

Powers Lake Watershed Project –Lake Improvement Phase Outdoor Heritage Fund Grant

Name of Organization * Powers Lake Watershed Project (Administered under the City of Powers Lake)

Federal Tax ID# * 45-6002538

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MAJOR Directive:

Choose only one response

Directive A. Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

Directive B. Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

Directive C. Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

Directive D. Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Additional Directive:

Choose all that apply

X **Directive A.** Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

X **Directive B.** Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

O **Directive C.** Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

X **Directive D.** Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

Type of organization:

- O State Agency
- X Political Subdivision
- O Tribal Entity
- O Tax-exempt, nonprofit corporation.

Project Name*

Powers Lake Watershed Project-Lake Improvement Phase

Abstract/Executive Summary.

Powers Lake is a 1,616 acre lake located on the southern edge of the City of Powers Lake and is used year round. This lake offers camping, fishing, boating, swimming, picnicking, bird watching, hunting, and other recreational activities to the City of Powers Lake residents and visitors. The lake also serves as a classroom for the Powers Lake Public School, bird and fish habitat, and an aesthetic draw to the community.

The Powers Lake Watershed Project (PLWP) has been working to address nutrient loading from the watershed by installing (BMP's) from 2001-2015. Following the reduction of nutrient loading from external sources and subsequent improvement in lake water quality, there is currently a need to address the in-lake nutrient recycling that is keeping the lake from recovering fully. The PLWP is using guidance from a Feasibility Study done in 2009 to address this additional source.

Because Powers Lake is identified as impaired on the state's 303(d) List of Impaired Waters Needing TMDLs, the North Dakota Department of Health developed a total maximum daily load(TMDL) to identify the load reduction needed to restore recreation and aquatic life beneficial uses. Based on the modeling in the TMDL, nutrient loading to Powers Lake needs to be reduced by 75% from external sources and 50% from internal sources.

The Powers Lake Watershed Project plans to 1) address in-lake nutrient cycling with selective dredging to remove excess phosphorous; 2) provide technical and financial assistance to landowners wishing to implement Best Management Practices (BMPs) to continue reduction of nutrient and sediment deposition into the lake; 3) continue to maintain partnerships in the local community to benefit water quality in the lake; 4) continue educational programs to inform the public of nonpoint source pollution concerns and solutions; 5) monitor water quality for use in adaptive management throughout the period of the grant.

The PLWP objective to address in-lake nutrient cycling will be accomplished using selective dredging to remove the nutrient saturated bottom sediment from Powers Lake. A lake is assumed to be nutrient equilibrium when the ratios of nitrogen to phosphorous are between 10:1 and 15:1; the ratio for Powers Lake was 5:1 in 2001 indicating it was nitrogen limited. With the installation of Best Management Practices (BMPs) we have seen the ratio improve to 6.3:1 in 2015. The excess nutrient is still phosphorous.

Project Duration:* 10 years

Amount of Grant request \$ * 220,000

Total Project Costs \$* 571,500

Source(s) of Matching Funds*

Matching funds will come from funds raised through donations and fundraisers, in-kind work done by volunteers and donation of equipment that is used in relation to the project.

The PLWP committee also puts on a youth fishing derby in the spring. The goal is to have a Youth fishing derby every spring for children 17 & under. Cash match will come from money donated for registration gifts, food, trophies and prizes. In-kind will be documented time from volunteers preparing for the fish derby to assisting during the derby and value of donated items for the fishing derby. The goal is to raise enough funds every year and every child will get a prize.

The PLWP committee plans on continuing to apply for grants for projects that will benefit Powers Lake.

Certifications *

X I certify that this application has been made with the support of the governing body and chief executive of my organization.

X I certify that if awarded grant funding none of the funding will be used for any of the exemptions noted on Page 1 of this application.

Narrative

Organization Information:

The Powers Lake Watershed Management Committee was formed in 1999 to serve as a forum for implementing solutions to common natural resource and environmental problems and opportunities in the Powers Lake Watershed. The committee includes local citizens, city officials, school teachers, landowners, county commissioners, NRCS, SCD, NDSU Extension Agents, NDGF, and USFWS employees. In 2000 and 2001 water samples were taken from Powers Lake and its tributaries. During this time the Powers Lake high school students were involved in the sampling and watershed land use data collection. With the assistance of the North Dakota Dept. of Health and Burke and Mountrail Soil Conservation Districts a 319 Grant was received in 2003 with a coordinator hired in 2004. The Watershed Project worked with landowners in the watershed to address concerns and numerous conservation practices were installed.

Best Management Practices that have been installed since the beginning of the project have greatly benefitted the lake and improved the water quality from the watershed and has shown improvements within the lake.

The City of Powers Lake has determined that restoring Powers Lake is a major priority. The city council has provided support and funding. The city invested into this project for the long term by purchasing its own dredge, trailer and pipe. They understand the lake will not improve overnight as it will take many years to accomplish its goal.

The importance of this project is also shown in the support from a neighboring landowner that has provided us his land for a disposal site, and as an equipment and dredge docking location. Having the support from landowners like this shows how important the restoration of Powers Lake is to the community.

Purpose of Grant:

The primary goal of the Powers Lake Watershed Project (PLWP) is to protect and restore recreational and aquatic life beneficial uses. The plan is to address the outstanding issue of in-lake nutrient cycling. The plan is also to continue to provide technical, financial, and educational assistance to landowners within the watershed for the implementation of BMP's.

The purpose of this grant will help the Powers Lake Watershed Project to continue to strive for its goal to restoring Powers Lake. The BMPs that have been installed in the watershed have been successful at addressing the nutrient load coming into Powers Lake. Dredging will address the nutrient cycling within Powers Lake. Excess nutrients are stored in the sediment and are released during wind/wave action and can result from reactions during anoxic and near anoxic conditions. Dredging will aid in the removal of excess nutrients in the lake, and will also deepen the lake which will reduce the effects of wind/wave action, lessening the release of bottom nutrients into the water column. The goal will be to remove at least 200,000 cubic yards of sediment over the next 10 years which will also remove approximately 3,592 pounds of phosphorous over the next 10 years.

The dredging will improve the fish and wildlife habitat and improve the fishery in Powers Lake. It can provide deeper areas of sufficient oxygen during long periods of ice cover which can lead to anoxia. This will improve the water quality within the lake by decreasing the amount of in-lake nutrient cycling.

With improved water quality entering Powers Lake and the removal of nutrients out of the lake there will be fewer algae outbreaks.

The sediment will be spread on land with BMPs installed which will provide a benefit for the farmers and ranchers. The positive effect of sediment added to the soil has already been shown in High School growing experiments with plants. Powers Lake is a public lake with 2 seasonal campgrounds and 1 year round campground. There is a park along the lake that has a picnic area, volleyball, basketball, tennis court, and playground equipment. With better water quality next to all these options it will be a great benefit to the community and the public. Powers Lake is accessible all year long for all recreational activities.

The watershed project currently has some funding from a 319 program to assist in covering some expenses. But with limited funding available we are looking for additional funding to help assist the project into accomplishing our goals to restoring the lake. With the assistance from the Outdoor Heritage Fund grant we will be able to stretch the 319 grant out from currently 2 years available to 4 years and will also provide funding for years beyond the 319 grant.

All BMP's implemented will adhere to USDA guidelines. BMP's include nutrient management, grass seeding, grazing systems, cover crops, tree plantings, etc.

Little research has been done to record the effects of selective dredging or dredging on shallow lakes (less than 20 feet deep). Also, few options are available outside of dredging for addressing nutrient cycling in shallow lakes. Water quality monitoring is a part of this project will attempt to quantify results so similar plans may be used by others across the state with few options. It is hoped that the information gained can be passed along to others trying to improve water quality in their lakes.

Management of Project:

The Powers Lake Watershed Project watershed coordinator under the supervision of the Powers Lake Watershed Management Committee will manage and oversee the project. The current coordinator and watershed committee is very familiar with working with grants. They have been working with the 319 Nonpoint source grants since 2004. Before working with 319 grants the current coordinator has worked with many Federal, State, and Non-Profit organization grants since 1997.

Evaluation:

How will you tell if the project is successful? Please be specific on the methods you will utilize to measure success. Note that regular reporting, final evaluation and expenditure reports will be required for every grant awarded.

Progress will be documented by cubic yards of sediment removed and sediment samples taken throughout the process to determine how many pounds of phosphorous removed from the lake. Lake sampling will be conducted to monitor and determine the effectiveness of the project. Stream sampling will also be done to monitor external loading that may still be happening within the watershed so those issues can be addressed.

Financial Information

X I certify that a project budget will be sent to the Commission*

Sustainability:

The Project will administer ongoing improvement through continued use of the dredge or another method, as outlined in the Feasibility Study or as new information is discovered, to move towards the full restoration of Powers Lake. There will be a determination of effectiveness of current practices and if changes are needed they will be addressed. The education previously provided to landowners has been successful in generating interest in BMPs and will continue as new information is available. Community support initiated in 2001 has been ongoing, including a voter approved city sales tax portion to support the project, and will continue to drive restoration efforts. The PLWP will continue as long as there is progress in the restoration, with new sources of funding always being sought.

Partial Funding:

The amount of funding that becomes available will determine the amount of sediment and excess nutrients that will be removed from Powers Lake.

The goal is to keep applying for grants and continue holding fundraisers to raise money. The more money that can be raised in the short term, the greater forward progress towards the removal of nutrients and sediment, and better water quality within Powers Lake. With less funding, the project will still move forward as money is raised, but at a much slower pace that could have setbacks with too much down time between sediment removal.

Partnership Recognition:

Besides signage around the site, the Outdoor Heritage Fund will be listed as a funding source through all activities pertaining to this project. These include news releases, demonstrations, news media, radio, brochures, social media, public presentations, and reports.

Powers Lake Watershed Project Outdoor Heritage Fund Budget

| Project Expense | OHF Request | Applicant's Match Share (Cash) | Applicant's Match Share (In-Kind) | Applicant's Match Share (Indirect) | Other Project Sponsor's Share | Total Each Project Expense |
|-------------------------------------|------------------|--------------------------------|-----------------------------------|------------------------------------|-------------------------------|----------------------------|
| Sediment removal costs (1) | \$200,000 | \$20,000 | \$20,000 | \$ | \$131,000 | \$371,000 |
| Salary (2) | \$ 20,000 | \$ 2,000 | \$10,000 | \$ | \$120,000 | \$152,000 |
| Youth Fishing Derby (3) | \$ | \$20,000 | \$20,000 | \$ | \$ | \$ 40,000 |
| Education and Information Costs (4) | \$ | \$ | \$ | \$ | \$ 8,500 | \$ 8,500 |
| Total Costs | \$220,000 | \$42,000 | \$50,000 | \$ | \$259,500 | \$571,500 |

- 1) Sediment removal costs include the dredging, disposal site sediment removal, and land spreading. The OHF dollars will be for the gas, oil, parts for those operations. Cash match will be funds raised for the project. In-Kind match will be from volunteers on assisting in various ways on the dredging operation. Volunteer time and use of personal equipment will be documented by hourly rates. Sponsor's Share is expenses and match documented under a current 319 Nonpoint Source grant. These numbers are operating numbers established by the company that we purchased the dredge from.

| Hourly Operating Costs | Unit | Unit Cost |
|-----------------------------------|------|------------|
| Fuel (12.3gal/hr @ \$3.50/gal) | HR | \$43.05 |
| Oil, Filters, Repairs Maintenance | HR | \$11.76 |
| | | |
| | Sum= | \$54.81/hr |

- 2) Salary will be for the coordinator that is the main operator of the dredge. The salary will only be included into the dredging operation. Cash match will come from funds that are raised. In-kind match will come from volunteers and operator for the time that is donated into the dredging operation. Sponsor's Share is expenses and match documented under a current 319 Nonpoint Source grant.
- 3) The goal is to have a Youth fishing derby every spring for children 17 & under. Cash match will come from money donated for registration gift, food, trophies and prizes. In-kind will be documented time from volunteers preparing for the fish derby to assisting during the derby and value of donated items for the fishing derby. Plan on raising enough funds every year for a child to get a prize.
- 4) Education and Information: Will be covered by the 319 Nonpoint Source grant and City of Powers Lake for education, information, mileage, education in school, and etc.