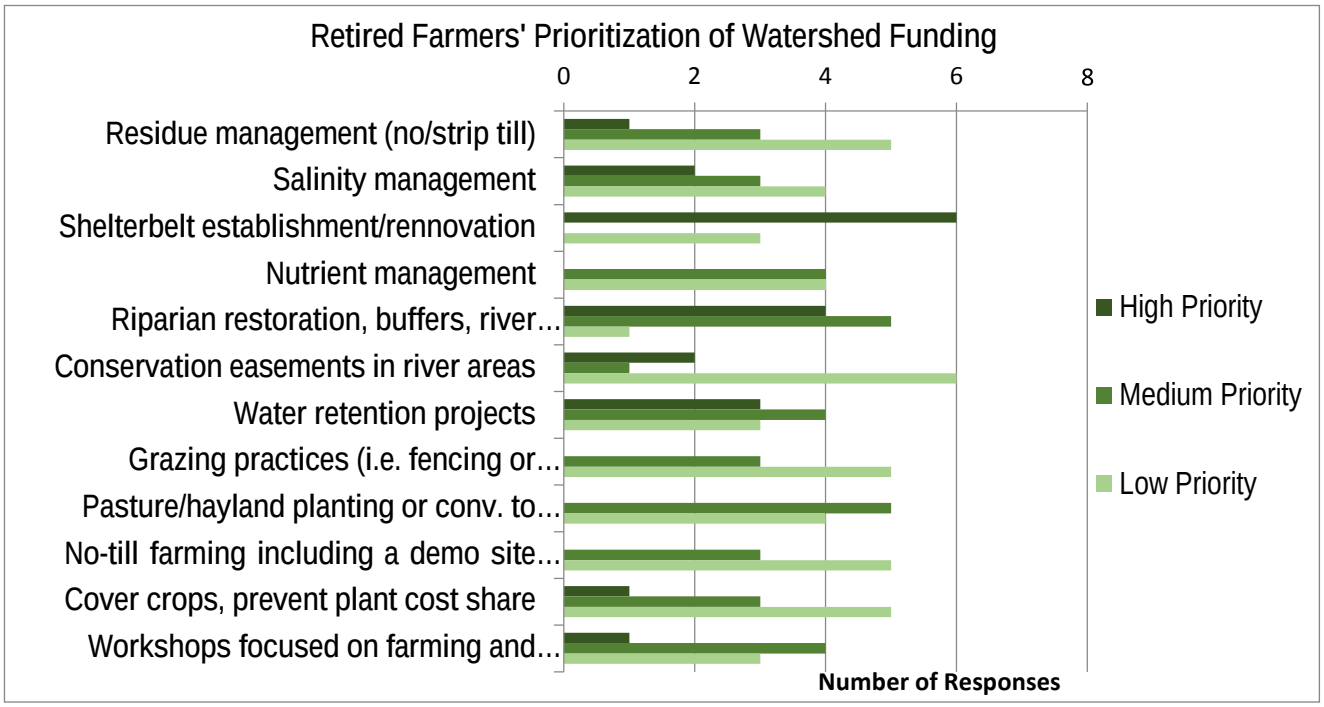


Figure 8. Active Farmers' prioritizations of watershed funding (n=11)

This concludes our survey summary. Special thanks is given to stakeholder survey participants and cooperating agencies for their time and feedback.

Appendix 3

Walsh County
Natural Resources Team

Walsh County Natural Resources Team		
Partners		**Areas of Expertise**
	**Rita Sveen** NRCS District Conservationist	• Soil Health • Soil Conservation Practices • USDA Programs
	**Brad Brummond** Walsh County NDSU Extension Agent	• Agronomy • Public Outreach and Education • Walsh County Soils • Strong Landowner Relationships
	**Sarah Johnston** Walsh County Three Rivers SCD Watershed Coordinator	• Riparian Ecology and Restoration • Rangeland Ecology • Water Quality Sampling/Algae Blooms • Public Outreach and Education
	**Danielle Gorder** Red River Riparian Program Manager	• Riparian Restoration • Hydrologic Processes and Modeling • Mapping using ArcGIS software

Appendix 4

Budget Tables

Part 1: Funding Sources						
	2018	2019	2020	2021	2022	Total
EPA SECTION 319 FUNDS						
1)FY 2018 Funds (FA)	$11,809	$46,249	$47,098	$47,972	$46,233	$199,361
STATE/LOCAL MATCH						
1) Walsh Co. Three Rivers SCD (TA & FA)	$6,143	$24,032	$24,598	$25,181	$24,822	$104,777
2) Landowners (FA)	$1,730	$6,800	$6,800	$6,800	$6,000	$28,130
Subtotals	$7,873	$30,832	$31,398	$31,981	$30,822	$132,907
TOTAL BUDGET						
	$19,682	$77,081	$78,496	$79,954	$77,055	$332,268
OTHER FEDERAL FUNDS						
1) NRCS (TA, EQIP, CSP)	$206,000	$206,000	$206,000	$206,000	$206,000	$1,030,000
2) FSA (CRP)	$0	$16,000	$16,000	$16,000	$16,000	$64,000
3) NDDH	$4,000	$4,000	$4,000	$4,000	$4,000	$20,000
TOTAL FEDERAL FUNDS	$210,000	$226,000	$226,000	$226,000	$226,000	$1,114,000
TOTAL PROJECT COST						$1,446,268

FA: Financial Assistance
TA: Technical Assistance
SCD: Soil Conservation District
NRCS: Natural Resource Conservation Service
FSA: Farm Service Agency
NDDH: North Dakota Department of Health

Part 2: Detailed Budget (Section 319/Non-Federal)								
	2018	2019	2020	2021	2022	Total Costs	Cash and In-kind Match	319 Funds
Objective 1: PERSONNEL/SUPPORT/ADMIN								
Salary/Retirement/Unemp/Soc.S./Workers Comp.	$12,330	$47,170	$48,585	$50,043	$51,544	$209,671	$83,868	$125,802
Travel	$400	$700	$700	$700	$300	$2,800	$1,120	$1,680
Office Space	$353	$1,411	$1,411	$1,411	$1,411	$5,998	$2,399	$3,599
Equipment/Supplies	$400	$2,000	$2,000	$2,000	$2,000	$8,400	$3,360	$5,040
Training	$0	$300	$300	$300	$100	$1,000	$400	$600
Computer/Software	$75	$200	$200	$200	$200	$875	$350	$525
Subtotals	$13,557	$51,781	$53,196	$54,654	$55,555	$228,743	$91,497	$137,246
Objective 2: Financial & Technical Assistance								
BMPs for Cropland	$3,000	$8,000	$8,000	$8,000	$6,000	$33,000	$13,200	$19,800
BMPs for Rangeland	$1,000	$8,000	$8,000	$8,000	$8,000	$33,000	$13,200	$19,800
BMPs for Riparian	$325	$1,000	$1,000	$1,000	$1,000	$4,325	$1,730	$2,595
Subtotals	$4,325	$17,000	$17,000	$17,000	$15,000	$70,325	$28,130	$42,195
Objective 3: Information/Education								
Public meetings/Workshops/Tours/Education	$1,000	$2,500	$2,500	$2,500	$1,000	$9,500	$3,800	$5,700
Survey/Newsletters/News releases	$600	$600	$600	$600	$300	$2,700	$1,080	$1,620
Soil Health/No-till Demonstration Sites	$0	$5,000	$5,000	$5,000	$5,000	$20,000	$8,000	$12,000
Subtotals	$1,600	$8,100	$8,100	$8,100	$6,300	$32,200	$12,880	$19,320
Objective 4: Water Quality Monitoring								
Sampling/Transport/Supplies	$200	$200	$200	$200	$200	$1,000	$400	$600
Subtotals	$200	$200	$200	$200	$200	$1,000	$400	$600
Total for all Objectives/Tasks								
Total 319/Non-federal Budget	$19,682	$77,081	$78,496	$79,954	$77,055	$332,268	$132,907	$199,361

Part 3: Projected BMP List		
Practice Code	Practice Description	Cost per unit
340	Cover Crop	$20/ acre
378	Pond	Engineer Est.
380	Windbreak/Shelterbelt Establishment	$30/hlnft
382	Fencing (Barbed)	$1.80/ ft
382	Fencing (2 wire electric)	$0.95/ft
382	Fencing (single wire electric)	$0.90/ft
386	Field Border	$20/acre
390	Riparian Herbaceous Cover	$300/acre
391	Riparian Forest Buffer	$350/acre
393	Filter Strip	$125/acre
422	Hedgerow Planting	$20/hlnft
472	Access Control/Use Exclusion (Livestock)	$20/acre
512	Pasture & Hayland Planting	$52/acre
516	Pipelines	$3.15/ft
528A	Prescribed Grazing	$5/acre
550	Range Planting	$40/acre
590	Nutrient Management (Advanced Precision only)	$27/acre
601	Vegetative Buffer	$125/acre
610	Salinity & Sodic Soil Management	$20/acre
614	Trough and Tank	Local Rate

- Additional BMPs will be implemented as needed in accordance with Section 319 guidelines

Appendix 5

Milestone Table

Milestone Table: Park River Watershed Project			2018	2019	2020	2021	2022
Task/Responsible Organization	**Output**	**Total Qty**	**Qty**	**Qty**	**Qty**	**Qty**	**Qty**
OBJECTIVE 1-establish support network							
Task 1- Employ one Watershed Coordinator	Watershed Coordinator	1	X	0	0	0	0
Group 3							
Task 2- Coordinate with other organizations	Financial/technical assistance	1	X	X	X	X	X
Groups 1,3,4,5,6,7							
Task 3- Conduct meeting with affiliates	Long term watershed committee	5	1	1	1	1	1
Groups 1,2,3,4,5,6,7							
Task 4- Manage 319 funds and project	Project implementation	5	1	1	1	1	1
Groups 3,4							
OBJECTIVE 2-reduce phosphorous load							
Task 5- Work with livestock producers	BMPs	3	0	0	1	1	1
Groups 1,2,3,5,6							
Task 6- Work with crop producers	BMPs	3	0	0	1	1	1
Groups 1,2,3,5,6							
OBJECTIVE 3- increase public understanding							
Task 7- Create BMP demonstration site	Soil Health sites	2	X	X	X	X	X
Groups 1,3,5,6							
Task 8- Conduct workshops on water quality	Workshops	5	1	1	1	1	1
Groups 1,3,5,6							
Task 9- Relay information via radio, newspapers, social media, etc.	Newspaper column, advertisements	22	2	5	5	5	5
Group 3							
Task 10-Education and outreach in schools	Classes in schools, and Eco-Ed	5	2	2	1	1	1
Groups 1,3,6							

Milestone Table (Continued)			2018	2019	2020	2021	2022
Task/Responsible Organization	**Output**	**Total Qty**	**Qty**	**Qty**	**Qty**	**Qty**	**Qty**
OBJECTIVE 4- document trends in water quality							
Task 11- Implement a QAPP	QAPP	1	x	X	X	X	X
Groups 3, 4							
Task 12- Maintain NPS program BMP tracker database, Group 3	Record of BMPs	1	x	X	X	X	X

Group 1- Natural Resources Conservation Service- Provide technical assistance to plan, design and implement BMPs.

Group 2- Landowners in the Park River Watershed- Make land management decisions and provide cash and in-kind match for BMPs.

Group 3- Walsh Co. Three Rivers SCD- Local project manager and sponsor, project coordination, administration of project funds, and progress reporting to the NDDH.

Group 4- North Dakota Department of Health- Statewide Section 319 program management including oversight of local 319 planning and expenditures.

Group 5- Red River Riparian Project- Technical assistance for riparian practices in the watershed, and education and outreach participant.

Group 6- NDSU Extension Service- Provides technical and financial or "In-kind" assistance for the project.

Group 7- Walsh County Water Resource District - Participation in watershed planning efforts.