Environment and Natural Resources Trust Fund
2019 Request for Proposals (RFP)

Project Title: **ENRTF ID: 243-FH**

City of Staples Street Sweeper Mitigate Wetlands Contamination

Category: H. Proposals seeking $200,000 or less in funding

Sub-Category: F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat

Total Project Budget: $ 191,775

Proposed Project Time Period for the Funding Requested: June 30, 2021 (2 yrs)

Summary:

Road salt is proven to harm natural resources. The City of Staples proposes to greatly lessen salt impact with an enhanced Street Sweeper that reduces chemicals left on streets.

Name: Doug Bendorf

Sponsoring Organization: City of Staples

Title: Public Works Director

Department:

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Staples MN 56479

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Web Address http://staples.govoffice.com/

Location

Region: Central

County Name: Todd, Wadena

City / Township: Staples

Alternate Text for Visual:

The City of Staples is located in the Crow Wing Watershed in central Minnesota.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____%
____ If under $200,000, waive presentation?			

PROJECT TITLE: City of Staples Street Sweeper to Mitigate Wetland Contamination

I. PROJECT STATEMENT

The City of Staples is concerned with the environmental impacts of road salt run off into the wetlands. To reduce the amount of salt migrating to the wetlands the ratio of salt to sand was reduced and the application of the salt and sand mix is targeted to specific traffic areas. To reduce the impact even further the City needs an enhanced Street Sweeper. The enhanced Street Sweeper operates using bio-diesel and a dry dust control system which allows for operation in freezing weather conditions and reduces road silt left as a film from waterbased dust control sweepers. The Minnesota Pollution Control Agency states that salt applied to roads, parking lots, and sidewalks during the winter contains chloride which becomes a water pollutant when it runs off the roads. It only takes one teaspoon of road salt to permanently pollute five gallons of water. The City of Staples uses an average of 207 tons of road salt during winter. This allows for an excessive amount of chloride and other contaminants to enter our wetlands.

The City epicenter is less than 3 miles from the Crow Wing River. Hayden Creek & Hayden Lake are just on the outskirts of the town to the east and flow directly into the Crow Wing River. Storm water is directed to County and Judicial Ditches which flow into the Hayden Creek wetland. Hayden Lake historically has had wild rice present in the basin but according to a survey conducted by MNDNR in August of 2011 the lake was void of wild rice & had algae suspended in the water column and forming a film on top of the lake. Usually, this is indicative of the blue-green algae bloom. Additional street cleaning could lessen the cities impacts to the immediate watershed.

Staples is in the Crow Wing River Watershed district. The United States Geological Survey classifies Staples as a surficial outwash area which indicates a shallow water table at less than 10 feet and unconfined. The run off from the surrounding creeks flows to the Crow Wing River which flows to the Mississippi. The Crow Wing River area is conducive to wild life and wild rice production. Wild Rice is an annual grass that persists on shallow marshes/ wetlands. Its distribution & density can be highly vulnerable to anthropogenic influences on the land and chemical influxes into the watershed. Many species of wildlife depend heavily on wild rice as a food source, predator cover & nesting materials. Many waterfowl species use wild rice for all of these reasons, but also rely heavily on it to stock up on nutrients for the fall migration. Seventeen other species of greatest conservation need also use wild rice habitats for reproduction or foraging according to the MN DNR Natural Wild Rice in Minnesota – Report to the Legislature in 2008. These shallow marshes, wetlands, & riverine systems in the transition zone between the northern boreal forest & central hardwood forests support a wide variety of wildlife including turtles (MN threatened Banding's turtle), salamanders, otters, muskrats, beavers, mink, & raccoons. Predators like bobcats, fox's, and black bears also rely on these habitats as a food & water source. Eagles & osprey are also seen commonly fishing from the river.

A study by the University of Minnesota found that about 70% of salt applied for winter maintenance is either transported to groundwater or remains in the local lakes and wetlands. It has been proven that high amounts of chloride are toxic to fish, aquatic bugs, and amphibians. Pets can also be harmed by consuming road salt or even walking on it and certain birds have an increased risk of death due to ingesting deicing salt. In addition, an experiment was conducted at Lake George, referred to as The Jefferson Project at Lake George, in which they created 60 miniature wetlands and added varying amounts of road salt. They found the number of snails increased as the salt concentration increased which increased the nutrients that cause algal blooms.

The Grand River Inter-County Drainage Board in Michigan in association with Pacific Water Resources, Inc. published a report in August 2001 that quantifies the impact of catch basin and street sweeping on storm water quality. In the area measured sediment accumulation rates ranged from 136 to 474 pounds per curb mile with an average of 225 pounds per curb mile per month. Arsenic, barium, cadmium, chromium, copper, lead and zinc were all found present in the collected street dirt samples. The executive summary indicates sweeping with a high efficiency sweeper every 14-30 days will reduce the annual washoff of total suspended solids, chemical oxygen demand and chemicals by 66 to 87 percent annually. During the summer months the City of Staples sweeps the streets once a week and three weeks each in the spring and fall.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Measure amount of road debris removed during the sweeping season in 2018.
Activity 2: Test type of chemicals randomly in selected sample during the spring and fall.
Activity 3: Purchase street sweeper before March 1, 2019 and begin sweeping to remove winter salt and other chemical from streets before run off into adjacent wetlands.
Activity 4: Measure amount of road debris removed during future sweeping seasons.
Activity 5: Test type of chemicals in randomly selected sample during the spring and fall.

ENRTF BUDGET: $191,775

Outcome	Completion Date
1. Tons of road debris removed with current process	*11/30/2018*
2. Determine type and amount of chemicals before new process	*11/30/2018*
3. Purchase bio-diesel and waterless street sweeper	*03/01/2019*
4. Tons of road debris removed with new sweeper	*11/30/2019*
5. Determine type and amount of chemicals after new sweeper	*11/30/2019*

III. PROJECT PARTNERS: There are no project partners required for this grant.

IV. LONG-TERM- IMPLEMENTATION AND FUNDING:
The annual operating and maintenance costs for this project will continue to be funded by the City of Staples. This piece of equipment is anticipated to last for ten years. If a reduction of 66% of salt is achieved, over the ten year period a minimum of 1,366 tons of salt will be removed from roadways and reduce impact the adjacent wetlands.

V. TIME LINE REQUIREMENTS:
The optimal time to begin the new street sweeping is in the spring, but the benefits would begin the next year if purchased in the fall and last for at least ten years into the future.

VI. SEE ADDITIONAL PROPOSAL COMPONENTS:

A. Proposal Budget Spreadsheet
B. Visual Component or Map
F. Project Manager Qualifications and Organization Description
G. Letter or Resolution

2019 Proposal Budget Spreadsheet

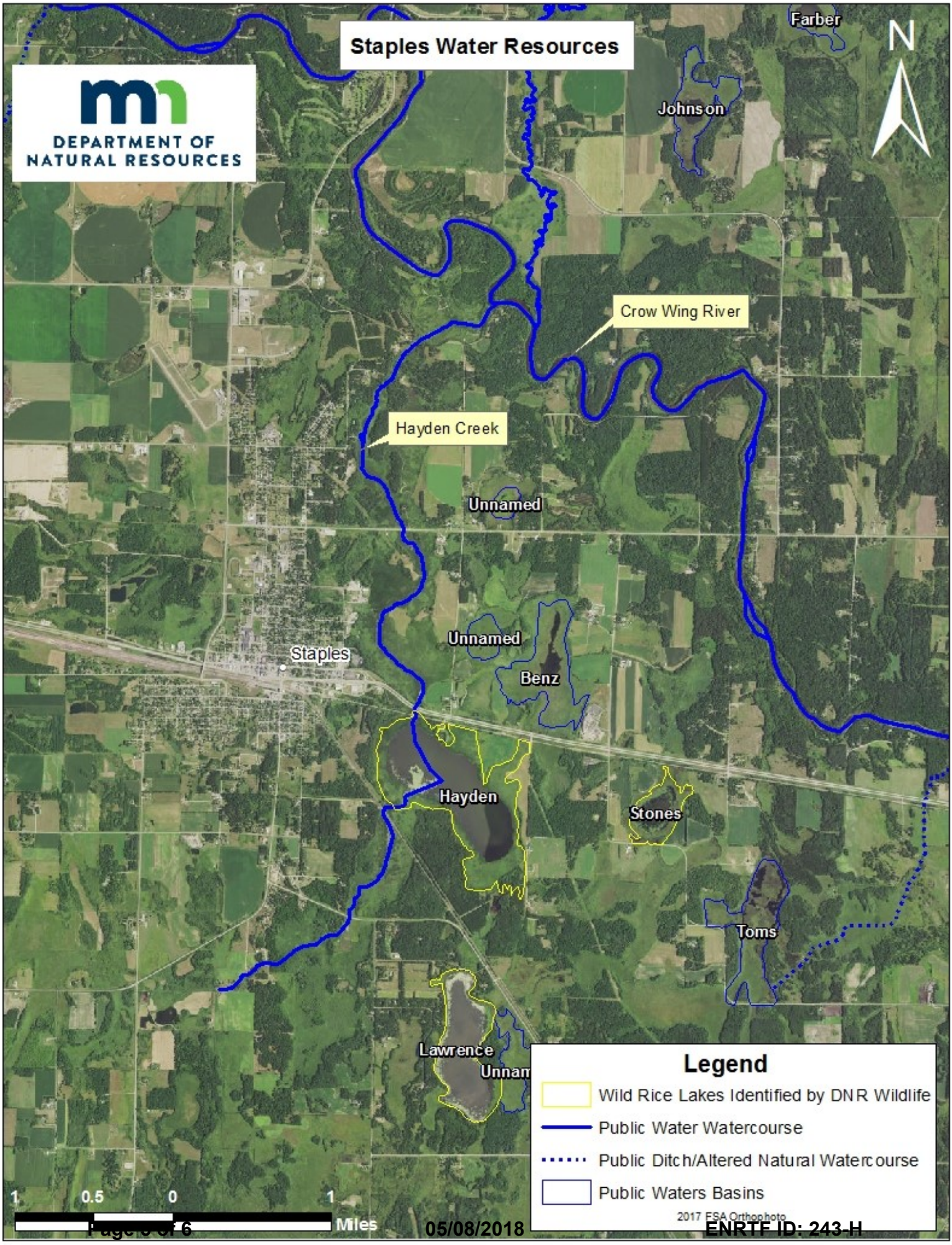
Project Title: City of Staples Street Sweeper to mitigate wetland contamination

IV. TOTAL ENRTF REQUEST BUDGET *1* **year**

BUDGET ITEM (See "Guidance on Allowable Expenses")	**AMOUNT**
Personnel: Measuring amount of road debris and taking samples	$ 775
Professional/Technical/Service Contracts: Chemical Testing services	$ 1,000
Equipment/Tools/Supplies:	$ 190,000
Acquisition (Fee Title or Permanent Easements):	$ -
Travel:	$ -
Additional Budget Items:	$ -
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 191,775

V. OTHER FUNDS *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

SOURCE OF FUNDS	**AMOUNT**	**Status**
Other Non-State $ To Be Applied To Project During Project Period: remaining cost of sweeper	$ 35,000	
Other State $ To Be Applied To Project During Project Period:	N/A	
In-kind Services To Be Applied To Project During Project Period: Additional cost of measurement and testing	$ 2,550	
Past and Current ENRTF Appropriation:	N/A	
Other Funding History:	N/A	


Staples Water Resources
DEPARTMENT OF NATURAL RESOURCES
N
Farber
Johnson
Crow Wing River
Hayden Creek
Unnamed
Unnamed
Staples
Benz
Hayden
Stones
Toms
Lawrence
Unnam
Legend
Wild Rice Lakes Identified by DNR Wildlife
Public Water Watercourse
Public Ditch/Altered Natural Watercourse
Public Waters Basins
2017 FSA Orthophoto
1 0.5 0 1
Miles

CITY OF STAPLES – STREET SWEEPER TO MITIGATE WETLAND CONTAMINATION

PROJECT MANAGER QUALIFICATIONS

Mr. Doug Bendorf has worked at the City of Staples since June 2010 as the Public Works Director. His prior experience includes 25 years with the Owatonna Public utilities operation. His responsibilities include planning, organizing, directing and coordinating the operation of the streets, electric distribution system, the wastewater treatment facilities, collection and disposal systems, water production and distribution systems and all public work buildings. He is experienced in managing budgets and projects for on time and under budget delivery.

CITY OF STAPLES

The City is located in both Todd and Wadena Counties in the heart of Minnesota, the city of Staples is home to an always-growing business district, an active arts community and the picturesque Crow Wing River. With nationally-recognized schools including Staples Motley Schools and Central Lakes College, and award-winning healthcare.

As of the census of 2010, there were 2,981 people. The estimated median household income in 2016 was $39,648. The City has a total area of 4.68 miles. There is an Amtrak station along the Empire Builder route connecting from Chicago to Portland. The City also has a municipal airport.