

1.0 SHEYENNE RIVER IN RANSOM COUNTY

PTMApp PROJECT

PROPOSAL SUMMARY SHEET

The Sheyenne River In Ransom County PTMApp Project

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State - North Dakota

Watershed – Sheyenne River

Hydrological Unit Code – 9020204-040,050,060,070

High priority Watershed - yes

Project Type

Watershed

Waterbody Types

Stream/River/Lake

NPS Category

Agricultural

Project Location: Latitude - 46 degrees 26 minutes Longitude - 97 degrees 41 minutes

Major Goals: Ultimately, to restore or protect the aquatic life and recreational uses of the Sheyenne River, the long term water quality objective for the river needs to progress toward mean annual N, P and TSS concentrations of 1.047 mg/l; 0.215 mg/l; and 35 mg/l, respectively. However, this will take a basin-wide approach involving multiple upstream and downstream organizations and is currently beyond the scope of this project. As a first step toward a larger scale effort, the “Sheyenne River in Ransom County PTMApp project” will focus on reducing the sources of sediment, nitrogen and phosphorous on agricultural lands in Ransom County to reduce potential threats to aquatic life and recreational uses of the Sheyenne River in the county. During this first phase, the project will strive to address the management needs of the top 100 PTMApp catchments for nutrient and sediment loads at the catchment edge. This will be accomplished by verifying beneficial practices already in place and implementing additional practices that will reduce/prevent the transport of sediment and nutrients from the priority PTMApp catchments (Appendices A3, 4, & 5). Financial and technical assistance for conservation planning; best management practice (BMP) implementation; and a strong informational/educational (I/E) program will be key components of the strategy to achieve the projects goal and objectives. The I/E program will focus on providing farmers and ranchers information on the causes and effects of non-point source (NPS) pollution and ways to reduce or eliminate NPS pollution. PTMApp priority catchments and failed septic systems (Appendix A7) will be targeted for BMP planning and implementation.

Project Description: To reduce the cumulative effects of NPS pollution within the Sheyenne River Watershed, the Ransom County Soil Conservation District, NRCS and FSA will provide financial and technical assistance for conservation planning and provide increased emphasis on NPS Pollution in their I/E program. Through these efforts the project sponsors plan to address the following: 1) Reduce the sediment and nutrient inputs from farm fields and pasture/rangeland shown as major contributors by the PTMApp program, 2) Reduce the pathogen/nutrient inputs from 10 or more faulty septic systems within close proximity to the Sheyenne River (appendix A7), and 3) Increase public awareness to the causes, effects and solutions to NPS pollution. Funds provided by various USDA programs and the Section 319 program will be used to provide financial and technical assistance for the implementation of planned BMPs and scheduled I/E activities.

Funding

FY 2021 319 Funds requested: \$359,550

Match: \$296,000

Other Federal Funds \$580,000

Other State Funds \$150,000

Total Project Cost: \$1,385,550

319 Funded Full Time Personnel: ¾ FTE

2.0 Statement of Need

2.1 Project Reference

The 2018 Integrated Section 305(b) and Section 303(d) lists the Sheyenne River from highway 46 to Lisbon, ND as fully supporting but threatened for the designated use recreation. The cause of impairment is fecal coliform bacteria. This section is listed as a high priority for TMDL development.

A portion of the Sheyenne River in northern Ransom County is listed as fully supporting but threatened for the designated use fish and other aquatic biota. The cause of impairment is sedimentation/siltation.

The Sheyenne river from Lisbon, ND downstream to its confluence with Dead Colt Creek, a main tributary is listed as fully supporting but threatened for the designated use of recreation. The cause of impairment is Escherichia coli levels. This section is listed as a high priority for TMDL development.

2.2 Waterbody Description

The Lower Sheyenne Watershed HUC (9020204) begins in Northern Barnes County. The Lower Sheyenne Watershed ends where the Sheyenne River empties into the Red River 50 miles northeast of where it exits Ransom County. The Sheyenne River enters the northwest corner of Ransom County and meanders through the central part of the county before exiting the eastern border of Ransom County. (see appendix A1-2). The Sheyenne River Watershed in Ransom County is comprised of the Sheyenne River (HUC 09020204-040 and -070) a perennial river, Timber Coulee (HUC 09020204-050) an intermittent tributary and Dead Colt Creek (HUC 9020204-060) another intermittent tributary. There is approximately 327.5 miles of river/stream within the watershed, (mainstem of the Sheyenne River 112.5 m, Dead Colt Creek 60 m, and Timber Coulee 33 m). The mainstem of the Sheyenne River is perennial and the tributaries are all intermittent or ephemeral. There are two main tributaries, (Timber Coulee and Dead Colt Creek) of the Sheyenne River in Ransom County. The Sheyenne River Watershed covers approximately 295,000 acres in Ransom County. There are approximately 180 farmsteads and two towns, Fort Ransom with a population of 99 and Lisbon with a population of 2,283, located along the river and its tributaries. Lisbon has experienced volume exceedances in their waste treatment system due to flooding and excessive rains that have resulted in more frequent discharges in some years. Fort Ransom has not had any discharges. The approximate population within the watershed is 5,300 individuals.

The main stem of the Sheyenne River (230,000 acres) flows continuously throughout the year. The flows of the Sheyenne River are influenced by the operation of the Baldhill dam north of Valley City, North Dakota. There are two low head impoundments located on the Sheyenne River, one is located within the town of Fort Ransom and the other is located directly north of Lisbon. The Timber Coulee watershed (29,200 acres) is located entirely in Ransom County. Timber Coulee flows intermittently throughout the year. Flows are influenced by spring snowmelt and spring, summer and fall rains. The Dead Colt Creek Watershed (35,680 acres) is located in Ransom and Sargeant Counties. The majority of the watershed lies in Ransom County. Dead Colt Creek flows intermittently throughout the year. Flows are influenced by spring snowmelt and spring, summer and fall rains. The Dead Colt Creek Dam is located approximately ½ mile upstream from where Dead Colt Creek empties into the Sheyenne River. The Dead Colt Creek Dam is a 113 acre impoundment that was created in 1983 by damming Dead Colt Creek. A TMDL was approved in 2006 for Dead Colt Creek for nutrients, sediment and dissolved oxygen.

2.3 Maps

Watershed location maps (appendix A1-2).
PTMApp maps (appendix A3-6)
Potential Septic Contributors (appendix A7)

2.4 General Information

The Sheyenne River Watershed, including Dead Colt Creek in Ransom County covers approximately 295,000 acres in Ransom County in Southeastern North Dakota. There are two main tributaries to the Sheyenne River, Timber Coulee and Dead Colt Creek.

The majority of the western and central areas of the watershed lie within the Drift Plains of the Northern Glaciated Plains ecoregion. There are also small areas of Glacial Outwash and Tewaukon Dead Ice Moraine located in this portion of the watershed. This ecoregion is characterized by flat to gently rolling terrain composed primarily of glacial drift. The Eastern area of the watershed lies within the Sand Deltas and Beach Ridges of the Glacial Lake Agassiz ecoregion.

The dominant soils association in the Sheyenne River Watershed, including Dead Colt Creek, in Ransom County is the Barnes-Svea-Hamerly 47% followed by Serden-Aylmer-Rosewood 12%, Hecla-Hamar-Ulen 12%, Ladelle-Buse-Barnes-Edgeley 8%, Lapraire-Renshaw-Buse 6%, Gwinner-Hamerly-Parnell 6% , Renshaw-Hecla-Divide 5%, Svea-Gardena-Eckman 3%, and Ulen-Wyndmere-Rosewood 1%. The Barnes-Svea-Hamerly association consists of level to gently rolling topography with knolls, discontinuous ridges, and depressions¹. The major land use is for cultivated crops. Wind and water erosion can be a concern on these soils. The Serden-Aylmer- Rosewood association is characterized by level to steep dunes and hummocky topography. This association occurs in the “sand hills” area of the Sheyenne Delta. This association is used mainly for rangeland. The Hecla-Hamar-Ulen association is characterized by level to gently sloping topography, which occurs on glacial outwash plains and deltas. This association is used primarily for crop production. The Ladelle-Buse-Barnes-Edgeley association consists of level valleys, flood plains and steep valley side slopes of the Sheyenne River Valley¹. This association is used primarily as rangeland. Water erosion on the steep slopes is a major concern. The LaPraire-Renshaw-Buse association is characterized by level narrow bottom lands, which are used for crop production, and steep valley sides with numerous branching ravines, which are used for rangeland and wildlife habitat. The major concerns of this association are flooding on the bottom lands and water erosion on the valley sides. The Gwinner-Hamerly-Parnell association is characterized by nearly level topography with swales, knolls and depressions. Rounded knolls and low ridges separated by poorly drained depressions and drainage ways characterize the Renshaw-Hecla-Divide association. Sloping rises and level and undulating knolls separated by swales and depressions characterize the Svea-Gardena-Eckman association. The Ulen-Wyndme-Rosewood association consists of level flats with slight rises and depressions. The average annual soil loss (T) ranges from 2 – 5 tons/acre/year.

The climate of this region is subhumid. The average annual precipitation is approximately 19 inches. 78%, about 15 inches, occurs during the growing season, April through September. Average snowfall is approximately 34 inches. The average daily summer temperature is 85 degrees Farenheight. Northwest is the prevailing wind direction. 11.5 miles per hour is the average annual wind speed. Monthly precipitation totals for the period of October 2001 to October 2003 were collected from the cooperative weather stations in Litchville and Lisbon, North Dakota. Precipitation was much below normal for this time frame; only six of the twenty-five months had precipitation totals at or above normal. Overall, the precipitation totals at Lisbon

¹ Natural Resource Conservation Service.2002. Soil Survey of Ransom County, North Dakota. Natural Resource Conservation Service, United States Department of Agriculture, Washington, DC.

and Litchville were 81.7% and 79.1% of normal, which translates into a precipitation deficit of 7.40 and 9.15 inches.

Land use within the Sheyenne River Watershed is primarily agricultural. The Sheyenne River Watershed is approximately 60% cropland, 23% native range/pasture/hayland, 15% CRP, 1.5% woodland and 0.5% urban (appendix B2). The major crops grown are corn, soybeans, spring wheat and sunflowers. Minor crops are dry beans, millet, potatoes and winter wheat. Spring wheat, corn, soybeans is a typical rotation within the Sheyenne river watershed. There are approximately 17,000 acres under irrigation. The Sheyenne National Grasslands cover approximately 2,200 acres in the eastern Sheyenne River Watershed near the Ransom/Richland border. The livestock enterprises are primarily cow/calf operations. Calves are backgrounded through the winter months in feedlots.

The Sheyenne River can be used for drinking water, in emergencies, for the cities of Lisbon, Kindred and West Fargo. The cities of Lisbon, McLeod, the Ransom/Sargent Water Users District and the Sundale Hutterian Colony currently have wellhead protection areas in the watershed.

2.5 Water Quality

Water quality data collected from the NDDEQ ambient site 385168 near Lisbon (Figure 4) from 2002-2020 indicates the average annual concentrations for total nitrogen and phosphorus are consistently above the ecoregion chemical stressor threshold values used to define the moderately disturbed condition class for macroinvertebrates. The chemical stressor threshold values for total N and P for moderately disturbed sites are 1.047 mg/l and 0.215 mg/l, respectively. The average concentrations at site 385168 for total N and P for the 2002-2020 period were 1.22 mg/l and 0.27 mg/l, respectively (Figures 1 & 2). Average total suspended solid (TSS) concentrations at site 385168 were 88.30 mg/l (figure 3) which exceeds the 35 mg/l target concentration. Data collected from other NDDEQ monitoring sites upstream and downstream from the ambient site 385168 near Lisbon had very similar concentrations for total N and P and TSS. Indicating N, P, and TSS contributions associated with land management in Ransom County may not be widespread and could be addressed with targeted implementation of BMP in high priority areas identified with PTMApp.

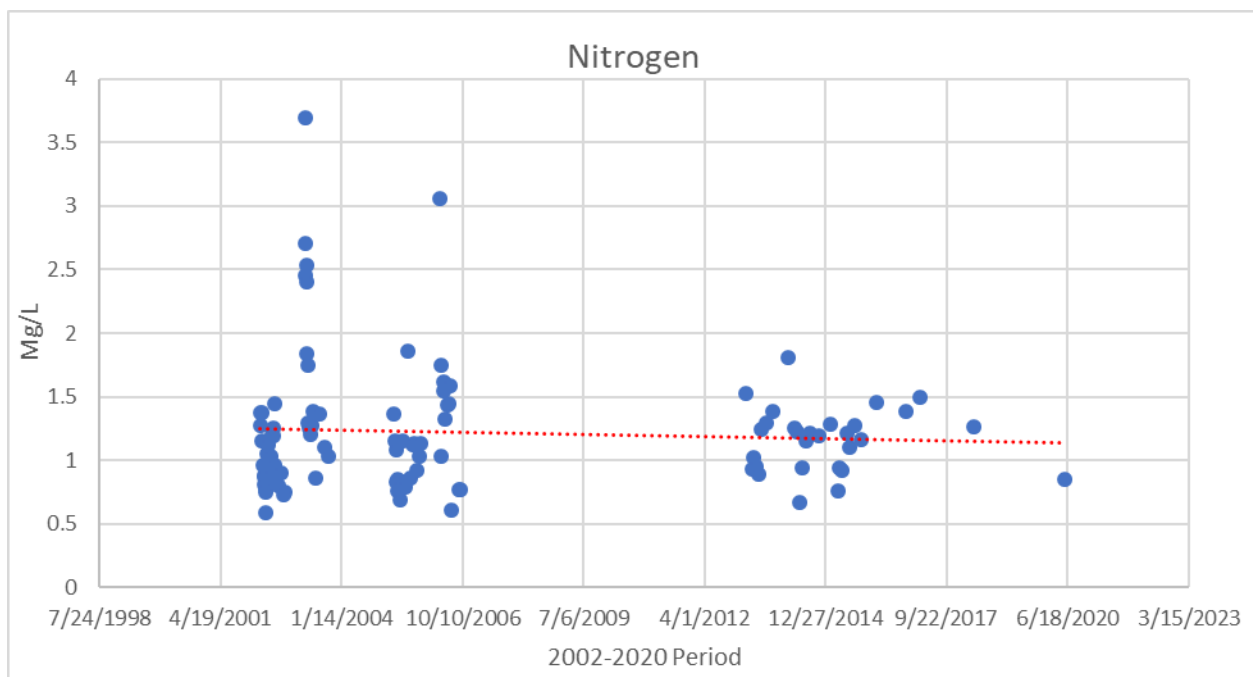


Figure 1. Total Nitrogen concentration trends 2002-2020

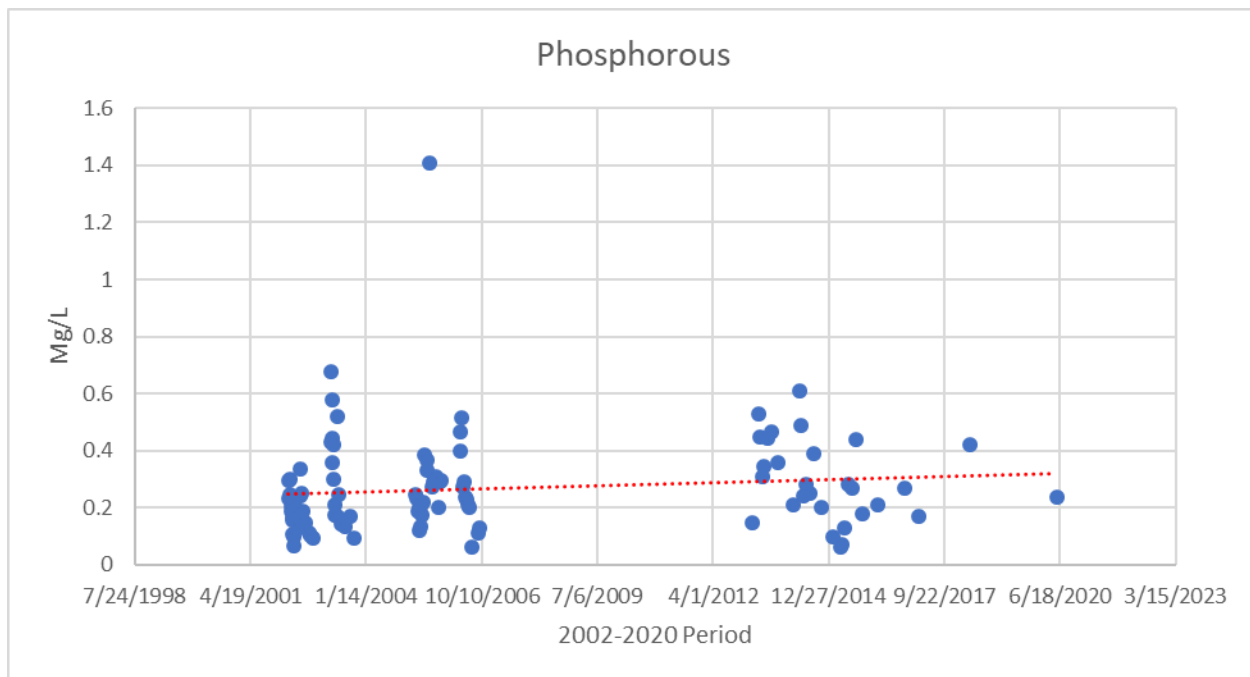


Figure 2. Total phosphorous concentration trends 2002-2020

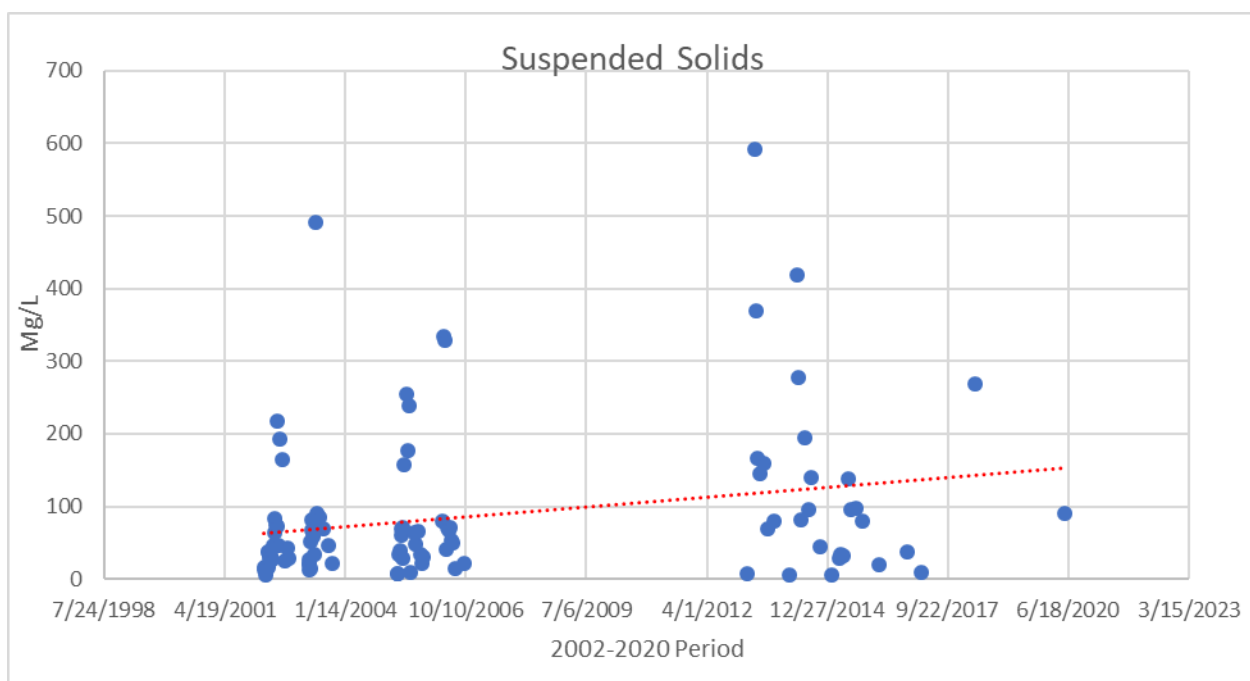


Figure 3. Total suspended solids concentration trends 2002-2020

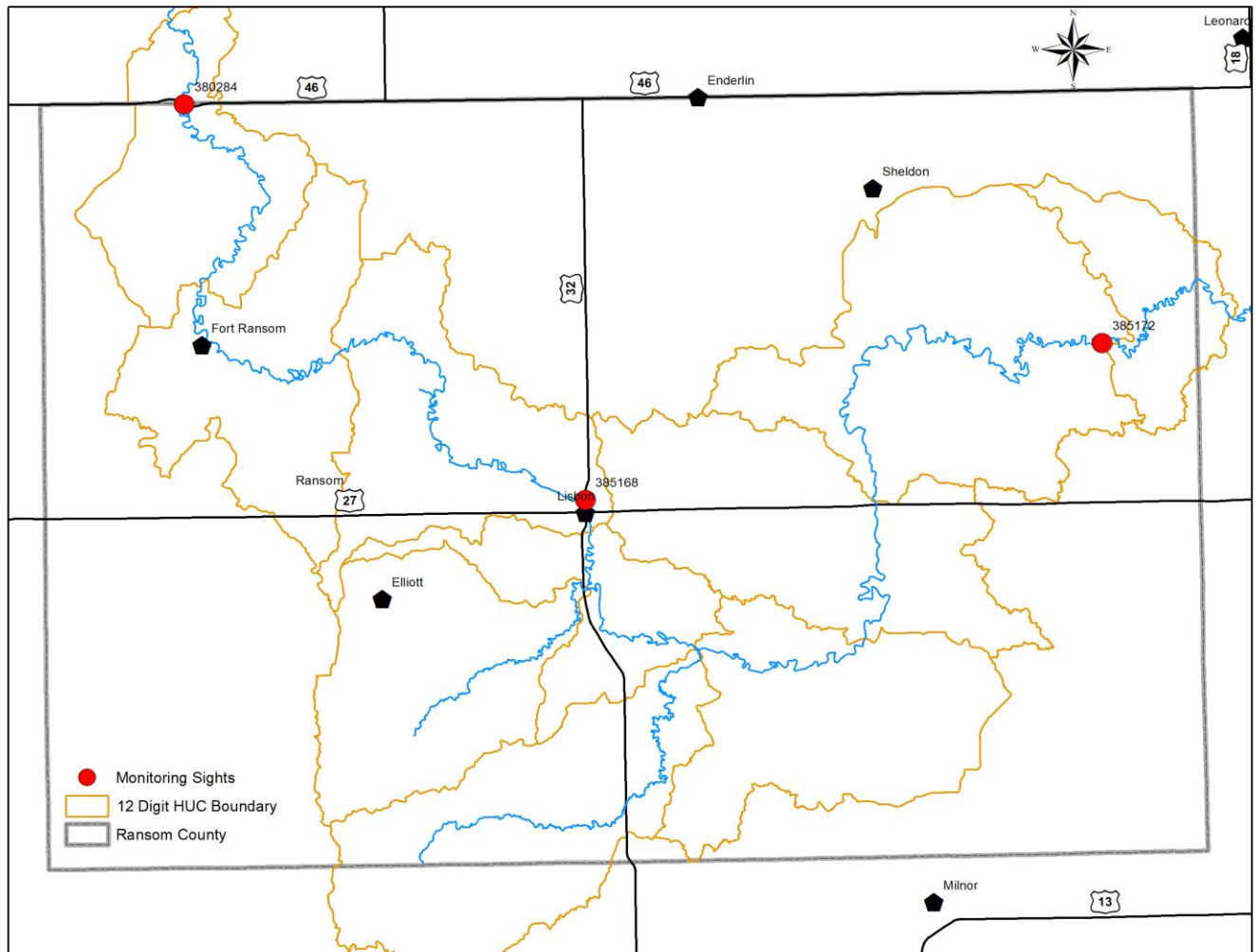


Figure 4. 12-digit hydrologic units and historic monitoring sites in the project area

Data collected during past projects also supports the results of the data collected from the ambient site near Lisbon. Past project water quality reports go into detail on the water quality problems within the Sheyenne River Watershed. Results from these past projects are on file with the NDDEQ. Listed below are excerpts from the previous projects reports that support the continued need for the installation of additional BMPs, these BMP's would include practices such as notill, nutrient management, manure management systems, prescribed grazing systems, riparian buffers and filterstrips. These practices should be targeted toward identified priority areas to ensure greater success in reducing the delivery of E. coli bacteria, sediments and nutrients to the Sheyenne River in Ransom County. A strong I/E program will also help to inform farmers and ranchers of the benefits of BMPs and the effect that NPS pollution has on water quality. The following are examples of supporting statements from previous project reports.

Water Quality Monitoring Results Report for the Lower Sheyenne River Project 2010
Index of Biotic Integrity

“Two of the 3 sampling sites experienced a decrease in IBI score between 2002 and 2005 however with only 2 years of data it is difficult to tell if this is an actual trend or a natural variance. Regardless of any trends, positive or negative, the two furthest upstream sites 551243 and 551244 did not meet the goals of the project.”

Water Quality Monitoring Results for the Deadcolt Creek TMDL Implementation Project August 2014

“The Dead Colt Creek TMDL Implementation Project did not attain its goal of an in-lake mean total phosphorus concentration of 0.041 mg/L. Site 380340 saw a thirty two percent increase in mean total phosphorus from 2010 to 2013. This also correlates with an average Secchi Disk Depth measurement data that indicates a decrease in clarity of the reservoir from 2010 to 2013.”

Water Quality Monitoring Results for the Timber Coulee Watershed October 2019

“E. coli bacteria concentrations continue to be extremely high for all three years of the project. A number of the samples resulted in 2000+ CFU/100mL count, whereas the majority of samples were above the NDDEQ’s water quality standard of 126 CFU/100mL.

A common theme with the goals of these past projects is that they were not met and there is still work that needs to be done. PTMApp will be utilized to better guide program personnel through decisions and application of BMP’s throughout the project area. The PTMApp enables project managers to determine water quality management needs more effectively by providing the mapping to identify major nutrient or sediment sources, establish priority areas in specific fields, and identify feasible locations for BMP implementation.

3.0 Project Description

3.1 Goal

Ultimately, to restore or protect the aquatic life and recreational uses of the Sheyenne River, the long term water quality objective for the river needs to progress toward mean annual N, P and TSS concentrations of 1.047 mg/l; 0.215 mg/l; and 35 mg/l, respectively. However, this will take a basin-wide approach involving multiple upstream and downstream organizations and is currently beyond the scope of this project. As a first step toward a larger scale effort, the “Sheyenne River in Ransom County PTMApp project” will focus on reducing the sources of sediment, nitrogen and phosphorous on agricultural lands in Ransom County to reduce potential threats to aquatic life and recreational uses of the Sheyenne River in the county. During this first phase, the project will strive to address the management needs of the top 100 PTMApp catchments for nutrient and sediment loads at the catchment edge. This will be accomplished by verifying beneficial practices already in place and implementing additional practices that will reduce/prevent the transport of sediment and nutrients from the priority PTMApp catchments (Appendices A3, 4, & 5). Financial and technical assistance for conservation planning; best management practice (BMP) implementation; and a strong informational/educational (I/E) program will be key components of the strategy to achieve the projects goal and objectives. The I/E program will focus on providing farmers and ranchers information on the causes and effects of non-point source (NPS) pollution and ways to reduce or eliminate NPS pollution. PTMApp priority catchments and failed septic systems (Appendix A7) will be targeted for BMP planning and implementation.

3.2 Objectives

Objective 1- Hire staff to coordinate and organize the project with other local agencies (i.e. NRCS, NDSU EXT, water resource, county and city boards) and provide technical assistance to farmers and ranchers in the Sheyenne River.

Task 1- Employ one watershed coordinator to coordinate the project and provide one-on-one conservation planning assistance to producers in the project area. Includes salary/fringe, travel, equipment, training, and telephone.

Product- One watershed coordinator (3/4 FTE)

Cost - \$269,750

Task 2 – Utilize PTMApp as it allows the user to easily access a multitude of Arc GIS data products in an interactive web-based environment. These data products will enable project staff to more effectively determine water quality management needs by providing the mapping to identify major nutrient or sediment sources, establish priority areas in specific fields, and identify feasible locations for BMP implementation.

Product- PTMApp reports and maps for setting watershed and field-scale priorities; assisting producers with field-scale planning, tracking project progress and estimating N, P, and TSS load reductions per BMP.

Cost- Included in task 1

Task 3 – Continued training with PTMApp developers to better understand the program's capabilities in measuring project success.

Product – PTMApp progress reports and maps.

Cost – Included in task 1

Objective 2- The project will strive to address the management needs of the top 100 PTMApp catchments for nutrient and sediment loads at the catchment edge. This will be accomplished by verifying beneficial practices already in place and implementing additional practices that will reduce/prevent the transport of sediment and nutrients from the priority PTMApp catchments.

Task 4 – Provide assistance to farmers and ranchers to implement BMPs to reduce nutrient and sediment loads from the top 100 catchments identified by PTMApp (Appendix A1, 2, 3 & 4) PTMApp was also used to identify the highest ranked practices within the Sheyenne River Drainage in Ransom County. 35 sites were identified through use of the PTMApp-Web Targeted BMP Action Report tool. PTMApp determined the potential cost for treatment of these identified sites to be approximately \$180,000. The practice list includes Riparian Herbaceous Cover, WASCOB (Water and Sediment Control Basin), Prescribed Grazing, Grassed Waterway, Nutrient Management, No-Till, Cover Crops, and Conservation Cover. An additional \$40,000 was added to compensate for additional practices within priority areas to ensure a higher degree of success.

Product - Conservation Planning for approx. 10 contracts per year for 2021-2025.

Cost- \$220,000

Task 5 – Provide assistance to property owners in close proximity to the river or major tributaries with the replacement of faulty septic systems.

Product – Total of 10 systems renovated

Cost - \$100,000

Task 6 – Conduct follow up contacts to assist with conservation plan updates and Monitor O&M of Section 319 cost-shared practices.

Product – Database of applied BMPs

Cost – Included in task 1

Objective 3- Maximize producer adoption of effective BMP by increasing their understanding of feasible BMP options to improve water quality on their operations.

Task 7 – Organize and conduct I/E events that focus on NPS pollution control within the watershed and coordinate with ongoing state/federal sponsored I/E programs.

Product – Four workshops, four tours/demonstrations, and five informational meetings. To include emphasis on water quality impacts from practices such as cover crops, livestock waste management, crop rotation, nutrient management, minimizing tillage, and others.

Cost - \$5,000

Task 8 – Prepare newsletter articles and direct mailings to local land users, general public and media to promote project and disseminate information on water quality and NPS pollution control

Product – Minimum of five newsletters, 25 news releases, and six direct mailings.

Cost - \$4,500

Task 9 – Conduct shop talk meetings with small groups of producers in specific Hydrologic Units with specific needs that may require practices that meet those needs.

Product – 5-10 small meetings with producer groups in their element on the farm.

Cost – Included in Task 1

Task 10 – Complete semi-annual, annual and final project reports to update the GRTS. These will be provided to NDDEQ, EPA and all sponsors and interested individuals.

Product – Annual and semi-annual reports, and one final report.

Cost – included in task 1.

3.3 Milestone: See attached milestone, (appendix B5)

3.4 Permits

All necessary permits will be acquired. These may include CWA Section 404 permits; cultural resource inventories; etc. Project staff will also work with the NDDEQ to determine if National Pollution Elimination System permits are needed for the proposed livestock manure management systems.

3.5 Appropriateness of lead sponsor

The Ransom County SCD is sponsoring this water quality project. The Ransom County SCD's annual and long range plans help to prioritize and provide guidance to the field staff. The Ransom County SCD board has legal authority to employ personnel and receive and expend funds. The Ransom County SCD board has a track record for personnel management and addressing conservation issues.

3.6 Operation and Maintenance

Project staff will ensure that any Section 319 funded BMPs are properly installed and operated throughout the BMP life span. Cropland BMPs such as no-till, nutrient management, and pasture/hayland plantings will be monitored every year of their lifespan. Any structural BMPs will be evaluated the first year and spot-checked thereafter. A signed O&M agreement (Appendix C1) will accompany any structural BMPs requiring engineering assistance (in the design packet). These agreements will outline proper operation and maintenance for the landowner to follow. Practices implemented with life spans longer than the project's life span will be the responsibility of the NDDEQ. In some cases, such as livestock containment facilities, permits from the NDDEQ will enforce the O&M of the system throughout its life. If a producer abandons or destroys a BMP before the end of the life span, the producer will be required to pay back all Section 319 funds given previously for the installation of the BMP.

4.0 Coordination Plan

4.1 Cooperating Organizations

- 1) Ransom County Soil Conservation District (RCSCD)- The Ransom County SCD will be the signatory of the Section 319 contract and will be the lead agency responsible for project administration. They will provide vehicles, clerical assistance, and supplies as well annual financial support. The RCSCD board will oversee implementation of the scheduled project

activities and provide for staff time if feasible. The board will be the primary supervisor of the watershed coordinator and all section 319 funded activities.

- 2) Natural Resource Conservation Service (NRCS) – The NRCS will provide office space and equipment. They will also provide day to day assistance in conservation planning, plan writing, contract writing, and technical assistance for construction and installation of planned BMPs. Standards and specifications for approved BMPs will be provided by local NRCS personnel from the Electronic Field Office Technical Guide (eFOTG). EQIP funds will also be available.
- 3) North Dakota Department of Environmental Quality (NDDEQ) – The NDDEQ will oversee 319 funding. The state NPS information and education coordinator will assist the project staff in development and implementation of the project's I/E activities. The NDDEQ will provide the sponsor oversight to ensure proper management and expenditures of Section 319 funds. They will assist NRCS and the RCSCD personnel in review of O&M requirements for Section 319 funded BMPs. The NDDEQ will also provide analytical support for water quality samples and, if needed, develop the monitoring plan for the project.
- 4) Farm Service Agency (FSA) – Programs like CRP, available through FSA will be pursued for cost-share assistance.
- 5) North Dakota Extension Service (EXT) – Local and State personnel and education materials will be utilized to compliment the project's I/E activities. The specific role of EXT will be dependent on the type of I/E activity being implemented and the availability of EXT staff and materials.
- 6) Funding sources from Pheasants Forever, Ducks Unlimited, Natural Resources Trust, ND Outdoor Heritage Fund, and other State and National organizations will be pursued to benefit the project in any way possible.
- 7) Section 319 NPS-BMP Team - any time engineering assistance is required for installation of BMP's the NPS-BMP Team will be utilized for that purpose.

4.2 Local Project Support

The Ransom County Soil Conservation District (RCSCD) board will stand behind this project and provide all that is needed for it to succeed. The RCSCD has the ability to levy taxes within Ransom County to support this project. Additional funds are also available through services offered by the RCSCD like tree planting and equipment rental.

4.3 Funding Coordination

The funding of best management practices in the Sheyenne River Watershed project area will be coordinated with Environmental Quality Incentives Program (EQIP) funding from the 2018 Farm Bill. The watershed conservationist and NRCS staff will work closely to determine how 319 and EQIP funds can be utilized to provide the most cost-effective benefits to producers, the EQIP program, and the 319 program.

4.4 Other Watershed Activities

There are no current projects dealing directly with water quality in the Sheyenne River.

5.0 Evaluation and Monitoring Plan

5.1-5.4 SAP, Monitoring Strategy, and Modeling

Utilize PTMApp as it allows the user to easily access a multitude of Arc GIS data products in an interactive web-based environment. These data products will enable project staff to more effectively determine water quality management needs by providing the mapping to identify major nutrient or sediment sources, establish priority areas in specific fields, and identify feasible locations for BMP implementation. Project staff will continue training with PTMApp

developers as a part of this project to track practice effectiveness through the application. Developers are already working toward this goal and training will be available in the near future.

Given the total acreage and potential pollutant sources upstream from the project area, in-stream monitoring will not be effective over the short term. Instead, PTMApp (or STEPL) will be used as an interim measure to generate estimated N, P or TSS load reductions associated with applied BMP. These load reduction values will be field edge values and provide the means to estimate annual load reductions resulting from financial and technical assistance delivered by the project. The basis for the PTMApp and STEPL calculations is the USDA RUSLE. If needed, the animal Feedlot Runoff Risk Index Worksheet (AFRRIW) will be used to estimate N and P load reductions associated with manure management systems addressing animal feeding operations.

Over the long term, the NDDEQ ambient monitoring site 3851689 (Figure 4) will be used to track trends in E. coli bacteria, N, P and TSS concentrations during and after the project. The N, P and TSS data presented in Section 2.5 reflects the pre-project baseline conditions. Total nitrogen, phosphorous and TSS data collected during the project will be compared to the baseline data to evaluate post-project trends and improvements. E. coli bacteria data collected the final two years of the project will be pooled and used to evaluate the recreational use status. NDDEQ staff will also collect macroinvertebrate samples at the end of the project to evaluate the status of aquatic life use. All water quality data will be collected and managed by NDDEQ staff according to the NDDEQ QAPP and applicable SOP's.

5.5 Long-term Funding

No long-term funding by Section 319 funds is necessary. Operation and maintenance of restoration activities are the sole responsibility of the landowner, whether public or private.

6.0 Budget

6.1 Project Budget

See attached budget tables part1 (appendix B1) and part 2 (appendix B2). The budget has been calculated for a five-year period 2021-2025.

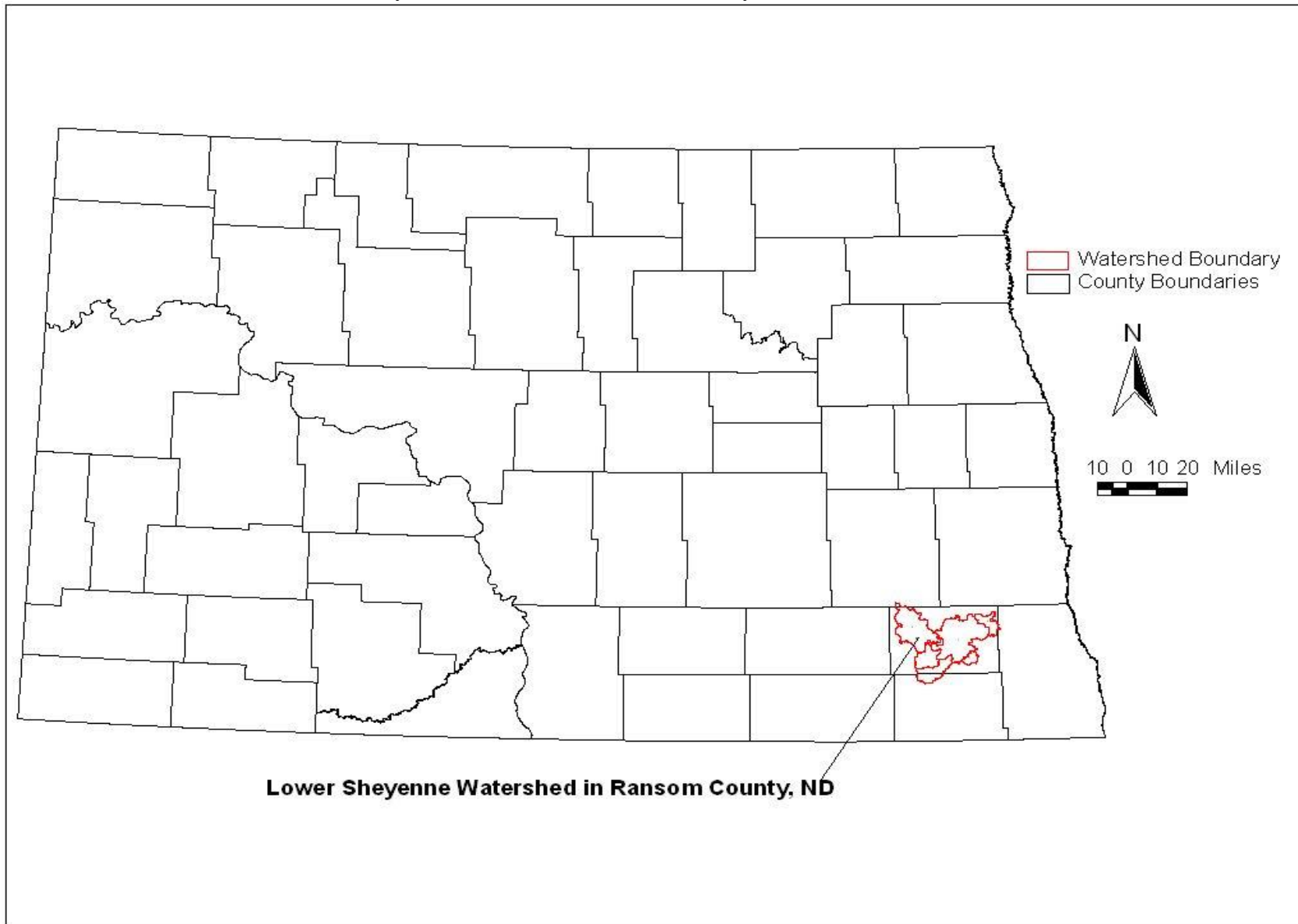
7.0 Public Involvement

The Ransom County Soil Conservation District has sponsored several 319 projects. They have sponsored the 2003-2004 Sheyenne River Assessment project, the 2003-2004 Dead Colt Creek TMDL project, the Lower Sheyenne River Project 2010, the Deadcolt Creek TMDL Implementation Project August 2014, and the Timber Coulee Watershed October 2019. The public was involved on all projects. The Ransom County SCD sponsors an EcoEd camp every year for local seventh grade students at the Fort Ransom State Park. This camp is used to inform youth of natural resource conservation issues. They also sponsor conservation speakers at local schools. They also sponsor educational tours and demonstrations each year in the county to inform the public on conservation measures. The District also currently manages the NPS-BMP Team and has done so successfully for just over a year. The Ransom County SCD feels that public involvement in the Sheyenne River Watershed Project is guaranteed.

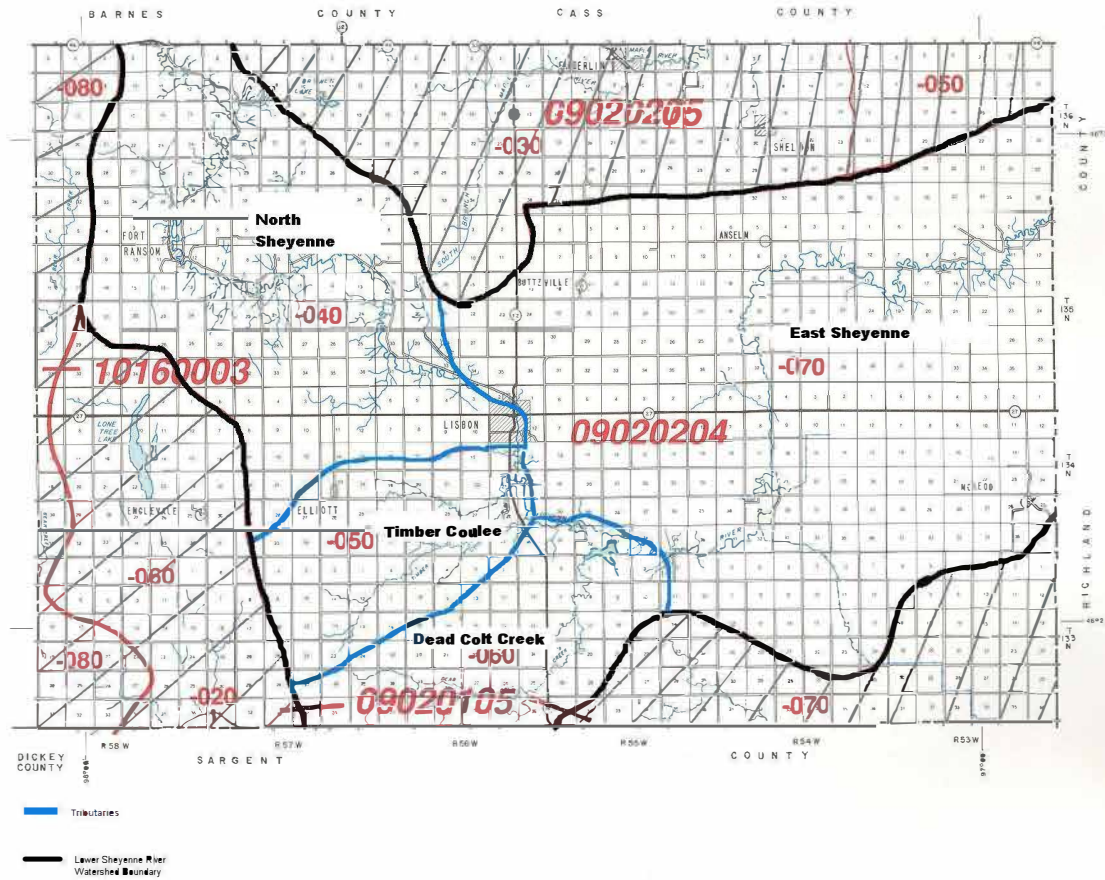
Appendix A

Reference Maps

A1 General location of the Lower Sheyenne watershed in Ransom County, ND



A2

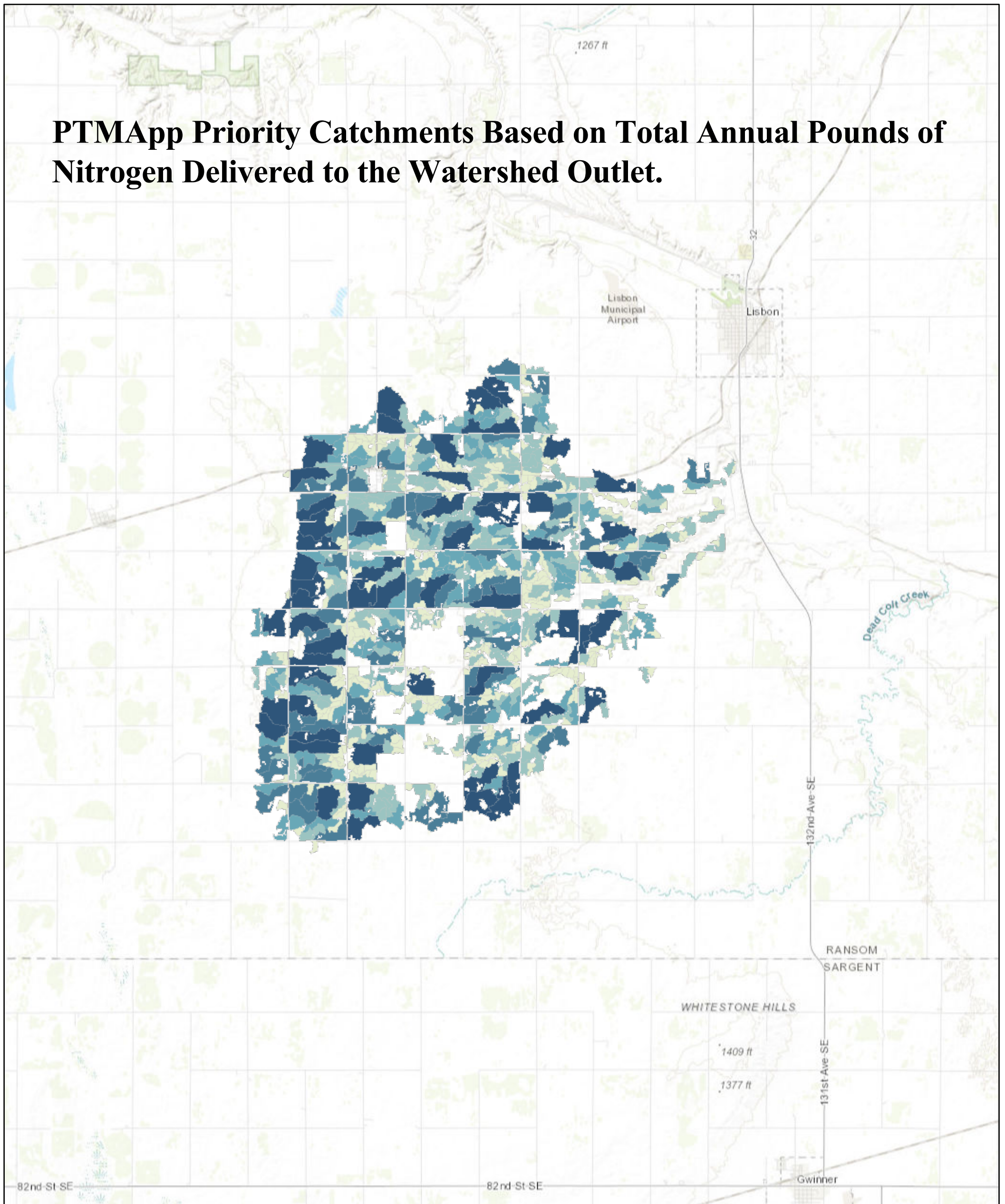


Ransom County

Hydrologic Unit Map
Modified from 1974 USGS Base Map

SCALE 0 1 2 3 4 5 6 MILES
0 1 2 3 4 5 6 7 8 9 KILOMETERS

PTMApp Priority Catchments Based on Total Annual Pounds of Nitrogen Delivered to the Watershed Outlet.



September 23, 2020

Total Nitrogen Reduction at Resource(2 yr event), lbs/year

4 – 12.4

> 12.4 – 22

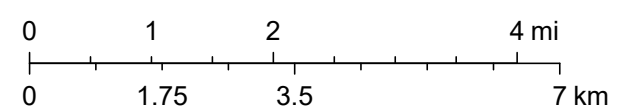
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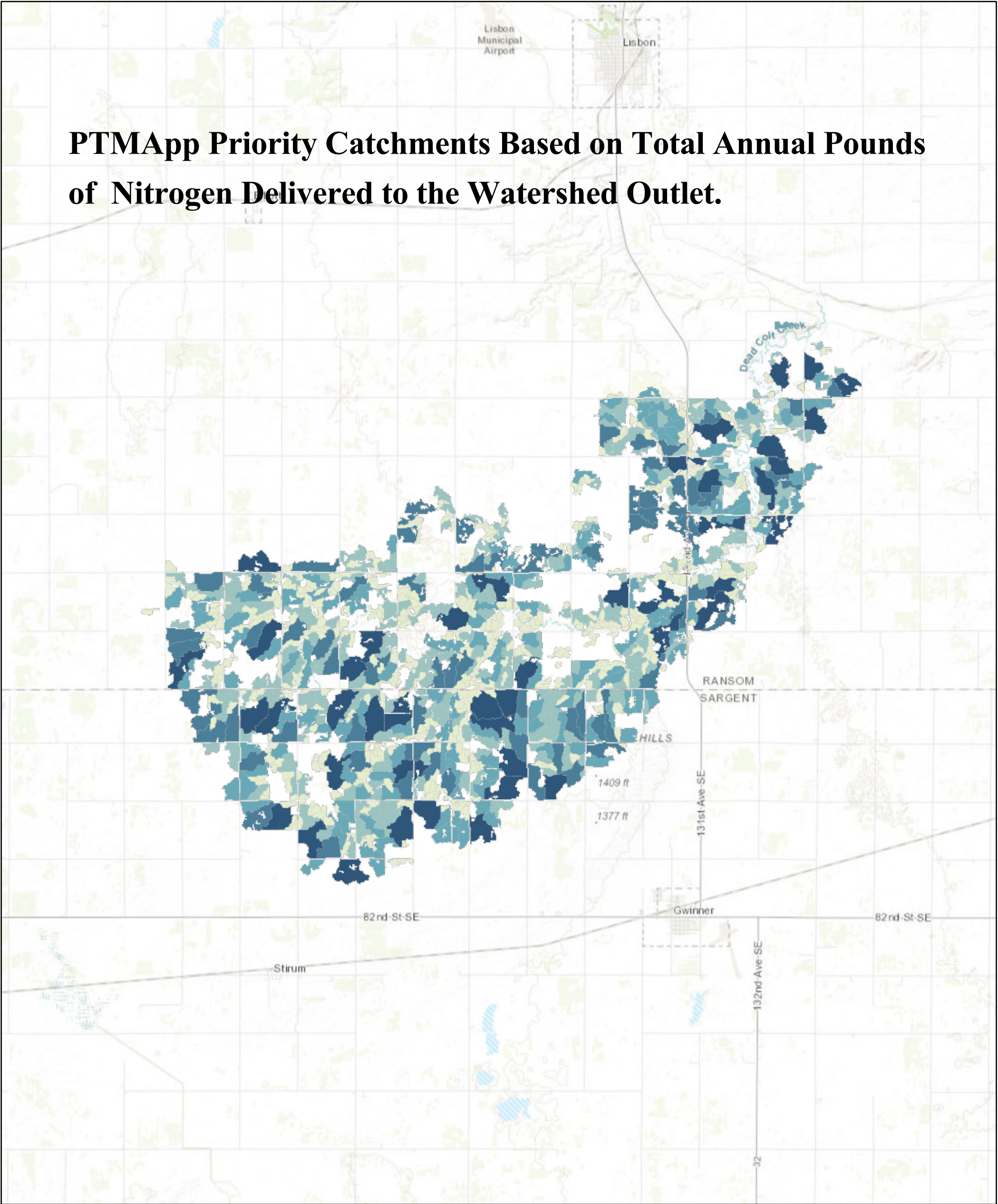
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Other

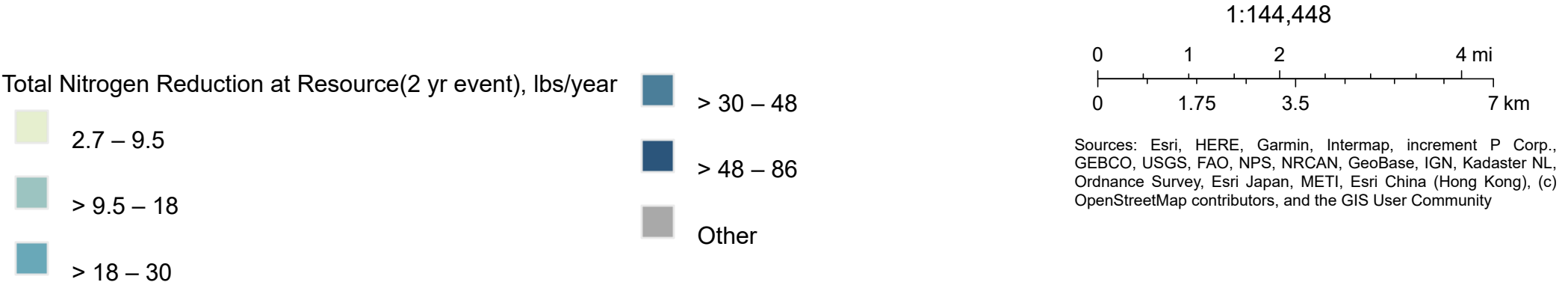
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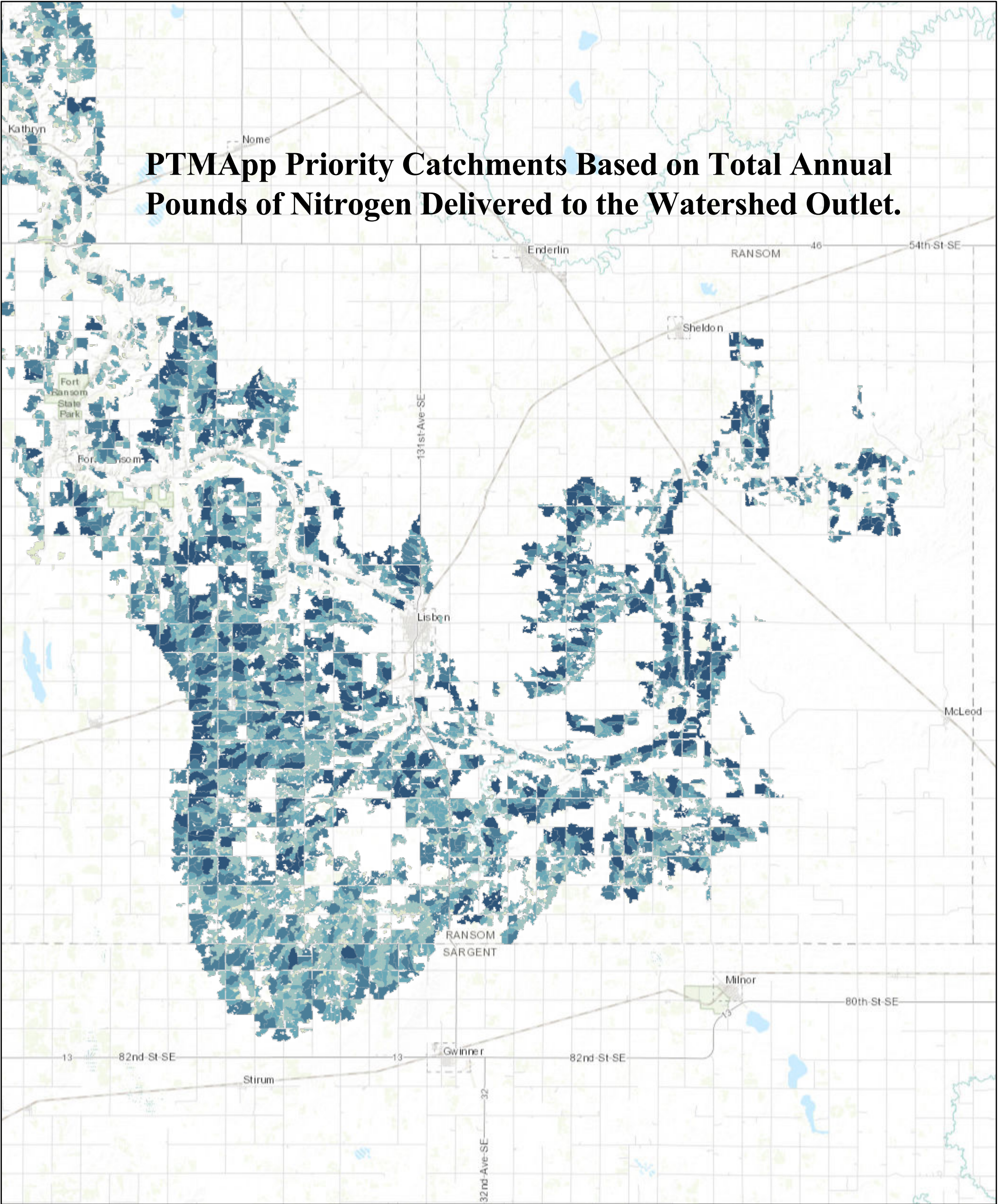


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



September 23, 2020





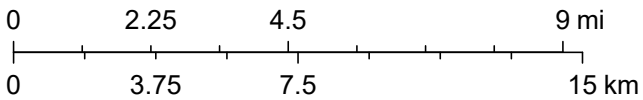
September 23, 2020

Total Nitrogen Reduction at Resource(2 yr event), lbs/year

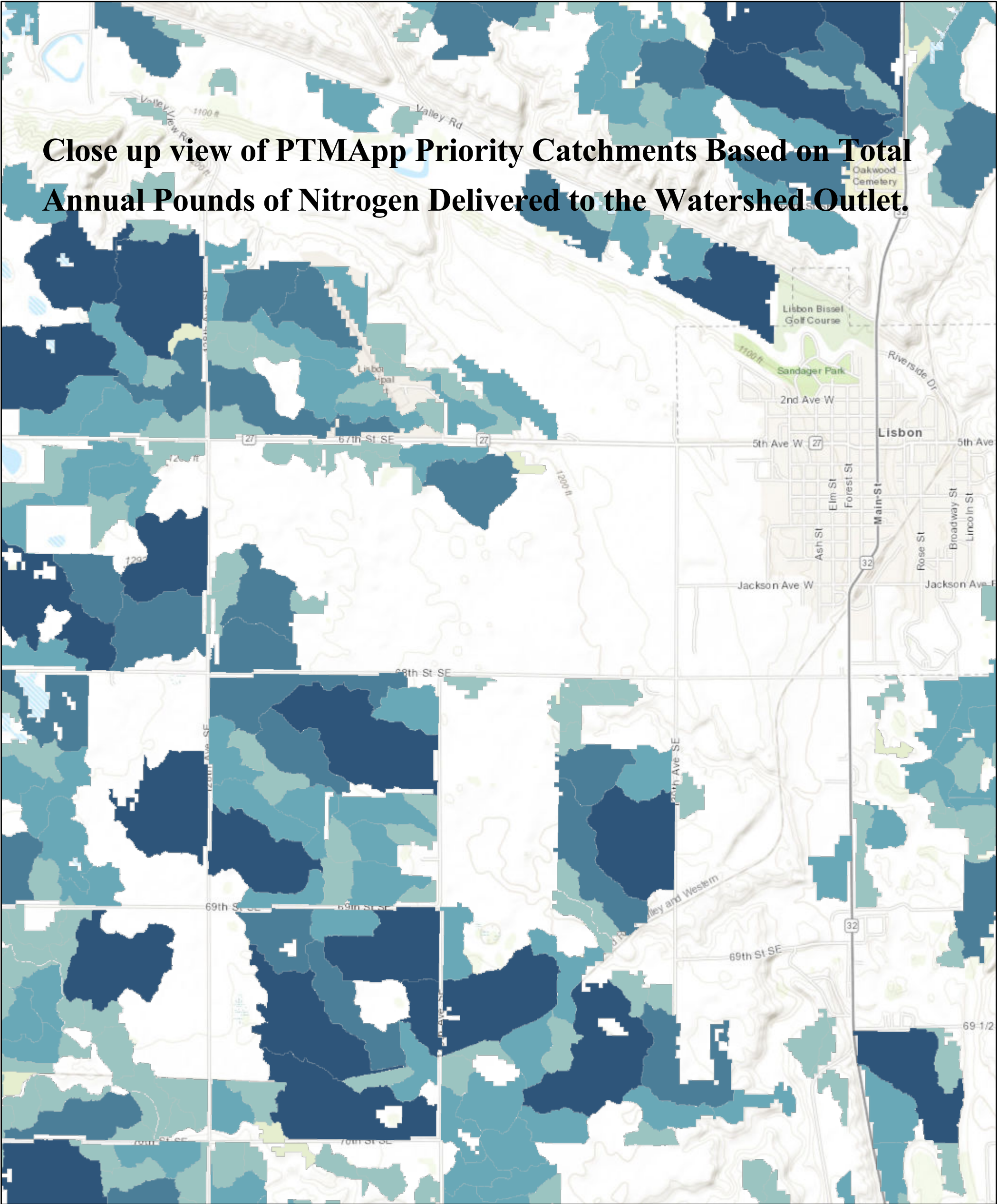
- 0 – 3.6
- > 3.6 – 10.8
- > 10.8 – 22.7

- > 22.7 – 44
- > 44 – 110
- Other

1:288,895



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



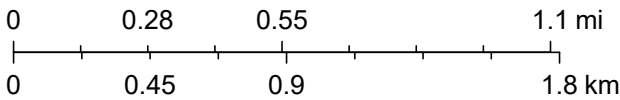
September 23, 2020

Total Nitrogen Reduction at Resource(2 yr event), lbs/year

- 0 – 3.6
- > 3.6 – 10.8
- > 10.8 – 22.7

- > 22.7 – 44
- > 44 – 110
- Other

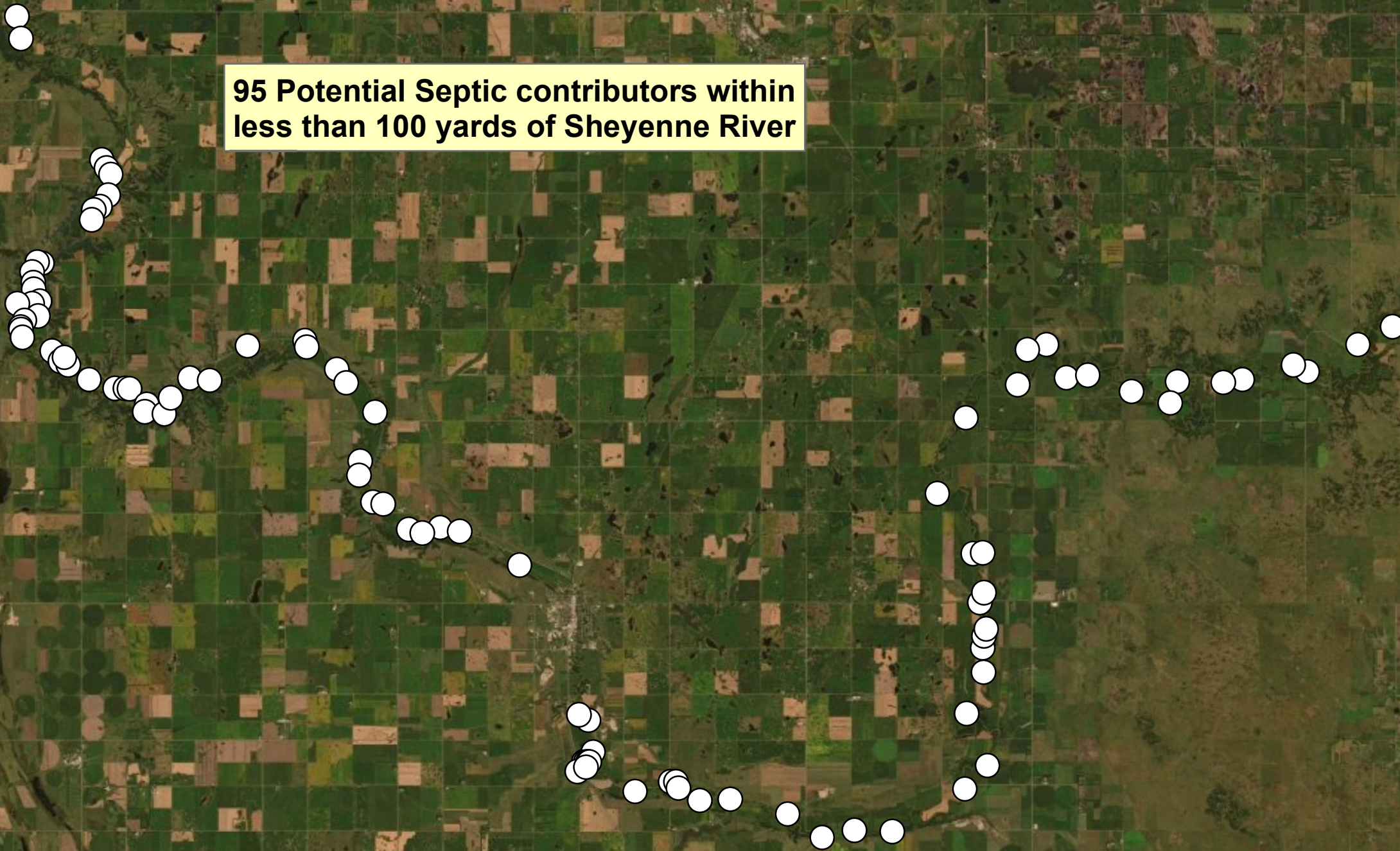
1:36,112



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

A7

95 Potential Septic contributors within
less than 100 yards of Sheyenne River



Appendix B

Budget, BMP Table, O&M, Milestone

B1 Budget Table for the Sheyenne River Watershed Project

	2021	2022	2023	2024	2025	Total Cost
EPA 319 Funds	40,470.00	83,970.00	83,970.00	83,970.00	67,170.00	359,550.00
Subtotal	40,470.00	83,970.00	83,970.00	83,970.00	67,170.00	359,550.00
Other Federal Funds						
1) NRCS - EQIP (FA/TA)	66,000.00	66,000.00	66,000.00	66,000.00	66,000.00	330,000.00
2) FSA - CRP (FA)	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	250,000.00
Subtotal	116,000.00	116,000.00	116,000.00	116,000.00	116,000.00	580,000.00
State/Local Match						
1) Ransom County SCD (TA/FA)	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	75,000.00
2) NDDEQ (TA)	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	5,000.00
3) DU/PF/G&F - OHF (FA)	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	150,000.00
4) Landowners (TA/FA)	19,000.00	54,000.00	54,000.00	54,000.00	35,000.00	216,000.00
Subtotal	65,000.00	100,000.00	100,000.00	100,000.00	81,000.00	446,000.00
Total Budget	221,470.00	299,970.00	299,970.00	299,970.00	264,170.00	1,385,550.00

TA - Technical Assistance

FA - Financial Assistance

NRCS - Natural Resource Conservation Service

FSA - Farm Service Agency SCD - Soil Conservation District

NDDEQ - North Dakota Department of Environmental Quality

B2 Sheyenne River Implementation Budget

	2021	2022	2023	2024	2025	Total Cost	Local Cash	Section 319 Funding	NRCS & FSA Funding	Misc. State Funding
Section 319/non federal budget										
<u>Objective 1: coordination/personnell/support</u>										
1) salary/fringe	34,000.00	54,000.00	54,000.00	54,000.00	54,000.00	250,000.00	100,000.00	150,000.00		
2) travel	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	10,000.00	4,000.00	6,000.00		
3) equipment/supplies	600.00	600.00	600.00	600.00	600.00	3,000.00	1,200.00	1,800.00		
4) training	500.00	500.00	500.00	500.00	500.00	2,500.00	1,000.00	1,500.00		5000
5) telephone	850.00	850.00	850.00	850.00	850.00	4,250.00	1,700.00	2,550.00		
Subtotal	37,950.00	57,950.00	57,950.00	57,950.00	57,950.00	269,750.00	107,900.00	161,850.00		5000
<u>Objectives 2 Conservation Planning</u>										
1) Cropland BMP's	25,000.00	50,000.00	50,000.00	50,000.00	25,000.00	200,000.00	80,000.00	120,000.00	330,000.00	
2) Range/Pasture BMP's	2,500.00	5,000.00	5,000.00	5,000.00	2,500.00	20,000.00	8,000.00	12,000.00		
3) Septic System replacement	0.00	25,000.00	25,000.00	25,000.00	25,000.00	100,000.00	40,000.00	60,000.00		
4)filterstrips/bufferstrips/critical area planting									250,000.00	150,000.00
Subtotal	27,500.00	80,000.00	80,000.00	80,000.00	52,500.00	320,000.00	128,000.00	192,000.00	580,000.00	150,000.00
<u>Objective 4 : I/E programs</u>										
1) workshop,tours,meetings	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	5,000.00	2,000.00	3,000.00		
2) newsletters,articles,mailings	1,000.00	1,000.00	1,000.00	1,000.00	500.00	4,500.00	1,800.00	2,700.00		
Subtotal	2,000.00	2,000.00	2,000.00	2,000.00	1,500.00	9,500.00	3,800.00	5,700.00		
Total	67,450.00	139,950.00	139,950.00	139,950.00	111,950.00	599,250.00	239,700.00	359,550.00	580,000.00	155,000.00

B3

Sheyenne River Watershed Project Milestone Table

Task/Responsible Organizations		Output	Qty.	Year 1 2021	Year 2 2022	Year 3 2023	Year 4 2024	Year 4 2025
Objective 1:	Entity 1							
Task 1	Employ watershed conservationist	Watershed Conservationist	0.75	0.75	0.75	0.75	0.75	0.75
Task 2	PTMApp utilization	PTMApp progress reports				ongoing		
Task 3	PTMApp training	Track project progress				ongoing		
Objective 2:	Entity 1,2,3							
Task 4	Cropland and pasture practices	Renovation of faulty septic	10	1	2	3	3	1
Task 5	Septic systems	Conservation Contracts	35	0	10	10	10	5
Task 6	Operation/Maintenance checkups	Renovation of faulty septic	10	0	2	3	3	2
		Database of BMP's	1			ongoing		
Objective 3:	Entity 1,2,4							
Task 7	Organize and conduct I/E events	Track project success				ongoing		
Task 8	Project promotion through media	Workshops,tours, meetings	5	1	1	1	1	1
Task 9	Small group shop talks	Newsletters, articles, mailings	9	1	2	2	2	2
Task 10	Complete reports	Meet with small producer groups	9	1	2	2	2	2
		annual/final reports	5	1	1	1	1	1

Entity 1 - Ransom County SCD - Local project sponsor, responsible for project coordination, reimbursement payments, match tracking, and progress reporting to the NDDEQ. Also provides technical assistance to plan, design and implement BMP's.

Entity 2 - Landowners in the Sheyenne River Watershed in Ransom County - Make land management decisions and provide cash and in-kind match for BMPs.

Entity 3 - Natural Resource Conservation Service - Provides technical assistance to the Ransom County SCD for implementation of BMP's. Also provides financial assistance for BMP's to landowners through the EQIP program.

Entity 4 - North Dakota Department of Environmental Quality - Statewide section 319 program management including oversight of local 319 planning and expenditures.

Section 319 Cost Share Agreement Provisions **(Must be attached to the producer's CPO)**

Each undersigned person agrees to participate in the Section 319 Conservation Plan of Operation (CPO) and to comply with the following terms set forth and approved by the Section 319 Project Sponsors for the period covered by this agreement. The terms are as follows:

- The conservation and/or environmental practices identified herein address all the major nonpoint source pollution (NPS) concerns on the identified land units and will directly or indirectly improve the water quality and beneficial use conditions in the watershed project area. The specific corrective measures needed to reduce identified NPS pollution impacts to water quality and beneficial uses of the targeted waterbody are contained in the Conservation Plan Schedule of Operations (CPO) approved by the Section 319 Project Sponsors. All practices shall be performed according to the CPO and in accordance with the Natural Resources Conservation Service (NRCS) standards and specifications or alternative standards approved by the NPS Program that are in effect at the time the practice is performed. The practices shall be maintained for their normal lifespan even though the agreement has expired. Section 319 cost-share assistance for eligible practices will be issued upon completion of the practice and as scheduled in the agreed upon CPO or subsequently revised CPO approved by the cooperating producer/operator and Section 319 Project Sponsors.
- The undersigned person recognizes that the implementation of some practices in the CPO may result in the generation of eligible in-kind match and the in-kind match value of the specific practices scheduled in the CPO has been reviewed with Section 319 project staff. Based on the information reviewed and contained in the CPO, the undersigned agrees to donate the in-kind match as scheduled in the CPO to the Section 319 Project Sponsors to support technical assistance provided by the project.
- Application for payment of Section 319 cost share assistance obligated for the completed practices scheduled under this agreement will be made on the NPS Program "Application for Payment" form which upon approval by the Section 319 Project Sponsors will become part of this agreement.
- Each undersigned person is jointly and severally responsible for compliance with the terms and conditions of this agreement as to the conservation and environmental problems that will be addressed by the best management practices (BMP) identified in the CPO on the specified land units on which the undersigned is an owner and/or operator. In the event it has been determined the undersigned has failed to comply with the terms and conditions of this agreement, a refund of the Section 319 cost share payment must be made to the Section 319 Project Sponsors. Failure to comply with the terms and conditions will be defined as a violation of one or more of the following actions:

- The undersigned voluntarily destroys the practice(s) installed with Section 319 cost share assistance.
- The undersigned does not maintain the cost shared practice in a fully functional condition for the approved lifespan of the practice. *[Note: If the undersigned voluntarily relinquishes control and/or title to the land on which the cost shared practice(s) have been established, the new owner and/or operator of the land should be informed of the maintenance requirements of the cost shared practice(s) and be encouraged to properly maintain the practice(s) for the remainder of the approved lifespan.]*
- A practice failure is determined by the Project Sponsors to be caused primarily by the fault of the undersigned.

I, the undersigned, certify that I have read and understand the provisions listed above:

Signature: _____ Date: _____