

Epping-Springbrook Dam Watershed Project Implementation Plan



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Epping-Springbrook Dam Watershed Project

Implementation Plan

Sponsor: Williams County Parks
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State: North Dakota

Watersheds: Epping-Springbrook Watershed

Hydrologic Unit Code: 1011010104

High Priority Watershed: N/A

Project Types

Staffing and Support
 Watershed
 Groundwater
 I & E

Waterbody Types

Groundwater
 Lakes/Reservoirs
 Rivers
 Streams
 Other

NPS Category

Agriculture
 Urban Runoff
 Silviculture
 Resource Extraction
 Stowage/Land Disposal

Project Location: Williams County, North Dakota
48° 15' 38 North
103° 25'38 West

Major Goal:

The goal is to minimize the occurrence of harmful algal blooms (HABs) and improve the recreational opportunities at the Epping Springbrook Dam (ESD) by reducing the delivery of nutrients (primarily phosphorous) from the adjacent watershed. This will be accomplished by promoting and implementing Best Management Practices (BMP) that are effective at reducing concentrations of nutrient (phosphorus and nitrogen), total suspended solids (TSS) and E. coli bacteria including critical area treatment, nutrient management, cover crops, sediment basins, prescribed grazing, and fencing.

Project Description:

The ESD Watershed Project will implement conservation planning, BMP implementation, monitoring/assessment, and information/education programs on the highest priority areas in terms of phosphorus and sediment contributions to the ESD. The project sponsor intends to:

1. Prioritize technical and financial assistance to lands that have the most impact on water quality.
2. Track water quality trends over the life of the project.
3. Develop informational/educational programs to heighten public awareness of NPS pollution concerns and solutions.
4. Develop working partnerships in the local community to benefit natural resources.

Section 319 Funds Requested: \$209,970.51

Matching Funds: \$139,980.34

2.0 Statement of Need

2.1 Project Reference

ESD was originally constructed as a Federal Emergency Relief Administration (FERA) and Work Progress Administration (WPA) project. At the time of completion, 1936, it was the largest earth fill dam in North Dakota. ESD is approximately 128 square acres in size with 6 miles of shoreline. The average depth is 12 feet with the deepest point being approximately 29 feet. Boats are allowed on the lake, but it is no wake.

A park/campground managed by the Williams County Park Board (WCPB) is located on the southern part of the eastern shore of the lake. The campground is a popular attraction for campers as well as the local public utilizing it for daily recreation. Swimming, open water fishing, and ice fishing are popular activities on ESD. The northern part of the eastern shore is the home to Upper Missouri Ministries Bible Camp. The Bible camp sees upwards of 700 youth staying an average of three to six nights during the recreational season. The majority of the remaining shoreline is owned by the Williams County Water Management District.

The Williams County Park Board (WCPB) has recognized the value of the waterbodies in Williams County including ESD. The WPD is committed to addressing the pollutant sources that contribute to the degradation of the recreational uses of the reservoir. To act on this commitment, the WCPB will continue to work with local, state, and federal partners to provide financial and technical assistance to develop, coordinate, and implement tasks to reduce the cumulative effect of the long-term delivery of excess phosphorus, sediment, and E. coli bacteria to the Epping-Springbrook Dam.

ESD had its first HAB report on August 27th of 202. Since 2020 there have been thirty HABs samples collected. The reservoir has been issued a HABs advisory (microcystin sample result >10 ppb or reports of animal illness or death (in 2020, 2021, 2022, and in 2023 by the NDDEQ A HABs warning (microcystin sample result exceeding 2000 ppb) was also issued in 2021. The highest recorded microcystin result for ESD was recorded in August 6th, 2021, with a result of 3057.34 ppb.

WCPB is proposing a BMP Implementation Project to address the recreational use impairments in the ESD. Preliminary assessment data defining these impairments are outlined in the water quality summary in Appendix #. This will be accomplished by focusing on the implementation of BMP that improve nutrient and grazing management in the high priority areas of the hydrologic unit that flow into the ESD. Emphasis will be placed on reducing the delivery of phosphorus to the ESD.

2.2 Watershed Description

ESD is a 128-acre reservoir on Stoney Creek. The dam is located between the communities of Epping and Springbrook in central Williams County. It is located 12 miles northeast of Williston. The Epping Dam watershed leading into ESD is comprised of 22,239 acres.

2.3 Maps

An AnnAgNOS Model will be used to help identify priority areas. This AnnAGNOS will be included in the final submittal.



Figure 1: Location of Stony Creek/Epping-Springbrook Watershed (HUC 10) in Williams County.

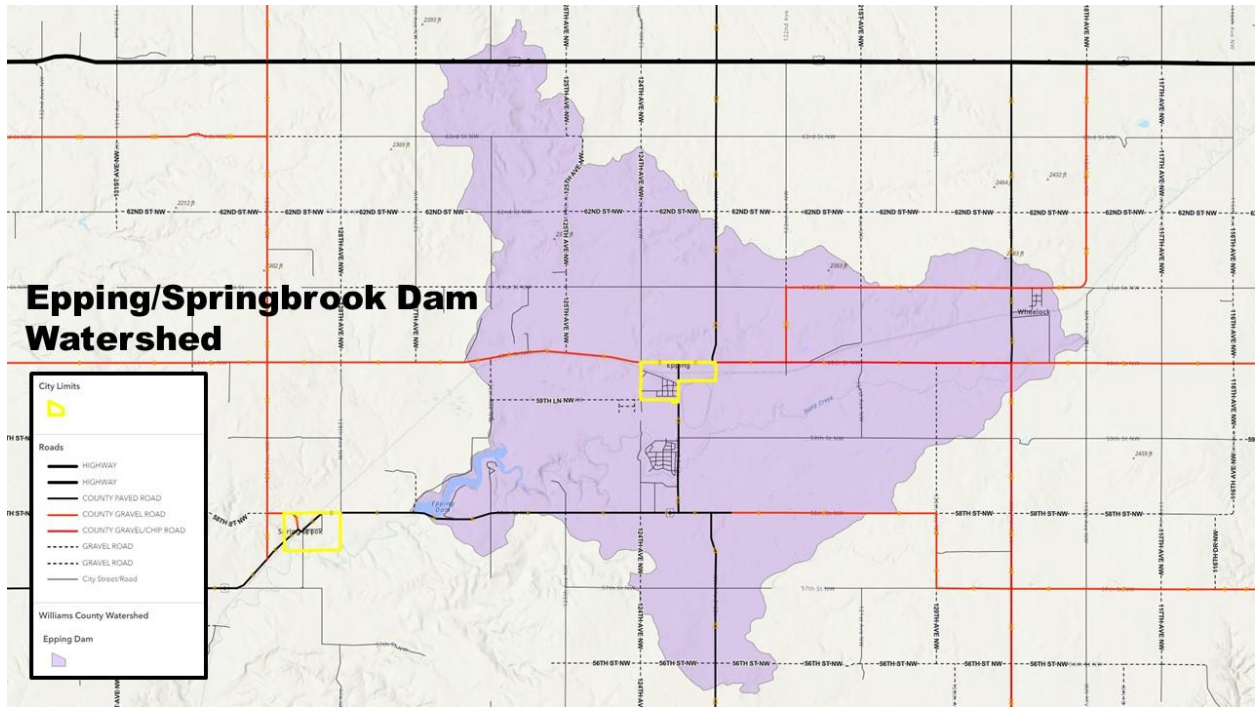


Figure 2: Stony Creek/Epping-Springbrook Watershed (HUC 10) area.

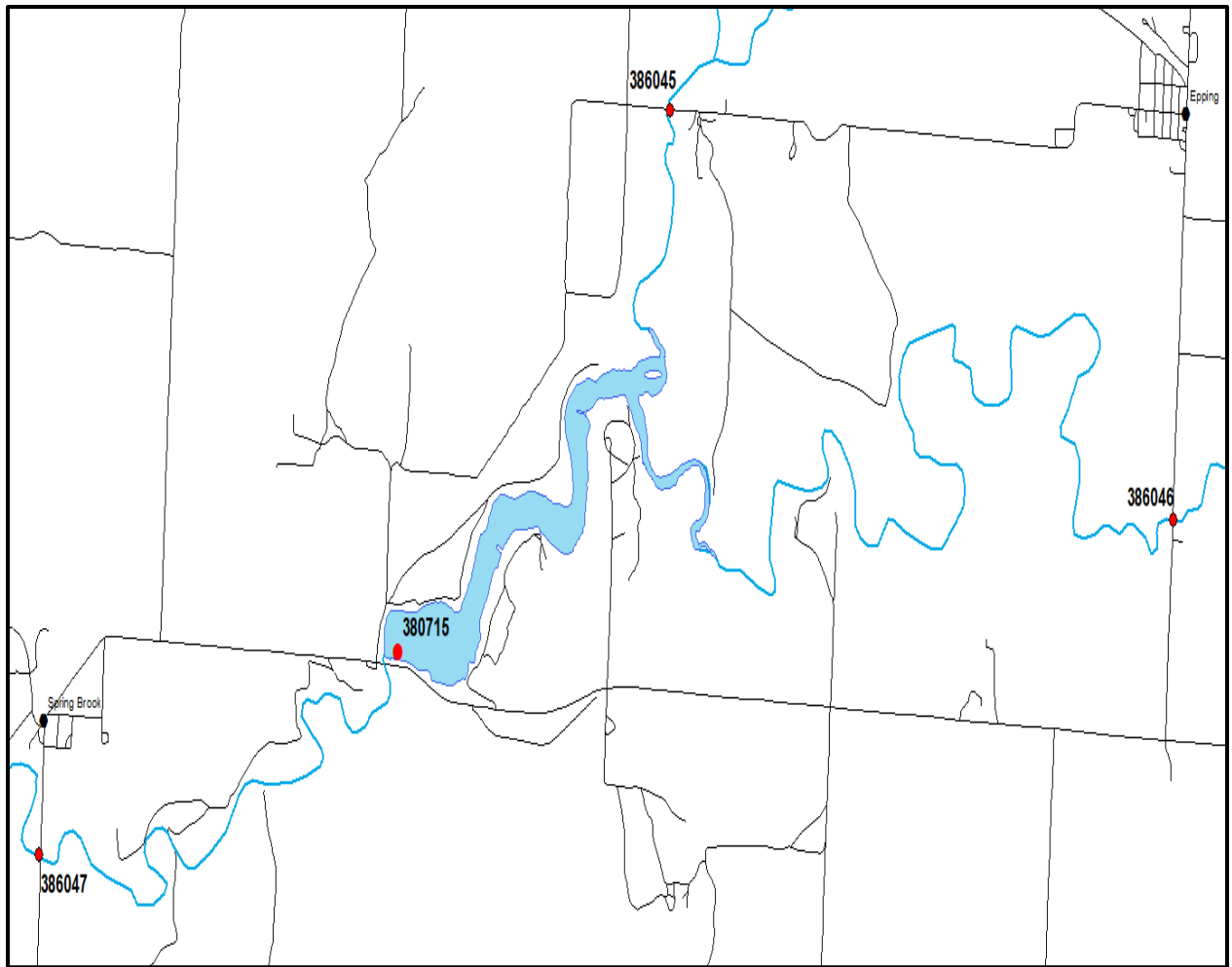


Figure 3: Epping-Springbrook Dam and tributaries. Stream and lake monitoring sites are denoted with red dots.

3.0 Project Description

Goals of the project: The primary goal of the project is to minimize the occurrence of harmful algal blooms (HABs) in the ESD to improve recreational opportunities. This will be accomplished but reducing the delivery of nutrients (primarily phosphorous) from the watersheds immediately adjacent to ESD.

3.1 Objectives and Tasks

Objective 1: Provide local project administration and staffing to provide technical assistance to producers, monitor water quality, and provide materials to the public.

Task 1: Employee: 20% of a full-time employee for 4.5 years.

Product: 20%-time project coordinator for the duration of the project to manage office activities, assist landowners/producers, to promote, and install BMPs.

Cost: \$170,450.85 (\$102,270.51-319 Funds & \$68180.64-WCPB Match)

Objective 2: Reduce phosphorus and sediment loads delivered to ESD. The objective will focus on reducing nutrient and sediment runoff using reduced tillage, cover crops, riparian buffers, nutrient management, and critical area planting.

Task 2: Work with the NDDEQ to define priority areas for targeting BMP implementation.

Product: An AnnAgNPS Model outlining areas to prioritize with BMPs during the project.

Cost: \$0

Task 3: Work with area landowners and producers to target high priority areas for conservation planning aimed to reduce nutrient and sediment loads.

Product: BMP Implementation to address non-point sources that impair recreational uses on ESD.

Cost: \$160,000 (\$96,000- 319 Funds & \$64,000-Landowner Match)

Task 4: Provide support to producers for installation of cover crops, nutrient management, and other cropland BMPs.

Product: Work with targeted landowners/producers to implement cover crops and other cropland BMPs.

Cost: Included in Task 3

Task 5: Provide support to producers for installation of critical area seeding, grassed waterways or water and sediment control basins (WASCOBs).

Product: Work in targeted areas to implement of drainage area treated throughout the watershed.

Cost: Included in Task 3

Objective 3: Reduce E. coli bacteria levels to meet state standards for recreation uses.

Task 6: Minimize the length of time livestock are grazing in riparian areas by assisting producer to implement grazing management systems utilizing fences, water development and intense grazing management.

Product: Work with producers in critical areas to implement prescribed grazing by installing fence and water development. Cost-share will be based on rates in the BMP cost-share guidelines. Grazing time will be limited in riparian areas for grazing and follow NRCS prescribed grazing recommendation.

Cost: Included in Task 3.

Objective 4: Monitor the effectiveness of BMP implementation in Epping Springbrook Dam through water quality sampling.

Task 7: Collect samples, as outlined in sampling and analysis plan created by ND Department of Environmental Quality (NDDEQ).

Product: Approved Sampling and Analysis Plan. the goal will be to collect 20 samples at each STORET site, annually. Parameters to be monitored will include E. coli, Total Suspended Solids; Total Nitrogen; Total Phosphorus and Anions/Cations. Also see section 5.0, Monitoring and Evaluation (appendix D).

Cost: \$9000 (\$5400-319 Funds & \$3600-WCPB Match)

Objective 5: Increase public awareness on NPS pollution issues and promote the use of effective best management practices to improve soil and water quality. When possible, these events will be coordinated with ongoing state and/or federal programs in the area.

Task 8: Conduct annual educational events at various locations throughout the county to allow area producers to see and learn about soil health practices.

Product: Farm tours and educational workshops. Farm tours will focus on nutrient management targeted towards capturing the nutrients in the catchments and riparian grazing and limiting cattle in these areas. Educational workshops will focus on the soil health.

Cost: \$6000 (\$3600-319 Funds & \$2400-WCPB Match)

Task 9: Prepare newsletters and direct mailings to local land users, general public, and media to promote the project and disseminate information on water quality and NPS pollution control.

Product: 5 years of semiannual newsletters and direct mailings

Cost: \$4500 (\$2700-319 Funds & \$1800-WCPB Match)

Objective 6: Complete necessary project reports

Task 10: Complete annual and final project reports to update the project progress and completion. These will be provided to NDDEQ, EPA and all sponsors and interested parties.

Product: Annual and final project reports

Cost: Included in the Task 1

3.2 Project Milestones

See Appendix A

3.3 Permits

All necessary permits will be acquired. These may include CWA section 404 permits and NDPDES permits. The State Historic Preservation Officer will be consulted regarding potential cultural resource effects.

3.4 Lead Project Sponsor

WCPB is sponsoring this water quality project. The WCPB board will oversee the Epping Springbrook Dam Watershed Project. The WCPD has legal authority to employ personnel and receive and expend funds.

3.5 BMP Operation and Maintenance

Proper operation and maintenance will be assured utilizing the NRCS O&M guidance as listed under the standard and specification for the associated BMP applied or other standards approved by NDDEQ.

4.0 Coordination Plan

4.1 Partners

The project sponsor for the Epping Springbrook Dam Watershed Project is the Williams County Park Board (WCPB). Major partners include North Dakota Department of Environmental Quality (NDDEQ), Williams County Soil Conservation District (WCSCD), Williams County Water Resource Board (WCWRB), North Dakota Game and Fish (NDG&F), Williams County Sheriff's Department and Natural Resource Conservation District (NRCS).

- 1.** The lead project sponsor is the WCPB. The NDDEQ will hold a contract with the district. BMP implementation, project administration, computer entry, landowner contacts, water sampling and water quality education will be the responsibility of the district.
- 2.** The NDDEQ will oversee the 319 funding as well as provide training for proper water quality sample collection, preservation, and transportation to ensure reliable data is obtained. The NDDEQ will also provide analytical support for the water quality samples collected during the project. The NDDEQ will provide the sponsor oversight to ensure proper management and expenditures of Section 319 funds. They will assist NRCS and the WCPB personnel in review of O & M requirements for Section 319 funded BMP.
- 3.** The NRCS will be used as a resource to in conservation planning, plan writing, contract writing, and technical assistance for construction and installation of planned BMP.
- 4.** The North Dakota Game and Fish Department (NDG&F) – Williston District NDG&F Office to be one of the entities to provide access via boat to preform water sampling.
- 5.** The Williams County Sheriff's Department WCSD– WCSD to be one of the entities to provide access via boat to preform water sampling.
- 6.** The Williams County Soil Conservation District (WCSCD) – The WCSCD will assist the WCPB with water testing and technical assistance.
- 7.** Will work with other entities including the Williams County Extension, Ducks Unlimited, Pheasants Forever, NRCS, the BMP Team, and other entities to provide technical and/or financial assistance to the project.

5.0 Monitoring and Evaluation

5.1 Sampling and Analysis Plan

A sampling and analysis plan (SAP) will be developed by the NDDEQ after the project is fully approved. A copy of the SAP will be included in the final approved project implementation plan (PIP).

The SAP will describe the monitoring goals, objectives, and tasks to evaluate the project's progress and success. The time frame for the SAP will be consistent with the approved period for the PIP. A report interpreting the SAP data will be included in the final project report submitted to NDDEQ at the end of the 5-year project period. The water quality report will summarize the data collected and describe the effectiveness of the project in progressing toward water quality targets and/or beneficial use improvement goals. The SAP will identify and describe:

- Water quality and/or beneficial use monitoring goals, objectives, and tasks
- Specific parameters to be monitored to track progress toward quantified PIP objectives and beneficial use restoration goals.
- Sample collection locations, frequencies, and schedules
- Standard operating procedures for data collection, preservation, and transportation
- Responsible parties for data collection

In addition to data collection scheduled in the SAP, interim measures will also be used to evaluate short-term progress and inform project management decisions. These measures will include BMP tracking and annual load reduction estimates associated with applied BMP. The NPS Program BMP Tracker Database will be used to document the type, amount, location, and cost of BMP applied in the watershed. This information will be used as a surrogate measure for evaluating producer interest and effectiveness of the technical and financial assistance delivered by the project. The data for BMP types and amounts will also be used to estimate the annual field-edge nitrogen, phosphorus, and sediment load reductions associated with applied BMP. The annual load reduction estimates will provide a quantified value to help gauge potential water quality benefits. All the annual load reduction data will be provided to the NDDEQ and entered in the EPA Grants Reporting and Tracking System (GRTS).

Outside of the realm of the 319 program, the WCPB has purchased three LGSonic Monitor and Control Buoys (www.lgsonic.com) and will pay an annual maintenance and operation fee to operate these buoys. These buoys monitor chlorophyll, phycocyanin, pH, turbidity, dissolved oxygen, and temperature. The information received from these buoys will aid in targeting what and where BMPs will be used. The buoys were purchased with assistance from the North Dakota Outdoor Heritage Fund.

6.0 Budget

See Appendix B

7.0 Public Involvement

The community will be informed of project updates and cost-share opportunities in our semiannual newsletters, website [Welcome - Williams County, ND \(williamsnd.com\)](http://www.williamsnd.com), and Facebook page www.facebook.com/williamscountynd

8.0 Appendix

8.1 Appendix A – Project Milestones

Task	Group	Output	Quantity	2024				2025				2026				2027				2028			
				Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	Quarter*	
OBJECTIVE 1: Staffing																							
Task 1 - Watershed Coordinator	1.2,3,4,5,6	Conservation Planning	20% Employee	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
OBJECTIVE 2: Reduce Phosphorus and Sediment Loads																							
Task 2: Define Priority Areas	1.2,3,4,5,6	Identify Locations for BMP's	10 Contracts	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Task 3-5: Implement BMP's	1.2,3,4,5,6	Cover Crops/Critical Area Planting	10 Contracts**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
OBJECTIVE 3: Reduce E. coli Bacteria Levels																							
Task 6: Implement Grazing Plan	1.2,3,4,5,6	Fencing/Prescribed BMPs	10 Contracts**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
OBJECTIVE 4: Monitor Effectiveness of BMPs																							
Task 7: Collet Water Samples	1.2,4,6	Water Testing	Ongoing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
OBJECTIVE 5: Increase Public Awareness																							
Task 8: Educational Events/Tours	1.2,3,5	Tours/Workshops	8 Events	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Task 9: Newsletters	1.5	Newsletters, Mailing	9 Newsletters	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
OBJECTIVE 6: Complete Project Reports																							
Task 10: Annual And Final Reports		1 Project Reports	Annually	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Group 1: Williams County Park Board - Provides administration, supplies, and financial support for the project																							
Group 2: Williams County Soil Conservation District - Provides technical assistance for the project																							
Group 3: National Resources Conservation Service - Provides technical assistance for the planning, design and installation of BMP's																							
Group 4: ND Department of Environmental Quality Division of Water Quality - Oversees Section 319 funding, monitoring and overall evaluation of the project																							
Group 5: Epping Springbrook Dam Watershed Landowners - Make management decisions and provide both cabs an in-kind math for BMP's																							
Group 6: North Dakota Game and Fish - Provides technical assistance for the project																							
* Quarter 1 - January/March * Quarter 2 - April/June * Quarter 3 - July/September * Quarter 4 - October/December																							
** 10 Contracts - The goal is to complete 10 contracts throughout Tasks 3, 4, 5, & 6																							

8.2 Appendix B – Funding Sources Budget

Part 1: Funding Sources						
	2024	2025	2026	2027	2028	Total
EPA Section 319 Funding						
ESD Project Starting 2024	\$ 20,730.14	\$ 48,869.69	\$ 49,394.39	\$ 49,934.82	\$ 41,041.46	\$ 209,970.51
Matching Funds						
Williams County Park Board	\$ 7,820.10	\$ 16,579.80	\$ 16,929.59	\$ 17,289.88	\$ 17,360.98	\$ 75,980.34
Landowners/Producers	\$ 6,000.00	\$ 16,000.00	\$ 16,000.00	\$ 16,000.00	\$ 10,000.00	\$ 64,000.00
Subtotals	\$ 13,820.10	\$ 32,579.80	\$ 32,929.59	\$ 33,289.88	\$ 27,360.98	\$ 139,980.34
Total 319 Project Budget						
	\$ 34,550.24	\$ 81,449.49	\$ 82,323.98	\$ 83,224.70	\$ 68,402.44	\$ 349,950.85
Other Funds						
Subtotals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Project Cost						
	\$ 34,550.24	\$ 81,449.49	\$ 82,323.98	\$ 83,224.70	\$ 68,402.44	\$ 349,950.85

8.3 Appendix C – Detailed Budget

Part 2: Detailed Budget							
	2024	2025	2026	2027	2028	Total Costs	319 Funds
Objective 1: Personnel/Support/Admin							
Salary/Fringe (3% increase per year)	\$ 14,150.24	\$ 29,149.49	\$ 30,023.98	\$ 30,924.70	\$ 31,852.44	\$ 136,100.85	\$ 81,660.51
Travel, Food & Lodging	\$ 1,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 1,500.00	\$ 8,500.00	\$ 5,100.00
Supplies	\$ 250.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 250.00	\$ 2,000.00	\$ 1,200.00
Communications (Postage)	\$ 150.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 1,350.00	\$ 810.00
Administration	\$ 2,500.00	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 22,500.00	\$ 13,500.00
Subtotals	\$ 18,050.24	\$ 36,949.49	\$ 37,823.98	\$ 38,724.70	\$ 38,902.44	\$ 170,450.85	\$ 102,270.51
Objectives 2 & 3: Implement BMP's							
Implement on Cropland (cover crops nutrient management, and other BMP's)							
Implement critical area seed, grassed waterways, and water sediment and control basins	\$ 15,000.00	\$ 40,000.00	\$ 40,000.00	\$ 40,000.00	\$ 25,000.00	\$ 160,000.00	\$ 96,000.00
Improve nutrient management on rangeland							
Subtotals	\$ 15,000.00	\$ 40,000.00	\$ 40,000.00	\$ 40,000.00	\$ 25,000.00	\$ 160,000.00	\$ 96,000.00
Objective 4: Conduct Water Sampling							
Water Sampling	\$ 1,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 9,000.00	\$ 5,400.00
Subtotals	\$ 1,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 9,000.00	\$ 5,400.00
Objective 5: Public Information Campaign							
Public Informational Meetings/Tours	\$ -	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 6,000.00	\$ 3,600.00
Newsletter, Mailings, and Other Outreach	\$ 500.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 4,500.00	\$ 2,700.00
Subtotals	\$ 500.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	\$ 10,500.00	\$ 6,300.00
Total 319 Project Budget							
	\$ 34,550.24	\$ 81,449.49	\$ 82,323.98	\$ 83,224.70	\$ 68,402.44	\$ 349,950.85	\$ 209,970.51

8.4 Appendix D – Watershed Water Quality Summary