NPS BMP Team – Phase IV

PERIOD: 11-1-2019 to 11-30-2023
PROJECT TITLE: NPS BMP Team
PROJECT SPONSOR: Ransom County Soil Conservation District

CONTACT PERSON: Bob Flath TITLE:
Ransom County Soil Conservation District Manager
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STATE: North Dakota **WATERSHED:** Statewide
HYDROLOGIC UNIT NUMBER:
Statewide **HIGH PRIORITY**
WATERSHED: Yes **TMDL STATUS: NA**

PROJECT TYPES	WATERBODY TYPES	NPS CATEGORY
X STAFFING & SUPPORT	GROUNDWATER	X AGRICULTURE
___ WATERSHED	X LAKES/RESERVOIRS	URBAN UNOFF
___ I & E	X RIVERS	
	X STREAMS	
	___WETLANDS	

PROJECT LOCATION: North Dakota

SUMMARIZATION OF MAJOR GOALS: The primary goal of this proposal is to provide timely engineering assistance to all the local Section 319 watershed projects in North Dakota as well as to the statewide manure management programs sponsored by ND Stockmen's Association and the ND Department of Agriculture. This will be accomplished through the continued employment of the "NPS BMP Team". The team consists of a contracted private engineering firm which is selected through a competitive proposal process.

PROJECT DESCRIPTION: North Dakota presently has eighteen locally sponsored watershed projects functioning in the state. Approximately 90% of these projects have identified livestock manure management and/or streambank erosion as high priorities. The NPS BMP Team has been assembled to provide timely and cost-efficient engineering services to these projects. Assistance is also provided to the statewide manure management programs sponsored by the ND Stockmen's Association and to the ND Department of Agriculture.

FY2020 319 Funds Requested:	$195,654
FY2018 Reallocated Funds:	$150,000
Cash Match:	$150,000
In-Kind Match:	$138,262
Total Project Cost:	$633,916

1.0 PREVIOUS ACCOMPLISHMENTS

The NPS BMP Team has been providing local watershed projects and landowners timely engineering assistance since July 1, 1998. Due to the short-term nature of Section 319 grants (i.e. 4 years) supporting NPS projects, timely engineering services were often needed to ensure practices such as manure management systems and riparian restorations could be planned and installed within a NPS project's grant period. The BMP Team was initiated to address this issue by providing Section 319 funded projects ready access to reliable engineering services to plan and install a variety of structural practices. The Team has worked with watershed coordinators, the ND Stockmen's Association and ND Department of Agriculture programs to design and implement BMPs. (See Appendix A - Active Watershed Projects & Manure Systems Designed by the NPS BMP Team maps.)

BMP Team services are: site investigations, soil borings, topographical surveys, designs and construction oversight for practices to improve and/or to protect water quality. Example practices the team has provided engineering services are: manure management systems, livestock water developments, streambank stabilization, grassed waterways, and wetland creations.

To date, the NPS BMP Team has assisted over 300 producers with designs and oversight of their BMPs to improve/protect water quality within their watershed. They have also provided assistance in designing other practices such as; spring developments, livestock watering facilities, and streambank bio-engineering.

2.0 STATEMENT OF NEED

According to the 2018 Section 305(b) reporting: The beneficial use designated as aquatic life is fully supporting for 1,551 miles of the rivers and streams assessed for the 2018 305(b) report, while another 2,206 miles of rivers and stream are assessed as fully supporting but threatened for aquatic life use. In other words, if water quality trends continue, these rivers and streams may not fully support its use for aquatic life in the future. The remaining 1,107 miles of rivers and streams assessed for the 2018 305(b) report were assessed as not supporting aquatic life use.

NPS pollution (e.g., siltation/sedimentation and stream habitat loss or degradation) was the primary cause of aquatic life use impairment. Other forms of pollution causing impairment are trace element contamination, flow alteration and oxygen depletion. Organic enrichment creates conditions in the stream that cause dissolved oxygen (DO) to be depleted. Rivers and streams impaired by siltation/sedimentation, organic enrichment, eutrophication due to excess nutrients and habitat alteration also will result in a degradation of the biological community.

Recreation use was assessed on 7,926 miles of rivers and streams in the state. Recreation use was fully supporting; fully supporting, but threatened; and not supporting on 1,352 miles, 3,231 miles and 3,279 miles, respectively. E. coli or fecal coliform bacteria data collected from monitoring stations across the state were the primary indicators of recreation use attainment. For this reason, pathogens (as reflected by E. coli and fecal coliform bacteria) are the primary cause of recreation use impairment in North Dakota. Other factors affecting the use of the state's rivers and streams for recreation would be eutrophication from excessive nutrient loading, resulting in nuisance algae and plant growth. The primary sources of E. coli and fecal coliform bacteria contamination are animal feeding operations, riparian area grazing and failing or poorly

designed septic systems.

A total of 200 lakes and reservoirs, representing 622,382 surface acres, are specifically listed in the state water quality standards as classified lakes and reservoirs. Each of these 200 lakes and reservoirs were assessed for the 2018 305(b) report. One-hundred-thirty-three (133) lakes and reservoirs, representing 598,575 acres, were assessed as fully supporting aquatic life use; in other words, they are considered capable of supporting and maintaining a balanced community of aquatic organisms. An additional 29 lakes and reservoirs representing 8,168 acres were assessed as fully supporting but threatened. A threatened assessment means that if water quality and/or watershed trends continue, it is unlikely these lakes will continue to support aquatic life use. The lakes and reservoirs will begin to experience more frequent algal blooms and fish kills. They will display a shift in trophic status from a mesotrophic or eutrophic condition to a hypereutrophic condition. Only seven (7) lakes, totaling 859 acres, were assessed as not supporting aquatic life use.

One of the primary causes of aquatic life impairment to lakes and reservoirs is low dissolved oxygen (DO) in the water column. Low DO in lakes can occur in summer (summer kills) but usually occurs in the winter under ice-cover conditions. When fish kills occur, low DO-tolerant fish species (e.g., carp, bullhead, white suckers) will be favored, resulting in a lake dominated by these rough fish species. Pollutants which stimulate the production of organic matter, such as plants and algae can also cause aquatic life impairment. Two secondary pollutant causes are excessive nutrient loading and siltation.

According to Beef Market Central, ND ranks 9th in the nation for number of beef cows in the state with 985,000 cows. This means there are more beef cows than people in the state. North Dakota also has 63 licensed dairy herds, 145,000 pigs, 72,000 sheep and 9 turkey farms. Runoff from these feeding areas and improper manure management has the potential to impair all lakes, rivers, streams, and wetlands. Approximately 90% of the active watershed projects, which include the ND Stockmen's Association and ND Department of Agriculture were initiated to assist producers with the installation of practices that help improve livestock manure management and reduce potential off-site water quality impairments. Many of these practices require engineering construction designs. The NPS BMP Team was established to ensure these projects had access to engineering services that could be provided in a timely manner and within the time periods of the projects. (See Appendix A - Active Watershed Projects & Manure Systems Designed by the NPS BMP Team maps.)

On an annual basis, the NPS BMP Team provides engineering services to approximately 20 to 25 producers and/or landowners to design and construct manure management systems and riparian restoration projects. These services typically include: 1) completion of 12 manure management system designs; 2) construction oversight for 7 manure management systems and 3) engineering services for the design and/or construction of 6 riparian restoration projects. Given the extent of water quality impacts associated with improper manure management and/or degraded riparian areas, the demand for timely engineering services will continue into the foreseeable future.

3.0 PROJECT DESCRIPTION

GOAL 1:
To provide efficient and timely delivery of engineering services to all Non-Point Source Pollution control projects in North Dakota.

Objective 1) To administer a delivery process to provide the engineering services needed across the state to allow projects to develop, design, and install the BMPs needed to achieve their NPS pollution management objectives.

Task 1: Secure engineering services of a private firm for the continuation of the NPS BMP Team. (Contracted engineer is selected through a competitive proposal process. Contracts are for a 5-year time period.)

Product: A NPS BMP Team equipped to handle state-wide 319 requests in a timely manner.

Cost – $4,000

Task 2: Process engineering requests submitted by local Section 319 projects to develop designs for priority manure management systems or riparian restoration projects identified by the local projects. (See Appendix B – Engineering request forms)

Product: A location for an estimated 20 to 25 engineering services requests per year.

Cost - $8,000

Task 3: Manage the project's financial records and develop the annual and final project reports for submittal to the NDDEQ.

Product: Grants management; grant and matching fund solicitation; monthly/quarterly reimbursement requests; 4 annual progress reports and 1 final project report.

Cost - $8,000

Objective 2) Coordinate with the local NPS project staff and participating landowners to deliver engineering assistance to design and construct 35-40 projects addressing manure management and degraded riparian areas.

Task 4: On an annual basis, deliver adequate services to: 1) design 8 manure management systems; 2) provide construction oversight for 5 manure management systems; 3) design and/or construct 4 riparian restoration projects; and 4) assist watershed project staff across the state with site visits, producer visits, cost analysis, and general program management.

Product: 32 manure management system designs, 20 manure management systems completed, and 16 riparian restoration projects (riverbank or shoreline stabilization, wetland creations, water developments, grassed waterways, etc.) over the 4 years.

Cost – $475,654

3.3 Milestone Table (See Appendix C – Milestone Table)

4.0 COORDINATION PLAN

1) The Ransom County SCD will be the lead sponsor responsible for project administration. The SCD will remain in close contact with the engineering firm to confirm availability of services. They will also work closely with all local projects in their engineering requests.

2) Locally sponsored watershed projects will be responsible for working directly with producers and landowners in their watershed project areas to address manure management in confined feeding areas. The local watershed projects will also work with landowners to address degraded riparian areas and other sites experiencing severe erosion. They will be in charge of submitting only their high priority projects for engineering assistance. Projects receiving assistance from the NPS BMP Team will be asked to provide assistance in the form of cash or In-Kind Match to assist with costs not covered by the 319 grant. Costs associated with installing engineered practices are the responsibility of the entity requesting engineering assistance and the landowner/producer.

3) ND Stockmen's Association Environmental Services Program will be responsible for working directly with producers and landowners outside the active watershed project areas throughout the state to address manure management in confined feeding areas. They will be in charge of submitting only their high priority projects for engineering assistance. Projects receiving assistance from the NPS BMP Team will be asked to provide assistance in the form of cash or In-Kind Match to assist with costs not covered by the 319 grant. Costs associated with installing engineered practices are the responsibility of the entity requesting engineering assistance and the landowner/producer.

4) ND Department of Agriculture Livestock Pollution Prevention Program will be responsible for working directly with producers and landowners outside the active watershed project areas throughout the state to address manure management in winter crop aftermath feeding areas and in confined feeding areas. They will be in charge of submitting only their high priority projects for engineering assistance. Projects receiving assistance from the NPS BMP Team will be asked to provide assistance in the form of cash or In-Kind Match to assist with costs not covered by the 319 grant. Costs associated with installing engineered practices are the responsibility of the entity requesting engineering assistance and the landowner/producer.

5) The order in which requests are received determines any priority that may be given to any one project over another. All requests are treated equally no matter where the request originates. Some requests may take priority over others in specific situations. Perhaps a landowner/producer sets a timeline for construction that allows engineering services to be delayed while those projects which are being expedited may receive more immediate attention.

6) The Program Coordinator with the Ransom County Soil Conservation District strives to ensure duplication is not occurring with other agencies/projects. Communication is key, visiting with the project coordinators about the process and even speaking directly with the other agencies/projects that may be involved. Statewide projects like those sponsored by ND Stockmen's Assoc. and the ND Dept. of Ag can in some cases work with producers in existing 319 project areas, when this occurs the local project staff will be notified so that they can coordinate efforts concerning the project

and measure the impacts to their project. The contracted engineer is also very open with cooperating agencies. In many cases these agencies look to the BMP Team to assist with projects they are involved with to aid in reducing workload. Some examples of other agencies would be the Natural Resources Conservation Service, State Water Commission, and ND Game and Fish.

7) Natural Resources Conservation Service will provide technical assistance, help with coordinating project activities, target resources, and be able to incorporate existing USDA programs at the local level.

8) NDSU Extension Services will assist the project in information and education activities.

9) North Dakota State Water Commission will contribute financial assistance, which is beneficial in keeping the project effective. Legislative approval allows for $100,000 from the State Water Commission for use in this project over the current biennium. Not only does this cash cover expenses but it also qualifies as In-Kind match. Using these funds as match leverages Section 319 funds of up to $150,000 when used and documented properly.

10) Participating Landowners/Producers are responsible for following the recommendations and design criteria provided to them by the BMP Team. Construction contractors are the responsibility of the Landowner/Producer. Contract paperwork that can be used between the Landowner/Producer and Contractors is available upon request from watershed project staff or through the BMP Team. Cost share that is not covered by programs like 319, EQIP, CSP, etc. is the responsibility of the Landowner/Producer.

5.0 EVALUATION AND MONITORING PLAN

The NPS BMP Team is a service-based project that focuses on delivering timely and efficient engineering support to all 319 watershed projects state-wide. The water quality benefits of the practices designed by the NPS BMP Team are tracked by the projects receiving engineering assistance.

The criteria used to determine the success of the project includes the number of manure management systems, river/stream/lake stabilizations, and all other practices designed by the NPS BMP Team.

Annually the Ransom County SCD board will request written evaluations from the 319 watershed sponsors and producers which have received engineering assistance. This feedback will be used to continue the best, most cost-effective engineering services across the state.

6.0 BUDGET

See Attachments (Appendix D – Budget Tables)

APPENDIX LIST

A) Active Watershed Projects
   Manure Management System Designed

B) Request Forms

C) Milestone Table

D) Budget Tables

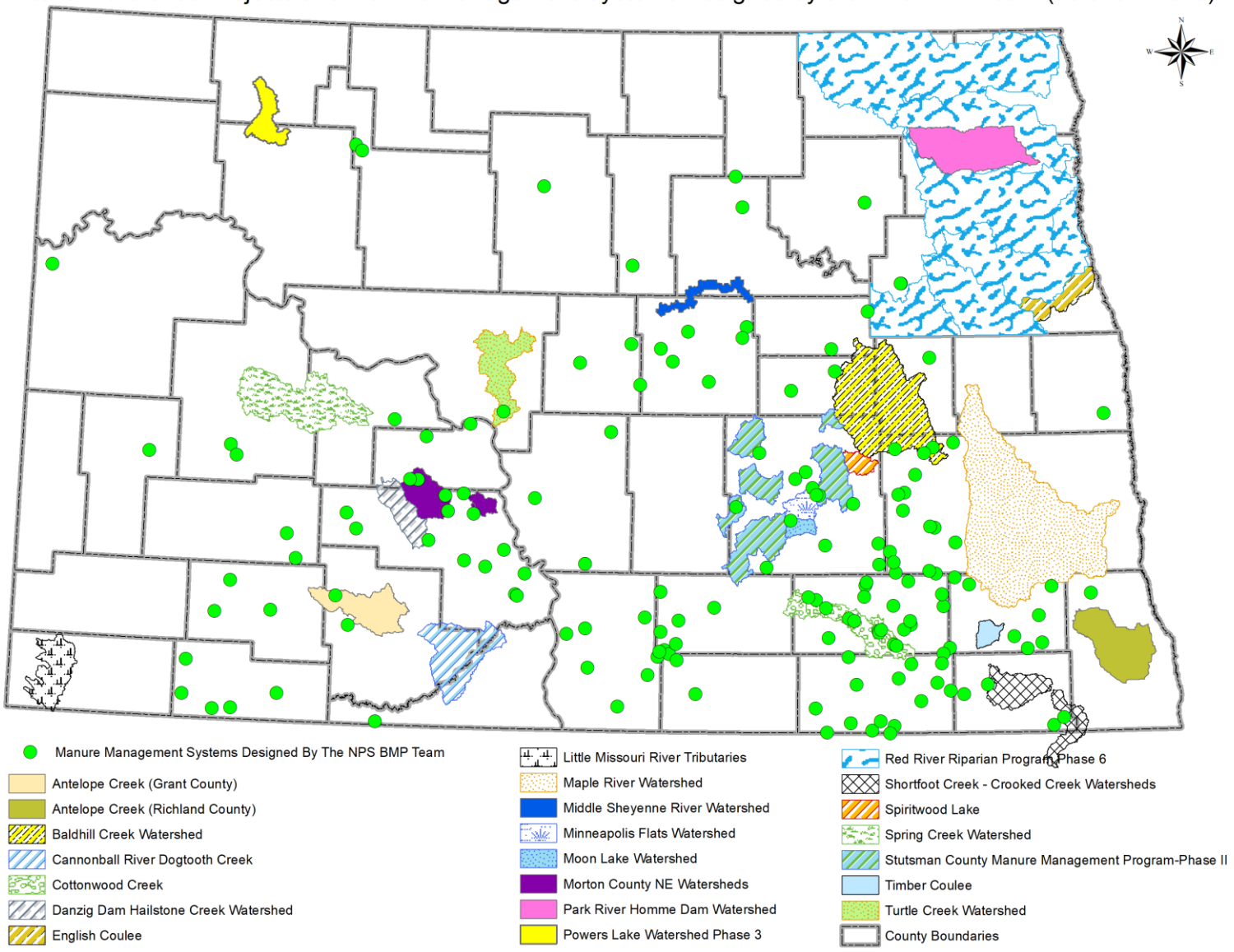
Appendix A

Active Watershed Projects
And
Manure Management Systems Designed by NPS BMP Team

As of September 1 2019

*As new watershed projects are developed, they will be added to the map and be eligible for engineering support. The statewide manure management programs sponsored by the ND Stockmen's Association and ND Department of Agriculture are also eligible for NPS BMP Team assistance.

Active Watershed Projects and Manure Management Systems Designed by the NPS BMP Team (as of 9/1/2019)



Appendix B

Request Forms

APPLICATION FOR ENGINEERING ASSISTANCE FOR **MANURE MANAGEMENT SYSTEMS**

Date:_____ Watershed Project:_____ Coordinator:_____

Landowner: _____ Coordinator Phone: _____

Address: _____

_____

Phone Number: _____ Section _____Township____ Range _____

GENERAL INFORMATION

1) Engineering assistance is being requested to develop designs for a:

Existing Facility _____ Relocation _____ Expansion _____ New System _____

2) Number of years livestock have been fed at this site: _____

(a) If less than 5 years explain why: _____

_____

_____

_____

3) Type of livestock to be fed in constructed feeding area (dairy, beef, swine, etc.): _____

(a) Number currently being fed: _____ (b) Number to be fed after construction: _____

4) Total acres of current feeding area: _____

5) Do you have any plans to change size of operation in the future? _____yes _____ no

(a) Please explain when and amount of size change: _____

_____

_____

_____

6) How many months per year will the constructed feeding area be used? _____months

7) Approximate date for the completion of the system: _____

8) What is the proximity of the feeding area to the nearest waterbody (river, creek, etc): _____miles

9) Will a permit be obtained from ND Dept. of Health: _____yes _____no

10) **Cultural Resources approval from SHPO:** _____Obtained _____ Applied for
_____ Will be applied for

11) **Project status:** _____Approved Demonstration Project _____Approved Implementation Project
_____Pending final approval (PIP submitted)

12) **Type of assistance needed:** ____Survey & design only _____Survey through check-out
____Soil boring/site investigation ____Consultation _____Other

13) **Cost-share assistance:** ____Approved for 319 funding ____Approved for other funding
____Application submitted, pending approval _____Considering funding sources

14) **Does this project fit within your 319 project goal?** ____Yes ____No
If so—how? _____
_____

15) **Local 319 project office priority ranking:** _____High ____Medium ____Low

16) An **aerial** (ArcGIS or GoogleEarth) and **topographic** map of the planned feeding area must be attached to the request.

Landowner Signature: _____ Date: _____

319 Watershed Coordinator _____ Date: _____

Please remit form to Ransom County SCD , P.O. Box 431, Lisbon ND 58054

when requesting engineering assistance or E-mail to: Robert.flath@nd.nacdnet.net

APPLICATION FOR ENGINEERING ASSISTANCE FOR **STREAMBANK RESTORATION**

Date:_____ Watershed Project:_____ Coordinator:_____

Landowner: _____ Coordinator Phone: _____

Address: _____

_____

Phone Number: _____ Section _____ Township___ Range _____

GENERAL INFORMATION

1) Engineering assistance is being requested to develop design to protect:

Home ☐ Other Bldg. ☐ Other ☐ _____

Road ☐ Private Township County State Hwy Federal Hwy

(Please circle appropriate choice)

2) Army Corp of Engineer's permit :

Obtained ☐ Applied For ☐ Will be Applied For ☐

3) Cultural Resources approval from SHPO

Obtained ☐ Applied For ☐ Will be Applied For ☐

4) Will cost-share be provided by entities other than 319: Yes ☐ No ☐

If Yes please list below

_____

5) **Project status:** _____Approved Demonstration Project _____Approved Implementation Project

_____Pending final approval (PIP submitted)

6) **Type of assistance needed:** ____Survey & design only _____Survey through check-out

____Soil boring/site investigation ____Consultation _____Other

7) **Cost-share assistance:** ____Approved for 319 funding ____Approved for other funding

____Application submitted, pending approval _____Considering funding sources

8) **Does this project fit within your 319 project goal?** ____Yes ____No

If so—how? _____

_____

9) **Local 319 project office priority ranking:** _____High ____Medium ____Low

10) An **aerial** *(ArcGIS or Google Earth)* and **topographic** map of the area must be attached to the request.

Landowner Signature: _____ Date: _____

319 Watershed Coordinator: _____ Date: _____

Please remit form to Ransom County SCD , P.O. Box 431, Lisbon, ND 58054

when requesting engineering assistance or E-mail to: Robert.flath@nd.nacdnet.net

Appendix C

Milestone Tables

Milestone Table for NPS BMP Team - Phase IV

Task/Responsible Organizations		Output	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023
Objective 1						
Task 1	Ransom County SCD	Secure engineering services	*	*	*	*
Task 2	Ransom County SCD	Process engineering requests	*	*	*	*
Task 3	Ransom County SCD	32 manure mgt system designs	8 designs	8 designs	8 designs	8 designs
		20 completed manure mgt systems	5 systems	5 systems	5 systems	5 systems
		16 riparian designs &/or competed systems	4 projects	4 projects	4 projects	4 projects
Task 4	Ransom County SCD	Grant management, financial records, reports	*	*	*	*

* Ransom County SCD - Local project manager and sponsor will be responsible for project coordination, reimbursement payments, tracking, and progress.

Landowners will make land management decisions and provide cash and in-kind match for BMPs.

Appendix D

Budget Tables

Budget Table for NPS BMP Team - Phase IV

Feb-20

Part 1

	2020	2021	2022	2023	Totals
EPA 319 Funds					
1) FY 2020-2023	$15,000	$15,000	$85,000	$80,654	$195,654
2) FY 2018	$75,000	$75,000			$150,000
Subtotal	$90,000	$90,000	$85,000	$80,654	$345,654
State / Local Match					
1) ND State Water Commission	$40,000	$40,000	$40,000	$30,000	$150,000
2) In-Kind Match *	$20,000	$20,000	$50,000	$48,262	$138,262
Subtotal	$60,000	$60,000	$90,000	$78,262	$288,262
Total Budget	**$150,000**	**$150,000**	**$175,000**	**$158,916**	**$633,916**

* In-Kind donations will come from 319 projects

Budget Table for NPS BMP Team - Phase IV

Part 2

Feb-20

	2020	2021	2022	2023	Totals	Cash	In-Kind	319
Objective 1: Tasks 1-3								
Personnel/Support								
1) Administration	$5,000	$5,000	$5,000	$5,000	$20,000	$0	$8,000	$20,000
Subtotal	$5,000	$5,000	$5,000	$5,000	$20,000	$0	$8,000	$20,000
Objective 2: Task 4								
Applying BMP's								
1 - 2) 32 Manure Mgt. Designs	$70,000	$70,000	$70,000	$70,000	$280,000	$90,000	$76,000	$190,000
3) 16 Structural Designs	$44,000	$44,000	$34,000	$33,654	$155,654	$60,000	$38,262	$95,654
4) Program Assistance	$10,000	$10,000	$10,000	$10,000	$40,000		$16,000	$40,000
Subtotal	$124,000	$124,000	$114,000	$113,654	$475,654	$150,000	$130,262	$325,654
Total 319/Non-Federal Budget	**$129,000**	**$129,000**	**$119,000**	**$118,654**	**$495,654**	**$150,000**	**$138,262**	**$345,654**

* In-Kind donations will come from 319 projects