

NORTH DAKOTA NPS POLLUTION MANAGEMENT PROGRAM

2020 Annual Report **January 1, 2015 – December 31, 2020**

This report describes the cumulative accomplishments during the 2015-2020 Management Plan Period



Contents

Section I – Introduction.....	1
Section II - Waterbody Prioritization.....	4
Section III - Resource Assessment.....	6
Section IV – Project Assistance.....	7
Section V – Coordination.....	12
Section VI – Public Out-Reach and Education.....	14
Section VII - Program Evaluation.....	17

Tables

Table 1 – Status of Development Phase Projects.....	7
Table 2 – Outdoor Heritage Fund Allocations.....	9
Table 3 – NPS Project Sponsors and Financial Partners.....	10
Table 4 - Section 319 Expenditures per Project Category.....	11
Table 5 – Goals and Target Audiences of the Educational Projects.....	15
Table 6 – Final Project Reports Entered in the GRTS.....	18
Table 7 – Cumulative Section 319 Expenditures per BMP Category.....	22

Appendices

Appendix A – Status of the 2015-2020 Management Plan Objectives and Tasks
Appendix B – Section 319 Project Expenditures during the Management Plan Period
Appendix C – Final Section 319 Budgets for Projects Supported under the 2015 Grant
Appendix D – Summary of Partner Organization Assistance to the NPS Program
Appendix E - Map of the all Watershed Projects supported during the Management Plan Period
Appendix F – Amounts and Costs of BMP Implemented during the Management Plan Period

Introduction

The North Dakota Nonpoint Source Pollution Management Program (NPS Program) is a voluntary program focused on the reduction and prevention of NPS pollution impairing beneficial uses of the state's water resources. Locally sponsored projects are the primary means by which the NPS Program is implemented across the state. Through these local initiatives, the ND Department of Environmental Quality (Department) has supported numerous on-the-ground efforts as well as many educational events to move toward the goals of the 2015 – 2020 NPS Pollution Management Program Plan (Management Plan). The Management Plan vision and mission statement are as follows:

North Dakota NPS Program Vision: “To abate all NPS pollution threats and impairments to the beneficial uses of the waters of the state.”

North Dakota NPS Program Mission: “To accomplish the vision, the mission for the NPS Program is to implement a voluntary, incentive-based program that restores and protects the chemical, physical, and biological integrity of waters where the beneficial uses are threatened or impaired due to nonpoint sources of pollution.”

Three primary goals have been established for the effective period of the Management Plan to carry out the NPS Program's mission and ensure continued progress toward the NPS Program vision. These goals are focused on watershed assessment; implementation of corrective measures; and public education. The effective period for the Management Plan is January 2015 through December 2020. The specific goals set for the Management Plan period are as follows:

Goal 1: Coordinate with the Total Maximum Daily Load Program (TMDL Program) and local partners to assess 15 priority watersheds to document the beneficial use conditions as well as the sources and causes of NPS pollutants impairing beneficial uses of the waterbodies within the watersheds. Progress for this goal will be evaluated by tracking the number of waterbodies assessed as well as the number of TMDL or NPS Assessment Reports developed. *[NOTE: The number of 12-digit watersheds to be assessed may increase to 25 if the development of the Basin Water Quality Management Framework proceeds as planned. The first basin assessment activities are expected to run from 2016-2017 in the Red River Basin, followed by watershed assessment activities in a second basin in 2018-2019. These basin assessments may result in the completion of 10 additional watershed assessments.]*

Goal 2: In cooperation with local partners, develop and implement watershed restoration or protection plans for 15 priority sub-watersheds. Success of these projects will be defined by restoration of impaired uses; applied best management practices (BMPs) and progress toward pollutant load reductions described in the approved watershed-based plans. Priority watersheds will include those with impaired waterbodies listed in the 2014 or subsequent Integrated Reports or those identified in approved basin water quality management plans. To allow flexibility in staffing and planning, the watershed projects may address one or more impaired waterbodies and encompass several 12-digit hydrologic units (i.e., sub-watersheds). However, a single sub-watershed will be the preferred project

size. For the projects that must include multiple sub-watersheds, the sub-watersheds will be prioritized to establish a long-term implementation schedule based on those priorities. The implementation schedule of most of the watershed projects will also likely exceed 5 years and extend into the time periods for subsequent management plans. *[NOTE: As previously indicated, the number of watershed projects implemented may increase by approximately five if the Basin Water Quality Management Framework and Red River Basin assessment are completed, as scheduled. The timeline for the completion of the assessment work in the second basin will not allow sufficient time for the implementation of additional watershed projects in that basin]*

Goal 3: Through multiple forms of media at the state and local level, increase public awareness and understanding of water quality and beneficial use impairments associated with NPS pollution as well as the sources and causes of NPS pollution in the state. Feasible solutions to the state's NPS pollution issues will also be a major part of NPS Program outreach efforts. The target audience will be the general public, with particular emphasis placed on reaching individuals and organizations involved in the agricultural industry. As the ND Nutrient Reduction Strategy evolves during the Management Plan period, the educational goal of the NPS Program will also be adjusted to ensure coordination and the delivery of a consistent message on nutrient management. Attendance, exit surveys, follow-up contacts, and feedback will be the main measures used to gauge the success of local educational events. A statewide survey, the first and final year of the Management Plan, will be conducted to evaluate general public awareness.

While the goals of the Management Plan are to initiate 15 watershed restoration projects by 2020, ten or more years are generally required to complete a watershed restoration project and possibly even more years are needed to confidently evaluate the degree of improvements. Therefore, many of the watershed restoration projects initiated by 2020 will not be completed until after 2025. The final success for these projects will be reported under future management plans. However, annual progress and interim success will be reported during the current Management Plan period to track measures initiated to address the identified water quality impairments. In addition, with the continual start-up of new assessment efforts each year, future Integrated Reports will undoubtedly identify new waterbodies with beneficial uses impaired by NPS pollution. As such, financial and technical support to develop and implement these new watershed restoration projects will also continue well beyond the effective period of the current Management Plan.

Advancement toward the NPS Program vision will be measured by the degree of progress toward the NPS Program goals as well as by the accomplishments under the five Program Delivery objectives. Major outcomes to be tracked and measured during the Management Plan period to gauge overall progress of the NPS Program include: waterbodies assessed; beneficial uses restored; water quality trends; nutrient and sediment load reductions; public awareness; stakeholder groups formed; and basin management plans developed. The annual and final reports entered in the EPA Grants and Reporting System (GRTS) will be the primary means used to document project and program progress as well as to report to the EPA. The EPA performance measures (e.g., WQ-10) will also be used, when applicable, to report on specific projects where a

beneficial use has been fully restored or where trends indicate declining pollutant loads or concentrations.

The EPA Grants Reporting and Tracking System (GRTS) is the main reporting tool used to describe all the projects supported with Section 319 funding as well as report on specific project accomplishments. As projects are approved for Section 319 funding, the GRTS is updated to include information such as the 1) project goal; 2) Section 319 budget; 3) targeted NPS pollutants; 4) local sponsors; 5) type of waterbody being addressed; 6) pollutant load reductions; and 7) BMP planned/applied. The project implementation plans as well as the annual and final reports for each project are also posted in the GRTS.

EPA performance measures (e.g., WQ-10) are an additional reporting process used to highlight the successes and accomplishments of specific projects in the state. When available, the NPS Program coordinates with EPA to submit project-specific reports on waterbodies that have one or more beneficial uses restored by the NPS Program. These “success stories” are posted on EPA’s website. In past years, the NPS Program also developed reports highlighting projects that have documented improving trends in water quality (i.e. SP-12 reports). These reports served as an interim measure to document the benefits of ongoing projects. These reports were also provided to EPA.

Each year, the NPS Program also submits an annual program report to EPA to provide an update on progress toward the Management Plan goals and objectives. The main components of the reports include five sections focused on the NPS Program delivery objectives and a final section addressing progress toward planned outcomes. Section VII of the annual reports is the closing section that describes progress toward the planned NPS Program outcomes, while Sections II through VI address the following delivery objectives: 1) Waterbody Prioritization; 2) Resource Assessment; 3) Project Assistance; 4) Coordination; and 5) Public Out-Reach Education. The sections of the annual reports are consistent with the sections in the Management Plan.

The NPS Program annual reports are cumulative reports that describe up-to-date progress under the 2015 - 2020 NPS Pollution Management Program Plan. As such, the time frame for this 2020 annual report is January 1, 2015 to December 31, 2020, which also represents the final report for the 2015-2020 Management Plan Period (Management Period). Active Section 319 Grants during the Management Period included the 2011 - 2020 Grants. The 2011, 2012, 2013 and 2014 Grants expired prior to the 2020 reporting period and the 2015 Grant was closed-out during the final year of the Management Period. The ending budgets for the projects supported under the 2015 Grant are provided in Appendix C. The final project budgets under the 2011, 2012, 2013 and 2014 Section 319 Grants were included in previous NPS Program annual reports.

The following sections summarize the cumulative accomplishments during the January 1, 2015 through December 31, 2020 Management Period.

II. Waterbody Prioritization

Prioritization Objective: Provide direction for the delivery of financial and technical assistance to assess, restore or protect waterbodies impaired or threatened by NPS pollution

The NPS Program prioritization process was initially intended to be directed by the Basin Water Quality Management Framework (Basin Framework). Implementation of the Basin Framework was initiated in the Red River Basin in 2017. Two meetings were conducted to introduce the public to the concepts of the Basin Framework and gain input on water quality concerns and issues in the basin. Approximately 35 people attended each of the meetings. Information generated through the meetings was intended to provide a foundation for a second series of public meetings to move toward the development of basin water quality priorities and an action strategy for the implementation of the Basin Framework. However, public feedback during the first meetings indicated it was premature to initiate the implementation of the Basin Framework and it was more important to better define the purposes of the Basin Framework and more clearly communicate state and local roles in the development and implementation of the basin management plans.

Given the initial feedback, development of the Basin Framework was discontinued. This does not mean the basin planning concept was abandoned, but instead, the delay will allow time to reevaluate the goals, scope, partnerships and delivery of the Basin Framework. Throughout this extended development period, the efficacy of the Basin Framework to improve delivery of ongoing WMP programs (e.g., Ambient Monitoring, TMDL, etc.) at the basin level will be re-examined. The effectiveness of the Basin Framework process to garner more local support; increase landowner participation; and strengthen local watershed management efforts will also be evaluated before moving forward with implementation. These actions and implementation of an updated Basin Framework will likely be accomplished during the next 3-4 years. The NPS Program will continue to be part of these efforts throughout the 2021-2025 NPS Management Plan period to evaluate how outcomes of the Basin Framework process can be incorporated into the NPS Program planning process, including watershed prioritization.

When initiated, it is envisioned the Basin Framework will take multiple years to cycle through the river basins in the state. As such, priority setting within the river basins will not be concurrent. When available, NPS Program priorities will be based on information obtained through the Basin Framework process for each river basin. Conversely, in the absence of a locally approved Basin Framework, the NPS Program will continue to work with local entities to assess individual waterbodies and set priorities accordingly. This interim process is essentially the same process the NPS Program has followed the past several years. As implementation of the Basin Framework proceeds, basin-specific priorities will be adopted by the NPS Program.

During the 2015-2020 Management Period, the Integrated Reports served as the main information source for establishing state level NPS Program priorities. To pare down the 303(d) list in the Integrated Reports, the NPS Program coordinated with the TMDL Program to focus on TMDL priorities where NPS pollution is impairing a waterbody's beneficial uses. Of these waterbodies, those that were a high priority for TMDL development or had an approved TMDL were considered the highest priority waterbodies for assessment or restoration under the NPS Program.

From a protection standpoint, assessed waterbodies with no beneficial use impairments were also recognized by the NPS Program as priority waters, if NPS pollution threats were identified in the watershed. Locally, the TMDL and NPS Program priorities were used for prioritization purposes, but other information such as public survey results; applied BMP data; and NPS Pollution Assessment Reports, were also used to focus priorities and set schedules for specific watershed assessment, restoration or protection projects.

A third NPS Program priority during the Management Period included common NPS pollutant sources contributing to the impairment of beneficial uses in multiple watersheds. These NPS pollution sources were identified as high priorities and targeted for abatement activities. Concentrated animal feeding operations and degraded riparian areas have been two longstanding statewide priority sources. Reduction of erosion and nutrient inputs on unproductive cropland acres impacted by factors such as frequent flooding and/or saline soils, was a more recent priority pollutant source recognized by the NPS Program. Two ongoing projects addressing a priority NPS pollutant source are the Livestock Pollution Prevention Program, which is focused on improving manure management and the Precision Ag Business Planning project which is working to restore perennial vegetation and reduce nutrient inputs on unproductive cropland.

Within the priority watersheds, further prioritization was accomplished with the Annualized Agriculture Nonpoint Source Pollution model (AnnAGNPS) or the LiDAR-based Prioritize, Target and Measure Application (PTMApp). Both models identify specific areas and/or sub-watersheds within the priority watersheds that are potential sources of nitrogen, phosphorus and/or sediment. Maps generated by these models have been used by watershed project sponsors and staff to direct BMP planning and implementation efforts within the watershed projects.

The AnnAGNPS model was used throughout the state to map target areas for all the watershed projects receiving Section 319 support. Generally, the AnnAGNPS target areas range in number from a few to over one hundred per priority watershed. AnnAGNPS priority maps were included in the project implementation plans for all the approved watershed projects entered in GRTS.

Development of the PTMApp was preceded by the LiDAR-based Decision Support Tool (Support Tool), which was first initiated in the Wild Rice River Basin in 2014. Although it proved to be an effective prioritization tool, the Support Tool ultimately served as a stepping-stone toward the development of the web-based PTMApp. The Red and James River Basins were the first areas targeted for PTMApp development. The PTMApp for both river basins has been completed. The NRCS was the main source of financial support for the PTMApp development in Red River Basin. The ND PTMApp web address is [International Water Institute PTMApp - Web Application Sign In - ptmaweb \(iwinst.org\)](https://www.iwinst.org/ptmaweb/).

With PTMApp, resource managers have been able to easily access a multitude of watershed-based Arc GIS data products in an interactive web-based environment. These data products have enabled NPS project sponsors to more effectively determine water quality management needs by providing the mapping to; 1) identify major nutrient or sediment sources; 2) establish priority areas in specific fields or subwatersheds; and/or 3) identify specific types of BMP to address pollutant sources. Nutrient and sediment loading at selected sites as well as estimated economics for various BMPs are additional PTMApp outputs. The PTMApp can be applied at the basin

level down to the 12-digit hydrologic unit level. Field scale planning is also possible with PTMApp.

Waterbody prioritization tasks and accomplishments for the Management Period are provided in Appendix A.

III. Resource Assessment

Assessment Objective: Document beneficial use and water quality conditions of priority waterbodies and/or watersheds and identify the sources and causes of beneficial use impairments.

Projects designed to assess and document the extent of beneficial use impairments associated with NPS pollution have always been a critical component of the NPS Program. Data collected through assessment efforts was used to define state and local watershed management priorities as well as to provide direction for ongoing and future educational initiatives. The watershed assessment projects also provided local resource managers the necessary information to establish priorities for land management improvement and TMDL development. The data collected and priorities established through the assessment projects provided the foundation for the watershed management projects supported during the Management Period.

Assessment of beneficial use and water quality conditions were accomplished through the Department's WMP monitoring programs as well as through local NPS Program assessment projects targeting small watersheds. At the state level, data (e.g., water quality, biological) collected by the WMP and local watershed projects were compiled and interpreted on a biennial basis to develop the Integrated Reports. These Integrated Reports were not only used to prioritize watersheds for restoration work, but they also aided in directing local NPS Program partners to waterbodies that needed further assessment to define beneficial use conditions and restoration needs. The Recovery Potential Screening Tool (RPST) was also available to further prioritize the "303(d) listed" waterbodies when multiple watersheds were being evaluated. Occasionally, local interests and priorities also played a role in directing NPS Program assessment activities toward "unlisted" waterbodies to determine beneficial use conditions as well as sources and causes of beneficial use impairments.

Data collected through the NPS Program assessments was used to develop TMDLs and/or NPS pollution assessment reports that: 1) document beneficial use impairments; 2) identify specific NPS pollutant causes/sources; and 3) establish goals for land use improvement and NPS pollution reduction. This same data was also used to help meet NPS Program assessment and prioritization objectives and update future Integrated Reports. The most current Integrated Report is posted on the Department's web site:

https://deq.nd.gov/WQ/3_Watershed_Mgmt/2_TMDLs/TMDLs_IR.aspx.

Section 319 funding used to support assessment projects was provided through the NPS Program's "Development Fund." The Development Funds are unexpended Section 319 funds reallocated from other NPS projects or Section 319 funds included in the NPS Program Staffing and Support budget for assessment activities. Twenty development/assessment projects were supported with Section 319 Development Funds during the Management Period. The primary

focus for these development projects ranged from water quality and beneficial use assessment to the development of the PTMApp for the James and Red River basins. Projects supported with Development Phase Funds have been entered under “Development Phase Projects” for the applicable grant years in the GRTS. Development Phase projects supported from January 2015 through December 2020 are listed in Table 1.

Table 1: Status of Development Phase Projects supported during the 2015-2020 Management Period

Project Name	Status
Bouret Dam Rehabilitation and Erosion Control Study (Benson WRB)	Complete
Bowman-Haley Watershed Assessment	Active
Eddy County Conservation & Soil Health Demonstration	Active
Heart River Nutrient Dynamics & Salinity Effects Analysis	Active
James River Basin Decision Support Tool Development Project	Complete
Little Missouri Tributary Assessment (Bowman SCD Support)	Complete
Little Missouri Tributary Riparian & Stream Stability Assessment	Complete
Middle Sheyenne River Watershed Plan Development	Complete
BSA Environmental Services (Harmful Algal Bloom Sample Analysis)	Complete
Local Land Use Plan Development (Bowman SCD)	Complete
Mill Dam Rehabilitation and Erosion Control Study (Valley City)	Complete
Precision Ag Business Planning Pilot Program	Complete
PTMApp Web Enhancements Project	Active
Red River Basin PTMApp Development - Phase I & II	Complete
Janke-James River Riparian Restoration Project	Complete
Upper Sheyenne Riparian Erosion & Sedimentation Assessment Phase I&II	Complete
Upper Sheyenne River Streambank and Restoration Project Development	Complete
Red River Basin Cold Climate Ag Nutrient BMP Workshop	Complete
Red River Basin River of Dreams Program	Complete
Water Quality Improvement through Farmer-Led Stewardship Project	Complete

As the foundation for watershed-based restoration, additional assessment projects are needed to ensure continued growth and expansion of efforts focused on water quality and beneficial use improvement in impaired waterbodies. This emphasis on watershed assessment projects will be a major component under the 2021-2025 Management Plan.

The status and products of the NPS Program assessment tasks for the Management Period are provided in Appendix A.

IV. Project Assistance

Project Assistance Objective: Coordinate with local partners to secure sufficient financial and technical resources to support the development and implementation of priority watershed assessments; educational programs and watershed restoration or protection projects.

As a voluntary program, successful development and implementation of NPS pollution management projects continued to be dependent on local support and involvement. Local participation during project development provided the opportunity to design project plans with goals and objectives that focused on local and state NPS pollution priorities. Although the size, type, and target audience of the NPS projects varied, they all shared the same basic objectives. These common objectives were: 1) increase public awareness of NPS pollution, 2) reduce/prevent

the delivery of NPS pollutants to waters of the state, and 3) disseminate information on effective solutions to NPS pollution.

Financial and technical assistance provided during the Management Period was used to support local staff, BMP implementation, water quality monitoring, data interpretation, and public meetings or other information/education (I/E) events. The Section 319 funding allocated to the local sponsors was provided at a 60% Section 319 and 40% local matching ratio. The local match, provided in the form of cash and/or in-kind services, was derived from several partners including, soil conservation districts, water resources boards, city councils, private foundations and trusts, landowners, nongovernmental organizations (NGO), agricultural groups and other state agencies. Appendix B lists the Section 319 expenditures of NPS projects supported under the active grants (i.e., 2011-2020 Grants) during the Management Period. The 2011 - 2014 Grants were closed out during previous reporting cycles. The ending Section 319 budgets for projects supported under those grants were included in previous Annual Reports. The 2015 Grant ended during this final reporting cycle for the Management Period. Final Section 319 budgets for projects supported under the 2015 Grant are listed in Appendix C.

The Natural Resources Conservation Service (NRCS) has always been an important source of federal financial and technical assistance for many of the NPS projects. Technical assistance provided by the NRCS generally included staff time to assist with land use assessments, public meetings, educational events and/or farm unit planning. Office space and some equipment were also provided to most NPS Program watershed projects.

The USDA cost share programs also continued to serve as additional funding sources to support the implementation of many BMPs within the watershed project areas. More specifically, NRCS district staff and the local watershed coordinators coordinated to use Environmental Quality Incentive Program (EQIP) cost share funds to implement conservation practices (e.g., fencing, grassed waterways, nutrient management, etc.) on thousands of acres within NPS Program priority watersheds. The NRCS has also provided direct financial support to the Livestock Pollution Prevention Program (LP3) and ND Stockmen's Association Environmental Service Program to support the delivery of technical assistance to livestock producers to design and plan the construction of manure management systems. When applicable, the annual and/or final NPS project reports entered in the GRTS provide a summary of practices applied through NRCS programs.

At the statewide level, two sources of non-federal financial assistance were utilized by NPS projects. These sources included the State Water Commission Trust Funds and the ND Outdoor Heritage Fund. These sources were not direct appropriations, but instead, the state funds were available through a competitive application process that was subject to approval by the state agencies administering the funds. The budgets for these two state funding pools were set on a biennial basis by the state legislature.

The State Water Commission Trust Fund (SWC Trust Fund) was a consistent source of state funding for eligible projects throughout the Management Period. Eligible projects were limited to NPS Program projects that provided BMP design assistance to livestock producers and/or other NPS projects. During the Management Period, \$600,000 in SWC Trust Funds were awarded to

the Department to support eligible projects. These funds were allocated to the ND Stockmen's Association Environmental Services Program, Livestock Pollution Prevention Program and the NPS BMP Team. The SWC Trust Funds were used to support the development of construction designs for 21 manure management systems, 5,580 feet of riparian area restorations and several other structural BMPs that were implemented within active Section 319 project areas. As a nonfederal funding source, the SWC Trust Funds were used to supplement the 40% match requirements associated with the Section 319 funds awarded to the NPS projects.

A second source of state funding for NPS projects included the ND Outdoor Heritage Fund (OHF). The OHF funds, which are state funds generated through oil production tax revenues, are available to support projects addressing natural resource management (including water quality) and outdoor recreation issues. During the Management Period, the OHF supported a variety of projects, including several NPS projects. Since January 2015, twelve NPS projects have received a total of \$3,547,896 in OHF funding. Within the NPS project areas, the OHF funds were used to expand BMP budgets by providing another cost share pool for the installation of BMPs. Specific NPS projects supported with OHF funds during the Management Period are listed in Table 2.

Table 2. Outdoor Heritage Fund Allocations during the Period of January 2015 – December 2020

Project Name	OHF Allocation
Riparian Grazing Systems Project*	\$253,500
LaMoure County Memorial Park Streambank Restoration Project*	\$695,424
Sheyenne River Sedimentation Reduction Project (2 nd OHF Allocation)	\$200,000
Homme Dam Watershed Project	\$65,000
Red River Riparian Project	\$584,200
Powers Lake Watershed Project	\$220,000
Morton, Oliver & Grant Co. Grazing Improvement Program **	\$900,000
Bowman-Slope SCD Grazing Conservation Program **	\$211,732
Cass Co. Windbreak & Wildlife Planting Initiative **	\$50,000
Middle Sheyenne River Watershed	\$38,040
Red River Basin Wildlife & Water Quality Enhancement Program**	\$270,000
Cass County Cover Crop Project **	\$60,000
Total	\$3,547,896

*Projects that only have 319 funds committed for staff. OHF funds will support all the BMP implementation.

** NPS projects located in an OHF project area and OHF funds are available to them for BMP implementation.

Although state and federal funding allocations (e.g., Section 319 funds, USDA cost share, and OHF funds) have been major components of the NPS project budgets, cash and inkind match contributions from sponsoring entities and their partners were also a significant part of most NPS project budgets. These local contributions typically represented most of the non-federal match commitments for the NPS projects. Cumulatively, the local NPS project sponsors and their partners have not only been responsible for the financial support of their NPS projects, but they have also been the main source of non-federal financial match needed to implement the NPS Program. During the Management Period, approximately \$11,994,198 in cash/inkind match was used to meet the match requirements of the Section 319 funds allocated to NPS projects. Of this match amount, \$4,415,922 was the producer and/or landowner matching share associated with Section 319 funds used to cost share BMP implementation. Table 3 lists the financial partners

that have provided technical and/or financial support for the development, implementation and/or management of NPS projects during the Management Plan period.

Table 3. NPS project sponsors and financial partners

Soil Conservation Districts	State Water Commission	Water Resource Districts
ND Department of Agriculture	Grazing Lands Coalition	RC&D Councils
ND State University	ND Stockmen's Association	Ducks Unlimited
Industrial Commission (OHF)	NDSU Extension Service	Landowners/Producers
Valley City State University	ND Game & Fish Department	Pheasants Forever, Inc.

Section 319 funding has always been the main source of financial support for the NPS Program. Total Section 319 allocations to NPS projects during the 2015-2020 Management Period were \$17,916,212 which equates to approximately 78% of the Section 319 funds awarded to state. The balance of Section 319 funds (i.e., 22%) awarded to the state were used to support NPS Program staff. The 40% non-federal match required under the Section 319 grants for NPS Program staffing was provided through State general funds and the balance of the non-federal match was provided by NPS projects. The primary match contributors for the NPS projects were Soil Conservation Districts and producers and landowners installing BMP.

NPS Program technical and financial assistance was generally initiated during the assessment phase of projects and continued throughout the implementation phase. In addition to the Section 319 financial support, the technical assistance provided to local projects included: project oversight; water quality sample analysis; project review and comment; training for sample collection and project management; quality assurance project plan development; distribution of educational materials; and biological monitoring support. Department personnel (i.e., 10 FTE) involved in the delivery of NPS Program financial and technical assistance are as follows:

- Water Quality Division Director & Surface Water Program Manager - Program Supervision (0.50 FTE)
- NPS Program Coordinator - Program Administration (1 FTE)
- Environmental Scientist - Monitoring/Assessment Assistance (2 FTE)
- Watershed Planning & Information/Education Coordinator - I/E Assistance (1 FTE)
- Microbiology and Chemistry Lab Personnel - Sample Analysis (2 FTE)
- Ground Water Program Personnel - Aquifer Assessment Project (3 FTE)
- Secretarial Assistance (0.5 FTE)

The roles and responsibilities of the Department staff involved in the NPS Program are described in the NPS Program Staffing and Support Workplans associated with each Section 319 Grant. These workplans were attached in the GRTS under "NPS Program Staffing and Support Program" for each applicable grant.

Since January 2015, seventy-three NPS pollution management projects were provided financial and technical assistance through the NPS Program. These projects included 33 watershed projects; 13 educational projects; and 19 assessment/development projects. Another five projects, defined as support projects, were awarded funding to address specific priority issues (e.g., manure management and riparian restoration) or provide engineering services to the NPS Program

projects. The Section 319 expenditures of the projects supported during the Management Period are listed in Appendix B.

The NPS projects supported with Section 319 funds are grouped in seven different categories. Inclusion in a category is primarily based on the goal of the project. Table 4 lists the cumulative Section 319 expenditures during the Management Period for each NPS project category.

Table 4. Section 319 Expenditures per Project Category: January 1, 2015 – December 31, 2020

Project Type *	Cumulative 319 Expenditures	Percent of Total 319 Expenditures
Development Phase - NPS Assessment	\$ 977,332	5.4%
Education - Demonstration	\$ 346,104	1.9%
Education - Public Outreach	\$ 4,057,626	22.6%
Support Projects (TA or FA)	\$ 4,448,177	24.8%
Watershed Projects	\$8,124,145	45.3%
Total	\$17,953,384	100%

*NPS Program staffing and support expenditures have not been included in the table to focus on the distribution of Section 319 support between the project categories.

As indicated in Table 4, about 45% of NPS project expenditures during the Management Period were associated with watershed projects. In addition to the watershed-based projects, the NPS Program also funded several support projects that provided technical or financial assistance to the watershed projects to plan and implement certain types of BMP. When the Section 319 expenditures of support projects are considered, the percent of Section 319 expenditures associated with watershed-based projects increases to approximately 70%. This level of financial and technical support for watershed projects is consistent with NPS Program goals to implement 15 watershed assessments and 20 watershed restoration projects during the Management Period. A map showing the location of the watershed projects supported during the Management Period is provided in Appendix E.

Statewide and local outreach efforts represented another very important component of the NPS Program. Although Section 319 expenditures on educational projects only represented about 25% of total NPS project expenditures, the projects focused on public education were critical for increasing public awareness to ensure successful implementation of watershed projects and the NPS Program. Summaries of the educational programs and projects supported during the Management Period are provided in Section VI.

Within most NPS projects, some type of external financial and/or technical assistance was needed to effectively implement the projects. The specific type and amount of assistance needed by the NPS projects was variable and usually dependent on several factors. The most common factors needed to ensure a successful project were: 1) strong local leadership; 2) technical expertise to develop and implement the NPS projects; 3) landowner and producer participation; and 4) financial resources. All these attributes were not always entirely present in some project areas during the Management Period. This, in turn, limited successful completion of some projects. To

address these shortcomings, the next Management Plan will need to focus on strengthening local leaders watershed management skills and expanding the amount of technical assistance available to producers to increase adoption of comprehensive management systems that reduce NPS pollution and improve water quality.

Appendix A provides a summary of the accomplishments of NPS Program assistance during the reporting period.

V. Coordination

Coordination Objective: Maintain and expand partnerships at the state and local levels to diversify input for project development and implementation as well as to increase opportunities for securing and coordinating resources to more efficiently address identified NPS pollution impacts.

With limited resources at the state and local level, delivery of the NPS Program required a significant amount of coordination with federal, state, and local agencies; landowners; agricultural producers; and NGOs. The primary means for coordinating statewide efforts was through direct interaction with resource management partners (e.g., NRCS, NDASCD, and Extension Service) as well as through the North Dakota NPS Pollution Task Force (Task Force).

At the state level, the annual Task Force project proposal review process provided the forum to connect local NPS project sponsors with potential partners on the Task Force. During the Task Force review process, the members were given the opportunity to become familiar with NPS projects seeking Section 319 funding. Conversely, the local project sponsors were also given the opportunity to present their projects to multiple state and federal organizations in one setting. This process did result in coordination between some projects and Task Force member agencies to address local NPS pollution sources such as degraded riparian areas.

The partnership between the NPS Program and NRCS was a key relationship for most of the state's NPS pollution management efforts. Nearly all the Section 319 watershed projects utilized the Environmental Quality Incentive Program (EQIP) to support BMP implementation. The National Water Quality Initiative (NWQI) and Resource Conservation Partnership Program (RCPP) were additional NRCS programs that some NPS projects used to support BMP implementation. While the EQIP cost share was available to address any resource concerns in a county, the NWQI and RCPP offered NPS projects the opportunity to secure cost share funds that were awarded to specifically address the water quality priorities in the watershed.

When possible, the NRCS also provided training and technical support to NPS project staff to assist them in developing conservation plans, evaluating range conditions, and planning or designing manure management systems. Most local watershed project coordinators were co-located in a NRCS field office, which strengthened coordination with the NRCS district conservationists when providing farm planning assistance to producers. By coordinating multiple funding sources and co-locating staff with NRCS, the NPS projects were able to implement more BMPs, which enhanced the overall effectiveness of their NPS pollution abatement efforts.

The NDSU Extension Service (Extension Service) was another major partner of the NPS Program. At the state level, the Extension Service maintained its lead role in delivering an educational program focused on improving livestock manure management. This program not only assisted the NPS Program in educating livestock producers, but it also served as a technical support program for local NPS projects by providing planning assistance focused on manure management. During the Management Period, the NDSU manure management specialist assisted most of the watershed projects through direct one-on-one assistance or through participation in various local educational events. Hundreds of producers were reached directly or indirectly each year through these efforts. The manure management specialist was also instrumental in developing and delivering two new educational programs, one program targeting commercial manure haulers and the other for small ranchette horse owners. Both programs reached a previously overlooked audience and educated them on better manure management through proper utilization and storage. The Riparian Ecological Site Description Development project and the Eastern ND Soil Salinity Demonstration Network are additional programs that were sponsored by the Extension Service. These projects were very effective in the development of riparian ecological site descriptions for NRCS and the dissemination of information on soil salinity and soil health management. Annual and/or final reports for all these projects have been posted in the GRTS.

Most recently, the Extension Service initiated the Watershed Leadership Academy (Academy) in 2017. The purpose of the Academy was to deliver a training program focused on strengthening local resource managers' leadership skills for watershed project planning and management. The primary target audience for these educational offerings included soil conservation district (SCD) staff and supervisors. Others invited to attend included NRCS staff, water resource board members and other local natural resource management organizations. During the first three years, the Academy had 326 attendees, of which 56% were SCD supervisors and staff. These individuals represented 50 of the 54 soil conservation districts in the state. The lessons-learned under the first Level I phase, will be carried forward into the Level II training sessions. Level II attendees will build on what was learned in Level I training to strengthen their abilities to develop watershed and/or district plans addressing priority resource concerns. Evaluation and management of these plans was also included in the Level II training. A Level III training session is under development and is scheduled to be rolled out in the fall of 2021. Level III instruction will build on previous lessons and focus more on hands-on training for developing, implementing, and evaluating plans addressing one or more resource issues in their area. The long-term goal for the Academy is to improve the effectiveness of current and future NPS pollution management projects by strengthen the resource planning and management skills of local partners.

Local project partnerships remained the primary avenue for coordinating programs within the NPS project areas. Soil conservation districts were generally the lead sponsors for the waterbody assessments and watershed projects, while Extension Service, state agencies and NGOs were the sponsors for education and support projects. Primary responsibilities of the project sponsors included: 1) project plan development; 2) project administration; 3) progress reporting; 4) financial and technical assistance delivery; 5) PIP revisions; and 6) public outreach and education.

Given the agricultural focus the NPS Program, SCDs continued to be the lead sponsor for most of the NPS projects. The SCDs provided the local leadership necessary to implement and manage

projects as well as the “familiar face” to encourage greater producer/landowner involvement. The SCDs long-standing partnership with NRCS has also strengthened the coordination of cost share funds provided through the NRCS and NPS Program. Other local or regional organizations that were important partners and sponsors during the Management Period included universities, state agencies, and water resource boards. Organizations currently working with the NPS Program and the type of assistance each entity provides are listed in Appendix D.

NPS Program coordination with program partners during the Management Period are described in the Coordination objectives and tasks listed in Appendix A.

VI. Public Out-Reach and Education

Public Out-Reach and Education Objective: Strengthen support for and participation in NPS pollution management projects by increasing public awareness and understanding of NPS pollution impacts and the solutions for restoring and protecting those water resources impaired or threatened by NPS pollution.

Delivery of a balanced information and education (I&E) program throughout the state was a critical component of the NPS Program. While watershed projects are effective at abating known sources and causes of NPS pollution, the state and local I&E projects were the primary means for creating widespread awareness and understanding of NPS pollution issues in the state. The delivery methods, NPS pollution topics, and target audience of the educational projects varied considerably throughout the state to ensure effectiveness of the events. However, despite the differences, the state and local I&E projects delivered a common message on NPS pollution impacts and formed the delivery network for the NPS Program’s statewide educational program.

To maintain a balanced educational program, the NPS Program coordinated with several partners to implement projects targeting all age groups. At the end of the Management Period, 50% of the educational projects focused on teacher/youth education and the other 50% targeted the adult population. In most cases, the programs targeting adults were focused on reaching agricultural producers and individuals involved in farm and ranch resource planning. The agricultural emphasis was also not lost in the youth programs, where agricultural issues and the associated solutions to agricultural NPS pollution were addressed to some degree. The annual and/or final reports for the I&E projects supported during the Management Period are posted in the GRTS.

For youth education, the NPS Program continued to support four long term education programs focused on K-12 students and teachers. These projects included the ECO ED Program, Project WET, Envirothon and The Regional Environmental Education Series (TREES). Each project focused on a slightly different audience and delivered a message that complimented the messages of the other three projects. As a fifth component to the youth education efforts, the Prairie Waters Education and Research Center (Center) was established in 2010 and active throughout the Management Period. The Center strengthened the ongoing youth education efforts by providing a location to conduct youth educational programs as well as by providing training for facilitators or teachers involved in water education for students. The Center also managed the River Watch Program, which supports long term monitoring programs for seven high schools in southeast and central ND.

A new addition to the youth education network in 2019 was the Red River Basin River Watch and River of Dreams Program (River of Dreams Program). The target audience for the program is 4th – 12th grade students and teachers. The educational message being delivered focuses on the watershed concept and the connection between the water and land. The River of Dreams Program also delivers a River Watch Program in northeastern ND that reaches thirteen high schools.

Most I&E projects continued to target the adult population, with emphasis placed on reaching individuals involved in the agricultural industry. Collectively, these I&E projects address a variety of agricultural topics, including manure management, nutrient management, soil health, cover crops, and grazing rotations. Soil health management was the center piece for many of the educational projects supported by the NPS Program. The basic message delivered was that soil health accomplished through a systems approach provides the foundation for sustainable cropland and grazing land management and NPS pollution reduction in the state.

A third component of the NPS Program's education network was the educational events supported by the local watershed projects. Although the watershed projects were not specifically focused on education, they did implement a variety of agriculture-based educational events (e.g., tours, newsletters, and BMP demonstrations). These local events generally attracted between 10-25 individuals. However, some of the watershed project held larger events that recorded over 200 participants.

Fourteen I&E projects were supported by the NPS Program during the Management Period. Many of these I&E projects are ongoing projects that have been active under previous Management Plans and will continue to be active in the future. The I&E projects ranged in size from local county events to statewide programs. Target audiences included the public, K-12 students, teachers, agricultural producers, and resource managers. Products of the educational efforts are just as diverse, with outputs such as newsletters, workshops, lyceums, BMP demonstrations, tours, mentoring services, fact sheets, radio ads, and videos. Table 5 provides a summary of the goals and target audiences of the I&E projects funded during the Management Period. More detailed information on each project is also provided in the GRTS.

Table 5. Goals and target audiences of I&E projects supported from January 1, 2015 through December 31, 2020

Project Name & Contact Person	Primary Target Audience	Major Goals
Envirothon Program	Students in grades 9-12	Deliver a statewide program that strengthens problem solving skills by providing the opportunity to learn and use science-based information to identify and prescribe potential solutions that address NPS pollution and other natural resource concerns.
The Regional Environmental Education Series (TREES)	Students in grades K-12	Deliver a series of lyceum-style programs to schools to create greater appreciation for the state's water resources and increase participants understanding of the importance of wise use of natural resources.
NDSU Nutrient Management Educational Support Program	Resource Managers & Livestock Producers	Maintain a statewide program focused on the development and delivery of training programs, bulletins, workshops, demonstrations, and one-on-one planning assistance to promote better management of livestock manure.

Project Name & Contact Person	Primary Target Audience	Major Goals
ND Project WET (Water Education for Teachers)	K-12 Teachers & Students	Deliver a variety of educational offerings throughout the state to increase participants' knowledge and understanding of NPS pollution impacts to our water resources and potential solutions to those impacts.
Statewide ECO ED Program	Students in grades 6-8	Provide technical and financial assistance for local soil conservation districts to conduct one-day tours or two-day camps that provide hands-on outdoor instruction on water quality, soil/erosion, wetlands, prairies, and woodlands.
ND Water Wisdom Project	Resource Managers & Agricultural Producers	Deliver an educational program in south central and western ND that supports a variety of local educational offerings (e.g. workshops, tours, newsletters, demonstrations, etc.) focused on agricultural management practices that are effective at controlling NPS pollution. Two regional soil health workshops and one statewide grazing planning workshop will also be supported.
Discovery Farm Program	Resource Managers & Agricultural Producers	Establish a series of BMP demonstration sites on three working farms. These sites will be used to evaluate the water quality benefits of various BMP. Water quality and quantity will be collected to quantify the positive or negative impacts of the applied BMP. The current focus of the program is on BMP associated with livestock manure management and tile drain management.
Prairie Waters Education Center	Resource Managers & K -12 Teachers & Students	Develop and manage an educational center to provide training and educational offerings addressing topics such as water quality monitoring; stream morphology; macroinvertebrate sampling and watershed management. Training and instruction will include both classroom style presentations and in-field educational sessions.
Menoken Farm Soil Foodweb Project and Planting Green Project	Resource Managers & Agricultural Producers	Utilize the Menoken demonstration farm to showcase farming systems that improve soil health; increase water use efficiency and improve water quality. Management of the demonstration fields will focus on the importance of continuous live roots in the soil, crop diversity; livestock grazing, and cover crops for improving soil health. Tours, newsletter, and meeting presentations will be used to disseminate information gained through the Menoken farm project.
Eastern ND Soil Salinity Demonstration Network	Resource Managers & Agricultural Producers	Increase landowner and resource manager awareness and understanding of soil salinity and soil health issues in eastern ND. The Soil Health Specialist employed by the project will: 1) promote proper management and protection of saline areas; 2) train local SCD staff and others on management options for saline areas; 3) maintain demonstration sites; and 4) disseminate information regarding soil health and management of saline areas. Educational outlets will include demonstration sites, workshops, Extension bulletins, videos, tours, and conferences.
Ranchers Mentoring and Outreach Program	Farmers and Ranchers	Promote land management systems that will improve water quality and soil health. A network of mentors will be established to provide interested ranchers technical support and advice (from fellow ranchers) regarding management options that can be used to improve soil health and water quality as well as maintain the sustainability of their ranch or farm.

Project Name & Contact Person	Primary Target Audience	Major Goals
Partners for Improving Water Quality I&E Program	Resource Managers & Agricultural Producers	As a follow-up phase to the Water Quality Mentorship and Outreach Program, the project will continue to deliver a balanced educational program in southwestern ND that promotes concepts and practices that will improve cropland and <u>grazing management and protect water quality</u> .
ND Watershed Leadership Academy	Resource Managers	The Academy will deliver a series of four 2-day workshops focused in improving resource managers' skills in watershed project planning and management. The primary target audience includes soil conservation district staff and supervisors; NRCS staff and water resource board members.
Red River Basin River Watch and River of Dreams Program	4 th -12 th grade students and teachers	The program provides watershed education opportunities for local high school students through hands-on science, water quality monitoring, and river recreation activities designed to challenge students and facilitate understanding and appreciation of water resources. The program also engages elementary students to explore the connectivity of our planet's water supply and how watershed's function.

*Resource managers include individuals from NRCS, Extension Service, Soil Conservation Districts, 319 Projects, State Agencies, Private Organizations, Water Resource Districts, etc. involved in farm planning and resource management.

Future NPS Program educational objectives will remain focused on maintaining an educational network that results in an informed public that is engaged in water quality issues in the state and readily supports current and future NPS pollution management efforts. Appendix A provides a summary of NPS Program education task accomplishments during the Management Period.

VII. Program Evaluation

Evaluation Objective: Document the effectiveness and success of the NPS Program and its state and local partners in identifying and addressing the sources and causes of NPS pollution impairing or threatening beneficial uses of waters of the state.

Evaluation of NPS Program accomplishments is based on data collected within the watershed project areas; progress toward project goals and objectives; and completion of measurable outputs identified in the Management Plan. The GRTS, annual and final project reports, EPA water quality program measures (e.g., WQ10); and annual NPS Program reports were the primary means used to disseminate information on NPS Program and local project progress during the Management Period.

Measurement of progress toward established project goals was accomplished through different evaluation and monitoring approaches that were dependent on many factors. For each project, these factors included variables such as project type, educational methods, goals, planned BMPs, sources and causes of NPS pollution, target audience, land use, project scope, and beneficial use impairments. The monitoring methods employed were also variable and may have included photo-monitoring, exit surveys, pre/post testing, computer modeling, biological monitoring, water quality monitoring, BMP tracking, etc. Upon completion of a project, all data and information collected for evaluation purposes was interpreted and incorporated into the final project report. For the watershed projects, the final reports also included summaries of the water quality and/or

biological data that was collected to document progress toward project-specific water quality and beneficial use improvement goals.

The success of the NPS Program has always been directly linked to the success of the projects supported by the program. Given this linkage, evaluation of NPS Program progress and success is based, almost exclusively, on the cumulative accomplishments of the NPS projects. These accomplishments are described in the annual and final project reports submitted by the local sponsors. These annual and final project reports are entered in the GRTS. The annual reports provide a “snapshot” of current project status, while the final reports provide detailed information on the accomplishments during the project period. Cumulatively, the final project reports define the degree of NPS Program success and progress. Specific projects that have posted final project reports in the GRTS during the Management Period are listed in Table 6.

Table 6. Final reports entered in the GRTS for projects completed during the 2015-2020 Management Period

Final Report/Project Name	Grant Number	GRTS Project Number
Prairie Waters Education and Research Center	C9008633-16	10
Spiritwood Lake Watershed	C9008633-16	04
Riparian Ecological Site Description Development Project – Phase II	C9008633-16	12
Powers Lake Watershed – Phase III	C9008633-16	01
Middle Sheyenne River Watershed	C9008633-16	05
NPS BMP Team – Phase III	C9008633-16	08
NDSU Nutrient Management Education & Support Program - Phase II	C9008633-14	04
Livestock Pollution Prevention Program - Phase IV & V	C9008633-15 & C9008633-16	03 & 06
Antelope Creek Watershed & Wild Rice Riparian Corridor Project – Phase III	C9008633-15	04
Prairie Waters Education & Research Center - Phase II & III	C9008633-15 & C9008633-16	12 & 11
Spring Creek Watershed – Phase II	C9008633-15	01
Eastern ND Soil Salinity Demonstration Network	C9008633-15	07
Timber Coulee Watershed	C9008633-15	05
English Coulee Watershed – Phase I	C9008633-16	02
Stockmen’s Association Environmental Services Program – Phase IV	C9008633-16	07
The Regional Environmental Education Series (TREES) – Phase III	C9008633-16	09
Wild Rice River Restoration & Riparian Project – Phase III	C9008633-16	03
Project WET (Water Education for Teachers)	C9008633-17	08
ND Watershed Leadership Academy	C9008633-17	09
Vegetative Buffer Demonstration and Evaluation Project	C9008633-12	06
Prairie Waters Education and Research Center	C9008633-10	02
Menoken Farm Soil Foodweb Project	C9008633-12	07
ND Envirothon _ Phase III	C9008633-12	05
James River Headwaters Watershed	C9008633-11	07
Spring Creek Watershed	C9008633-11	06
Antelope Creek Watershed & Wild Rice Riparian Corridor Project	C9008633-11	05
Powers Lake Watershed Restoration Action Strategy	C9008633-11	11
Nutrient Management Educational Support Program	C9008633-11	02
Bear Creek Watershed – Phase II	C9008633-11	04
Eastern ND Soil Salinity Specialists Program	C9008633-10	04
Partners For Improving Water Quality I&E Program	C9008633-12	10
Coyote Creek Watershed	C9008633-11	09
Livestock Pollution Prevention Program – Phase II	C9008633-11	01
The Regional Environmental Education Series (TREES)	C9008633-11	03
Ranchers Mentoring Program	C9008633-12	09
Kelly Creek Watershed	C9008633-12	02
NPS BMP Team – Phase II	C9008633-12	04

Riparian Ecological Site Description Development	C9008633-12	08
ND Discovery Farms - Phase I & II	C9008633-10	03
Stockmen's Association Environmental Services Program - Phase III	C9008633-13	04
Stutsman Co. Livestock Manure Management Program	C9008633-13	03
Beaver Creek/Seven Mile Coulee Watershed – Phase II	C9008633-13	01
Sheyenne River Sedimentation Reduction Project	C9008633-14	03
Wild Rice River Restoration and Riparian Project – Phase II	C9008633-14	08
Project WET – Phase IV	C9008633-15	10
Morton Co. Northeastern Watersheds Project	C9008633-12	01
Statewide ECO ED Program	C9008633-13	05
Livestock Pollution Prevention Program – Phase III	C9008633-14	05
Cannonball/Dogtooth Watershed	C9008633-14	02
Maple River-Buffalo Creek Watershed	C9008633-14	09
Baldhill Creek Watershed	C9008633-14	01
Homme Dam Watershed	C9008633-14	07
Menoken Farm-Soil Food Web Project	C9008633-15	08
Water Wisdom Project	C9008633-15	11
Envirothon Project – Phase IV	C9008633-15	06

From a program perspective, progress during the Management Period is partially defined by six measurable outcomes directly or indirectly associated with the tasks listed in Appendix A. The tasks described in Appendix A are a compilation of specific actions the NPS Program initially recognized as priority actions to be taken over the course of the Management Period to ensure progress toward the Management Plan goals. Specific planned outcomes for the Management Period and progress toward those outcomes are as follows:

- 1) Waterbodies assessed and associated TMDLs completed --- 15 assessed waterbodies with approved TMDLs or Alternative Plans (3/year) --- *This objective involved a coordinated effort between the NPS Program and TMDL Program staff. Data collected through NPS Program assessments and/or ongoing watershed projects, was used by the TMDL Program to develop TMDLs or alternative plans for nine NPS watershed projects since 2015. NPS Program projects with approved TMDLs include Danzig Dam Watershed, Maple River Watershed, Turtle Creek Watershed, and Wild Rice River Watershed. Alternative plans have also been developed for the following watersheds: Timber Coulee, Antelope Creek (Richland Co.), Buffalo Creek, Hailstone Creek, and Antelope Creek (Grant Co.). All approved TMDLs are posted on the Department website http://www.ndhealth.gov/WQ/SW/Z2_TMDL/TMDLs_Completed/B_Completed_TMDLs.htm.*
- 2) Waterbodies with one or more restored beneficial uses – 5 waterbodies (1/year); 5 WQ-10 success stories --- *Since initiation of the Management Plan, WQ10 success stories have been approved for restored reaches in the watersheds for Thirty Mile Creek and Wild Rice River (Richland Co). Two additional NPS projects with reaches that have pending WQ-10 success stories include Spring Creek and Baldhill Creek Watersheds. Data collected from both watersheds indicate recreational uses have been restored for some impaired reaches. Interpretation of the restorations will be further verified with 2020 data and the waterbodies are expected to be “delisted” during the next Integrated Report cycle. Since the reaches have not yet been delisted, these waterbodies were not tracked as success stories under this objective and, as a result, the NPS Program was behind schedule for WQ-10 submittals. This shortcoming is a product of the continuing challenges in*

documenting sustained beneficial use improvements associated with short term projects in large agricultural watersheds. Given the dynamic nature of agriculture, delayed responses to applied BMP, and limited resources, these challenges will persist beyond this Management Period. To address this challenge, the 2021-2025 Management Plan includes actions such as improved watershed prioritization tools; post-project monitoring; BMP targeting; and increased education and training for local partners and staff.

- 3) Waterbodies with improving trends in water quality and/or beneficial uses – 10 waterbodies (2/year); 10 SP-12 waterbodies --- *SP-12 report requirements were discontinued by EPA during the Management Period. As a result, this objective is no longer active and tracking measurable outcomes for water quality improvements was modified. --- During the Management Period, three SP12 reports were submitted to EPA for waterbodies demonstrating improving trends. These “SP12” waterbodies included Antelope Creek in Richland County; Shortfoot Creek in Sargent County and Thirty Mile Creek in Hettinger County. Reaches in Baldhill Creek, Upper Spring Creek, Antelope Creek (in Richland), and Turtle Creek watersheds are also some of the most recent projects with data that suggests improving water quality trends in some reaches. SP-12 reports were not submitted for these projects. As a replacement, the NPS Program uses the watershed project final reports to document and report on improving water quality trends. All the final reports for watershed projects include a water quality report summarizing the data collected during the project. When applicable, these reports will highlight improving trends. For information on trends in the watersheds of completed projects, refer to the final reports in the GRTS for the watershed projects listed in Table 6.*
- 4) Estimated annual nitrogen and phosphorus load reductions based on model results. Annual nitrogen and phosphorus load reductions will be approximately 100,000 and 50,000 pounds, respectively. --- *The total nitrogen and phosphorus load reductions reported in GRTS during the Management Period (i.e., 2015-2020) were 449,418 and 252,551 pounds respectively. Cumulative nitrogen and phosphorus load reductions per year from 2015-2020 are as follows:*

Year	Nitrogen	Phosphorus
2015	45,552	22,203
2016	83,566	37,234
2017	66,755	25,013
2018	57,868	25,487
2019	87,798	33,953
2020	107,879	108,661
Total	449,418	252,551

- 5) Increased public awareness and understanding of NPS pollution issues in the state – 20% increase in survey respondents with a good understanding of NPS pollution issues. --- *The statewide survey planned at the onset of the Management Plan to assess public awareness and understanding of NPS pollution issues was postponed and will be reconsidered during the 2021-2025 Management Plan period. The initial survey was to be used to collect the baseline data needed to assess increases in “NPS pollution awareness” statewide. As such, without the baseline data to quantify changes in public awareness, the statewide benefits of the NPS Program’s educational projects could not be fully evaluated. However, evaluation of local/regional educational events was accomplished through post-event surveys, testing, etc., but those results could not be translated into a statewide value. The annual and final reports for the local educational projects include an evaluation section, when applicable.*

- 6) Basin Stakeholder Advisory Groups (BSAGs) established in 3 of the 5 major river basins in the state – 3 BSAGs (1 BSAG established in 2015; 2017 & 2019) --- *The Red River basin was the first basin targeted for the implementation of the Basin Framework. Two public meetings were conducted in 2017 to introduce attendees to the Basin Framework process and obtain input on natural resource concerns in the basin. Approximately 35 people attended each meeting. Information obtained through the meetings was intended to provide a foundation for a second series of public meetings to move toward development of basin water quality priorities and an action strategy for the implementation of the Basin Framework. However, public feedback during the first meetings indicated it was premature to initiate the implementation of the Basin Framework and, as a result, this objective was discontinued. Instead, it was apparent it was more important to take a closer look at the purpose, scope, and delivery of the Basin Framework to more clearly define the state and local roles related to development and implementation of the basin management plans. To strengthen local partnerships, the initial focus of the Basin Framework process may need to be limited to assessment level actions and smaller watersheds (e.g., 8-digit HUs). The 2021-2025 Management Plan is scheduled to include actions focused on evaluating options for “reinitiating” development of the Basin Framework and making adjustments to meet the needs of the NPS Program as well as the state and local partners involved in the process.*

- 7) Basin Management Plans developed, in cooperation with the BSAGs, for 2 of the 5 major river basins in the state (1 Plan in 2017 & 2019) --- *See status summary for #6 above. Due to delays in the development of the Basin Framework, management plans for the Red River basin or other basins were not completed, and this objective was discontinued.*

Tracking the types of BMP applied, restored beneficial use(s), and/or water quality trends were the primary means used to describe and document watershed project progress and, ultimately, NPS Program progress. However, given the delayed water quality response to applied BMP in larger watersheds, the NPS Program also depended on computer models to provide annual estimates for pollutant load reductions resulting from applied BMPs. The STEPL model and the

animal feedlot runoff risk index worksheet (AFRRIW) were the main models used to generate the annual “edge-of-field” nitrogen, phosphorus and sediment load reductions entered in the GRTS.

Although the information on applied BMP cannot replace the measurement of actual beneficial use improvements or pollutant load reductions, it does readily show how the sources and causes of NPS pollution impairments are being addressed in the state. Cumulative BMP expenditures also provide some insight on the extent to which the NPS Program is focused on BMP implementation. With approximately 70% of the NPS Program’s cumulative expenditures associated with projects focused on BMP design and/or implementation, the NPS Program and its partners have maintained an “on-the-ground emphasis” for addressing NPS pollution throughout the Management Period. Specific types and amounts of BMP supported during the Management Period are listed in Appendix F. Table 7 shows the cumulative Section 319 expenditures per BMP category to provide a perspective on the most common type of BMP supported by the NPS Program.

Table 7. Cumulative Section 319 expenditures per BMP Category – January 1, 2015 thru December 31, 2020

BMP Category	Section 319 Expenditures	Percent Expenditures
Cropland Management	\$288,330	4.4%
Grazing Management	\$1,715,361	26.0%
Livestock Manure Management System (Full Systems)	\$3,192,614	48.3%
Livestock Manure Management System (Partial Systems)	\$300,721	4.6%
Erosion Control /Upland Tree Plantings/Vegetative Buffers	\$63,204	1.0%
Miscellaneous Practices*	\$959,147	14.5%
Riparian Area Management	\$84,473	1.3%
TOTAL	\$6,603,850	

*Ninety three percent (93%) of the miscellaneous practices costs were associated with septic system renovations.

Overall, progress has been made toward most goals and objectives of the Management Plan. Exceptions to this include the shortfalls in “Success Story” reporting and the implementation of a Basin Framework. Discontinuance of the Basin Framework process was primarily related to limited local support and uncertainties in WMP staff availability. As previously indicated, these issues will be addressed under the 2021-2025 Management Plan to evaluate scaled down options for the development of a Basin Framework based on a rotating watershed assessment and/or restoration approach. Once established, the Basin Framework will provide the pathway for delivery of WMP financial and technical assistance to watersheds throughout the state. This assistance will be available to; 1) implement long-term watershed or basin assessment programs; 2) develop watershed management plans; 3) implement restoration projects; and 4) conduct public educational events focused on local water quality and NPS pollution issues. This new approach will also need to be better suited to accommodate post-project monitoring in the watershed project areas.

The limited Success Stories does not indicate a lack of effort by the local projects. Instead it is more related to factors such as limited producer participation; delayed responses to applied BMP;

cropping changes; frequent management changes on rented land; and variability in weather patterns. Despite these challenges, the project sponsors have been able to implement a significant number of BMPs with Section 319 funding during the Management Period. Many other BMP have also been applied with cost share provided through USDA, the ND Outdoor Heritage Fund, and other programs. Although the projects were unable to directly measure in-stream benefits realized from these BMP, the practices have undoubtedly reduced nutrient and/or sediment delivery to nearby waterways, to some degree. For the ongoing projects these benefits may be measured in subsequent years and, for the completed projects, the options for post-project monitoring will need to be evaluated on a case-by-case basis. The density and location of applied BMP as well as extent of local support will likely be the main factors to consider before initiating post-project monitoring efforts. These issues will likely continue to be the most challenging factors when trying to measure in-stream or in-lake benefits of applied BMP in moderately sized watersheds (i.e., 25,000 – 150,000 acres) over the short-term (i.e., < 10 years).

As previously indicated, the NPS Program coordinated the International Water Institute (IWI) and NRCS to develop and complete the PTMApp for the James and Red River Basins. Within these Basins, this new watershed planning and prioritization tool will be the foundation for the development of a “new version” of the Basin Framework and provide the means to more effectively target BMP implementation at the watershed and field scale. These improvements should improve local watershed management capacities; strengthen future watershed project plans; and increase effectiveness of applied BMP. Where PTMApp is not available, the AnnAGNPS model will also provide similar services for watershed planning and implementation, although there will be some limitations for economic and environmental evaluation at the field scale. By using these planning tools more effectively, watershed project sponsors should be able to achieve measurable water quality improvements more consistently and, ultimately, reach their goals to protect and/or restore an impaired beneficial use.

Although all the current Management Plan goals were not achieved, the actions taken from 2015-2020, have enabled the NDDEQ to move toward its NPS Program goals and set the stage for efforts under the 2021-2025 Management Plan. This foundation will enable the NPS Program and its partners to better identify NPS pollution sources; document improvements; increase public awareness; and improve beneficial uses in more waterbodies.

Appendix A
Status of the 2015-2020 Management Plan Objectives & Tasks
January 1, 2015 – December 31, 2020

Waterbody Prioritization Objective: Provide direction for the delivery of financial and technical assistance to assess, restore or protect waterbodies impaired or threatened by NPS pollution.

Task 1: Based on the most current Integrated Report, identify NPS Program priority waterbodies in each of the five major river basins in the state.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
NPS Program priority waterbodies identified for assessment, restoration or protection	NA	NA	Ongoing/Revised – Since development of a Basin Framework was discontinued, waterbody prioritization within each river basin was not completed. Instead, the most current Integrated Report was used to identify priority waterbodies impacted by NPS pollution. Waterbodies with an approved TMDL and/or a completed assessment were also recognized as NPS Program priorities. Local feedback was used to further prioritize these waterbodies, if needed.

Task 2: Coordinate with the other WMP programs (i.e., TMDL, assessment and monitoring) to develop and apply the ND Recovery Potential Screening Tool (RPST) to establish state and basin level priorities.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Functioning ND Recovery Potential Screening Tool (RPST)	1	1	Completed: The RPST was developed for ND to aid in setting priorities at the 8 and 12-digit HU level. A training session was held in December 2015 to train resource managers and gain feedback on the tool.
State level NPS Program priorities established in 2016 at the 8-digit HU scale for watershed assessment, restoration and protection	1	NA	Postponed: The ND RPST was intended to be applied in concert with the implementation of the Basin Framework. Since the implementation of the Basin Framework was discontinued the RPST was not used during the Management Period. Options regarding how, when and where the RPST will be used will be evaluated during the 2021-2025 Management Period.
Apply the RPST within the five major river basins to establish five priority lists at the 12-digit HU scale for the assessment, restoration and protection	5	NA	Postponed: See previous comment.

Task 3: Utilize the AnnAGNPS model and, where available, the LiDAR-based Decision Support Tool to assist local partners with the identification and ranking of priority sub-watersheds and locations within priority watersheds.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
20 AnnAGNPS maps for approved watershed projects & 2 Decision Support Tool priority maps in the James and Wild Rice River Basins in 2016	22 maps	30 maps	Completed: AnnAGNPS priority maps were developed for the watershed projects listed in Appendix B. --- A web-based Watershed Decision Support Tool was completed for the Wild Rice Basin and replaced by PTMApp. PTMApp was also developed for the James Basin and the rest of the Red River Basin. The PTMApp web address is International Water Institute PTMApp - Web Application Sign In - ptmaweb (iwinst.org)
New Decision Support Tool developed for part of the Sheyenne River basin - [NOTE: The Decision Support Tools was replaced with the PTMApp]	1	1	Revised/Completed: The PTMApp was developed, in cooperation with the NRCS and IWI for the James and Red River basins, including the Sheyenne River watershed. See previous web address for PTMApp

Task 4: Using the state and basin level waterbody priority lists as a starting point, coordinate with the applicable soil conservation districts and basin management committees (as they are formed) to further define local priorities and set implementation schedules for waterbody assessment, restoration and/or protection projects.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Local waterbody assessment and restoration priorities established for 5 soil conservation districts and 3 river basins - <i>[Note: With the discontinuance of Basin Framework development, watershed assessments, TMDLs and PTMApp were used to provide direction for local NPS projects.]</i>	8	6	Revised/Ongoing: Morton, South McLean and Grant County SCD's implemented watershed projects based on established assessment priorities in their counties. Cass, Ransom, Wild Rice and Three Rivers SCDs used the PTMApp to identify implementation priorities for watersheds in their districts. Four "PTMApp based" watershed projects are scheduled to be implemented in 2021.

Task 5: Determine NPS project funding priorities through the annual NPS Pollution Task Force project review process

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Task Force comments and recommendations on draft project proposals and relative priority rankings.	7-10 Projects annually	7-12 Projects annually	Ongoing: Task Force comments were received for all the project proposals submitted during the 2015-2020 funding cycles.
Final project implementation plans for 7-10 projects approved for Section 319 financial support.	7-10 Projects annually	7-12 Projects annually	Ongoing: Input received from the Task Force was used by the NDDEQ to revise proposed projects and determine funding eligibility for all projects that received Section 319 funding from 2015 – 2020.

Assessment Objective: Document beneficial use and water quality conditions of local priority waterbodies and identify the sources and causes of beneficial use impairments.

Task 1: Coordinate with local partners to develop Quality Assurance Project Plans (QAPP) for 15 priority waterbodies scheduled for assessment.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Watershed-specific Quality Assurance Project Plans (QAPPs) for 15 targeted waterbodies	15	1-3 QAPP per year	Ongoing: QAPP's were developed for the assessment projects, as needed. However, this task is behind schedule due to the declining number of assessment projects in recent years. This decline will need to be addressed during the 2021-2025 Management Period.

Task 2: Complete the QAPP objectives and tasks for each targeted waterbody to document beneficial use conditions; identify sources and causes of NPS pollutants impairing or threatening the beneficial; determine land management needs and gauge local support.

15 priority maps developed with AnnAGNPS or a River Basin Decision Support Tool (where available) for the watersheds of each assessed waterbody – <i>[Note: PTMApp replaced the Decision Support Tool in the James and Red River Basins]</i>	15 Maps	1-3 maps per year	Ongoing: AnnAGNPS or PTMApp maps were developed for all the watershed assessment projects supported with Section 319 funds.
Water quality/quantity and macroinvertebrate data collected from approximately 45 sites. Approximately 900 samples will be collected	900 Samples	Planned for 20 samples per site annually	Ongoing: Samples collected annually per site ranged from 5-20+ due to variability in annual precipitation patterns and location in the watershed. Macroinvertebrate samples were collected at the beginning and end of the projects. When possible, water quality samples were collected at least once per week throughout the open water season.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Summary of planned and applied NRCS BMPs per 12-digit hydrologic unit (HU) in the watersheds	15 Summaries	Data for all watersheds	Ongoing: Access to the NRCS BMP data was approved in early 2015 and is available to evaluate the type and amount of USDA BMP applied in all watersheds in the state. However, due to confidentiality restrictions, this information is only used internally and is not made available for general distribution. The NRCS BMP data was updated annually.
Survey results describing watershed resident and landowner/operator awareness of NPS pollution impacts, sources, causes and solutions as well as their degree of interest in future restoration of protection initiatives in the watershed.	15 Surveys	4	Behind Schedule/Revised: Mailed landowner surveys were completed for the Big Muddy, Painted Woods, Clausen Springs, and Swan Creek watersheds. Very few surveys were returned. Unfortunately, this limited response was typical for most watershed projects. Given the pattern with mailed surveys, alternative survey methods are being explored to obtain more landowner/producer feedback. Small group meetings, electronic surveys, and targeted direct contacts are some of the options being evaluated. To date, direct contacts and small group meetings appear to be better methods for obtaining producer feedback.
Characterizations and ratings (e.g., good, fair, poor, etc.) of riparian conditions in 15 assessed watersheds	15	2	Behind Schedule: Rapid Geomorphic Assessments were completed for Big Muddy Creek in Morton Co. and Antelope Creek in Grant Co. Limited WMP staff availability and limited local expertise has prevented the use of the RGA in all assessment watersheds. --- The Little Missouri River Tributaries Watershed project coordinated with NDSU to try a Rosgen-based process for evaluating stream stability within watersheds dominated by rangeland. This process looks promising for evaluating the relationship between rangeland health and stream stability. This process will be used to evaluate improvements at the end of the Little Missouri River Tributaries project.
NPS Pollution Assessment reports and TMDLs for the assessed watershed. 15 assessment reports or TMDLs	15	10 assessments	On Schedule: Assessments were completed for 10 waterbodies using 319 and 604(b) funds. Waterbodies addressed through the assessments included: Antelope Creek (Grant Co.), Clausen Springs Reservoir, Big Muddy Creek, Lower portion of Heart River, Lake Elsie, Little Missouri Tributaries, Sheyenne River above Lake Ashtabula, Swan Creek and Painted Wood Creek. When applicable, TMDLs were also completed for the assessed waterbodies by WMP staff.

Project Assistance Objective: Coordinate with local partners to secure sufficient financial and technical resources to support the development and implementation of priority watershed assessments; educational programs and watershed restoration or protection projects.

Task 1: Provide financial and technical assistance to local partners to develop and implement 15 watershed assessments.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
15 contractual agreements committing approximately 3% of the annual Section 319 budget to plan and implement watershed assessment projects.	15	1-3 contracts/year	Ongoing: Contractual agreements have been established for all assessment projects. Given the recent decline in assessment phase projects, the development of future assessment level projects and the role of local partners will need to be reevaluated. This will be addressed under the 2021-2025 Management Plan.
Support for sample analysis by the Chemistry and Microbiology laboratories. The budget for each project also includes funding (i.e., 319 or 604(b) funding) to support analysis of macroinvertebrate or fish samples. Approximately 900 samples analyzed per year	900	100-150 samples/year	Ongoing: Analysis has been completed for water quality and macroinvertebrate samples collected throughout the Management Period.
Technical support for development of 12 NPS Assessment Reports and/or TMDLs	12	1-3 assessment reports/year	Behind Schedule: NPS Program staff have assisted with the development and/or review of 9 assessment reports during the Management Period. When applicable, copies of the assessment reports have been included in the final PIPs developed for the project areas. TMDLs completed, to date, by the WMP are posted on the website: https://deq.nd.gov/WQ/3_Watershed_Mgmt/2_TMDLs/TMDLs.aspx .

Task 2: On an annual basis, assist with the development of 7-10 new NPS projects and manage contracts for 30-40 active/ongoing projects. These projects will include education, support and watershed projects.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Technical support to plan and develop approximately 35 project implementation plans for education, watershed, and/or support projects seeking Section 319 funding. Approximate break down of the project types is 20 watersheds; 11 education and 4 support projects.	35	9-12 projects/year	Ongoing: Technical support has been provided to develop the PIPs for the projects listed in Appendices B and C.
Two NPS Pollution Task Force meetings, annually, to review draft and final project proposals requesting Section 319 funding.	10	2 meetings/year	Ongoing: Two Task Force meetings are conducted annually. Draft project proposals were reviewed in November/December and final project implementation plans were reviewed in March/April.
New contractual agreements (7-10/year) committing approximately 80% of the annual Section 319 awards to sponsors of approved NPS projects. Over 50% of the FFY Section 319 award will be allocated to watershed-based projects, with the balance committed for assessments; education programs; support projects and NPS Program staffing.	35	9-12 new agreements annually	Ongoing: Contractual agreements have been developed for the projects listed in Appendices B and C.
Active contractual agreements with 30-40 ongoing projects maintained annually	30 annually	30-40 annually	Ongoing: Annually, approximately 35 NPS project contacts have been managed to track progress and expenditures of projects awarded Section 319 funding.

Task 3: Coordinate with NPS Program partners and local project sponsors to obtain technical and/or financial assistance through other state and federal sources to support project planning and implementation efforts.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Financial support from the ND Outdoor Heritage Fund (OHF) to supplement or expand the BMP budgets for 6 watershed projects annually. The financial target is the acquisition of approximately \$1,500,000 annually from the OHF	OHF Support for 30 projects	12	Behind Schedule: Twelve NPS projects have been approved for over \$3.5 million in OHF funding during the Management Period. Refer to Table 2 for specific projects. State level competition for the OHF funding and policy changes have limited the amount of OHF support for NPS projects in recent years.
Secure \$200,000 in State Water Commission Trust Funds each biennium to support engineering costs associated with the development of BMP construction designs for NPS projects	Engineering Support	\$200,000 per Biennium	On Schedule: \$200,000 in SWC Trust Funding was awarded to NPS projects each biennium throughout the Management Period. Projects that received the SWC funding included the Stockmen's Association Environmental Services Program, Livestock Pollution Prevention Program, and the NPS BMP Team.
USDA cost share through the EQIP and other NRCS programs. Also includes cost share assistance available through the National Water Quality Initiative and Resource Conservation Partnership Program	USDA Cost Share	USDA Cost Share	Ongoing: The watershed project coordinators worked with producers to solicit USDA cost share assistance (e.g., EQIP), when applicable. The annual and final project reports indicate the amount of USDA support per project. NWQI funds were available in the Spring/Goodman Creek and Cannonball/Snake Creek watersheds and RCPP funds were awarded to the Spiritwood Lake Watershed project. The Stockmen's Association Environmental Services Program and Livestock Pollution Prevention Program received funding from NRCS, through cooperative agreements, to provide technical and engineering assistance to producers installing manure management systems.
Task 4: Evaluate the feasibility and benefits of alternative methods for supporting BMP implementation and planning in the watershed project areas and, when appropriate, develop applicable policies and agreements and incorporate the new policies into the NPS Program BMP Cost Share Guidelines and/or applicable sections in the Management Plan.			
Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Draft guidelines for an outcome-based cost share program. Initial draft guidelines will be focused on setting preliminary criteria for nutrient management	Draft Guidelines	NA	Discontinued: Options for an outcome-based cost share program using models to predict parameter (e.g., nitrogen, sediment, etc.) reductions were evaluated. However, verification of the reductions and the environmental value were challenges that were not resolved due to limited time and resources to commit to the task.
A pilot project, initiated in cooperation with a watershed project sponsor and other partners (e.g., Extension Service, NRCS, Commodity Groups, etc.) to evaluate the feasibility, acceptance and effectiveness of an output-based cost share program	1 pilot project	NA	Not Initiated: Development of an outcome-based cost share program was discontinued. See the previous comment
Annual updates to the ND NPS Program Cost Share Guidelines for NPS Pollution Control Best Management Practices to revise cost share policies and incorporate new or modified BMPs, as needed	5 Updates	5 Updates	On Schedule/Ongoing: The Guidelines were reviewed and updated, as needed, annually

Conservation Systems Manual developed in cooperation with the agricultural workgroup for the ND Nutrient Reduction Strategy, NRCS, Extension Service and the SWQMP.	1	NA	Postponed/Discontinued: The development of the manual was initially postponed due to delays in finalizing the Nutrient Reduction Strategy. Without the need to supplement information in the Nutrient Reduction Strategy and reduced need by the watershed coordinators, development of the manual was discontinued. Also, BMP information available through the NRCS, Extension Service, etc. has replaced the need for a manual.
NRCS input on the feasibility of incorporating 319 cost share funds committed to priority watersheds into the locally lead EQIP funding pool. The 319 funds would be planned and contracted by the NRCS District Conservationist using the NRCS planning system. If feasible, policies and procedures would be developed, in cooperation with NRCS	NA	NA	Discontinued: Incorporation of 319 funds into the NRCS process was not be feasible. As such, this task was discontinued.
Draft policies for a riparian management program to provide cost share for the establishment and maintenance of riparian management systems in watershed project areas. These agreements would be 5-10 years in length and limit uses to specific practices or management systems that prevent overuse and degradation of the riparian corridor, but do not prohibit all uses during the agreement period	Draft Riparian Management Cost Share Policy	Riparian Management Policies are Complete	Complete: The NPS Program BMP Cost Share Guidelines include policies on supporting easements or long-term agreements that reestablish permanent vegetation in riparian areas. The web address for the Guidelines is 319_BMPCostShareGuidelines_8-11-20.pdf (nd.gov)
NRCS feedback on the feasibility of establishing and supporting NRCS liaison positions to serve as the coordinator within watersheds supported with Section 319 funding	Agreement for 319/NRCS Liaison Positions	NA	Discontinued: Given current staffing limitations at the state and federal level, this task was cancelled.

Coordination Objective: Maintain and expand partnerships at the state and local levels to diversify input for project development and implementation as well as to increase opportunities for securing and coordinating resources to more efficiently address identified NPS pollution impacts.

Task 1: Assist resource management entities (e.g., SCDs, WRB, Universities) with the establishment of sponsorships and associated advisory committees that will be responsible for the prioritization, development and implementation of NPS pollution management projects			
Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Lead sponsors and advisory committees for new NPS projects established each year	NA	NA	Ongoing: Lead project sponsors were established for all NPS projects. Most of the sponsors were soil conservation districts. When applicable, the lead sponsors also established advisory committees.
Membership on advisory committees for active NPS projects	NA	NA	Ongoing: NPS Program staff have participated in the NPS project advisory committees, as needed.
Task 2: Coordinate with WMP staff and local partners to establish basin stakeholder advisory groups and technical advisory groups as the Basin Framework is implemented within each river basin.			
Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Basin stakeholder advisory groups (BSAG) established for each of the five major river basins.	3	NA	Not Initiated/Discontinued: Due to delays in the implementation of the Basin Framework, the establishment of the BSAGs has not been initiated. As such, NPS Program involvement in the Basin Framework implementation and establishment of the BSAG was discontinued during this Management Period.
Technical advisory groups (TAGs) formed by the basin stakeholder advisory groups for each major river basin. Three TAGs established 2015-2020.	3	NA	Not Initiated/Discontinued: See previous comment.

Task 3: Maintain partnerships and communication with the NGOs, as well as local, state, and federal agencies to increase awareness of coordination opportunities for addressing water quality concerns related to NPS pollution.			
Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Two Task Force meetings annually to obtain input and recommendations on local NPS projects seeking Section 319 funding	10	2 meetings/year	Ongoing: Two Task Force meetings were held, annually.
Participation in meetings (e.g., NRCS Technical Committee, Extension Service Advisory Committee, NDASCD annual meetings, etc.) focused on the delivery of state and federal natural resource management programs that directly or indirectly address NPS pollution impairments to the state's water res	NA	NA	Ongoing: WMP staff have participated in meetings with NRCS, NDASCD, Extension Service, Grazing Coalition, Joint Water Resource Boards, USGS, ND Game & Fish Department, Industrial Commission, etc. to provide input on NPS pollution management in the state.
Meet with NRCS, annually, to review the status of the MOU and discuss options for coordinating financial and technical assistance within the NPS project areas.	5 Meetings	Several meetings/year	Ongoing: Annual meetings with multiple NRCS staff were held initially. However, in recent years, the meetings involved fewer NRCS staff and have been more focused on specific issues such as NWQI watersheds, PTMAApp training, etc.
Periodic meetings with NPS Program partners (e.g., Extension Service, ND Association of Soil Conservation Districts, Commodity Groups, EPA, wildlife organizations) to keep them updated on the NPS Program. Multiple meetings annually throughout the Management Plan	NA	NA	Ongoing: NPS Program staff have participated in partners meetings, as needed.
Participate in annual SCD Area meetings (5 meetings/year) to keep the SCD's in the state informed on the progress and future plans of the NPS and TMDL Programs, Basin Framework, Nutrient Reduction Strategy, other SWQMP Programs	25	5 SCD Area meetings/year	Ongoing: NPS Program staff participated in the annual SCD Area meetings, when possible. The structure for the SCD Area meetings was changed, so this opportunity may not be available under the 2021-2025 Management Plan period.

Information and Education Objective: Strengthen support for and participation in NPS pollution management projects by increasing public awareness and understanding of NPS pollution impacts and the solutions for restoring and protecting those water resources impaired or threatened by NPS pollution.

Task 1: Maintain delivery of a balanced statewide I&E Program that addresses priority NPS pollution issues and targets all age groups.			
Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Network of 8-10 statewide or regional educational programs targeting K-12 students, teachers, resource management professional, agricultural producers, landowners, and the general public. Approximately one third of the projects will be focused on youth education and the balance will be designed to train-the-trainer, promote new agricultural management systems; distribute educational materials, provide technical support; demonstrate new technologies or practices; and/or disseminate information on specific NPS pollution issues and solutions	I&E Network	10-15 I&E projects supported annually	Ongoing: Fourteen educational projects were supported during the Management Period. Refer to Section VI for details on specific projects.
Participate on project advisory committees to ensure I&E programs remain current and focused on NPS pollution education	NA	NA	Ongoing: NPS Program staff participated in advisory committees meeting for Project WET, Envirothon, Watershed Leadership Academy and Prairies Waters Education Center. Technical support was also provided to the Watershed Leadership Academy, ECO ED Program and several watershed projects to conduct I/E events.

Educational components maintained in watershed-based projects to supplement the statewide educational network. Approximately, 35 educational events within the watershed projects each year	174 projects	10-20 events/year	Ongoing: The watershed projects have conducted 1 or more educational events (e.g., workshops, tours, demonstrations) annually. This is in addition to newsletters or other materials distributed in the project areas. Cumulatively, up to 15 major events may be conducted by the local watershed projects, annually. The annual and final reports in the GRTS include listings of I&E events conducted by the watershed projects.
In-house library of various NPS pollution/water quality I&E materials developed by state, local, federal, and private organizations and make the information available to program partners and resource management	NA	NA	Ongoing: An in-house library was maintained. However, the need for an in-house library has essentially been replaced by the information and materials available through our website and others. Maintenance of a "hardcopy" library is likely to be discontinued in the future. Twitter and Facebook accounts are additional outlets for sharing information with the project coordinators, program partners, etc.
NPS Program web site: https://deq.nd.gov/WQ/3_Watershed_Mgmt/1_NPS_Mgmt/NPS.aspx	NA	NA	Ongoing: The NPS Program web site has been maintained.

Task 2: Strengthen the abilities of resource managers and agricultural producers to recognize and address beneficial use impairments associated with NPS pollution.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Coordinate with NDSU Extension Service, NDASCD, SSCC, SCD Employees Association; NRCS and others to organize and conduct a series of 4 workshops that cover: 1) NPS pollution sources, causes and solutions; 2) watershed project development; 3) education and outreach methods; and 4) project implementation/management. The primary target audience will be local resource managers (e.g. SCD technicians & supervisors, County Agents, WRB supervisors) and NRCS field office staff	4 workshops	Up to 4 Level 1 and 2 Academy workshops annually, with the first level 3 training scheduled for the fall of 2021.	Revised/Ongoing: To replace the resource-based workshops, the NPS Program coordinated with NDSU Extension to develop the Watershed Leadership Academy. The Academy is a series of workshops that target SCD supervisors and staff to strengthen their watershed management and leadership skills. The series consists of three instructional levels (i.e., levels 1, 2 and 3). Each level builds on the previous one and will initially be conducted 4 times per year. As the program matures and all the SCD supervisors and staff have been through all three level, the series schedule will be reduced to one training session for each level per year. At that time, all the training sessions will be focused on new SCD supervisors and staff to serve as an orientation course.
Provide county newspapers and other local media with 2 articles per year that discuss local NPS pollution issues; management options for NPS pollution; and any other subjects related to NPS pollution and water quality	10 articles	8-10 articles/year	Ongoing: NPS pollution/water quality related articles were published in the Water Magazine and sent out to all the county newspapers. 8-10 articles were distributed annually
Two training workshops addressing BMP planning and targeting to address water quality impairments. The target audience will include watershed project coordinators, SCD staff involved in watershed projects and NRCS field office staff within active or pending watershed project areas	2 Planning workshops	Annual Coordinators meetings and 3-4 resource management workshops annually	Revised/Ongoing: The annual NPS Program Watershed Coordinators Conferences replaced this task. Additional training opportunities are also provided through a multitude of workshops, conferences, webinars, etc. conducted by groups such as the ND Grazing Coalition, Menoken Farms, SCD, Extension Services, etc. Notices for pertinent educational events are forward to the watershed coordinators, when available.
Annual watershed and NRCS DC conference	5	1 Coordinator meeting/year 1 PTMApp Training in 2019	Revised/Ongoing: Annual meetings specifically for NRCS DCs and 319 coordinators were discontinued. As a replacement, the NRCS DC's involved in NPS Program watershed projects are invited to the annual NPS Program Watershed Coordinators Meeting and PTMApp training when applicable.

Task 3: Document the degree of public awareness and understanding of NPS pollution issues in the state to identify steps needed to strengthen statewide educational offerings.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Statewide survey in 2016 to evaluate the general public's current understanding and awareness of NPS pollution issues and concerns in the state	1 survey	1-3 watershed level surveys annually	Discontinued/Revised: Due to resource limitations the statewide survey was not conducted. Instead, the NPS Program assisted NPS project sponsors to conduct landowner surveys within watershed assessments areas to gauge interest and understanding. Although limited, the feedback received through the surveys was used to determine educational needs within the watersheds. Unfortunately, mailed surveys have been somewhat ineffective in getting consistent and representative feedback. As such, other methods such as small group discussion, social media, etc. are being used to find a more effective means of getting balanced public input.
A five-year I&E strategy, based on the statewide survey results, that schedules actions that will eliminate "shortcomings" in the statewide educational network and increase public awareness and understanding of NPS pollution issues and solutions.	Five-year Statewide I&E Strategy	Management Plan I&E Objectives and Tasks	Revised/Ongoing: Implementation of the objectives and tasks in the Educational Section of the Management Plan has served as the I&E Strategy.
Coordinated effort with local resource managers, universities and other state agencies to develop new statewide or local educational initiatives that will improve the balance of the statewide educational offerings	2 new initiatives	2 new I&E Programs – one statewide and one regional in scope.	Ongoing: The Watershed Leadership Academy and Red River Basin River of Dreams project are two new I&E projects initiated during the Management Plan period. These new educational programs have helped expand the number of adults and youth being reached with information related to NPS pollution impacts and management.
Follow-up survey in 2020 to evaluate the benefits of past educational efforts and reassess the awareness and understanding of the general public regarding NPS pollution management and impacts	1 survey	NA	Not Initiated /Discontinued: Since the initial survey was not completed the follow-up survey was not initiated.

Evaluation Objective: Document the effectiveness and success of the NPS Program and its state and local partners in identifying and addressing the sources and causes of NPS pollution impairing or threatening beneficial uses of waters of the state.

Task 1: Evaluate and document local NPS project progress toward approved PIP goals

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Approved annual and final project reports. Approximately 30 annual reports and 5 final project reports will be completed, annually	150 annual and 25 final reports	25-30 annual reports/year and 5-10 final reports/year	On Schedule/Ongoing: All the annual or final project reports for the projects listed in Appendices B and C have been completed and entered in the GRTS.
Final water quality reports for completed watershed projects that describe progress towards beneficial use and/or pollutant load reduction goals. 3-5 final water quality reports, annually, for inclusion in the final project reports	25	4-6 final water quality reports/year	On Schedule/Ongoing: The final reports submitted for watershed projects include a final water quality report. Table 6 in Section VII lists all the projects that submitted final reports, including the watershed projects with a water quality report.

Estimated annual pollutant load reductions (based on modeled results) associated with applied BMP within the watershed and support project areas. Estimated annual load reductions for nitrogen and phosphorus are 100,000 pounds and 50,000 pounds, respectively	500,000 pounds of nitrogen & 250,000 pounds of phosphorus	Average Annual Reductions of 100,000 lbs. of N & 50,000 lbs. of P during the Management Period	Behind Schedule: Estimated cumulative nitrogen and phosphorus load reductions during the Management Period were 449,418 and 252,551 pounds, respectively. The estimated average annual nitrogen and phosphorus load reductions were 74,903 and 42,091 pounds, respectively.
Annual updates to the GRTS, including estimated pollutant load reductions and applied BMPs per applicable project	5 updates	Annual GRTS Updates	Ongoing: GRTS has been updated for 2019.

Task 2: Identify additional modeling options and/or improvements to generate better pollutant load reduction estimates.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Additional BMP efficiency coefficients that will expand the STEPL modeling capabilities to more fully account for the pollutant load reductions for a broader range of applied BMPs	5-10 new BMP efficiency coefficients	NA	Complete: The developers of STEPL have incorporated additional BMP efficiency coefficients.
Pilot modeling process (i.e., AnnAGNPS, Decision Support Tool) to evaluate the feasibility to efficiently and accurately estimate pre- and post BMP load reductions on small acreages to accommodate a performance-based cost share system	1 pilot project	NA	Revised/Complete: The PTMApp developed for the James and Red River basins, provides estimated N, P, and sediment loads at numerous priority resource points. These estimates can be obtained for catchments (~ 40-acre fields) in the watersheds and the entire basin. PTMApp is a planning tool and was not designed to allow inputs to represent the restored conditions. As such, PTMApp was not intended to be used to estimate post-BMP load reductions. This negated the opportunity to also use PTMApp to estimate the values for performance-based cost share.
LiDAR-based Decision Support Tools for estimating load reductions in priority areas in the James and Wild Rice River Basins	2 Decision Support Tools	1 Basin Decision Support Tool & 2 PTMApp for the Red and James River Basins	Revised/On Schedule: The PTMApp and Decision Support Tool for the Wild Rice Basin are complete. PTMApp was also completed for the James and Red River Basins. PTMApp replaced the Decision Support Tool for establishing priorities within the NPS project areas in the James and Red River Basins. The Web address for accessing PTMApp and the Decision Support Tool is International Water Institute PTMApp - Web Application Sign In - ptmaweb (iwinst.org)

Task 3: Track the sustainability of the benefits achieved through BMPs applied within the watershed projects and document delayed responses to BMPs applied near the end of the watershed projects.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Data collected through post-project monitoring of priority watershed projects completed through the Basin Framework. Given the status of the development of the Basin Monitoring Framework, the first post-project monitoring efforts will be initiated in the Red River Basin in 2018.	Post-project monitoring in 5 completed watersheds	NA	Postponed: With the delays in the implementation of the Basin Framework, this task has been postponed indefinitely and will be revisited under the 2021-2025 Management Plan.

Task 4: Review and update the Management Plan in 2017 and 2020, as needed, to ensure the program will effectively address coordination with other pending WMP initiatives or strategies and account for any changes in NPS pollution impacts to the water quality and beneficial uses of the state's water resources.

Outputs	Total Planned Quantity	2015-20 Quantity	Status/Actual Outputs to Date
Interim review and update to the Management Plan in 2017 to incorporate any revisions needed to better describe coordination with the pending Basin Framework, TMDL Vision, and Nutrient Reduction Strategy	1 interim update	1	Complete: No updates were needed for the Management Plan in 2017
Two NPS Task Force meetings in 2020 to obtain input on updates to the Management Plan for the next 5-year period	2 Task Force meetings	NA	Revised: Since the Management Plan updates for 2021-2025 focused more on format, a Task Force review process was not initiated.
Questionnaire distributed to sponsors and partners in 2019 to solicit feedback regarding delivery of NPS Program financial assistance and technical support	1 Questionnaire	NA	Ongoing/Revised: Rather than distribute a questionnaire, feedback from project sponsors was obtained through the annual and final reporting process. These reports include a "What Works/What didn't Work section that provides the NPS project sponsors an opportunity to voice their thoughts on the delivery of the NPS Program. Watershed coordinators also provided comments when the NPS Program BMP Cost Share Guidelines were updated.
Updated Management Plan for the period of 2020 – 2025 based on recommendations and feedback	Updated Management Plan	Updated 2021-2025 Management Plan	Complete: The 2021-2025 Management Plan update was completed in September 2020.

Appendix B
Section 319 Project Expenditures Supported under the 2011-2020 Grants
during the Management Plan period
January 1, 2015 – December 31, 2020

<u>Development Phase - NPS Assessment</u>	Cumulative 319 Expenditures
Bouret Dam Rehabilitation and Erosion Control Study - Phase I	\$4,720.20
Bouret Dam Rehabilitation and Erosion Study - Phase II	\$7,384.80
Bowman-Haley Watershed Assessment	\$ 726.08
BSA Environmental Services (PSA for HABs Monitoring)	\$6,240.00
Eddy County Conservation & Soil Health Demonstration	\$29,640.87
Fargo Water Quality Stewardship: Addressing WQ at the Community Level	\$21,827.26
James River Basin Decision Support Tool Development - Phase II	\$56,420.00
James River Basin Decision Support Tool Development Project	\$246,983.63
Janke-James River Riparian Restoration Project	\$20,705.00
Little Missouri River Tributaries Assessment (Bowman SCD Support)	\$1,162.74
Little Missouri Tributary Riparian & Stream Stability Assessment	\$22,994.50
Local Land Use Plan Development Project	\$5,000.00
Middle Sheyenne River Watershed Plan Development	\$21,184.10
Mill Dam Rehabilitation and Erosion Control Study - Phase I	\$4,934.71
Mill Dam Rehabilitation and Erosion Study - Phase II	\$9,649.00
Precision Ag Business Planning Pilot Program	\$5,708.55
PTMApp-Web Enhancements	\$91,939.00
Red River Basin Cold Climate Ag Nutrient Management BMP Workshop	\$20,000.00
Red River Basin PTMApp Development - Phase I	\$100,000.00
Red River Basin PTMApp Development Project - Phase II	\$225,239.99
Red River Basin River of Dreams – Pilot Project	\$24,835.76
Upper Sheyenne Riparian Erosion & Sedimentation Assessment – Phase II	\$3,607.70
Upper Sheyenne Riparian Erosion & Sedimentation Assessment	\$37,500.00
Upper Sheyenne River Streambank Restoration Project Development	\$ 527.70
<u>Water Quality Improvement through Farmer-Led Stewardship Project</u>	<u>\$ 8,400.00</u>
	\$977,331.59

<u>Education - Demonstration</u>	Cumulative 319 Expenditures
Menoken Farm Planting Green Project	\$132,262.53
NDSU Discovery Farm - Phase II	\$77,942.00
NDSU Discovery Farms Program	\$135,870.35
<u>NDSU Vegetative Buffer Demonstration & Evaluation Project - Phase II</u>	<u>\$29.57</u>
	\$346,104.45

Education - Public Outreach	Cumulative 319 Expenditures
Envirothon Program - Phase V	\$65,780.17
Envirothon Program Phase IV	\$133,000.00
Foster Co. TREES - Phase II	\$150,437.28
Foster Co. TREES - Phase III	\$375,802.00
Foster Co. TREES – Phase IV	\$157,799.92
Menoken Farm Soil Foodweb Project	\$1,266.37
Menoken Farm Soil Foodweb Project - Phase II	\$151,489.82
NDSU Eastern ND Soil Salinity Demonstration Network	\$112,474.00
NDSU Eastern ND Soil Salinity Program	\$26,980.57
NDSU Livestock Environmental Nutrient Management Education Program	\$110,405.29
NDSU Nutrient Management Education & Support Program - Phase II	\$365,558.01
NDSU Nutrient Management Educational Support Program	\$95,405.91
NDSU Soil Conservation & Watershed Leadership Academy	\$32,271.22
NDSU Watershed Leadership Academy	\$85,362.01
Partners for Improving Water Quality I&E Program	\$92,672.90
Prairie Waters Education and Research Center	\$29,935.21
Prairie Waters Education and Research Center - Phase II	\$190,000.00
Prairie Waters Education and Research Center - Phase III	\$260,044.01
Prairie Waters Education and Research Center - Phase IV	\$220,000.00
Prairie Waters Education and Research Center - Phase V	\$36,166.16
Project WET - Phase II	\$108,979.52
Project WET - Phase III	\$175,000.00
Project WET - Phase IV	\$194,000.00
Project WET - Phase V	\$111,715.64
Rancher Mentoring and Outreach Program – Phase II	\$23,884.00
Ranchers Mentoring and Outreach Program	\$201,200.00
Ranchers Mentoring Project	\$108,892.34
Red River Basin River Watch & River of Dreams Program	\$31,701.97
Statewide ECO ED Program - Phase III (NGAs 13.001 & 15.947)	\$236,451.09
Statewide ECO ED Program - Phase IV	\$74,851.52
Water Wisdom Project	\$136,012.44
	\$4,095,539.37

<u>Local Project Support - TA or FA</u>	<u>Cumulative 319 Expenditures</u>
Livestock Pollution Prevention Program	\$68,738.76
Livestock Pollution Prevention Program - Phase III	\$479,300.00
Livestock Pollution Prevention Program - Phase IV	\$358,262.00
Livestock Pollution Prevention Program - Phase V	\$209,900.00
Livestock Pollution Prevention Program - Phase VI	\$350,000.00
Livestock Pollution Prevention Program - Phase VII	\$115,403.98
NDSU Riparian Ecological Site Description Development Project	\$23,326.12
NDSU Riparian Ecological Site Description Development Project - Phase II	\$78,727.09
NPS BMP Team - Phase II	\$140,233.66
NPS BMP Team - Phase III (NGAs G15.599 & G15.1080)	\$250,999.64
NPS BMP Team - Phase IV	\$832.97
Precision Ag Business Planning Support Project	\$127,452.71
Stockmen's Association Environmental Services Program - Phase III	\$798,920.17
Stockmen's Association Environmental Services Program - Phase IV	\$418,722.00
Stockmen's Association Environmental Services Program - Phase V	\$734,000.00
<u>Stockmen's Association Environmental Services Program - Phase VI</u>	<u>\$257,357.72</u>
	\$4,448,176.82

<u>Watershed Projects</u>	<u>Cumulative 319 Expenditures</u>
Antelope Creek Watershed (Grant Co.)	\$170,654.29
Antelope Creek Watershed/Wild Rice Corridor Project - Phase II	\$89,084.46
Antelope Creek Watershed/Wild Rice Corridor Project - Phase III	\$673,750.00
Antelope Creek/Wild Rice Riparian Corridor Project - Phase IV	\$457,919.99
Antelope Creek/Wild Rice Riparian Corridor Project - Phase V	\$57,792.48
Baldhill Creek Watershed - Griggs Co.	\$109,674.97
Bear Creek Watershed - Phase II	\$48,054.05
Beaver Creek/Seven Mile Coulee Watershed - Phase II	\$319,401.55
Cannonball River-Dogtooth Creek Watershed	\$235,672.07
Cottonwood Creek Watershed - Phase II	\$84,364.74
Coyote Creek Watershed & Little Missouri Tributaries Assessment	\$55,659.78
Danzig Dam & Hailstone Creek Watershed	\$50,419.05
English Coulee Watershed	\$167,304.00
English Coulee Watershed – Phase II	\$66,458.89

<u>Watershed Projects (continued)</u>	<u>Cumulative 319 Expenditures</u>
Griggs Co. Sheyenne River Riparian Corridor Project	\$31,132.72
Goodman Creek Watershed	\$81,723.55
Gully Erosion Reparation Project	\$115,170.89
James River Headwaters Watershed - Phase II	\$59,574.07
Kelly Creek Watershed	\$79,435.55
Little Missouri River Tributaries Watershed	\$236,834.42
Maple River Watershed - Phase II	\$139,532.41
Maple River Watershed Phase II - Buffalo Creek	\$223,954.64
Middle Sheyenne River Watershed	\$281,058.32
Morton Co. Northeastern Watersheds	\$409,513.13
Painted Woods Creek Watershed	\$5,337.67
Park River Watershed	\$72,125.37
Powers Lake Watershed - Phase III	\$176,827.00
Powers Lake Watershed - Phase IV	\$15,542.44
Powers Lake Watershed Restoration Action Strategy - Phase II	\$61,807.17
Red River Riparian Project - Phase V	\$316,224.06
Red River Riparian Project - Phase VI	\$2,999.33
Sheyenne Watershed Sedimentation Reduction Project	\$270,062.10
Spiritwood Lake Watershed	\$175,376.96
Spiritwood Lake Watershed – Phase II	\$29,358.53
Spring Creek Watershed	\$68,924.78
Spring Creek Watershed - Phase II	\$353,360.71
Stutsman Co. Livestock Manure Management Program	\$463,137.91
Stutsman Co. Livestock Manure Management Program - Phase II	\$409,983.65
Timber Coulee Watershed	\$189,665.47
Turtle Creek Watershed	\$342,471.88
Upper Spring Creek Watershed (Dunn Co.)	\$70,696.76
Upper Turtle River Watershed - North & South Branches	\$76,085.01
Walsh Co. Homme Dam Watershed	\$136,089.24
Wild Rice River Restoration & Riparian Project - Phase IV	\$38,177.41
Wild Rice River Restoration and Riparian Project - Phase II	\$208,104.73
Wild Rice River Restoration and Riparian Project - Phase III	\$329,603.01
<u>Wild Rice River Restoration and Riparian Project - Phase IV</u>	<u>\$106,201.43</u>
Grand Total: \$17,991,297.46	\$8,124,145.23

Appendix C

Final Section 319 Budgets for Projects Supported under the 2015 Grant

Project Name	Project Type	319 Budget
Prairie Waters Education and Research Center - Phase II	Education - Public Outreach	\$190,000
Upper Turtle River Watershed - North & South Branches	Watershed Project	\$76,085
NDSU Discovery Farm - Phase II	Education - Demonstration	\$77,942
Project WET - Phase III	Education - Public Outreach	\$175,000
Bouret Dam Rehabilitation and Erosion Control Study - Phase I	Development Phase	\$4,720
Mill Dam Rehabilitation and Erosion Control Study - Phase I	Development Phase	\$1,826
BSA Environmental Services (PSA for HABs Monitoring)	Development Phase	\$6,240
Bouret Dam Rehabilitation and Erosion Study - Phase II	Development Phase	\$7,385
Envirothon Program - Phase IV	Education - Public Outreach	\$133,000
Menoken Farm Soil Foodweb Project - Phase II	Education - Public Outreach	\$151,490
Mill Dam Rehabilitation and Erosion Study - Phase II	Development Phase	\$9,649
Antelope Creek Watershed/Wild Rice Corridor Project - Phase III	Watershed Project	\$563,000
Local Land Use Plan Development Project	Development Phase	\$5,000
Red River Basin PTMApp Development - Phase I	Development Phase	\$100,000
Water Wisdom Project	Education - Public Outreach	\$136,012
Foster Co. TREES - Phase III	Education - Public Outreach	\$48,988
Project WET - Phase IV	Education - Public Outreach	\$19,000
Janke-James River Riparian Restoration Project	Development Phase	\$20,705
Livestock Pollution Prevention Program - Phase IV	Support Project	\$128,000
NDSU Eastern ND Soil Salinity Demonstration Network	Education - Public Outreach	\$112,474
NDSU Nutrient Management Education & Support Program - Phase II	Education - Public Outreach	\$83,058
Red River Riparian Project - Phase V	Watershed Project	\$25,598
Spring Creek Watershed - Phase II	Watershed Project	\$353,361
Timber Coulee Watershed	Watershed Project	\$189,665
Turtle Creek Watershed	Watershed Project	\$98,000
Stockmen's Association Environmental Services Prgm - Phase V	Support Project	\$175,000
Total		\$ 2,891,198

Appendix D

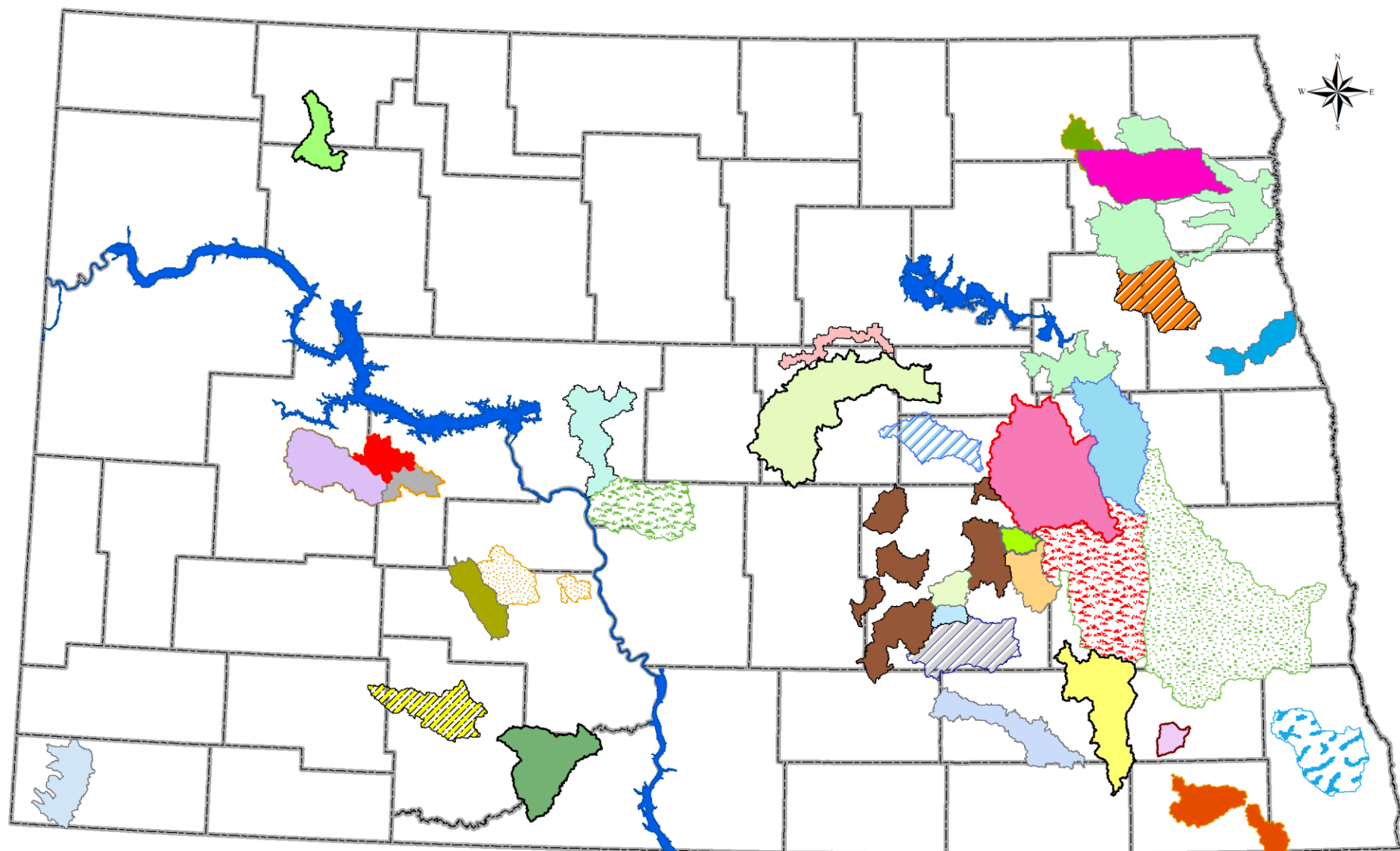
Summary of Partner Organization Assistance to the NPS Program

Agency or Organization	Organization Type	Assistance Type **		NPS Program Interaction with Partner Organizations				
	Federal, NGO* or State/Local	TA	FA	Task Force Member	Attend Partner Meetings	NPS Project Sponsor	BMP Support	NPS Project Planning Assistance
Natural Resource Conservation Service	Federal	X	X	X	X		X	X
US Geological Survey	Federal	X	X	X	X			X
US Farm Services Agency	Federal	X	X	X			X	
US Fish & Wildlife Service	Federal	X		X				X
US Forest Service	Federal	X		X				X
US Environmental Protection Agency	Federal	X	X	X	X		X	X
US Army Corps of Engineers	Federal	X						
ND Association of Soil Conservation Districts	NGO	X		X	X			
ND Stockmen's Association	NGO	X	X	X	X	X	X	X
Red River Basin Commission	NGO	X		X	X			X
Resource Conservation & Development Councils	NGO	X	X		X	X	X	X
Ducks Unlimited	NGO	X	X		X		X	
ND Grazing Lands Coalition	NGO	X	X		X	X	X	X
ND Certified Crop Advisors Board	NGO	X			X			
Keep ND Clean Inc.	NGO	X			X			X
International Water Institute	NGO	X			X	X		X
Pheasants Forever, Inc.	NGO	X	X			X	X	X
Local Soil Conservation Districts	State/Local	X	X		X	X	X	X
Water Resource Boards (county-level)	State/Local	X	X		X	X	X	X
ND Department of Agriculture	State/Local	X	X	X		X	X	X
ND Game & Fish Department	State/Local	X	X	X			X	X
Upper Sheyenne Joint Water Resource Boards	State/Local	X			X			X
NDSU Extension Service (State-level)	State/Local	X	X	X	X	X		X
ND State Water Commission	State/Local	X	X	X	X	X	X	X
ND Forest Service	State/Local	X		X	X		X	X
ND Industrial Commission	State/Local		X				X	
Universities (NDSU, UND, VCSU)	State/Local	X	X			X		X
ND Department of Public Instruction	State/Local	X			X			X
Cities	State/Local	X	X		X			X
ND State Historic Preservation Office	State/Local	X						X

* NGO- Nongovernmental Organization

** TA – Technical Assistance; FA – Financial Assistance

Appendix E
Map of all Watershed Projects Supported during the Management Plan Period
January 2015 – December 2020



- | | | | |
|--|--|--------------------------------------|---|
| Antelope Creek Grant County | Moon Lake Watershed | Bear Creek Watershed Phase 2 | Morton County NE Watersheds |
| Antelope Creek Watershed and Wild Rice Riparian Corridor | Painted Woods Watershed | Beaver Creek Stutsman County Phase 2 | Red River Riparian Priority Areas Phase 5 Revised |
| Danzig Dam Hailstone Creek Watershed | Park River Homme Dam Watershed | Cannonball River Dogtooth Creek | Seven Mile Coulee Phase 2 |
| English Coulee Watershed | Powers Lake Watershed Phase 3 | Cottonwood Creek Boundary | Sheyenne River Sediment Reduction Project |
| Goodman Creek Watershed | Shortfoot Creek and Crooked Creek Watersheds | Coyote Creek Watershed | Spring Creek Watershed |
| Griggs County Sheyenne River Watershed | Spiritwood Lake Watershed | Homme Dam Watershed | Timber Coulee Watershed |
| Little Missouri River Tributaries | Stutsman County Manure Management Program | James River Headwaters Phase 2 | Turtle Creek Watershed McLean County |
| Maple River And Buffalo Creek Watersheds | Upper Spring Creek Watershed | Kelly Creek Watershed | Turtle River Watershed - N And S Branch |
| Minneapolis Flats Watershed | Baldhill Creek Watershed | Middle Sheyenne River Watershed | County Boundaries |

Appendix F
Amounts and Costs of Best Management Practices Implemented during the
Management Plan Period under the 2011-2020 Grants
January 1, 2015 – December 31, 2020

Category/Practice	Amount	Units	Cost Share	Producer Match	Total Cost
<i>Cropland Management</i>					
Cover Crop	27,654.01	Acres			
			\$246,592.47	\$164,394.90	\$410,987.36
Nutrient Management	3,209.58	Acres			
			\$39,343.00	\$26,228.67	\$65,571.66
Pasture/Hayland Planting	80.00	Acres			
			\$2,394.72	\$1,596.48	\$3,991.20
Residue Management (No-Till and Strip Till)	160.00	Acres			
			<u>\$0.00</u>	<u>\$0.00</u>	<u>\$0.00</u>
			Total	\$288,330.19	\$192,220.05
					\$480,550.22
<i>Erosion Control</i>					
Critical Area Planting	53.60	Acres			
			\$45,706.66	\$30,471.11	\$76,177.77
Miscellaneous (Erosion Control)	2.00	Misc			
			<u>\$0.00</u>	<u>\$0.00</u>	<u>\$0.00</u>
			Total	\$45,706.66	\$30,471.11
					\$76,177.77
<i>Grazing Management</i>					
Alternative Power Source (Livestock Watering Only)	14.00	Number			
			\$35,611.26	\$23,740.83	\$59,352.09
Cultural Resource Review	1.00	Number			
			\$900.00	\$600.00	\$1,500.00
Electric Fence Energizer	4.00	Number			
			\$1,390.20	\$926.80	\$2,317.00
Fencing	265,441.00	Linear Feet			
			\$137,156.07	\$91,437.38	\$228,593.45
Fencing (Barbed)	553,376.60	Linear Feet			
			\$310,046.04	\$206,697.36	\$516,743.40
Fencing (Multiple Wire Electric)	240,095.70	Linear Feet			
			\$96,989.51	\$64,659.66	\$161,649.18
Fencing (Single Wire Electric)	36,947.00	Linear Feet			
			\$12,690.00	\$8,460.00	\$21,150.00
Fencing (Woven Wire)	3,913.00	Linear Feet			
			\$1,761.21	\$1,174.14	\$2,935.35
Miscellaneous (Grazing Management)	15.00	Misc			
			\$15,072.35	\$10,048.23	\$25,120.58
Pasture/Hayland Planting	6,825.13	Acres			
			\$210,953.26	\$140,635.55	\$351,588.84
Phase III Waste Management System	1,467.00	Linear Feet			
			\$2,772.63	\$1,848.42	\$4,621.05

<u>Category/Practice</u>	<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
<i>Grazing Management (continued)</i>					
Pipelines	193,439.50	Linear Feet	\$419,766.67	\$279,844.46	\$699,611.10
Pond	5.00	Number	\$9,870.00	\$6,580.00	\$16,450.00
Portable Windbreaks	2.00	Number	\$3,203.15	\$2,135.44	\$5,338.58
Prescribed Grazing	6,721.50	Acres	\$0.00	\$0.00	\$0.00
Range Planting	137.25	Acres	\$45.88	\$30.60	\$76.48
Rural Water Hookup	23.00	Number	\$18,598.77	\$12,399.20	\$30,997.97
Solar Pumps	4.00	Number	\$12,905.09	\$8,603.38	\$21,508.47
Spring Development	4.00	Number	\$5,282.76	\$3,521.84	\$8,804.60
Trough and Tank	186.00	Number	\$151,619.20	\$101,079.46	\$252,698.66
Use Exclusion	111.00	Acres	\$0.00	\$0.00	\$0.00
Well (Livestock Only)	48.00	Number	\$268,726.83	\$179,151.16	\$447,877.99
			Total	\$1,715,360.88	\$1,143,573.91
					\$2,858,934.79

Livestock Manure Management System (Full System)

Phase I Waste Management System	21.00	System(s)	\$1,766,515.30	\$1,177,676.86	\$2,944,192.16
Phase II Waste Management System	16.00	System(s)	\$639,871.04	\$426,580.67	\$1,066,451.70
Phase III Waste Management System	4.00	System(s)	\$201,229.44	\$134,152.96	\$335,382.40
Waste Management System (Coordinated With EQIP)	1.00	System(s)	\$24,998.40	\$16,665.60	\$41,664.00
Waste Management System (Full System Completed)	3.00	System(s)	\$560,000.00	\$373,333.32	\$933,333.32
			Total	\$3,192,614.18	\$2,128,409.41
					\$5,321,023.58

<u>Category/Practice</u>	<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
<i>Livestock Manure Management System (Partial System)</i>					
Fencing	7,409.00	Linear Feet			
			\$8,001.72	\$5,334.48	\$13,336.20
Fencing (Ag Waste)	3,960.00	Linear Feet			
			\$4,276.80	\$2,851.20	\$7,128.00
Fencing (Barbed)	10,488.00	Linear Feet			
			\$0.00	\$0.00	\$0.00
Miscellaneous (Grazing Management)	1.00	Misc			
			\$3,639.95	\$2,426.64	\$6,066.59
Miscellaneous (Partial Manure Management System)	1.00	Misc			
			\$800.00	\$533.00	\$1,333.00
Perimeter Fencing (Ag Waste)	10,560.00	Linear Feet			
			\$14,304.03	\$9,536.02	\$23,840.04
Pipelines	1,162.00	Linear Feet			
			\$14,898.97	\$9,932.65	\$24,831.62
Portable Windbreaks	17,251.00	Linear Feet			
			\$187,900.40	\$125,266.93	\$313,167.33
Trough and Tank	4.00	Number			
			\$807.72	\$538.48	\$1,346.20
Waste Utilization	23,803.00	Tons			
			\$8,076.64	\$5,384.43	\$13,461.07
Water Supply (Ag Waste)	1.00	Number			
			\$2,167.32	\$1,444.88	\$3,612.20
Watering Facility (Ag Waste:Tank,Pipeline,Well)	5.00	Number			
			\$43,935.97	\$29,290.63	\$73,226.60
Well (Livestock Only)	2.00	Number			
			\$11,911.71	\$7,941.14	\$19,852.85
Total			\$300,721.23	\$200,480.48	\$501,201.70

<u>Category/Practice</u>	<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
<i>Miscellaneous Practices</i>					
Cultural Resource Review	7.00	Number			
			\$4,675.00	\$3,116.67	\$7,791.67
Grade Stabilization	1.00	Number			
			\$4,443.46	\$2,962.31	\$7,405.77
Miscellaneous (Grazing Management)	2.00	Misc			
			\$415.74	\$277.16	\$692.90
Miscellaneous (Miscellaneous Practices)	56.00	Misc			
			\$8,394.99	\$5,596.59	\$13,991.58
Portable Windbreaks	240.00	Linear Feet			
			\$5,004.00	\$3,336.00	\$8,340.00
Septic System Renovation	119.00	Number			
			\$888,065.70	\$592,043.80	\$1,480,109.50
Solar Pumps	8.00	Number			
			\$21,480.77	\$14,320.49	\$35,801.26
Well Decommissioning	46.00	Number			
			<u>\$26,666.83</u>	<u>\$17,777.88</u>	<u>\$44,444.71</u>
			Total	\$959,146.49	\$639,430.90
					\$1,598,577.39
<i>Riparian Area Management</i>					
Miscellaneous (Riparian Area Management)	2.00	Misc			
			\$10,782.40	\$7,188.27	\$17,970.67
Riparian Easement (On Cropland)	212.52	Acres			
			\$51,091.98	\$46,271.60	\$97,363.58
Riparian Forest Buffer	117.70	Acres			
			\$0.00	\$0.00	\$0.00
Riparian Herbaceous Cover	420.93	Acres			
			\$7,471.95	\$6,127.12	\$13,599.07
Selective Debris Removal (Site-Specific Approval Required)	43.56	Site			
			\$0.00	\$0.00	\$0.00
Stream Channel Stabilization	5,200.00	Linear Feet			
			\$14,397.50	\$9,598.33	\$23,995.83

<u>Category/Practice</u>	<u>Amount</u>	<u>Units</u>	<u>Cost Share</u>	<u>Producer Match</u>	<u>Total Cost</u>
<i>Riparian Area Management (continued)</i>					
Streambank and Shoreline Stabilization	380.00	Linear Feet			
			\$0.00	\$0.00	\$0.00
Tree Hand Plants - 2' Non-Rooted Stakes	100.00	Number			
			\$240.00	\$160.00	\$400.00
Tree Handplants	945.00	Number			
			\$0.00	\$0.00	\$0.00
Tree Planting - Machine (Scalp Plant/Site Prep)	10.20	Per 100 Ft			
			\$465.12	\$310.08	\$775.20
Weed Control for Established Trees (Chemical)	5.00	Acres			
			\$24.00	\$16.00	\$40.00
			Total	\$84,472.95	\$69,671.40
					\$154,144.35
<i>Upland Tree Planting</i>					
Miscellaneous (Upland Tree Planting)	6,520.00	Misc			
			\$0.00	\$0.00	\$0.00
Site Prep for Trees (Heavy Mechanical)	7.30	Acres			
			\$300.00	\$200.00	\$500.00
Tree Handplants	128.00	Number			
			\$0.00	\$0.00	\$0.00
Tree Tube Shelters (3 Foot)	420.00	Number			
			\$0.00	\$0.00	\$0.00
Tree/Shrub Establishment	504.09	Per 100 Ft			
			\$1,019.52	\$679.68	\$1,699.20
Weed Control for Established Trees (4x4 Weed Barrier Sq.)	7.00	Number			
			\$0.00	\$0.00	\$0.00
Weed Control for Established Trees (Weed Barrier)	490.71	Per 100 Ft			
			\$6,265.95	\$4,177.30	\$10,443.25
Windbreak/Shelterbelt	17,800.21	Per 100 Ft			
			\$9,911.82	\$6,607.88	\$16,519.70
			Total	\$17,497.29	\$11,664.86
					\$29,162.15
<i>Vegetative Buffers</i>					
Grassed Waterway	1.00	Acres			
			\$0.00	\$0.00	\$0.00
			Total	\$0.00	\$0.00
			Grand Total	\$6,603,849.87	\$4,415,922.12
					\$11,019,771.95