
Griggs County Baldhill Creek Watershed Project

Griggs County Soil Conservation District

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STATE: North Dakota

WATERSHED: Baldhill Creek

HYDROLOGIC UNIT NUMBER:

HIGH PRIORITY WATERSHED: Yes

TMDL STATUS: An E. coli bacteria TMDL has been developed for Baldhill Creek

PROJECT TYPES

☐ STAFFING & SUPPORT

☒ WATERSHED

☐ I & E

WATERBODY TYPES

☐ GROUNDWATER

☐ LAKES/RESERVOIRS

☐ RIVERS

☒ STREAMS

☐ WETLANDS

NPS CATEGORY

☒ AGRICULTURE

☐ URBAN UNOFF

PROJECT LOCATION: Griggs County, North Dakota

SUMMARIZATION OF MAJOR GOALS: The Griggs County Baldhill Creek Watershed Project is designed to provide technical, financial and educational assistance to agriculture producers and landowners with riparian acreage in the Baldhill Creek watershed. Our goal is to restore and maintain the recreational and aquatic life uses of the Baldhill Creek and its tributaries.

PROJECT DESCRIPTION: Project sponsors intend to 1) provide technical and financial assistance to producers and landowners within ½ mile of the Baldhill Creek and its tributaries as well as those within the AnnAGNPS priority areas; 2) assist with best management practices that protect/enhance our riparian areas; and 3) develop educational programs to heighten public awareness of non-point source pollution impacts and solutions.

FY14 319 Funds Requested: \$255,399

Other Federal Funds: \$25,000

State/Local Match: \$170,266

Total Project Cost: \$450,665

2.0 STATEMENT OF NEED

- 2.1 Baldhill Creek Watershed is a major watershed on the west side of Griggs County and will be the focus of the Baldhill Creek Watershed Project. Increased public education and financial and technical assistance will be used to promote and support the adoption of practices that will enable producers to improve water quality in the watershed.

Data collected through past monitoring efforts has resulted in the development of three *E. coli* bacteria TMDLs (Appendix 1). These TMDLs were developed to identify the pollutant load reductions needed to restore the recreational uses of the creek. The load reductions indicated in the TMDLs will be the focus of the Baldhill Creek Watershed project. Stream reaches addressed by the TMDLs are as follows:

- Baldhill Creek (ND-09020203-002-S)
- Silver Creek (ND-09020203-004-S)
- Unnamed Tributary to Baldhill Creek (ND-09020203-008-S)

- 2.2 Baldhill Creek watershed has a total area of 458,400 acres. Of this acreage 5,200 acres is water consisting of wetlands, streams, and lakes. The perennial creek originates in the northwestern part of Griggs County and flows south mostly along the west side of the county until it starts back to the southeast where it enters into Barnes County and eventually Lake Ashtabula.

The Baldhill Creek is classified as a Class II stream. Class II streams: The quality of the waters in this class shall be the same as the quality of class I streams, except that additional treatment may be required to meet the drinking water requirements of the department. Streams in this classification may be intermittent in nature which would make these waters of limited value for beneficial uses such as municipal water, fish life, irrigation, bathing, or swimming (NDDoH, 2011).

- 2.3 Maps showing the locations of the TMDL-listed reaches; monitoring sites and priority areas are attached (Appendix 2). The Annualized Agricultural NonPoint Source Pollution (AnnAGNPS) model was used to develop the maps of the priority cropland and non-cropland areas in Baldhill Creek 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 watershed. Total acreage for the non-cropland and cropland priority areas is 27,000 and 58,956 acres, respectively. The maps generated by the AnnAGNPS model will be used to target technical and financial assistance for BMP implementation.
- 2.4 The Baldhill Creek watershed is a combination of native range hills to wetlands to cropland. The cropland is mostly made up of sandy loams with irrigation pivots throughout the watershed. The wetlands are mixture of temporary and permanent. And the native range is mainly along the Baldhill Creek itself with the cattle drinking and feeding along the creek. There are very few ranchers with a waste management operation.
- 2.5 Daily stream discharge values were collected at one stream location within the Baldhill Creek watershed. This location was at the United States Geological Survey (USGS) gauging station located on Baldhill Creek near Dazey, ND (05057200). The USGS station has operated continuously since 1957 and is collocated with the North Dakota Department of Health (NDDoH) monitoring location

384126. For the purposes of this assessment, the last twenty years (1990-2010) of historical discharge records will be used to describe the hydrology of the Baldhill Creek watershed. This block of time should account for wet and dry cycles through the hydrological history of USGS gage station 05057200. From 1990 to 1992, the annual mean discharge of Baldhill Creek near Dazey, ND was very low most likely due to drought conditions in the late 1980's. Then in 1993-2001 the mean annual discharge fluctuated from average to above average flows most likely due to a wet cycle, then begins to drop significantly in 2002 thru 2008 (Figure A).

In 2009 and 2010, the discharge was 2.9 and 1.5 times higher than the average annual discharge of 1990-2008 which was calculated at 50 cfs. This can be attributed to record snowfalls and above average spring rains that were present all across North Dakota.

Discharge for the watershed is then used to determine the flow duration curve that will be used in the load duration curve analysis. Flow duration curve analysis looks at the cumulative frequency of historic daily flow data over a specific period of time. The flow duration curve relates flow (expressed as mean daily discharge) to the percent of time those mean daily flow values were met or exceeded. The use of "percent of time exceeded" (i.e., duration) provides a uniform scale ranging from 0 to 100 percent, thus accounting for the full range of stream flows. Low flows are exceeded most of the time, while high flows or flood flows are exceeded infrequently (EPA, 2009). As mentioned earlier, this is a complement to the concentration data (measured in mg/L) and will help depict how often large amounts of water are flowing through the watershed.

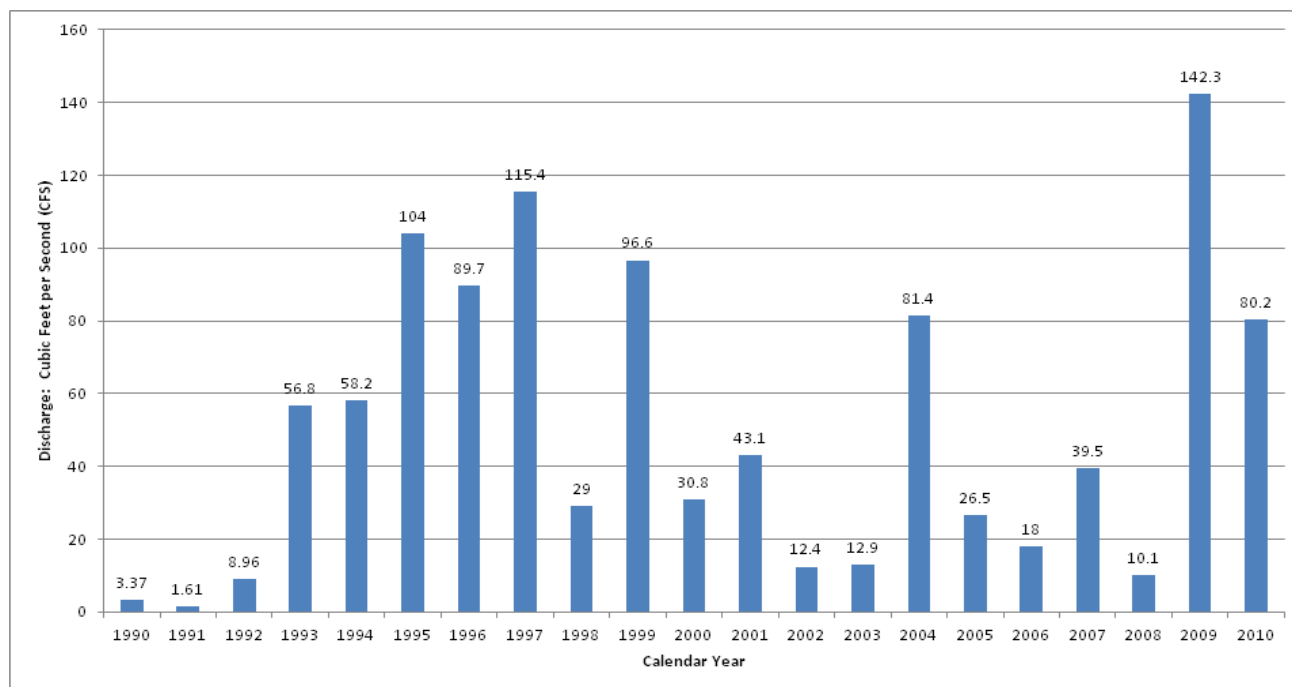


Figure A. Mean Annual Discharge at the USGS Gauging Station (05057200) on Baldhill Creek near Dazey, ND.

A basic flow duration curve runs from high to low (0 to 100 percent) along the x-axis with the corresponding flow value on the y-axis (Figure B). Using this approach, flow duration intensities are expressed as a percentage, with zero corresponding to the highest flows in the record (i.e., flood conditions) and 100 to the lowest flows in the record (i.e., drought). Therefore, as depicted in Figure B, a flow duration interval of 50 percent, associated with the stream flow of 8.4 cubic feet per second (cfs), implies that 50 percent of all observed mean daily discharge values equal or exceeded 8.4 cfs.

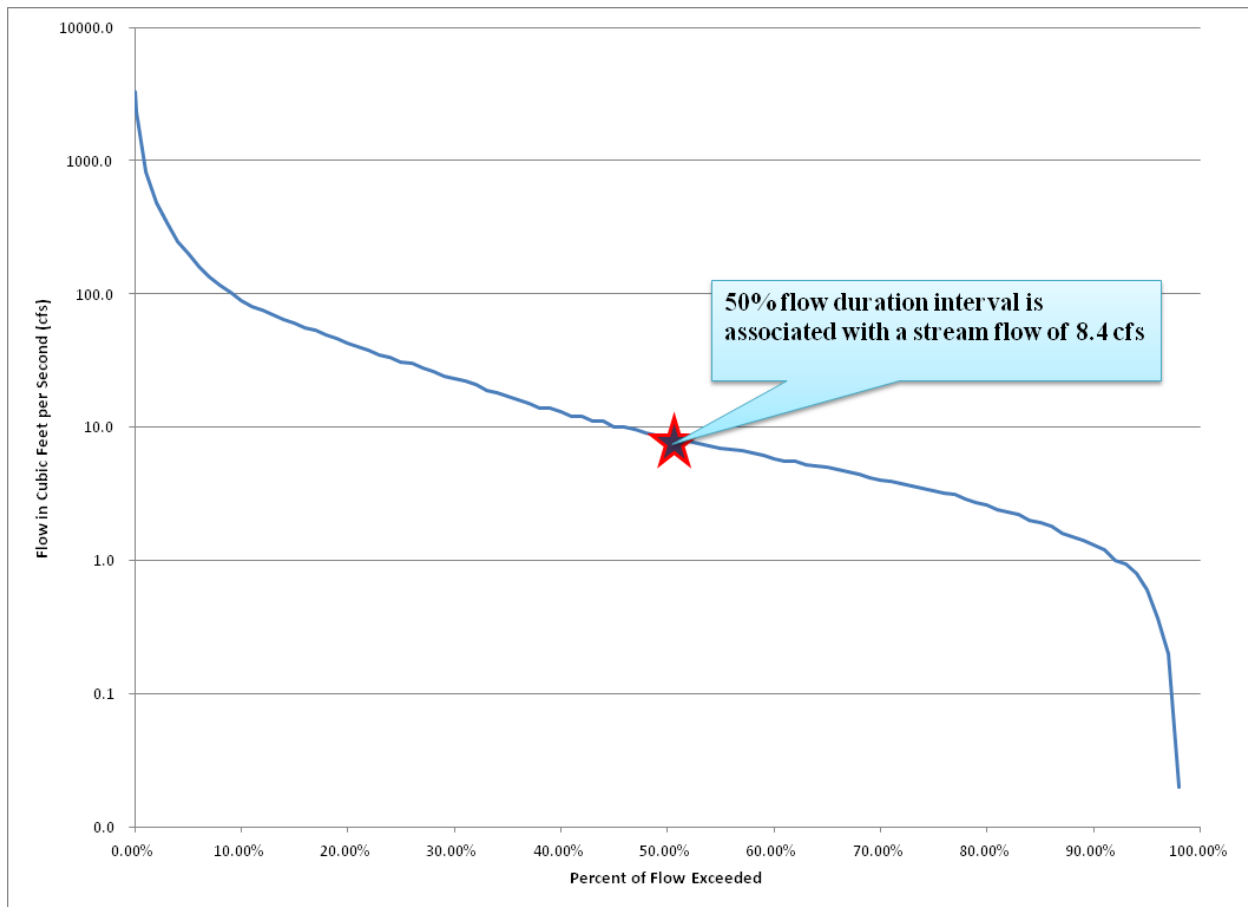


Figure B. Flow Duration Curve for USGS Gauging Station 05057200.

Variable stream flows at high and low intervals are important factors in determining NPS pollution loads. To better correlate the relationship between the pollutants of concern and the hydrology of Baldhill Creek, load duration curves were developed for total nitrogen (TN) and total phosphorus (TP). Curves were constructed by multiplying concentrations for the each parameter by the mean daily flow and a conversion factor specific to each parameter. The curve represents a reference value for TN and TP based on ecoregion criteria discussed in the draft report entitled *An Ecological Assessment of Perennial, Wadeable Streams in the Red River Basin – North Dakota* (NDDoH 2012). The points on the graphs represent the samples taken.

According to the draft report *An Ecological Assessment of Perennial, Wadeable Streams in the Red River Basin* (NDDoH, 2012), Ecoregion 46, the Northern Glaciated Plains, had a total nitrogen reference value of 0.581 mg/L. This value was derived from nutrient data collected at a set of “least disturbed” reference sites located in the Northern Glaciated Plains ecoregion of North Dakota. This value is not a water quality standard, as nutrient criteria or standards have not yet been developed, but is provided as a point of reference or goal when evaluating the data collected within the watershed.

Observed in-stream total nitrogen data obtained from monitoring site 384126 in 2009 and 2010 were converted to a pollutant load by multiplying total nitrogen concentrations by the mean daily flow and a conversion factor. These loads are plotted against the percent exceeded of the flow on the day of sample collection. Points above the criteria line of 0.581 mg/L have values that exceeded the reference concentration value for that flow, and would have also exceeded the nitrogen load of a least impaired/impacted reference stream for that given flow.

Ideally, values that are close to the line indicate a nitrogen load to the stream that is close to the least impacted streams in this ecoregion, and therefore are more healthy. The further away from the criteria line, the larger the negative impact to the stream becomes.

In Figure C, the load duration curve for site 384126 indicates that the total nitrogen load is highly related to flow conditions, as the symmetry of samples follow the flow curve quite closely. This indicates that sources of nitrogen are most likely from overland flow related to nonpoint source pollution runoff from high flow events like snow melt and rain storms. If there were strong sources of in-stream nutrients, like wastewater discharge, it would be expected to see large spikes in loads during low flow events (80% - 100% duration intervals on the graph).

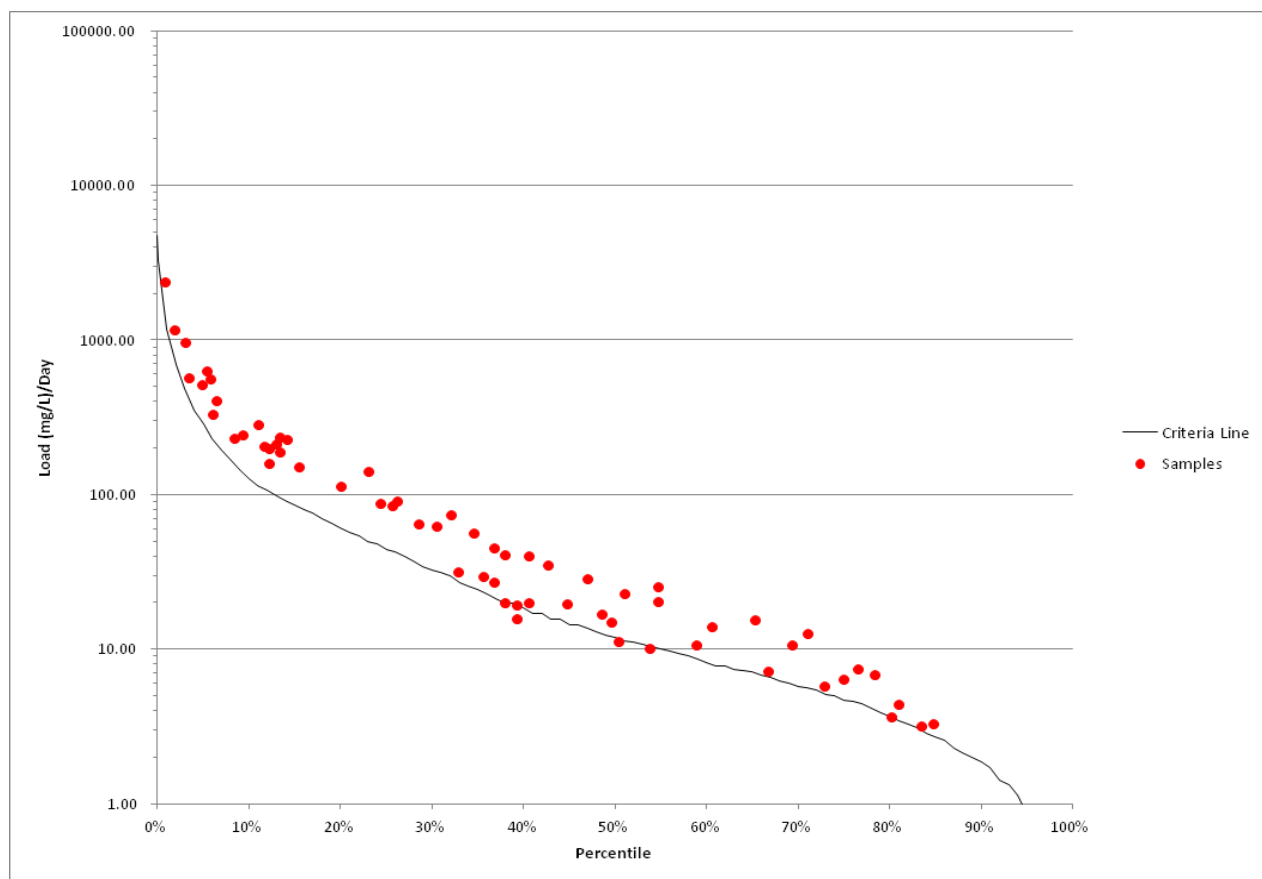


Figure C. Total Nitrogen Load Duration Curve for the Baldhill Creek Monitoring Station 384126 (The curve reflects flow data from 1990-2010).

Based on the draft report *An Ecological Assessment of Perennial, Wadeable Streams in the Red River Basin*, (Larsen, 2012), a total phosphorus reference value of 0.115 mg/L was estimated for the Northern Glaciated Plains Ecoregion (46). This reference value was developed based on data collected at “least disturbed” reference sites located in the Northern Glaciated Plains Ecoregion. Again, reference value of 0.115 mg/L is not a water quality standard, but is provided as a point of reference when evaluating the data.

Observed in-stream total phosphorus data obtained from monitoring site 384126 in 2009 and 2010 were converted to a phosphorus load by multiplying total phosphorus concentrations by the mean daily flow and a conversion factor. These loads are plotted against the percent exceeded of the flow on the day of sample collection. Points plotted above the criteria line of 0.115 mg/L have values that exceeded the reference concentration value for that flow.

As in the case with the nitrogen load curve, phosphorus values that are close to the line, indicate a phosphorus load to the stream that is close to the least impacted streams in this ecoregion. The further away from the criteria line, the larger the negative impact to the stream becomes.

In Figure D, the load duration curve for site 384126 indicates that the total phosphorus load is also related to flow conditions. This would also suggest that sources of phosphorus could be overland flow related to nonpoint source pollution runoff during high flow events associated with snow melt and rain storms. However, the slight variation in the symmetry of the samples also indicates that in-stream processes such as plant decay or riparian grazing are significant sources as well. This is indicated by the samples at the extremely high flows (less than 20% or greater than 43 cfs) are above the criteria line, while a majority of the samples at lower flow (40% to 90%, 13 cfs to 1.3 cfs) are very close or below the criteria line.

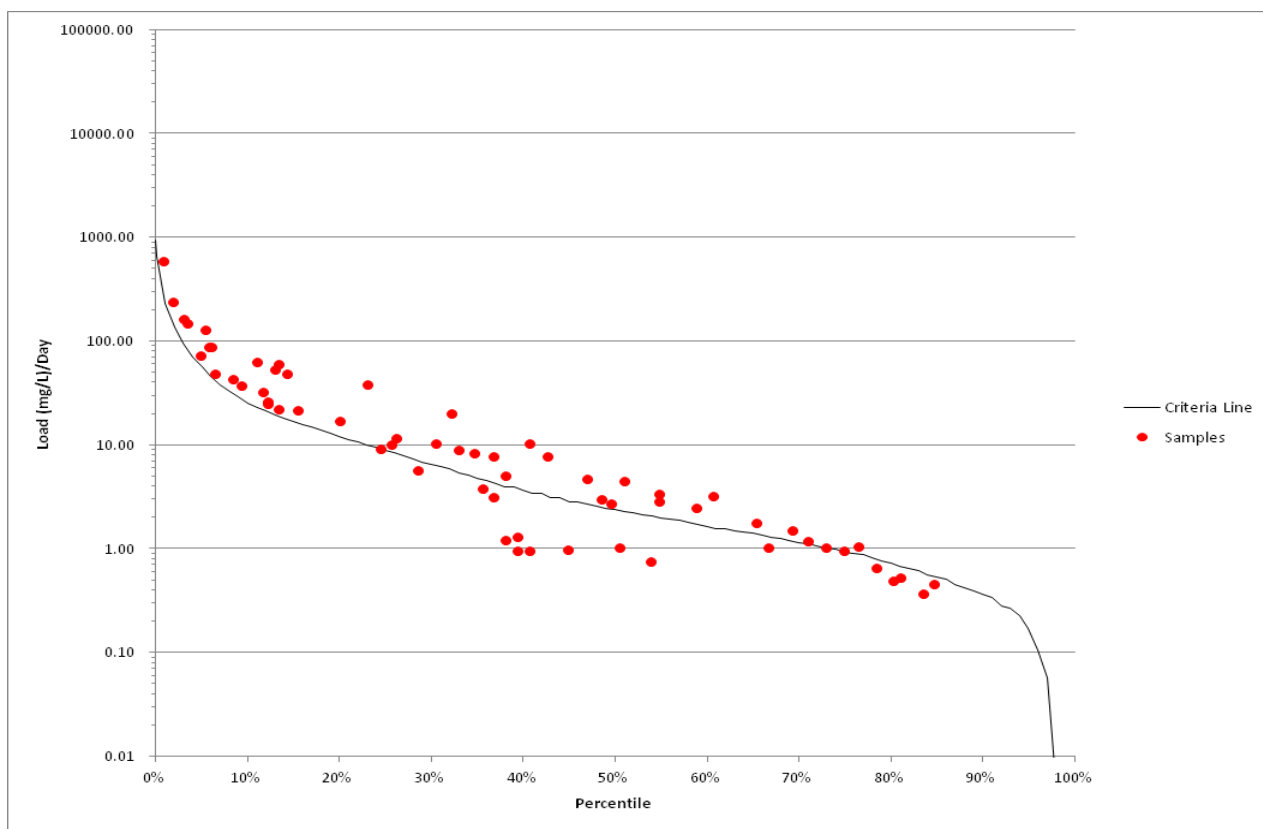


Figure D. Total Phosphorus Load Duration Curve for the Baldhill Creek Monitoring Station 384126 (The curve reflects flow data from 1990-2010).

The nutrient loads for the Baldhill Creek watershed are directly proportional to flow and suggest the pollution transport is flow dominated with possible secondary sources from instream processes such as algae blooms, riparian grazing, or septic systems. The highest TN and TP yields occur in areas of high runoff which also suggests a transport by overland runoff during high precipitation events. These areas coincide with the most actively cropped acres in the watershed indicating that best management practices for cropped land and addition of buffer strips and riparian condition improvement would benefit water quality.

Since particulate phosphorus lasts longer in the erosion process by attaching to soil particles, where reactive nitrogen changes form including into that of a gas, the slightly higher total nitrogen numbers

suggest that by addressing sources near the riparian zone, improvement will be more effective. No long term trends in nitrogen or phosphorus yields were noted, suggesting that agriculture production activities and runoff are variable from year to year.

Within the Baldhill Creek watershed, *E. coli* data was collected at three sites: monitoring site 384126 along with the nutrient data, monitoring site 384124 and monitoring site 384129 (Appendix 2 Figure 2). Data was collected during the recreation season of May 1 through September 30 in 2009 and 2010. Recreational beneficial use attainment was determined for each site and is summarized in Table A.

Analysis of *E. coli* data collected at site 384124 in 2009 and 2010 demonstrated that the months of May and June were fully supporting the beneficial uses. The geometric mean and percent exceed calculations for beneficial use in the month of July was fully supporting but threatened. A recreational use assessment could not be calculated for the months of August and September due to an insufficient amount of samples taken in 2009 and 2010.

The recreational use support assessment for site 384129 concluded that during the months of July and August recreational beneficial uses were not supporting. May and June were calculated as fully supporting recreational beneficial uses. A recreational use assessment could not be calculated for the month of September due to an insufficient amount of samples taken in 2009 and 2010.

Analysis of the data collected in 2009 and 2010 for site 384126 concluded that the geometric mean and percent exceeded calculations indicate that for May and September beneficial uses were fully supporting but threatened because of *E. coli*. For the months of June, July, and August site 384126 was fully supporting the recreational beneficial use.

Table A. Summary of E. coli Data for Sites 384124, 384129, and 384126 Data Collected in 2009 to 2010.

384124					
Recreational Season	May	June	July	August	September
Number of Samples	7	10	5	0	0
Geometric Mean	16	84	125	N/A	N/A
% Exceeded 409 CFU/100 mL	0%	10%	40%	N/A	N/A
Recreational Use Assessment	FS	FS	FSBT	INSFD	INSFD
384129					
Recreational Season	May	June	July	August	September
Number of Samples	8	10	8	9	4
Geometric Mean	16	93	193	149	108
% Exceeded 409 CFU/100 mL	0%	10%	38%	22%	25%
Recreational Use Assessment	FS	FS	NS	NS	INSFD
384126					
Recreational Season	May	June	July	August	September
Number of Samples	8	10	8	10	8
Geometric Mean	22	105	68	44	43
% Exceeded 409 CFU/100 mL	13%	0%	0%	10%	13%
Recreational Use Assessment	FSBT	FS	FS	FS	FSBT

FS – Fully Supporting; FSBT- Fully Supporting but Threatened; NS – Not Supporting; INSFD – Insufficient Data

For the Baldhill Creek watershed, three sites were sampled for E. coli bacteria. Since Baldhill Creek is a tributary to the Middle Sheyenne River, it is expected that flow will decrease in the summer months. This is why there was insufficient data at the upstream site (384124) in August and September. In May and June, with flows sufficient to dilute the concentrations, water quality standards were met. As the flow decreased in July and more livestock had access to the river, E. coli concentrations exceeded both of the water quality standards.

Monitoring station 384129 located on a tributary to Baldhill Creek exhibits some of the same characteristics as the upstream site 384124 with decreasing flows in the summer months resulting in insufficient data in September. May and June indicated that E. coli bacteria water quality standards were being met, most likely due to increased flows and dilution. As the summer progressed flows decreased and livestock had access to the river, which is indicated by E. coli concentrations exceeding state water quality standards.

Site 384126 is located near the confluence of Baldhill Creek with the Sheyenne River. Since it is the furthest downstream site flows remained consistent to obtain sufficient amounts of E. coli bacteria data for the months of May through September. E. coli bacteria concentrations met water quality standards throughout the recreational season of May through September.

3.0 PROJECT DESCRIPTION

GOAL 1:

Restore and maintain the recreational uses at a “fully supporting” status in Baldhill Creek and its tributaries in Griggs County. As a secondary goal, most of the practices implemented to the improve recreational uses will also improve the aquatic life uses in the creek and its tributaries

Objective 1) Provide the technical and administrative support needed to fully implement the project.

Task 1: The District Manager from the Griggs County Soil Conservation District will assume the watershed coordinator duties of managing the project; provide technical assistance to producers; and coordinate with project partners (Foster Co.SCD, NRCS, etc.).

Product: 1 half-time watershed coordinator. He will split his time equally between the Soil Conservation District and the Watershed project subject to the busy seasons with both organizations

Cost – \$132,500

Task 2: Provide administrative support through the Griggs Co. Soil Conservation District.

Product – Update/discussion at monthly SCD meeting (50-60 hours/year), Supervisor participation in project activities (10-20 hours/year); and SCD staff assistance (60-100 hours/year)

Cost - \$1000

Objective 2) Reduce E. coli concentrations in Baldhill Creek to achieve fully supporting status for recreational uses. Target concentration per sampling site will be a geometric mean of 126 colonies/100 ml with less that 10% of the samples exceeding 409 colonies/100 ml.

Task 3: Design and install manure management system on up to 2 livestock feeding areas within ½ mile of Baldhill Creek in Griggs County.

Product: 1 full containment system and 1 partial manure management systems. The BMP’s may include site prep, earthwork, access roads, heavy use areas, fencing, water supply, etc.

Cost - \$165,000

Task 4: Work with livestock producers to improve grazing management in 50% of the AnnAGNPS priority non-cropland areas that are immediately adjacent to the creek or its tributaries.

Product: Improved livestock grazing management on approximately 2000 acres of the non-cropland priority areas along the creek. BMP’s may include fencing, pipelines; water tanks, etc.

Cost – \$59,765

Task 5: Expand livestock forage options and improve soil health by providing technical and financial assistance to implement cover crops on 2370 acres of the AnnAGNPS priority cropland acres or

cropland acres immediately adjacent to grazed acres along the creek or its tributaries. (The primary focus of this task will to be address approximately 50% of the AnnAGNPS priority cropland acres located south of Highway 200 in Griggs County)

Product – 2370 acre of cover crops

Cost – \$47,400

Task 6: Assist the NRCS field office with the development of USDA supported conservation plans (e.g., EQIP, CSP, etc.) that will help improve livestock and cropland management along the creek and its tributaries.

Product: 15 producer agreements supported by USDA that address approximately 5000 acres

Cost – 319/match costs are included in the costs under Task 1. (Estimated USDA cost share is \$2500/year)

Objective 3) Coordinate with local Extension Service personnel and others to increase producer awareness and understanding of management practices that can be effectively used in Griggs County to improve resource management and soil health and minimize livestock impacts to riparian areas.

Task 7: Conduct 1 tour every other summer highlighting BMP that are being used in the watershed and county to improve cropland and livestock management along the creek.

Product: 2 summer tours

Cost - \$1,000

Task 8: Host one workshop biannually, promoting the adoption of BMPs that will be effective in addressing the beneficial use impairments in Baldhill Creek.

Product – 2 winter workshops

Cost - \$2,750

Task 9: Develop and distribute a semiannual newsletter to keep the general public informed of project's activities and accomplishments.

Product: 9 newsletters

Cost - \$2500

Objective 4) Document project accomplishments and progress.

Task 10: Conduct all monitoring activities as scheduled in the approved Quality Assurance Project Plan (QAPP).

Product - Water quality data as scheduled under the QAPP (See Section 5.0)

Costs - \$5,500 (\$3,000 for equipment & \$2,500 for sample analysis and shipping)

Task 11: Maintain the NPS Program databases for tracking project expenditures as well as the types, amount and costs of BMP supported with 319 funds.

Product – BMP and Expenditure records

Cost – Costs are part of the Task 1 costs.

3.3 Milestone Table (Appendix #3)

3.4 Not applicable

3.5 The Griggs County Soil Conservation District is the appropriate entity to coordinate and implement this project. The SCD is a locally elected volunteer conservation organization that serves all the people in the county. The sponsors will work with the North Dakota Department of Health and NRCS to determine the need for any environmental permits for livestock waste management systems. Project staff will consult with NDDH and project engineers to determine applicability of current livestock waste regulations.

3.6 The Griggs County Soil Conservation District will be responsible for auditing Operation & Maintenance Agreements (O&M) on BMP's during the project period through yearly status reviews of EPA-319 contracts. The lifespan of each BMP will be listed in the individual contracts to ensure longevity of the practices. Each producer will sign 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) Griggs County SCD will be the lead agency liable for project administration. Conservation planning, technical assistance, educational campaigns, clerical assistance, access to equipment and supplies, and annual financial support will be provided by the SCD. The SCD will also prioritize activities, coordinate scheduling, and serve as a liaison between watershed residents and USDA program participation.

2) USDA Natural Resources Conservation Service (NRCS) will provide technical assistance by coordinating project activities, facilitating local involvement, providing technical support and participating in educational outreach programs during the project. 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 project. An annual review will be conducted with the Field Office, DC and the SCD to reconfirm and acknowledge NRCS's commitment to the project.

3) North Dakota Department of Health (NDDoH) will oversee Section 319 funding and assist in implementing the water sampling and analysis plan. Training will be provided by the NDDoH staff for proper water quality sample collection, preservation and transportation to ensure reliable data collection. NDDH will also complete and cover the expenses of water sample analysis.

4) USDA Farm Service Agency (FSA) will be solicited for cost-share assistance through the Conservation Reserve Program (CRP) and will serve as a local resource.

- 5) North Dakota State University Extension Service (NDSU Extension) both local and state personnel will assist the project in information and education activities. BMP publications will also be available as well as assistance with workshops, tours and training.
 - 6) North Dakota Game & Fish (ND G&F), North Dakota Pheasants Forever and US Fish & Wildlife will be solicited to provide technical and financial assistance.
 - 7) Griggs County Water Resource Board will provide half of the annual financial support to the project.
 - 8) 319 Eco-Ed camps will provide youth education of water quality pollution impacts and potential solutions for local 6th grade students.
- 4.2 Local support for the Baldhill Creek project has been confirmed by the letters of commitment from the Griggs County WRB, NRCS, the Griggs County Extension Service and by the number of landowners and producers that come into the office inquiring about assistance for conservation practices. With NRCS' Cooperstown Field Office having about 200 active contracts, the producer traffic through the office is quite regular. And also with the NRCS budget getting smaller and less producers being assisted by them, producers are looking for other opportunities to support the implementation of conservation practices.
 - 4.3 The Griggs County SCD/319 employee will have a solid understanding of the USDA programs, such as EQIP, CRP, WRP and WHIP and works closely with FSA, NRCS, NPS BMP Team, NDSU Carrington Research Center and other 319 funded watershed projects providing and receiving technical support.
 - 4.4 There are no other projects in the watershed that are focused specifically on NPS pollution sources. However, by working closely with the sponsors and associated agencies involved in other resource management activities, the lines of communication are always open and we can easily coordinate the exchange of ideas and planning assistance as well as encourage brainstorming on common issues to meet the needs of our rural and urban residents. By remaining in close contact with all organizations in the area, we can coordinate to enhance and complement the effectiveness of all the resource-focused projects in the watershed, thereby preventing any duplication of efforts.

5.0 EVALUATION AND MONITORING PLAN

"The Quality Assurance Project Plan (QAPP) for the project will be developed by the NDDH after the project is fully approved"

6.0 BUDGET

- 6.1 See Attachments (Appendix #4)

7.0 PUBLIC INVOLVEMENT

- 7.1 Educational and informational meetings will be conducted to keep the entire community informed. Community leaders, County Commissioners, Water Resource Board members, City Council members, and District supervisors will be informed of the decision-making processes involving the implementation of BMP's within the Griggs County Bald Hill Creek Watershed Program.

**THE GRIGGS COUNTY
BALDHILL CREEK WATERSHED
PROJECT APPENDIX LIST**

- 1 2012 303(d) List of Impairments (NDDoH, 2012)
- 2 Griggs County Maps
- 3 Milestone Table
- 4 Budget

Appendix 1

2012 303(d) List of Impairments (NDDoH, 2012)

North Dakota 2012 303(d) List of Impaired Waters for Baldhill Creek in Griggs County

Baldhill Creek (ND-09020203-002-S)

- Baldhill Creek from tributary watershed (ND-09020203-005-S) downstream to Lake Ashtabula. Located in Griggs and Barnes County.
- 30.21 miles
 - Fish and Other Aquatic Biota
 - Not Supporting
 - Benthic-Macroinvertebrate Bioassessments
 - TMDL Priority Low
 - Recreation
 - Fully Supporting, but Threatened
 - E. coli
 - TMDL Priority High

Silver Creek (ND-09020203-004-S)

- Silver Creek, including Gunderson Creek and all tributaries. Located in southern Griggs County.
- 38.51 miles
 - Recreation
 - Not Supporting
 - E. coli
 - TMDL Priority High

Unnamed Tributary to Baldhill Creek (ND-09020203-008-S)

- Unamed tributary watershed to Baldhill Creek (ND-09020203-007-S). Located in NW Griggs County.
- 16.07 miles
 - Recreation
 - Not Supporting
 - E. coli
 - TMDL Priority High

Appendix 2

Maps

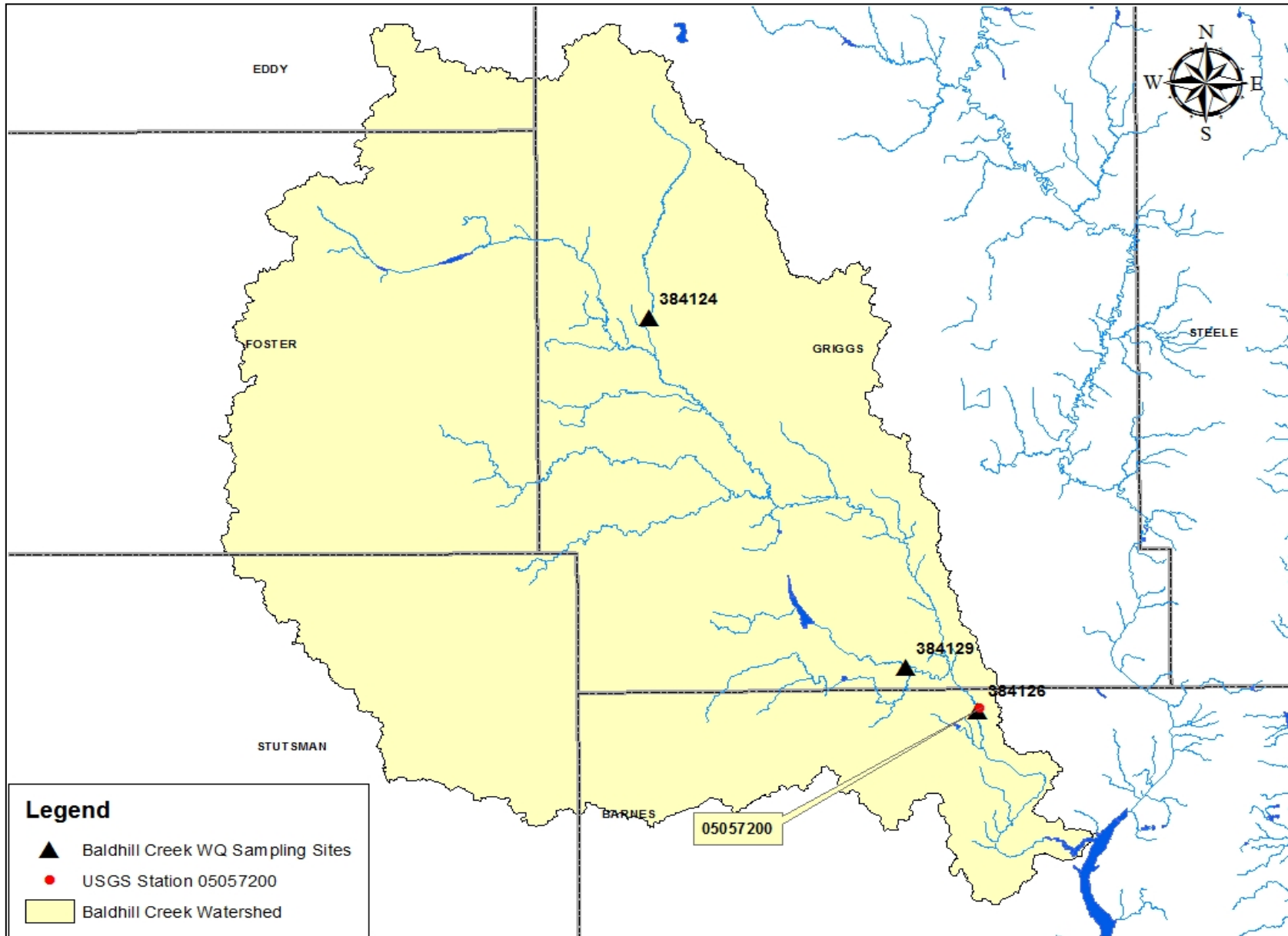


Figure 1. Stream Sampling Sites and USGS Gauge Station (05057200) for the Baldhill Creek Watershed.

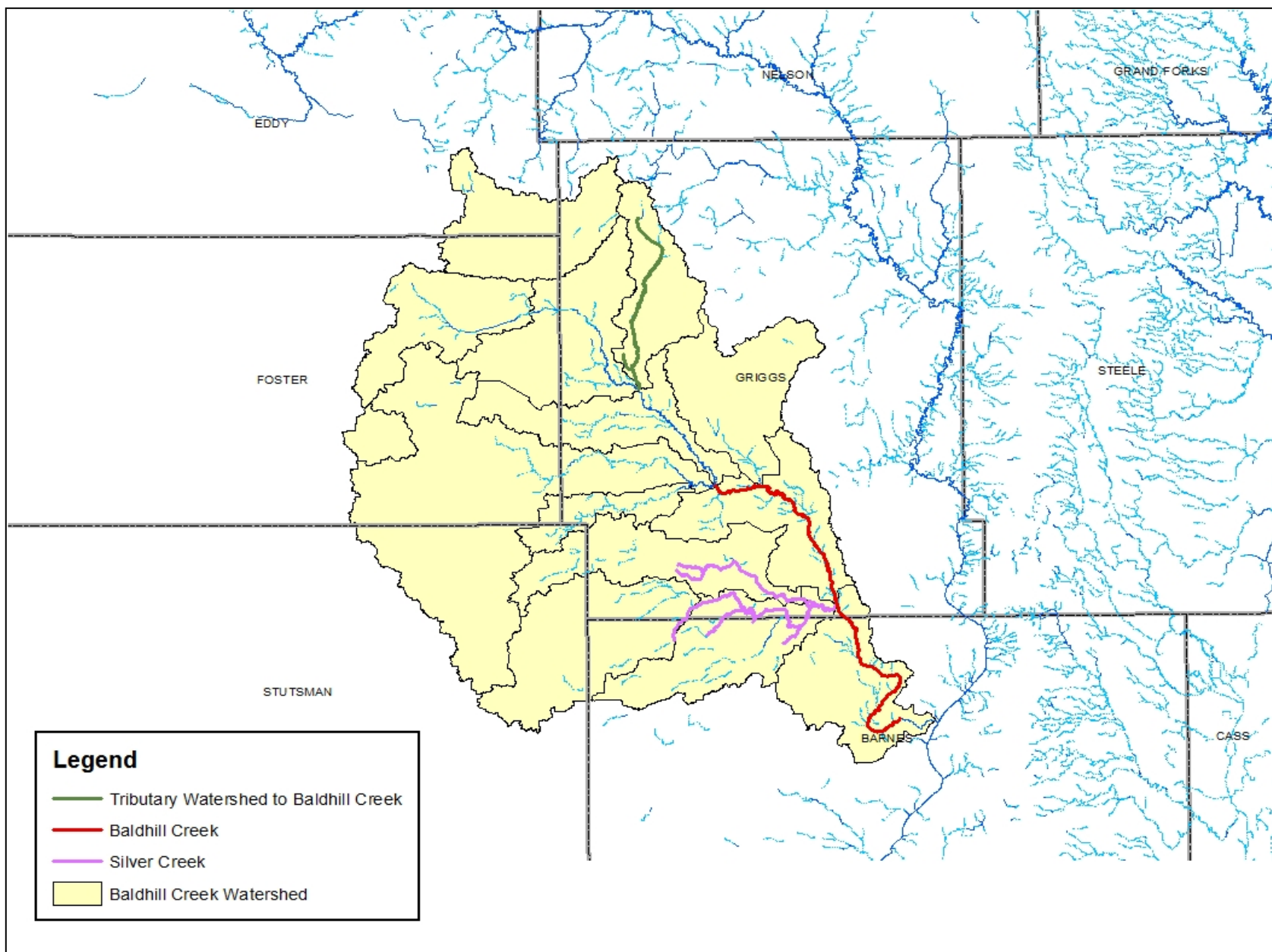


Figure 2. Baldhill Creek, Silver Creek, and Unnamed Tributary TMDL Listed Segments.

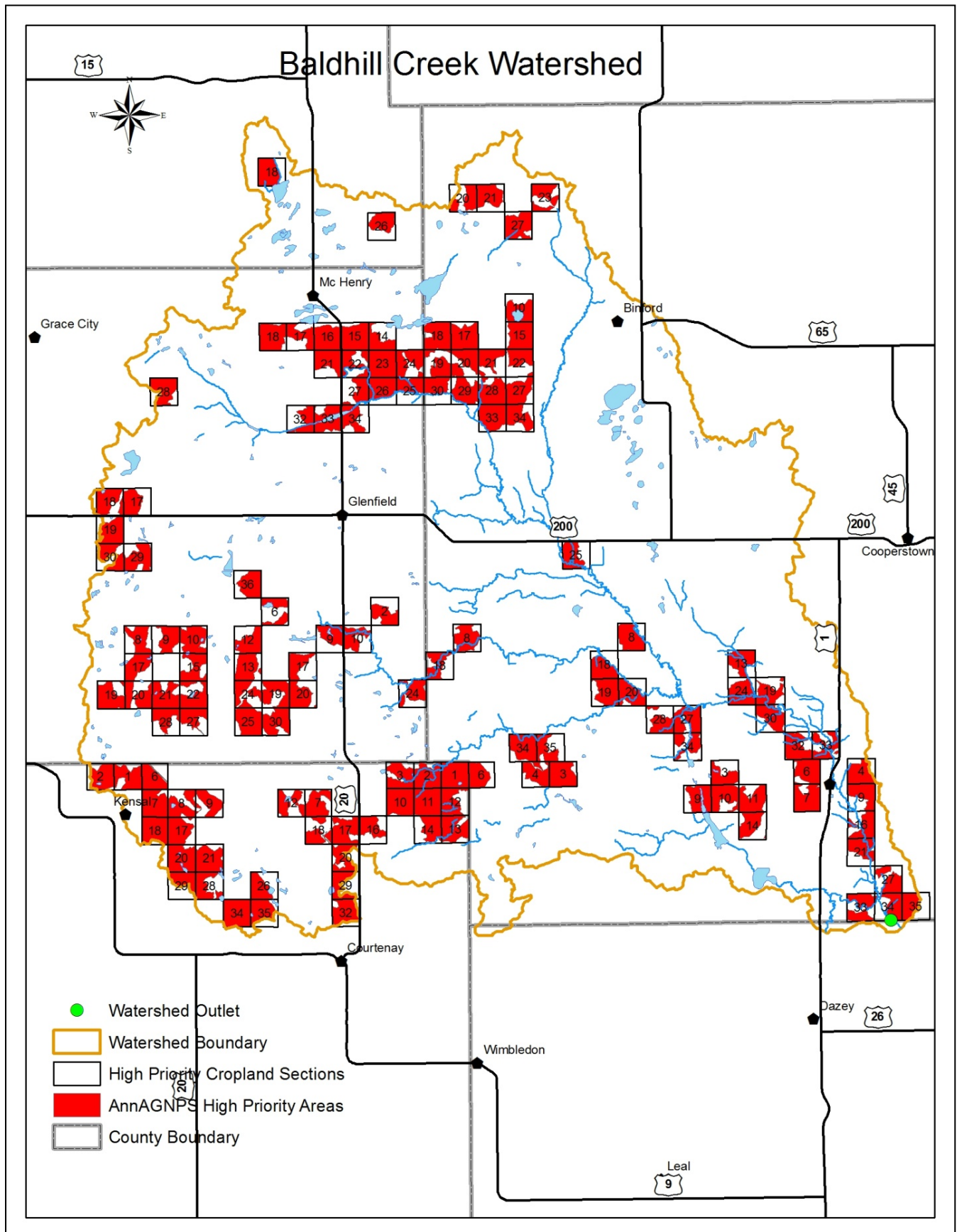


Figure 3. AnnAGNPS Cropland High Priority Areas.

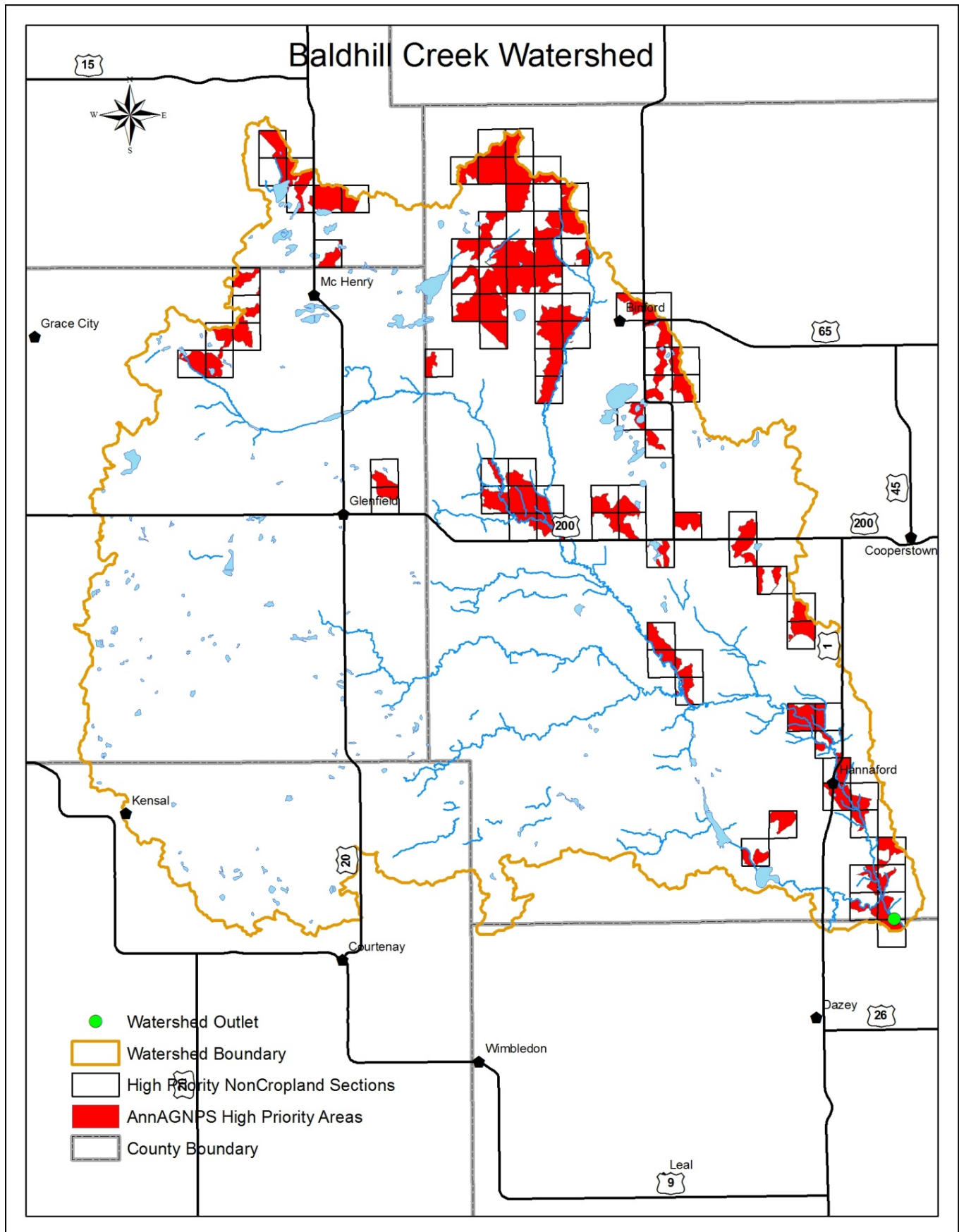


Figure 4. AnnAGNPS Noncropland High Priority Areas.

APPENDIX 3

MILESTONE TABLE

APPENDIX 4 BUDGET

MILESTONE TABLE FOR GRIGGS COUNTY BALDHILL CREEK WATERSHED PROJECT

Tasks/Responsible Organizations	Output	1	2	3	4	5
Objective 1:						
Task 1: Hire SCD Manager 1/2 time	An employee who administers all aspects of project	**	**	**	**	**
Task 2: Admin support through SCD	Update at monthly SCD meeting/SCD assistance	**	**	**	**	**
Objective 2:						
Task 3: Install manure mgnt system	Up to 2 Manure Management Systems	**	**	**	**	**
Task 4: Improve grazing mgnt	Improve grazing management on 50% of priority areas	**	**	**	**	
Task 5: Expand forage options	Expand livestock forage options by implementing cover crops	**	**	**	**	**
Objective 3:						
Task 6: Assisting NRCS	Assist NRCS with developing conservation plans	**	**	**	**	**
Task 7: Summer tour	1 tour biannually	**	**	**	**	
Task 8: Winter workshop	1 workshop biannually	**	**	**	**	
Task 9: Develop newsletter	Distribute semiannual newsletter	**	**	**	**	**
Objective 4:						
Task 10: Monitoring activities	Conduct monitoring activities in approved QAPP	**	**	**	**	**
Task 11: NPS databases	Maintain NPS Program databases.	**	**	**	**	**

Griggs County SCD as local project manager and sponsor will be responsible for project coordination of reimbursement payments, tracking and progress. The SCD will also provide technical assistance for planning, design and implementation.

Landowners will make management decisions and provide cash and in-kind match for BMP's.

NDDH will provide oversight of planning and expenditures.

Part 1: Funding Sources						
	2014	2015	2016	2017	2018	Total
EPA SECTION 319 FUNDS						
1)FY 2013 Funds (FA)	\$51,080	\$51,080	\$51,080	\$51,080	\$51,080	\$255,400
STATE/LOCAL MATCH						
1) Griggs County SCD (TA & FA)	\$6,140	\$6,140	\$6,140	\$6,140	\$6,140	\$30,700
2)Griggs County WRB (TA & FA)	\$6,140	\$6,140	\$6,140	\$6,140	\$6,140	\$30,700
3) Landowners (FA)	\$21,773	\$21,773	\$21,773	\$21,773	\$21,773	\$108,865
Subtotals	\$34,053	\$34,053	\$34,053	\$34,053	\$34,053	\$170,265
TOTAL BUDGET						
	\$85,133	\$85,133	\$85,133	\$85,133	\$85,133	\$425,665
OTHER FEDERAL FUNDS						
1) NRCS (TA, EQIP, and other programs)	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$12,500
2)FSA (CRP)	\$0	\$0	\$0	\$0	\$0	\$0
3) NDDoH	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$12,500
TOTAL FEDERAL FUNDS	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
TOTAL PROJECT COST						\$450,665

FA: Financial Assistance

TA: Technical Assistance

SCD: Soil Conservation District

NRCS: Natural Resource Conservation Service

FSA: Farm Service Agency

NDDoH: North Dakota Department of Health

Part 2: Detailed Budget (Section 319/Non-Federal)

	2014	2015	2016	2017	2018	Total Costs	Cash and In-kind Match	319 Funds
Objective 1: PERSONNEL/SUPPORT/ADMIN								
Salary/Fringe	\$26,500	\$26,500	\$26,500	\$26,500	\$26,500	\$132,500	\$53,000	\$79,500
Travel	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000	\$2,000	\$3,000
SCD Assistance	\$200	\$200	\$200	\$200	\$200	\$1,000	\$400	\$600
Equipment/Supplies	\$100	\$100	\$100	\$100	\$100	\$500	\$200	\$300
Training	\$250	\$250	\$250	\$250	\$250	\$1,250	\$500	\$750
Telephone/postage	\$300	\$300	\$300	\$300	\$300	\$1,500	\$600	\$900
Subtotals	\$28,350	\$28,350	\$28,350	\$28,350	\$28,350	\$141,750	\$56,700	\$85,050
Objective 2: Financial & Technical Assistance								
Grazing Management	\$11,953	\$11,953	\$11,953	\$11,953	\$11,953	\$59,765	\$23,906	\$35,859
Implement Cover Crops	\$9,480	\$9,480	\$9,480	\$9,480	\$9,480	\$47,400	\$18,960	\$28,440
Manure management Systems	\$33,000	\$33,000	\$33,000	\$33,000	\$33,000	\$165,000	\$66,000	\$99,000
						\$0	\$0	\$0
Subtotals	\$54,433	\$54,433	\$54,433	\$54,433	\$54,433	\$272,165	\$108,866	\$163,299
Objective 3: Information/Education								
Public meetings/Workshops/Tours	\$750	\$750	\$750	\$750	\$750	\$3,750	\$1,500	\$2,250
Survey/Newsletters/News releases	\$500	\$500	\$500	\$500	\$500	\$2,500	\$1,000	\$1,500
Subtotals	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$6,250	\$2,500	\$3,750
Objective 4: Water Quality Monitoring								
Sampling/Transport/Supplies	\$1,100	\$1,100	\$1,100	\$1,100	\$1,100	\$5,500	\$2,200	\$3,300
Subtotals	\$1,100	\$1,100	\$1,100	\$1,100	\$1,100	\$5,500	\$2,200	\$3,300
Total for all Objectives/Tasks								
Total 319/Non-federal Budget	\$85,133	\$85,133	\$85,133	\$85,133	\$85,133	\$425,665	\$170,266	\$255,399

Section 319 Funds per year	\$51,080	\$51,080	\$51,080	\$51,080	\$51,080	\$255,399
Total local match per year	\$34,053	\$34,053	\$34,053	\$34,053	\$34,053	\$170,266
SCD match per year	\$12,280	\$12,280	\$12,280	\$12,280	\$12,280	\$61,400
Producer BMP match per year	\$21,773	\$21,773	\$21,773	\$21,773	\$21,773	\$108,866

Part 3: Projected BMP List

Practice Code	Practice Description	Cost per unit
340	Cover Crop	\$20.00/ac
351	Well Decommissioning	\$900.00 each
382	Fencing	\$1.35/ft
380	Windbreak/Shelterbelt Establishment	\$22.50/hlnft
390	Riparian Herbaceous Cover	\$300.00/ac
393	Filter Strip	\$125.00/ac
412	Grassed Waterway	\$25.00/ft
512	Pasture & Hayland Planting	\$35.00/ac
516	Pipelines	\$3.00/ft
528A	Prescribed Grazing	\$5.00/ac
550	Range Planting	\$40.00/ac
590	Nutrient Management	\$5.00/ac
610	Salinity & Sodic Soil Management	\$20.00/ac
614	Trough and Tank	Local Rate
642	Well (livestock only)	Local Rate
	Portable Windbreak	\$45/ft
633	Waste Utilization	\$2.00/ton